

Submission to the Inquiry into the Impacts of Mining in the Murray Darling Basin

**Presented by the Jimbour Action Group
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Background

Jimbour (or Jimba, aboriginal for good pastures) is a small town located 25km north of Dalby in the Darling Downs. It is naturally treeless plain and home to some of the most fertile and viable farmland in Australia. There is 50,000 hectares of black vertosol, self-mulching (Waco) clay, with a gradient of less than 0.01 degree (or 10 feet fall over 1 mile). The soil is very water absorbent, with a moisture profile that fills down to well below 2m. The floodplain feeds the Jimbour Creek as it flows from the Bunya Mountains feeding the Condamine River roughly 20km away. With a reasonably reliable long-term average rainfall of 650mm (or 26 inches), crops are grown all year round. Main crops grown within this area are sorghum, cotton, corn, mung beans and millet in the summer, and wheat, barley and chick peas during winter. Nearly all of available land is used for dryland farming with some small irrigation areas, mostly around the creek.

To the east is the heritage listed Jimbour House, a sandstone mansion built in 1876 that hosts 7000 people at concerts held in its amphitheatre and has its own wine label. It was the starting point for Leichhardt's exploration trip to Port Essendon in 1844. The Jimbour Plain is also home to the environmentally significant Queensland Bluegrass species, protected by the Environmental Protection and Biodiversity Conservation federal legislation.

Jimbour has been farmed for many generations, with families still farming their properties since 1911. During this time, farming practices have changed to mostly a zero-till, control traffic system to improve water management. It is part of the award winning Brigalow Jimbour Floodplain Group, and many of its farmers and farming groups have been considered best practice for some time.

Jimbour and its surrounding area is part of the Exploration Permit 760 (otherwise known as Ownaview West) which is currently held by New Hope Coal. The following day after the recent state election, landholders were personally delivered letters of entry by the company for exploration. With other mining and coal seam gas developments nearby, the Jimbour Action Group, a community based committee, was formed to liaise with the New Hope Coal. Our goal is to have a clear line of communication with this company and the community, with the explicit desire of leaving the prime agricultural area untouched.

Submission

- a. *the potential impacts of current and projected mining operations on all environmental values in the Murray Darling Basin and, in particular, the potential impact upon surficial and groundwater flows and quality in the alluvial flood plains at its headwaters in the Namoi Valley and the Darling Downs catchments;*

Potential impacts on environmental values from mining on the Jimbour Plain can be broken down into three major categories; water, soil and nuisance.

Water

Ground water is essential for the Jimbour Plain as it a floodplain and it relies on water flows to replenish the deep Waco soils. It is prone to large volumes of water moving from one end to the other in large rain events. The rule of thumb is the Jimbour Plain falls roughly 10 feet to the mile, which equates to a fall of roughly 0.1 of a degree. Over the past thirty years a lot of effort has gone into removing old fencelines, redirecting paddocks and reengineering roads to stop the erosion that used to be a problem and improve waterflow integrity. This was done in combination with the local landcare group, council and farmers. Farming systems were also changed to ensure the best capture of floodwater which has led to an increase in yield. There are a handful of irrigation dams set up to catch overland flow on some properties. The addition of a mine anywhere on the plain would significantly alter the landscape and water flows. This would lead to much confusion regarding the watercourse, speed of water across the plain, quality of water and the amount of run-off projected. With either type of mining, opencut or underground, any overburden or subsidence would create some change to current water patterns. This would lead to the following possible problems: erosion and the loss of top soil, a loss of recharge water to the soil, a change of water course leading to more pressure on unintended areas, and less water on known channels and waterways, with less water reaching the creek and river.

Experience shows sub-artesian water can be found at depths ranging from 40m through to 150m depending on the aquifer found. This water ranges from very potable water (as good as rainwater) embedded in coal, to very brackish water through layers of basalt, coal and sandstone. In conversations with the Queensland Department of Natural Resources (DNR), the water embedded in coal is unlikely to recharge whereas the deeper sandstone based aquifer will. The Jimbour Creek has been identified by DNR as a recharge area for some sub-aquifers in the area. To date, no presentable quantitative information regarding the recharge could be sourced. Nearly all bores within the area represented are used for stock and domestic purposes. Bore water is a necessity due to the random nature of the weather, as it is used for non potable activities, taking pressure off rain water supplies. Any type of mining would upset the underground aquifers to some extent. The extent would only really be known after the activity has taken place and leaving many residents either without water or with poor water quality.

Another possible impact of a mine would be the movement of the Jimbour Creek. As previously explained, the creek is vital to both ground water flow and aquifer recharge. Any manmade change of the creek's path would significantly alter the floodplain. The reason for this assertion is that current and previous exploration within this permit has been remarkably close to the creek. Central Queensland has also had a history of floodplains and creeks being changed for mining with questionable results. Changes of that scale made and are proposed in the Bowen basin, would have a very significant, if not detrimental, impact should it happen at Jimbour Creek.

Coincidentally, large rainfall events (i.e. 100mm over 1-3 days) happen once every three years which creates a massive amount of fast moving surface water not only in the creek but on the entire floodplain. Should there be a mine built in the Jimbour area it would have to build large levee banks to stop inundation similar to what happened in the Bowen Basin in 2008. This would immediately redirect water, leaving a noticeable impact on floodplain.

Soil

The soils on the Jimbour Plain are *deep to very deep, fine, self-mulching, dark cracking clays on basaltic alluvium*¹, classified as black vertosols. These soils are largely the result of weathering of basaltic formations from the nearby Bunya Mountains. They are highly regarded as valuable cropping soils due to their depth, water-holding capacity and friability. The topsoil is two metres deep across the plain and depth of soil varies from two metres close to the foothills, down to one hundred metres nearer the creek and western ends. The Plant Available Water Capacity (PAWC) is classified as very high (>250mm) meaning that with a full profile of moisture in the soil at planting, crops can generally succeed without any in-crop rain. The subsoil is moderately saline and sodic. Salinity and sodicity could create an impact by either being released as the subsoil is brought to the surface, or by changing water flow both under and above ground raising the water table.

Rehabilitation of the soil once disturbed is of major concern, as these soils are considered delicate and no known rehabilitation of similar soils to original condition after mining have occurred. The productive capability of the transformed land would be questionable at best.

Nuisance

Mines will always have light, noise, visual and dust impacts. These would be no different on the floodplain. Due to the nature of the treeless floodplain and very slight gradient, noise and light impacts are more noticeable due to the lack of any natural dampening. The lights from power stations 50km away can be seen clearly at night, and shunting of rail at Macalister can be heard with ease 20km away. Dust would be an issue for nearby residents as the more the soil is trafficked the finer it becomes. Environmental quality of life would noticeably decrease for those living at Jimbour and on the floodplain.

b. evaluation of the potential impacts in the context of the Murray-Darling Plan and agricultural productivity.

Table 1 below is used by the award winning Jimbour Farming Group to determine and debate the merit of certain crops during any season. The higher yield value is the typical yield in a normal season. The lower value represents a drought affected yield, once planted.

	Sorghum		Corn		Cotton		Wheat	
Yield t/ha, b/ha	5.0	7.5	5.0	7.5	5.0	7.5	2.5	3.7
Price	200.00	200.00	230.00	230.00	500.00	500.00	280.00	280.00
Gross Return/ha	1000.00	1500.00	1150.00	1725.00	2500.00	3750.00	700.00	1036.00
Total Variable Costs	571.50	571.50	691.50	691.50	1423.00	1446.00	477.00	487.00
GROSS MARGIN	428.50	928.50	458.50	1033.50	1077.00	2304.00	223.00	549.00

Table 1: Water Stressed vs Average Yield & Return from Crop Production 2009

From this table, it can be seen that for every hectare taken out of production, a significant amount of grain or cotton would not be produced. Also as variable costs would not change significantly, any activity that lowers the productive ability would

¹ Harris, P.S. et al. (1999) Central Downs Land Management Manual – Field Manual. Department of Natural Resources, Cooparoo.

decrease the viability of the country greatly. By decreasing the yield of crop by one-third, it more than halves the return. As only variable costs are shown, the country would become unviable when total costs are considered. The impact this would have on the landholder and businesses that rely on agriculture in Dalby and the immediate area, would be immense. The potential loss would be far greater as Table 2 below shows.

	Sorghum		Corn		Cotton		Wheat	
Yield t/ha, b/ha	11.0	7.5	11.0	7.5	10.0	7.5	5.0	3.7
Price	330.00	200.00	400.00	230.00	650.00	500.00	420.00	280.00
Gross Return/ha	3630.00	1500.00	4400.00	1725.00	6500.00	3750.00	2100.00	1036.00
Total Variable Costs	571.50	571.50	691.50	691.50	1459.00	1446.00	497.00	487.00
GROSS MARGIN	3058.50	928.50	3708.50	1033.50	5041.00	2304.00	1603.00	549.00

Table 2: Historical Potential² vs Average Yield & Return from Crop Production 2009

Therefore the largest impacts on productivity would be the loss of viable land and reduction of production potential. Other important impacts to be considered are; the loss of EPBC protected endangered Queensland Bluegrass area; the loss of available and experienced labour to mining; devaluation of neighbouring land leading to drop of available equity for existing landholders; over inflation of similar fertile land in other areas; safety issues with increase traffic on roads and rail and the movement of farm machinery during harvest; movement or destruction of Jimbour township and relocation of residents; loss of community and quality of life.

Conclusion

The Jimbour plain is one of the most important alluvial floodplains that feed the Condamine River in the upper reaches of the Murray-Darling basin, due to its world renowned productivity and fertility. This could change dramatically with any mining operation on the floodplain. As groundwater flows are such an important part of the natural maintenance of the soil, any large project would cause a large and long lasting disruption. This would be felt through the Jimbour Creek and into the Condamine River, both as a water quantity and quality issue.

The loss of productivity would leave the area and community in a worse position than it is today. It would be a backward step, going against all the work that has taken place to get the sustainable best out of the soil. The Jimbour Action Group is strongly against this type of development on prime agricultural land.

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² Historical Potential is based on the highest dryland yield and the highest price for these crops over the last 10 years