Notes for PAC Hearing at Corrimal, 30 October 2014

Re Wollongong Coal Plan, Russell Vale Colliery, Longwall 6 (Mod. 2)

**Introduction: why this campaign ?**

Several groups and individuals are strongly objecting to a plan to mine half a longwall, only around 350m from one arm of the Cataract Reservoir, in the Metropolitan Special Area of Sydney’s drinking water catchment. It is an urgent grab for cash, as the company had a $500 million loss in the last quarter. If successful it will proceed to get approval for adjacent longwall panels even closer to the reservoir, as part of its Underground Expansion Project. The Department of Planning and Environment (DoPE) approve of all this.

In this case we’re looking at incremental mine damage to the most significant catchment in Australia, still capable of providing “some of the highest quality drinking water in the world”[[1]](#footnote-1) for 4.5 million residents of Greater Sydney,[[2]](#footnote-2) a city expanding at an approximate rate of 40,000 a year; 60% of NSW’s population at present and tipped to grow to 80% - eight million -by 2050.[[3]](#footnote-3)

With ever-increasing pressure on the water supply, and global warming and drought on the horizon, prudent management of the catchment ought to be a no-brainer.

 But the catchment is already ravaged by coal mining, losing many megalitres per day from flow diversions caused by mining, with water increasingly polluted. I will leave it to others who at the PAC hearing this week will give carefully researched details of the surprising amount of water loss and the decline in water quality caused by coal mining: the cracking of streams, desiccation of swamps, diversion of groundwater flow, rock falls, methane emissions, toxic chemicals leaching into the water from fractured Hawkesbury sandstone, damage and disturbance to ecological communities and to previously pristine bushland, and so on.[[4]](#footnote-4) This paper is limited to a political analysis of sorts, though with a few comments on aspects like dam collapse and seismicity which tend to be off the radar.

The NSW Chief Scientist stated in her interim report last year that there are no “international examples of longwall mining operating in publicly owned drinking water catchments.”

 Rivers SOS has hosted three delegations of Chinese water and mining scientists in recent years and all have been shocked at the extent of mine damage in our Special Areas. The last delegation, from Hainan Province, showed us an English translation of their environmental law which forbids mining in the equivalent of our Special Areas.[[5]](#footnote-5) So if China and apparently all other developing and developed nations ban mining in drinking water catchments, clearly we are the most foolish nation on earth: foolish leaders in a government monstered by the mining industry.

 We as a society don’t seem capable of stopping mine expansions that are out of control in our catchment, expanding faster than ever in the 2000s.



Even worse, it’s now likely that coal seam gas (CSG) extraction will be approved. Exploration gaswells have been on hold until the NSW Chief Scientist’s report on CSG was released, a few weeks ago. Unfortunately she has given the green light to CSG, and Apex-Ormil hopes to establish a gasfield of up to 200 gaswells over the catchment in the long run. The NSW Government’s response to her report (13.11.14) avoids any commitment to banning CSG extraction in the all-important Special Areas of Sydney’s drinking water catchment and so conflict over CSG will surely escalate.

But at present it’s only coal mining companies causing water loss, damage and pollution, and so the following comments focus on coal.

 As things stand, after campaigning for decades environmental and community groups have not succeeded in calling a halt to mining in the catchment; not even in the Special Areas (see map on this page) - the supposedly highly protected inner sanctums of Sydney’s catchment.

**The Special Areas**

It would be hard to stop mine damage in the whole catchment, with the outer catchment stretching from Braidwood round Lithgow to Woronora, and largely privately owned, but it surely can’t be beyond us to stop mining and coal seam gas extraction in the three major Special Areas.

 The Metropolitan, Warragamba and Woronora Special Areas are only 0.7% of NSW’s land mass; and 97% government owned: surely it’s possible to halt damaging mining and coal seam gas extraction here. This is no plea on behalf of sectional interests, no NIMBY complaint – contamination and depletion of the water supply affects the majority of NSW’s residents, and future generations.

 As well as the threat to water quantity and quality, potential dam failure and collapse induced by mining would be a catastrophe.

These Special Areas, set aside from the 1880s thanks to the wisdom of our elders, surround the confluences where rivers at the end of their journey flow into the six major water storage dams or reservoirs[[6]](#footnote-6), the six reservoirs which at present - since the Sydney Desalination Plant is mothballed until dam levels drop - provide Greater Sydney with 100% of our high quality water.[[7]](#footnote-7)

The four southern reservoirs – Cataract, Avon, Cordeaux and Nepean – send water up to Prospect treatment plant for distribution via a structure of canals and tunnels called the Upper Canal, already damaged by mining (I witnessed the collapse of a stretch of the Upper Canal behind Appin in 2008, which I understand was related to longwall mining nearby). The Avon Reservoir also sends water to the southern Illawarra area.

These four reservoirs supply 20% of Sydney’s water. The much larger Warragamba Reservoir supplies 80%, also via Prospect. A smaller Woronora Reservoir supplies Sutherland Shire and part of northern Illawarra.

Surrounding these vital reservoirs are the Special Areas, kept clean and untouched, to act as natural filtration systems.

In contrast, cleared land erodes in rainfall events, quickly sending nutrients, bugs and topsoil into waterways. Natural bushland holds and filters rainfall and that’s why the Special Areas must remain intact.

They are gated and padlocked and you or I can be fined up to $44000 if we set foot inside. They are patrolled by Catchment Protection Officers (still called rangers by most, though no longer carrying guns as before), and occasionally by helicopters, and CCTV cameras monitor illegal intruders.

As the Sydney Catchment Authority says, the Special Areas are a vital part of their multi-barrier approach to providing clean raw water to Sydney Water Corporation for treatment and distribution. Sydney Water claims that the best way to ensure clean water is to have a clean catchment. The reverse osmosis treatment plants and chlorination cannot remove all the bugs at all times.[[8]](#footnote-8)

Yet underground longwall mining continues to be approved, year after year wreaking slow cumulative havoc on our water quality and quantity, draining major swamps, polluting rivers and diverting flow away from the reservoirs.

 Three large mining companies operate in two Special Areas at present: the American owned Peabody Energy is mining in the Woronora Special Area from its Metropolitan Colliery, BHP Billiton is mining in the Metropolitan Special Area from its Dendrobium Colliery, and the Indian owned company Wollongong Coal, formerly called Gujarat NRE, is also mining in the Metropolitan Special Area.

How can this be, if mining is known to be causing water loss and pollution, and threatens the very structure of the dams themselves ?

 It’s through a combination of corruption, the temptation of royalties and profits from high quality coking coal, cover-ups and public ignorance.

**Corruption: the Elephant in the House**

The Chair of ASIC, in a moment of candour, told a recent meeting that “Australia is a paradise for white collar crime.”[[9]](#footnote-9)Though qualifying this after a tetchy phone call from the Minister for Finance Mathias Cormann, no doubt he was sincere. How could he not be, given recent revelations ?

 The unveiling of appalling levels of corruption at the ICAC hearings of 2012-13 centred on booming industries like mining and water, displaying evidence of just how corruptible our politicians, businessmen and officials can be. Many believe the ICAC revelations are only the tip of the iceberg.

 When ICAC Commissioner David Ipp retired this year he commented on the difficulty ICAC had in following the complex leads, saying that there are many threads left to pursue in the spiderweb of corrupt conduct “but we didn’t have the resources.”He added that the level of corruption in our political system has changed dramatically, and the continuing revelations “are of a nature that now give me serious doubt as to what I regarded were the limits of corruption.”[[10]](#footnote-10)

The mining industry knows no limits, having had a role in overthrowing two Prime Ministers, a Premier and many lesser officials who challenge its interests. In spite of such success, the CEO of Peabody Energy, from his desk in St Louis, is still calling on the industry to raise yet more money to fight opposition like ours.

As we now know, the prime culprit in the ICAC sagas, Eddie Obeid, ALP’s Minister for Mineral Resources for four years, personally approved twenty-seven mining leases or exploration licences “while another twenty-three were likely to have been approved under delegation (the department’s files on eleven approvals are missing).”[[11]](#footnote-11)

Other Ministers linked to mining, such as Ian McDonald and Tony Kelly, were part of the web of corruption. The bottle of Grange that led to Premier O’Farrell’s resignation was a gift from an Obeid associate. So far the name-and-shame doesn’t extend to government agencies, but it well may do so eventually, even though whistleblowers are sacked and investigative journalists get death threats. Missing files ? this is just one pointer in the direction of the bureaucrats.

Unfortunately there’s been a dearth of whistleblowers in the so-called public service. As veteran political journalist Laurie Oakes remarked, it’s increasingly difficult to get information from the bureaucracy: “frighteners have been put on the bureaucrats by their bosses.”[[12]](#footnote-12) Budget cuts mean that jobs are now less secure than ever, but that’s not the whole story. There is direct pressure from senior managers and from the government to give open slather to mining.

**Within the Planning Assessment Commission**

My own focus for the last six years has been on the selection process for experts appointed to the so-called “independent” Planning Assessment Commission (PAC) panels, set up in 2008 with the task of advising the government on controversial mine plans. (Controversy is defined as any mine proposal for which the government has received over 25 submissions).

These panels of experts examine submissions and hold public hearings before releasing their “determinations.” PAC advice has always been accepted, so far.

The creation of the PAC was a way of distancing the government from increasingly unpopular decision-making processes, giving the impression that decisions would be based on scientific evidence by unaligned, non-partisan mining and water experts. But in my view the Ministers involved, and senior bureaucrats given the task of choosing these experts, do their best to make sure the experts are compliant and will approve most if not all mine plans set before them, often over the objections of experts from agencies with relevant experience like the Sydney Catchment Authority. The guiding philosophy seems to be market driven: “whatever it takes.”

 A handful, sometimes only two, experts are appointed to advise on the various plans which come up. Many of the experts temporarily employed by the PAC on various panels are consultants dependent on the mining industry for ongoing employment. Some are prominent members of institutions associated with and funded by the mining industry. Others are retired public servants and politicians with little relevant experience at best. For example, what qualifies former Premier Kerry Chikarovski to preside over a panel deciding on a mine plan and the fate of the Central Coast’s water supply ?

 A list of truly independent mining and/or water experts handed by me to three Ministers for Planning over the years has been studiously ignored, yet we are given the lie that it is too hard to find experts who are not employed by the mining industry: this nonsense is further evidence of bias. Not only are distinguished mining/water academics and retirees available in NSW; experts can also be brought in from interstate and overseas.

 Bureaucrats in the Planning Department, conferring with relevant Ministers, select these panels. Ministers come and go, so the senior bureaucrats are no doubt relied on to produce lists of suitable names in an arcane specialty which politicians know little about. The selection process is secret.

In one case, where expansion of Peabody Energy’s longwall mining in the Woronora Special Area was approved by a PAC panel in 2009, in spite of damage already evident in the Waratah Rivulet, one of the panel members was actually working for Peabody as a consultant at the time, at Peabody’s Wambo mine in the Hunter. He had previously worked for Peabody’s Wilpinjong Mine near Mudgee. He later wrote, after we complained, that the Planning Department was actually his employer, not Peabody. [[13]](#footnote-13) But since when has the Planning Department employed consultants for the mining industry ?

Complaints to ICAC and the NSW Ombudsman over this case went nowhere.

 PAC’s Code of Conduct obliges members to state conflicts of interest, detailing these in a book available to the public at the PAC office in Sydney, but a conflict of interest does not prevent them from participating in decisions. In other areas such as tribunals and similar institutions, those declaring a conflict of interest are obliged to absent themselves from a decision-making process, but not here. Why ?

Another of the four PAC panel members in this 2009 Peabody approval had edited a book entitled *Tall Green Tales,* to explode the “myths” put around by “greenies,” while yet another ran his own mining consultancy. This was Professor Jim Galvin, who is the sole expert in this current PAC panel. Approval was a shoo-in, though some conditions were imposed to ameliorate damage slightly.

 I was involved in a case to overturn this approval in the Land and Environment Court in 2010, run by Rivers SOS with the help of the Environment Defenders’ Office (EDO). We lost. Damage to the Woronora Special Area, its waterways and swamps, continues apace from Peabody’s Metropolitan Colliery. As Peabody’s CEO says: “Coal always wins.”[[14]](#footnote-14)

 Complaints against the Planning Department from around NSW, showing consistent bias if not outright corruption, have been documented by Lock the Gate in a lengthy Log of Claims now before the Ombudsman.

**Money: High Quality Coking Coal**

The mining industry and their allies in the Department of Planning like to remind us that mining has been going on in the Sydney catchment since the 1850s, implying that therefore mining should be allowed to continue. But throughout most of the period this was bord and pillar mining, boutique pit pony and canary affairs, causing minimal subsidence and surface damage, nothing like the huge devastating longwall mining technology of today with its giant billion dollar machines. Longwall mining was only adopted in the Southern Coalfield from the 70s, and the longwall panels themselves didn’t become excessively wide, causing ever more damage[[15]](#footnote-15), until after 2000; since then they have been causing the maximum possible subsidence and strata cracking, as we’ve been witnessing year after year ever since.

We may never know whether money has been handed to influential officials in the proverbial brown paper bags, or via avenues such as appointments to boards, overseas travel, etc. But we do know that the NSW Government always needs more funds, and that the royalties from mining are important though dwindling.

Both the government and the three mining companies in the Special Areas have extra motivations because the coal mined here is more valuable than coal elsewhere in NSW.

The Southern Coalfield lies underneath the catchment and its Special Areas. This coalfield is the only one in NSW producing metallurgical coal, known as coking coal or met coal, absolutely necessary for steel production. 20% of the output is used at the Bluescope steel works at Port Kembla. 80% is exported, mostly to China and India.

Coal prices for thermal coal, mainly used for burning in power stations, have fallen as growth in China and India slowed. Coking coal from the Special Areas has also fallen in value, yet is still more profitable, though at present there is a worldwide glut. However steel is always needed. The companies will fight all the harder to keep operations here going.[[16]](#footnote-16)

But time is not on their side.

Experiments are being carried out, for example in the Netherlands, with the aim of steel production using cheaper thermal coal not coking coal, or even carbon-free steel production as being trialled for commercial viability at M.I.T.[[17]](#footnote-17)

 There is an additional problem in that the mining companies may have longterm contracts. For example, BHP Billiton’s subsidiary Illawarra Coal signed a 30-year contract in 2002 to supply 4 million tonnes of coking coal per annum to the BlueScope steelworks at Port Kembla.[[18]](#footnote-18)In the unlikely event that government calls a halt to mining the taxpayers may be legally responsible for paying out any such contracts.

Coking coal is also mined in Queensland. On 13 October 2014 joint owners BHP Billiton and Mitsubishi Corp. opened the Caval Ridge coking coal mine in Queensland, which can produce 5.5 million tonnes per annum.[[19]](#footnote-19) This is the eighth mine in BHP B’s coking coal business in Queensland.[[20]](#footnote-20) A setback has been the recent Chinese imposition of a tariff of 3% on its coking coal imports (6% on thermal coal – the difference is proof of the enhanced need for coking coal for steel making). The price of coking coal fell by 20% last year and BHP B sacked 700 workers, but now has employed 500 for the new Caval Ridge Mine. BHP Billiton hopes to lift its output of coking coal by 4% to 47 million tonnes in 2015[[21]](#footnote-21).

So the opening of Caval Ridge Mine means an enhanced ability to source coking coal from outside the Southern Coalfield. This is fine for BHP Billiton but its competitors in the Special Areas, Peabody and Wollongong Coal, will have added impetus to continue operations.

Wollongong Coal, the subject of this PAC hearing, is a subsidiary of the big Indian multinational Jindal Steel and Power, which only recently bought the controlling interest from the failed Indian company Gujarat NRE. Jindal has mining interests in around a dozen other countries, and owns 100% of six coal exploration projects in Queensland, where it hopes to find coking coal deposits. Wollongong Coal however incurred a loss from November, when Jindal took over, to March 2014.[[22]](#footnote-22) If Jindal is successful in finding new sources of coking coal in Queensland it may well decide to shut down its Wollongong Coal subsidiary and move north.

 Halting mine expansions would not deprive the government of huge amounts. Royalties from coal have been estimated at approximately $43 million from the Southern Coalfield as a whole. So royalties from the Special Areas are not large, and other mines contribute which operate in the Southern Coalfield outside the Special Areas; e.g. Tahmoor, West Cliff, Appin and Berrima Collieries.

The only negative aspect of refusing this mine plan is the loss of jobs for 250 workers at the Russell Vale Colliery. Employment in the three mines in the Southern Coalfield’s Special Areas is around 1200.[[23]](#footnote-23) Any loss of jobs obviously affects revenue and causes political backlash as well as tragedy for the individual mining families.

Meanwhile BHP Billiton has recorded a 10% growth in overall profit of $US13.4 billion in fiscal 2014,[[24]](#footnote-24) while its new CEO Andrew Mackenzie is set to earn $13 million p.a. by 2015.[[25]](#footnote-25)

Peabody Energy complains that its 2013 profit is down to “only” $US287.7 million compared with $US757.4 million a year earlier.[[26]](#footnote-26)

**Money: the privatisation honey-pot**

Perhaps the current glut of coking coal is just a temporary glitch, as the companies would hope. The mines in the Southern Coalfield may continue to be a honey-pot for years to come.

 Another honey-pot is looming large: the privatisation of the water supply system. If this happens the alliance between mining and water interests will be complete. Both interests welcome the wrecking of the catchment, because Sydneysiders will then be forced to utilise more water from the currently mothballed Sydney Desalination Plant(SDP) at Kurnell, and the more that this increases the less care will be taken of Special Areas. The SDP will be expanded, though at present it can only supply 15% of Sydney’s needs, and once this happens the protection of the catchment loses whatever remaining importance it still has.

The SDP is already privatised, by the Coalition’s incoming O’Farrell government, and it costs $1 million a month to maintain, without supplying any water until the reservoirs are less than 70% full. (They are over 90% full at present).

 The owners do not fret if the plant is mothballed, as even so they are guaranteed payment of “availability charges” from Sydney Water at a rate of $591 million p.a. This consortium, part Canadian pension funds and part Australian funds, has a formal 50 year lease after which outright ownership is transferred to them at no cost.[[27]](#footnote-27)The lease was sold for $2.3 billion, with the O’Farrell government netting only $300 million after paying the debt on the plant. The nicest thing about the whole deal is that the plant is 100% powered by renewables, by the Capital Wind Farm at Bungendore, NSW.

 When it is operating it can supply up to 90 gigalitres of Sydney Water’s annual needs, affecting SCA’s bottom line.

The Independent Pricing and Regulatory Tribunal (IPART), which sets prices, may give adequate pricing compensation to the SCA when the SDP is finally operating. Or not. In the brief two-year period of the SDP’s operations, SCA’s sales to Sydney Water were down to 85% of previous levels.[[28]](#footnote-28) The supplier of cheaper naturally sourced water was losing out to the supplier of expensive desalinated water.

 An economist from ANU estimated that desalinated water use will cost the average household an extra $700 a year.[[29]](#footnote-29) Recycled water is also expensive to produce. So shouldn’t we fight to maintain our excellent natural water resources ?

The sharks of privatisation are circling. Four water treatment plants are operated by private water multinationals already, and work for the Sydney Water Corporation is increasingly outsourced, as in the corrupt case of Australian Water Holdings, which managed to bill the state-owned Sydney Water millions of dollars in directors’ fees and lavish expenditure, supposedly linked to water infrastructure construction in north-west Sydney. The AWH’s principals, including Eddie Obeid, then carried out a fraudulent smear campaign against Sydney Water’s CEO Dr Kerry Schott when she blew the whistle.

 Had AWH been successful in privatising yet more of Sydney Water, as was the aim, the owners stood to make millions. Eddie Obeid and Liberal party fundraiser Nick de Girolamo tried “to push the government into a partial privatisation of Sydney Water that would have reaped a windfall worth $100 million.”[[30]](#footnote-30) Though this grab was foiled, future privatisation attempts are on the cards. Running down water supplies from the catchment will be a help. This is already taking place due to mining operations but the extraction of water if CSG goes ahead in the Special Areas will be even more serious.

Maude Barlow, Canadian author, water activist and water adviser to the U.N, writes of the big global water companies like Veolia and Suez that they are corporatizing the world’s water to ill effect, with a legacy of “corruption, sky-high water rates, cutoffs of water to millions, reduced water quality, nepotism, pollution, worker layoffs and broken promises.”[[31]](#footnote-31)

Veolia is now managing the SDP for a large fee, and Suez built the Melbourne desal plant in 2012. The two French companies together own around 50% of the world’s privatised water industry. Veolia narrowly missed out on the contract to build the Adelaide desal plant.

 Since water services were privatised in France, fees have increased by 150%. In the UK, fees jumped 106% while profits for privatising companies rose 692%. In India, some households must pay 25% of their incomes on water.[[32]](#footnote-32)

Privatisation in the UK caused thousands of job losses. Between 1991-2, 21,286 households were cut off through inability to pay the increased fees.[[33]](#footnote-33) A UK increase in water-borne diseases had a parallel in Sydney’s water scare, after Sydney Water had been corporatised.

In Adelaide, water costs rose more than 400% since 2007, largely due to the cost of the desal plant, opened in 2008.[[34]](#footnote-34) By 2010, there were allegations of cover-ups, safety breaches and chronic delays. [[35]](#footnote-35)South Australia Water’s profits were up to $317 million in 2012, largely through charging for the plant. Maintenance costs around $30 million p.a. even when the plant is mothballed. Shutting down only cuts costs by $10 million so this makes only a marginal difference to fees.[[36]](#footnote-36)

In 2012 Liberal MP Rob Lucas took issue with extra payments of $45 million made to the operators, AdAqua, through changes made to its construction contract, calling this a “cosy deal” between the consortium and S.A. Water.

These privatised desal plants are already showing some of the symptoms described by Barlow after only a couple of years in existence.

 Barlow adds that even honest companies cannot practice desperately needed water conservation and protection of natural sources. “**In fact, to stay competitive, water companies are relying on deteriorating water quality around the world.”[[37]](#footnote-37)**

 Is this a major reason for lack of action to protect the catchment and its Special Areas ? Wouldn’t a water supply system that is more dependent on desalination and/or expensive recycled water be more profitable to those in the privatisation game than the preservation of the publicly owned natural water supply that Sydney is blessed with at present ?

**Cover-ups and Public Ignorance**

Experience tells us that most Sydneysiders don’t know much, if anything, about their water supply. Most have no idea where or what the Special Areas are (no public access anyway) and know nothing of mine damage or of catchment management.

One environmental scientist who worked in the catchment for five years wrote that much of the scientific information on longwall mining is “available only in unpublished and “commercial-in-confidence” reports – to be made available in a form that can be used to support decision-making.”[[38]](#footnote-38)

 A report for Sinclair Knight Mertz in 2007 noted that though the scope of monitoring has increased since 2000 “little of these results has reached the public domain, though fragments have been published in conference proceedings[[39]](#footnote-39)” – conferences which are made far too expensive for the public to attend as I know very well. Who can afford over $300 for a conference without institutional support ? In one instance I got support from Margaret McDonald-Hill, well known to the mining industry as she has often been employed to facilitate Community Consultative Committees. She asked conference organisers to make a special community rate for people like me, but this request was turned down. A former conference which I did manage to attend at Wollongong University had quite a small attendance of around 50 people so it’s not a question of high demand for seats. Which makes you wonder, what are they hiding exactly ?

The only technical guide to be found when I first got involved, which dealt with matters like subsidence in the Southern Coalfield, was a study published by the Department of Mineral Resources back in 2000.[[40]](#footnote-40) In spite of having a foreword by the then Minister Eddie Obeid, it was useful though highly technical, so not an easy read for any but the most obsessed lay people such as myself.

 There was nothing else easily available to inform the public about mine subsidence and other impacts. Therefore I wrote to relevant University faculties around Sydney in 2004-5 asking for help in accessing any such information. I had no help at all, mostly no replies though one from Sydney University criticised my punctuation, while another from Wollongong University fobbed me off politely, his letterhead read: “BHP Chair of Environmental Sciences.”

In 2008 however we hit some kind of jackpot with the first accessible study, the 150-page report on mining in the Southern Coalfield,[[41]](#footnote-41) known as the Southern Coalfield Inquiry (SCI).

You may well ask how a thorough inquiry like this could have eventuated. It was only due to a faustian bargain made by the Labor Party in order to entice respected local Mayor, farmer and former Principal of Picton High School, Phil Costa, to join the ALP to stand for the upcoming State election in the new seat of Wollondilly: a case of someone parachuted into the seat by head office. Phil Costa was very aware of the mining issues, and had supported the Nepean Action Group’s events to oppose mining on rivers in the area, hence this was a deal he was able to insist on.

 The publication of this report went some way towards lifting the veil of ignorance. Rivers SOS welcomed this but our criticism, contained in our formal response[[42]](#footnote-42), concerned the fact that three of the five experts on the inquiry’s panel had employment of various kinds with the mining industry and that the terms of reference did not contain any adequate analysis of mining threats to the water storage dams or even to the Special Areas per se. Its terms of reference had been confined to looking at impacts on “natural features” not manmade reservoirs and dams.

 In fact the report, wrongly as it turned out, stated in passing that there was no evidence that subsidence impacts had resulted in “any measurable reduction in runoff to the water supply system” although “this does not discount the possibility that a reduction in runoff may be realised under certain conditions, including downwards leakage to mining operations …”[[43]](#footnote-43)

The authors conceded that “the ecological integrity of the Special Areas is … important in in their role of protecting water quality”[[44]](#footnote-44) but this admission failed to lead to any recommendation for a halt to extractive industries. Elsewhere in the report was a brief acknowledgement that “sustained leakage losses into a mine” had “occurred in the Southern Coalfield on isolated occasions” but there was no attempt to enlighten us further.[[45]](#footnote-45)

Obviously the kinds of mining threats that needed and still need consideration would include the possible collapse of the concrete dam walls, and a loss of water from the reservoirs, where mines go underneath or too close. Seismicity also rates more detailed analysis.

 To sum up, mining information has been hard to obtain and though this may be for tactical/political reasons at one level, on another level the problem is that there is simply not enough definitive research, baseline studies or reliable predictions. The SCI noted the many “knowledge gaps” and this is echoed in the Chief Scientist’s reports.

However in the last decade or so agencies like the Sydney Catchment Authority, the National Water Commission, the NSW Office of Water and the Environmental Protection Authority have increased their levels of research and experience as mine damage and the CSG threat have emerged. The Environmental Defenders’ Office helps community groups in court cases opposing mine plans and is sometimes successful. But this increase in knowledge has resulted not in confining mining (and CSG) to appropriate areas,[[46]](#footnote-46) but instead has meant the downsizing and muzzling of these agencies in a shameful sequence of government decisions.

**The attack on knowledge**

As if the blatant corruption of the ALP’s Eddie Obeid and others wasn’t bad enough, we now have the systematic dismantling of agency knowledge and advice by the incoming Coalition government, apparently at the behest of the mining industry and the privatising sharks. The agencies were increasingly concerned over mining impacts and CSG threats and were discreetly voicing these concerns.

Where the catchment is concerned, the coal seam gas industry is also poised for action now that the NSW Chief Scientist’s recent report has given them the green light, albeit with cautious recomendations that will be forgotten in the rush.

For sure, many other government agencies have been cut back recently, although not intelligence, police, army and security. But it seems that the agencies with objections to unbridled mining/CSG are suffering the worst of the cuts, as follows:

**The Sydney Catchment Authority** had become increasingly concerned over mine damage and the CSG threat, as befits its protective role.[[47]](#footnote-47) So first its Board was purged by Coalition Environment Minister Katrina Hodgkinson, removing mandated positions for the environment, farmers and local government representatives by an Act of Parliament, passed on 11 May 2012.

 The environment position on the Board, specifically for the old- established and respected Nature Conservation Council of NSW, was mandated, like the other two positions, by the Sydney Water Catchment Management Act of 1998. This appointee had never been a radical “greenie:” The practice had been for the Minister to make a choice from three nominees presented by the Nature Conservation Council. Apparently even a minority Board position, filtered by the Minister to a degree, was deemed too dangerous.

After the purge, no public health representative was appointed to the new board. This caused such a public outcry that the position was reinstated. At the time it was commented that the SCA had been established as a result of a public health scare over contaminated water in 1998, so a health expert on the Board was essential, as the health of the water supply was paramount.

Returning to the concerns of the SCA’s officials over CSG developments, they finally announced opposition to any CSG development in the Special Areas. Leading officials were removed in some cases. Then there was opposition even from the new board not only to CSG but also to mining within dam notification areas (land near the reservoirs of the Special Areas, as monitored by the Dam Safety Committee).

Some details follow :

On 2 March 2011, Greg Sheehy, as Senior Manager Sustainability in the SCA, was a signatory to a letter to the Planning Department’s Howard Reed, replying to a request to comment on a CSG exploration borewell plan from Apex energy. The letter’s contents included this: “… as owner of the land on which the additional borehole is intended to be located … it is unlikely to consent to the location of that borehole on the SCA’s land.” Soon after this, Greg Sheehy was no longer employed with SCA. I have no idea why, however in 2011 documents obtained by the Total Environment Centre via Freedom of Information revealed increasing concern at Board level over both mine expansions and CSG plans, and the Board had asked for access to be denied.

On 1 November 2012 the SCA was asked by the Department of Planning and Infrastructure (now re-named Planning and Environment (DoPE)) to comment on mine plans near the Cataract Reservoir and going under significant headland swamps, submitted by Gujarat NRE (now re-named Wollongong Coal). The successor to Sheehy, Dr Peter Davies, signed a reply indicating refusal to approve of a plan to begin first workings ( underground roadways and gates in preparation for future extraction) because “approval of maingates 6, 7 and 8 could infer an expectation of a future approval to extract from Longwalls 6,7 and 8 …. Extraction of coal from these areas … would be unacceptable to the SCA.”

As for CSG, the CEO, Michael Bullen, had seemed amenable to CSG development in the catchment when speaking to the NSW Parliamentary Committee of Inquiry into CSG (12 Dec. 2011) but later, perhaps learning more, he told a public meeting at Helensburgh in 2012 that he was prepared to deny access to any CSG developers trying to enter the Special Areas (surface access if not underground access is within the scope of the SCA’s authority and legal advice had been sought). Bullen was then given a better job in the Department of Agriculture. Was he “kicked upstairs”?

But the SCA had the bit between its teeth and continued to become ever more assertive. Early in 2012, in its submission to NSW’s planning system review, it wrote as follows:

“The SCA is concerned about risks to water quality from major (state significant) developments within the Special Areas … To protect water quality within the storages, the SCA recommends it is given a concurrent role with the Department of Planning and Infrastructure. This would streamline the access and approval processes for mining operations in the state … Significant SCA developments are assessed and determine by the Minister for Planning.”[[48]](#footnote-48)

This challenge to the supremacy of the Planning Department echoes the old battles between the Water Board, forerunner of the SCA, and the Mines Department in the 1970s, leading to the Reynolds Inquiry. As with the Water Board then, the SCA was fated to lose, even unto extinction in this case. As follows:

In October 2012 water management expert Ross Young was appointed CEO, with a five year contract. He did not prove any more amenable to the pressure from the government or industry. On 31 May 2013 he co-signed a letter to the PAC stating that the Apex CSG developments should be excluded from the Special Areas.

Then on 12 August 2013 he signed a submission to the Department of Planning and Infrastructure (now D0PE), calling for the Special Areas to be exempted from Minister Hartcher’s new regulation making economics equally important as the environment in deciding on mine or CSG plans ( the so-called Mining SEPP of July 2013). This SCA submission also called for longwall mining to be banned in the Dam Notification Areas of the Special Areas.

By October Ross Young too had vanished. He “left” the SCA one year into a five year contract, giving up a salary of $320,000 p.a., and efforts by the media to reach him for comment on the hasty departure failed.

 The new Chair of the Board, Mark Bethwaite, appointed on 27 May 2013, though a former Liberal Party treasurer and a director of mining industry lobby groups and companies, co-signed the letter with Ross Young on 31 May. Having only been on the Board since November 2012, this could be put down to naivety. But Bethwaite told a Rivers SOS delegation later in 2013 that he was definitely opposing any coal mining within the dam notification areas, saying that this was his “bottom line.” Not long after this, he too “left” the SCA.

With SCA’s senior officers increasingly opposed to mining/CSG, the upshot is that the SCA is now being dismantled, to be merged with the NSW State Water Corporation, to form a new statewide water agency called NSW Bulk Water.

 The CEO is to be Mr Terry Charlton, former boss of Snowy Hydro who in this position spent years in the effort to privatise, an effort foiled in the end by a strong public campaign led by broadcaster Alan Jones. Charlton may achieve more success in his new position.

In spite of imminent restructuring the SCA continued to be a thorn in the side of the corporatocracy. When PAC and the government approved the second stage of Peabody’s expansion into the Dam Notification Area of the Woronora Reservoir, the SCA sought legal advice about the possibility of having all areas surrounding the reservoirs legislated as exclusion zones. This went nowhere.

The SCA also asked Peabody to alter their longwall mine plans. Peabody refused.[[49]](#footnote-49)But the SCA is at least going out with a bang not a whimper, while the merger with NSW State Water proceeds.

There has been no public outcry at the fate of SCA. Will some staff and scientists researching the mine damage or opposing CSG development keep their jobs? will opposition be culled in the upcoming merger ?

**The National Water Commission** is also being abolished this year. It had announced that it was developing methods to “understand local and cumulative effects of mining on water resources,”[[50]](#footnote-50) a move akin to the kiss of death in the current climate. The analysis of cumulative effects is avoided at all costs. Mine plans are submitted for a couple of longwalls at a time, circumventing any need to address cumulative impacts.

 The NWC was also increasingly alarmed about CSG. Commissioner Chloe Munroe called for a precautionary approach in a position paper, warning of “substantial consequences” from the expansion of CSG extraction. The NWC pointed out that the CSG industry as a whole would extract more than 300 gigalitres of ground water each year, and produce up to 31 million tonnes of salt which, it estimated, would “fill Melbourne Cricket Ground 10 – 25 times over.”

 Munroe’s position was supported publicly by Dr John Williams, former chief scientist at CSIRO and now NSW’s Natural Resources Commissioner. Williams had carried out the first two audits of the Sydney catchment, audits mandated by the Act, and had been alarmed by the evidence of mine damage to creeks and swamps, writing that mining in the Special Areas is “inconsistent with either high quality water or healthy ecosystems” and that “proposals for new mining activities in the catchment pose a significant threat to both the drinking water supply (quality and volume) and to the streams’ ecological condition.”[[51]](#footnote-51) His support for Munroe failed to save the NWC.

**NSW Office of Water** has had a severe cull of staff, from over 2000 in the 1990s to less than 400 today. A further cut is imminent. The NoW is tasked with advising on water-related matters, and monitoring developments where they might impact on water resources. For example, it had recommended mining setbacks from reservoirs in the Special Areas, e.g. a setback of 425m from a river feeding Cordeaux Reservoir. The cull surely means that NoW will not be equipped to adequately carry out its task of advising government on technical or legal matters.

 The NSW Farmers’ Association objected to the cuts, calling for increased staff instead, to respond to mounting breaches of licence conditions. Rivers SOS’s media release of 13 June 2011 quoted the NSW Ombudsman’s comment to the parliamentary inquiry into CSG that NoW staff levels were “not adequate for ensuring appropriately robust compliance and enforcement.”

**ASIC: Australian Securities and Investments Commission**

In spite of the growing evidence of corruption in finance, mining, water, development and even education, the regulator’s budget has been slashed by $120 million over four years.[[52]](#footnote-52)

**Sydney Water Corporation**

When known as the Metropolitan Water Sewerage and Drainage Board, it put up a spirited defence of the water supply and the catchments, demanding that mining be disallowed. It was vigorously opposed by the NSW Mines Department. The ongoing clash was partly resolved by the Reynolds Water Inquiry of 1977, though this only looked at the issue of mining directly underneath reservoirs. Its concerns about a catastrophic dam collapse were largely dismissed by Justice Reynolds, who merely recommended that mining should adhere to certain conditions such as increased size of pillars. But he should have been more concerned over the advent of longwall mining which was then taking place.

The Mines Department had argued that mining under dams was safe. One example given concerned mining under lakes of the central coast of NSW. However in 2010 Rivers SOS members were taken on a tour around Lake Macquarie, witnessing much evidence of subsidence in the lake and surrounds attributed to mining, including affected housing and a privately owned boathouse and pier both of which vanished altogether as the bottom of the lake subsided. We were also shown a former wetland which had sunk into the lake leaving only a forest of dead trees above water.

The MWSDB became Sydney Water Board, and when corporatized in December 1994 through an act of parliament, it is now called the Sydney Water Corporation.

Corporatisation is one step short of privatisation, the difference being that profits go to the NSW Treasury instead of to private owners.

“Rather than spending the money necessary to ensure safe drinking water and a clean environment, Sydney Water now has had to pay the state government hundreds of millions of dollars each year in dividends.”[[53]](#footnote-53)

Thousands of jobs were lost and water prices immediately went from 65c a kilolitre in 1994 to 85c in 1995.[[54]](#footnote-54) Sydney Water’s new profit-oriented culture copped some blame for the water contamination of 1998.

 Ticky Fullerton commented that with “focus on the bottom line comes less focus on safety and the environment.”[[55]](#footnote-55)

**The Environment Defenders’ Office (EDO)**

Lawyers earning a pittance at the EDO helped a number of community/environmental groups take mining decisions to the Land and Environment Court. Most cases were lost but there were occasional wins, such as for Bulga township in their fight on health grounds against a mine expansion by Rio Tinto, which would have had a very negative impact on their village and surrounds. Not long after this the so-called “ Mining SEPP” was enhanced by corrupt Minister Chris Hartcher, with an amendment directing economic considerations to be given importance alongside environmental concerns. Then in December 2013 the Abbott government announced funding cuts of $10 million over 4 years, half of the EDO’s budget. The EDO says it will be forced to close offices in various states. Community groups will not be able to afford court cases in future, which of course was the aim.

 Meanwhile mining companies, in spite of their profits, are funded to the tune of billions of dollars in subsidies for diesel fuel, etc.

 A number of other government-funded forums, committees and task forces which have researched mining impacts on the water supply and have either drawn attention to the problem or advocated a halt have had their recommendations ignored and have been shut down in recent decades, e.g. the **Hawkesbury-Nepean Catchment Management Trust , the Cataract River Taskforce, the Healthy Rivers Commission and the Southern Coalfield River Remediation Committee.**

**Mining under or too close to Reservoirs : water loss and/or dam collapse**

The final pages will address two environmental issues that have been largely ignored, through a dearth of information. As said before, other issues will be adequately covered by my colleagues in this campaign.

 It’s bad enough cracking and draining important rivers in the Special Areas – like the Waratah rivulet, or drying up creeks like Wongawilli Creek, or desiccating swamps like the Flat Rock Swamp and others, but longwall mining under reservoirs/stored water/dams is even crazier. Yet mining has being approved under both Cataract and Woronora dams. Justice Reynolds of the Reynolds Inquiry (1977) gave the go-ahead for this , but as already mentioned he was only looking at bord and pillar mines, which create minimal subsidence. But this green light from Reynolds has morphed into approvals for longwall mining so we’ve had around 17 longwall panels going under the Cataract Reservoir in the past, and the current proposal goes too close for comfort. And mine plans approved in 2009 go under the Woronora Reservoir. It has been asserted in the past that mining under the Cataract Reservoir has caused no problems but we now know that the floor is subsiding and the dam wall has moved.[[56]](#footnote-56) But the mining companies and their allies in the Department will try to hide or downplay any risks of leakage or of dam collapse.

 The old Water Board, forerunner of Sydney Water, was firmly opposed to mining in the Special Areas and its submission to the Reynolds Inquiry stressed first, the susceptibility of dam walls to collapse due to subsidence movements; and second, the potential for water from the reservoirs to flood the mine voids and possibly seep out of the catchment altogether.

They claimed that water was leaking into the old Huntley Colliery from the Avon Reservoir in the Metropolitan Special Area, and they cited numerous examples of mine damage to dams in Wales and elsewhere, as well as the undermining and subsequent failure of the concrete New Lambton Reservoir at Newcastle.[[57]](#footnote-57)

Though it has been asserted that no loss of water to mine workings under the Cataract reservoir has been recorded,[[58]](#footnote-58) it may take years before problems are noticed. Who’s looking ? How could you tell anyway ?

A reservoir in Yorkshire almost collapsed due to mining induced subsidence back in the 1930s and in the 1980s the Yorkshire Water Authority expressed concerns, saying that mining under or near reservoirs could “endanger the safety of a reservoir in ways perhaps not apparent for a number of years, resulting in the collapse of a wall or dam through cracking or seepage.”[[59]](#footnote-59)

Please take the time to google Duke Lake and Lake Peigneur, both in the United States and both drained due to mining. There are similar problems elsewhere, in China and so on, but there is only time to cite a few well documented cases.

 In the case of Duke Lake, in 2005 the dam wall was damaged and breached and the 62-acre lake had to be drained to avoid a catastrophe, due to longwall operations 1000 feet from the dam, caused by far field ground movement of the kind noted in the Southern Coalfield by Professor Hebblewhite, Peter Reid of the Dam Safety Committee and others. 1000 feet equals around 300 m, similar to the distance from the Cataract Reservoir being applied for in the Longwall 6 plan by Wollongong Coal.

Lake Peigneur’s event was even more dramatic, with its water draining down a sinkhole into a salt mine beneath, taking down boats and diverting the flow into a canal leading to the Gulf of Mexico.

Also in the US, in August 2001 water drained from the Electric Lake Reservoir into the Skyline Mine in Emery County. In this case the mine was 750 feet (225 m) below the water.[[60]](#footnote-60) The 17 longwall mine panels extracted from beneath the Cataract Dam were 250m below the water.[[61]](#footnote-61) It may be just a matter of time before draining commences, if it hasn’t done so already, and so this threat, even if considered unlikely to occur, should be addressed by any responsible authorities.

 Are we really stupid enough to keep gambling like this with our major water storage dams ? Duke Lake was only used for fishing and boating but our Cataract Reservoir is a vital part of Sydney’s water supply, sending approximately 7% of the flow going to the Upper Canal and on to Prospect.

Already the wall of Broughtons Pass Weir, a vital component of Sydney’s water supply facilitating the transfer of water from the southern dams to the Upper Canal, has been cracked in four places by longwall mining upstream in the Metropolitan Special Area.[[62]](#footnote-62) Previous damage makes it all the more vulnerable if not fragile.

In our Special Areas, we do know that in the 1980s a section of BHP’s Wongawilli Colliery’s longwall operations, in the Avon dam catchment, had to be abandoned because of large inflows of water, at one point up to 100,000 litres per hour (2.4 megalitres per day). BHP argued strenuously that this was not coming from the dam, but the Dam Safety Committee argued otherwise.[[63]](#footnote-63) To the best of my knowledge this has not been resolved. Then in June 2007 there were large inflows into Dendrobium’s longwall operations in the Avon- Cordeaux catchment in the Metropolitan Special Area, inflows of up to 8 megalitres per day.[[64]](#footnote-64)

 We will not be told whether this inflow came from the nearby storage dams, for the good reason that there would be increased public demand to halt mining in the Special Areas.

**Mining induced earthquakes: the problem that dares not speak its name**

 Over the years it becomes obvious that the possibility of mining-induced earthquakes is seldom if ever addressed in advice to government, either in Environmental Impact Statements put forward by proponents, written by their consultants, or in agency submissions or in publications on mining issues such as the afore-mentioned Southern Coalfield Inquiry of 2008. There was, however, a short chapter on the topic in the NSW Chief Scientist’s recent report. But by and large, as noted by scientist Dr Christian Klose, mining engineers are unaware of earthquake risk.

However Peter B. Hills, a geotechnical engineer, wrote recently that there has been an increased focus on understanding mining induced seismicity since the mid 1980s, followed by the placing of seismic monitoring systems in underground mines from the mid 1990s.[[65]](#footnote-65)So if the mining companies have begun to take this threat seriously, the decision makers should be able to take it on board a decade later.

Things have changed since Dr Klose, an eminent seismologist from Columbia University, NY and Lamont-Doherty Earth Observatory, opined that the 1989 magnitude 5.6 earthquake in Newcastle was caused by 200 years of coal mining. A number of Australian scientists, as well as mining companies and employees, hurried to the barricades. The coal companies were under threat, at least on the public relations front, and there was a rush to challenge Klose if not to pour scorn on his findings. Oddly enough three of the academic critics sang from the same song-sheet in their media interviews, with the same phrasing: all accusing Klose of drawing “a very long bow” in linking quakes to mining.

Professor Bruce Hebblewhite, Director of the University of NSW’s School of Mining Engineering, was more moderate. He thought it “somewhat far-fetched.” His School is partly dependent on support from the mining industry.

Professor Ian Plimer, mining geologist from the University of Adelaide, well-known climate change sceptic, director of four mining companies, large shareholder in others, and linked to the Heartland Institute,[[66]](#footnote-66) scoffed that the quake was “absolutely unrelated to any mining activity.”[[67]](#footnote-67)

The Newcastle quake killed 13, injured 240, and caused damage worth nearly $4 billion. As Klose said, this amount is more than the worth of the coal mined there for nearly two hundred years.

Kevin McCue, Director of the Australian Seismological Centre, was sceptical back in 1989 but when interviewed about another probable mining-induced quake at Kalgoorlie in 2010 he had changed his position, saying “ … man-made earthquakes can be caused by old mine workings collapsing.”[[68]](#footnote-68)

The change in positon reflects, if nothing else, mounting evidence from worldwide research into mining-induced quakes. For one example, in 1993 an English journal published research on seismicity in the Nottinghamshire Coalfield, where 30 minor quakes in 50 days had been recorded. The study claimed that the “results establish a definite causal relationship between coal production and the local microseismicity.”[[69]](#footnote-69)

As evidence mounted, in 2005 the Bulletin of the Seismological Society of America, a prestigious journal dedicated to earthquake research, published a trio of articles on mining-induced earthquakes occurring in Utah.[[70]](#footnote-70) Dr Walter Arabasz, director of seismological studies at the University of Utah, said that their studies indicated that the mining induced earthquakes, depending on their size, “might pose a ground-shaking hazard to nearby surface structures.” The research was to help reach a decision about longwall mining around 1k from a dam and they predicted a possible quake of magnitude 3.9.[[71]](#footnote-71)

Dr Arabasz was later involved in assessing an earthquake in Utah’s Crandall Canyon in 2007, killing 6 workers and collapsing around 50 acres of ground. The epicentre was near the mining operations. Arabasz researched this event with a number of other seismologists, concluding that “as seismologists, we’re as certain as we can be that the seismic event … was not a naturally occurring earthquake,” as the mine owners had argued.[[72]](#footnote-72)

In his most recent book Dr Klose looks at two major quakes in China: the 1975 Haicheng quake with magnitude 7.3 and the 1976 Tangshen quake with magnitude 7.5, which killed nearly 250,000 . These were both in coal mining regions but at the time were designated as natural events. Klose writes: “Nevertheless, over the last 100 years scientists have collected enough reliable evidence to suggest that human activities, including oil and gas production, mining and reservoir impoundment, are implicated in triggering earthquakes” and “in the early 20th century people disputed whether mass redistributions resulting from large scale geoengineering could trigger large earthquakes, but today the phenomenon is widely accepted.”[[73]](#footnote-73) Klose documents many such events: two damaging quakes caused by potash mining in Germany in 1975 and 1989, and in the USA quakes in mining regions in West Virginia, Ohio and Pennsylvania.

Jens Skapsi, writing for the Earthquake Report web site says that they are “noticing that small to moderate earthquakes occur in regions with intense underground mining activities. Larger quakes, rare but possible, may lead to severe damage, as observed in recent years (Australia, China, Germany, South Africa, USA). Mining induced earthquakes are a daily occurrence in Poland where in 1982 hundreds of houses were damaged in the Bytom mining region.[[74]](#footnote-74)

I won’t attempt to summarise the technical arguments supporting the thesis of mining-induced earthquakes. However it’s important to note that Klose in his latest book is largely writing about risk management, prediction, and what to do if we are caught in a quake. It is not merely a polemic.

The Kalgoorlie quake of 2010, magnitude 5, damaged many buildings within 10 k., in an area that “attracts more than half of Australia’s mining exploration and produces two thirds of all gold and most of the nickel mined in Australia.”[[75]](#footnote-75)

In October last year BHP Billiton permanently closed a nickel mine after what it called “a significant seismic event,” which left 9 miners trapped for hours.[[76]](#footnote-76)

It is true that most mining induced earthquakes are minor, but there have been several quakes above magnitude 4 in the Southern Coalfield: at Picton, magnitude 5.5 in 1973, and 4.7 in 1999; near Appin, magnitude 4.8 and 4.9 in 1999; near Helensburgh, magnitude 4.6 in 1981.

The possibility of mining induced quakes is exacerbated by past mining, as at Newcastle, and in the UK’s Midlothian Coalfield where residual effects from past mining were said to be a factor in generating seismicity.

All of the three major Special Areas are honeycombed with past mines: bord and pillar, pillar extraction and longwall mining have extracted more than one of the several coal seams underground. Since the impacts of longwall mining are more significant since 1970, to continue to mine near valuable reservoirs is courting disaster if a dam wall cracks and fails.

The threat is mainly to our water supply, since the Special Areas are sparsely inhabited. There are other threats apart from seismicity. The Independent Expert Scientific Committee, set up to advise the federal government and other decision-makers on large coal mining and CSG applications, provided advice on the current Russell Vale/Wollongong Coal application, saying that there was only a low likelihood of cracking of the bedrock underlying the Cataract Reservoir, but “if such cracking were to occur the potential consequences for Cataract Reservoir could be severe.”[[77]](#footnote-77) Either mine subsidence impacts or seismic activity or a combination of both could cause the cracking.

The threat is exacerbated by another phenomenon: reservoirs themselves can trigger seismicity. The weight of water alters underground stresses in the earth’s crust, just as mining does. Christian Klose outlines this in detail, giving examples from India, where the Koyna Reservoir was rocked by a magnitude 6.3 quake in 1963, with several thousand deaths, triggering more quakes with magnitudes above 5 every other year since then.

Another tragedy was the 2008 Wenchuan quake in China, linked to the Zipingpu Reservoir. Klose’s book gives many other examples of both reservoir-induced and mining-induced earthquakes. The Special Areas are prime candidates on both counts.

Historic and current mining plus the existence of reservoirs threatens a perfect storm. The risk may be low but it should not be discounted, however it is not taken into account in any advice for risk management that I’ve come across.

An added concern with the Wollongong Coal expansion beside the Cataract Reservoir is that the triple seam mining envisaged by Wollongong Coal will increase impacts on stress underground. In a three-hour briefing Professor Jim Galvin, on this current PAC panel, gave the Mandalong Community Association in 2011, he was asked if risks increase “once you are going under an existing mine.” He replied:”I would have a hell of a lot of trouble. I don’t think it is on. I really can’t answer that.” And as to how accurate predictions are, he added: “Don’t let anyone tell you that they are accurate …”[[78]](#footnote-78) In this briefing he also appears to acknowledge that the floor of Lake Macquarie has subsided “like jelly.”

The Cataract Reservoir holds up to 97,190 megalitres, around 7% of Greater Sydney’s drinking water supply. The other three southern dams hold similar amounts. It would be wise to keep mining at a far greater distance from all of them, halting mining altogether in the Special Areas. Klose also examines in detail the risk of quakes caused by CSG extraction and fracking, as the title *Frack This* makes clear, but as said before my comments only focus on coal mining at present.

I believe it is high time that at least one or two seismologists should be consulted on mining expansion near our reservoirs. Broughtons Pass dam wall, as mentioned, is already cracked by mining and might be the first to collapse in a minor quake. Other dam walls are obviously vulnerable.

**The Approvals Process: this can’t go on …**

First, the approvals process is in such a mess that it is virtually indescribable, and the Gujarat/Wollongong Coal/Russell Vale application sagas and their to-ing and fro-ing and modifications demonstrate hopelessly inadequate planning and regulating.

 Second, the Planning Department have said that all procedures are anyway transitional, awaiting the outcome of the NSW government’s planning review.

But as things stand I doubt if anyone can claim a proper understanding. For example, I have a transcript of questions put to a Campbelltown Council planner at the Parliamentary Inquiry into CSG at Mittagong in 2011, by the Greens MP with the shadow mining portfolio, Jeremy Buckingham. The interchange is truly Monty Pythonesque. He asks whether she has been informed by the Planning Department as to whether the Mining SEPP(State Environmental Planning Policy) has precedence over the so-called Sydney Drinking Water SEPP. She replies that both SEPPS contain a clause saying that any inconsistency between this SEPP and another SEPP will be overridden by this SEPP, but nevertheless “it appears” that the Mining SEPP overrides the Water SEPP because a recent approval by the PAC for an additional borehole in a Special Area contradicts the Water SEPPs assertion that any development should only have a neutral or beneficial effect. But Planning had advised PAC that any impact would be minimal, leading this planner to believe that the Mining SEPP trumps water. Buckingham responds by pointing out that even a minimal impact is hardly neutral or beneficial. Confusion reigned.[[79]](#footnote-79)

Many other complaints were raised at this Inquiry about what the NSW Ombudsman called the “lack of clarity.” It was noted that at least four government agencies are responsible for regulation of the extractive industries: the Division of Resources and Energy within the Department of Trade and Investment, now DTIRIS; the NSW Office of Water, within the Department of Primary Industries; the Department of Planning and Environment, within the Premier’s department; and the Office of Environment and Heritage, also with the Premier. Applications near reservoirs also need approval from the Dam Safety Committee, and the Environmental Protection Authority has influence concerning “incidents” and breaches.

The process is not only fragmented, it is uncoordinated. The vague approach seems in practice to favour the mining industry, as more ruthless entities typically prosper better than others in lawless situations. However, concerning CSG procedures also applicable to coal mining, Santos voiced similar complaints about the range of approvals needed from “a number of Departments and a number of Ministers who have to issue licences, permits, authorities, with separate timeframes and conditions. These approvals are often interrelated and interdependent and can be contradictory …”[[80]](#footnote-80)

Many at this meeting raised the problem of understaffing and ineffective monitoring and enforcement, e.g. farmer Tim Duddy who said there are not enough appropriately skilled officers, especially in the Office of Water “nor are there any resources on the ground that can inform that processes are wrong because there are so few officers that understand. Anyone in the Office of Water that understood has left and gone to work in private practice somewhere.”[[81]](#footnote-81) The Ombudsman added that there are fewer than 20 officers left in the Office of Water and given the “breadth of responsibilities and the geographical spread of water-related matters it is difficult to see this as adequate for ensuring appropriately robust compliance and enforcement.”

As Dr John Williams says, instead of a piecemeal approval mechanism approach there should be regional strategic planning, but this is pie in the sky.

With technical issues, the current approach is incapable of dealing with cumulative impacts of the multiple mining developments in the Special Areas (or anywhere else). This glaring hiatus in the process, which involves approving just a few longwall panels at a time, leaves no room whatsoever to assess cumulative impacts in larger areas, as many experts have noted.

So for all of the reasons mentioned above, and for many others that are looming such as CSG development, I urge the PAC and others involved in decisions to call a halt. Declare the Special Areas as National Parks, where no mining will ever be allowed.

The rate of destruction and the threats of collapse of the catchment environment is becoming one of the greatest blots on the record of our current leaders, whether in parliament or the bureaucracy. People of NSW are becoming increasingly aware of the urgency of the issue and will not long stand for continuation of damage to the drinking water catchment, for the benefit of the three largely foreign-owned companies who apparently evade tax by paying a rate of only 10% to zero; [[82]](#footnote-82)and for the would-be profiteers looking to privatise the water supply system.

**Appendix A: Bugs in the water supply**

High levels of the microrganisms *giardia* and *cryptosporidium* had been identified in parts of the supply system in 1998, and Sydneysiders were warned to take precautions. The Sydney Catchment Authority was set up as a result of the McLellan Water Inquiry that followed, and its whole *raison d’etre* was to ensure a clean water supply system at catchment level. It was thought that contamination may have come from heavy rainfall causing sewage outflow to the Wollondilly River leading to Warragamba Reservoir.

The same two microorganisms had surfaced in the water supply of Milwaukee, USA, in the early 1990s, with 8000 people being hospitalised and 100 dead, hence the panic in Sydney. In that same year in London, nearly 300 fell ill through *crypto* bugs, with the source of contamination traced to animal waste in a deep bore. Although no illnesses were reported in Sydney, the State Auditor General estimated that the whole episode had cost the taxpayer $75 million.[[83]](#footnote-83)

*Giardia* can be killed with chlorine but *crypto* is harder to eliminate and can be fatal, as well as causing several days of illness in healthy people. The bugs are never entirely absent from the supply system and resources must go towards careful monitoring. The 2010 catchment audit recommended that the SCA should continue to “investigate the cause of the persistent detections of *cryptosporidium*  and *giardia* oocysts in the catchment” and Sydney Water’s report for 2012-13 says that the bugs are occasionally detected and that heavy rain at one of its water treatment plants had caused “difficulties in maintaining effective filtration processes.”  *Crypto* oocysts were found in treated water from Prospect in June 2012.

A different problem, toxic algal blooms in the Warragamba Reservoir, was reported in 2007. This outbreak had rendered 500 billion litres of water unfit for use, because Sydney’s array of filtration plants are not able to treat algal blooms.[[84]](#footnote-84) Water had to be taken from lower in the reservoir until the surface bloom subsided.

In December 2013 there was a minor scare at a water storage tank at Pagewood, which showed contaminants at twice the level found in surrounding samples. The water was reported to contain flammable gas and Sydney Water was accused of a cover-up.[[85]](#footnote-85)

People should be aware that the water supply system can never be perfectly safe. The treatment plants cannot filter out or destroy all the bugs. Sydney Water warns “some minute particles and microorganisms may pass through the filters” and it advises those with auto-immune system problems, infants and the elderly to boil water or use bottled water at all times. Clean rivers and catchments are the first level of defence.

The importance of making every effort to keep our catchment clean was brought home to me this year by a report that the drinking water supply in parts of Louisiana has been contaminated by what is described as a “deadly, brain-eating amoeba-like organism called *Naegleria fowleri”* which if inhaled can work its way to the brain and cause meningoenccephalitis, an infection that usually kills its host within two weeks.[[86]](#footnote-86) Mention of this is not scaremongering, these are issues which could arise here, underlining the need for healthy catchments.

**Appendix B: More on the Sydney Catchment Authority**

The Sydney Catchment Authority (SCA), established under the Sydney Water Catchment Management Act (1999), from the start was not given the legislative power to enable it to adequately protect the catchment – its *raison d’etre.* This did not accord with the wishes of Justice Peter McClellan, who presided over the water inquiry of 1998, and recommended the creation of the SCA in order to protect the catchment. This, as detailed above, was after the water scare of 1997-8, when contamination of the water supply was detected.

Dr John Williams, senior scientist at CSIRO, member of the Wentworth Group of scientists, and now National Resources Commissioner, carried out the first mandated audit of the catchment in 1999, in which he commented: “Failure to support the authority with adequate legislative powers and effective institutional arrangements is the paramount hazard facing the hydrological catchments that supply Sydney’s water.”[[87]](#footnote-87)

His advice was ignored. Williams had rightly observed that the SCA did not have the teeth envisaged by McLellan. The SCA is only able to advise Ministers and its advice is overridden if unfavourable to mining plans. Although Rivers SOS and other environmental and community groups have called for tighter laws, instead the SCA has been purged, as detailed above, and will soon be merged with the NSW Water Corporation into a broad group named NSW Bulk Water, headed by Terry Charlton the “great privatiser” from Snowy Hydro.

Unlike the SCA, the Dam Safety Committee can deny approval of mine plans going within its Dam Notification Areas around the reservoirs. But although some of its employees have written of continuing subsidence and movement in the Cataract Dam wall, stating that “the consequences of failure of the Cataract Dam would be extreme …”[[88]](#footnote-88) senior management is failing to take the only responsible position in this case.

The executive engineer Steve Knight signed a letter on behalf of the DSC to the Planning Department on 4 April 2013, expressing serious concerns over the safety of the Dam itself, the security of the stored waters and significant water loss, but unlike the SCA he does not call for mining to be halted inside the Dam Notification Area. So it seems that the only agency with the power to halt this plan has backed away.

 In the current climate this is not surprising. Those who are not on Team Australia can kiss their jobs goodbye.

1. Michael Moore, CEO of Public Health Association of Australia, in *The Guardian,* 21.10.14 [↑](#footnote-ref-1)
2. Greater Sydney includes the Blue Mountains, the Macarthur region, parts of the Southern Highlands, Wollongong and the Illawarra region. [↑](#footnote-ref-2)
3. ARUP Review, *The Future of Urban Water: Scenarios for Water Utilities in 2040,* 2014. ARUP is a multinational engineering and design company. This research was jointly funded by ARUP and Sydney Water. [↑](#footnote-ref-3)
4. Papers delivered by Dr Peter Turner, Illawarra Branch of National Parks Assn.; Dr Anne Young; Julie Sheppard, Macarthur Branch of NPA; Ann Brown; Isabel McIntosh, Protect Sydney’s Water; and 27 other speakers [↑](#footnote-ref-4)
5. Environmental Law of the Peoples’ Republic of China: web site (Eng. Translation), Ch. 5, Article 49: “any new construction or expansion project unrelated to water supply facilities” shall be suspended or shut down in “first class protected zones for surface sources of domestic and drinking water.” [↑](#footnote-ref-5)
6. Technically speaking, “dam” refers to the structure of the dam wall, and “reservoir” is applied to the body of water behind it. Nevertheless popular usage tends to refer to reservoirs as dams. [↑](#footnote-ref-6)
7. There are also a handful of small dams, in the Blue Mountains, Prospect and Shoalhaven, with their own tiny Special Areas, but these are relatively insignificant and not under threat. [↑](#footnote-ref-7)
8. Details about the problems with *giardia, cryptosporidium* and *nagleria fowleri* are in Appendix A [↑](#footnote-ref-8)
9. Greg Medcraft, Chair of ASIC, ABC News, Sydney, October 23, 2014. After a please-explain call from a Minister, Medcraft distanced himself somewhat from this remark. [↑](#footnote-ref-9)
10. Kate McClymont & Linton Besser, *He Who Must be Obeid,* Random House, Australia 2014, pp. 379-80 [↑](#footnote-ref-10)
11. *Ibid.,* p. 123 [↑](#footnote-ref-11)
12. Laurie Oakes, interview on ABC’s *Media Watch,* 24.10.14 [↑](#footnote-ref-12)
13. I have copies of correspondence and supporting documents, as has Ron Fenwick, a farmer from Bulga whose creek was destroyed by Peabody’s Wambo Mine. The consultant in question was corresponding with him over this issue. This person arrived back at Wambo Mine, sending Ron Fenwick an email, a few days after sitting on the “independent” PAC panel advising favourably on Peabody’s Metropolitan Colliery expansion. [↑](#footnote-ref-13)
14. SMH, Business, October, 2014 [↑](#footnote-ref-14)
15. The damage from increasing longwall width was noted in the Determination re longwall mining of the NSW Scientific Committee, 2005. [↑](#footnote-ref-15)
16. Some institutions currently divesting from other fossil fuels have cannily kept their shares in coking coal producers. We will continue to need steel, even if we come to rely on renewables for power. [↑](#footnote-ref-16)
17. M.I.T. News, June 2013 [↑](#footnote-ref-17)
18. NSW Department of Planning*, Southern Coalfield Inquiry*, July 2008,p. 30 [↑](#footnote-ref-18)
19. *Australian Mining,* 13.10.14 [↑](#footnote-ref-19)
20. SMH, 13.10.14 [↑](#footnote-ref-20)
21. *Ibid.* [↑](#footnote-ref-21)
22. Jindal Steel & Power, *Financial Report,* 2014 [↑](#footnote-ref-22)
23. Dr Peter Turner of SOWCA, letter to Premier, 2013 [↑](#footnote-ref-23)
24. SMH Businessday, October 25-26, 2014, p.3 [↑](#footnote-ref-24)
25. SMH, October 2014 [↑](#footnote-ref-25)
26. SMH, 19 October, 2013 [↑](#footnote-ref-26)
27. SMH, 11 May, 2011 & 11 March, 2012. [↑](#footnote-ref-27)
28. IPART, *Review of SCA Expenditure,*  February, 2012 [↑](#footnote-ref-28)
29. Professor Grafton on ABC News, 18 July, 2008 [↑](#footnote-ref-29)
30. Kate McClymont & Linton Besser, *op.cit.,* p. 369. Chapter 25 gives the shocking details of this attempt. [↑](#footnote-ref-30)
31. Maude Barlow, *Blue Covenant: the Global Water Crisis and the Coming Battle for the Right to Water,* Black Inc. Books, Australia, p.58 [↑](#footnote-ref-31)
32. Maude Barlow & Tony Clarke, *Blue Gold,* New Press, USA, 2002, pp. 89 - 99 [↑](#footnote-ref-32)
33. *Green Left Weekly,*  13 August, 1998 [↑](#footnote-ref-33)
34. ARUP Review, *The Future of Urban Water: Scenarios for Water Utilities in 2040,* 2014. ARUP is a multinational engineering firm. This study was funded by ARUP and Sydney Water. [↑](#footnote-ref-34)
35. *Adelaide Now,* 20 October, 2010 [↑](#footnote-ref-35)
36. *Ibid.,,* 7 December, 2012 [↑](#footnote-ref-36)
37. Maude Barlow, *op.cit.,* p.58 [↑](#footnote-ref-37)
38. Martin Krogh, *Management of Longwall Coal Mining Impacts in Sydney’s Southern Drinking Water Catchments,* Australian Journal of Environmental Management, Vol. 14, September 2007 [↑](#footnote-ref-38)
39. G. McNally & R. Evans, *Impacts of Longwall Mining on Surface and Ground Water, Southern Coalfield, NSW,* Sinclair Knight Mertz, September, 2007, p. 19 [↑](#footnote-ref-39)
40. L. Holla & E. Barclay, *Mine Subsidence in the Southern Coalfield, NSW Australia,* Mineral Resources NSW, June 2000 [↑](#footnote-ref-40)
41. NSW Department of Planning, Southern Coalfield Inquiry, *Impacts of Underground Coal Mining on Natural Features in the Southern Coalfield,* July 2008. [↑](#footnote-ref-41)
42. Rivers SOS, *Response to the NSW Government’s Report on the Strategic Review into Impacts of Underground Coal Mining on Natural Features in the Southern Coalfield,* September, 2008 [↑](#footnote-ref-42)
43. Strategic Review, *Impacts of Underground Coal Mining on Natural Features in the Southern Coalfield,* NSW Department of Planning, July 2008, p. 117 [↑](#footnote-ref-43)
44. *Ibid.,* p.26 [↑](#footnote-ref-44)
45. Strategic Review, op cit p. 65 [↑](#footnote-ref-45)
46. Though, unusually, two mine plans were rejected this week, one to protect horse studs and viticulture, and the other to protect the unique stone pagodas north of Lithgow. But will the even more vital Special Areas get the same consideration ? It was noticeable that the drinking water supply got no mention in the Strategic Regional Land Use areas, while industries and residential areas were singled out for possible protection [↑](#footnote-ref-46)
47. More details of SCA and its short history are in Appendix B. [↑](#footnote-ref-47)
48. SCA Submission to NSW Planning System Review, 2 March 2012 [↑](#footnote-ref-48)
49. Peter Hannam, *SMH,* 24 June, 2014 [↑](#footnote-ref-49)
50. *National Water Commission Fact Sheet,* 2008 [↑](#footnote-ref-50)
51. John Williams, *Audit of the Sydney Drinking Water Supply Catchments,* Final Report, November 2002, p.86 [↑](#footnote-ref-51)
52. ABC News, Sydney, October 25, 2014 [↑](#footnote-ref-52)
53. Sharon Beder, *The Downside of Corporatisation,* Engineering Australia, September 1998, p.62 [↑](#footnote-ref-53)
54. *Green Left Weekly,* 13 August, 1998 [↑](#footnote-ref-54)
55. Ticky Fullerton, *op.cit.,* p.30 [↑](#footnote-ref-55)
56. W. Zeigler & H. Middleton of the Dam Safety Committee, *Is there a Fourth Dimension to Subsidence Monitoring ?*  Paper for 9th Triennial Conferenbce on Mine Subsidence, 2014 [↑](#footnote-ref-56)
57. Martin Krogh, *op.cit.,* p.158 [↑](#footnote-ref-57)
58. *Ibid.,* p. 19 [↑](#footnote-ref-58)
59. Quoted in article by Fred Pearce, *New Scientist,* 22.4.82 [↑](#footnote-ref-59)
60. A. M. Alvarez-Valero, in *Environmental Geology 55 (8),,* 19.5.03 [↑](#footnote-ref-60)
61. R. Singh & M. Jakeman, *Longwall Mining Under the Cataract Reservoir,* University of Wollongong, 1999 [↑](#footnote-ref-61)
62. Sydney Catchment Authority, *Submission to the Inquiry into the NSW Southern Coalfields,* July 2007, p.14. One photo shows water gushing from one of the cracks. I believe they have never been remediated. A small earthquake could collapse the weakened dam wall and cause catastrophe downstream. [↑](#footnote-ref-62)
63. G. McNally & R. Evans, *op.cit.* [↑](#footnote-ref-63)
64. *Ibid.,* p. 20 [↑](#footnote-ref-64)
65. P. Hills, *Managing Mining-Induced Seismicity,* Australian Mining Bulletin, August, 2013 [↑](#footnote-ref-65)
66. Ben Cubby, SMH, 18 February, 2012. This US based organisation funds activities and people to sow doubt about climate change science. In Australia, according to Cubby’s research, it helped to fund the anti-carbon tax lobby in 2009-2010. It is sponsored by energy companies and right wing groups. [↑](#footnote-ref-66)
67. *ABC TV,* 9 January, 2007 [↑](#footnote-ref-67)
68. *Australian Geographic,* 21 April, 2010 [↑](#footnote-ref-68)
69. I. Bishop et al, *Microseismicity in the Nottinghamshire Coalfield,* Quarterly Journal of Engineering Geology and Hydrogeology, 1993. [↑](#footnote-ref-69)
70. *Bulletin of the Seismological Society of America,* 11 March, 2005 [↑](#footnote-ref-70)
71. *Ibid.* [↑](#footnote-ref-71)
72. Report on study, 6 April 2008. The report was funded by the State of Utah and the US Geological Survey. http://www.seis.utah.edu/ [↑](#footnote-ref-72)
73. Christian D. Klose, *Frack This ! The Untold Story About Earthquakes Caused by Humans,* July, 2014 [↑](#footnote-ref-73)
74. Earthquake Report, 2 October, 2013 [↑](#footnote-ref-74)
75. *Australian Geographic.,* 21 April, 2010 & 6 October 2011. [↑](#footnote-ref-75)
76. BHP Billiton News, 7 December, 2013 [↑](#footnote-ref-76)
77. IESC, 2014-057, Attachment A [↑](#footnote-ref-77)
78. Interview with MCA, November 2011, [www.mandalong.net.au](http://www.mandalong.net.au) (transcript of briefing provided) [↑](#footnote-ref-78)
79. NSW Parliament, *Legislative Council, General Purpose Standing Committee No. 5, Coal Seam Gas,* 1 May, 2012, Mittagong Public Hearing, 9 December, 2012. [↑](#footnote-ref-79)
80. *Ibid.,* p. 206 [↑](#footnote-ref-80)
81. *Ibid.,* p. 208 [↑](#footnote-ref-81)
82. SMH, 3 October, 2014 [↑](#footnote-ref-82)
83. Ticky Fullerton, *Watershed,* ABC Books, 2001, p. 14. This is a good account of the water scare. [↑](#footnote-ref-83)
84. ABC News, 2 November, 2007 [↑](#footnote-ref-84)
85. SMH, 24 February, 2013 [↑](#footnote-ref-85)
86. *The Guardian Weekly,* 5 September, 2014, p.2 [↑](#footnote-ref-86)
87. Ticky Fullerton, *Watershed,* ABC Books, 2001, p.26 [↑](#footnote-ref-87)
88. W. Zeigler & H. Middleton, *op. cit.,* p. 177 [↑](#footnote-ref-88)