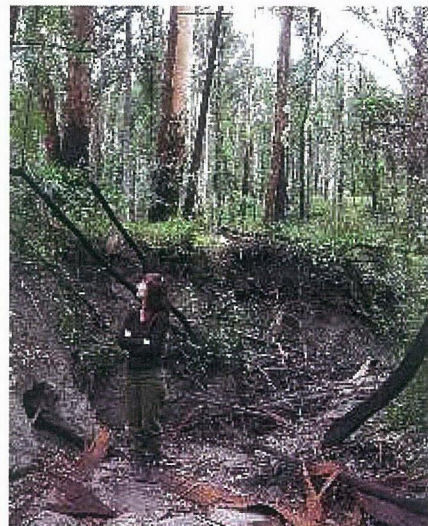
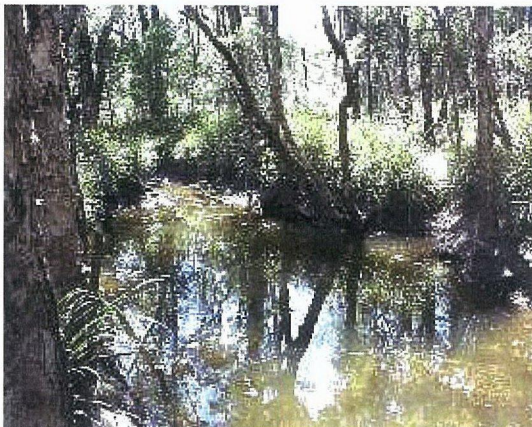


6.3 Subsidence Impacts

Horizontal subsidence is recorded extending to some 3km. This would negatively impact upon catchment areas and *establish “additional” permeable transit water conduit pathways* (identified in earlier geophysical surveys). These new “conduits” facilitate the ingress and drainage of raw water, which would adversely impact upon the dynamic water balance. The occurrence of subsidence was acknowledged although KORES have stated **a)** *“we will see and deal with this matter when it occurs and we will see what happens in the rock similar to those in the valleys where research is continuing”* and **b)** *“the local water catchment would not be damaged and subsidence was not expected to damage nearby rivers and aquifers”*. These are misleading statements and have no validity. Detailed published evidence from the experience in the northern and southern coalfields of NSW is contrary to KORES statement/s.

Diega Creek in Lake Macquarie LGA is a classic example of the destruction of a creek system as a result of longwall coal mining. A recent Hunter-Central Rivers Management Authority report on Diega Creek (*Diega Creek Rivercare Plan, October 2003*) revealed that subsidence from longwall coal mining cracked the creek’s rivers and beds, leaving it now no more than a dry river bed. *Cracks of up to 10cm wide formed after longwall mining under the creek between 1999 and 2005. (Impacts of Longwall Coal Mining in NSW. Total Environment Centre, January 2007. See appendix 4).*



Diega Creek before and
after longwall coal mining

Even the mining company, Oceanic Coal, has acknowledged in the Newcastle media its contribution to the serious decline in the health of the creek.

The Rivercare Plan addresses the result of longwall mining starting at Part 3.3 on page 30 -

“3.3 Mine Impacts

Underground longwall mining commenced beneath certain sections of Diega Creek in

2000. Changes to the creek hydrology and geomorphology (geo=earth, morph=shape) took place as a result of subsequent land subsidence and tension cracking. These changes included creek bed fracture, subsequent creek flow interruption, bed-lowering and bank erosion. The most noticeable change to the creek setting, which has taken place as a result of those impacts in the loss of pools over more than half the study area.

Holla and Barclay, 2000 state that cracks due to mine subsidence are associated with edges of longwall panels. The loss of flow and pools in the creek is caused by the effects of subsidence cracking on surface permeability and an increase in infiltration of precipitation and runoff.

The impacts of the mining on Diega Creek became an increasing concern to the Department of Planning and Infrastructure. In its draft guidelines for mining operations on riverine corridors, DoPI lists the following as potential impacts of underground mining on stream systems:

- Fracturing in stream beds and capture of stream flows
- Bed cracks and fractures leading to incision, bed lowering and bank erosion
- Sedimentation of stream systems as a result of induced erosion on bed and banks
- Groundwater movement away from streams and alluvium”

The response from Kores to this issue is that -

“The risk has been avoided in the case of Wyong River by excluding longwall panels under or in immediate proximity to the river.”

The assertion regarding the geological setting of the overburden is not that there will be no subsidence. The assertion is a confirmation that there will be subsidence the magnitude of which is presently not known. It is cold comfort to the community to know that the geological setting “enhances the accuracy of subsidence prediction” when the magnitude is not known, but is likely to exceed 2.4 metres.

In 2001, the issue of water loss and damage was highlighted at the Commission of Inquiry into the proposed Dendrobium Mine. In its submission, Sydney Catchment Authority said *“There is evidence of pools being drained, reduced flows and a reduction in water quality . . . a potential for cracking beneath swamps to drain a significant amount of water contained in the swamps. This could lead to drying of swamps - adversely affecting their ecological integrity but also reducing water flows down-stream. Practical means of remediation are generally not available”*.

Recorded damage too many creek and river systems has been associated with *subsidence induced cracking within the stream bed. This was followed by significant dewatering of permanent pools and in some cases complete absence of flow, due to longwall coal mining. Water that re-emerged downstream was notably deoxygenated and heavily contaminated with iron deposits; no aquatic life was found in these areas. Reduction of surface river flow was accompanied by the release of gas, fish kills, iron bacteria mats and deterioration of water quality. (Everett et.al. 1998).*

At the June 2006 Wallarah 2 Coal Project community liaison meeting, Mr Graham Cowan, a senior engineer with the Department of Primary Industries, said (which appears in the minutes of that meeting) this about subsidence predications and subsequent damage: “Until it (the longwall coal mine) is mined you won’t know, things will change and they will be dealt with”.

The coal industry portrays longwall subsidence impacts as being a short-term problem, but subsidence problems, which has caused cracking of creeks and riverbeds and the subsequent compromise of their integrity, has been well recorded as a long-term problem (see Appendix Four). Once subsidence begins, the majority of the ground movement does usually occur within the first three to nine months, however, experience has shown that sufficient ground movement to damage structures and thwart repair efforts often continues for many years. In the case of disrupted water tables and aquifers, no one can accurately forecast how long it will be, if ever, before usable water will once again be available.

The surface cracking associated with longwall mining degrades streams and groundwater resources. The cracking causes a large volume of rainfall and stream flow to sink into the ground; history shows that groundwater levels drop.

Given the documented experiences in recent years of the impacts of longwall coal mining on river and creek systems, such as Diega Creek, river bed cracking associated with the Dendrobium Mine, the Cataract River, the Upper Cataract River, and the Georges River, and as recently as the Mandalong mine in 2012, it beggars belief that in 2013 -

- any responsible mining company
- any competent mining engineer
- any reputable hydrogeologist
- any subsidence expert
- any properly advised inquiry panel
- any responsible Minister

with any concern for the environment and properly understanding their respective functions could propose, support, recommend or approve a longwall mining proposal within, or even in proximity to, the riverine corridor of two streams that account for some 53% of the combined Central Coast Water Supply.

The material available reporting the experiences of the effect on longwall coal mining in the last decade leads to the inevitable conclusion that such mining under and immediately adjacent to Wyong Creek and Jilliby Creek will cause catastrophic creek bed fracture, creek flow interruption, bed lowering and bank erosion.

In short, there will be a devastating loss of a vitally important water supply.

6.3.1 Flooding

Subsidence damage to the floodplain (Dooralong and Yarramalong Valleys) area can range from sinkholes to more than two-acre water traps. Large widespread troughs over mined out panels can severely disrupt surface drainage patterns making fields too wet to farm or carry out the various rural activities such as organic vegetable growing, orcharding, cattle grazing,

turf farming and usefulness for the various horse studs and spelling facilities.

Farm dams and major impoundments can have banks and shorelines disrupted and can even be drained. Cracks and deep fissures arising from subsidence would pose hazards to livestock, farm equipment, and vehicles on damaged roadways.

Within the valleys catchment mining zones cracking, fracturing and faulting, arising from subsidence in these weakened geological areas, would create further “conduits” into the lower aquifers that would be subjected to “forced feeding” by volumetric water displacement and pressure gradients during seasonal flooding conditions and compounded by ponding in association. The major flood-prone low lying areas of Jilliby Jilliby Creek and Wyong River are subjected to extensive flooding from abnormal heavy recurring precipitation or from repetitive prolonged general rainfall periods when soil saturation is evident causing destructive and increased drainage flows, extensive scouring and property damage.

Major subsidence throughout the catchment would compound flooding and ponding on access roads and properties. Geological faulting is exacerbated by “flood water pressure penetration” through “vertical drainage subsidence cracking” would open up further conduits to create weakness in the sub-strata and compounding the “draw angle”(limit of mining influence outside an extraction panel). Although longwall mining is designed to final collapse, fault lines and cracking areas would present a pathway for an uncontrollable “driving water force pressure” of some 1-tonne per cubic metre to penetrate and exploit these weakened areas. Depressed subsided landforms will retain, divert or impede raw water drainage and contribute to flooding hazards and increased water retention throughout both valleys. ***The magnitude of such an occurrence will contribute adversely to the dynamic water balance within longwall mining areas.***

At a minimum five homes would be forced into the 1 in 100-year flood zone. This situation is further exacerbated by the fact that since 1981 there has occurred the equivalent of six 1 in 100-year flood events.



Flooding in the Dooralong Valley above the proposed mine footprint

6.3.2 Groundwater Withdrawal

“A small change in effective stress of an engineering soil at depth is accompanied by a small change in volume when considering a column of soil. The application of a sustained “constant head” draw down to a groundwater regime triggers a subsidence process, which does not occur immediately. The response of the *porous sediment, that forms the subsidence rate*, will taper off gradually *and can take many years before stability is re-established*. The magnitude of the “draw down head” influences the resulting duration of subsidence and its limits conditioned by joints, reactivated joints, fractures and mining induced cracks etc.

Geological factors influence the stability, or instability of the site even in the absence of mining activities. Natural changes in the level and lateral movement of the ground surface are features that arise from seasonal changes. The type of geological conditions encountered at the surface overlying LWM operations strongly influences the general character and magnitude of the resulting subsidence. The presence of faults and natural fissured rocks can appreciably influence the nature of subsidence and strain profiles. Strength and rock type conditions can greatly influence the magnitude and limits of longwall mining”. (Whittaker, B.N. & Reddish, D. J. *Dept of Engineering University of Nottingham U.K. Elsevier Science Publications Amsterdam, Oxford, New York, Tokyo*1989 IBSN 0-444 8724-4. Vol56).

“In lowering of the water table, drainage leaves “soil pore spaces” which allows particles to settle into voids vacated by water and the permeability is dependent upon soil type. *A subsidence process is not reversible even on restoration of the water table to its original position and a fluctuating water table can weaken soil structures to induce structural collapse of soils resulting in subsidence*. Further, soil shrinkage arising from reduced moisture content results in changes overall”. (Holla, L. *Empirical Predictions Subsidence Movement Southern Coalfields NSW Int. Congress*1985a).

Detailed research by *L Razowska of the Polish Geological Institute, Upper Silesian Branch*, recorded in the *Journal of Hydrology No.244 6th December 2000 the Changes in Groundwater Chemistry caused by flooding of iron mines (Czestochowa Region, Southern Poland)*. The emphasis is of course to water regimes and flooding arising from mining which can be applied to the KORES project: *The hydro geological environment is always altered by mining activities due to drainage of the aquifer, which results in the formation of a cone of depression.(Rubio and Lorca 1993) and the reduction of groundwater resources. The lowering of the groundwater table changes groundwater recharge and discharge(Pigati and Lopez 1999) and causes catchment modifications (Dudgeon 1999). Flooding of the mines causes the rebound of the cone of depression but it also leads to significant pollution.*

The object of recording this study in this submission is to identify the dominant hydro geo0logical and hydro geochemical processes *operating in a disturbed aquifer* and the attempt to predict any quality changes of ground waters. Most certainly, this KORES project *will cause serious subsidence and upsidence of valley floors and cracking of creek beds over the 37sq. km. mining zones*.

Subsidence will also destroy the riparian corridors in the Yarramalong and Dooralong Valleys due to interruption to the aquifers and the termination of normal flow regimes within these two corridors and their “drainage feeder creeks”. It is also recognised that *an environmental flow regime* may not necessarily be a constant flow when such a flow, may be ecologically

unsound as it fails to recognise natural variability - species in terrestrial and aquatic environments may be dependant upon seasonal variability, i.e., interrupted flow regimes but not cessation of flow in perpetuity, from a disturbed aquifer.

6.4

Subsidence and Biodiversity

Subsidence threatens biodiversity, ecological integrity, habitats, rivers, streams, creeks, flood plains, wetlands and species of national and international significance in the terrestrial and/or aquatic environments. ***Subsidence will cause major destruction and permanent changes*** to refuge areas, transit zones, food resources, habitats, ecosystems, community structures and composition in two major riparian river corridors of Yarramalong and Dooralong valleys. ***A dramatic loss of aquatic species will occur from "drying out of critical aquatic habitats as normal and/or environmental flows are displaced or diverted into subsidence areas. Soil erosion, turbidity and changed stream chemistry will arise from subsidence impacts.***

The Hunter-Central Rivers Catchment Management Authority expressed concern on the impact of longwall coal mining on Jilliby Creek and Little Jilliby Creek in the Jilliby Rivercare Plan, 2005.

"Conditions permitting longwall coal mining may be carried out in the future and this may have implications to the functioning of Jilliby and Little Jilliby Creeks . . . The impacts of the mining on Jilliby Creek are consistent with those which have become an increasing concern to the Hunter-Central Rivers Catchment Management Authority (HCRCMA). In its draft guidelines for mining operations on riverine corridors, HCRCMA lists the following as potential impacts of underground mining on stream systems:

- Fracturing in stream beds and capture of stream flows
- Bed cracks and fractures leading to incision, bed lowering and bank erosion
- Sedimentation of stream systems as a result of induced erosion on bed and banks
- *Groundwater movement away from streams and alluvium*

6.5

Subsidence and Hydrological Characteristics

The Minister for Mineral Resources (1988) instructed curtailment and authorised only partial extraction of coal resources in the Hue Hue Mine Subsidence Zone due to perceived subsidence problems arising. There was a clear understanding of serious deficiencies in general knowledge of hydrological and hydro geological characteristics of these two valleys. The quantifiable level and time frame for recharge, from precipitation into these valley aquifers, is unknown but is considered to be over an extensive period. Current water balance and maintenance of this need still remains to be defined although it is recognised that seasonal precipitation over the Watagan Mountains, is the "recharge supply engine" to the catchment aquifers and coal seams together with natural flood plain surface and sub-surface drainage and permeation.

The recommended two-year water study, as recommended by the previous State Government before any consideration to the approval of longwall coal mining be given, was not undertaken by the proponent to quantify the dynamics of the surface and sub surface aquifers inter relationships over this period. This required the refurbishment of

more than 200 bore holes. The proponent ignored this requirement! Instead they drilled five cluster bores on property owned by the proponent for the two-year study. It would seem that none of these results were used and submitted in the EIS. A study of the EIS bore mapping does not reveal any reference to these bore hole results having been used.

6.6

Subsidence Cracking and Sealing

Media statements by KORES that “*subsidence will happen but self sealing of subsidence cracking will automatically occur from “plastic sedimentary deposition” of alluvium, during sub-surface water movements*”, is un certifiable, assumptive and inconclusive in a major fractured subsidence zone at mining depths of 320-500m. ***This supposition is flawed, without foundation and can be dangerously misleading in a sensitive high risk and critical public water supply resource zone.*** Temporary sealing is “*prone to collapse and wash out*” from trapped water pressures compounded by leaking aquifers in “cracking fracture zones” within subsidence areas. Subsidence will also *significantly and adversely impact on the natural dynamic water balance in local and regional groundwater regimes*. Longwall coalmining can be likened to an “*engineered discharge*” causing subsidence and connectivity between these water regimes as “panel voids” are repetitively established after coal recovery throughout the coal fields. *Very high conductivity and subsequent losses in water flow is a major feature arising from a dynamic subsidence wave. (ACARP)*

6.7

Subsidence and Altered Chemical Properties

Subsidence cracks, joint sets and discrete fractures allow surface waters to mix with sub-surface waters of altered chemical properties. *Loss of terrestrial and aquatic species will occur as a result of iron toxicity pollution i.e. . . . “bacteria commonly occur in Hawkesbury Sandstone where seepage through the rock is rich in iron compounds and able to grow in water lacking dissolved oxygen” (Jones & Clark 1991).* Subsidence induced cracking within a stream bed was followed by water that emerged downstream “*was notably deoxygenated and heavily contaminated with iron deposits; no aquatic life was found and the reduction of surface river flow was accompanied by release of gas, fish kills, iron bacteria mats and deterioration of water quality*”. . . (Everett, et. al. 1998).

6.8

Subsidence and In-stream Biota

Longwall mining (LWM) subsidence can dramatically change the diversity and abundance of aquatic organisms, which occur in rivers/streams. The recovery of in-stream biota communities in *our rivers, creeks and streams, which form part of the ecosystem and supporting food chain, must be considered as highly improbable. There will also be a further dramatic loss of aquatic organisms if the salinity and the electrical conductivity of these waters are changed as many organisms are stenohaline - tolerant of only small variations in salinity.*

7 POLLUTION

7.1 Coal Seam Waters

A heavily polluted *“coal seam methane saturated saline, and highly mineralised (with anolytes) aquifer*, represents a dangerous threat from “subsidence cracking.” *“Cracking” will permit alluvial aquifer flow to intercept polluted coal seam waters prior to their discharge into the Wyong River. Natural drainage flow is not trapped by alluvium translocation* during surface/sub-surface drainage flow. The ecological health of water resources is predicated upon land use management, protecting stream health and the environmental flows requiring management and maintenance of high conservation and environmental values. ***Subsidence will compromise/destroy the ecological health of potable water resources drawn from this catchment and seriously impact upon the environmental integrity within the catchment.***

7.2 Wyong River and Tuggerah Lakes Estuary

The Tuggerah Lakes Barrier Estuary is a major food resource habitat for nineteen International and National avifauna migratory waders protected under NSW State and Commonwealth Regulatory Acts and the China/Australia and Japan/Australia International Bird Treaties (CAMBA and JAMBA) under the Bonn Convention. *The pollution of Wyong River will occur (from subsidence and cracking) at the interception of heavily polluted coal seam water, which will poison aquatic organisms during discharge into the estuarine sediments and aquatic habitats of Tuggerah Lakes.*

8 TUGGERAH LAKE MESOTROPHIC BARRIER ESTUARY

An independent enquiry into the NSW Coastal Lakes - Healthy Rivers Commission April 2002 - reports Tuggerah Lakes as at extreme risk, modified, of high conservation value with a potential for rehabilitation of modified ecosystem processes. *Longwall coal mining would negate, and compound progressively proposed rehabilitation processes as longwall coal panels penetrate* westerly beneath valley flood plains, rivers and creeks. Ecological processes, which maintain the biological diversity, are dependent upon periodic inundation of the flood plains and wetlands and continuity of movement of aquatic organisms between fresh water inflow and estuarine habitats. ***These requirements are compromised by longwall coalmining.***

Estuarine benthic habitats depend upon ecologically sustainable foreshore management and Catchment management - ***two critical pivotal roles to maintain this interdependency*** between the catchment, the barrier estuary and Tuggerah Bay (identified as an ecological sensitive habitat within the estuary). *Polluted coal seam waters will destroy this sensitive environment.* It is clearly evident that the ecological integrity of stream corridors and their flow regimes must be protected and actively managed if these water resources are to maintain their qualitative ecological integrity. It is clearly evident that ***Ecological Sustainable Development and the Precautionary Principles will be compromised by longwall coalmining.***

9

RIPARIAN GREEN CORRIDORS

Protection of raw water in the catchment, and flow regimes within the two Riparian Corridors (providing transit lanes, habitat, food and refuge areas) is paramount in any catchment management plan. The need for *ecological sustainable development (ESD)* and applications of *the precautionary principle (PP)* are compromised by *longwall mining (LWM)*. When researched by Department of Primary Industry NSW and the State Scientific Committee in 1994/95 it was determined that LWM is a **Key Threatening Process** under the **Threatened Species Conservation Act 1995** in view of the excessive environmental damage it creates.

Maintaining the ecological integrity of riparian corridors is critical as these waterways also assist in controlling drainage flow from excessive flood levels after heavy seasonal precipitation. A healthy corridor of native vegetation including grasses, rushes, trees shrubs and vines, assists in maintaining river bank stability against high stream flows and also reduces turbidity within the flow. Native vegetation provides an important food source (for macro vertebrates and terrestrial animals) and acts as a buffer and filter assisting to prevent contaminant movements. ***LWM subsidence will destroy critical sensitive environmental areas.***

10

CONNECTIVITY

Connectivity between pools provides refuge for aquatic fauna and aquatic flora - the latter are a stabilisation factor of sediment and oxygenated waters to form the basis of aquatic food chain and channel stability - the Geomorphic factors - which may be reduced from recurring subsidence. Changing water balance influences' soil shrinkage behaviour, its permeability and lowers a water table creating instability. ***Subsidence will destroy these attributes and environmental flows, which are essential for maintenance and protection of wildlife, ecosystems and habitats within these two essential wildlife corridors.***

11

POLLUTED COAL SEAM WATER STORAGE DAMS

The polluted coal seam waters Mine Operations Storage Dam will be responsible for the retention of some 30ML/per month rising to some 900ML/per month. *These extraordinary high levels of heavily polluted coal seam waters present "a life of mine immediate danger" from leakage within their storage area and consequent interception of natural drainage flow into Wallarah Creek wetlands to discharge into Budgewoi Lake.* There is no evidence of "fail-safe secure containment" and/or "protective impervious sealing procedures" to prevent leakage of these stored polluted coal waters.

A storm event, such as that which occurred on the June 2007 long weekend, could present problems in the containment of this contaminated mine water and preventing it from entering the Porter's Creek wetlands. Storm and flooding events of similar magnitude, 1/100 year events, have occurred in recent times in 1974, 1981, 1989, 1991 and 1996. The Insurance Australia Group web site now predicts those previous 1/100 storm events (such as was

experienced in June 2007) can now be expected every 17 years. However, from the climatic charges now occurring due to global warming and the evident previously recorded dates, this type of event is likely to be far more frequent.

12

ENVIRONMENTAL RESOURCE MANAGEMENT

12.1

Natural Resource Management

The granting a license to operate longwall coal mining in these two valleys *would be in direct conflict with the NSW Government decision in April 2003 to introduce "A new Approach to Natural Resource Management"*. This decision resulted in the appointment, by The Hon. Premier B. Carr M.P. of a Native Vegetation Reform Implementation Group (NVRIG) Chaired by the Right Honourable Ian Sinclair AC together with NSW Farmers' Association, peak environmental interests, the Wentworth Group and representatives of key Government agencies. The object was to "*. . . ensure a solid foundation for better protection of our native vegetation and natural resources*" with an allocation of \$406.3 million dollars to fund locally driven organisations and land managers. Most certainly, the authoritative responsibility of this new body must be clearly directed to maintaining the *Charter*, clearly laid down in a number of determinations in the document - *A New Approach to Natural Resource Management* - and particularly regarding:

"providing protection for significant areas of native vegetation, including areas that are classified as endangered or vulnerable under current arrangements"

and

"providing exemptions which will be restricted to clearly defined routine agricultural activities"

12.2

Proclaimed Wyong Water Catchment Act and Statutes

Attention is drawn to Page 1. Section 1 of The Proclaimed Wyong Water Catchment Statutes 401(2)(b) and 2(h) and the following Threatened Species Protection legislation for species protected under the Commonwealth EPBC Act 1999 and the NSW Sate Act 1995 (Refer Section 17 below).

This submission has indicated the adverse nature of longwall mining technology and the serious environmental degradation arising which must surely raise the question of due diligence being exercised by the Expert Panel, in advice to the NSW Government. The granting of a license to operate a coal mining operation in this proclaimed water catchment, in the full knowledge of the serious adverse outcomes which can arise, is in direct contradiction to the aims, expectations and need for maintaining intergenerational equity. It would also contradict clearly defined environmental standards both scientific and social in the protection of wildlife species of International and National Significance on the Australian continent. The Natural Resources Commission and Advisory Council is the consulting authority.

13

THREATENED SPECIES PROTECTION

13.1

Commonwealth**Environment Protection and Biodiversity Conservation Act (EPBC Act1999)**

Australia's international bird treaty obligations (Bonn Convention) to JAMBA, CAMBA and ROKCAMBA protecting 19 avifauna migratory waders of National and International and Significance whose fragile habitat is entirely dependent upon the health of the water catchment river systems.

Alteration to Habitat, following uncontrollable subsidence (active and residual) arising from long wall coal mining, has been determined by the NSW Scientific Committee as a Key Threatening Process under Schedule 3. Part 2. of the Threatened Species Conservation Act 1995. (Gazzetal date 15/07/05).

Current Listing

		CAMBA	JAMBA	
Scientific Name	Common Name	Annex	Annex	Wader
<i>Ardea alba</i>	Great Egret	*	*	*
<i>Ardea ibis</i>	Cattle Egret	*	*	*
<i>Plegadis falcinellus</i>	Glossy ibis	*		*
<i>Haliaeetus leucogaster</i>	White Bellied Sea Eagle	*		*
<i>Gallinago hardwickii</i>	Latham's Snipe	*	*	*
<i>Limosa lapponica</i>	Bar-Tailed Godwit	*	*	*
<i>Numenius madagascariensis</i>	Eastern Curlew	*	*	*
<i>Tringa stagnatilis</i>	Marsh Sandpiper	*	*	*
<i>Tringa nebularia</i>	Common Greenshank	*	*	*
<i>Calidris canutus</i>	Red Knot	*	*	*
<i>Calidris ruficollis</i>	Red-necked Stint	*	*	*
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	*	*	*
<i>Calidris ferruginea</i>	Curlew Sandpiper	*	*	*
<i>Pluvialis fulva</i>	Pacific Golden Plover	*	*	*
<i>Sterna caspia</i>	Caspian Tern	*	*	*
<i>Sterna albifrons</i>	Little Tern	*	*	*
<i>Chlidonias leucopterus</i>	White-winged black Tern	*	*	*
<i>Hirundapus caudacutus</i>	White-throated Needletail	*	*	*
<i>Apus pacificus</i>	Fork-tailed Swift	*	*	*
TOTAL		19	17	

Reference Data:

✚ *New Atlas of Australian Birds. 1998-2005. NSW.*

✚ *Australian Government
Department of Environment and Heritage, Canberra.
Marine Division. Listed Migratory Species under JAMBA and CAMBA. 24/08/06*

13.2**NSW****Threatened Species Conservation Act 1995(TS Conservation Act 1995.)**

Ref: Data Exchange SIAS Group NPWS 16/07/07 advise: 23 species of fauna and 4 species of flora re registered under the TS Con. Act 1995. 9 species of fauna are also protected under the EPBC Act 1999 and are additional to the 19 species of migratory waders of International significance.

Species Protected under the EPBC Act

Myobatrachidae	<i>Mixophyes balbus</i>	Stuttering Frog	Endangered
	“ “	Giant Barred Frog	Endangered
Cacatulidae	<i>Calyptorhynchus lathami</i>	Glossy Black Cockatoo	Vulnerable
Mellphagidae	<i>Xanthomyza phrygia</i>	Regent Honeyeater	Endangered
Tytonidae	<i>Tyto novaehollandiae</i>	Masked Owl	Vulnerable
Dasyuridae	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Vulnerable
Petauridae	<i>Petaurus australis</i>	Yellow-bellied Glider	Vulnerable
Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying Fox	Vulnerable

It should be noted that westerly and southerly sections, of the 37sq.km of longwall coal mining, pass under Jilliby Jilliby State Conservation Area and Wyong State Forest. These exceptional communities of Vulnerable and/or Endangered wildlife will be threatened by LWM subsidence causing serious environmental degradation throughout the coal zones in the Yarramalong and Dooralong Valleys within the Proclaimed Wyong Water Catchment District. It would be considered an act of criminal negligence to permit coal mining, and then compound the situation by allowing venting of coal seam methane into environmentally species sensitive areas, of exceptional significance, for the Eastern Pygmy Possum, Greater Glider, Koala, Squirrel Glider and Yellow Bellied Glider (also refer 16.1).

14

SOCIAL ACCEPTANCE

Social Implications of a large scale coal mine

Kores had failed in their duty to obtain the “Social Licence to Operate” and win the hearts and minds of the affected populous. The subsidence parameters have never been discussed in open forum. Kores deliberately remain silent on this and many others issues.

Various issues, unfavourable to the social amenity of Wyong and to residents who would be directly impacted by the Wallarah 2 mine, has now been uncovered from the recesses of the E.I.S, heavily camouflaged, and have conveyed a very distressing message to those who live over the footprint of the mine.

The water study is consistent with that found within their first submission. Other essential material was also found.

Kores demonstrate in their actions a belief that they are owed a mine by the State Government, and further believe that the water issue will go away if it is not discussed in open forum.

They continually espouse their belief that aquicludes exist in the upper surface alluvials, which will prohibit vertical downward water migration. This myth has again been debunked by Professor Philip Pells, who clearly demonstrates that the water table will drop around 100 meters. Several other experienced geoscientists and water consultants have as well rallied against the aquiclude theory, including ERM Mitchell McCotter (consultants for the original proponents BHP Billiton) and have determined independently that longwall mining will destroy the surface aquifers.

ERM Mitchell McCotter said that “silt and clay lenses are not anticipated to impede the transmission of bulk water” down to the coal seam.

Clearly identified within the voluminous Wallarah 2 EIS was the following:

- 245 houses will be subjected to vertical subsidence of up to 2.3 metres. The breakdown being
- 13 houses will subside more than 2 metres
- 105 houses will subside from between 1metre and 2metres
- 65 houses will subside from 200mm up to 1 metre.
- The balance of the houses to a lessor amount.
- 755 rural structures are listed in the EIS as being affected by subsidence.
- 420 farm dams will be affected by subsidence.

A high price to pay!

Against this Kores have continued to publish statements proclaiming that this mine will not impact on the community. Water, dust, subsidence are manageable and pose no problems. An outright lie deluding no-one.

Not once in the 8 years that the ACA have been involved in opposing the Wallarah 2 proposal has Kores produced logical, accurate and believable facts. Not once has Kores involved itself with the local valley populations as suggested within the E.I.S. Kores is apprehensive in meeting the local people.

- We believe Kores has not been candid in producing vital information to the general public.
- Kores should not be granted a mining licence.
- That the process of evaluation should involve the "Precautionary Principle".
- That failure to implement this procedure will have devastating consequences on the environment, the shallow surface aquifers providing water for over 300,000 people and the decimation of 1 if not 2 pristine valleys and their eco systems.
- That adaptive conditions should have no consideration in the decision making process as it did in the last submission where 42 latent conditions were tabled.
- That a public arena be provided in order to debate the real issues involved with this mine together with the Planning Assessment Commission.
- That longwall mining has no place in a burgeoning area such as the North Wyong Region with its exploding population, under a proclaimed water catchment area and its surface facilities impacting on the fastest growth area in the State.

15

COAL DUST AND HEALTH

15.1 Coal Dust

Against a backdrop of the increasing influx of young families and an aged population, there are other factors arising from the proposed coal development with the potential to affect the social capital of the newly created area. With reference to the NSW Health - Mine Dust and You - fact sheet, Issued January 2006 the potential for amenity impacts will become apparent.

Dust settling on fresh laundry and car's duco will be some aspect of the proposed development that a resident will have to deal within the home, but of equal importance in a distance of 2.4 - 3.2 kilometres of the proposed stockpile facility are the schools of Blue Haven Public, Lake Haven, Woongarra and Warnervale. At times of high dust levels, the department's advice is to keep Windows and doors closed - outdoor activities should be limited.

What advice does the Department of Planning and Infrastructure suggest should be given to the new schools, sporting groups and open space users that already will be in existence prior to any approvals given for an above ground facility? What monitoring will/could be done and what if levels of dust are unsafe and how will the open space users or be notified and/or restricted?