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Monday 26th May, 2014

Mining and Industry Projects
NSW Department of Planning & Infrastructure
GPO Box 39
Sydney NSW 2001

Dear Sir/Madam,

State Significant Project - Springvale Mine Extension (SSD 12_5594)

Position of the Colong Foundation

The Colong Foundation for Wilderness objects to this proposed extension by Centennial Coal of longwall mining at the Springvale Colliery that will impact on 1,860 hectares of Newnes Plateau forest in Stage Two of the Gardens of Stone reserve proposal. The proposed mining will unacceptably impact on cliffs, pagodas, 41 nationally endangered swamps, including 11 shrub swamps, and the headwater catchments of three creeks: Marangaroo; Bunglebouri and particularly Carne Creek causing reduced stream flows and water pollution.

Newnes State Forest has only been subjected to selective logging in certain places, and is mostly unlogged old growth forest, contrary to the claims on page 89, s 2.8.1 of the EIS Volume 1. The claim that 'as a consequence of forest harvesting and fires, large areas of forest are relatively young with a low to moderate density of hollow-bearing trees' is incorrect. These forests are adapted to wild fire and mostly old growth with a high density of hollows. Further, the sheltered gully forests are protected from wildfire and even the hottest fires do not burn Newnes Plateau entirely. The overall importance of this forest should not be discounted by Centennial Coal. 'The Newnes Plateau area includes a high number of rare plant species. The reasons for this may be that the area functioned as a refugial area during past drier periods. 'The Newnes Plateau, with its higher elevations, regionally lower temperatures and higher rainfall, but with generally similar soil and nutrient conditions to the surrounding landscapes, is positioned at the mesic end of the temperature/moisture gradient. Its vegetation community and habitats are likely to be part of a future natural refuge area, allowing local populations of species which are depleted, or die out in the drier conditions elsewhere to persist there' (Benson, D., 2006).

In addition the Springvale Delta Water Transfer Scheme (SDWTS) seeks to inappropriately dispose of up to 43.8Ml/day of untreated mine effluent to the Coxs River, adding 30 tonnes of metal enriched salts per day to Sydney's drinking water supplies.

The proposed SDWTS augmentation would inappropriately duplicate the easement off Newnes Plateau. This proposal will needlessly bulldoze a second road and ten metre wide easement for a 710mm diameter pipeline off the Newnes Plateau through a Brown Barrel forest between two large, dramatic pagoda-studded ridges and then a nationally endangered grassy tableland forest. This proposal, instead of a parallel duplication of the existing pipeline is unjustified in the EIS and totally unacceptable.

This submission outlines in evidence and observations many years of damage to Newnes Plateau upland swamps and streams on sandstone by both Angus Place and Springvale mines.

The facts will demonstrate that this proposed mine extension is likely to result in unacceptable consequences to swamps and streams. The apparent omission from this Environmental Impact Statement of past evidence by Centennial's consultants (and third parties) is cause for serious concern. This evidence describes damage to swamps and streams caused by its longwall mining on Newnes Plateau of an intensity equivalent to that now being proposed. Such action appears to indicate unprofessional conduct by the company's consultants.

The clear evidence of swamp damage over many years combined with Centennial's denial of this damage and poor efforts to repair it necessitates strong protection zone measures and a significant reduction in mining intensity for this proposal. Newnes Plateau is a high conservation value area which merits protection in a state conservation area. Newnes Plateau is at great risk of serious environmental damage by continued inappropriate, poorly managed and controlled mining operations if this proposal proceeds as proposed.

The adverse environmental and economic impacts caused by the failure of the Delta Springvale Water Transfer System (DSWTS) and effluent discharges from it are a further cause for serious concern. All effluent discharges from the DSWTS must be subjected to reverse osmosis treatment to remove all salts and metals so that these discharges do no harm to sensitive downstream environments.

<u>Planning Assessment Commission processes and consideration of staged approvals</u>

Unless Centennial Coal modifies this mine extension proposal to adequately protect significant heritage values, and removes the salt from its discharges to Sydney's drinking water supply, it should be refused development consent.

The proposed mine extension must be subjected to further major review processes to reduce the intensity and extent of the proposed mining operation so that the likely significant environmental impacts can be moderated. Important state, national and international heritage values must not be impaired by the proposed longwall mining operations.

The Colong Foundation requests that this proposal and the adjoining Angus Place mine extension (SSD 12_5602) be subjected to a concurrent Planning Assessment Commission (the Commission) review. The Commission's hearings should also be held concurrently and permit questions of parties to these hearings. Questions to the parties associated with these proposals are necessary because significant policy for longwall mining rests with the Commission's determination findings and

recommendations, particularly in relation to nationally endangered upland swamps. As the Department would be aware, the proponent, Centennial Coal has made a number of assertions that need to be tested, the most remarkable of which is that there is almost no evidence that longwall mining has caused damage to swamps on sandstone. Another assertion is that mine discharges will not impact upon the Coxs River. Such claims seem to rest on very little supporting evidence and are contradicted by the facts as understood by the Colong Foundation.

In addition, this proposal should not be granted a long-term approval, should the Department of Planning and Infrastructure (the Department) and Commission recommend that the mine extension proposal be approved. The Colong Foundation proposes at the very least staged approvals with triggers requiring review of consent conditions should impacts be observed in environmental matters of national and international significance. There has been much controversy surrounding the operations of both these underground mines. To issue an extension of the existing consent for a period of 13 years as requested by the applicant, without review would be inappropriate.

The consent can easily be staged, in the manner of the Dendrobium Colliery in the Southern Coalfield, with approval issued for no more than five years, with subsequent approvals contingent on performance to meet consent conditions.

Consent should be subject to performance standards triggers that ensure the health and integrity of receiving waters and heritage values. If trigger levels are exceeded then consent should be immediately reviewed to address the failures at any time. Such a supplementary approach is, however, only as good as the monitoring of key indicators, and this is where the current regulatory regime fails abysmally for these mines.

The Colong Foundation believes that self-regulation and adaptive management cannot work, as the regulator has a vested interest in finding no impacts. A large component of this submission will illustrate that this is indeed the case with Springvale Mine.

One solution to this problem is to permit others to provide effective input to regulation, or at least to inform it so as to avoid regulatory failure. State agencies are too busy to undertake regulatory tasks and follow these issues in detail. The current arrangement of providing input of regulatory failure directly to the company is a complete failure for reasons that will be explained. The Colong Foundation, Blue Mountains Conservation Society and Lithgow Environment Group has for decades provided monitoring in relation to coal mining in the Western Coalfield. This monitoring has been provided on a voluntary basis and has resulted in improved environmental outcomes. The regulatory and decision-making environment should be responsive to these services and the role environment groups play.

General: Mining-related rock fracturing impacts on stream flow

The following generic description of groundwater impacts associated with longwall coal mining is the Colong Foundation's understanding of mining-related damage to streams and swamps in the Gardens of Stone:

Firstly "Groundwater levels drop as confined aquifers become rapidly unconfined.

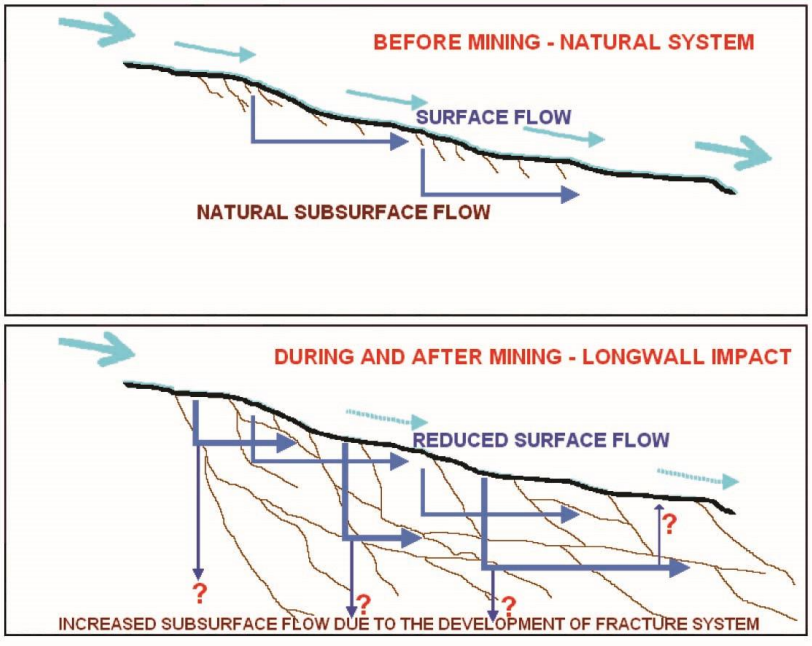
Second, topographically high or perched aquifers drain to lower aquifers and zones through aquitards fractured by subsidence.

Third, increased fracture permeability over the panel decreases hydraulic gradients, lowering heads up-gradient.

Fourth, drawdown spreads out around and ahead of the primary head drop in the subsided area, to an extent varying with transmissivity" (Booth, C., 2009). If overlying rock aquifers above a mined coal seam become hydraulically connected with surface waters, then the stream may lose its permanent base flows, particularly if associated near-surface aquifers are compromised by rock fracturing.

"A reduction in streamflow may not only be the result of fracturing streambeds and rockbars in the main stream overlying an active longwall mine; mining-induced fracturing can extend across the catchment and its tributaries, generally bounded by the limit of subsidence. Whereas the primary head drop from increased fracture porosity occurs in the subsidence trough defined by the angle of draw, the extent of the transmitted drawdown itself defines the vaguer angle of dewatering influence" (Booth, C., 2009).

"Increased fracturing allows rainfall to infiltrate and recharge fractured aquifers, reducing runoff available for recharging streams. Although rainfall recharge to the shallow aquifers can increase, groundwater levels can also decline due to the mining-induced fracturing of the rock mass, causing the dewatering of shallow aquifers and reducing base flow discharge" (Jankowskia, J, 2009).



Model of longwall mining damage to near surface groundwater aquifers (Jankowskia, 2009)

Expressed another way, the cracking across large areas of headwater catchments would increase the downwards permeability in the near-surface aquifers. This cracking of a catchment may greatly

reduce the capacity of near-surface groundwater to support stream flow, as in the case of Junction Swamp and across the headwaters of Kangaroo Creek on Newnes Plateau.

Rock fracturing accompanying longwall mining is also associated with the remobilisation of joints and faults that extend to depth through the rock strata. The Colong Foundation believes one reason for the Springvale Mine being such a wet mine is associated rock joints and faults that extend through the Tertiary and Permian rocks above the mine.

Monitoring and loss of near-surface groundwater

During longwall mining, rock strata containing near-surface groundwater aquifers can be affected by surface cracking to a depth of about 10 to 15 metres. Springvale Coal has already mined under 39 hanging swamps (Springvale Coal, July 2008, Attachment 3, and repeated by MSEC, 2014, page 76, App. D). These perched aquifers have been damaged by longwall mining under Newnes Plateau, but only one, **Junction Swamp**, has been monitored during mine operations.

Centennial Coal claims that much of the water disappearing from fractured streambeds may re-emerge further downstream. There is evidence to the contrary for East Wolgan Swamp. Such re-emergent surface water is often heavily contaminated with groundwater polluted with salt and metals. This re-emergent, potentially eco-toxic water could not help a swamp or affected stream reach upstream that had suffered water loss. Any downstream sensitive instream environments and riparian environments, such as some shrub swamps and the Greater Blue Mountains World Heritage Area, could be impacted by eco-toxic groundwater effluent.

Carne Creek is currently in a pristine state, and its waters (which flow through the Greater Blue Mountains World Heritage Area) are of the highest standard. This creek was a key determinant in the location of the Emirates eco-resort. The extensive sandstone fracturing under headwater swamps associated with longwall mining will release high levels of metals, notably manganese and iron, polluting Carne Creek and making it run bright orange, just like the Wolgan River did once (see our submission on the Angus Place extension [SSD 12_5602]). Flows in Carne Creek will also become irregular. Bungleboori Creek will also be affected in this manner.

Swamps impacted by Springvale Colliery

The first swamp to be undermined by Springvale Colliery was located in the headwaters of Kangaroo Creek in 1997. The swamp has been dry since then, with most of the Leptospermum shrub layer dead and a sparse unhealthy groundcover. Eucalypts are now colonising the swamp, as is apparent when aerial images from the 1990s are compared with current high quality Google Earth imagery.

Junction Swamp was the second swamp to be undermined in 2003-2004. It is described as a small swamp fed by a perched water table (Centennial Angus Place, 2005). Its Sphagnum moss, coral fern, sedge and rush species were healthy in 2001. These species had declined by 2006 (Springvale Coal, Nov. 2006, Attachment 5, table 4). Emergent eucalypt saplings were reported in March 2007

(Springvale Coal, Attachment 4, section 3.4) indicating the swamp is evolving into a woodland. The swamp's stands of Leptospermum are dead or in a poor condition.

Groundwater 2001 Groundwater 2007

Paired images: Junction Swamp vegetation and groundwater changes following longwall mining

The third endangered swamp to be undermined was East Wolgan Swamp, located on Newnes Plateau 330 metres above the Lithgow coal seam. The northern end of the swamp is above the Springvale mine. The sandstone under this part of the swamp was cracked along an existing faulted zone when longwall 411 passed under the swamp commencing in March 2006 (Springvale Coal, July 2006, page 4 and 12). In November 2006 groundwater levels in the swamp were reported to have rapidly declined and continued to show limited response to rainfall (Springvale Coal, Nov. 2006, page 13 and Nov. 2007, pg 14). A surface cracking report was then prepared which incorrectly described the cracking as "minor" (Springvale Coal, Nov. 2006, page 33).

Subsequent monitoring again reported the damage as "minor", with "sequential photographs ... demonstrating that the cracks are rapidly weathering and filling with silt" (Springvale Coal, Mar. 2007, pg 10), and then as having a "minimal impact" (Springvale Coal, Mar. 2007, Attachment 5, pg14). Evidence of upsidence apparent to even the most amateur observer is described as minor by subsidence monitoring and reporting (Springvale Coal, Mar. 2007, Attachment 5, pg 8). The very obvious damage to the swamp was in fact serious and the degree of damage was instantly apparent to anyone who inspected it.

Following the commencement of longwall 411, discharges of up to 14 megalitres/day of saline mine effluent from licensed discharge point 4 were said to have "no effect on the East Wolgan's flows" (Springvale Coal, Mar. 2009, pg 15). This major anomaly apparently did not trigger any concern by the company, its consultants or departmental regulators.

From November 2006 Springvale Coal should have been fully aware of the significance of the cracking and its impact on stream flows. Instead, up until November 2008, Springvale Coal

concluded “there is no requirement to instigate additional monitoring due to impacts nor is there any need to undergo additional consultation” (page 39).

The extent of damage continued to be heavily downplayed until finally in March 2009 it was proposed to conduct more investigations into flows water through East Wolgan swamp (Springvale, page 41). This response was prompted after the Blue Mountains Conservation Society showed the company’s staff the gaping crevasse through which all mine effluent and surface flows “disappeared”.

Up to 14 megalitres a day of mine effluent had flowed down a crevasse at the northern end of East Wolgan Swamp for periods ranging from weeks to months (Springvale, Mar. 2009, pg 17) over almost three years. No mine consultant had adequately reported its significance, although access to the crevasse site is well trampled by ‘visitors’.

At the time, the Springvale Mine Subsidence Management Plan required that anomalies, such as crevasses that swallow megalitres of mine effluent a day, be immediately reported to the Department of Industry and Investment, Mineral Resources Division.

In November 2009, Springvale Coal reported it had “found that water was entering a cavity and not resurfacing. Several inspections in adjacent drainage lines as well as inspections downstream of where the cavity is located *did not locate the water* [my emphasis]. Monitoring from a nearby piezometer array indicates that the water is travelling to a depth of approximately 60-70m underneath the swamp and most probably travelling laterally and pooling within the bedding partings. The investigation found that the water, however, did not enter the mine workings” (page 14).

For this extension proposal, however, in relation to Sunnyside Swamp Centennial claims that ‘there is no identifiable change to surface water flow due to existing subsidence-related impacts of mining’ (page 280 and Fig. 10.2 page 281, EIS Vol. 1). Considering only the data points in Figure 2, however, it appears that Sunnyside Swamp flow rates are lower, often zero, and more erratic when compared to flow rate data points for Carne West Swamp. Colong Foundation also believes that flow rates for streams are affected by mining beyond the angle of draw, as Booth mentioned (2009) and also Pells Consulting did in relation to the devastation of Thirlmere Lakes. In other words, the true pre-mining picture for both swamps is not known as near-surface ground water for both swamps had been affected before monitoring started.

The crevasse (left) in East Wolgan Swamp that can receive 14 ML/day (right) (Photo: C. Jonkers, Nov. 2008)

Subsidence cracking of the sandstone bedrock has drained and dried out East Wolgan Swamp (Photo: M. Wilkinson, 2009)

All 1,860 hectares affected by the proposed longwall mining will be subject to surface cracking. Whole sub-catchments will be fractured to a depth of 15 to 20 metres. These fractures will link with remobilised faults and joints that extend across the area mined. Surface groundwater aquifers will become more permeable and interconnected. Centennial predicts surface aquifer drawdown in the Burralow Formation, the topmost strata and an unconfined aquifer, to range from 10 metres under ridges to 0.5 metres under shrub swamps (page 298, of the EIS Vol. 1). For such groundwater dependent swamps such a drop in groundwater level is significant because the peat will remain drier more often and for longer.

Sandstone supporting the 41 nationally endangered swamps, and particularly the 11 shrub swamps affected by the proposal, will also develop a large number of fractures. Centennial predicts these cracks to be 5 to 50mm wide and 10 to 15 metres deep. All these nationally endangered swamps will dry out and the peat soils that support these swamps will decompose. Over a period of years eucalypts and banksias will migrate into these dying swamps as they evolve to dry land communities.

Longwall mining of the proposed extension area will cause unacceptable environmental impacts to important swamps, pagodas, and stream environments in this significant part of the Gardens of Stone region. Centennial Coal must not be allowed to simply replicate the damage it has already caused to nationally threatened upland swamps on the Newnes Plateau for which it was required by the Commonwealth Government to pay $1.45 million in reparations.

Previously, Centennial Coal consultant, Aurecon, has claimed groundwater levels in the Banks Wall Sandstone above the Mount York Claystone 'has been relatively unaffected by the mining to date' (page 14, Appendix 7.4 of the EA for Angus Place Project Approval 06_0021 modification under Part 3A). Examining the figure, it is obvious that groundwater levels in **all piezometers, except one, either dropped 50 metres RL on the passage of LW 411 or failed** due to being in the fracture zone above the Springvale longwall. The exceptional piezometer #9, the topmost one, is not responding through time. No response in this piezometer, SPR39 at the Springvale Colliery, suggests either no water level change, unlike all the others, or more likely, that the piezometer was defective or sitting at the bottom of the hole from 23 February 2006 to 23 March 2009.

In other words Figure 4 is, in fact, evidence that longwall mining at Springvale Colliery has lowered groundwater levels by 50 metres through the entire stratigraphic column.

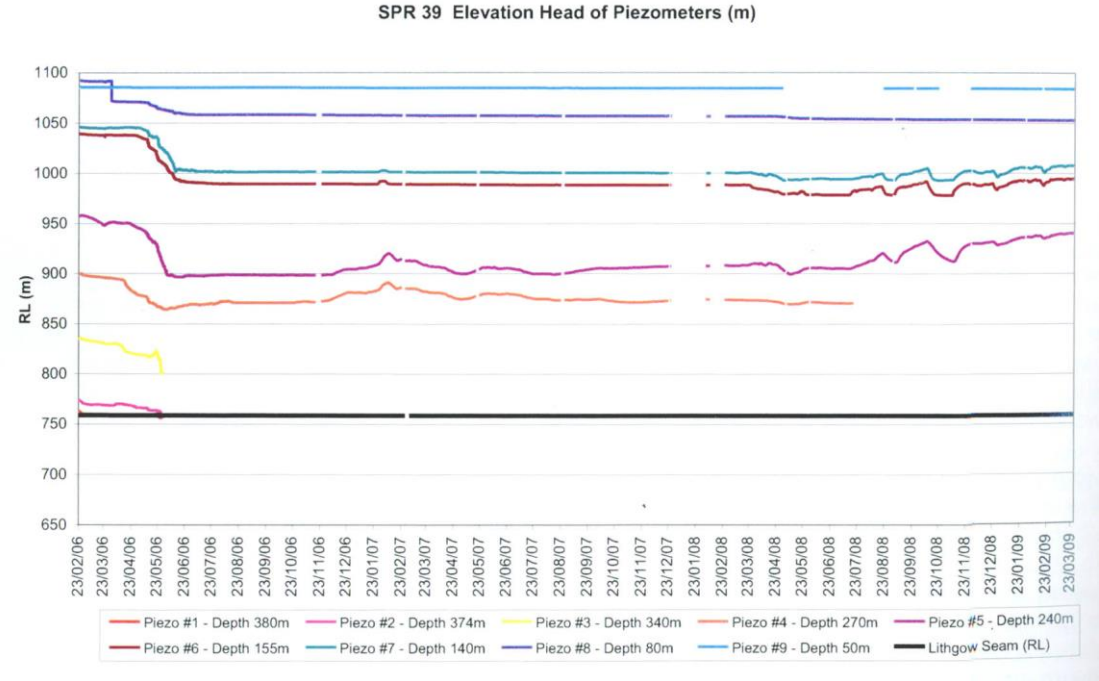


Figure 4, page 15, Aurecon

Ineffective swamp monitoring and management

The mining companies' monitoring data regarding swamps, surface water and groundwater has failed to report on obvious swamp and stream damage.

Centennial Coal's monitoring has not provided the necessary and adequate information to assist decision-makers regarding their damage assessment for swamps and streams. This could be as simple as the provision of clear images to regulators of the worst examples of dead swamp vegetation and streambed cracking. Centennial's groundwater monitoring bores, on the other hand, may meet regulatory requirements but do not appear to identify known problems. This suggests that most monitoring bores are in the wrong place.

At one vegetation monitoring site on East Wolgan Swamp, teatree vegetation cover had fallen from 20-50 per cent of the site (condition 5) to less than five per cent of the site (condition 2) (Springvale July, 2008, Attachment 4, section 3.3). From the figure below the drastic decline in swamp condition can easily be observed, yet it went unreported. An image would have been more informative than the bland condition statement provided.

East Wolgan Swamp death: tea tree condition fell from condition 5 to 2 (Photo: C. Jonkers, 2009)

The Springvale Water Transfer Scheme

<u>Background</u>

In 2002, Springvale Mine entered into a pollution reduction program with the then Environment Protection Authority and began looking for alternative discharge points (Australian Mining, 2008). As a result of this program, Centennial Coal proposed to provide a substantial part of the water that Delta Electricity needed for its power stations to operate.

A scheme was then constructed in 2006 to handle up to 30 megalitres a day or about 11 gigalitres a year. The scehme now pumps at 20.9 megralitres per day, 12.5 megalitres a day from Springvale Colliery and a further 8.4 megalitres a day from Angus Place Colliery.

The water was initially transferred by a 10 kilometre pipe directly to the Wallerawang power station. In 2006 the Scheme was awarded the Water Recycling and Conservation Leadership Award at the Department of Water and Energy's 2006 Energy and Water Green Globe Awards.

Shortly after being commissioned in 2007, the scheme developed serious problems and ceased to be operational in 2008. Issues arose with the integrity of the pipeline, and the use of mine effluent water in Delta's power plants, apparently due to its high salinity and grit. While the transfer scheme was out of action, Springvale Colliery conducted an "emergency discharge" initially for seven months. Two discharge points from Springvale, LDP 4 and 5, were sending around 15 megalitres a day into a tributary of the Wolgan River on Newnes Plateau.

On July 30, 2008, pollution licence 766, which then covered the Wallerawang and Mt Piper power stations, was varied to require a program of works to treat the Springvale mine water and reduce suspended solids by 1 October 2008 (DECCW, 2008). The works also involved discharge of water into Sawyers Swamp Creek (DECCW, 19 Feb, 2009), which flows to the Coxs River. The diversion was completed and the "emergency discharges" ceased regular operation in February 2009. Delta and Centennial then built a joint venture "water treatment plant" at the Kerosene Valley Ash Repository to reduce suspended solids in the effluent. This settling pond was completed in mid 2009 and has a capacity of 30 megalitres a day. To ensure electricity production was maintained during these works, a reverse osmosis plant to treat water to reduce salinity was temporarily installed at Wallerawang power station (Delta, 2008).

Also on 30 July 2008, the Community Reference Group for Delta's Mt Piper Power Station was advised that "drought conditions" had affected the condensers at the Wallerawang Power Station, requiring works costing $35 million. The "drought conditions" had necessitated the use of untreated saline and turbid mine effluent in condensers designed to run on fresh water. The replacement condenser tubes are of a material able to handle prolonged exposure to water with higher saline levels (Macdonald, 2008).

The then new Springvale Water Transfer Scheme was so defective that it required the construction of a water treatment works (i.e. settlement pond) and repair of several major pipeline failures.

These failures arose because the Springvale transfer scheme was pushed through under the arcane *Pipelines Act, 1967*, as pipelines for mining operations are deemed complying development under the 2007 State Environmental Planning Policy for Mining. Approvals under that Act do not require prior community consultation. In effect, the public comment and review processes that provide free access to the accumulated experience of the community were not available to Delta and Centennial Coal.

"Cutting red tape" does not always result in improved economic outcomes, while it almost certainly lowers environment performance. A letter to Centennial Coal in 2007 by the Colong Foundation

warning that saline effluent would play havoc with power station infrastructure was ignored. Time and money would have been saved had an adequate environmental impact statement, with public consultation and review processes, been undertaken. These processes would have exposed the problems inherent in the design constructed.

The Springvale scheme also means that the Coxs River has become saline. The Blue Mountains Conservation Society in the public interest and at great expense to itself has negotiated with Delta a reduction in the pollution of the river following proceedings in the Land and Environment Court. As a result, Delta Electricity is required to obtain a pollution licence from the Environment Protection Authority (EPA) to limit its maximum pollution concentration levels for copper, zinc, aluminium, boron, fluoride, arsenic, nickel and salt in its discharges from Wallerawang's cooling towers. This decision was to ensure effective pollution control technology was constructed by the end of 2015, but now with Wallerawang Power Plant closed, these environmental gains may not be achieved, unless transposed to the original pollution source, the SDWTS.

Through open planning processes, the Department of Planning and Infrastructure and the Planning Assessment Commission must leverage the above settlement with Delta to impose an effective and adequate water cleansing program on Centennial's mine effluent transfer system to restore the health of the Coxs River. Maintenance of clean waters would significantly lower operational costs for drinking water suppliers and for power generators.

Saline mine effluent and proposed further discharges to the environment

Groundwater salinity refers to the total amount of salts, including metal salts, dissolved in groundwater. The effluents from Angus Place and Springvale Mines are presumed to be entirely groundwater by Centennial Coal, although this has not been proven. When fractured aquifers contain sulphide minerals or are connate aquifers devoid of oxygen, dissolved metal concentrations relative to receiving surface streams can be very high.

The introduction of mine effluent into receiving surface water and associated unconfined surface groundwater systems can damage riparian ecosystems. For example, saline mine effluent can contaminate and persist in the peaty soils of shrub swamps. Damage may occur due to the effluent chemistry or temperature being unlike that of the receiving waters (or area of reintroduction, in cases where the discharge is into a swamp). These chemical and temperature impacts increase with the longevity of dewatering points as the salts accumulate in the ecosystems affected.

The surface waters of the Gardens of Stone are naturally very low in salinity (typically 30uS/cm). At its source near Long Swamp, the Cox's River salinity rests at 30uS/cm (Jonkers, 2009). RPS (2014b) has determined that there is a median salinity of 910uS/cm for LDP001 and 1,055uS/cm for LDP009 (Page vii, App. H, Vol. 2 of the EIS). The high salinity of mine effluent from LDP001 and LDP009, around 30 times higher than natural conditions, will significantly impact aquatic and riparian ecosystems that have evolved naturally under very low nutrient conditions.

Both Springvale and Angus Place mines have records of non-compliance with pollution licensing (POEO licence 467 and 3607). There is a systemic water pollution problem at Springvale Mine in

particular. Of the 977 non-compliances reported for both mines from 2000 to 2012, most relate to water pollution and the Springvale mine. More effective pollution controls are required to meet existing unsatisfactory licence conditions that do not adequately address current levels of metal and salinity pollution.

Currently the proposed discharge up to 43.8ML/day of untreated eco-toxic mine effluent to the Coxs River via the Springvale-Delta Water Transfer Scheme (SDWTS) will be discharged by LDP009 as Wallerawang Power Plant has shut down, possibly permanently. The amount of salt to be discharged with this effluent is calculated for LDP009 to be approximately 31 tonnes per day or 11,315 tonnes per year.

The proposed discharges from LDP009 and LDP001 are inconsistent with the Sydney Catchment Authority's Drinking Water Audit 2010 recommendations that require improved treatment of such licensed discharges. These proposed discharges are also contrary to and will effectively cancel out negotiations between Blue Mountains Conservation Society and Delta Electricity to seek an adequate pollution licence that limits concentrations of metal and salt pollutants, therefore requiring the construction of further pollution controls to achieve such an outcome.

In effect, the power plants concentrate, through evaporation of up to 69Ml/day of water, the salt discharged into the Coxs River catchment by these coal mines. The only effective solution is to remove the source of the metal and salt pollution by treating the effluent from the coal mines that operate in this catchment.

Further, the closure of the Wallerawang Power Plant means that the salt and metal pollution will instead be sent downstream via the Coxs River through the Greater Blue Mountains World Heritage Area and into Sydney's main drinking water supply, Lake Burragorang.

Before discharge, this mine water must be treated to a standard that protects undisturbed aquatic ecosystems. The eco-toxic mine effluent has unacceptably high levels of turbidity, heavy metals (including aluminium, zinc, copper and nickel) and salinity. The mine effluent, currently running at 12.5Ml/day from LDP009 must be treated using reverse osmosis technology to remove all metals and salts.

Emergency storage arrangements

Any malfunction of the SDWTS, such as the destruction of the pipeline during a bushfire, must not result in emergency discharges to the World Heritage Area via Wolgan River or Carne Creek. These discharges must be reinserted underground into the mine instead.

The existing EPL3607 must require LDP004 and LDP005 to be decommissioned as emergency discharge points. The proposal to redirect emergency mine inflows from the SDWTS underground into Angus Place Colliery's 900 water storage area via the existing Angus Place 940 Bore facility is supported, provided that these transfers do not then report to the surface and escape the mine site as untreated effluent. Further, if the extension of Angus Place colliery does not proceed, then another solution for emergency discharges needs to be developed.

The Colong Foundation is, however, suspicious of the above arrangement given the previous unauthorised mine effluent discharges at Angus Place mine in relation to the Area 300 storage that was alleged to be capable of receiving 4.7Ml/day. Area 300 adjoins the 900 Area and is probably contiguous with it.

The Colong Foundation notes that Centennial has provided no daily capacity estimates for this re-insertion arrangement for the 900 storage area. Given that the capacities are up to 43.8Ml/day, requiring 710mm diameter pipes laid underground, these unspecified arrangements seem dubious and require further consideration by the regulatory authorities. It also seems highly unlikely that some vast underground area is available to receive such volumes of water make, as longwall mined areas that have been worked out are usually flooded. Such flooding would be almost a certainty for wet mines like Angus Place and Springvale. For this reason, the proposed emergency arrangements seem an unlikely solution unless the storage area reports to the surface as suspected.

<u>SDWTS must keep to the existing pipeline alignment</u>

The proposed duplication of the SDWTS must keep to the existing alignment. The current proposal for an additional road and pipeline easement descending off Newnes Plateau will cause totally unacceptable scarring to a scenic part of the Gardens of Stone region.

Figure 4.1 page 155 (Vol. 1) reveals that that the proposed SDWTS does not follow the existing corridor in the most sensitive area of the western edge of Newnes Plateau. The road and 10 metre wide easement proposal descends into Sawyers Swamp Creek from the northern side southwards from the Old Bells Line of Road.

The existing SDWTS infrastructure alignment further to the south must be followed. This will avoid the destruction of a Sheltered Peppermint – Brown Barrel Shrubby Forest between two significant and well featured Pagoda spurs above the creek. It would avoid unnecessary bisection and severe damage to a Tableland Gully Snow Gum – Ribbon Gum Montane Grassy Forest, an endangered ecological community.

Regional Biodiversity Offset Strategy

The Director General's requirements (6/12/12) for the biodiversity offset strategy requires Centennial Coal to develop 'An offset strategy, which is clearly quantified, to ensure that the development maintains or improves the terrestrial and aquatic biodiversity values of the region in the medium to long term' (App. I. page1, Vol 2 Angus Place EIS). Centennial Coal and RPS have taken a miserly interpretation of this direction.

The offsets proposed by Centennial implement the Office of Environment and Heritage draft Biodiversity Offset Policy. The following analysis of Centennial's proposal illustrates that this draft offset policy is an unfair approach to offsetting damage arising from proposed development.

Centennial's approach considers plant communities that are allegedly directly impacted, such as The Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland, an Endangered

Ecological Community under the Threatened Species Act which will be needlessly impacted by a second pipeline easement for the proposed SDWTS duplication.

Centennial distinguishes plant communities that are allegedly indirectly impacted from those that are directly impacted. By indirectly impacted, Centennial means plant communities that have been subjected to longwall mining where it claims there is no significant impact on these communities. Notwithstanding the fact that longwall mining is a Key Threatening Process for nationally threatened swamps, Centennial has found that longwall mining is 'unlikely' to have an impact on these swamps.

Only Matters of National Environmental Significance and Endangered Ecological Communities are considered in relation to these so-called indirect impacts. For example, the offset analysis has not been applied to the 200 hectares of the Birds Rock Flora Reserve that will be damaged by the proposed mining. A flora reserve is considered an IUCN category 2 reserve and some flora reserves in NSW are World Heritage listed.

The Colong Foundation disputes that the three EECs that comprise the Temperate Highlands Peat Swamps on Sandstone (THPSS) are indirectly impacted by the proposed longwall mining operations. Longwall mining is a key threatening process and is likely to directly impact on THPSS through mine subsidence. Damage to swamps above the area of influence of longwall mining operations is clearly a likely impact.

Centennial, having relieved itself of direct impacts to EEC swamps, claims that 'the residual impacts following avoidance and mitigation are not significant, direct offsets are not required' (page 3 App. I, Vol 2 of EIS). Having found itself not responsible for insignificant 'residual' 'indirect' impacts, Centennial magnanimously offers an offset, 'provision of land to compensate potential impacts', in the case of these nationally endangered swamps.

Centennial claims the proposed longwall mining will not be the likely cause extinction for local populations of the Giant Dragonfly, Blue Mountains Sink, and *Boronia deanei, Derwentia blakelyi, Olearia quercifolia* and *Leptospermum blakelyi* because of the drying out of nationally endangered swamps that paradoxically will be a direct impact of being undermined. Their analysis of the impact on these species is not unlikely or low, as they claim, but rather extremely likely as longwall mining is a key threatening process to swamp habitats in with they live.

The swamps to be impacted by the proposed mining are the best remaining on Newnes Plateau. The reported findings in Table 2 to Table 5 (App. I, Vol. 2 of the EIS) are inaccurate, misleading and inconsistent with the evidence. The claim in Appendix I that the proposed mining is consistent with the threat abatement plan for Blue Mountains Skink is wrong, as the impacts are not adequately mitigated by proposed longwall mining arrangements.

To conclude in Table 4 of Appendix I that bulldozing an unnecessary road and ten metre wide pipeline easement through a Tablelands Snow gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland is unlikely to have an adverse impact on this Threatened Ecological Community is also wrong. The analysis regarding frog impacts in Table 2 to Table 5 is also wrong as it assumes that swamps and streams are unaffected by the proposed longwall mining.

Centennial Coal proposes offsetting 342.2 hectares of former farmland in the Capertee Valley it claims may have 160 fauna species and various endangered communities (page 3 App. 1, Vol 2 of the EIS). This all sounds promising except the proposed offset does not compensate like for like, the loss of nationally endangered swamps or the impacted woodland on or below Newnes Plateau.

Significant direct impact on THPSS East Wolgan Swamp. Groundwater has obviously been lost with no recovery since May 2010. Such damage is not restricted to swamps in major fault zones and steep valleys.

The 342.2 hectare offset covers all recent proposed operations by Centennial Coal in the Western Coalfield. The offset for Angus Place and Springvale is only Lot 135/DP755757.

Lot 135 also covers the new Angus Place Vent Shaft No 2 and Springvale Bore 8, as well as the Western Coal Services Upgrade Project. The proposed offset is also to cover, for reasons that are not explained, the Clarence Reject Emplacement Area VI.

The total of 31.5 hectares of native forest to be cleared for mine infrastructure and 100 hectares of swamps to be damaged by the two mine extensions as explained Tables 11 to 15 is misleading. It is unclear how much clearing and so-called 'indirect' impacts on EEC are being compensated by this offset, perhaps an additional 200 hectares, perhaps more land is directly impacted.

The omission of the total land area to be cleared and that 'indirectly impacted' means that the offset analysis in Appendix I does not comply with the Director General's requirement for clear quantification. To be clear, the offsets for Angus Place Vent Shaft No 2 and Springvale Bore 8, Western Coal Services Upgrade Project and the Clarence Reject Emplacement Area VI are not quantified.

Lot 135 DP 755757 is only 86.7 hectares in size (App. I of the EIS, section 6.2 and Table 17), so the earlier reference to '342.2 hectares of critically endangered ecological community and habitat for over 160 fauna species' on page 3 is wrong. The area of endangered ecological community is very small.

Table 18 reveals that only 10 hectares of a critically endangered Box Gum Woodland and Derived Native Woodlands exist on the site. All the claimed threatened animals listed in Table 18 are not recorded from observation, rather it is claimed that the woodlands are 'very likely' to provide habitat for such wildlife (page 23). Please note that title of Table 18 is species recorded in the site *and locality* (my emphasis). In other words, the fauna observations made in relation to the 1,200 hectare Airly Mine over the last twenty years appears to be used in this misleading Table.

Most of the EEC is Derived Native Woodland is comprised of heavily cleared farmland that has been grazed for perhaps a century or more. Figure 1 on page 25 and Figure 2 on page 27 are also misleading as the offset for all the above works is the western most portion adjoining the Castlereagh Highway, Lot 135. Note that this portion is one third cleared and does not connect with the existing Capertee National Park. Most of the EEC is cleared land, the Derived Native Grassland (see map unit 62 in Fig. 2) and the uncleared White Box – Yellow Box – Blakely's Gum Grassy Woodland is only about two hectares in extent (see map unit 20, Fig. 2).

The critically endangered woodland offset of only two hectares is an unacceptably poor exchange for the loss of 63 important near-pristine EEC swamps covering 100 hectares. The presentation is also extremely misleading as irrelevant material is scattered throughout the analysis presented in Appendix I.

The offset for the proposed Neubeck open-cut (lot 163 DP 48336) of 260 hectares really consists of only 15 hectares EEC of which the majority is derived native grassland (read former cattle paddocks). This Newbeck analysis has nothing at all to do with the Angus Place extension or Springvale Mine proposals.

The Biobanking credit values in Table 17 and Table 19 are mostly for non-threatened environments. There are 245 hectares of farmed woodlands in the offset proposed for the Neubeck open-cut and 76.7 hectares of farmed woodlands in the offset proposed for the two longwall mining operations, as well as all the approved activities described above.

As non-threatened degraded woodland species are used for the credits, then non-threatened species for the indirectly impacted woodlands and forests on Newnes Plateau should also be part of the offset calculation. The proposed Angus Place extension covers 2,638 hectares and the proposed Springvale extension covers 1,860 hectares (including the 131.5 hectares of EECs and clearing). These impacted forests are part of a reserve proposal initially put forward by the National Parks and Primitive Areas Council in 1932.

The Colong Foundation believes the offset analysis wrongly calculates its credits. The analysis is mostly for non-EECs farmed woodlands proposed to offset near-pristine EEC swamps damaged by longwall mining and proposed forest clearing for infrastructure.

The Centennial analysis ignores the vast indirect impacts to woodlands (4,498 - 131.5 hectares) due to loss of near surface groundwater following longwall mining. Centennial can't have it both ways, either the credit offsets for non-EECs must be ignored, or the offset cost for 4,366.5 hectares forest damaged by longwall mining included in the offset analysis.

The offset analysis is further weakened by the limited analysis as 'Both the Springvale Mine Project and the Angus Place Project will not impact upon 'credit species' and therefore only ecosystem credits are required' (Page 30, App. I of the EIS). This statement is wrong. The Giant Dragonfly, Blue Mountains Skink, *Boronia deanei, Derwentia blakelyi, Olearia quercifolia* and *Leptospermum blakelyi* will be impacted causing loss of local populations.

The offset analysis does not properly consider naturally rare ecosystems, like the three swamp EECs and other Groundwater Dependent Ecosystems. In Table 21 all the Temperate Highlands Peat Swamps on Sandstone (BioBank Units 562 and 592, equivalent to MU's 50,51 and 52), for example, receive a total score of only -1,306 units and, remember, this is for damaging 100 hectares in 63 near-pristine EEC swamps. This score compares with a total score of -1,424 units given for clearing 23 hectares open forest and shrubby woodlands at the proposed Angus Place extension for facilities. The latter result seems reasonable for common sclerophyll forests and woodlands, the former result is grossly underestimated for swamps extending over five times the area which will be impacted by a key threatening process.

These EEC swamps should not be damaged as they represent the best examples remaining on Newnes Plateau. A biobanking result of <u>at least</u> three orders of magnitude higher is appropriate for these very important swamps. The analysis should generate a score something like -1,306,000 units.

The Ecosystem Credit Balance in Table 21 does not properly recognise the important value of these swamps and is completely unacceptable. The analysis demonstrates that reducing ecosystems to numbers does not inform decision-making, but rather confuse the issue. **The key issue is that the nationally endangered swamps cannot be offset because there are no substitutes and the only proven solution is to prevent damage to the swamps as there are no known means to rehabilitate swamps damaged by longwall mining.**

The offset analysis is also deficient as the values for known populations of threatened species at risk of local extinction are not individually calculated. Further, the statement regarding MU20 made on page 32 and in Table 23 is not reported in Table 17 and appears as double counting. It should be ignored.

Eliminating the 8 hectares of cleared derived grassland that appear to be cattle paddocks, there is just 2 hectares of critically endangered community in the proposed offset. The proposed exchange of 2 hectares of critically endangered box gum woodlands on farmland for 100 hectares of diverse, intact EEC swamps is presented in a grossly misleading manner of the very highest order.

The proposed offset is far too small, not like for like, and degraded by cattle grazing. So what, that the offset connects with a state forest and though cleared land with another proposed offset and through that offset to a national park? So what, that the two hectare offset is alleged to be a higher conservation priority? So what, that the proposed offset can endure, be enforceable and auditable? So what, if it is habitat for 167 animals that Centennial believes are found in the general locality? It is just two hectares remnant of a critically endangered community, with 8 hectares formerly grazed, cleared grasslands tacked onto it! According to the completion criteria (page 34, App. I), the offset needs extensive rehabilitation and management, including exclusion of cattle. It cannot be a significant addition to the conservation estate.

The claimed opportunity cost of $140,000 per hectare for conserving old farmland is far too high for land in the Capertee Valley. The BioBanking Calculator must be defective or the land very degraded and not worthy of conservation. The opportunity cost should be around $14,000 per hectare for low quality grazing land.

Supplementary measures

The Colong Foundation does not consider the proposed research to be an appropriate supplementary measure for the loss of threatened plants and animals through development. Recovery plans and research are needed, but not at the expense of retaining important habitat. Swamp ecosystems cannot be replanted or repaired following damage by longwall mining.

The mechanisms for establishing these research programs include 'Adding funds to the existing agreement between Springvale Coal, Centennial Angus Place and the Australian National University. This agreement was established as the outcome of an enforceable undertaking (page 37). The Colong Foundation believes that extending research funded by the 1.4 million in reparations paid for wrecking swamps four years ago with biobank credits may influence the outcomes of the independent research. Centennial believes that its longwall mining will not have significant impacts on nationally threatened swamps. Centennial does not believe longwall mining is a key threatening process. Centennial is now offering to pay for swamp research that may otherwise be critical of its future operations.

It is also of interest that part of the proposed research is for mapping. The THPSS on Newnes Plateau should have been mapped in detail as part of these longwall mining extension proposals. Centennial Coal is not undertaking its environmental assessments properly and is now seeking research to undertake its mapping work.

Monitoring

The Colong Foundation believes that the monitoring of the nationally endangered swamps is misleading and that proper mapping of these swamps is still incomplete after decades of ineffective management. Despite the expense, the mapping is inadequate as dramatic changes to mined vegetation communities have not been reported over time.

The Colong Foundation does not consider that monitoring of offsets can be subsidised by a reduction in the monitoring effort for nationally endangered swamps, as Centennial proposes (page 40, App. I of the EIS).

The suggestion that the tiny offset proposed for the loss of nationally endangered swamps can, through Centennials Biodiversity Strategy, improve conservation outcomes has no credibility. The offset strategy conserves only 2 hectares of land with high priority biodiversity values; it provides financial support for the offset land by reducing funding for important monitoring of swamp damage; offers access to 86.7 hectares of farmland for tourism and recreation ignoring the large national parks nearby; and may ensure ongoing investment in research, but doing so makes the work dependent on the mining industry.

The Colong Foundation has examined the OEH draft Biodiversity Offsets Policy on which the above proposals are based (see Attachement). The prioritisation of coal mining over the protection of threatened plants and animals under such an offset policy will contribute to the incremental and permanent loss of significant biodiversity in NSW. The above proposals by Centennial Coal illustrate how this policy will accelerate the loss of biodiversity in NSW.

The nationally endangered swamps must be protected from subsidence damage, and not offset in the manner proposed.

Poor Consultation Processes with Non-Government Organisations

The Colong Foundation holds a different view to that presented in section 7.5.1 and especially Table 7.1. None of the Colong Foundation's concerns were properly addressed and after this process the Colong Foundation has not been approached by Centennial for a meeting in the last four years. Very few, if any, of the concerns raised by the Colong Foundation have been 'closed out' as suggested by Centennial in Table 7.1. The claim that 'Centennial will continue to consult and engage with these groups to achieve outcomes of the Consulation Strategy' has not been the Colong Foundation's experience in the last four years.

The Colong Foundation reiterates that self-regulation and adaptive management does not work, as the regulator has a vested interest in finding no impact. The involvement of 'high profile NGOs' in Centennial Coal's self-regulation processes has had no effect on conservation outcomes. If high profile NGOs had some power in the regulation process, then there would be some possibility in influencing these outcomes.

Recommendations

Two sets of hearings on the Angus Place and Springvale mining proposals should be held concurrently by the Planning Assessment Commission. The Commission should permit questioning of parties to these hearings regarding either mining proposal. The responses to these questions should be provided in a reasonable timeframe to permit all parties to submit a submission in reply if they so wish.

The mining footprint must be significantly lessened and mining methods reduced in intensity to protect Carne Creek, pagodas, cliffs and the nationally endangered swamps associated with these proposals. Centennial Coal must be required to consider alternative bord and pillar mining methods for its proposed Springvale extension. Centennial's Airly mine in the Capertee Valley operates to depth of 405 metres underground in the same geology, that is, with bad mine roof conditions and many structural defects. If Centennial can operate Airly Colliery as a bord and pillar mine, then it can also operate Springvale mine in this manner.

The intensity of mining must be reduced to avoid damage to pagodas, cliffs and the many nationally endangered swamps that the current proposal puts at risk.

The proposed Springvale mine extension should not be granted development consent unless:

- The development consent is staged, with a review every five years;
- Consent is subject to performance standard triggers that ensure the health and integrity of receiving waters and heritage values;
- The consent is immediately reviewed if a performance standard trigger level is exceeded;
- No surface cracking of stream beds, under swamps or of pagodas, rock outcrops or cliffs can be guaranteed;
- The intensity of longwall mining is reduced so that all nationally endangered swamps are protected – this includes significantly narrowing (i.e. by 100 metres) longwalls in northern longwalls 416 to 422 to prevent surface cracking under the best developed, largest and most intact swamps on Newnes Plateau;
- There is shortening of longwalls 432, 431, 430 and 429 to prevent damage to the Marrangaroo swamps, and shortening of longwalls 425 and 426 to protect Paddys Creek Swamp;
- Longwall 501 is also shortened to protect cliffs and pagodas;
- All proposed discharge of up to 43.8ML/day of mine effluent to the Coxs River via the Springvale-Delta Water Transfer Scheme (SDWTS) is treated by reverse osmosis technology to remove salt and metals to a standard that protects, the Coxs River, the downstream drinking water supply and near-pristine ecosystems in the World Heritage Area;
- In the event of a malfunction of SDWTS, such as following a bushfire, all effluent is reinserted underground into the mine and not allowed to result in emergency discharges to the World Heritage Area via Wolgan River or Carne Creek;
- Reinserted mine effluent is not allowed to re-emerge in an unauthorised or unregulated manner but is properly treated;
- No emergence of near surface groundwater with elevated levels of salt or metal precipitate in Carne Creek be permitted;
- Representative sites for the piezometers be chosen for groundwater in swamps and streams by a third party agency;
- Monitoring guidelines clearly specify how the condition of groundwater dependent indicator plant species and the general condition of groundwater dependent ecosystems will be performed;
- A comprehensive, systematic pre-mining stygofauna survey be implemented across the project area, with finer resolution taxonomic identification of stygofauna, to ensure that the diversity of stygofauna is properly assessed and potential risks determined.

- All past tracks and trails created by Centennial Coal and its consultants, including those established by trail bikes, are recorded and plans set in place to rehabilitate these trails as soon as practicable as part of the on-going rehabilitation program for this mine;
- Subsidence monitoring be conducted by a third party agency, such as the Office of Environment and Heritage, monitoring paid for by Centennial Coal;
- Monitoring of surface flow and near-surface groundwater monitoring create a comprehensive picture of the sub-catchments affected by mining; and
- Monitoring of changes in ecosystem condition include well exposed, wide angle impacts of affected areas with GPS co-ordinates.

The Colong Foundation for Wilderness does not make donations to political parties.

Thank you for the opportunity to comment of this mining proposal.

Yours sincerely,

Keith Muir
Director
The Colong Foundation for Wilderness Ltd

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Springvale Coal, March 2009, *Subsidence Management Status Report, Four Monthly Update*, page 17 frequent discharges from LPD 4 up to 14 ML/day; page 41 further investigation of flows through East Wolgan Swamp.

Submission on NSW Government 'Draft NSW Biodiversity Offsets Policy for Major Projects' and 'Draft Framework for Biodiversity Assessment'

By Dr Haydn Washington, plant ecologist and environmental scientist, Visiting Fellow at the University of NSW and author of 6 books on environmental issues, including 'Human Dependence on Nature' in 2013

Prepared for the Colong Foundation for Wilderness, May, 2014

Introduction – situating this draft policy within the biodiversity extinction crisis

This policy needs to be assessed in the light of the biodiversity crisis the world and Australia are facing. Humanity is in the process of *causing* the 6th great extinction event that the Earth has faced in the 4 billion year history of life on Earth (Kolbert, 2014). Extinction levels are at least ***1000 times*** above the fossil record norm (MEA, 2005). If we do not take action by the end of this century ***half the world's biodiversity may be extinct*** (Wilson, 2003). Australia has the worst record for mammal extinction in the world, with 27 species extinct in just 200 years (Johnson, 2007; AWC, 2014), and NSW is the leader of the pack in such extinctions. We have radically altered over 95% of the state so that it is no longer in a wilderness condition (WWG, 1986). This is because we have cleared over 50% of our native vegetation and 80% of our rainforests, and fragmented much of the rest. At the same time we have introduced many dozens of feral and exotic species and changed water tables, nutrient cycles and other ecological processes (White, 1997).

At the same time climate change is impacting on biodiversity worldwide (IPCC, 2014), where 18-35% of species are at risk of extinction due to climate change by 2050 (Thomas et al, 2004) and Australia is one of the countries at major risk, given our already stressful el-Niño/ la Niña cycle due to the Southern Ocean Oscillation. Biodiversity in Australia, and in particular in NSW, is thus under great stress. There is thus a real risk of a further cascade of extinctions. Many people in society and government do not understand *why* biodiversity is important. It is not because small furry animals or majestic plants need to be hugged. It is because biodiversity runs the *ecosystem services* on which society depends (MEA, 2005; Kumar, 2010). We rely on biodiversity to maintain clean air, clean water, run the nutrient cycles, create and maintain soil, provide pollinators for our crops, and to provide the psychological and spiritual benefits all societies seek by harmony with nature. We have *obligate dependence* on nature, not the other way around, and our biodiversity is the foundation that keeps running the free ecosystem services we rely on (Washington, 2013).

In the light of the biodiversity extinction crisis we face, this draft policy on biodiversity offsets is a ***recipe for disaster***. It will not lead to improved outcomes for threatened biodiversity. It is likely to lead to another cascade of extinctions in NSW. It is an exercise in PR spin that ignores conservation biology and even common sense. It is based on neoliberal ideology rather than science or ethics, and is a complete surrender to the 'market is God'

mantra. The pretence that this policy is actually an *improvement* and a good thing is a blatant denial of reality. This policy is selling out on decades of protection of the native biodiversity of NSW. The following sections demonstrate why.

1.0 Problems with existing biodiversity offsets policy

For a start, the whole idea of 'biodiversity offsets' as originally proposed was questionable ecologically in terms of long-term survival of the State's unique biodiversity. In essence the current policy (not the new draft policy) meant that at the start you can have *two* areas of similar (like for like) biodiversity, while after the development occurs, you will have only *one* left (which is supposedly better protected). This ignores two key aspects of ecological health and integrity:

1) ***Biogeography*** tells us that the larger the area the more species can survive there viably in the long term. Thus if an area is twice the size it can viably protect 10% more species over the long term (Wilson, 1988). Hence reducing the area of similar habitat will just ensure that less species will survive in the long term.
2) Conservation ecology is based on the fact you need more than just 'species' protected, you need ecosystem diversity and ***genetic diversity within species***. That means you need to keep extensive populations within the same species to maintain that genetic diversity and the viability of the species over time. Thus losing one area of 'like for like' habitat each time an 'offset' is created is degrading the genetic diversity of that species. For many threatened native species to survive in the long term, it is essential to keep all (or at least most) of the genetic populations within that species. Just keeping certain areas of that native species and destroying other areas will jeopardise the survival and viability of such species in the long term.

Biodiversity protection has for long been based on 'CAR' – **comprehensive, adequate and representative**. The current biodiversity offsets protection scheme means that biodiversity in NSW becomes less comprehensive, less adequate in terms of long term viability and less representative in terms of genetic diversity. The current biodiversity offsets scheme thus fails the CAR test.

The comments above are made in the light of the current 'like for like' offsets policy. However, poor though the existing scheme is, the new proposed policy totally **abandons the commitments of the existing offsets policy**. This new policy will facilitate a further 'cascade of extinctions' for biodiversity in NSW.

2.0 Specific problems with the proposed new policy and framework

2.1 Neoliberal market ideology *not* conservation biology

This draft policy is not based on conservation biology or ecology. It is not based on systems or environmental science. As I have written extensively on environmental ethics

(Washington, 2006, 2013) it is certainly ***not*** based on environmental ethics. It does not consider nature has *intrinsic value* or rights of its own. It thus runs totally counter to the growing approach of 'Earth jurisprudence' (Cullinan, 2003), which argues that to solve the environmental crisis we must acknowledge that nature has rights of its own (as several nations such as Ecuador and Bolivia have stated in their constitutions). It is based on the neoliberal idea of the commodification of nature (Washington, 2012) that nature is just something that can be 'bought and sold' in the market. This is made clear in section 9 of the Framework, which states offsets can be carried out by 'acquisition and retirement of biodiversity credits from the biodiversity register established under Part 7A of the TSC Act'. Figure 1 of the Framework similarly shows clearly a proponent can just buy credits from the market to fulfil their offsets responsibility. This policy is thus **not** about science or ethics, it is about the promotion of neoliberal ideology, an ideology dear to the Coalition. It is also about finding other funding for biodiversity programs that are currently paid for under core funding in the budget, and should remain so.

2.2 Abandonment of the principles of ecologically sustainable development

Following the 'Our Common Future' report in 1987 (WCED, 1987) and the 1992 Earth Summit and the commitment by governments around the world to Agenda 21, Australia went through a detailed national process to consider and integrate ***ecologically sustainable development*** into the workings of government (Harris and Throsby, 1998). These principles have been integrated into legislation federally and in most states (e.g. in the Environmental Planning and Assessment Act, 1979) (Preston, 2006). These principles are commonly noted to be in the Intergovernmental Agreement on the Environment (IGAE) (1992) as:

> 3.5.1 Precautionary principle - where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:
>
> i. careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and
>
> ii. an assessment of the risk-weighted consequences of various options.
>
> 3.5.2 Intergenerational equity - the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
>
> 3.5.3 Conservation of biological diversity and ecological integrity - conservation of biological diversity and ecological integrity should be a fundamental consideration.
>
> 3.5.4 Improved valuation, pricing and incentive mechanisms

This draft policy essentially **abandons steps 1, 2 and 3**. It does not uphold the precautionary principle, since it suggests that making it easier to destroy our native biodiversity may not lead to serious or irreversible damage to the environment. Clearly this is false, as all environmental science studies have shown (e.g. MEA, 2005). It clearly abandons intergenerational equity, since the policy if approved will ensure what we pass on much less

biodiversity to future generations. It clearly abandons the conservation of biodiversity and ecological integrity in number 3, since it removes biodiversity as a 'fundamental consideration' given it can be ignored under this policy if it has 'significant overall social or economic benefits' (p. 7, objective 3). However it also abandons principle of the IGAE, since this is not an 'improved' valuation, pricing and incentive mechanism to protect biodiversity. It is the opposite, it is a *retrograde step* that will increase the loss of native biodiversity. The draft policy is first and foremost aimed at making the planning process easier for major project proponents and is clearly contrary to the principles of ecologically sustainable development and to most conceptions of ecological sustainability (Cavagnaro and Curiel, 2012).

Now recently the NSW government has sought in its White Paper on planning to remove the principles for ESD from the Environment Planning and Assessment Act 1979. It stepped back on this attempt due to overwhelming community opposition and lack of support in the upper House. Nevertheless the State Plan and other government documents continue to maintain that the government does support ESD and its principles (as do all other governments at all levels in Australia). NSW did sign the IGAE in 1992 which supports the principles of ESD. However this policy abandons such principles. As we shall see later it may also be in breach of the UN Convention on Biological Diversity, which Australia is a signatory to.

2.3 Abandonment of *real* offsets

The draft policy explicitly allows offset requirements to be reduced or abandoned when they cause a project to be unviable and the project has a significant overall social or economic benefit. These offset 'discounts' will be at the discretion of the consent authority. P. 7 of the policy states:

> *The policy allows the consent authority to reduce offset requirements in certain limited circumstances, where a project's offset requirements may make the project unviable, and the project can demonstrate significant overall social or economic benefits*

Rather than physical offsets, a developer can just pay money to a fund or in fact do nothing in regard to offsets by claiming that *social or economic benefits* outweigh the loss of biodiversity. According to the former Minister for the Environment, Ms Parker media release of March 20, 2014 'our new approach will provide revenue streams to farmers who wish to manage parts of their property for environmental outcomes'. This may mean providing management like weeding and paying farmers to recover degraded endangered ecosystems on their land. This clearly gives biodiversity no real value and is based on the discredited idea of 'weak sustainability' where one can trade human and built capital for natural capital (Cavagnaro and Curiel, 2012). This denies ecological reality and denies the need to protect natural capital as they provide the ecosystem services that society relies this (MEA, 2005; Kumar, 2010; Washington, 2013). It is commonly accepted that any *meaningful* idea of long term 'sustainability' must mean that all three parts are sustainability are carried out at once,

including ecological sustainability, none can be abandoned (Cavagnaro and Curiel, 2012) as this policy does.

Given this is a policy about biodiversity, it is ludicrous for it to suggest that it is acceptable to destroy biodiversity if it provides overall 'social or economic benefits'. That is why we *have* a biodiversity crisis today. This argument flies in the face of all conservation ecology and attempts over decades to slow and stop the extinction crisis. If the NSW government is seriously going to maintain it is acceptable to destroy its natural environment provided there is '*significant overall social or economic benefits'* then ecological degradation and species extinction will escalate rapidly. NSW would also I believe be in **contravention of the UN Convention on Biodiversity**, which Australia has signed. One cannot simultaneously commit to protecting biodiversity and maintain the argument listed on p. 7 of the policy.

2.4 Abandonment of 'like for like'

While the 'like for like' of the current offset policy may have problems, at least it acknowledged that an offset should aim at protection of the specific biodiversity being destroyed by the proponent. The draft policy is based on the Draft Framework for Biodiversity Assessment. This provides for wide variations in the definition of 'like for like' offsets - to such an extent that the concept is almost beyond recognition. The proposed policy effectively abandons this. Instead, it allows the offset to be via mine site rehabilitation (which should already be mandatory under the Mining Act), or by paying money to a 'Supplementary Measures' fund. This can be for:

- Actions under a threatened species recovery program
- Actions that contribute to a threat abatement program
- Biodiversity research and survey programs
- Rehabilitating degraded aquatic habitat

Thus an area of unique biodiversity can be destroyed by paying money into a fund to **carry out things that the NSW government should already be doing** – protecting threatened species and carrying out scientific research. The original idea of 'like for like', the keystone principle of the biodiversity offsets idea, is thus abandoned in the new draft policy. The draft policy allows for mine site rehabilitation to be attributed biodiversity offset credits. This is effectively impossible to regulate over the long time lag between project approval and completion. This proposal also does not recognize the poor record of NSW Government regulation of mine rehabilitation to date, nor the ongoing modifications of existing approvals.

It should also be noted that the term 'supplementary measures' is a misnomer. These are actually unacceptable alternatives. 'Supplementary measures', by definition, augment but do not replace the policy's (unstated) objective of ***protecting endangered biodiversity***

2.5 Failure in clarity about how the system will operate

The draft policy does not have a clear vision, goals or objectives to protect threatened biodiversity. There is no proposed system of 'red flags/no go zones' where impacts must be avoided even when local extinctions are an identified impact. It is thus an even messier system than the current offsets system, while also being a far less effective system.

2.6 Failure to consider genetic diversity

Section 1.4 of the Framework makes it clear that genetic diversity will be ignored, as you can only have *ecosystem credits* and *species credits*. Genetic diversity is specifically ignored, which is understandable as the whole offsets process by its nature will decrease genetic diversity. However by ignoring genetic diversity, it is clear that in the long term, the supposed aims of the strategy will fail. As more and more populations of a species disappear, it will steadily decrease the viability and resilience of that species, making extinction more and more likely (especially in a climate change world, Washington and Cook, 2011).

2.7 Failure to ensure that biodiversity offsets are viable into the future

The draft policy fails to show how biodiversity offsets, even when real areas of offset, are to be viable into the future. Objective 2 of the strategy on p. 6 says:

> *Biobanking agreements provide security and certainty for offsets, as they ensure adequate funding for offset site management and have clear monitoring and reporting requirements. Such requirements* ***give the community confidence*** *that agreed management actions will be undertaken and conservation outcomes achieved.* (my emphasis)

Why should the community be confident that conservation outcomes will be achieved? How can they be in the long term? These is no creation of a Voluntary Conservation Agreement (VCA) or other covenant on the deed of the property that stops it being cleared. The only protection is by the owner of the offset land been paid some funding to manage it as promised for some (unspecified) time period. If they decide instead one day they wish to clear that area, then presumably they just agree to lose that funding. There is no provision for penalties in the policy if people who provide offsets instead destroy that area at a later time. How can we possibly consider this long term protection? How long will such funding exist for in any case? 50 years? 100 years? In terms of long term protection of the state's biodiversity even 100 years is inadequate.

2.8 Failure to protect biodiversity 'in poor condition'

The draft policy provides that biodiversity in 'very poor condition' need not be offset (p. 15). This is open to exploitation by proponents who can poorly manage land under their ownership and then claim no offset is required since it is in poor condition.

2.9 Failure to provide red flags for unacceptable activities

The policy does not even have a clear objective of protecting threatened plants and animals. There are no 'red flags' so that impacts must be avoided when local extinctions are an identified impact, only Commonwealth listed or critically threatened plants and animals are protected.

2.10 Gross misrepresentation of how easy it is to rehabilitate woodland habitats

The draft policy wrongly believes that threatened woodland habitats can be replanted so that biodiversity credits can even be secured for mine rehabilitation. There is no evidence that rehabilitation can replant endangered ecosystems. The Planning Assessment Commission in 2012 noted for the Coalpac Consolidation Project on p. iii of their report that:

> *there is no guarantee that mature woodland can develop on rehabilitated areas (there is no example of rehabilitated mature woodland on an open-cut mine in NSW)*

This argument, which is accepted by the draft policy, is mining industry PR that reflects their denial of their abysmally poor rehabilitation record.

Conclusion

This draft policy (and associated Framework) is a major departure from previous legislation and policies to *protect biodiversity* in NSW and Australia. It is a major retreat from policies based on what has been learned by conservation biology and environmental science over the last few decades. It is a major abandonment of best practice in terms of protection of our natural heritage. It is a major selling out on our responsibilities to future generations. It represents a total abandonment of the principles of ESD that most Australian governments, including previous NSW governments, have previously been committed to. It seeks to support the discredited idea of 'weak sustainability' where the natural capital can be ignored provided there are significant social and economic benefits. Will future generations thank us if we pass on a lot of money but leave them with a biologically devastated world? That is what this policy will contribute towards. The philosophy behind it abandons any conception of environmental ethics or eco-justice. It is motivated purely by a neoliberal ideology where the market is king. It is completely in favour of the developer, where if offsets prove too hard, they can even be omitted. It weakens the meaning of 'offsets' to the point where they will become a joke, a farce, just a source of revenue to fund biodiversity action that the government should be taking anyway. Meanwhile the biodiversity of NSW will suffer an ongoing 'death by a thousand cuts'. The policy does not even have a vision of protection of biodiversity in NSW, and rightly so, for it will not. It will rapidly escalate a new cascade of extinctions in NSW, where we already have one of the worst records in the world.

This is a fundamentally unsound policy. It is unsound in terms of what is known about environmental science and the protection of the ecosystem services that support our society. It is grossly unsound in terms of its worldview, ethics and values. In the long term it is even

unsound *economically*, as it will degrade the state's biodiversity and the ecosystem services that support our economy. I urge the State government to modify the policy and remove the worst features described above. Government in its best form is about working for a better future. This policy will not lead to a better future, but assist in pushing us towards a biologically impoverished future we hand on to our descendants.

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