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OBJECTIONS TO THE PROPOSED MUSINA-MAKHADO ENERGY AND METALLURGY SPECIAL ECONOMIC ZONE DEVELOPMENT DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT ("EIAR") AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) ("the Application")

I. INTRODUCTION

1. These comments are submitted on behalf of ALL RISE, Attorneys for Climate and Environmental Justice NPC, a non-profit company dedicated to sustainable development and environmental justice. In submitting these comments, we also register as Interested and Affected Parties.

2. The Application concerns the very sensitive and controversial issue of the development of the Musina Makhado Special Economic Zone ("EMSEZ"), a Chinese funded "mega city" in Limpopo.[1] It is proposed that an area comprising 8 000 hectares of "pristine bush" (including 177 ha of

[1] The project is anchored on investment pledges of over $15 billion (approximately R225 billion at current R/$ exchange rate) from Chinese investors as stated in Appendix Y, p 1. China hosts over half of all SEZs in the world (https://unctad.org/system/files/official-document/wir2019_en.pdf, p139)

Limpopo Ridge Bushveld, 4 422.2 ha of Musina Mopane Bushveld and 145 ha of Riparian vegetation) will be permanently lost to make way for a metallurgical and energy cluster. It is estimated to cost between $10 billion and $15 billion to develop and it will take 15 years to complete its construction.[2] Numerous industrial projects are to be part of this site, including a 3300MW coal fired power station; and coke, carbon steel, pig iron, ferrochromium, ferromanganese, silicon-manganese and calcium carbide plants. Over 100 000 protected trees, three Red List mammals (one with regional threatened status), and 13 Red List birds occur in the proposed project area.[3]

3. In addition to this, there are several mining right applications adjacent to the proposed EMSEZ development site[4] that will produce hard coking and thermal coal for supply (presumably) to the EMSEZ. These are the Mopane Coal Project of 38 825ha (yet to be granted), the Generaal Coal Project of 24 859ha (yet to be granted), the Chapudi Project of 24 719ha (yet to be granted), the Makhado Project of 7 635ha (granted but appealed), and the Vele Project of 8 663ha (granted). A total hectarage of 104 701 (1047km^2) of coal mining in the area.

4. All this at a time when climate change and the need to find alternative, renewable sources of energy are at the forefront of world thinking and commitments, including those made by South Africa.

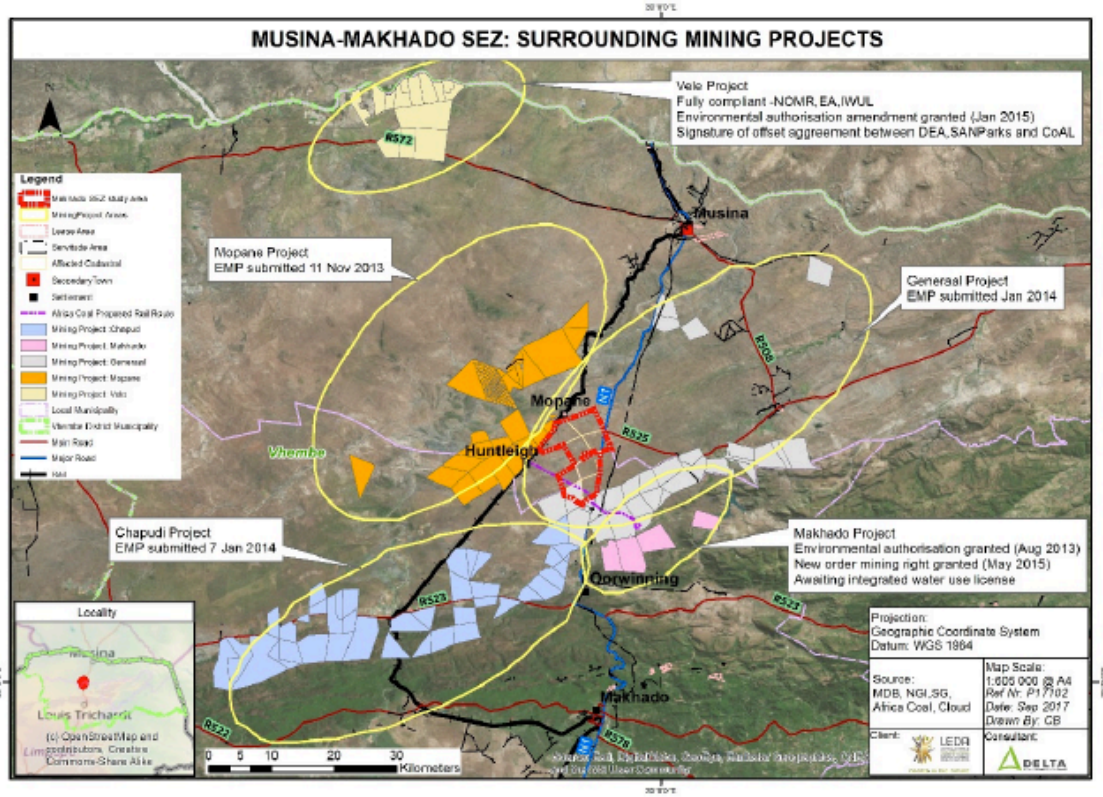

Figure 3-34: Adjacent Coal of Africa projects (Adapted from Coal of Africa, 2015)[34]

[2] Appendix Y, p2.
[3] Appendix K , para 9.5.3
[4] EIAR p 141-p148

5. The proposed EMSEZ and the surrounding mines that will be needed to supply it with coking coal and coal, will affect the health, safety and environmental rights of thousands of people locally as well as having an enormous impact on climate, wildlife, wilderness, tourism and sustainable development. As a result, the Application has generated considerable local and international interest.

6. Land is a critical asset and plays a vital role in the context of sustainability. South Africa is one of the most biologically diverse countries in the world, after Indonesia and Brazil,[5] and only through sustainably managing our land, will we be able to manage the inevitable environmental challenges that are arising as a result of the climate crisis.

7. At the core of this submission is the concept of sustainable development and that the EMSEZ cannot be seen as such.

8. The National Environmental Management Act, 1998 ("NEMA") is a legislative measure contemplated by section 24(b) of the Constitution. Section 2 of NEMA sets out a series of principles that give effect to the understanding that "the environment is a composite right, which includes social, economic and cultural considerations in order to ultimately result in a balanced environment."[6] The composite nature of this right is captured in the principle that "[d]*evelopment must be socially, environmentally and economically sustainable*."[7] NEMA envisages the concept of sustainable development which requires that a "risk-averse and cautious approach is applied", whereby "*negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied*."[8] To balance this cautious approach, NEMA requires that decision-making in relation to the environment "must take into account the interests, needs and values of all interested and affected parties.[9]

9. In Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province, and Others[10] ("Fuel Retailers") the court held that:

10. *"[t]he Constitution recognises the interrelationship between the environment and development; indeed, it recognises the need for the protection of the environment while at the same time it recognises the need for social and economic development. It contemplates the integration of environmental protection and socio-economic development. It envisages that environmental considerations will be balanced with socio-economic considerations through the ideal of sustainable development. This is apparent from section 24(b)(iii) which provides that the*

[5] https://www.sanbi.org/about/about-sanbi/
[6] *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs* 2004 (5) SA 124 (W) at 144H-145A; [2004] 3 All SA 201 (W) at 219e-f
[7] Section 2(3) of NEMA.
[8] Section 2(4)(a)(viii) of NEMA
[9] Section 2(4)(a)(vii) of NEMA
[10] 2007 (6) SA 4 (CC); 2007 (10) BCLR 1059 (CC)

*environment will be protected by securing 'ecologically sustainable development and use of natural resources while promoting justifiable economic and social development'. Sustainable development and sustainable use and exploitation of natural resources are at the core of the protection of the environmen*t."

11. The necessity and urgency for sustainable development has been galvanized by the Covid-19 pandemic (COVID) and yet, except for a very brief mention of the Covid-19 pandemic as one of the tourism specialist's assumptions, uncertainties and gaps[11], and despite having being drafted in September 2020, the EIAR completely ignores the impacts that Covid has had on the global and national economies, how this has changed the trajectory of government policy and how this will impact the viability and desirability of EMSEZ going forward.

12. According to the South African Economic Restructuring and Recovery Plan ("the Plan") announced by President Ramaphosa in August 2020,[12] COVID has deepened the economic crisis and "*drastic declines in capacity utilization also imply that investment plans and projects that were affordable before the impact of the crisis face the possibility of not being affordable with a prolonged subdued capacity utilization*".[13]

13. The Plan proposes a number of priority interventions to build a sustainable, resilient and inclusive economy. These include green economy interventions, strengthening food security, energy security and support for tourism recovery and growth.

14. According to the Plan, "the pursuit of green industrializations and a green future is an important intervention not only addressing the persistent challenges of inequality, poverty and unemployment, but also in offering a sustainable solution to climate vulnerability and driving economic competitiveness. Green industrialisation also guarantees the security of energy, food, water and electricity supply. Accordingly, South Africa's economic reconstruction and recovery effort will include a significant green component. This will help in creating new green jobs, industries and firms." [14]

15. Minister Creecy, in her recent speech delivered at the Resilience, Gender and Global Climate Action Round Table on 1 October 2020 stated that "*the current COVID crisis is a dress rehearsal for the ways in which countries will be affected by and will respond to climate change. And, just as the case has been with the pandemic it is widely acknowledged that climate change will disproportionately affect society's most vulnerable….We have learned from the pandemic that when government works in a unified manner against an identifiable threat much can be achieved, and we can use such an approach to steer investment in sustainable and low emission industrie*s

[11] EIAR pp DCCCX and DCCCXI
[12] https://www.gov.za/sites/default/files/gcis_document/202010/south-african-economic-reconstruction-and-recovery-plan.pdf
[13] Ibid, p3
[14] The Plan, p19

that can be used to #buildbackbetter and determine our climate change adaption strategy."[15] (Our emphasis).

16. Minister Creecy confirms that central to the recovery strategy is an understanding that promoting a more sustainable economic trajectory can open up new industries, particularly those in areas such as renewable energy that rehabilitate ecosystems and ecosystem services.

17. In a NewzRoom Afrika interview[16] entitled "Towards a post-pandemic green economy with Minister Barbara Creecy" on 25 August, the Minister stated that we need an economic structure sensitive to the needs of climate change and, with the Paris Accord coming into effect in 2020, in South Africa and globally there is a move towards economies that are more energy efficient and water efficient.

18. The comments submitted herein will show that the EIAR is not only silent on the Plan but are in direct conflict with it. The need to steer South Africa towards a sustainable, green economy that is more energy and water efficient has been lost on the applicant and the investors. The Project was conceptualised long before COVID, and seemingly even before South Africa's international commitments to combating climate changes and is therefore no longer compatible with Government planning and policy.

19. The unsustainability of the EMSEZ, as will be elaborated on below, constitutes justifiable grounds for refusal of Environmental Authorisation ("EA").

20. We further submit that, under the circumstances of a global pandemic and the resultant economic crisis, the applicant should approach LEDET for an extension under Reg 3(7) in response to the need to the expand the EIA scope to validly include the exceptional circumstances and implications of COVID.[17]

II. SUBMISSIONS

a) Reporting requirements

21. Before commenting on the findings of the EIAR, there are several comments in respect of the reporting requirements prescribed in Appendices 3 and 4 of the EIA Regulations, 2014 read with the relevant S24J Guidelines.

[15] https://www.gov.za/speeches/minister-barbara-creecy'-1-oct-2020-0000
[16] https://www.youtube.com/watch?v=S4PlAxCvhHs
[17] Reg 3(7): In the event where the scope of work must be expanded based on the outcome of an assessment done in accordance with these Regulations, which outcome could not be anticipated prior to the undertaking of the assessment, or in the event where exceptional circumstances can be demonstrated, the competent authority may, prior to the lapsing of the relevant prescribed timeframe, in writing, extend the relevant prescribed timeframe and agree with the applicant on the length of such extension.

22. Policy and legislation context:

i. Appendix 3 not only requires the EIAR to describe the policy and legislative context, but also requires an explanation of how the proposed development complies with and responds to the legislation and policy context. This has not been done for all laws and policies listed in Section 4.3 of the EIAR. For example, how will the Project affect South Africa's ability to comply with its international agreements in terms of the Convention of Biodiversity and the Paris Agreement?

ii. There is no inclusion of the policy and plans around COVID.

iii. In September, Cabinet approved the National Climate Change Adaptation Strategy (NCCAS). This is an important step in setting out the South Africa's objectives, interventions and outcomes with regards to meeting its commitments under the Paris Agreement.

iv. Irrelevant information appears to have been included, for example, reference to the Atlantis Gas-to-Power Project.[18]

23. Impact summary:

i. It is not clear from the Sections in the EIAR containing the impact summary that the questions posed in the Need and Desirability Guideline, 2017 have been addressed, as is required.

ii. Without distracting from our submissions that the Project should not be authorised, in the event of the environmental authorisation ("EA") being authorised, as a condition of EA, the environmental audit should be conducted every 6 months during construction and annually during operation. This frequency of audits should also be reflected in the EMPr.

iii. We further request that as a condition of EA, the applicant must establish and maintain monitoring committee comprising interested and affected parties, including but not limited to local residents, NGOs and local, provincial and national departments and other relevant organs of state. This has become a standard condition in other licences and is an important vehicle for good communication and transparency.

24. EMPr:

i. The EMPr does not fully comply with Appendix 4. There is no differentiation between impact management outcomes and impact management actions.

ii. Any comments made in this submission with regard to impacts and mitigation measures equally apply to the EMPr.

iii. The details of how this monitoring committee is established and convened should be fleshed out in the EMPr to include requirements that the committee should be established prior to

[18] EIAR p 204, Section 4.3.7

construction and should be convened twice a year with reasonable notice of not less than two weeks, at which key environmental issues should be presented and discussed, including the following:

- Complaints;
- Monitoring results– noise, water, air quality, biodiversity, crime, safety etc.;
- Environmental audits.

iv. There should also be full disclosure of all environmental reports prior to these monitoring committee meetings.

v. Other non-compliances with the requirements of Appendix 4 include not differentiating between impact management outcomes and impact management actions, and not including the relevant components regarding financial provision for rehabilitation, in terms of the Financial Provisioning Regulations, 2015.

b) Uncertainties, assumptions and gaps in knowledge

25. The Project and EIAR are fraught with uncertainties: uncertainty as to whether Eskom will be in a position to provide enough electricity to power the EMSEZ;[19] uncertainty as to whether enough water will be available and where it will ultimately be made available from;[20] uncertainty of the impact on the river systems; uncertainty of the impact on the surrounding natural and heritage resources; uncertainty on the supply of coal;[21] uncertainty as to whether the socio-economic impact will be positive or negative;[22] uncertainty in projecting the impact of the EMSEZ on food security;[23] uncertainty as to the readiness of the transport system;[24] uncertainty as to the reliability of the biodiversity offset strategy,[25] uncertainty as to the viability of SEZs;[26] and uncertainty as to where the waste will be disposed of.[27]

26. Further, many of the specialist studies are still in first draft and four[28] have failed to evaluate the future expansion site.[29] Also, most of the specialists have identified multiple assumptions, uncertainties and gaps in knowledge in their reports, which have been included in the EIAR (except for one set[30]) and bring into question the comprehensiveness of the assessment and mitigation

[19] EAIR, p140
[20] EIAR, p115; p315; Appendix U
[21] EIAR, p140-148: detail on mining applications pending
[22] Appendix P, Socio-Economic draft report 2019
[23] Appendix X; Impact Study on Tourism and Food Security 2020, p108
[24] EIAR, p67
[25] See comments submitted on the Biodiversity Offset Plan by S Brownlie Pr Sci Nat and M Botha Pr Sci Nat.
[26] Appendix Y, Economic Rationale, p2
[27] EIAR, p734
[28] Biodiversity, heritage, soil and land capability and paleontological specialist studies.
[29] EAIR, p DCCCXIII, Section 7.2.20
[30] EIAR p DCCCVIII – traffic

measures that have been proposed. Notably three specialists[31] have simply failed to identify uncertainties and gaps as is required in terms of Appendix 6 of the EIA Regulations. The EIAR is also silent about the impacts of the Covid-19 pandemic which has brought about fundamental changes to the global and national economies and the assumptions that underlie the Project. (All these gaps cannot be simply be remedied in the final EIAR for submission to the competent authority for a decision without subjecting this new information to a public participation process, particularly where the law makes provision for this).[32]

27. Assumptions, uncertainties and gaps in knowledge are not fatal flaws in themselves and are permissible to some extent provided they are fully disclosed so that the competent authority, when applying "*a risk-averse and cautious approach"* as required to do so, can take into account "*the limits of current knowledge about the consequences of decisions and actions*" when making a decision on the application for environmental authorisation[33]. However, when the uncertainties, assumptions and gaps in knowledge are so substantive that they even bring the viability of the Project into question as is the case for the EMSEZ, then surely the competent authority if it is to make a reasonable decision, has no option but to refuse the application.

28. The other significant set of uncertainties and gaps in knowledge is the unknown (but anticipated to be significantly large) development footprint and associated impacts of all the bulk infrastructure and services required for the EMSEZ which will also result in the vast destruction of flora and fauna, including protected species, as well as other likely impacts causing irreparable harm to systems on a much larger scale than those only within the site area. (There are also a further twenty Listed Activities[34] that have been identified as likely requiring environmental authorisation in future applications).

29. Equally significant are the certainties in the EIAR that there will be a significant negative impact on the climate crisis, biodiversity, ecosystems, water resources, flora (protected trees in particular), fauna (including threatened and endangered species), air pollution, and the health of people living in the vicinity of the proposed project.[35]

(1) Water Supply

30. The EIAR acknowledges that the proposed EMSEZ is located in one of the driest and water scarce areas of Vhembe District, receiving an average of 495mm of rainfall per annum. Water is scarce within the district with many of its supply dams silting up or overexploited.[36]

[31] EIAR Socio-economic, p DCCCIII, waste and town-planning, p DCCCX
[32] Reg 23(1)(b) of the EIA Regulations, 2014
[33] Section 2(4)(a)(vii) of NEMA: "precautionary principle"
[34] EIAR, p170 -175
[35] EIAR, p104 -110
[36] Appendix Y, p28

31. The DWS water balance calculations for the Limpopo province indicate that, by 2045, water shortages will worsen in line with the anticipated growth in water consumption from the mining, agriculture and household sectors. Mining related activities, particularly the coal mines, account for the largest increase in water demand in the province.

32. The DWS forecasts that the mining industry's water consumption in the province will increase form 98 million cubic metres per annum in 2018 to approximately 297 million cubic metres per annum in 2045. The DWS's Limpopo Province Water Master Plan states that the Department is undertaking a feasibility study to draw and transfer water from Zimbabwe's Tokwe-Mukosi Dam to supply Limpopo province.

33. The EMSEZ is likely to result in an influx of individuals seeking potential work, which has the potential to place the freshwater resources under pressure due to the need for water supply for domestic purposes and basic human needs, watering of cattle and crops (related to small-scale subsistence (farming) and the increased incidence of pollution to the receiving environment, with special mention of sewage generated by informal settlement areas.[37]

34. Preliminary engineering estimates indicate that approximately 10 million cubic metres of water will be required by the metallurgical complex for steel manufacturing activities per annum. The water needs of the metallurgical complex increase when it reaches a steady state of production.

35. The projected water use for the EMSEZ is estimated at between 80 and 100 million m^3/annum when other water intensive business activities such as coal washing and cooling systems for the power generation plant, agro-processing and domestic consumption are added. This demand will create immense pressure on the local and cross-border water resources as well as the regional transferring catchments relevant to this study area.

36. According to the draft Integrated Water Services report, although sufficient water is available for the supply to Makhado, it is subject to various planned intervention projects.[38] Failing these, water shortages will occur. Interventions, such as the transfer of surplus water from Zhove Dam in Zimbabwe and the Zambezi-Chobe River in Botswana are proposed.

37. However, implementing water transfers from Zimbabwe or Botswana are long-term projects that require detailed studies on hydrological determination, current and future water demand in the catchment, current and various future demographic, socio-economic and developmental scenarios, funding, security of supply, reliability of current and future international relations, energy challenges faced by South Africa neighbouring countries. As confirmed in the EIAR, this means significant

[37] EIAR, p319
[38] Appendix U, p14

international negotiations and additional infrastructure will be required, all of which will result in a long lead time[39] and not guaranteed.

38. Water security and groundwater are part of the specialist climate change impact assessment (and dealt with in section (c) 2 below), however, as water is envisaged to be sourced from Zimbabwe and/or Botswana and the impacts of climate change in these catchment areas will impact both surface and ground water, it is important to include it here too.

39. Surface water in Zimbabwe accounts for 90% of the country's supply but there is very limited knowledge on the quantity of ground water and the potential to utilise this water for the country's needs.[40]

40. Almost all of Limpopo's water resources have been fully developed and are allocated. According to Munnik, all water resources in the International Limpopo catchment "have been allocated to activities already in operation"[41] and any new water uses in this basin will require additional water transfers, unless the water can be sourced from more intensive use of groundwater.

41. What has yet to be assessed is the impact of the proposed water transfers from outside Limpopo on the donor countries and communities. Given that these transfers are permanent, Munnik[42] (2020) reports that inter basin transfers cause ecological and social problems such as the spread of water hyacinth and the lack of consultation with and compensation for people living in the "water donating" catchments that he terms 'water grabs'.[43]

42. Groundwater is the only dependable water source for many rural settlements and villages with urban requirements being augmented from transfers from neighbouring Water Management Areas (WMAs). Climate change will negatively impact the groundwater recharge rate for the areas and water supply for various water catchments.

43. The Vhembe District Municipality in Limpopo is already experiencing issues of water scarcity and quality as all catchments in Limpopo have water quality issues that are expected to deteriorate over time. Climate change is expected to further exacerbate these problems as a result of increasing drought events.[44]

44. With the EMSEZ predicted to be a large consumer of water, water availability and quality for other downstream uses is concerning, particularly in drought situations. The majority of the provincial water use demand is used for irrigation, mining and energy, with some water to service rural areas.

[39] Appendix U, p15
[40] EIAR, p448
[41] Munnik.V. Water risks of coal driven mega projects in Limpopo: the MCWAP and the EMSEZ (May 2020), p23
[42] Munnik.V. Water risks of coal driven mega projects in Limpopo: the MCWAP and the EMSEZ (May 2020), p18
[43] Ibid, p19
[44] EIAR, p461

45. Water scarcity and increasing constraints in terms of access to water may also negatively impact Eskom's functionality. Eskom's inability to generate power will negatively impact on the construction of the proposed project.[45]

46. According to the Integrated Water Services Report[46] the anticipated supply of water from groundwater is 0.4 Mm3/a. It stresses that "*no further existing or "simple to develop" supply options exist, as all further supply options entail complex bilateral agreements with neighbouring countries including Zimbabwe, Mozambique and Botswana, complex technical evaluations of system yields, infrastructure and energy, environmental aspects, etc., locally and on foreign turf".*

47. The water supply for the EMSEZ over the medium term is dependent the water being pumped from Musina – via currently non-existent infrastructure. This process will need substantial capital expenditure and at a high operational (energy related) cost. Long-term supply is dependent for 93% in volume, on the non-existent "Musina Dam". This dam has yet to be constructed, will need to follow its own EIA process could be financially unfeasible. In fact, it is likely that the infrastructure and dams that are required to supply water to the EMSEZ will make the entire project unfeasible.[47]

48. In this water stressed area, water is a particularly sensitive resource. The impacts of the EMSEZ's operations on strained water resources could result in community volatility and negative diplomatic consequences with/within the donor countries.[48] Climate change will result in increased rainfall variability, increasing drought occurrences, increase in clean water scarcity and an overall prediction of decreasing rainfall.

49. The EA should be refused on the water scarcity issue and lack of certainty around the supply of water alone.

(2) Water system

50. The Vhembe District Municipality, as a water service authority and provider, purchases bulk raw from the Department of Water and Sanitation (DWS) for treatment and distribution to households within its jurisdiction. However, here is a massive backlog for water and sanitation within the district with the national target of achieving a basic level of water and sanitation service for all by 2015 having been missed. Water infrastructure in the districts are severely damaged with refurbishment projects behind schedule and/or inadequately funded.[49]

51. Water is supplied to Musina town from various boreholes which are submerged into the Limpopo River. There is no water being drawn from Zimbabwe to Musina currently and there are no water

[45] EIA, p457
[46] Appendix U, p28
[47] For additional information on this see: Munnik. V, Provisional Report on Water Dimension on EMSEZ EIA, 2020
[48] EIAR, p459. Documents supporting the Makhado EMSEZ indicate a 120 year lock-in (Munnik, 2019, p55)
[49] Appendix Y, p28

pipes linking Musina with the EMSEZ site. Furthermore, there is no water-born sanitation infrastructure and no storm water drains at the proposed EMSEZ site.

52. According to the Integrated Water Services Report[50] the site has no direct access to any sustainable water resources sources, apart from groundwater and groundwater potential is very low. Over usage will lead to dewatering, with lowering water tables impacting on the environment, and the authorisations and existing commercial interests of others. For any supply for industrial use, water will need to be transferred from where available to the site. Water have to be conveyed from over approximately 50 km, and through a vertical lift of approximately 260 meters.

53. The infrastructure requirements to achieve this will make the supply of water to this area complex and with a high cost pertaining to both capital and operational expenditure (our emphasis).

54. As a result of this, there is a high level of uncertainty around the ability to supply and deliver water to the EMSEZ. With the construction of a system being complex and costly, the unviability and unsustainability of the Project is high. On this basis the EA must be refused.

(3) Coal Supply

55. There are a number of proposed projects in the vicinity of the EMSEZ that will apparently produce hard coking and thermal coal for the EMSEZ. However, only one of these mining rights has been granted.

56. The projects are the Mopane Coal Project of 38 825ha (yet to be granted), the Generaal Coal Project of 24 859ha (yet to be granted), the Chapudi Project of 24 719ha (yet to be granted), the Makhado Project of 7 635ha (granted but appealed), and the Vele Project of 8 663ha (granted).[51]

57. The uncertainty of the authorisations and, as a result, the supply, could make this entire EMSEZ unviable.

58. This EA should not be granted until such time as the viability of the project is established. Coal is the worst fossil fuel for greenhouse gas emissions. The International Energy Agency's Global Energy and CO_2 Status Report[52] assessed the impact of fossil fuel use on global temperature increases. It found that carbon emissions from coal were responsible for more than 0.3°C of the 1°C increase in the average global temperature above pre-industrial levels. "This makes coal the single largest source of global temperature increase".[53]

[50] Appendix U, p39
[51] EIAR, p141
[52] https://www.iea.org/geco/
[53] https://www.iea.org/geco/emissions/

59. In the famous climate case, Gloucester Resources Limited v Minister for Planning [2019] NSWLEC 7 (the Rocky Hill case)[54] it was argued that the proposed coal mine in Rocky Hill was against the public interest and principles of ecologically sustainable development because of its significant social, environmental and climate change impacts.

60. The court took into account expert evidence that confirmed that if regard is had to the measures that must be taken under the Paris Agreement to limit climate change, demand for coking coal will decline. The expert referred to the International Energy Agency's World Energy Outlook 2017 Report that modelled a Sustainable Development Scenario (SDS) which is broadly consistent with the world having a 50% chance of limiting climate change to 2ºC above pre-industrial levels. The SDS forecasts a 39% decline in coking coal, slightly less than the 52% decline in total global coal use by 2040 vs. 2016. This suggests a reduction in global supply is needed, not new capacity beyond already approved mines".[55] The expert also considered that the global demand for coking coal will be adversely affected by new technology developments that reduce the need for coking coal in steel production.

61. The need and desirability of establishing more coal mines in the light of the climate and water crisis undoubtedly form part of the EIA processes for the abovementioned coal projects. They therefore cannot be seen to be a forgone conclusion and neither should the development of the EMSEZ.

(4) Electricity Supply

62. The EMSEZ's power plant is proposed to generate electricity for its own needs. However, the availability of enough power for steel manufacturing activities is not guaranteed. There is also a need to develop bulk electricity infrastructure for the EMSEZ. In addition, there is also still a backlog of electricity supply to residential areas and to the existing businesses in the Vhembe District Municipality.[56]

63. Eskom has "*indicated that they **may** be able to supply 5MW required in year one*" (our emphasis), depending on the location of the main substation for the development. Further discussions need to be held with Eskom.[57]

64. The EIAR recommends that service agreement be drawn up by the operator and the investors and that electricity services need to be confirmed and secured.[58]

65. This is a major factor in the development of the EMSEZ and certainly not something that should be addressed after the application has been authorised, but before.

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[54] 8 February 2019
[55] Ad para 469
[56] Appendix Y, p30
[57] EIAR, p139
[58] EIAR, p251

66. This level of uncertainty for a project of this scale and a mass clearance of vegetation, along with the consequences that follow as a result thereof, is unacceptable and does not constitute sustainable development.

(5) Socio-economic Improvement

67. The Socio-Economic Impact Assessment notes[59] that "[l]ocal communities could largely benefit as a result of employment opportunities. The employment of local labour, if appropriately skilled for construction or operational activities, could provide local communities with increased household incomes over the short- to medium-period." [our emphasis]. It is noted here that the language used expresses uncertainty. The possibility of employment opportunities is directly contrasted in the following paragraphs of the specialist report with an outline of the possibility that such employment could lead to the negative consequence of in-migration of domestic and foreign employment seekers. The in-migration of population beyond that of the economy's capacity could lead to over population in the area and the settlement of migrants into informal settlements and other low-cost housing options. The influx of population could further lead to safety and security concerns and I have already mentioned the associated increased demand on an already stressed water supply in para (1) above.

68. The EIAR states that "findings of this EIA study showed the benefits from the project will potentially promote justifiable economic and social development, but negatively impact upon the environment".[60]

69. Further that:

> "*The proposed project is considered to have an overall high negative environmental impact, low-medium positive social and economic. Due to the site being very sensitive in terms of environmental features (ecology, aquatic features, etc.) and the introduction to possible greenhouse gases, air quality, noxious gasses, climate change impacts, etc. all which will have a negative impact on the environment and surrounding areas*."[61]

70. It is not clear what is meant by this statement.

71. However, the EIAR continues to clearly express the fact that "[i]n accordance with the Guideline on Need and Desirability, this EIA considered the nature, scale and location of the development as well as the wise use of land (i.e. is this the right time and place for the development of this proposed project?).

[59] Appendix P, slide i
[60] EIAR, pp VIII and DCCCXLIV of 878
[61] EIAR, pp VII and DCCCXLIII of 878

The potential negative impacts of the development on the natural, tourism, and agricultural environment of the site and the region may in all likelihood, outweigh the identified positive impacts associated with the potential social and economic development benefits in the longer term".[62] (our emphasis).

72. It is highly likely that the EMSEZ will compromise existing uses (primarily tourism and game farming) in the study area. The EIAR recommends that discussions are undertaken with local landowners who would be affected regarding potential visual impacts and the mitigation thereof.[63]

73. According to Munnik: "*the main water risk in the EMSEZ is to rural water users. The Mudimeli community is already experiencing the effects of initial coal mining – a MC Mining sample pit for the Makhado colliery –which they say has lowered the water table and dried up some of their boreholes. It has forced the already poor population to buy in water for daily tasks, particularly affecting women.*"[64] It may also result in commercial farmers having difficulty in accessing water, thereby affecting food production and farm jobs. The draft impact study on tourism and food security confirms that the development of the EMSEZ will attract new mining applications that will aim to mine the available resources, resulting in the potential loss of more than 600 000 ha of agricultural land, in the case of all coal reserved being mined.[65]

74. The impact of the EMSEZ on food security and tourism has not been adequately dealt with in the socio-economic impact assessment and only briefly dealt with the Annexure X in the first draft Impact Report on Tourism and Food Security (2020).

75. The report fails to identify and include the impact the Project will have on the local mopane worm farming and Boabab harvesting economy.

76. The socio-economic impact assessment process does seek to identify, evaluate and weigh both the positive socio-economic impacts as well as the negative socio-economic impacts. The positive socio-economic benefits associated with the EMSEZ are mostly related to boosts to the local economy and employment (for example, the local labour force "could benefit from employment opportunities")[66]. However, the findings also show that there will be significant negative social impacts on people's way of life; community; access to and use of water, access to and use of infrastructure, services and facilities (for example, "due to the influx of workers, prospective workers and construction operations, strain could be placed on the existing infrastructure of the local area."); culture; health and wellbeing.

[62] EIAR, pp VII and DCCCXLIII of 878
[63] EIAR, p DCCCXVII of 878
[64] Munnik (2019), p55
[65] Draft Impact Study of Food Security and Tourism (2020) p114
[66] Slide i

77. Although the EMSEZ has the potential to generate some positive social benefits, these benefits will be outweighed by the significant negative social impacts that the EMSEZ will cause. The significant net negative social impacts are a justification for refusing EA.

(6) Viability of Strategic Economic Zones (SEZs)

78. According to the United Nations Conference on Trade and Industry Trade and Investment Report: Strategic Economic Zones ("UNCTAD report"), SEZs centre on three key criteria:

i. A clearly demarcated geographical area;

ii. A regulatory regime distinct from the rest of the economy (most often customs and fiscal rules, but potentially covering other relevant regulations, such as foreign ownership rules, access to land or employment rules); and

iii. Infrastructure support.

79. The EIAR specialist report at Annexure Y, confirms that

> **"***very little empirical research has been done to test the fiscal and financial viability of SEZs as well as quantifying the direct and indirect economic benefits that accrue to countries that implement SEZ policies to accelerate their industrialisation. South Africa has designated a total of ten SEZs but only five are operational. In addition, there has not been any detailed economic modelling studies to test various aspects of SEZs including their financial viability and impacts on provincial and national economies in South Africa."*

80. It is further stated that:

> "the *unavailability of data on the actual construction costs of the proposed Musina-Makhado SEZ and Tubatse SEZ, annual sales volumes, proportion of exports to total sales, pricing of products and the quantification of their financial, fiscal and employment benefits to provincial and national economies were some of the key limitations experienced in this study. The study was done over a four week period and with a limited number of interviews. The researchers did not have enough time and resources to investigate, quantify and compare the economic benefits of setting up an SEZ in the Musina-Makhado area against those for Tubatse in a scientific and objective manner."*[67]

81. The UNCTAD report states that, although "the performance of many zones remains <u>below expectations, failing either to attract significant investment or to generate economic impact</u> beyond

[67] Annexure Y, p2

their confines, new ones continue to be developed, as governments increasingly compete for internationally mobile industrial activity".[68] [Our emphasis].

82. The UNCTAD report further confirms that "continued enthusiasm for SEZs among governments around the world belies the impact of these zones, which is often mixed. In developing economies that followed export- oriented development strategies, there are many examples of highly successful SEZs that played a key role in industrial transformation. But even in those economies, examples abound of zones that did not attract the anticipated influx of investors or did so only late. In latecomer countries, there are many more cases of zones that, once established by law, remained un- or underdeveloped for decades, and today's stock of SEZs includes many underutilized zones.***[69]***

83. In addition to doubts about the economic benefits of SEZs, the very concept of establishing a regulatory regime distinct from – and in many respects laxer than – the rest of the economy has raised concerns about social standards and labour conditions in SEZs, and about their environmental impact.

84. The key ingredients for the success of an SEZ are strategic focus; the regulatory framework and governance; and the value proposition for investors. In contrast, the new challenges facing SEZs are the sustainable development imperative; the new industrial revolution and the digital economy; and changing patterns of international production.[70]

> **"***The efficiency and cost savings that might be associated with lower social and environmental standards are no longer considered a viable competitive advantage, especially in industries that have incurred or are at high risk of reputational damage. As such, offering laxer social and environmental rules or controls is no longer a competitive advantage to attract investment in SEZs. As reported in a recent UNCTAD study on the contribution of SEZs to the SDGs, some zones are beginning to shift away from lower standards and are instead incorporating sustainable development into their operating model**."***

85. The EIAR has not shown enough certainty as to the viability of the EMSEZ and, given the irreparable harm that will be suffered as a consequence of granting this Application, EA should be refused.

c) Certainties – valid reasons for refusal

[68] https://unctad.org/system/files/official-document/wir2019_en.pdf, The United Nations Conference on Trade and Development (UNCTAD), Strategic Economic Zones, p128
[69] Ibid, p129
[70] Ibid, p131

86. Most of the certainties expressed in the EIAR are all grounds for the refusal of EA. Such certainties will be covered in more detail below but include the impacts on health, flora, fauna, climate, water and food security.

(1) Flora, Fauna and Environmental harm

87. The flora study[71] identifies four tree species of conservation concern (Shepherd's Tree, Leadwood, Marula and Baobab) with the Baobab also listed as a schedule 12 Threatened Plant Species. However, there are potentially fifteen protected tree species in the project area. The four identified species are protected in terms of the National Forest Act, 1998.

88. During the Protected Tree Survey[72] the protected trees listed above were identified and counted in the project area.[73] In summary, the total number of species recorded in the area was 109 034,[74] of which 51.3% consisted of Marula trees, 41.9% of Shepherd's trees, 5.2% of Baobab and 1.65% of Leadwood trees. The Musina Mopane Bushveld habitat was the largest and consequently had the highest number of protected trees at 96 336. The Limpopo Ridge Bushveld and the riparian habitat had 8 034 and 4 661 protected trees respectively. The report recommends the relocation of these trees – over 109 034 of them. There is no indication as to where these trees will be relocated to. As referenced in the WESSA comments, the cost of relocating a baobab is between R20 000 to R100 000 per tree and the success rate of transplanting a shepherd's tree is less than 10%, the marula and leadwoods about 10% and baobabs about 50%. This has not been factored into the costs of the Project.

89. Only protected trees were part of the survey – other trees, shrubs, herbs, forbs and grasses were excluded. Presumably the plan is simply to destroy an 8 000ha area of these plants

90. Only protected trees were part of the survey – other trees, shrubs, herbs, forbs, grasses were excluded.

91. Although the vegetation types of the project area (Musina Mopane Bushveld and Limpopo Ridge Bushveld) are assigned a Least Concern status, large portions of this vegetation are under threat due to expanding mining operations, including the Mopane project, Chapudi project, Makhado project and Vele project. According the EIAR*, "the level of protection that this vegetation type receives provincially is regarded as poor and it is regarded as endemic to the province (LEDET, 2017). The cumulative loss of this vegetation type as well as the SSC found within it should be*

[71] Appendix K
[72] Appendix J
[73] With the exception of the north-eastern section of the project area which was inaccessible at the time
[74] Appendix J, p12

considered proactively. The continued loss of the vegetation type will only be exasperated by the various planned and existing developments, including the EMSEZ."[75]

92. The EIAR confirms that the quantification of the regional cumulative impacts was not completed and recommends that the developer of the EMSEZ "work constructively with other developers in the area to plan an aggregated biodiversity offset."[76]

93. The fauna study of the project area identified seventeen mammal species, representing a diverse community, including:[77]

    i. three species listed according to the IUCN Red List of Threatened species, and one species with regional status (giraffe and leopard);

    ii. total of twenty-six avifauna species were identified. (Approximately 262 bird species are expected to occur in the area. Of these 262 species, a total of 13 species are listed as Red Data species);

    iii. twelve herpetofauna species. (In spite of only twelve been identified, a total of 27 herpetofauna species are listed for the area including four frog species; one tortoise species, and twenty-two reptile species. Two of these species are listed as Red Data species); and

    iv. nineteen invertebrates, including the Rear Horned Baboon Spider which is commercially protected.

    v. The International Union for the Conservation of Nature (IUCN) regularly assesses the conservation status of species. Currently, more than 31 000 or 27% of the species the IUCN has assessed are threatened with extinction.[78] IPBES (2019) estimates that of the 8.1 million animal and plant species on Earth – with the vast amount of these species not yet known to humans – roughly 1 million are threatened with extinction.[79]

94. The extinction of species is something we should actively be fighting against, and yet the proposed project is threatening at least sixteen threatened and/or Red Data species.

95. The EIAR confirms that South Africa is the third most megadiverse country in the world and it is critical to ensure an extensive and representative system of protected areas for the conservation of South Africa's biodiversity and ecosystems.[80] Loss of biodiversity will pose serious risks to the health and socio-economic aspects of life for future generations.

[75] EIAR, p365
[76] EIAR, p365
[77] Appendix K, p60-68
[78] https://www.iucnredlist.org/
[79] https://ipbes.net/news/how-did-ipbes-estimate-1-million-species-risk-extinction-globalassessment-report.
[80] EIAR, p337

96. There are only 686 biosphere reserves in 122 countries, with ten being in South Africa. The Vhembe Biosphere Reserve[81] is one such reserve and is approximately 30 701 km2.[82] The EMSEZ site falls within the Vhembe Biosphere Reserve. It also falls within an Ecological Support Area, with the southern portion classified as a Critical Biodiversity Area 2.[83]

97. Flora, fauna and the habitats in which they live will be impacted by the proposed project. Approximately 177 ha of Limpopo Ridge Bushveld, 4 422.2 ha of Musina Mopane Bushveld and 145 ha of Riparian vegetation will be permanently lost.

98. Countries across the world are reliant on a range of services that are based around their natural ecosystems. Biodiversity and Ecosystem Services (BES) include such necessities as food provision, water security and regulation of air quality that are vital to maintaining the health and stability of communities and economies. In a recent study, the findings of which are published in an article in Swiss Re, [84]85 55% of the global GDP is dependent on high-functioning biodiversity and ecosystem services. Among G20 economies, South Africa and Australia top the rankings of fragile BES. The well-known impact of water scarcity is a driver for these countries, alongside factors such as costal protection and pollination. The report discusses how addressing BES challenges through simple preservation actions can have significant impacts. [Our emphasis].

99. Preserving South Africa's ecosystems and biodiversity is not simply a 'conservation mindset'. It is vital for the ongoing sustainability of the county's economy and ability to survive the climate crisis. The EIAR confirms that the proposed project will:

    i. have a detrimental effect on the biodiversity assets of the **region** but falls short of extrapolating this detrimental effect on the wider biodiversity of the country as a whole (micro versus macro impacts);

    ii. cause disruption of ecological functioning and pollution of water resources but falls short of extrapolating this to the function of water resources for South Africa/ Zimbabwe and/or Lesotho;

    iii. cause extremely high greenhouse emissions but falls short of explaining the short and long-term effects of this in terms of the economy of the country;

[81] EIAR, p125
[82] EIAR, p341
[83] EIAR, p315
[84] https://www.swissre.com/media/news-releases/nr-20200923-biodiversity-and-ecosystems-services.html
85 https://www.swissre.com/media/news-releases/nr-20200923-biodiversity-and-ecosystems-services.html?fbclid=IwAR2au9C-9ZwYKmelxyBEp1b-iCaHfIDsoE1mjQ6h0vPYxN_TeXOWGdgDvAE; 23 September 2020 and https://www.swissre.com/dam/jcr:a7fe3dca-c4d6-403b-961c-9fab1b2f0455/swiss-re-institute-expertise-publication-biodiversity-and-ecosystem-services.pdf

iv. have high water requirements that are cannot met and will impact the water resources of South Africa, Zimbabwe and/or Lesotho but falls short of setting out the implication of these requirements for generations to come;

v. impact on the sense of place;

vi. result in large-scale land transformation resulting in substantial impact on food security and the functioning of biodiversity and ecosystems;86

vii. result in the loss of critical biodiversity areas;

viii. impact on air quality and human health and the environment;

ix. cause resource use conflicts (especially with respect to land and water); and

x. cause visual and scenic impacts.

100. As climate change becomes more severe, harmful influences on ecosystem services are expected to outweigh potential benefits in most regions of the world.[87]

101. From an economic perspective, the OECD (2019)[88] estimates that between 1997 and 2010, global land cover changes negatively impacted nature by between USD 4–20 trillion annually; and land degradation losses accounted for an additional USD 6–11 trillion per year.

102. The conservation-oriented approach, which is all-spatial and integrative cannot be ignored. The international conservation debate discusses an increase in protected areas of up to 30% of the Earth's surface (CBD 2020).[89] Furthermore, it calls for sound environmental management of important socioeconomic activities within these areas, and ultimately, a reduction in heavy negative impacts on nature. This increase in protected areas seems necessary in order to offer greater, less disturbed habitat for species to survive.

103. The National Environmental Management Act, 1998 (NEMA) requires that development be socially, environmentally and economically sustainable[90] and the Brundtland Commission defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.[91]

104. It is submitted that the EIAR itself shows that this project is unsustainable.

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[86] Appendix X, p93
[87] PCC (Intergovernmental Panel on Climate Change) 2014: Climate Change 2014. Impacts, Adaptation and Vulnerability. Part B: Regional Aspects. Retrieved 29. June 2020 https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-PartB_FINAL.pdf and. IPCC (Intergovernmental Panel on Climate Change) 2019: Climate Change and Land. https://www.ipcc.ch/site/assets/uploads/ sites/4/2019/11/03_Technical-Summary-TS.pdf and https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf
[88] Swiss Re Institute Biodiversity and Ecosystem Services – A business case for re/insurance, 2020, p 18
[89] CBD 2020. Convention on Biological Diversity. Zero draft of the Post-2020 Global Biodiversity Framework. https://www.cbd.int/doc/c/ efb0/1f84/a892b98d2982a829962b6371/wg2020-02-03-en.pdf
[90] Section 2(3)
[91] http://www.un-documents.net/our-common-future.pdf

105. Owing to the fact that the project area is "minimally disturbed and can be classified as near pristine bushveld" and " due to the magnitude of the project and the size of the development," the EIAR recommends that "a biodiversity offset strategy and plan should be considered to offset the protected trees, fauna, flora and aquatic features on the site." [92]

106. However, the review of the biodiversity offsets management strategy[93] confirms that it is "*deeply flawed"* and, fails to apply the core principles of offsets. It gives offset ratios which are incorrectly and misleadingly cited as being from the gazetted national biodiversity offsets policy (2017) and the references to offset ratios in DEA 2017 are "*without exception incorrect*."

107. The offset strategy is therefore of no comfort to mitigate the destruction of 8000ha of bushveld, at least seventeen different mammal species and over 100 000 protected trees.

(2) Climate Impact

108. The latest Intergovernmental Panel on Climate Change (IPCC) report on land and climate change found that changes in land cover and the loss of natural vegetation, could affect regional climate and result in, *inter alia*, accentuated warming and increased intensity, frequency and duration of extreme events.[94]

109. Land degradation and climate change, both individually and in combination, have profound implications for natural resource-based livelihood systems and societal groups.[95]

110. The Vhembe District municipality has a low adaptive capacity with regards to impacts of climate change on agriculture.[96]

111. The EIAR states that the impact of the Musina-Makhado project's greenhouse gas inventory is considered to be high due to the total emissions from the project being between 11% and 16% of South Africa's carbon budget.[97]

112. Professor B. Scholes reviewed the Musina EIA: Climate change specialist report on 6 October 2020 and found that:

    i. The specialist study was performed by a credible consultancy, Promethium. Despite the specific issues identified below, the broad thrust of the report and its conclusions are assessed to be correct.

[92] EIAR, p326
[93] Appendix K
[94] https://www.ipcc.ch/srccl/, paras 2.5.2 – 2.5.5
[95] Ibid; paras 4.1.6, 4.2.1, 4.7
[96] EAIR, p110 & p432
[97] EIAR, p440

ii. Importantly, and following a South Africa court precedent, the study considers both the impact of the development on the climate, and the impact of a changing climate on the viability of the project. In the latter respect, the key issues ought to be unpacked in the in the water resources and human health assessments.

iii. Although carefully worded, the conclusion of the report is that climate considerations make this project unviable. The risks are very high, and not mitigatable or adaptable to. [Our emphasis]. The authors specify a set of emission intensity requirements which are unlikely to be able to be met with the specified technology. Alternate technology would make this project much more expensive and is mostly not yet available at operational scale. They further add that the emission intensities would need to be reviewed after 10 years. It is hard to imagine abandoning an investment of this scale one decade into operation, either because they have failed to meet their agreed specifications, or because the limits have become even tighter in the intervening period ('A ratcheted South African NDC[..] within the approximate period 2022-2025 could have an impact on the longevity of projects such as the proposed SEZ.'). The prudent thing to do, therefore, is not to commence.

iv. The contention that from an international perspective the project would lead to a 10 MtCO2/y global emission decrease is not elaborated in the main body of the report (it is just repeated on page 99) and is very questionable. It is crucially dependent on assumptions of what it would be replacing, i.e. the baseline – which is out of the control of the operators.

v. The 'required emission reductions' are quite crudely calculated – basically they are the South African benchmark reduces by 31%, the international 'required by science' value for 2030 for the metallurgical sector. The SEZ has a design life to 2050. By then the 'required by science' reduction will be close to 100%. Thus, a ratchetting of requirements is close to inevitable.

vi. The required carbon intensities are challenging – for instance for steel they are 0.37 tCO2/ton steel, where the industry norm in 2018 is 1.85 tCO2/ton steel. [It is hard to see what is counted in these figures, because they separate the various elements of the process (e.g. coking, steelmaking). What is the end-to-end emission intensity? The report states (pg. 18) ' the exact build programme for the SEZ has not been finalised' which makes fule lifecycle calculations impossible]. Such targets could be technical achieved with a new build plant (in fact, Acellor-Mittal is aiming to make net CO2-free steel in that timeframe, and it could be argued that there won't be a market for high-emissions steel after about 2035), but that requires radically different technology, and there is no evidence of that in the design documents. This is a 'conventional technology, assuming best practice' design. Such an approach will not survive to 2050.

vii. The target for the ferrochrome and ferromagnesian plants is 3.37 tCO2/ton product, which is no advance over current technology– IPCC give the current global intensity as 3.36 (even though table 5 gives 4.47 tCO2/product from the South African benchmark). It is hard to see

how this squares away with a reduced emission target under a peak-plateau-and-decline scenario for South Africa, given that ferrochrome and ferromanganese are more than half the planned output.

viii. The report states that 'a large portion of the water will be sourced from the Limpopo River as well as various water bodies in Zimbabwe.' It notes the use of groundwater during the construction phase. Groundwater, in this environment, would not be a sustainable resource for operations. Groundwater extracted from aquifers next to the Limpopo is functionally identical to pumping it out of the river itself. Sources in Zimbabwe would have flowed into the Limpopo anyway, so do not constitute an additional supply in terms of the international obligations or the needs of the river as determined in the Water Act.

ix. The (new?) water requirements are 80 Mm3/y, which is an order of magnitude more than what is available (Table 3), even without factoring in climate change (which will lead to a reduction in supply in the order of 30% or more) and increase in demand elsewhere in the catchment. Basically, local water supplies cannot satisfy the enlarged needs. The water would need to come from elsewhere (e.g., ultimately from the Lesotho Highland Scheme, which itself will be under use pressure). The ore and coal consumption is in on the order of 10 million tonnes/y – hence the water is by mass (80 million tonnes) the biggest transport item, which rather undermines the argument that this is the ideal location for the complex, because it is close to ore and coal stocks. The water is unlikely to be piped from distant sources – it would probably be piped to the upper Limpopo basin and then fed through the natural drainage – but this is fabulously wasteful. It would be necessary to introduce much more water into the top of the catchment than is needed to withdraw in the middle.

x. The EIA states that 'The Intergovernmental Panel on Climate Change (IPCC) estimated in the 5th Assessment Report that the global limit is to emit 2,900 gigatons of CO2 above the pre-industrial levels by 2100. By 2012, a total of 1,890 gigatons of CO2 has already been emitted. This leaves a remaining budget, for the period between 2012 and 2100, of 1,010 gigatons of CO2 before the 2°C limit is breached'. This is cumulative, not emissions relative to pre-industrial. The statement (pg. 96) is also likely wrong: 'The amount of coal in the global reserves accounts for 1,500-2,000 gigatons of CO2e' it is several times higher. But neither of these quibbles changes the conclusion .

xi. The risks imposed by climate change do not explicitly include severe storm risks (e.g. from cut-off lows or cyclones), though they may be implied in dot point 2, and in the main report. These risks will certainly increase in this location.

xii. The risks assessed in the risk table are entirely biophysical, and do not include transitional, legal or reputational risks. Transitional risks are addressed to some degree later in the report.

xiii. Figure 7 is unusably crude, and quite outdated. Much higher resolution images are available, for instance from the Global Change Institute. The world is currently not on RCP4.5, but something closer to RCP8.5.

xiv. Figure 8 says it is about temperature change, but the figure is actually precipitation change. It is also too aggregated to be useful. It shows a ~10% decrease in precipitation by 2100. GCI ensemble projections for the Musina area show a 400 mm/y decrease by end century, which is around a 66% decrease.

xv. The risk assessment procedure is fairly standard, and correctly assesses the climate change risk as very high, and notes that mitigation opportunities are limited. The process mitigation options offered are marginal improvements, rather than transformatory.

xvi. The client-provided emission intensity for the cement plant and the silicon-manganese (table 14, last column) seem way to optimistic – how will these be achieved?

xvii. Our ensemble modelling suggests 7-10 degrees C warming by century end for Musina under RCP8.5, not 4-7 degrees C.

xviii. The water supply projects listed in table 15 give the dam storage capacity, not the flow supply capacity, which is the critical value.

xix. Note that when precipitation decreases by 12% (see my above note that this is an underestimate), hydrological flow typically reduces by more than 30%. Partly this is because evaporative demand goes up simultaneously, but it is also due to the shape of the water yield versus precipitation curve.

xx. Figure 21 is optimistic. The GCI modelling, which is much more spatially resolved and based on an ensemble of globally-leading models, projects a +100 to -500 mm/y change, (+15% to -80%), with a median of around 300 mm (-50%) by 2050. As a result, figure 23 would be more accurately assessed as ‘Extremely high risk’, and as noted, the adaptive capacity is very low.

xxi. The risks associated with changes to the natural environment are highly speculative and very generalised. This section adds no value.

xxii. Note that the transitional risks associated with carbon taxes are associated with a carbon price of between 2 and 8 USD/t CO2. It will be the international norm for carbon tax that matters here, not the South African tax, since the products are destined for export. An exporter will need to pay border adjustment taxes if the point of origin taxes are below the importing country taxes. In principle, the carbon tax should rise to meet the social cost of carbon, which is currently around 50USD/t CO2. These considerations are speculative but need to be part of the risk assessment.

113. The EIAR has established that the emission over the lifetime of the Project "will consume as much as 10% of the country's carbon budget and the impact on the emission inventory of the country is therefore HIGH".

114. Importantly, the EIAR confirms that the project cannot be implemented in the current regulatory confines when considering the following (our emphasis):

i. The Nationally Determined Contribution (NDC) in terms of South Africa's commitment in terms of the Paris Agreement;

ii. The Peak Plateau Decline (PPD) emission trajectory;

iii. The Integrated Resource Plan (IRP), which sets out the planned electricity production capacity of the country; and

iv. When considered on an international level, the Project could reduce emissions by as much as 10 million tonnes CO2e per year, if the plants are built to the recommended emissions intensity specifications.

115. The decision-makers cannot authorise the Project without being in contravention of the current regulatory framework. On this basis alone the application for EA must be refused.

(3) Impact on Food Security

116. Food security means having enough food to fully meet basic needs at all times. According to the Food and Agricultural Organization of the United Nations, "*Food security is a situation that exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life*".[98]

117. The EMSEZ need for coal and the proposed new mines in the vicinity will encroach on the current agricultural activities, which is likely to destroy cultivation along the rives as well as downriver cultivation.

118. The mining of the coalfields within the Vhembe district has the potential to negatively impact approximately 689 000 ha of livestock and wildlife grazing lands in the following ways [our emphasis]:

i. Decimation of grazing land due to the extraction of all the available coal through open cast mining;

ii. Air pollution as a result of the burning of fossil fuels during mining operations and processing; and

[98] FAO, 2001

iii. Fresh water supply required for agriculture may be affected by contaminated water lost into rivers and ground water reservoirs.[99]

119. A report by Food and Agriculture Organisation (FAO) in 2018[100] warned that the world is not on track to eradicate hunger by 2030 as envisioned in the Sustainable Development Goals (SDGs). If we are to achieve a world without hunger and malnutrition in all its forms by 2030, it is imperative that we accelerate and scale up actions to strengthen the resilience and adaptive capacity of food systems and people's livelihoods in response to climate variability and extremes.

120. It is a priority for all countries to ensure that actions across and within sectors such as environment, food, agriculture and health, address the negative impacts and threats that changing climate variability and increased climate extremes pose to people's food security, access to healthy diets, safe nutrition and health.[101]

121. According to information on the Department of Statistics website, the involvement of households in agricultural activities for subsistence farming can play an important role in reducing the vulnerability to hunger of rural and urban food-insecure households. The results show that out of 16,2 million households, about 2,5 million households (15,6%) were involved in agricultural activities in South Africa in 2017. Provinces that are predominantly rural and with high levels of poverty such as Limpopo (25%), Eastern Cape (20%) and KwaZulu-Natal (20%) had the highest proportions of households that relied on agricultural activities to supply their own food. Most households involved in agricultural activities were involved in the production of fruits and vegetables, grain and other food crops, as well as in livestock and poultry farming. Although the main source of income for these households was social grants, most households involved in agricultural activities indicated that the main reason for their involvement is to supplement food for the household.[102]

122. Over and above the impact of the clearing of land and abstraction of water for the EMSEZ, the Health Impact Assessment identifies the influx of people during construction and the operational phases of the proposed EMSEZ Project as potentially causing food inflation, increasing food deprivation and nutrition-related diseases. The Project may also reduce access to traditional food sources by, for example, using agricultural land for other purposes or increasing the demand, and therefore prices, of locally grown food. There may also be risks associated with increased availability and affordability of manufactured food products that are high in fat, salt and sugar.[103]

123. While far from being comprehensive, the first draft of the Impact Study on Tourism and Food Security confirms that the EMSEZ will have significant impact on downstream irrigation farms due

[99] Appendix X, p104
[100] FAO, IFAD, UNICEF, WFP and WHO. 2018. *The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition*. Rome, FAO.
[101] Ibid, p vi
[102] http://www.statssa.gov.za/?p=12135
[103] Annexure BB, p 72

to water abstraction [104] and the introduction of the metallurgy cluster at the EMSEZ South Site will have a potentially "*substantial impact on the food security in the Makhado LM, as well as in the Mutale LM*".

124. The Constitution states that "everyone has the right to sufficient food and water"[105] and that "the State must formulate reasonable legislative efforts and take other measures within its available resources, to achieve the progressive realisation of these rights."[106] This, combined with the need for South Africa to eradicate hunger and ensure climate resilience makes any development that risks food security, unviable.

125. The draft Impact Study has a long way to go to adequately deal with issues of food security, in Limpopo and South Africa. The fact that the Project will certainly have an impact on food security and the converse need for South Africa to ensure food security to eradicate hunger, the EA should not be authorised.

(4) Health Impact

126. The environmental right states that everyone is entitled to an environment that is not harmful to their 'health or well-being'.[107] The EIAR confirms that the noxious industry of the SEZ will have very negative health implications, particularly from the proposed thermal power station:

> The burning of coal leads to the emission of poisonous gases with underlying health impacts and environmental problems (Clancy et al.; Katsouyanni et al., 2001, Gent et al., 2003). In coal combustion, the carbon, sulphur, and nitrogen react with oxygen and produce their respective oxides: carbon dioxide (CO2) and carbon monoxide (CO), sulphur dioxide (SO2) and sulphur trioxide (SO3), and nitrogen dioxide (NO2) and nitric oxide (NO), respectively. The emission of these gases has been correlated with many health problems directly and indirectly, including skin, cardiovascular, brain, blood and lung diseases, and different cancers (Badman and Jaffé, 1996, Cornell, 2016, Bascom et al., 1996, Kelsall et al., 1997, Health effects of outdoor air pollution. Committee of the Environmental and Occupational Health Assembly of the American Thoracic Society, 1996, Pope et al., 1995). For example, CO enters into the blood stream and reacts with haemoglobin and reduces the formation of oxy-haemoglobin complex by decreasing its ability for O2 transformation (Badman & Jaffé, 1996). Hence, the CO can alter biological functions at the cellular level and cause many abnormalities including slow reflexes, and coagulation confusion or disorders. Both CO and CO2 cumulatively have harmful impacts on the environment in the form of global warming and greenhouse gases (GHG) emission. The CO2 emission from coal combustion, during power generation, also leads to the interaction of CO2 with particulate matter (PM 2.5), which thereby changes the air quality and leads to increased asthma attacks and other respiratory and cardiovascular diseases with underlying poor life expectancy rates. Inhaling particulate matters may cause some dangerous diseases, including chronic obstructive pulmonary disease (COPD) and lung cancer (Cornell, 2016).

[104] Appendix X, p93
[105] Section 27(1) (b)
[106] Section (27) (b)
[107] Constitution of South Africa, Section 24

127. The Report summarises air pollution as follows:

> *"gaseous emissions are generated as flue gases at furnaces in steel plant, rolling mill and producer gas unit. Gaseous emissions are also generated from waste heater boiler in coke oven plant. Fugitive emissions are generated in the industry during storage and handling of coal and coke and other solid raw materials. Dust is generated during loading and unloading, movement in conveyors, crushing and screening operations of these products. Fugitive emission is also generated on due to vehicular movement in the premises."*

128. Local communities may already be exposed to low background levels of potentially hazardous materials (e.g. dust, particulate matter, heavy metals) that can be associated with health problems such as respiratory illnesses, skin diseases, organ damage, circulatory problems, birth defects, cancers and neurological disorders.

129. Primary pollutants in waste gases are iron oxide, dust and oxides of sulphur, carbon etc. of these, dust is by far the most important air pollutant in the industry. Solid waste mainly comprises of slags from blast furnace and steel melting shops and dust separated in gas cleaning plants and ventilation systems.

130. PM, NO_x, SO_2 and CO emissions will be released during the construction, operational decommissioning, and closure phases. PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, Mn, Cr_{6+} and H_2S emissions and impacts were quantified but the PM_{10} and $PM_{2.5}$ emissions and simulated concentrations were likely underpredicted. In spite of the underprediction, simulated PM_{10} concentrations were found to exceed the evaluation criteria beyond boundary but not at Air Quality Receptors. Simulated PM2.5, NO2, SO2, Mn and Cr6+ concentrations were found to exceed the evaluation criteria beyond boundary and at AQRs.

131. The significance of proposed EMSEZ operations related inhalation health impacts is considered "very high". The EA should therefore not be approved.

(5) Lack of Water

132. There is absolute certainty around the uncertainty regarding the supply of water for this mega project.

133. The scarcity of water and inability to supply water is reason alone to refuse this application. The EA (for the clearance of vegetation) cannot be authorised when there is no certainty for the viability of the project as a whole. Without water, this project cannot proceed. It is unsustainable and entirely unjustified for this project to deprive communities, municipalities and neighbouring countries of their water resources and water security, particularly in light of the climate impact assessments.

d) <u>Significance ratings</u>

134. Mr Sean O'Beirne, SE Solutions, an experienced environmental consultant with over 20 years national and international experience in environmental assessment and management was requested to give a high level critique of the significance ratings of impacts in the EIAR.

135. He states that EIA has regrettably become too process focused whereby instead of offering an objective assessment that can be used for good, sustainability lead, decision-making, the reporting is packaged to legitimize an otherwise entirely unsustainable development. Ironically, this statement is not a criticism of the EA practitioner himself, but rather one that targets the inadequate leadership by the very authorities entrusted to protect our natural heritage who are the custodians of the EIA process and responsible for the associated decision-making. In general terms this pattern of misleading assessment is one where:

    a. the proposed developments are improperly characterized to make them sound more economically and job creation powerful than they will ever be. SEZs in South Africa have always been launched with the fanfare of investors falling all over themselves to establish large scale industrial activities that simply never materialize in practice;

    b. the alternatives assessment is based only on project economic/technical criteria with barely a hint of the environmental differences between the alternatives which should be the primary assessment. Indeed the alternatives assessment in this EIA touts that some of the reasons for not pursuing the Tubatse alternative is because people in that area are more militant than they are in the preferred area, the Tubatse area is much more polluted meaning that investors will have to pay more for pollution control and that the property is cheaper (amongst other equally contemptible claims);

    c. there is a highly scientific and robust description of the receiving environment highlighting the many features such as floral diversity, soils, pans and other forms of surface water, soils and resultant faunal diversity that makes the area of significant conservation value even though it is not formally protected;

    d. the assessment itself (essentially the presentation of the significance ratings) providing a relatively believable assessment of the magnitude of the impacts but then 'tempered' by feeble mitigation that will somehow magically reduce the magnitude of those impacts and make them acceptable. The mitigation presented in this assessment, and this is a criticism of the practitioner, is especially weak;

    e. the decision-maker then has an assessment that reads that the negative impacts are of high significance (notably never labelled as a fatal flaws) BUT they can be mitigated to acceptable levels. Said decision-makers do not interrogate whether or not the mitigation can in fact reduce the impacts but simply take the word of the EAP that has made the claim, and then nothing stands in the way of positive authorization;

f. the mitigation, such as it is, is generally poorly implemented (if at all) with project implementation there is very little compliance and enforcement activities by the authorities to ensure that the mitigation is:

i. Implemented; and,

ii. Effective.

136. The negative impacts manifest pretty much at the scale they were predicted to, the mitigation if implemented, fails to limit the impacts and finally and most importantly the investors do not arrive and the benefits that ostensibly warranted the negative impacts, simply fail to materialize at anywhere near the scale promised in the EIAR. At that point the damage is done, is irrecoverable and the asset is effectively compromised for both current and future generations. This is definitely not sustainable development.

137. Mr O'Beirne also provided offered the following cursory comments on the approach to defining impact significance used in the assessment methodology in the EIAR:

a. The numbers that are used are NOT cardinal numbers but ordinal numbers[108]. Stated differently they are numbers that represent classes not numerical values so instead of 1, 2, 3, A, B and C could be used instead to label a class. Where ordinal numbers are used they CANNOT be used arithmetically. No-one would ever multiply A by B or add C to D but because numbers are used to represent the classes there is an assumption (entirely flawed) that it can be done.

b. When numbers are used ordinally the difference between 1 and 2 is that 2 simply means the next class it does not mean twice the value of 1, which is what is implied (incorrectly) in the significance ratings used in this assessment. In addition, and even though it is mathematically flawed, to imply that a global scale impact is 5 times more serious than a localized impact is capriciously arbitrary and absurd and in no way defendable scientifically.

c. Were it arithmetically defendable (which it is not) the use of a probability multiplier in the 'equations' is also arithmetically invalid. In the strict sense of the word probability is presented as a return period. In other words, the probability of an event is defined in terms of how frequently it is likely to occur. For rainfall, for example a '1:100 year' event means that the defined rainfall would only (likely) occur once in 100 years. For disease risk it would be defined for example as a '1:10000' probability (viz. 1 person in a population of 10 000 people likely to get sick) and so forth. In an application such as this the only reasonably logical way to present 'probability' would be as a percentage viz. 'there is a 10% chance of this occurring'. For this application the EAP uses a 5 point scale – 1 to 5, again with ordinal

[108] In set theory, an ordinal number, or ordinal, is one generalization of the concept of a natural number that is used to describe a way to arrange a (possibly infinite) collection of objects in order, one after another.

rather than cardinal numbers but now MULTIPLIES the product of the previous calculation. If a percentage was used then at least there would be the logic of saying that the product of (Extent + Duration + Reversibility + Magnitude) remains as it is if the impact is definite (1 or 100%). A smaller probability say 0.5 or 50% would then serve to reduce the product accordingly and so forth. Stated differently (Extent + Duration + Reversibility + Magnitude) is the collective expression of the impact which could occur. The probability determinant then should express what is likely to occur for this particular project and application with probabilities of less than definite serving to reduce the collective expression of the impact. For this application the EAP uses (Extent + Duration + Reversibility + Magnitude) as a collective expression of the impact but then choses to multiple that factor by 5 times if the probability is definite. Apart from the mathematical formula, which is in itself just plain wrong, there is no defendable logic in the assessment process either.

d. In respect of the duration scoring too, there is also a complete absence of logic and here again I have some empathy for the EAP but none for the authorities because the requirement is written into the regulations so cannot be disregarded by the EAP. The point of this is that duration and reversibility actually amount to the same thing. If the duration is permanent then the impact cannot be reversible and if the impact is irreversible then the duration must be permanent. The EAP then 'double counts' what is essentially the same thing but then also presents a set of ordinal numbers namely 1, 3 and 5 (instead of 1, 2, 3) with no apparent logic for that classification. Why this is important is that if 'mitigation' changes the impact from irreversible to reversible then the effect of that reclassification is artificially and undefendably doubled and serves to seriously exaggerate the perceived efficacy of the mitigation.

138. The net effect of the above is that the significance rating method used in the EIAR is flawed in multiple ways both mathematically and in terms of logic and as such cannot be used with conviction by decision-makers. Not only does this flawed approach to ascribing significance render the conclusions entirely artificial and meaningless it also raises serious questions about how the integrity of the 'scoring' and how that may have been manipulated to downplay the seriousness of the negative impacts (and they are very serious). Here is but one example of where that has happened in the EIA report.

139. Apart from the massive loss of pristine bushveld the climate change implications of the Project has to be the most serious potential impact. Here is how the impact has been presented for the construction stage:

Table 6-1: Impact assessment for the construction phase of the project

Aspect	Mitigation Measures
ATMOSPHERIC EMISSIONS	
Climate change	Ensure that all vehicles and machines are adequately maintained to minimise any potential emissions that can be harmful to the environment. Best international practices and standards maintained.

Mitigation	Reversibility	Extent (E)	Duration (D)	Magnitude	Probability (P)	Significance (E+D+R+M)xP
Without	5	5	5	5	4	80
With	5	5	5	5	3	60

140. Here is the presentation for the operational phase:

Table 6-2: Impact assessment during the operational phase of the project

Aspect	Mitigation Measures
ATMOSPHERIC EMISSIONS	
Climate change	Ensure that all vehicles and machines are adequately maintained to minimise any potential emissions that can be harmful to the environment

Mitigation	Reversibility	Extent (E)	Duration (D)	Magnitude	Probability (P)	Significance (E+D+R+M)xP
Without	3	5	5	4	4	68
With	3	5	5	4	3	51

141. Greenhouse gas ("GHG") emissions during the construction phase would be limited to the vehicles, plant and machinery required for clearing the terrain of vegetation, then excavations, concrete mixing, structural steel and so forth. These emissions would be a FRACTION of what they would be during the operations phase when a coal fired power station would be operating, multiple heavy industrial processes and so forth all of which are significant sources of greenhouse gas emissions individually, leave alone in combination. Yet what is presented using the significance ratings is that the climate change impact would be MORE significant during the construction phase than it would during operations. For the construction phase 'ensuring that all vehicles and machines are adequately maintained to minimize potential emissions' could have some marginal reduction in emissions, but it is incorrect in the extreme to suggest that such mitigation would have ANY benefit for operations phase emissions, yet still the effect is miraculously reduced from 68 to 51.

142. What reduces the 'score' is the reduction in probability in both instances (construction and operational) from 4 to 3. Given that the probability is multiplied in the 'equation' the 'score' is dramatically reduced by changing the probability even though there is no scientific (or mathematical for that matter) basis on which to do that. A small change in probability in the 'equation' conveniently reduces the significance to an 'acceptable' level for decision-makers to provide an authorization but there is no logic to support that reduction. In addition, and totally inexplicably, note the scores for reversibility and duration for the construction phase of the project. That impact is presented as both irreversible (Reversibility) AND permanent (Duration) for the construction phase. That is an assessment that is more or less logical although an argument could be made that given the limited duration of the construction phase, the limited emissions and the natural processes that remove carbon from the atmosphere, that a score of 4 could have been used for duration (Long term (> 15 years)).

143. For the operations phase though the assessment makes no sense whatsoever. Here a score of 3 is given for reversibility (the impact is reversible within two years after the cause or stress is removed) but the score for duration is 5 (The activity will lead to an impact that is in all practical terms permanent). It simply cannot be both of those scores as a function of the definitions and the

reality is that given the magnitude of the emissions and the length of the operations period (25 years and longer), the impact is to all intents and purposes, permanent. In summary the impact significance ratings used to assess the climate change implications of this proposed project are inconsistent, illogical, unscientific and easily manipulated and cannot be used as such by the authorities for decision-making on such a significant, globally important, issue.

III. SUMMARY

144. On the reading of the current EIAR, the Project is unviable. Without a secure and sustainable water supply, the assurance of uninterrupted and enough electricity and positive socio-economic benefits, the EA should not be authorised. Grounds for refusal are summarised below:

i. Other than very low groundwater potential, no existing water supply options exist. The infrastructure required for the supply of water to be transported long distances is complex and extremely costly. Over usage will lead to dewatering, with lowering water tables impacting on the environment, and the authorisations and existing commercial interests of others. There is no assurance that a secure and sustainable water supply can be provided.

ii. Only one of the mining rights for the nearby coal projects has been granted. The others are justifiably being subjected to a rigorous EIA and/or appeal process as the need and desirability of establishing more coal mines in the light of the climate and water crisis is extremely low. The secure supply of local coal for the EMSEZ cannot be presumed.

iii. Eskom *may be able to supply 5MW required in year one*" (our emphasis), depending on the location of the main substation for the development. Power to the EMSEZ is not guaranteed.

iv. The emissions over the lifetime of the Project will consume as much as 10% of the country's carbon budget and the conclusion of the report is that climate considerations make this project unviable. The risks are very high, and not mitigatable or adaptable to. Therefore, the current regulatory regime will not allow for implementation of the Project.

v. The introduction of the metallurgy cluster at the EMSEZ South Site will have a potentially "*substantial impact on the food security.*

vi. The significance of proposed EMSEZ operations related inhalation health impacts is considered to be very high.

vii. The socio-economic impact on surrounding communities, particularly the farming community, is expected to be negative. No reference is made to the local economies of Baobab harvesting and mopane work farming in the specialist study.

viii. The EIAR has not shown enough certainty as to the viability of the EMSEZ.

145. Based on these recommendations, it is thus possible to conclude that the Project cannot be authorised because site alternatives have not been assessed for this application; alternative sources of energy have not yet been investigated, and the availability of sustainable water and the feasibility of a biodiversity offset not determined.

IV. CONCLUSION

146. There is a lack of certainty with regard to fundamental issues such as water and electricity supply and socio-economic benefits to make the Project faces to make it reliable, sustainable or viable. There are valid concerns around the certainties of health impacts and biodiversity loss.

147. It is submitted that this application is **premature** in so far as several other applications must be made (and authorised), service agreements and lease agreements entered into and international supply agreements concluded prior to the authorisation of the clearance of 8000 ha of bushveld. This application is the proverbial putting of the cart before the horse.

148. In contrast, the certainties of the EIAR make it very clear that the Project is unsustainable and therefore, should not proceed. In essence this application comes **decades too late** given that we are now aware of the repercussions of failing to acknowledge and adapt to the climate crisis. For government to support the destruction of natural habitats, ecosystems, water resources and wipe out protected species for the development of water intensive, high-polluting noxious industry, reliant on fossil fuels is, put simply, negligent. Similarly, approval of any proposed new coal mine developments to sustain its ongoing functioning is also negligent. Climate litigation is already making precedent-setting law around the world and this project is ripe for the picking.

149. In the Rocky Hill case referred to above, the court heard detailed evidence on climate change and the global carbon budget. Around sixty community objectors, including farmers, doctors and Traditional Owners, also gave evidence on the social, cultural and environmental impacts of the mine. The court found that carbon emissions from the coal mine will contribute to global warming. Significantly, it held that it was not important that these emissions would only be a fraction of total global emissions, noting that the problem of climate change needs to be addressed by many local actions. The court also found that the mine's economic benefits had been substantially overstated.

150. In *Montana Environmental Information Centre v US Office of Mining*,[109] the US District Court found that the US Office of Surface Mining and Enforcement's (OSM) environmental assessment failed to adequately address the indirect and cumulative impacts of greenhouse gas emissions for expansion of the mine.[110]

[109] 274 F. Supp 3d 1074 (D Mont, 2017)
[110] Ad para 1099

151. In *Urgenda Foundation v The State of the Netherlands*,[111] the Hague District Court rejected the Dutch government's argument that the Dutch contribution to worldwide emissions is only small because

> *"it is an established fact that climate change is a global problem and therefore requires global accountability. It follows from the UNEP report that based on the reduction commitments made in Cancun, a gap between the desired CO2 emissions (in order to reach the climate objective) and the actual emissions (14-17 Gt CO2) will have arisen by 2030. This means that more reduction measures have to be taken on an international level. It compels all countries, including the Netherlands, to implement the reduction measures to the fullest extent as possible. The fact that the amount of the Dutch emissions is small compared to other countries does not affect the obligation to take precautionary measures in view of the State's obligation to exercise care. After all, it has been established that any anthropogenic greenhouse gas emission, no matter how minor, contributes to an increase of CO2 levels in the atmosphere and therefore to hazardous climate change. Emission reduction therefore concerns both a joint and individual responsibility of the signatories to the UN Climate Change Convention…Therefore, the court arrives at the opinion that the single circumstance that the Dutch emissions only constitute a minor contribution to global emissions does not alter the State's obligation to exercise care towards third parties...*[112][our emphasis].

152. In *Fuel Retailers*, the Court noted that:

> *"[t]he role of the courts is especially important in the context of the protection of the environment and giving effect to the principle of sustainable development. The importance of the protection of the environment cannot be gainsaid. Its protection is vital to the enjoyment of the other rights contained in the Bill of Rights; indeed, it is vital to life itself. It must therefore be protected for the benefit of the present and future generations. The present generation holds the earth in trust for the next generation. This trusteeship position carries with it the responsibility to look after the environment. It is the duty of the Court to ensure that this responsibility is carried out."*[113]

153. The Project is unsustainable, and EA will result in irreparable harm, both as a direct result of the authorisation for the clearance of 8 000ha of vegetation, and in the long-term as the EMSEZ develops.

154. The EIAR itself states that this authorisation should only be granted if:

i. No alternative site(s), with significant less environmental sensitivity that may be suitable for such a type of development in the bushveld, can reasonably be identified and acquired.

ii. Sustainable affordable water supply is secured and guaranteed for the proposed development.

iii. It is a condition of authorisation that an approved biodiversity offset strategy and implementation plan be implemented (and yet this offset strategy is deeply flawed).

[111] C/09/456689/HA ZA 13-1396, 24 June 2015
[112] Ad para 4.79
[113] Ad para 102

iv. Alternative sources of bulk energy supply to the proposed SEZ site are further investigated and it reasonably be confirmed that no other sustainable and affordable energy supply solution exists. The mere fact that the site is located within the coal belt cannot be the main reason for developing another coal-fired power station as energy source for the SEZ development.

v. An avifauna assessment is also undertaken for the designated site to verify light paths and raptors which may nest on the project site and be collected for relocation to a suitable new site as an integral part of the Biodiversity Offset strategy.

vi. It is a condition of authorisation that the specialist recommendations made in this EIA report and in the respective specialist studies and as summarised in the EMPr, be strictly implemented and be adhered to.

vii. As a condition of authorisaiton site-specific EIAs, permits, and licences for bulk infrastructure services and specific investor industrial plants need to be undertaken and be authorised prior to development taking place. We take this further and submit that all these site-specific EIAs, permits, and licences be applied for and authorised prior to the authorisation of the clearance of the vegetation as contemplated in this EAIR.

155. Based on these recommendations, it is thus possible to conclude that the Project cannot be authorised because site alternatives have not been assessed for this application nor have alternative sources of energy been investigated, the availability of sustainable water known and the feasibility of a biodiversity offset determined.

156. The EIAR details huge contradictions between the promotion of mining and noxious industry[114] and the enormously negative impact it will have on climate, tourism, food security, human health and water security. The climate impact assessment, supported by Prof B. Scholes, confirm that this project is unviable from a climate impact perspective.

157. In the words of Mukhisa Kituyi, Secretary-General of the United Nations Conference on Trade and Development, "*today, sustainable development – as embodied in the UN Sustainable Development Goals – must guide SEZ strategy and operations. In a break from the past, adopting the highest social, environmental and governance standards for zones is becoming a competitive advantage*."[115]

158. In another Australian case, Hub Action Group v Minister for Planning (2008),[116] the judge observed that:

> "*The principle of sustainable use of natural resources involves the exploitation of natural resources in a way which is sustainable in the long-term and which reduces environmental harm. It involves consideration of the effects of use on all natural resources, certainly the effect*

[114] EIAR, p48
[115] UNCTAD Report, p iv.
[116] 161 LGERA 136; [2008] NSWLEC 116 at [70]

of the use on the resources the intended subject of the activity but also the effect that the use of those resources might have on the sustainable use of other resources."

159. The acceptability of a proposed development on a natural resource depends not on the location of the natural resource, but on its sustainability. One of the principles of ecologically sustainable development is the principle of sustainable use – the aim of exploiting natural resources in a manner which is 'sustainable' or 'prudent' or 'rational' or 'wise' or 'appropriate'.

160. This EMSEZ will have significant negative social impacts on people's way of life; community; access to and use of water, infrastructure, services and facilities; culture; health and wellbeing; surroundings; and food security.

161. The EMSEZ will be a significant source of GHG emissions and contribute to climate change. Approval of the project will not assist in achieving the rapid and deep reductions in GHG emissions that are needed now to achieve the generally agreed goal of limiting the increase in global average temperature to well below 2ºC above pre-industrial levels.

162. By reason of these various impacts, the SEZ will have significant impacts on, and be incompatible with, the existing, approved and likely preferred uses of land in the vicinity of the SEZ.

163. In short, the development of the EMSEZ would be in the wrong place at the wrong time. Wrong place because a noxious energy cluster of this magnitude in this scenic and cultural landscape, proximate to many people's homes and farms, will cause significant planning, amenity, visual and social impacts. Wrong time because the GHG emissions of the SEZ, the surrounding coal mine and its products will increase global total concentrations of GHGs at a time when what is now urgently needed, in order to meet generally agreed climate targets, is a rapid and deep decrease in GHG emissions. These dire consequences should be avoided and therefore, the Application for EA should be refused.

164. Lastly, we request that I&APs are provided with access to a complete copy of the final BAR, inclusive of the EMPr, I&AP Comments & Response Report and all other appendices that will be submitted to the LEDET for consideration, indicating the wording that has been inserted or amended in the final version of the reports in a different coloured text for ease of reference. This is considered good practice and is increasingly being done by EAPs.

Yours faithfully,

(Signed electronically)
Kirsten Youens & Janice Tooley