

20/3/15

Overview

Community *Over* Mining is a Gippsland community action group advocating for good governance and mining reform to inform good planning for our future well-being and prosperity.

I would like to address the **draft Gippsland Regional Coastal Plan**.

My submission is specific to environmental and economic coastal values and I dispute that coastal managers can effectively manage the coastal areas whilst mining has a privileged position being exempt from planning provisions of the Planning and Environment Act 1987.

No authority/agency/board can strategically plan for the future if government policy to expand mining is one of the single most detrimental threats to coastal areas and their ability to manage, apply and implement master plans. Whilst mining remains exempt from planning provisions, all other management areas accord a lower priority of ranking so money and time invested will ultimately be for nought if this plan does not reflect a broader approach to strategic planning that takes into account the past environmental legacy of mining, the present and future predictions of its impacts.

Given the existing issue of land subsidence in Gippsland from past mining and proposed sea level rises impacting coastal areas and to ensure the objectives of the plan to protect coastal values, planning for mining development should, critically, be based on the suitability of the geology rather than the extractive worth of the land. This would mean that mining should lose its exemption rights under the planning provisions of the Planning and Environment Act.

Subsidence causes cracking, ground movement, draining of rivers, swamps, infrastructure damages, sinkholes, coastal impacts with land subsidence on the coast cumulative to climate change effects so mining development should immediately be excluded from those fragile and stressed areas regardless of mineral worth.

Compromised geology and environmental degradation with a focus on long term cost analysis should now take precedent and be appropriately recognised using overlays and risk management tools. This, along with transparent and consistent strategic policy frameworks should inform clear public interaction of predicted environmental, social and economic risks along with conditions implemented to manage those risks. Only then can this plan and other coastal management plans be genuinely proactive about addressing impacts to the environment and act accordingly to prevent further degradation rather than be reactive to.

The scope of coastal planners and managers is extensive considering their individual and diverse policy direction from the numerous related ministerial portfolios which covers local government, the environment, heritage and cultural, water, energy, economic, rural and regional affairs, climate change including international treaty obligations.

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However, mining trumps them all.

This is nowhere more evident than with your own 2011 submission to the Inquiry into **Greenfields Mineral Exploration and Project Development in Victoria**.

'... Our strategic planning role for the Gippsland coastal area means we are to contribute to the development and implementation of Government policy with regard to mineral exploration and extraction.'

One paragraph later reveals the dilemma and is the exact reason why this draft, along with many others, destines Gippsland to ongoing economic and environmental degradation with your inaction.

*'The Gippsland Coastal Board is also responsible for facilitating the implementation of the Victorian Coastal Strategy 2008 (VCS) and its own Coastal Action Plans. The VCS **gives direction for planning and managing the impacts of activities** on and in foreshore areas, in the coastal hinterland - including private land - and in the catchments of coastal flowing rivers.*

The VCS has identified a hierarchy of principles for development on the coast, which sets the foundation of the strategy and guides planning and decision-making about land use and development. These principles are:

- *Provide for the protection of significant environmental and cultural values;*
- *Undertake integrated planning and provide direction for the future;*
- *Ensure the sustainable use of natural coastal resources, and (when the other principles are satisfied)*
- *Ensure development on the coast is located within existing modified and resilient environments where the demand for development is evident and the impact can be managed.*

Chapter 3 – Dynamics of the Coast

3.1 Creating coastal hazards, property damage, loss of life, environmental degradation.

This plan has not adequately identified elements in this chapter that cause coastal hazards and trends needing to be planned and managed. Communities want transparency so specifically what are the threats and hazards, to whom and what areas and to their cause needs better clarification. Sea level rising and subsidence sit at the top of the list.

This way applicable insurance needs can be met, inappropriate and costly additions can be avoided and harm to the person and property can be better understood and managed.

3.2 A Changing Climate

I will use Port Albert as an example and quote the 2008 Gippsland Coastal Board (GCB) report that noted subsidence may occur with:

"the extraction of underground water, oil or natural gas resulting in a relatively rapid collapse (compaction) of underlying strata and hence a lowering of the land surface - such as is the case surrounding the Latrobe Valley open pit coal mines where groundwater from the Latrobe Aquifer is extracted for dewatering purposes. The principal causes of the lowering of pressures in the Latrobe Aquifer, and hence any resulting subsidence, are extraction of oil and gas, dewatering of the Latrobe Valley

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open pit brown coal mines and extraction of groundwater for irrigation. Subsidence modelling was carried out by CSIRO for the years up to 2056” (8) ... Local government planners, in particular, are keen for the Government to lay down clear guidelines - preferably they say, lines on maps - to mark where development is not appropriate.

The last sentence is particularly relevant given planning for coastal development has been undermined with flood overlays successfully challenged in VCAT and the Planning Minister overruling Local Council amendments so residential development can occur at Port Albert.

“Given the Minister for Planning’s decision, Council was required to consider whether to continue regulating the CSIRO identified flood impact and if so how; or whether to disregard the evidence and not regulate flooding in Port Albert at all.”

“Were Council to ignore the expert flood information for Port Albert, we and the town will face greater future implications of unsuitably planned development.”¹

In anticipation of future sea level rise this is not good governance and makes a mockery of coastal management planning for the purpose of protecting coastal values. Could it leave Local and State government open to litigation? Changing climate means what?

There is almost conclusive evidence that conventional oil, gas and coal extractions have caused coastal subsidence and earth tremors and the fear now for coastal Gippsland residents is that fracking will create a major catastrophe on an already vulnerable coastline. These fears are not unfounded, as such, the Wellington Shire, have told the Yarram Standard [25th April 2012] that they want the State Government to protect it against litigation for planning decisions made in vulnerable coastal towns. Cr Malcolm Hole would take the resolution to the Municipal Association of Victoria [MAV] mayors’ conference in May.

- *Given the obvious signs of coastal land sinking and numerous scientific reports, do you think it is sensible and appropriate that new onshore and offshore oil and gas extraction should be approved by your government knowing the existing geology is now degraded and already causing significant impacts to Gippsland’s coastal areas including increasing seismic activity?*
- *And secondly, have you established a profile of communities, industries and infrastructure that would be further affected and considered how the government will provide a taxpayer funded payment methodology to compensate those areas most negatively impacted by increasing land subsidence and aquifer depletion?*
- *So how would you maintain agricultural productivity in the area when your government will be subjecting us to years of uncertainty, in other words, what*

¹ <http://www.wellington.vic.gov.au/Lists/News-and-Public-Notices/Positive-progress-for-Port-Albert>

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is the contingency plan when our coastal communities are inundated and our bores are either depleted or saline?

This plan, likewise, acknowledges the GCB report 'Climate Change, Sea Level Rise and Coastal Subsidence along the Gippsland Coast 2008'. *'The purpose of the report was to bring the best available data to help inform decisions.'*

If the Port Albert scenario can occur in 2014, how has that report informed decisions to improve and manage coastal planning? In reality, it has not informed good governance at all.

I also provide some comment and recommendations from the hidden Dept of Conservation and Natural Resources December, 1995 subsidence report, **Assessment of Subsidence Potential along the Gippsland Coast due to Subsurface Fluid Production** by Sinclair Knight Merz.

'The Current indication that subsidence along the Gippsland coast is not yet severe in spite of tens of meters of local drawdown can be explained by time lag due to vertical heterogeneity of strata and does not or itself indicate that the material is necessarily overconsolidated. If the material was initially normally consolidated, one might expect an order of magnitude subsidence rate to approach about a centimeter per year. Enough time may have already elapsed for such rates to be occurring in some locations along the coast.'

'Because over a period of more than two decades water levels along the Gippsland coast have fallen about 40 m from an initial elevation of 50 m above sea level to currently about 10 m above sea level and are continuing to fall at a steady rate (Walker, 1992), this order of magnitude estimate of a possible steady rate of subsidence may already be beginning to occur along parts of the coast.

Note, that if the affected thickness interval increases with time (say, it doubles), the rate of drawdown increases (say, due to increased rates of discharge from the basin aquifers), the eventual steady rate of subsidence will similarly increase proportionately.'

6)

- *Eventually, a groundwater computer model be developed for the entire Gippsland Basin such that the area near the coast is not considered part of the boundary conditions.*
- *Eventually, a subsidence model be used in two ways –*
 - I. *With field and laboratory data to back calculate field scale parameter values and*
 - II. *To be used in conjunction with a groundwater model to predict subsidence and to assist resource manager and planners in making responsible rational decision*

This report clearly states that offshore basin boundaries should be inclusive of Commonwealth waters and to inform responsible rational decision making. Again, I am not

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seeing anything in this draft plan that gives me any indication that coastal planning has been effective.

Then I quote the 2011 GCB submission to the Inquiry into **Greenfields Mineral Exploration and Project Development in Victoria**. It notes the following -

The Regulatory Environment

This Board considers that a shortcoming of the present regulatory environment is the division of responsibility for the offshore environment between the Commonwealth and State jurisdictions. It seems to us that there is a lack of consideration by the Commonwealth, in evaluating proposals for offshore oil and gas extraction, of the onshore impacts, particularly the effects on aquifers that extend from under the land to under the sea bed, and the potential for land subsidence as a consequence of extraction.

Additionally, in the GCB report, **Climate Change, Sea Level Rise and Coastal Subsidence along the Gippsland Coast: Implications for geomorphological features, natural values and physical assets Phase 2 - Gippsland Climate Change Study**, it notes-

A vital component of adequate risk management involves being able to make balanced decisions regarding the most appropriate action, based on the magnitude of the risk, its consequences, the cost of taking action and the preparedness of the community to both pay for action and 'forego private rights'. The key step towards being able to make informed and consistent decisions is for Government to provide clear policy direction regarding anticipated climate change and sea level rise impacts through proclaiming a statutory sea level rise and/or erosion setback, depicted as an overlay or development control in municipal planning schemes. Local Government will therefore need considerable support from State and Commonwealth Government to enable adequate planning and risk management tools to be incorporated into decision making frameworks.

Chapter 3.5 – Emerging Markets

I find this section particularly challenging in regards to new technologies for our energy future. The Gippsland Regional Plan is an economic plan for new industry development absent of full cost analysis impacts to the person and environment. Your reference to the plan and the diversifying of traditional energy industries to new 'coal to products', carbon capture storage (CCS) and new ports with a few sentences on '*potential new threats and pressures*' is an insult given all the documentation on energy resource extraction and to its detrimental impacts in the past, present and that of the future. Subsidence in the future is in addition to sea level rise presenting the Gippsland coast with the double whammy of economic, social, environmental and legal implications.

All these plans can be referenced but who comes up with the hard questions and dares to respectively challenge policy decisions on their merit to ensure good governance and that certain policy direction is regionally appropriate to the benefit of Gippslands future.

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This only confirms to our communities that management of our natural resources is not transparent and can never effectively achieve real outcomes whilst mining holds priority and planners and managers are beholden to government policy and act in isolation of each other rather than collectively on a shared vision to protect our coast.

For the record, new coal technologies cannot be referred to as transitional if they are water and energy intensive. The increased drawdown on an already depleted aquifer system which is experiencing varying degrees of subsidence is in conflict to the objectives of this plan.

Carbon capture of greenhouse gas emissions and its storage in depleted offshore oil and gas fields in Bass Strait as an alternative is, again, negligently ignoring the current increase in seismic activity for Gippsland both onshore and offshore. CCS is known to trigger seismic activity which could have a devastating effect on coastal fringes particularly along the coastal areas of the Ninety Mile Beach. And to get the carbon dioxide to the coast either via pipeline or truck will impact on existing coastal values that this plan is trying to protect. As for the Port Barry or any other port that is proposed is secondary to the primary concern that mining in Gippsland has been given priority. With that comes industrialisation of onshore land, land use conflicts and access to depleting groundwater and wastewater discharges into waterways. This is of particular concern as the designated development areas put at risk wetlands, wildlife breeding grounds, farmland and tourist destinations.

I suggest this draft plan revisit the 2011 submission to the Inquiry into ***Greenfields Mineral Exploration and Project Development in Victoria*** under the section **Costs, Benefits and Conflict Management**.

'Development of the Gelliondale coalfield could potentially lead to further drawdowns of the Latrobe Aquifer as a result of mine dewatering, increasing the risk of coastal subsidence and damage to waterways and wetlands. In addition, as the coal in this area is higher in sulphur than current coalfields, there could be additional environmental hazards that need to be considered.'

'Development of 'Port Anthony' could potentially have serious impacts on the environment and landscape of sensitive areas such as Wilsons Promontory National Park, Corner Inlet Marine National Park and Corner Inlet Marine and Coastal Park, as well as the nearby Nooramunga Marine and Coastal Park. Corner Inlet is a Ramsar wetland of international significance and has been identified as a 'coastal hot spot' by Commonwealth environmental funding programs. In addition, it has a major role in breeding and recruitment of fish species of importance to the commercial and recreational fishing industries. Regional natural resource management agencies have undertaken significant programs to reduce nutrient inflows to the Inlet and improve the health of its seagrass communities. Given its environmental significance, this Board believes that Corner Inlet is not an appropriate location for development of a major port facility.'

Any development permits should require a comprehensive monitoring regime to measure land subsidence and effects on groundwater and ensure that any other adverse environmental impacts are identified and rectified at an early stage.'

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In addition, mineral exploration and project development in areas along the Gippsland coast must take into account the potential for coastal acid sulphate soils. Coastal and marine environments could suffer significant impacts from exposure or mismanagement of these soils.'

Generalised subsidence (e.g. Yarram) is not dangerous, but it does cause major economic problems in the form of earth fissures (large cracks in the ground), and damage to structures, pipelines, drainage systems, and sewer systems. Classic example is movement to road surface with water getting into cracks and undermining the subsurface. However, subsidence's in active fault-lines are a different story and have the potential to cause significant earthquakes. Unfortunately, the severity cannot be predicted.

But most problems involving subsidence are caused by human activities.

In 2013 a global catalogue of small- to large sized earthquakes was systematically analysed to identify causality and correlatives between human-made mass shifts in the upper Earth's crust and the occurrence of earthquakes. The mass shifts, ranging between 1 kt and 1 Tt, result from large-scale geo-engineering operations, including mining, water reservoirs, hydrocarbon production, fluid Injection/extractions, deep geothermal energy production and coastal management.²

Chapter 4.3

Without appropriate attempts to decrease negative impacts from mining, the effect on visitation would be profound in the future which would, ironically, contribute to lessening the value of our coastal areas from the same coastal planners and managers whose objective this plan aims to avoid.

The substantial economic value of tourism to the economy of Victoria is significant with the Gippsland Lakes system being the key asset. New mining extraction proposed on the Mitchell and Tambo Rivers is a real threat to the Gippsland Lakes with enormous volumes of treated wastewater discharged into the waterways. Proposed damming off the Mitchell River to accommodate mineral sands processing will reduce stream flows that are essential for dilution of wastewater that will be discharged downstream of mine workings but up stream of Gippsland Lakes. This is a perfect example of why strategic planning where mining is subject to normal planning provisions rather than being exempt from should be a priority for coastal managers. Otherwise, ongoing inaction from a range of plans and managers is, effectively, contributing to a worsening of our coastal areas.

The plan addresses this in **Chapter 5.2 and 5.3** but if there is non-alignment of policy over the three levels of Government, broader scope of management over land boundaries cannot occur.

² *Christian D. Klose: Mechanical and statistical evidence of the causality of human-made mass shifts on the Earth's upper crust and the occurrence of earthquakes Journal of Seismology January 2013, Volume 17, Issue 1, pp 109-135.*

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Currently, all plans are dealing with the peripheral concerns that are often a symptom of more serious issues. So, the goal with this plan to utilise adaption strategies is to avoid addressing the real threats and hazards and the ability to have transparent engagement with the community and other relevant stakeholders.

Chapter 6.1 Background Regional Scale Planning for Coastal Flooding and Erosion

Adaptation planning is another term to be responsive to rather than proactive to reduce and protect areas that are highly erodible and prone to flooding. After years of inaction and mismanagement of aquifer depletion and subsidence the Ninety Mile Beach is severely impacted. This is where the public purse heavily subsidises the appropriate management tools which have been greatly impacted by the Commonwealth zone of oil and gas extraction in Bass Strait. That coastal foreshore was extensively blasted by Esso for seismic readings along with foreshore degradation from Basslink. Yet the local and broader communities pay the cost burdens in both their rates and state taxes.

Why is there not a navigational buoy marking the spot where a gas well head from Lakes Oil is now positioned offshore at McLoughlins Beach 50yrs after the shoreline has subsided from its original position well inland. Legally, this should be marked as it is a navigational hazard to small craft and a safety risk. Which management body would be liable in the event of injury to person or damage to craft? In this case there is not even acknowledgment that a hazard is present.

Chapter 6.2 - Key Challenges and Actions

It was a shame government was missing in action when Esso were given their offshore exploration licence with no environmental assessments.

'This is a lesson for all Australians. When we gave Esso an exploration licence for off the southern tip of Victoria there was no environmental work done about what they do about the recharge of the aquifer. In the next 40 years, as a consequence of the Esso gas and oil field, there is a better than 45 per cent chance that there is going to be major coastal subsidence into the sea in the Gippsland. That is because they did not do the science. The science for what you are talking about needs to be done. There is no question about that. Do you feel as a member of the community pretty helpless in the fact that they will have the might to go ahead and find some weasel way round.' Comment -Senator Heffernan SELECT COMMITTEE ON AGRICULTURAL AND RELATED INDUSTRIES 2009

No science done then. Plenty since with numerous peer reviewed scientific reports noting coastal subsidence for the Gippsland coast. Just recently the terminology has changed though. It is now coastal inundation from sea level rising caused by climate change which is totally different from subsidence which island sinking. Deliberate, yes. Conveniently, the government commissioned VPELA (Victorian Planning Environmental and Lawyers Association) to prepare the state for legal implications of climate change. They state that land claimed by the sea falls under the doctrine of diluvion. As such, government is not responsible for compensation. So what does the government do to protect the fragility of

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our coastlines? Make it worst of course. Where scientific reports in 1995 and 2004/06 by CSIRO note that subsidence is not yet fully realised and that industry was in decline we now know to be the opposite with offshore mining is increasing government actively promoting expansion of onshore mining.

'Whilst action is already being taken from a planning perspective to restrict future coastal development that may be at risk from coastal inundation, property owners must also be aware that when sea water encroaches onto dry land, this can have significant impacts on existing title boundaries under the common law doctrine of diluvion. Under the doctrine of diluvion, the boundary of land abutting the sea can be diminished as a result of erosion and the gradual encroachment of the sea. In this case, land that has been encroached upon by water ceases to belong to the former owner and will be owned by the Crown instead. The rise in sea levels and associated inundation of low-lying properties in coastal areas that is predicted to occur as a result of climate change may have significant implications for property boundaries under the doctrine of diluvion described above.(VELPA)'

Chapter 8 - Monitoring, Evaluation and Reporting

Monitoring for protecting coastal values is a contentious issue. Monitoring is always part of a strategy to identify concerns but in some cases, removing the cause or stopping projects is the only effective strategy. In regards to subsidence and environmental degradation and what is predicted to occur in the future on the Gippsland coast why would coastal planners and managers not ensure that water intensive projects from industry and their cumulative effects be integrated.

I bring your attention to the DEPI released '**Interferometry (InSar) To Monitor Subsidence Along The Gippsland Coast.**' Very interesting the recent comparison dates. The document would be more credible had it shown how much the coast has receded and subsided, particularly from the 1970's.

The following conclusions could be made from the analysis:

- *No subsidence was found to be occurring along the coastal zone. PSI analyses show that the Gippsland coast is stable over the period of analysis (from 1992 to 2011, especially between 2006 and 2011). This finding is consistent with previous ground-based surveys which showed no subsidence.*
- *Subsidence around coal mines was identified in the PSI analysis with a maximum rate of up to 30 mm per year near Morwell. This subsidence was expected and is monitored and managed as part of mine operations.*
- *One of the three techniques identified patchy and localised areas of subsidence of up to 30 mm per year in the Stradbroke and Holey Plains area. This region is part of the onshore extension of the Central Deep subdivision of the Gippsland Basin, where the offshore oil and gas fields are situated. A possible reason for the analysis method identifying potential subsidence is discussed further in the following section.*

As a result of the success of the pilot study, the Department of Environment and Primary Industry will use this information to design an ongoing monitoring program using InSAR.

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Other than coming up with more monitoring the document still noted the 2007 CSIRO on coastal subsidence (Freij-Ayoub et al., 2007) and determined that:

- *Coastal land subsidence is predicted to occur along almost the entire length of Ninety Mile Beach*
- *Greatest subsidence is predicted in an area centred on the coast at Golden Beach*
- *Maximum land subsidence was predicted to be 0.51 m by 2031 (about 21 mm per year, assuming subsidence is linear between 2007 and 2031) and 0.48 m by 2056 (about 10 mm per year)*
- *Worst-case-scenario subsidence was predicted to be 0.87 m by 2031 (about 36 mm per year) and 1.2 m by 2056 (about 24 mm per year)*
- *Because only limited data is available for the offshore area, these predications were not specific or locally accurate.*
- *To date, ground surveys have not detected any land subsidence, other than at the Latrobe Valley open-pit coal mines (AAMHatch, 2006 & 2007).*
- *Coastal flood risk along the Gippsland coast may be made worse by future land subsidence. The range of predicted land subsidence is significant: for example, it is estimated that the coast could subside by between 13 and 977 mm at Alberton by 2070 (McInnes et al., 2005).*

Notations from - **Climate Change, Sea Level Rise and Coastal Subsidence along the Gippsland Coast: Implications for geomorphological features, natural values and physical assets Phase 2 - Gippsland Climate Change Study Final Report Gippsland Coastal Board**

Along the Gippsland coast, the dual effect of projected sea level rise and potential coastal land subsidence will cause increased flooding and have a potentially catastrophic impact upon natural resources, physical processes, infrastructure and physical assets of built up areas, and upon recreational opportunities experienced along the coast.

- *Strategic land use planning was seen as a key management tool. Impacts were thought to result mainly from sea level rise, increased storm surge, flooding, inundation, increased extreme weather events, coastal erosion, and loss of protective dunes.*

The GCB and other agencies have been monitoring subsidence for decades with the only outcome being the need for more advanced monitoring technology. Monitoring is not a protection for the environment only an indicator that the environment has already been impacted. To describe monitoring as an efficient and effective tool in protecting coastal values is absurd when benchmarks are altered and mean what. Planning continues to be adhoc, lacks consistency and is not strategic. Planners and managers monitor more. You know the overall health is poor, subsidence is real, erosion is increasing and what do you do? Set another benchmark and monitor some more whilst mining with its high water use and need to discharge continues to degrade the environment.

As subsidence effects (mainly caused by industry) on private property are not covered by insurance, how will those people seek redress now and into the future for cracks in walls, broken windows and land sinking?

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Likewise, infrastructure damage to state utilities as in dropped pipes for water, sewerage, gas and cracked roads has repairs paid by the public purse. Is this fair?

The conclusion comment by the GCB for their 2011 submission to the Inquiry into **Greenfields Mineral Exploration and Project Development in Victoria** is extremely apt in the context of this draft report.

The threats to the Gippsland coast are real, and are significant. The best scientific predictions are indicating that within 50 years parts of the Gippsland coast will be inundated to an extent requiring protection or relocation of assets, including dwellings and commercial buildings. Decisions need to be made now about how to deal with this situation.

Controls are needed on new developments in areas likely to be affected, and plans need to be made for dealing with the threats, especially the threats to existing towns and infrastructure.

The critical prerequisite for making informed and consistent decisions is for government to provide a clear policy direction for dealing with anticipated climate change, sea level rise and subsidence effects by developing appropriate planning tools, such as a new coastal overlay, statutory sea level rise setback or erosion setback for development control in municipal planning schemes.

My summary conclusion for this draft is that adapting, monitoring and investing in repairs/remediation to address known and predicted issues on the coast without first addressing the critical absence of strategic regional planning in regards to mining project development is critical to the success of any future interventions.

Yours sincerely

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