

PRESENTATION TO IAC

FINGERBOARDS MINERAL SANDS MINE

15th July 2021

*Our parents toil'd to make a home
Hard grubbin 'twas an' clearin'
"They wasn't crowded much with lords
When they was pioneering.*

*But now that we have made the land
A garden full of promise,
Old Greed must crook 'is dirty hand
And come ter take it from us.*

*So we must fly a rebel flag,
As others did before us,
And we must sing a rebel song
And join in rebel chorus.*

*We'll make the tyrants feel the sting
O' those that they would throttle;
They needn't say the fault is ours
If blood should stain the wattle!"*

In reference to Kalbar's over eleven thousand pages in their EES document, please permit me to quote Raffaello Carboni from his 1855 book "The Eureka Stockade"
"He who reads this book to smoke a pipe over it, let him provide himself with plenty of tobacco -he will have to blow hard

(With apologies to Henry Lawson for misquoting and using this extract out of context
The way it is used here is to strongly suggest that if Kalbar is allowed to proceed with this mine, then the Glenaladale area will be bled to death

Economically, **E**nvironmentally and **S**ocially)

Having recently read an article in the April 21 edition of the Bairnsdale Advertiser, I have unfortunately become quite sceptical and disillusioned about this entire EES process.

The article which quotes Kalbar's CEO states that a Panel Hearing will conclude at the end of June (now July) when an assessment of the Project will be made and submitted to the State Government Planning Minister for his consideration.

So far so good....

It then goes on to say that the Minister will provide advice and recommendations to the relevant statutory authorities that will issue approvals, (that will issue approvals), consents and licences required for Kalbar to start construction of the project which is proposed to commence in 2022.

Reading this article, it appears that according to Kalbar, decisions have already been made and approvals are a foregone conclusion.

I sincerely hope that this is not correct and that such a comment by Kalbar is just simply another example in a litany of ongoing failures to provide accurate and factual information and helps to explain why a large proportion of the community has so little confidence or trust in them to be transparent and accurate in providing information about their proposed Mineral Sands Mining Project.

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My name is Lionel Rose.

I have lived in the Fernbank Glenaladale area for over 40 years. I live just over 1.5 km south of the proposed Project Area. In my retirement I operate a 350 acre wool/ sheep enterprise spread over three properties two of which are 1.5km south of the proposed Project Area and one 1.0 km north of that area.

I am firmly of the belief that if this project is allowed to proceed it will have a negative impact on my property, lifestyle and health as well as those of my neighbours and the immediate and extended community.

Very early on when Kalbar first came to the area, their CEO at a public meeting at Glenaladale made the statement that **“Kalbar would not do anything that was detrimental to the community.”** This statement seems now to be totally forgotten or ignored by the Proponent and despite local knowledge and advice given them they deliberately down play any negative impacts that this mine will have on the area.

Although I do not have a string of degrees after my name resulting from the theoretical study of the terrain, soils, weather patterns and community, I do have the knowledge of these aspects gained from over 40 years of practical observation.

I would like to make it perfectly clear at the outset that in no way am I opposed to mining as I realize and accept the importance that many products that we use in our daily lives are derived from mining.

My objection is to the inappropriate location of this proposed mining project and the negative impact it will have economically, socially and environmentally on the local area and community.

It is my understanding that it is the Panel's task to examine the potential for Environmental Impacts of this proposed project on the surrounding area and communities. I have therefore divided this presentation into various sections based on the following environments...Social, Economic and Ecological. However as some issues overlap there has been a necessity to combine some sections to address impacts at multiple levels.

1. The EES and Community Consultation

I would like to congratulate Kalbar, the proponent, on the production and presentation of their EES. It is certainly a magnificent document with its

- 10 000 plus pages
- High quality glossy paper
- Multiple colours
- A plethora of graphs, charts, diagrams, maps and photos.

It in fact makes Tolstoy's "War and Peace" look like a relaxing Sunday afternoon read

However this is not the criteria on which to assess this proposed project.

Rather I would expect it to be assessed on **the CONTENT** of the EES document which unfortunately is full of errors that range from

- Typographical mistakes
- Incorrect data
- Incomplete data
- Inappropriate modelling
- Incorrect and inappropriate conclusions.

As EES documents are proof read a number of times as they go through the drafting process, there is no excuse for not picking up and correcting basic mistakes.

The Proponent has made many claims in this document which it has failed to adequately substantiate, one of which is the positive relationship that it claims to have established with the local and extended community.

A cursory reading of the sections of the EES which deal with Kalbar's relationship with the community may lead to the conclusion that the proponent has gone out of its way to integrate itself into the very fabric of the community through its many meetings either with groups or individuals.

The Proponent has held numerous

- Community Meetings
- Drop In Sessions
- Workshops
- Displays and Demonstrations
- Tours

On the surface this may seem to be an extremely impressive list. But what is clear from attending these events is that very little has been achieved in convincing the community of the appropriateness and value of this project for this area.

- Questions asked by community members at these sessions were too often met with evasive, incomplete or inappropriate answers
- Experts often showed a lack of understanding of the issues that concerned the community
- Data presented was often inaccurate
- Very few positive questions were asked by the community. Most questions expressed concerns over the impact that the introduction of such an industry would have on existing farming enterprises, lifestyle, liveability, amenity and the natural environment

And far too often a standard reply was given that such and such an issue would be addressed in the EES.

Now however when we search for these answers in the EES we find that

- A plan will be drawn up in the third year of the life of the mine
- A community consultative group will be formed
- Contrary to local knowledge modelling has found such and such not to be an issue

Even the local Member of Parliament who remained neutral for a long time over this project has now publicly stated that the EES fails to satisfactorily address many issues that were raised by the community in these meetings.

So based on Kalbar's Community Consultation and their EES how much support is there for this proposed project?

- Mine Free Glenaladale presented a Petition to State Parliament with over 4 000 signatures objecting to this proposed mine
- 86% of landholders **within two kilometres** of the Project do not want this mine to go ahead
- 82% of **directly affected** landholders do not want this mine on their properties
- 75% of vegetable growers have spoken out against this project
- At two separate East Gippsland Shire Council meetings where the community was encouraged to express their views about this project, on both occasions **only one person** spoke in favour of this mine and that was Kalbar's CEO and he was most likely quite biased in his views.
- Of the 909 submissions presented to this Hearing 900 have serious concerns or are not in favour of this project proceeding
- Of Kalbar's claim that more than fifty businesses have shown an interest in supplying the mine's needs it appears only one has responded to this Panel with a submission and that was done under an individual's name and not the name of the company
- At the East Gippsland Shire Council Meeting on 11th December 2018 Kalbar's then CEO described a survey they had undertaken. A cold call random phone survey of 152 people returned a result that 65% of respondents would wait for the EES before committing to a view on this mine. The EES has been published for a number of months but no data has been provided by Kalbar on the current opinion of those respondents who were awaiting the EES before committing.
- One councillor was heard to comment that he had never seen so many people in the public gallery as were present when Council debated the motion on this mine proposal
- A cold call telephone survey was carried out by an organization called "Community Engagement- Provider of Automated Surveys" in February 2021. As the name suggests, the survey was conducted by a recorded voice giving no indication at the outset that it was about the Fingerboards Project with weighted questions asking about the need for economic

development and job opportunities for young people in East Gippsland. This line of questioning gave little opportunity to answer that any economic development or employment should be appropriate for the region before the questionnaire launched into asking about the respondent's knowledge and attitude towards the proposed Fingerboards project. At the present time there has been no publicity given to the results of this survey nor for whom it was conducted. So the only valid conclusion is that again little support was forthcoming.

- Whether its results support this mining project or not, a subsequent survey carried out for Kalbar by Voconiq (which seems according to its web site to work mainly with mining operations) is unreliable as it has faults in its construction by failing to verify the authenticity of the person filling in the survey and thus allowing for dummy responses to be submitted resulting in skewed conclusions.
- Voconiq also set themselves up in the Bairnsdale shopping centre to have shoppers and passers-by complete their survey. This time they also gave anyone completing the survey a \$20 note. This again raises the question of the validity of responses as respondents were being approached and paid for their input.

2. A Failure by the Proponent to Understand the Community

Despite Kalbar's claims that they are managing to integrate into the community (mainly demonstrated through donations to sporting and charity organizations), it is clear that Kalbar still demonstrate a lack of understanding of the attitudes, expectations and commitments of this rural community as is demonstrated in the following examples.

- In their EES, Kalbar state that they will encourage employees to join Volunteer Emergency organizations and this seems on the surface a generous offer.

However Kalbar then offers to pay these employees not only to attend incidents but also to pay them to attend training.

To those who understand the ethos of such organizations as the CFA, they know that one of the ongoing and most controversial issues within that organization is that some members are paid by employers when they attend incidents, others are released from work but not paid while other employers make it clear that an employee needs to make a decision whether they want to work for their employer or volunteer for the CFA.

But then to also offer to pay their employees to attend training when no other volunteer is being paid and in all cases of internal brigade training and most group training, the instructors are also volunteering their time can only result in the undermining of the organization.

The practicality of having Kalbar's employees as members of these organization is only workable if they are living close by and therefore available to turn out to incidents. And judging by the proponent's definition of "local" this may not be the case.

There is also the issue of fatigue which raise OH&S and safety concerns if an employee turns out to a fire after being well into a twelve hour work shift and then has to spend a number of hours of hard physical activity on a fire line.

I have discussed this issue with a number of CFA volunteers, Brigade Captains and Group Officers and the conclusion reached is that such a concept is not only unworkable but has the potential to be damaging to the organization.

So what appears to be a generous offer by the proponent to gain community acceptance turns out to be another totally impractical and unworkable suggestion which again demonstrates Kalbar's failure in understanding and becoming part of the community.

In fact if someone was to set out deliberately or undeliberately to undermine at the local level probably the most important volunteer organization in rural Victoria, I couldn't think of a more effective way of doing so.

- Still another example of more concern, which could almost be described as a show of contempt towards the community, was the shifting by Kalbar of the Processing Plant's location from its original position to its current proposed location. Clearly the original location, directly above the catchments of both the Perry and Mitchell River systems was environmentally inappropriate. But to move it without discussion or consultation to a new location close to eight houses can only be seen as a total lack of consideration for the occupiers of those homes.

There are numerous other examples of misinformation emanating from Kalbar and aimed at reassuring the community of the proponent's good intent. But further examination demonstrates again just the opposite.

- The taking out of an Exploration Licence over the Lindenow Valley and then the surrender of that area when the Minister put a moratorium on mining over the floodplain was explained in the media by Kalbar as a positive reaction to the community's concerns when in fact the regulations required the surrender 25% of the licence area after 2 years and another 35% after four years. (*Minerals Exploration and Mining in Victoria DPI p18*)
- Other examples include the claim that heavy vehicle traffic would not be an issue as there would only be two to four trucks per day. This has now grown to 80 B Double movements. And the growth of the Tailings Dam from 60 to 90 hectares in size and when questioned the claim being made that it had always been 90 hectares. (*Photo 01 Kalbar Council Presentation Trucks*)

It is obvious that Kalbar does not and is not prepared to listen to the community. They give the impression that because of their ability to have their consultants carry out studies and undertake modelling that their results are infallible.

As part of my tertiary studies many years ago, I studied Walter Christaller's Central Place Theory. Christaller modelled Settlement Patterns and the Distribution of Settlements across the landscape.

What was perfectly clear from this study was that this model which was "theoretically sound" had to be greatly modified and adjusted to apply to the 'Real World'. I worry that the same will apply when the proponents modelling is also applied to that real world.

For an example to demonstrate this "we know better than you" attitude, we cannot go past Kalbar's limited knowledge of local soils and the way these soils respond after rain.

- Locals are acutely aware of the fact that the sandy soils in the area when subject to heavy rainfall retain a crust on the surface but develop a sub level of wet sand of a porridge like consistency underneath that will not support a vehicle if the crust is broken.

The fact that Kalbar also have no real understanding of the behaviour and characteristics of local soils is clearly shown in their failure to take the advice of a local landowner who told them that his paddock was too wet to drive over. Yet Kalbar insisted in continuing with its drilling program, broke through the crust driving the drilling rig over the paddock and became bogged doing damage to the area.

Yes, they did bring in machinery to level out the holes but in so doing buried the shallow topsoil into the spew that they had created and brought to the surface creating an ongoing problem for regeneration of grass and ground cover.

Maybe bogging heavy vehicles is a common occurrence in the mining industry but it has repercussions for land managers when damage is done on private property in dry grazing country on volatile soils. *****

To then suggest that Kalbar will form **Community Consultation and Reference Groups** to discuss concerns as they arise could only be met with little confidence in their effectiveness by the community.

- The lack of respect for the community and its privacy is further demonstrated in a more recent event where one of Kalbar's Expert Witnesses identified and published the residential locations of a number of persons who had presented submissions to this Enquiry.

Kalbar were fully aware of privacy conditions well prior to this event as demonstrated in their requests to occupiers of "sensitive receptors" in that each was contacted to ensure Kalbar had their permission to show the location of those residences on their maps.

Considering that the privacy conditions were also clearly spelled out to all involved in the conditions to be followed in making a submission to this hearing and any documents commissioned by Kalbar were proof read by them, there was no excuse for this to happen.

The fact that established protocols are not being followed begs the question of just how thorough, honest and transparent is this company being, just how much information that it is providing is accurate and what will be the consequences when its modelling is put to the test and found to fail.

Despite Kalbar's claims of ongoing community consultation, genuine effective consultation has not occurred.

Consultation means listening, discussing and coming to an agreed and mutually acceptable conclusion. It does not mean listening to the other parties then simply ignoring their position and in the end and irrespective of their concerns going ahead and doing what you intended to do in the first place. That is not consultation.

The proponent has tried to use the concept of **Net Community Benefit** to justify this project. However this concept is extremely abstract, it not being a simple task to define either **Community** or **Benefit**, so the concept is open to abuse and misuse. What is community? How far does it extend? Obviously the further away from Ground Zero a community component is, the less physical impact this project will have on it. What is benefit? How is it measured? Can monetary value be accurately compared to the liveability of an area? How can an increased annual turnover of a business in Bairnsdale owned by a person who lives in Paynesville be compared in value to the negative impact to

a farmer who loses a paddock that he is reliant on for providing protection to stock during calving or lambing or for shelter of off shears sheep? How can the employment of an extra apprentice be compared to the worry and stress of parents concerned for the long term health of their children? How can a donation to a sports club to buy uniforms be compared in value to the loss of cultural heritage and artefacts to the Koorie community? How can the increase in sales of a particular business be compared to the costs to a vegetable grower of having to upgrade bore pumps and drop them deeper in the aquifer as the level of the water table subsides?

Net Community Benefit is a nebulous concept which is easily manipulated to wrongly and misleadingly justify a project such as this.

The conclusion drawn can only be that the community, based on seven years of experience in dealing with the proponent, is extremely wary of the validity and practicality of many promises made by the proponent and their ability and intention to implement these promises

3. Failure to Gain A Social Licence

While Kalbar play down the importance of “social licence” by pointing out that it is only referred to in a small number of submissions and therefore not a high priority within the community, it needs to be made clear to Kalbar that although the term “social licence” may not be specifically used, the factors which make up community acceptance or rejection as the case may be are regularly referred to in a large number of submissions. Many concerns which the community believes that Kalbar has not adequately assessed through the EES process and the Expert Witness Statements nor can it successfully control have been raised in these submissions. These include but are not limited to

- Dust
- Noise
- Loss of property values
- Reduction in liveability and amenity of the area
- Risk to exiting horticultural industry
- Risk to exiting pastoral industry
- Damage to waterways
- Loss of native habitat
- Threats to household water supply

These concerns in themselves and the proportion of submissions which oppose this project demonstrate that the community does not support it. That is in the view of this community and although the term may not be specifically mentioned in a lot of submissions, the fact is that no social licence exists.

Kalbar may argue that by donating to various charities, sporting groups or having employees volunteer their time during the 2019-20 bushfires gives it credence in developing a social licence. However social licence is not granted by charities or sporting groups. It is granted by individuals who make up the community and this community has not granted this licence.

Nor has Kalbar’s comments regarding the fifty odd businesses which state they are willing to supply this mine if it goes ahead the basis of forming a social licence.

One would have to ask where the written submissions are from these businesses which support this mining proposal.

This argument then flows back to Kalbar's proposal to form community reference groups to discuss and work through issues and conflicts that may arise if this mine is allowed to proceed.

However the experiences of many Directly Impacted Landowners in dealing with Kalbar over the last six/seven years is not particularly positive with the level of trust having been severely diminished as a result of landowners being taken to the Mining Warden or having been pressured by Kalbar into acquiescing to their demands despite agreements about communications and time lines already being in place, experiences which would suggest that these Reference Groups would be doomed to fail..

Although technically it is not a legal requirement for a **Social Licence** to exist. I would ask the panel to carefully consider that within a democratic system the existing community's interests and views need to be taken into account as this project has the potential to cause major changes to the area, an area in which many people have heavily invested in establishing their homes and raising their families. An area they chose because of its quiet rural atmosphere, lack of heavy industry and its natural surrounding environment. And it is these aspects which are the very attractions of this area that Kalbar threatens to destroy.

How can a community have confidence in Kalbar when they are told on one hand by them that the various Government Departments have checks and balances in place to ensure community protection and then be also told on the other hand that if they are outside of the project area and suffer any negative impacts, they will have to pursue these issues through the court system.

4. Failure to Accurately Model Weather Conditions and Present Accurate Data

Probably one of the biggest failures in the EES is the weather modelling. Both the location of the weather station and the admission that this weather station at the Fingerboards site only operated for 77% of the time as well as the method of using a Random Number Generator to fill in the incomplete data have serious repercussions for the validity of a large number of conclusions reached by this and other consultants in their reports as a result of using this corrupted data.

Kalbar have been advised by local farmers on numerous occasions that the area surrounding the Fingerboards is subject to fickle weather patterns and that at least three microclimates exist. They chose to ignore this important information establishing this weather station in a wind shadow where it is common knowledge that it is in an area where cattle move to shelter in adverse weather conditions.

They were advised that this location would fail to produce accurate data and there was a need if accurate data was to be collected that a number of stations be established throughout the project area.

This advice they also chose to ignore telling the community that they were only required to establish one weather station.

In a subsequent conversation with an ex Kalbar CEO he admitted that the consultants had identified a 15% difference in data between that collected at their weather station compared to BOM data from Glenaladale. This fact which validates the local advice given seems to be totally omitted from the relevant sections of the EES.

Even the request from this Panel for Kalbar to provide data from the BOM station in Bairnsdale for comparison will still not accurately reflect or allow valid comparison to the conditions at the Fingerboards.

A recent example to demonstrate the point is the recording of rainfall for the period 17th – 18th December 2020

- Bairnsdale BOM 40.6 mm
- Mt Moornapa BOM 34mm
- Carey’s Lane Farm Gauge 31mm
- Fingerboards Farm Gauge 91mm
- Honeysuckle Road Farm Gauge 54mm

However Bairnsdale BOM station may provide a slightly better comparison than that which Kalbar used in the initial Referral documents where Mt Moornapa was cited as an example of weather conditions in the area despite being 17km to the north west of the Fingerboards and at an elevation of 480 meters (compared to the Fingerboards elevation of 135 meters) and where later in a 24 hour period 9th -10th June 2021 BOM figures showed rainfall at Moornapa at 113mm and the Glenaladale gauge registering 68mm. (*Photo 02*)

Returning to the start of this section, the question needs to be asked, **Why did Kalbar’s Fingerboards station only operate for 77% of the time and was there a pattern and reason as to when it failed to function?**

The EES states that these failures were due to electrical activity but no evidence is provided to support this notion. And what does “electrical activity” mean? Were there thunderstorms at the time or does it mean that someone simply unplugged the system from the grid?

An examination of the data on wind speed presented by Kalbar in the EES where it quotes not a **maximum wind speed** but a **maximum hourly average wind speed** of 11.5mps or 41kph suggests another strong possibility for the failure of this system. **And that is it failed when subject to the more severe weather conditions experienced in the area.**

This premise of not recording the more severe weather conditions is ably backed up by local knowledge and observation which supports the view that the figures presented grossly underestimate weather conditions and specifically underestimate wind speeds.

The impact of wind frequency, strength and direction cannot be allowed to be underestimated in assessing the implications that this proposed project will have on both the local environment and farming industries.

For a start using this incomplete and inaccurate data to model dust movement and deposition and distance dust will be transported as well as the particle sizes that can be transported has to be severely questioned as to its accuracy as do the conclusions that dust can be contained and will not be an issue for the community. Acceptance of this corrupted data also has implications for other reports such as Noise, Horticulture and Human and Animal Health. (*Report of Inquiry EES Donald Mineral Sands Sept 2008 P 82 states that PM10 and PM2.5 particles act more like a gas than a solid and the modelling fails to reflect this fact*

https://www.planning.vic.gov.au/__data/assets/pdf_file/0031/119488/Donald_Mineral_Sands_EES_Panel_Report.pdf)

To then quote **maximum average hourly wind speeds** rather than **actual maximum wind speeds** is to “dummy down” the data as it is the **maximum wind speed** which flattens the hay shed and not the **maximum average hourly wind speed** which does the damage.

The misinformation as stated in the EES that “**winter winds are predominantly from the North-west and summer winds are most frequently occur from the South-East and South-West**” also needs to be corrected and refactored into the modelling.

This is extremely important as the north westerly winds which predominate in summer (and not winter) are hot winds and are associated with higher air and ground temperatures and less air and soil moisture. The drying effect of these winds when accurately modelled and plotted would be expected to show a greater propensity for dust movement than is suggested in the calculations.

A statement that “**north-westerly winds predominantly blow overnight (midnight to 6.00am) and then swing around to southwest between 6.00 am and midday**” is also totally incorrect as applied to this area.

It is an accepted fact that as land heats up and cools down faster than water, air movement will be from denser cooler air towards warmer less dense air masses. This effect though is usually experienced in coastal areas where during the night the land is cooler than the sea so off-shore winds predominate and during the day the reverse is true when on-shore winds are experienced.

Unfortunately for the consultants who wrote this section, The Fingerboards area is far enough inland as not to be influenced by this phenomena.

Neither could the statement be justified using an explanation of the influence of Katabatic and Anabatic winds as the influence of air mass movement off the Great Dividing Range is not strong enough at these distances. (*Katabatic winds are caused by a mountain slope cooling at night which then cools the air mass immediately above it causing this denser air mass to move down the slope under the influence of gravity. Anabatic winds are the reverse where air masses are warmed as the land heats up during the day causing such air masses to move up the slope.*)

Empirical observation just does not support the contention that “north-westerly winds predominantly blow overnight (midnight to 6.00am) and then swing around to southwest between 6.00 am and midday”.

Local knowledge and observation strongly suggests that Kalbar has failed to collect and provide, let alone accurately model, comprehensive data for meteorological conditions and as a result the impact that dust will have on homes, potable household tank water, properties and farming enterprises in the area has not been accurately assessed.

As noise is also influenced by atmospheric conditions, the same arguments have to be also applied to this field resulting in the questioning of whether in fact noise levels from the mine will be as low as the modelling suggests especially as the expert witness Marshall Day Acoustics makes comments like plant will only be screened “where practical”, and cuttings may be used on haul roads to reduce noise, the latter being made without reference to the terrain between the Processing Plant and the proposed rail siding. Such a haul road would be constructed over flat terrain which is subject to flooding making the construction of cuttings totally impractical.

Unfortunately this incorrect and inaccurate data has been accepted at face value by other expert witnesses and used in their studies. This must then cast doubts on the validity of their studies and the conclusions that they have arrived at.

Such an approach using such suspect data may be appropriate for the EES for a proposed mine in Fantasyland but is far from acceptable for a project of this type and size located at the Fingerboards.

5. Protection of the Lindenow Valley and the Incompatibility of Mining and Horticulture

The importance of this horticultural industry must not be underestimated and Kalbar's claim that mining is compatible with horticulture needs to be carefully examined and challenged.

The horticultural industry in the Lindenow Valley covers 4 600 hectares, is expanding and is seen as important enough for the Minister to declare it a "no go zone" for mining. Unfortunately dust and contaminants do not recognize lines on a map, so the Minister's declaration, as positive as it is, does not ensure adequate protection for the Valley.

The value of this industry is conservatively estimated at \$150 million/year, a figure often quoted by the local Member of Parliament. while in July 2019 the then Minister for Agriculture when declaring the Lindenow Valley a no go area for mining and minerals exploration is in print quoting the figures of farm gate production of over \$100 million and providing up to 2 000 permanent and seasonal jobs.

As far back as 2010, the then Shadow Minister for Agriculture, Peter Walsh is quoted in Hansard on 24th March of that year as stating the area's vegetable industry is responsible for the creation of at least 1 000 jobs and that was eleven years ago.

This is a great deal more than the RMCG's \$62 million.

One grower alone has an annual revenue of over \$24million and Dunn & Bradstreet referring to that farm's lettuce production alone quotes that it

- Supplies McDonalds with 60% of their lettuce requirements and has done so for more than 25 years
- Plants 3.5 million lettuce seedlings/year
- Up to 100 000 seedlings are planted each week
- Transports 45 tonnes of lettuce to McDonalds each week

This then is an established industry which we cannot afford to put at risk.

So in whose interest is it to continually underestimate the value of such a productive and sustainable industry?

Kalbar also claims that the two industries are compatible And to demonstrate this gives a number of examples. Unfortunately these examples fail to stand up to scrutiny.

To demonstrate the compatibility of this proposed mine with existing agriculture and horticulture, the EES refers to mineral sands mines in Western Australia with its nearby avocado orchards. This example is not only inappropriate but it is also totally misleading as no such similar crops are grown in the Lindenow Valley. Avocados grow on trees and have a thick leathery skin protecting the flesh. If

Kalbar can point me to a lettuce, cabbage, broccoli, beans, peas or corn that grows with such protection then I will readily change my views and accept their premise.

The EES also directs us to a number of interviews with vegetable growers who had mines near their farms.

One farmer who was interviewed says there were no issues with dust because of the heavy watering of the carrot crops, a crop **not grown in large quantities** in the Lindenow Valley. In fact very few root vegetables are grown there in the Lindenow Valley so the comparison is even less valid.

The second farmer could not even remember what crops he grew at the time. He states that the soil in the rehabilitated area has low pH and phosphorus but does not know why. With a statement such as this, his knowledge and farming skills are left open to serious questioning. Even a secondary school student studying agriculture at a very basic level would be able to postulate that such an outcome is more than possibly the result of the destruction of organic material and soil biota and a failure to adequately re-establish, fertilise and renovate that topsoil.

Another farmer who is described as a dairy, beef and vegetable producer instantly admits that none of his vegetables were grown on the property near the mine.

He goes on to state that there was not a water runoff issue as the mine was in a depression. Compare that to the location of the Fingerboards at the top of a plateau.

The comparison made with the horticultural enterprises near Wemen is also inappropriate due to the flat topography, more stable soils types, drier climate, absence of the impact of East Coast Lows, lower rainfall figures, absence of major nearby river systems and lack of rainfall runoff. The area and depth of the mine and its life span is disproportionate to that of the proposed Fingerboards development.

6. Kalbar's Expert Horticulture Witness Statements and Presentation

Despite her impressive resume, Kalbar's Expert Witness on this subject seems to have only a theoretical knowledge of the Horticultural industry in the Lindenow Valley and relies far too extensively on academic studies and creative mathematics to justify the compatibility of a Mineral Sands Mine in such close proximity to the vegetable growing industry of the Lindenow Valley.

There are a number of points in her **Expert Witness Statement** that need to be taken to task.

- The value of local horticultural production is accepted as \$150m/year, even by the Local Member of Parliament who is on record as regularly quoting this figure. The fact that Dr Blaesing focuses on a much lower amount suggests an attempt to underestimate the value of this industry compared to that of mining.
- One of the three largest growers had their annual turnover quoted on ABC Landline (2019) as \$40m/year so multiplying that figure by even three already exceeds the \$62m in the Witness Document. And this still does not account for the value of production of all the other growers on the flats.
- There is also dispute over the size of the multiplier effect created by horticulture with the National Farmers Federation quoting a figure of 4.6.
- The figures quoted by the expert witness on employment regardless of the source are total underestimations and to suggest that there were only 754 jobs in the Lindenow Granite Rock

Area in 2018-9 is not only ludicrous but is contrary to the higher figures quoted by both the Minister and Shadow Minister for Agriculture.

- The summation of the way various crops grow and how dust will not be an issue shows a lack of understanding of plant development as
 - Removing the outer leaves of lettuces will only remove dust and dirt accumulated in the outer leaves but will not remove dust blown on to and into the plant prior to its forming a head. The same argument applies to cabbages as does to lettuces
 - The assertion that cauliflower curds are protected by outer leaves from dust is incorrect as demonstrated by previous speakers
- The statement is correct in saying that vegetables with an unacceptable amount of dust are not sent to market but if mining is to increase the possibility of this occurring then it is placing an unfair imposition on the grower to have to bear this cost.
- To also suggest that consumers take responsibility to remove dust from purchased produce is also to negate the mine's responsibility for this dust in the first place.
- There is a failure to recognize that some heavy metals are soluble and will be absorbed through the plant root system into the plant cells and therefore cannot be washed out.
- The harmful and damaging effects of fine silica dust blown over the escarpment on windy days and the damaging sand blasting effect that this will have on delicate seedlings is ignored.
- The evidence provided to demonstrate that an increase in dust from the mine will not be sufficient to inhibit plant growth is based on modelling done by Katestone. This validity of this modelling is challenged due to the use of incomplete and inaccurate data.
- The suggestion that growers use windbreaks to reduce dust originating at the mine again throws the onus on the farmer rather than the miner.
- The concern raised by the horticultural industry that wind speeds have been grossly underestimated and therefore the impact of dust has also been underestimated is met with the response that the data used was supplied by Katestone and it was not in the brief to question that data.
- Answering the growers concerns about loss of certification is totally avoided by entering into an explanation of how FreshCare and EnviroVeg work.
- Much the same approach is used to diffuse the issue about exports with an explanation of where to access information rather than addressing the immediate issue
- There is heavy reliance on mitigation measures suggested by other consultants as being both practical and able to be implemented and monitored and no assessment of the effectiveness of these measures to address impacts on the horticulture industry such as river water contamination, flooding, impact on aquifers and cost and availability of irrigation water, the latter being seen as within the jurisdiction of the relevant regulators.
- The assertion that river water cannot be used for washing vegetable or ice production is totally incorrect. Such may be relevant if we were growing vegetables at Studley Park and pumping water from the Yarra below Dight's Falls but we are talking about the Mitchell River at Glenaladale, a totally different situation. *****
- There is an oversimplification in the clean green image of the horticultural industry being seen as an on farm issue and not related to the surrounding environment.
- Much the same approach has been applied to the concept of consumer awareness. There is a failure to accept the importance of this growing trend in the response offered only justifying her case by taking an academic stand, pointing out that researchers in this field are not in agreement. There is an abject failure to accept that trends in produce advertising (eg current IGA Television advertising and half page in Bairnsdale Advertiser 7th July focusing on Bairnsdale Supermarket and its promotion and sale of local produce)), media promotion of

local regions and the labelling of fresh produce are far more important in assessing consumer trends than are the inconsistent academic studies that the expert witness refers to.

- The rapid growth in the “Paddock to Plate” concept and the desire by growers and the hospitality/tourism industry to identify and promote local produce is totally ignored. I would suggest that for an unbiasedly chosen example of this “Paddock to Plate” concept at the high end of the market, the advertising and promotion undertaken by such eateries as “The Farmers Daughters” in Central Melbourne be referenced. The damage, either perceived or real, that the mine will cause to consumer perception and industry marketing in this field is too easily dismissed by the Expert Witness.
- The growing trend of “conscience consumers” and “ethical eaters” is totally ignored.
- There is a total failure to assess what the impact of drought and water restrictions have been on this horticulture industry and what implications of greater competition for that water from mining may be.
- Dr Blaesing made the comment that the majority of vegetable growers are supportive of this proposed project provided that nothing goes wrong. As she has also stated that she has not talked to most of the growers, it seems peculiar that she can make such a statement.

Nor does Kalbar’s expert witness do much to address these issues in her **Presentation** delivered to this Panel on 12th May this year. On the subject of dust, she denies that this will be an issue for the horticultural industry, a statement which with further examination can be proven to be extremely doubtful in its validity.

- In dealing with the issue of dust she again uses Katestone’s data on wind speeds, data which is inaccurate and incomplete.
- As the amount of dust carried in the air is proportional to wind energy basically measured by wind speed, incorrect and underestimated wind speed data will understate the amount of dust carried and deposited on crops.
- Presenting Slide 10 of her PowerPoint Presentation, a chart from SLR’s **Air Quality and Impact Statement** (2018) for the Six Mile Dam Project in Queensland’s Sunshine Coast hinterland, in order to demonstrate that mine dust will have **no impact** on crops is an extremely misleading but creative use of this information.
 - A careful observation of the chart reveals that the figures shown relate to “Dust deposition nuisance and harm to **vegetation**”. The important word being “**vegetation**”, a very general term. It does not relate specifically to vegetables which obviously must be far more susceptible to dust than let’s say a shrub or a tree.
 - A quick but reasonably thorough Internet search shows no perceivable vegetable growing industry in the Cooroy/ Lake MacDonald/Noosa area near the Six Mile Dam so it cannot be construed in any way that the figures shown in this chart are relevant to dust damage to vegetables.

Then by using Katestone’s dubious wind speed data from a system which only operated 77% of the time and quotes **maximum average hourly wind** speed rather than **maximum wind speed** leads to a gross underestimation of the amount of dust which will be carried from the mine site by wind activity.

Combined with figures which show the amount of dust needed to damage “vegetation” rather than the lesser amounts needed to damage vegetables, RMCG’s Dr Blaesing has failed to be suitably convincing in her intention to demonstrate that there will be no damage to crops from dust emanating from this proposed mine.

The horticultural industry of the Lindenow Valley is established, sustainable and expanding. To take at face value what can only be described as misleading, dubious and incorrect statements and assertions contained in this RMCG studies and statements and use them to assess the compatibility of horticulture and mining, let alone use it to lead to a conclusion that the two can co-exist side by side is akin to signing a death warrant for the Lindenow Valley Horticulture Industry

6.1 Jobs in Horticulture vs Jobs in Mining

Questionable statistical methods are used in the Horticulture documents in order to show the viability of the proposed mining operation against existing horticultural industries choosing to quote the number of jobs created per megalitre of water.

Personally I would have preferred to have seen a comparison of the number of jobs created per tonne of greenhouse gas produced.....

But none the less an examination of these figures is quite enlightening.

In her Expert Witness Statement on Horticulture Dr Doris Blaesing states on page 27 that the Project will create 200 direct jobs over its 15-20 year life and will have an estimated water requirement of about 3 gigalitres (3 000 megalitres) per year. So far she is correct in quoting Kalbar's estimates provided that the centrifuge concepts are workable.

However her next statement that the mine's water usage equates to 0.067 jobs per megalitre, although again correct hides the reality of the situation by expressing this figure in a way that is very hard to visualize. Better stated it should read that this Project has the potential to create **one job for every 15 megalitres of water** used per year.

She then uses, for comparison, her "**experience in the vegetable industry**" and **assumes** that for every hectare under vegetable production 4 megalitres of water is needed concluding that the annual water consumption of the Lindenow Valley is therefore 18 800 megalitres and that with 1363 jobs on the 4 700 hectare will equate to 0.29 jobs per hectare, 0.07 jobs per megalitre or **one job per 14.3 megalitres** which is much the same as the proposed mine.

Where this creative use of statistics fails is that the 4 megalitres per hectare is an unsubstantiated generalization dependant on such factors as location, soil type, climate and crops grown and is not reflected in the figures quoted and validated by Southern Rural Water. Southern Rural Water's information shows that usage on the flats varies from seven to ten gigalitres per year with a maximum usage of 13.8 gigalitres.

Grower figures for employment is closer to 1500 jobs. So using the reasonably conservative figure of 10 gigalitres and 1 500 jobs, this equates to **one job per 6.6 megalitres or 2.3 times as many jobs created in horticulture per megalitre compared to what would be created by the mine.**

And if it is not acceptable to quote grower statistics, then a similar calculation can be done with the Doctor's own figures, presumably from ABARES but not clearly referenced, which gives a result of **one job per 7.3 megalitres which is still twice the number of jobs compared to that created by Kalbar's proposed mine for the same water consumption.**

7. Incompatibility of Mining and Grazing

The case studies cited to demonstrate the compatibility of mineral sands mining with grazing is even less appropriate as it uses coal dust on pasture to argue that dust has little impact on ruminant grazing.

Claiming that coal dust is not detrimental to animal health may be a correct assumption but to extrapolate this premise to include other forms of dust such as silica is not a logical or scientifically valid extension of that premise.

The assumption made by the proponent and their consultants is that “dust is dust” and livestock respond, react and are able to process all dusts in the same way. This is a fallacy as coal dust is carbon based and nowhere near as abrasive as silica which is one of the main components of the dust which will be produced by this mine.

Silica not only being abrasive but also being fine grained will respond in the animal gut like a sand and **sand colic** is a known cause of death in grazing livestock.

The importance of an examination of the real impact of silica on grazing livestock has been totally ignored by the proponent and needs to be considered and an appropriate study and its conclusions need to be cited in order to adequately assess the impact on the substantial numbers of livestock grazing on properties in areas surrounding the proposed mine.

8. The Viability of Successful Rehabilitation of the Mine Site

The issue of Rehabilitation of mined areas is an area which Kalbar are making claims for that do not appear realistic. Their expert witness, for instance, claims that major obstacles to mine rehabilitation include local climate, high variability of rainfall and steep topography. He then goes on to **incorrectly** claim that none of these factors are present at the Fingerboards.

With the area subject to the influence of East Coast Lows with its associated heavy rainfall and a drop in elevation of 90 meters over the project area, such a statement by Kalbar’s expert witness appears to lack accuracy let alone credibility

While some of the other local farmers have already or will in the coming days speak on various aspects of pasture rehabilitation, I would like to confine my comments here to a couple of sentences based on over forty years observation

From what I understand Kalbar has a plan to manufacture “enhanced” soils to replace the topsoil in mined areas and then plant it down with improved pasture.

In farming situations where only heavy applications of fertiliser and/or water have been added to the soil in the past these improved pastures will flourish until the fertiliser is used up or watering ceases.

Then the pasture species will revert back to the natural species that formally existed

Kalbar’s attempt to go one step further, in modifying the soil, will have far more dire consequences.

In this instance this “improved soil” will act not like a soil but as it will be lacking in the appropriate biological and organic content, it will act more like a short term growing medium and therefore in the long term will not support these improved pasture species.

All plants grow only within certain tolerance levels, so if these enhanced soils now have different water holding characteristics or a different pH it is not guaranteed once Kalbar ceases adding fertiliser and watering that those formally existing species, especially native species can or will re-establish.

(pH is the measure of acidity or alkalinity of a substance. It is measured on a Logarithmic Scale from 0 to 14 with zero being highly acidic, seven neutral and fourteen highly alkaline. Because it is a logarithmic scale each whole number is a multiple of ten. The availability of nutrients in the soil needed for plant growth is determined by the soil pH See Photo 03 Soil pH)

The other issue here, worthy of a brief comment is the Proponent's contention that this land is "marginal."

It needs to be noted that this "marginal" land has been proven to be best suited to the production of fine wool of excellent quality with local farmers topping the market and one winning Elders Flock of The Year some time ago. *(Photo 4.1)*

Grazing fine wool merinos on Kalbar's 'Manufactured Improved Soil' will lead to a blow out in fibre micron producing fleeces of far less value with no guarantee that in the long term that this land will again be able to sustain such fine wool production.

Finally, in this section, the photos taken by the VFF on their trip to Western Australia show shots of improved pasture on retabulated mine sites but the question has to be asked ...Considering the sandy condition of the topsoil, how much fertiliser and soil improver and water was applied per acre per year to achieve these results and was this cost recouped by a long term increase in production? And how long will it be before the necessary microbes and bacteria have returned to process the nitrogen containing nodules in the clover roots into plant useable nitrates to make this land more self-sustaining. *(Photo 04 WA Pasture Soil)*

(The Nitrification Process Soil bacteria break down protein nitrogen in organic matter to ammonia which is released as ammonium ions. Some of these ions are absorbed by plant roots but most become attached to soil colloids. Another group of bacteria then converts this ammonia nitrogen to nitrites which is not soluble and then into nitrates which can be absorbed by plants to promote leaf growth and chlorophyll production. This is explained further in the attached image Nitrification process) (Photo 05 Nitrification Process)

While Kalbar's consultants may have modelled local conditions to predict pasture growth rate results and factored in annual rainfall variations from 350 to 1190mm per year, they have made a huge assumption which throws their results into doubt. In the Draft Mine Rehabilitation Plan (Tabled Document 214) the statement is made that "monthly rainfall is relatively constant". This is not correct as the attached Rainfall Chart for 1982 to 2021 measured at possibly one of the nearest gauges to the Fingerboards for that period of time shows.

9. The Practicality and Viability of Establishing 200 Hectares of Plains Grassy Woodland

An issue far more challenging and even less likely to succeed though is Kalbar's commitment to re-establishing a Plains Grassy Woodlands environment on the 200 hectares they own on the south west corner of the Fingerboards.

I believe I can speak with some authority about this concept having an area of Gippsland Plains Grassy Woodland on my property and having established a Covenant over that area in 2001.

Following the establishment of that Covenant I have worked with Trust For Nature and DSE (DELWP) in managing both that EVC and an area of Plains Lowland Forest to protect and improve the flora diversity in both EVC's.

This work has included establishing ongoing management plans with Trust For Nature as well as contracting with DSE (DELWP) for a six year BushTender Agreement between 2003 and 2009 and an EcoTender Agreement between 2011 and 2016.

Between BushTender and EcoTender we planted over 1300 individual tubestock and recorded survival rates both overall and by species.

We also monitored reasons for plant loss along with testing the suitability of various types of tree guards and sizes of herbivore exclusion plots for their effectiveness.

We have also worked for the last six years in conjunction with East Gippsland Catchment Management on an erosion control program which involved the planting and maintenance of some 2 000 trees, grasses, sedges and shrubs along the escarpment of Moulin Creek which runs through part of our property to the north of the Fingerboards.

Gippsland Plains Grassy Woodland is a complex EVC with a defined percentage of large trees (10/ha: DBH 80cm), a 20% canopy cover, defined percentage mixture of understorey species, defined percentage of organic litter (10%) and a spread of differing sizes of logs in varying stages of decomposition (10m/0.1ha) and with many plants relying on a symbiotic relationship with fungi and mycorrhiza. Such an EVC has some hundred identified species ranging from large mature trees through shrubs to herbaceous grasses, sedges, lilies and orchids. A viable Plains Grassy Woodland supports plants of vastly different ages with the hollows of mature trees providing habitat and protection for arboreal fauna. *(Photo Folder A Flora and Fauna All photos taken within 1.5km of Project Area)*

Growth rates for dominant tree species is slow as can be demonstrated in the following observation

As an example a Gippsland Redgum (*E. tereticornis*) sapling less than one meter high (and probably near two years old) was run over with a slasher in 1977. That tree survived. In 1995 a dam was constructed meters from it giving it by default an ongoing source of water. That tree today would be 45 years old and has been in an ideal growing environment for the last 25 years. Yet measured at the end of June this year it was only 58cm DBH had lost no branches and showed no signs of forming hollows. Conclusion is that the fruition of this project, having trees growing to the point of forming effective hollows, will have to extend far beyond the life of this mine and probably beyond the lifetimes of everyone in this room today. So effectively Kalbar has set contract conditions that it cannot in all practicality meet.

What we have observed over the past twenty years through the planting of understorey to enhance this plant community and to better meet the definition of EVC 55 is that

- Plant survival is variable and depends not on average annual rainfall and soil moisture but the distribution of that rainfall and the long term retention of soil moisture
- Water crystals have limited effectiveness in sustaining plants in dryer years as they tend to draw water from plant roots when the soil becomes very dry

- Sandy soils can become anhydrous and repel water making uptake by plants poor
- Plant survival is highly dependent on the presence of microbes, fungi and mycorrhiza in the soil and plants even meters apart will show different growth and survival rates according to whether they can develop the necessary symbiotic relationships.
- Tree guards are not always effective but some are more effective than others. Cardboard guards have a very limited life and are regularly destroyed by herbaceous browsers while plastic fluted guards (beast guards) often cook plants in summer due to the greenhouse effect they create. Plastic netting guards are too narrow and do not allow the plants to grow out and when branches and leaves push through the mesh they are browsed
- Once browsed wildlife will return to the same plant to access new succulent growth until the stage is reached where the plant is destroyed and killed.
- Subtle differences in soil compaction will have a major impact on a plants ability to establish and survive

Based on twenty years of ongoing experience .my summation of Kalbar's proposal to establish EVC 55 is that this cannot be achieved on the scale that they propose and the best that can be achieved is that a few plants of limited species and of a homogenous age can be planted and will survive. This is not what Kalbar is promising that they can achieve nor is it in any way reflective of what a Gippsland Plains Grassy Woodland resembles.

Interestingly enough it is also a conclusion reached by one of Kalbar's employees who stated much the same in a discussion with me late last year. However he did justify the project in that a colony of some threatened or vulnerable species could be established on the block but in no way would that constitute a Plains Grassy Woodland that could be described as representing EVC 55.

There are further reasons to support this contention that Kalbar cannot achieve this goal:

- The work I have done on my own property was within an existing and established but degraded woodland, degraded as a result of localized and limited timber harvesting, slashing and ground scalping and compaction
- Kalbar's property has been over the years
 - Cleared
 - Grazed
 - Cropped
 - Heavily fertilized
 - Planted down to bluegums
 - Burned
 - Will be mined
 - Possibly have a 90 ha Tailings Dam dug on it

There are also other issues here to be considered in assessing not just the chances of success of this revegetation project, but also its appropriateness.

- Has there been consultation with neighbouring property owners to assess whether they are in favour of having 200 hectares of bush adjoining their boundaries with its associated vermin problems?
- If Katestone is correct and the area is subject to electrical activity (ie lightening as claimed for the failures of the weather station), to what extent will this increase the fire risk in the area?
- Have the local CFA Brigades been consulted about the risks of fire, its prevention and suppression and mitigation measures for this property?
- Have the consequences of creating a haven for foxes and wild dogs been considered along with the associated propensity this will create for attacks on livestock?

- What practices are anticipated to be put in place to control vermin from entering neighbouring properties?
- Who will manage this property at the end of the mining when Kalbar leaves?
 - DELWP has problems in managing the areas already under its control.
 - Landcare at the Network level has management issues and the local Landcare group does not have the membership to take on such a project.
 - Trust For Nature at state level has enough trouble raising funds to operate Ned's Corner while the East Gippsland Office is struggling to manage the Stewardship programs for Covenanted Properties in its area without taking on responsibility for this project.
- Where will the ongoing funding come from to control vermin, maintain and repair fences and firebreaks when mining is finished?
- What will be the processes for weed control and prevention of weeds establishing on neighbouring properties?

If established this is an ongoing project that will require ongoing work and funding once the mining is completed. If this cannot be secured then it could be expected that this area could be a problem and become a habitat for vermin and weeds as well as developing as a fire threat to the area. The community is still recovering from the 2014 Mt Ray Fires and is extremely conscious of areas which have the potential to become a fire threat. Maybe they probably do not need this 200 hectare site added to that threat.

It also seems completely hypocritical to remove over 800 mature trees some of which are over 200 years old and 166ha of native vegetation over a 1675 ha area and replace them with tubestock and seedlings on a 200 ha site especially as it may take up to 100 years for some of these trees to suitably mature to adequately reflect the conditions which naturally exist in Plains Grassy Woodlands.

Kalbar really need to go away and reassess what they want to achieve, what they practically can achieve both short and long term and the implications that their plans will have on the local community before committing to this no less than fanciful project let alone using this ploy to give the impression that they are an environmentally conscious company.

There is one other aspect of Kalbar's vegetation plans that probably needs some examination. And that is their proposal to offer to owners of dwellings within one kilometre of the mine the opportunity under a yet to be written Visual Amenity Management Plan, to voluntarily participate in a vegetation planting program to screen their dwellings from the mine. (Document 147 TN010)

Empirical evidence based on involvement with both BushTender (2004-9) and EcoTender (2011-16) over an eleven year period where accurate records were kept of plantings and survival and where survival rates after five and six years respectively were 58% and 60%. (BushTender 634 plantings over 5 years with 383 plants surviving and EcoTender 750 plantings over 6 years with 437 plants surviving.) suggests that their proposed program is unworkable and the two year time span Kalbar allowed is far too short.

Although Kalbar will be responsible for all costs, they have once again over simplified the situation and have failed to adequately consider the following:

- The Visual Amenity Management Plan is yet to be formulated
- The species to be planted is undecided and unknown
- Based on experience, growth rates shown in photos in Document 148 could not be expected in this area. Maintenance for up to two years by Kalbar is totally insufficient given slower growth rates and higher loss rates than Kalbar presently anticipate

- Where plantings will be made close to residences fire risk has to be considered and the 10/30 rule applied
- If the 10/30 rule is followed in some instances plantings will have to be made outside of the dwelling boundary necessitating planting in pasture areas currently grazed by stock and this will require substantial fencing to protect plants

And these concerns need to be addressed during this current process and not left to negotiation between Kalbar and impacted landowners somewhere in the future

10. Inadequate Addressing of Environmental Issues

There are a number of environmental issues that I feel have not been adequately addressed by the proponent.

While the Expert Witness Statement by Ecology and Heritage Partners may give the initial impression that all environmental bases have been adequately covered, reading between the lines and applying local knowledge leads to many questions about their assumptions and conclusions.

While their list of Field Investigations appears comprehensive, local knowledge suggests that a four day study in winter (6-10th June 2016) is not the most appropriate time to identify native plants, especially herbs and forbes as many species are dormant at this time of year.

The second study undertaken 19th-21st March 2018 was during an extremely dry period with February rainfall at about half the average expected for the month and with the first rainfall in March of 2.5 mm, occurring on the 20th of that month.

The third study 10th -14th October 2018 was also undertaken during an exceptionally dry period with a total of 270 mm falling from the start of the year to mid-October when the average would be expected to be in the vicinity of 500 mm for that period.

The aquatic study also undertaken in late 2018 could not have produced particularly accurate results as 2018 was one of the driest years experienced rainfall wise in the area with 393 mm falling for the year. My records go back to 1982 and this is the driest year I have recorded. So the chances of streams, ponds, springs, dams and waterways being in a suitable condition to support the expected array of species is extremely unlikely.

Although the document states that the surveys were undertaken over an area of 2 000 hectares, this statement is left unqualified as access to all properties was not granted and a substantial proportion of the study would have to have been completed at desktop level.

This last fact leads to a need to question the number of flora and fauna species that actually exist in the Project Area compared to the number actually located and identified by the consultants.

The relevant studies and documents within the EES and Expert Statements present data on the existing native vegetation trying to highlight it as degraded and it being of little consequence if it is destroyed and removed. This reduction to a matter of statistics of areas and numbers attempts to justify its destruction through the argument that it can be legally and easily “replaced” via offsets.

What these biased reports do not consider is the great importance of these stands of native vegetation by location in that they occur at the northern end of the Gippsland Plains and are essential in forming wildlife corridors into the State Forest to the west of the Project Area.

The studies, in reducing this native landscape to raw statistics identifies eleven EVC's spread over 245.59 hectares and locates 178 species. Compare this result to two surveys done on a neighbouring property of 30 hectares and comprising only two EVC's (Plains Grassy Woodland and Plains Lowland Forest), the first by John Miller (RMIT) in 2001 and the second by Trust For Nature in 2005 where both studies located over 100 individual native species in only the two EVC's. This result of over 100 species found in two EVC's but only 178 in eleven has to throw into doubt the adequacy, timing and accuracy of Ecology and Heritage Partners studies.

A basic example shows that on my property in March 2018, in an extremely dry season, the rare Slender Wire Lily (*Laxmannia gracillis*) was difficult to locate as plants had died back yet it appears that although not visible above ground their root systems had survived as they are currently prolific.

The removal of 166.52 hectares of native vegetation, 417 large trees in patches and 533 scattered trees is a substantial amount of vegetation to be removed especially as much of this vegetation forms wildlife corridors, the removal of which severely limits the movement of native fauna and restricts access to food sources. It also results in isolating colonies of fauna and over a long period leads to a decline in genetics through inbreeding.

To suggest then that the long term impact on ecological values is "Low to Moderate" and rest this statement on the assumption that "ecological values can be restored through rehabilitation" is grossly over simplistic and an insult to the intelligence of anyone who is familiar with the vegetation communities that Kalbar expect to be able to remove.

To allow such important vegetation to be removed when an Environmental Management Framework is yet to be produced, a Biodiversity Management Plan is yet to be prepared, and offsets are yet to be confirmed and an assumption has been made that General Habitat Units and Species Habitat Units can be purchased through the Native Vegetation Offset Register would be to allow Kalbar to undertake a program of irreparable environmental damage without ensuring that the appropriate safeguards and checks and balances are in place first.

The risk in establishing viable and appropriate offsets is further heightened in two more of Kalbar's comments, that discussions are/have taken place with appropriate land owners and the property 2705 Bairnsdale Dargo Road has not been assessed for flora and fauna.

The first comment has to draw a response that discussions do not always assure acceptable outcomes for the proponent and the second, due to the area and amount of native vegetation on the property at 2705 Bairnsdale Dargo Road as well as the number of damp gullies, a thorough investigation of all flora and fauna is essential prior to any approvals being given

The concept of relocating wildlife that will be displaced by the mining operation seems totally over simplistic.

To suggest that animals can simply be relocated to adjacent areas ignores the fact that much wildlife is territorial and will defend that territory from outsiders.

As the mine will cut through wildlife corridors, wildlife populations will become isolated as habitat is reduced and movement is lessened. To introduce new animals into those areas will also create increased competition for food sources.

To also suggest that areas will be checked for wildlife prior to excavation, fauna caught and relocated may sound simple enough in theory but to remove wombats from burrows and possums and gliders from tree hollows will not be easy to achieve and may in fact not result in the same level of native fauna protection that Kalbar anticipates that it can achieve.

To postulate that fauna habitat, namely hollow trees can be adequately replaced with nest boxes is a statement that cannot be supported with evidence. I have more than twenty nest boxes on my property which are checked once or twice a year for habitation. The usage uptake is at a maximum of 15% by ringtail possums, micro bats and sugar gliders but with the introduced the European Bee being a major problem.

The 2019-20 bushfires saw large tracts of native vegetation destroyed. One of the species severely impacted throughout East Gippsland was *Allocasuarina littoralis* (Black Sheoak). This species of tree is the sole source of food for the endangered Glossy Black Cockatoo for which the state government has recently announced funding to facilitate the replanting of these trees on private land to replace those lost in the fires and to ensure a food source for this endangered bird species.

This will not be a straight forward process as these trees are slow growing and the tube stock and saplings are a very attractive source of food for browsing wallabies which will readily destroy them.

It seems hypocritical then that while on one hand there is project funding to re-establish these trees that at the same time Kalbar could be permitted to bulldoze one of the few large mature stands of this species in the area in the Perry Gully.

The fact that offsets may have to be purchased to allow for the removal of the native vegetation in the Perry Gully does not ensure that these offsets include Black Sheoaks or that such an offset was acquired locally and will be able to provide a food source for the local population of Glossy Black Cockatoos.

11. Inaccurate Modelling and Impact on Household Water Quality

The results of inaccurate modelling also taint the calculations used to estimate the amount of dust accumulation in household water tanks. The mistake made in this instance is to underestimate the size of the roof catchment area using only the area of the house roofs. On most farm properties not only is the house roof used as a source of water catchment but also roofs of sheds such as hay sheds, shearing sheds and machinery sheds.

Using the correct catchment area data which includes these factors would have led to a more accurate result and a much higher level of dust deposition in household water supplies.

Add to this miscalculation of roof areas, the inaccurate wind energy data, the accuracy of the conclusions derived from the modelling to determine the volume of and impact of dust on household water supplies simply has to be rejected as totally inaccurate and misleading.

So the casual acceptance of the inaccurate data used by Kalbar and its consultants for modelling to calculate the impact of dust on household potable water supplies is not acceptable as its lack of

accuracy and underestimation will lead to a higher level of contamination of household water supplies on properties in the area than the consultants have predicted.

While on the same subject of household water supplies, the proponent states that the entry of dust into household water tanks can be reduced by the use of “first flush” systems. While this fact in itself is true, the assumption made by the proponent that households have these systems fitted is not correct.

To add credibility the proponent really needed to state the proportion of sensitive receptors which have these systems installed or to make the offer that if dust became an issue that Kalbar would provide and install these systems.

For these systems to be effective, they need to be installed on every downpipe at roof level. In my case we would need ten of these to be installed and as a seventy year old, medical advice is that I should not be climbing ladders. So in this instance what is proposed as a mitigation measure by the proponent is not a simple exercise. Multiply this case by the number of sensitive receptors and the problem has suddenly escalated out of all proportion.

There are further flaws in the modelling of the impact of dust on potable water supplies. Paraphrased, the proponent states that even if dust finds its way into household water tanks, it will not be a problem as it will settle as a sludge in the bottom of the tank. Again both the basic modelling and knowledge of tank water systems is lacking on the part of the proponent as there is a failure to take into account that these dust particles may not settle but rather remain in suspension or as a colloid thus impacting on the quality of the household water supply and depending on the chemical composition of these dust particles, also on human health.

The proponent also fails to take into account that it is far from unusual that during heavy rainfall where larger volumes of runoff water is entering the tanks, sludge is stirred up leading to days of increased water turbidity.

If there is an increase in dust levels as a result of this mine going ahead, and Kalbar’s modelling as stated is suspect, then local residents can expect there to be a reduction in the quality of their household water supplies. This scenario is not acceptable.

12 Issues Surrounding Noise Modelling

The Noise Modelling in the EES must also be subject to further scrutiny. Although figures are given for the Noise Emission Levels of various machines there is no indication of how they were arrived at.

Is the noise output for these machines measured with motors at idle speed, while travelling or under load in work?

I ask this question because obviously a machine such as an excavator idling would have a much lower noise output than the same machine while travelling. That machine under working loads digging out rock or gravel would have a higher level of noise emissions again as the noise output not only of the machine’s engine producing higher revs but also noise output from the digging and scraping of the bucket would also have to be taken into consideration. Expand this a number of times due to the multiple machines operating simultaneously and the figures will be much higher.

There are also issues surrounding the proponent’s attitude towards noise which seems to be along the lines of “**The regulations allow noise emissions to a certain level and as long as we are below those levels then we have nothing to answer for.**”

What they have failed to take into consideration is the area around the Fingerboards is extremely quiet and this is one of its attractions, so any increase in noise, whether legal or not is an imposition on the community.

Also there is a failure to take into consideration is the type of noise that this mine will produce.

As a community we happily accept “natural noise’ such as that of farm and native animals and birds. What we find difficult to come to terms with is that these sounds will be overshadowed by that of machinery which is foreign to our community’s environment.

The replacement of natural noise with industrial noise is unacceptable.

It would sort of be like you people attending a classical music concert, but when the curtain goes up finding out that the orchestra has had to cancel only to be replaced by Chad Morgan. And you are unable to leave.

These are issues which the proponent either fails to or refuses to consider let alone understand.

There is a reference to the noise level output of the newly introduced Centrifuge units in Kalbar’s column written by their Project Director in the local paper, (Bairnsdale Advertiser P19 March 31 2021) where he states that “Centrifuges produce roughly the same level of noise (**90 dBA**) as that of standing 3 meters away from an average petrol lawnmower.” Reading this statement led me to check the noise output of my own mower which I would consider average (*Rover Super Ute 800ohv 205cc motor 22” deck*) It displays a decal clearly showing an **operator noise level exposure** of 75 dBA so standing three meters away would be even less Just another misleading fact provided to you by Kalbar.

With Noise (decibels) measured on a logarithmic scale, the difference between 90 and 75 decibels is quite substantial, A more accurate comparison would have been to quote the noise output of one of Stihl’s larger chainsaws, a 066 Magnum which has a noise output of 93 dBA at 7.5 meters. But a statement such as this although much closer to the truth, a reader of the article may have found a little too confronting.

What is also omitted from this article is that not one but six centrifuges will be operating simultaneously. So to be honest, the noise output of the Centrifuge system is not the equivalent of a domestic mower at 3 meters but more like that of **six** 93cc chainsaws at 7 meters.

.....
13 Understating the Real Level of Risk

The **Risk Register** which forms part of the EES makes interesting reading in that it fails to take into account the changes that this mine will bring as seen from the point of view of the local community.

The fact that only 6% of the 172 identified risks are seen as MAJOR reflects a city centric or a very one sided attitude.

Whoever compiled this Register makes some unresearched assumptions which suggest a lack of understanding of local farming practices.

These include that dust deposited from the mine on crops can be washed off which is not correct as

- Not all crops are washed after harvest
- Some crops will trap dust within the plant structure which will not allow its removal

Clearly demonstrated is a lack of understanding of the topography from the Plateau to the Valley and wind patterns and turbulence that are generated over the 90 meter fall in elevation.

It plays down the aspect of noise because in the proponent's view, it will be within **legal limits**. It fails to consider the current noise levels and how the increases it proposes will radically change this quiet rural environment by introducing 24/7 operation of machinery.

The fact that no Noise Management Plan has been developed puts a lot of pressure on the accuracy of the noise modelling and a lot of trust in the accuracy of its results. With the expert witness stating that construction noise at some sensitive receptors may exceeded maximum allowable levels both during evenings and night time but no comment on what will be put in place to protect those who live at those sensitive receptors, once again there is an assumption that the community will just have to put up with these breaches

The proponent argues that an open cut mineral sands mine is no threat to the major existing industries of the area including horticulture and cattle and sheep production. Much like the forestry industry did thirty years ago while attempting to establish bluegum plantations in the area. And just how wrong they were.

It has also been stated by the proponent that a lot of misinformation has been accepted by the farming community and this is the result of the farming community knowing very little about this type of mining.

However let it be known that the farming community has done a lot of research over the last seven years and definitely knows more about mineral sands mining than the proponent knows about farming.

The proponent's lack of understanding of farming practices is clearly demonstrated when once again a basic statistical analysis is used to demonstrate their case. In quoting the number of hectares of farming land that will be out of production at any one time and trying to make the case that this will not be a significant area they make the unstated assumption that all farmland is the same and that no area is reliant upon another.

This is not the case because on a working farm all paddocks are interconnected and a productive farm is set up to function with various areas having specific uses.

For instance a particular paddock may be sheltered and therefore used when cows are calving, ewes lambing or for protection in times of inclement weather for off shears sheep. Too take that paddock out of production equates to more than a statistical loss in farm area as it impacts on farm production.

The same or similar cases can be made for paddocks which have higher volume runoff to farm dams as to take them out would severely restrict the farm water availability and supply.

Loss of paddocks used for cropping to provide winter feed or areas with natural springs supplying permanent water will also impact on the productivity of the farm.

Explaining and demonstrating their case by the use of statistics oversimplifies the situation and fails to portray the reality of the impact that this mine will have on directly impacted properties.

Due to its value, the level of investment by farmers and the importance of food production the local horticultural industry cannot afford to be put at risk and it does not matter if this risk is **perceived or real**. Both will impact on the ability of the growers to sell product and will put ongoing and new contracts at-risk.

A recent ABC Landline program ran a segment on consumer awareness in relation to the source and quality of food that they consume. The growth of this awareness and the coining of the terms “conscience consumers” and “ethical eaters” means that farmers must be able to demonstrate that their produce remains contamination free.

Recent examples of contamination have led to consumer resistance towards certain products regardless of in which region that contamination occurred or whether a particular product was in fact grown in that region.

Rightly or wrongly, mining does not have a clean image and is seen as a source of environmental pollution. For consumers to be made aware that what is a product which carries a “clean green” image is now grown near an open cut mineral sands mine has the potential to turn consumers away from both the product and the source.

With retailers more and more frequently using grower names and locations in advertising fresh food products the image and therefore sales from the Lindenow Valley will be put at greater risk if this mine is allowed to be developed.

14. Opportunity to Consult with the Community to Find More Appropriate Location For The Processing Plant

One of the foremost and still unresolved concerns I have is the proximity of my home to the Processing Plant. Originally to be located nearer the Fingerboards, the Processing Plant was supposedly shifted due to Environmental concerns expressed by the community but at the same time Kalbar also admitted that it was also in their interests to shift it to its current location as it would be off line of the mine area. However it is now to be located close to eight houses and all this was done by Kalbar without further community consultation.

With the Tailings Dam possibly now not to be constructed, the question has to be asked why Kalbar has not gone one step further and shifted the Processing Plant away from these eight houses to a more suitable location?

As all plant is modular in construction, it can be easily shifted again at a later time and with an extra ninety hectares available this should not be a huge problem and would certainly demonstrate that they are listening and responding positively to community concerns.

As the proponent clearly states that the Centrifuges will be located near the Mining Unit Plants and as the tailings will now need to be pumped further from the Processing Plant to the Centrifuges than

would have been the case had they been pumped to the Tailings Storage Facility, it would make more sense to relocate the Processing Plant to a more efficient location which would also solve the problem of its current proposed proximity to that number of residences.

15. Quality of Life and the Amenity of the Area vs Monetary Values

Kalbar continually states the economic advantages in the development of this project. Their argument reduces everything to monetary values. These monetary values need to be seen against the negative impacts on the community and existing businesses.

The existing quality of life which currently exists within the Glenaladale community needs to be considered against the revenue that will be created for the State and the profits that will be gotten by the mining company.

While the claim that the creation of 200 jobs may seem a positive aspect of this mine proposal, it must be admitted that employment creation should not be taken out of context and needs to be seen as one issue within all the positives and negatives that this mining proposal raises.

The 200 jobs that will possibly be created may be of benefit to some in the community, however there are many others, namely and initially the residents of the 80 plus homes within the two kilometre limits of the project area who will be negatively impacted and greatly disadvantaged.

These negative impacts include exposure to increased dust and noise, threat to human health, damage to the pastoral and horticultural industry through the deposition of contaminants on crops and pasture, a decrease in property values and a degradation of the standard of liveability of the area.

These aspects are not examined adequately in the EES due to poor modelling brought about by the use of incomplete, biased and inaccurate data.

In many statements both in the EES and in the media, Kalbar expounds the benefits of this project in financial terms. But it has to be stressed that these financial benefits available to some will not benefit all the community and that many will be socially and economically disadvantaged if this project is given approval.

It is therefore the duty of this Panel in preparing its report to ensure that this section of the community is protected and not disadvantaged in any way if this project is to be approved. It should also be their duty to advise the Minister that there are section of the community who will be negatively impacted by this project and it is essential that their interests are given priority over the economic interests of a private mining enterprise.

I would suggest that in order to protect the community, at a minimum the following be guaranteed by Kalbar

- Independent 24/7 monitoring of noise at all sensitive receptors
- Regular independent household, dam and bore water quality monitoring at all sensitive receptors
- Double glazing of windows at sensitive receptors
- Installation of first flush systems on all household potable water systems at sensitive receptors

I would also suggest that as the Minister has declared a Moratorium on mining in the Lindenow Valley, that as dust and pollution do not recognize the boundaries of the Valley as drawn on a map, that a protection zone where no mining is permitted of at least five kilometres around the Lindenow Valley be recommended in order to reduce crop and river exposure to dust and pollution.

16. Human Health

The issue of human health is also a very serious concern due to the uncertainty of what will be exposed as the mine exposes the ore body.

Claims by Kalbar that there is no threat to human health because there are areas where the ore body is close to the surface or ore is exposed and has been leaching into the environment for years may be true.

But what is not taken into consideration in that argument is the quantities of substance that has been previously exposed. Surely that by creating an open cut mine and exposing greater quantities of the ore, there is a potential to increase that risk. What we have to also question is while these chemicals may be stable while buried, will their exposure result in their oxidization causing them to become less stable?

While buried they cannot be ingested by humans or animals but when exposed and transported by wind and water the chances of ingestion increase. As some of the chemicals identified in the ore body are known carcinogens while others such as silica are known to cause respiratory disease the risk to human health will be increased.

17. Centrifuges.....Additional And Unnecessary Community Stress/Costs Caused By the Proponent Making Major Late Changes to the Project

The fact that Kalbar has had the opportunity to make major modifications to its proposals after the EES has been closed to public comment has resulted in the community being put under unnecessary pressure and additional cost to find expert witnesses as well as having to brief their legal team in order to respond to these changes.

Kalbar's reasoning for this major modification with the introduction of the use of centrifuges was supposedly in response to community concerns expressed in submissions in relation to issues associated with a Tailings Dam.

The issue of the location and risks associated with a tailings dam (which magically grew from sixty to ninety hectares overnight) was raised very early on during community consultations at public meetings run by Kalbar. Yet Kalbar has waited until now to suggest such a modification which by its own admittance is not new and is used globally however just not in mineral sands mining.

For Kalbar to make these changes with such questionable reasoning at this late stage is for them to again demonstrate their concern only for themselves with little consideration for the true level of transparency that they profess to show.

As stated adequate opportunity has not been provided even with the postponement of the Hearings to examine this concept adequately as Kalbar has not attempted to explain this concept to the community short of providing documents which could only be accessed via Engage Victoria Web Page.

The fact that Document 43 was made public in mid-January despite there being evidence that Kalbar had been discussing this possibility of using centrifuges with the East Gippsland Shire Council at least a month earlier, the question has to be asked Why was there such a delay in making this information public?

Further evidence is available in Document 130 to demonstrate that Kalbar was considering this major modification as far back as 2018 and the laboratory tests described in this document seem to form the basis for this major modification.

However a laboratory test which.....

- Does not describe the machine used for testing nor state whether it was a commercial machine or a scaled down model
- Does not provide a report on the quality of the separated fluids
- Does not give any indication of the amount of tailings fed into the system, the length of time it was fed in for or the rate of feed
- That only processes one sample from a mine which is intended to cover 1675 hectares

....should not be held up to justify that this is an acceptable and workable alternative.

The fact that this method has been used successfully in Oil Sands and Coal Tailings does not mean that it will necessarily be successful in Mineral Sands Tailings. The fact that Kalbar has not produced any evidence to show the similarities between these tailings types suggests that there should be further investigation into this new process and that it should not be taken at face value based on Kalbar's say so that it will be viable.

As this modification was never considered by the Technical Reference Group as were other major concerns which led to Peer Reviews, maybe the concept of replacing the Tailings Dam with a system of Centrifuges should also be referred back to and assessed in a Peer Review instead of relying on the toing and froing between the Expert Witnesses on both sides.

The use of centrifuges has also to be considered as part of the economic strategies of this project. By Kalbar's own admittance it will greatly increase capital costs along with operational costs.

As it is up to the proponent to prove the economic viability of this project in order to gain the necessary approvals. And as this viability has already been questioned with Kalbar's consultants BA Economics found lacking in providing a realistic breakdown of costs and revenue by the Australia Institute which accuses them of overstating the benefits and understating the costs, the additional costs not only of purchase but of maintenance and running six centrifuges, makes this new concept far from convincing.

The fact that no other Mineral Sand Mining Company employs this method due to "cost considerations" has to throw further doubt on its feasibility.

With these centrifuges powered by electricity, the question has to be asked as to the source of this electricity, whether it be from diesel powered generators which could be expected to be noisy and produce greenhouse gases or whether it be from the grid and if it is from the latter, what impact will this have on existing electricity customers along that powerline?

And it has to be accepted that the extra demand for electricity to run these centrifuges will be far from minimal with Kalbar's own estimation that this demand will increase by 50% from 9 000 kva to 14 000 kva.

Remember that if the centrifuge system is accepted and fails, the project could/would become financially insecure and then there is a strong possibility that the mine may be abandoned. And an abandoned mine of this size will create a huge cost to a community which extends much further than just East Gippsland with the costs of rehabilitation not being adequately covered by Kalbar's bonds.

Maybe there is also another reason for these changes and that is the realization by Kalbar that its modelling has again been faulty and it has had to admit that it has grossly underestimated the percentage of water that it can recover from the Tailings Storage Facility meaning that it must find an alternative way to save water, water which it is having difficulties sourcing in sufficient quantities.

Their justification that the decision was based on economic reasoning rather than technically considerations is a "cop out" and just another example both of Kalbar's obstructionist policy towards those who do not support this proposed project as well as yet another demonstration of their lack of understanding and their inability to accurately model the operations and resources needed for the functioning of this proposed mine.

The introduction of a centrifuge system also has connotations for other sections of the EES and Expert Witness Statements, specifically that of noise.

Rightly or wrongly this Panel has been prepared to accept that Kalbar has dismissed and rejected any thoughts about the use of a Tailings Storage Facility. But the question still remains that if the centrifuge concept, which has only been tested under laboratory conditions, was to fail, will Kalbar then try to modify its Work Plan to establish a Tailings Dam. For if scenario was to develop, it would mean that there is the potential that if such a structure is built it could be done with limited environmental studies. As has already been shown, at a minimum, the Tailings Dam Concept would require far more water, impact on ground water levels, threaten pollution of the Mitchell and Perry Catchments through seepage and would slow the rehabilitation process.

In my opinion I would suggest that if the Minister was to approve this project **and we firmly hope that he does not**, then it be made perfectly clear to him that such approval be subject to it being operated based on a centrifuge water recovery system and that if Kalbar have put themselves in a situation where they have no option but to revert to a Tailings Storage Facility then the entire project be put on hold until the situation is adequately investigated and examined to ensure that such a change will result in no negative environmental or social impacts.

18. Lack of Adequate Consultation With Community Over Impact of Realigning and Relocating Public Roads

The other late advised modification is the changes in the relocation of public roads.

Farming properties have been developed around the existence and location of roads with over years many farms expanding with the purchase of non-adjoining paddocks. Consideration has always been given to the ease and safety of moving stock between these paddocks.

With Kalbar's proposal to relocate and realign public roads a number of property owners will not only have to allow greater time to travel between paddocks but also be forced to take greater risks when moving stock along roadways as Kalbar's redesigning will require stock being moved between the north and south sides of the Fingerboards along the quieter Fernbank-Glenaladale Road now to be diverted along the Lindenow-Dargo Road with its higher traffic flows.

Combined with increased traffic flow from the mine, including B-Doubles along the Lindenow Dargo Road, this will create a greater risk for the safety of valuable farm stock as well as motorists.

19. The Fallacy of Trusting in the Regulatory Authorities to Ensure that the Project is Managed Appropriately

Even to suggest that the project, if approved will be subject to checks and balances from Government Regulatory Departments, is to take a huge and unnecessary risk given the record of some of these departments.

A recent Auditor General's Report was extremely critical of the Earth Resources Regulator finding that it had consistently failed in enforcing key environmental safeguards, by not ensuring that mine sites were properly rehabilitated, approving inadequately specified plans and using out dated estimates to calculate the value of bonds.

A report by Ernst and Young in 2020 which examined Victoria's Environmental Protection Authority concluded that the Authority had used "unacceptable practices" and had failed in monitoring and tracking dangerous chemicals and sites across the State.

It also found that the organization was not proactive in using information provided by the public to identify risks that had the potential to result in community safety issues.

The Enquiry and subsequent Supreme Court Case into the 2014 Hazelwood Mine fire resulted in fines of over \$2 million finding the owners of the mine at fault for this event.

It was found that:

- Pollution from the blaze most likely contributed to a number of deaths in the nearby communities
- The Hazelwood Power Corporation was guilty on 10 occupational health and safety charges for putting workers and the public in danger.
- The Hazelwood Power Corporation failed to adequately assess the risk of fire
- The HPC did not have an adequate reticulated water system
- The HPC failed to slash vegetation around the mine
- The HPC left it too late to start wetting down areas around the mine as the bushfire approached.
- HPC were accused of level of complacency about a bushfire spreading into the mine because of "the fact that the mine had not come under attack from bushfire or burning embers within almost 60 years of operations".
- The partnership of four companies operating the mine were fined a further \$380 000 on twelve pollution charges.

The questions have to be asked:

- Which Government Regulatory Department was responsible for monitoring the activities of this operation?
- Was it carrying out its duties adequately?

- If so why did this fire escalate to the size it did and create so much damage both within the mine and in the communities surrounding the mine?
- What if anything has changed?

There are many other examples of these departments failing in their legal responsibilities, examples which “locally” include the 2011 Princes Freeway Collapse and the Stockman Mine Tailings Dam Failure and the current ongoing issue of the cracking of the wall at the Yallourn Coal Mine where there is a suggestion that Earth Resources has failed to undertake adequate monitoring allowing the mine to extend too close to the Latrobe River, the third such incident since 2007 (2007 and 2012).

So the question remains, if a junior mining company with extremely limited experience is given the go ahead with this project and is not up to task, can we rely on the Regulators to step in in time or are we heading for an environmental and economic catastrophe.

20. East Coast Lows and Floods

What we experienced in mid-June was technically not an East Coast Low. An East Coast Low is typically the remnant of a cyclone which as it moves down the East Coast of Australia deintensifies to form a Low Pressure Cell which becomes stationary near Gabo Island.

Because this system has moved down the East Coast it contains warm air and is therefore able to absorb a great deal of moisture off the ocean.

The cooling of this air mass as it moves south and over land causes it to drop much of its moisture in an area from Gabo Island to as far west as at least Sale. This is what we experienced in December 2014.

What we experienced in mid-June this year was a slightly different phenomena. This was a reasonably intense Low Pressure Cell which moved across The Great Australian Bight and Bass Strait. It was a cooler air mass moving over cooler water. Such a phenomena usually does not have the same level of impact on East Gippsland. And this is why this area experienced only 100 mm of rain over the three days while in December 2014 rainfall was nearly double that figure. (*Photos 6-11 Local Flooding*)

So flooding in East Gippsland is primarily caused by East Coast Lows and these may occur at any time of the year (1978 February: 2007 June: 1990 April: 2014 December) with rain events lasting usually three days.

The severity of flooding which occurs during and following such an event depends on a variety of factors and the interaction between these factors.

- The amount of surface runoff will vary depending on the intensity of the rain that is the amount of rain falling over a specific time.
- This runoff will also be modified by the amount of moisture already present in the soil. If the soil is dry (anhydrous) it will initially repel water leading to a high level of runoff. If the soil is saturated, that is all the pore spaces between the soil particles are filled with water this will also lead to a high level of runoff
- Between these two extremes the amount of runoff is partially determined by the intensity of rainfall and the soils ability to absorb that water
- The amount of runoff is further modified by the slope of the terrain and the amount of vegetation cover as vegetation cover will slow runoff and give the water more time to be absorbed into the soil.

- Lack of or sparse vegetation cover on a slope will lead to faster runoff
- The faster the runoff, the more energy the water has and the more energy it has the more debris it can carry
- The faster the runoff combined with this increase in energy leads to greater levels of erosion
- The location of rainfall, whether it is local, upstream or a combination of both will determine how long the systems stay in flood
- When combined with high and incoming tides and southerly winds, water cannot flow freely out of the Lakes system. This in turn will cause the rivers to bank back up and further spread out on to the flood plain.
- Speed and depth of flow over the flood plain will slow, the river will lose energy and dump debris
- If the system is carrying contaminants from the mine site, they will be deposited on the flood plain and as we know this flood plain is the primary area for vegetable production
-

Considering the amount of modification to the natural landscape that will be created by this proposed mine and in order to mitigate localized and downstream damage, Kalbar would have had to carry out a variety of modelling scenarios and have convincingly presented them in the EES. This they seem to have failed to do.

The consequences of the failure of an organization to predict and allow for such rain events and to have in place adequate mitigation measures, let alone have sufficient time to activate these measures can be clearly demonstrated when in 2007 Glenmaggie was allowed to overflow during an East Coast Low, flooding the townships and surrounding areas of Newry and Tinamba.

21. Impact on the Immediate Community

There has been both much said and asked about how this mine proposal has impacted on the community. And there is no doubt that it has had a negative impact and has caused a lot of damage especially following the work done to build community resilience following the Mt Ray Fires in 2014.

Within the community close to the project area

- The majority of residents do not want to see this mine go ahead
- There is a small minority who support this project, most of whom are happy for the personal financial gain that will come out of it for them and are not concerned that their neighbours properties, lifestyle and businesses will be negatively impacted.
- **Members of this minority group claim that they speak for the Silent Majority who feel too intimidated to speak out. The existence of a Silent Majority has to be questioned. Certainly there are many people in the wider community who have an opinion on this project and who do not publicly project that opinion. But it does not follow that all these people are all supportive of the proposed mine project. Some may be in favour, some against and like with any issue some may have no opinion. We live in a democracy where everyone has the right to an opinion and a right to express that opinion. If they wish to remain silent that is also their prerogative but we cannot assume that those who are silent on this project support it. We do not canvass every person whenever there is an issue in the community to be decided upon. We elect our public representatives to speak for us at government and semi government level. At last year's East Gippsland Council elections, this proposed mine was a major issue and candidates stated where they stood on this project and the population voted accordingly. The majority of those elected to council opposed this mine. It follows then that this project is not supported by the East Gippsland population.**

- When it comes to issues of intimidation, it is this minority group who are in fact doing the intimidating by
 - On two occasions interfering with the brakes on a farm truck which displayed Anti Mining Signs while parked in a paddock
 - Interfering with a farm ute with signs displayed while in a paddock
 - Vandalising signs on a trailer parked in a Bairnsdale street
 - Removing the orange and black signs off of fences
 - Vandalising orange and back signs
 - Verbally abusing on social media persons who posted negative comments about the mine on Mine Free Glenaladale's Facebook Page.
 - Harassing an elderly resident to the point where he sold his property to Kalbar
 - Setting up a fake Facebook Page in the name of a supporter of Mine Free Glenaladale and posting derogatory comments on that page. (This incident ended up in a court case)
- There are the Fly In Fly Out Mine Workers who live locally and support this project. To them I say, you chose a career in the mining industry and you chose to live in Bairnsdale. Now you are complaining that the FIFO lifestyle is an “**inconvenience**” on your family life and want a mine at the Fingerboards. Did you ever stop to consider that the prospect of this mine may be a greater “**inconvenience**” to those eighty plus families who live in this location and form part of its community?

22. Misleading Information Throughout the EES Documents

There are other issues in Kalbar's documentation which lead to distrust by those who are familiar with the area and believe that those less familiar will take for granted at face value and therefore be misled.

Examples of this include

- (i) Kalbar's map showing the proposed locations of its twenty dams conveniently omits any farm dams that exist further down the gullies. The impression given is that Kalbar's dams will have minimal downstream impacts. This however is not the case and Kalbar need to be required to produce accurate maps to show the high levels of impact on downstream properties due to their restricting of runoff and water flow down these gullies.
- (ii) The map/diagram showing the layout of the Project Area conveniently places the legend over the area to the south west where there is a significant number of houses giving the impression that there will be no impact on homes as none supposedly exist in this area.
- (iii) The same can be said of Kalbar's video which again conveniently excludes showing nearby homes.
- (iv) Kalbar's map showing the location of the vegetable growing area of the Lindenow Valley suggests a sparseness of cropping through that area when in fact over 4 500 hectares are under extensive and continual crop from Glenaladale through to Hillside.
- (v) Air quality statistics are quoted for Traralgon which is in the middle of the industrialised Latrobe Valley over ninety kilometres to the south west. These air quality statistics used as a base line are not an appropriate comparison as they compare an industrial area to a farming area.

- (vi) The EES states that during the decommissioning stages fill will have to be sourced to backfill the final mine void. This fill, it states, will be sourced from the Honeysuckle Creek Valley. A cursory inspection of local maps shows that Honeysuckle Creek runs east west from the eastern end of Edwards Lane, south of Honeysuckle Road and into Providence Ponds. It is outside of the both the Project Area and also outside of the Retention Licence Area. The question has to be posed whether it is acceptable to dig out this creek valley or whether this is just another example of the proponent making a statement about an action that cannot be achieved that they hope will be accepted without question as a valid action.
- (vii) In discussing erosion control in its rehabilitated mining areas. Kalbar refers to documentation and studies done under the auspices of the Department of Primary Industry in the Glenaladale area some 10 to 12 years ago. Kalbar intend to mix lime and/or gypsum with the backfill in order purge the sodium salts from the soil as these are responsible for the soil having dispersive characteristics. Kalbar quotes this study to demonstrate that this is a viable method of preventing tunnel erosion which is prevalent in soils of this type that are common in the area and occur where Kalbar proposes to mine. What Kalbar omit from their documentation is the conclusions reached in the DPI study which incidentally does not rely on modelling but whose conclusions are reached from observations in actual field trials. ***“Deep ripping alone can achieve results for up to seven years.....To supplement deep ripping calcium (lime and gypsum) was applied with the intention of reducing clay dispersion. Our results did not show that this had occurred.”*** (DPI publication Tunnel Erosion in East Gippsland p41) yet despite this Kalbar, through its expert witness asserts that it can mitigate this issue claiming that his recommendations are in line with those of DPI (which in the long term show signs of failure). He asserts that 4 tonne gypsum to the hectare will suffice whereas DPI demonstrate through further testing that “for full dispersion control 15 tonne/hectare may be necessary.
- (viii) Kalbar’s expert witness on erosion also needs to be taken to task on his derogatory comments which include the assertion that the areas farming land is degraded but worse is his comment on tunnel erosion, that it is not prevalent and that “wombat burrows can often be mistaken for tunnel erosion.” It is interesting that the issue of sheet erosion through the loss of topsoil is not examined in his statement either.
- (ix) Dr Rob Loch also discusses erosion in his Expert Witness Statement. Commenting on the fact that deep rooted plants (trees) will prevent water from infiltrating the soil and cause tunnel erosion he quotes Peter C Fagg whose best results in field trials was to achieve tree growth of 6 meters after 7 years which Loch claims will be sufficient growth to prevent tunnel erosion. Unfortunately Fagg did not use a highly modified rehabilitated mine site for his trials, instead using cultivated and burned seed beds. It also appears that his two most prolific species were *E sieberi* (silver top) which does not occur in the EVC’s in and around the Fingerboards and *E globoidea* (White Stringybark) which although it tends to predominate Plains Lowland Forest will not survive as a standalone paddock tree. The other point omitted from Dr Loch’s expert witness’s statement is the qualification made about this study by Fagg himself.. “Although the seedling frequencies and growth rates were satisfactory up to seven years after seeding, a longer period is needed to test the ability of the young forests to grow to commercial maturity.” This last comment is interesting in that it supports what was reported by persons who had visited mine rehabilitation sites in Western Australia, that there were long term survival problems with trees on those sites. Taking all this information into account, the appropriateness of Kalbar’s Expert Witness statement in expecting similar outcomes at the Fingerboards to what Fagg reported is highly questionable

Further distrust is created in the derogatory comments made by Kalbar representatives at Public Meetings as well as in sections of the EES where

- The area is described as marginal farming land
- It is suggested that if dust is a problem then residents remain indoors or sell up and leave the area
- Where property may be indirectly damaged by mining operations then the property owners course of action would have to be to pursue damages through the court system

23. Conclusion

Kalbar's EES is much like that building in Miami. Both look magnificent on the outside but both have multiple flaws and both fail to stand up.

It is clearly demonstrated that this project is totally inappropriate for this location.

It threatens the immediate and extended community around the Glenaladale area socially, economically and environmentally and should not be allowed to be given approval.

It threatens the existing economic activities and primary industry of the area, the natural environment including its flora and fauna and the liveability of the area that the community values and enjoys.

Rio Tinto and its subsidiaries Metallica and Oresome all walked away from this project seeing it as unviable with problems to overcome and issues that would be difficult to resolve.

Rio Tinto is a large company with vast experience in mining and was not prepared to pursue this project but Kalbar a small junior mining company with no experience is. What does that say?

Just because a valuable resource exists at the Fingerboards, it does not necessarily mean that it has to be exploited at the risk of the local community, environment and the ongoing sustainability of the existing and established primary industries.

Kalbar's documentation has been shown to be full of inconsistencies, incomplete and inaccurate data and suspect modelling.

Kalbar were given clear instructions in the Scoping Requirements, were led through the process by the Technical Reference Group and had Peer Reviews carried out on sections of their findings.

They were given numerous opportunities to correct their mistakes and provide an accurate, transparent and convincing case for their proposed mine but in the final analysis have failed to do so.

To accept the EES as it currently stands and to approve this project is to make a decision based on flawed and deficient data.

Kalbar have provided an EES supported by its Expert Witness Statements, but there are well over 900 documents, including those from Government Agencies, expressing caution, concern, disapproval or total opposition to this proposed project.

For the Panel and eventually the Minister to give their approval is to dismiss a vast amount of contrary evidence and to take a huge and unnecessary risk at the expense of the local environment, economy and community

To give Kalbar further opportunities to rectify its mistakes and respond is out of the question and cannot be considered as an option as it will give this company an unfair advantage and cause further and unnecessary stress to this ready stressed community.

To use a sporting analogy. Imagine Collingwood is playing in the AFL Grand Final and at the end of the fourth and final quarter when the siren has sounded, they are 20 goals behind. Imagine the umpires feeling sorry for them and offering Collingwood the opportunity to play a fifth quarter in order to redeem themselves and change the result.

Imagine what the reaction from the spectators, the opposition side and the media would be like. This just could not be allowed to happen.

Kalbar's current situation is no different. Kalbar has had its chance and has failed.

No amount of further opportunities could result in Kalbar proving that this mine is a viable proposition. There are just far too many unresolvable issues.

This needs to be the end of the process and the proposal to develop a Mineral Sands Mine at the Fingerboards needs to be once and for all rejected, licences surrendered and the proposed project completely abandoned.

Examples of Derogatory and Inflammatory Comments and Actions made by Kalbar.

- Bishop Mossiface Public meeting Dec 2014 Nothing at Glenaladale except a few sheep farms, some lettuce growers and a burned out bluegum plantation
- Bishop at Meeting of Community Members Glenaladale. When asked why Kalbar turned up so soon after the Mt Ray fires when farmers were still recovering and pressured them for access to drill....We are from Sydney and were not aware of the fire...We are on a strict time line
- Richardson Public Meeting Lindenow Kalbar will follow the ore seam where ever it leads
- Richardson Public Meeting Lindenow If a property is not in the mine area and is indirectly damaged by mining operations then to be compensated the owner will have to take Kalbar to court.
- EES Social Impact..If dust is an issue for residents then they should stay inside on windy days, dry their washing inside or leave the area
- Expert Witness Erosion...hard to tell the difference between wombat holes and tunnel erosion
- EES Social Impact Tank water referred to as "Wank Water" Because of the number of times that these documents are checked and proof read, this cannot be accepted as a typographical error.
- Kalbar will pay employees who join Volunteer Emergency Organizations to train
- Reference to dry land grazing areas as degraded and marginal when these areas are regular and highly regarded for the production of fine wool.
- Allowing local resident's personal information to be unnecessarily included and published in their Expert Witness Statements
- The November 2014 email from Kalbar CEO to a member of the Mossiface community

Regardless of whether you're a group or not, it would only be polite to know who I am emailing

As we have been in early stage exploration and assessment, we haven't had a lot of communication with the community. As we have no plans for Mossiface, we haven't seen any need to hold a meeting to tell the community that we have no plans for Mossiface. In fact, given my reception on Monday night, I'm sure that would only fan the suspicions.

We don't know where the ABC article came from but clearly it was from a group opposed to mining at Mossiface – there was nothing in that article but a beat up, so we thought an email and some phone calls to the contacts in Mossiface that we have, would suffice. We didn't see the need to call a community meeting on a beat up. Beat ups are best left to wither on the vine, as this one has.

The move to a Retention Licence also generated concern, but in our view it doesn't signify any change to our strategy. We are merely doing what the law makes us do. Perhaps rather than blaming the fear and concern on Kalbar's community management, you should ask who is actually generating the fear and concern.

We do liaise closely with the council, but you should understand that the council is also restricted in providing people's private contact details to a commercial entity. Thankyou for sending my request for people's emails to your mailing list.

As for objecting to our retention licence application, that is your prerogative. Our view is that it would be absolutely amazing if our application was rejected. But if it was, we'd just apply for an exploration licence. What would you do then? Do you expect to make Mossiface exempt from future mineral exploration? Why would Mossiface be viewed any differently to any other farmland in Australia? It would be unprecedented.

I'm sorry you don't appreciate Kalbar as the owner of the Mossiface deposit. It is really not of much value to us, and it is definitely not our plan to go head to head with a community, so as it seems we can never get along, we will look to sell it, or just get rid of it. Perhaps to a big company that will just send some community relations guy along to smile and nod.

I am not sure why you can't make the video available. If it wasn't going to be available to Kalbar, I would have insisted it be turned off. That is only fair. If NMM4M wishes to be part of the dialogue with Kalbar in the future, I suggest you make the video available.

And, finally, you were right. The RL can be renewed for up to 30 years. My honest mistake. Does it really matter though? I mean, even if it only lasted 1 year, all that would happen would be when it expired there would be a 28 day moratorium, and then someone would peg it and you'd be back at square one.

I am sorry that the presence of a mineral deposit is causing some members of your community concern. As I said I think this is unnecessary: developing a mine at Mossiface would be very difficult, and compulsory acquisition is extremely unlikely, so as long as you're not sellers there can be no mine. It's up to you. So surely that's got to give some comfort?

Examples of Incorrect, Confusing or Misleading Information

- Winter winds are predominantly from the North-west and summer winds are most frequently occur from the South-East and South-West
- Kalbar's maps showing locations of proposed dams omit showing location of farm dams further down gullies which will be impacted
- Kalbar's map of vegetable growing area is inaccurate giving the impression of a much smaller area under crop.
- Map of Project Area has legend over area where there are a number of houses giving the impression that very few people live in that area.

- Schematic Video omits showing where houses near the proposed Processing Plant are located also giving the impression that very few people live in that area.
- Tailings Storage Dam increased in size from 60 ha to 90 ha with no explanation. When asked Kalbar claimed that it had always been 90 ha.
- Not all residences within 2 km of Project Area shown on Kalbar's map of residences
- Processing Plant shifted without community consultation to a location near higher housing density with Kalbar claiming that this was done in response to community concerns when it was in fact to Kalbar's advantage to shift it to a location of the mining line.
- Water recovery percentage incorrectly calculated in EES despite having six years to accurately assess this figure and it being regularly questioned by community
- Failure to admit to differences in rainfall figures between Fingerboards and BOM at Glenaladale despite having this information provided by consultants.
- Underestimation of value of horticulture production in the Lindenow Valley
- Underestimation of stock carrying capacity of dry land pasture
- Claim that Kalbar worked with Government and agreed to surrender of Exploration Licence over Lindenow Valley when in fact the regulations require a certain percentage of the licence area to be surrendered on a regular basis.
- Average hourly maximum wind speed quoted rather than maximum speed data to give an impression that wind speeds were lower than they actually are.
- Gaps in weather data inappropriately filled in using Random Number Generator. Because maximum speeds were missing from original data this method would produce lower numbers/
- Unsubstantiated claim that weather station failure occurred during periods of atmospheric electrical activity when it is more likely that these failures occurred during more extreme weather conditions.
- Claim that HMC will not be transported off site by wind or water due to particle size when photos from WA mines show obvious wind and water rills on HMC stockpiles.
- Claim that Plains Grassy Woodland can be re-established when best possible outcome is that a number of plants that are found in EVC 55 can be grown in the area. The true EVC cannot be replicated due to the need for plants of vastly differing age, the amount of leaf litter build up to support small ground level species and the need for large trees containing hollows which will take more than 50 years to establish.
- Expert Witness on Noise fails to consider impact of Centrifuges on noise emissions in statement presented to Panel
- Failure to use accurate figures to calculate roof areas for water catchment for household water and therefore underestimating the amount of dust that will be washed into tanks
- Assumption that all residue washed into tanks will sink to form a sludge and will therefore not impact on water quality. Failure to consider that some particles will remain in suspension.
- Radical change in number of trucks transporting HMC from 2-4 per day (PowerPoint Presentation) to 80 B Double movements per day.
- Even the format of the EES makes it difficult to examine and respond to adequately as it is impossible to perform a word search in order to cross reference comments due to the document being presented in Chapters. To carry out a search as such is time consuming to the point of impossibility as multiple chapters have to be individually searched.
- The 200 plus additional documents which have been produced since the publication of the EES can only point to the inadequacy of that EES document in that it continually fails to satisfactorily address pertinent issues and in itself reflects the capabilities or rather lack of capabilities of the proponent.