

WA Climate Change Policy – Broome Community submission response – 29 Nov 2019

Introduction

We appreciate that the WA Government has invited submissions from the community on this extremely important topic. A group of Broome locals recently got together to discuss climate change from a Kimberley perspective. This joint submission is based on the points raised at that discussion and subsequent discussions. 77 Broome locals have signed this submission - our names and contact details are at the end of our submission. We would like to be kept informed about the outcomes of this consultation and the steps that follow. Thank you.

What deeply concerned us is that the WA Government acknowledges at the beginning of the Issues paper that WA has been impacted severely by climate change – ‘more than almost any other place on the planet’ - and acknowledges that these impacts will continue in the future. But then, the content and framing of the issues paper, makes it obvious that the WA Government is proposing only to aspire to reduce climate change causing emissions (seemingly without a clear strategy to realise this) and intends to exempt the very industries that are causing climate change. Obviously, this will not work.

WA is the only state with significant rising greenhouse gas emissions, which have risen by more than 23% since 2005 (almost entirely driven by the fossil fuel industryⁱ). Ironically and unacceptably, it also remains one of only two Australian states or territories without a renewable energy target or a mandated emissions reduction target.

Earlier this year, the WA Government announced only an **aspirational** net-zero emission target for EPA assessed major projects, which does not refer to state-wide or whole-of-government policy. We unanimously found this totally unacceptable and urge the WA Government to mandate both a renewable energy target and an emissions reduction target at a whole of WA level as a matter of urgency.

It is of National and International embarrassment that instead of acting urgently to reduce emissions, the WA Government accepts that “new resource sector proposals are likely to drive increases to WA’s emissions in the short term”ⁱⁱ WA now lags behind the rest of Australia ‘...*all other Australian states and territories have emissions reductions targets and/or renewable energy targets that are more ambitious than Commonwealth targets.*’ⁱⁱⁱ

It is imperative that Western Australia immediately begins the crucial and well overdue reform of WA’s 2012 climate policy to reduce to net-zero emissions as quickly as possible by legislating (as have QLD, TAS, SA) a clear trajectory outlining the timelines and outcomes that result in net-zero emissions by 2050.

Some signatories to this joint submission feel that the IPCC target of net-zero emissions by 2050 is inadequate, particularly given the WA Government’s inaction to date, which has seen net emissions increase instead of decrease. Others strongly believe that all carbon polluting industries should be phased out as soon as possible and no new carbon polluting industries or developments should be allowed.

The issues paper accepts that climate change impacts are inevitable (not surprising given that it doesn’t intend to limit carbon emissions) and is heavily biased towards adaptation to the consequences of an industrial ‘business as usual’ scenario. It does not present any clear plan or strategy as to how emissions can be avoided, managed or reduced.

This is not good enough. The science is clear and verified by credible scientific agencies. This is larger than politics and the actions needed now will take longer than many election cycles. This is the most

pressing issue humans have ever faced (and caused) and this climate policy and the actions and outcomes it mandates must be informed by science, not politics. These actions and outcomes will involve massive structural changes that only governments are in a position to enforce. We ask this government to please begin this as soon as possible.

Future forecasts indicate negative trends will continue in all scenarios except those that embrace radical change across society, politics, economics and technology... Business as usual with small adjustments won't be enough.^{iv}

The Kimberley already has unacceptably high rates of poverty, dispossession and disadvantage, with associated chronic ill health, drug and alcohol abuse, domestic violence, high rates of unemployment and suicide. The new WA Climate Change policy must include whole-of-government strategies and targets to minimise existing inequities, as well as anticipate, reduce, and ideally, prevent, Kimberley Aboriginal people from being unjustly impacted any further.

The new climate change policy must also address intergenerational equity and include strategies to reduce climate change impacts on future generations. Our current inaction is reducing their future choices and they will bear the brunt of cumulative impacts of climate change.

Transforming Energy Generation (500 word limit per question)

1. What are the main challenges for decarbonising Western Australia's electricity supply while ensuring adequate generation capacity, security and reliability?

The northern areas of the State are some of the most solar resource-rich areas of the world, yet most electricity is still generated by burning oil and gas. The use of air-conditioning, perverse government subsidies and inefficient buildings means that NWIS and Kimberley residents spend significantly more on electricity than anywhere else in the State or the nation. The ability of consumers to reduce costs is almost completely stifled by the ban on new household solar by Horizon Power, the lack of alternatives and the low rate of home ownership. The largest users of electricity in northern towns are often State Government agencies like schools and hospitals as well as local government – these costs are both subsidised and met by the State Government so there is little incentive to either reduce use or install new emissions-reducing technology.

The predicted increased intensity of fire, rain and cyclones increases the risk of towns being cut off more often and longer from access to gas to run the existing turbines. Continuing to supply electricity on larger, centrally driven grids will pose significant risks to continuous supply.

2. What are the most effective ways to overcome these challenges by 2030?

The decentralised electricity network in Western Australia provides an excellent opportunity for the State to become a world leader in renewable-based micro-grid technology, save the State taxpayers millions of dollars a year in electricity subsidies, create thousands of new jobs in the regions, and drive down the costs of electricity for consumers.

In order to achieve the 2050 net-zero target the State must rely on complete decarbonisation of electricity generation in the near term – it is the cheapest and easiest way of quickly reducing carbon emissions. To achieve the goal the State must:

- get ahead of the rest of the pack by setting firm, staged targets between now and the 2050 zero emissions to drive change. Horizon Power's abysmal 2050 carbon reduction target is simply too little, too slow
- focus on the 'low hanging fruit' efficiency measures, both in design and retrofitting to ensure that all new and existing buildings minimise electricity consumption
- in regional areas, allow local government, organisations, businesses and community-owned renewable projects to drive change by being able to enter the electricity supply market through renewable power generation

The most effective way of achieving the goal is to:

- structure all State Government activities around the goal and use local creativity and initiatives to generate local solutions – for example, schools are encouraged to reduce electricity costs and can reinvest the savings into school activities.
- support and subsidise investment in innovative and experimental generation and management technology – both large and small-scale to build local expertise and kick-start an industry

4. How fast do you think the transition of the electricity sector should occur?

The complete transition of the electricity sector should occur by 2030 – this will give the State a first-mover advantage and increase the opportunities to export new technology and know-how in micro-grid management across the world. It will also act as an economic stimulus for depressed regions, bringing new jobs and opportunities to places outside the metro area, and reducing the long-term electricity subsidy costs for the State.

Future mobility

1. What are the barriers to purchasing a low-emissions vehicle for your household or business?

The high cost of electric cars is prohibitive and to purchase one is only an option for well-off individuals or households. (eg The Hyundai Kona Electric SUV one of the cheapest electric cars suitable for the Kimberley, currently costs between \$60 and \$65K).

In small country towns, especially in non-tourist seasons, small, fuel-efficient electric minibuses or small buses could provide public transport cheaply, regularly and efficiently. Trials could establish most popular times and routes and how much people can/will pay. Without reliable, regular and affordable public transport, people become more car reliant, and people without their own cars become dependent on taxis. In Broome the only public transport is a bus that takes a circular route to shops and popular tourist destinations and accommodation. During the off-season the bus runs once an hour, between 9 am and 6 pm, with many unoccupied seats.

2. What can be done to facilitate the uptake of electric and other low-emission vehicles in Western Australia?

The Government could introduce subsidies and other incentives like salary-sacrificing purchasing options to make purchasing an electric car more affordable. WA State Government fleets could be transitioned to electric vehicles. The WA Government could introduce strategies and subsidies to encourage shared vehicle purchases and use between people, neighbourhoods, organisations and agencies.

3. How can we further encourage the use of public transport and active transport, such as walking and cycling?

State and Local Governments could make part of Town Planning regulations that paths and bicycle pathways are designed and built appropriately to the local conditions to encourage bicycle transport and walking, e.g. Broome could provide more shade trees along roadsides.

All council workers and State Government workers should be encouraged to walk to work and rewarded with bonuses – financial, time off in lieu, gift vouchers.

Offer children who participate in a pedestrian bus (all kids walk together to school or with a different adult each day to accompany them) with a stamp system offering rewards when they reach targets. Similarly, when kids ride their bikes offer incentives – bicycle helmets, free bicycles, water bottles etc. Encourage schools to compete against other schools as to the number of students who walk or cycle to school.

Broome is flat and other than the heat, which is prohibitive for several months of the year, the other issue is safety. Many children and women feel unsafe riding their bicycles after dark. Install proper bicycle paths that could have sensor trigger solar lights that only light up at intersections or other spots where cyclists may have to stop.

- Have police on bicycles patrolling the streets at night – to increase safety.

- Offer workplace incentives whereby when x number of employees walk or cycle to work, the workplace participants get free passes to the movies or the sports centre. Provide staff bonuses for those who reduce their private vehicle use.
- At shopping centres and central locations, have bicycle lock-up cages (like at train stations in Perth) so people can lock up their bicycles without worrying about theft or damage.
- Every single town or city re-vamp (like Broome’s recent Chinatown revitalisation) must have public transport and walking and cycling KPIs that must be met at the design stage or they don’t get approval or funded.
- In hot towns – that we know are only going to get hotter – have more public water fountains built over shaded rest areas.
- Offer subsidies to poor and disadvantaged people for free or cheap bicycles. Instead of offering free flights once a year – instead offer a free bicycle, or cheap bicycle servicing, or free bus rides in the local minibuses.

4. How can we ensure that Western Australia isn’t left behind in the transition to cleaner transportation?

The WA Government needs to demonstrate responsible leadership with legislated targets and enact these through innovative, future-focussed initiatives and policies that include public education, incentives, and subsidies to assist everyone to participate in the transition.

Regional prosperity

1. How will climate change affect your regional community?

Global temperature increases of 1.5 or 2 degrees above pre-industrial levels will have dramatic impacts on human health, the ecosystem and the economy. The IPCC has found that human-induced warming reached 1 degree above pre-industrial levels in 2017.^v

The 2018-19 summer heatwave across the Kimberley ‘was classified as an ‘extreme heatwave’, the highest intensity and rarest heatwave defined by the Bureau of Meteorology (BoM).^{vi}

Under current government policies, in Broome days over 35 degrees would go from an historical average of 81 days per year to a maximum of 147 days by 2030, 195 days by 2050, 244 days by 2070...^{vii}

Impacts on People

These significantly increased temperatures will have widespread impacts on Kimberley towns and communities which will have serious implications for virtually every aspect of people’s lives, although it will affect people disproportionately depending on their socio-economic status. The most worrying impacts will be on people’s physical and mental health – high temperatures being associated with higher rates of domestic violence^{viii} and psychological distress – which is often both a cause and a symptom of increased alcohol and drug use.

The likelihood is that the hotter temperatures in a tropical environment will increase the number of mosquito-borne viruses and incidence of transmission to humans.

When hot days are combined with hot nights, heat load and stress carry over and the body has no opportunity to cool down and recover. The number of hot days in the Kimberley will be accompanied by an even greater increase in the frequency of extreme summer nights.^{ix}

As the temperature increases, during the days and at night, people will stay indoors more often and for longer. They will use more air-conditioning, rely more on cars instead of walking or bicycling, people will want to leave the Kimberley more often and for longer, probably by plane. Outside work will become increasingly uncomfortable and productivity will decrease. It will be harder to attract workers to the Kimberley, and transience will increase.

The poorest will be the hardest hit by increased electricity and fuel costs, and most impacted by isolation, limited mobility, and reduced availability of manual work. Power outages, which are more common in extreme weather events, will impact on people’s ability to escape the heat, and the sick, elderly and very young will be particularly affected by these.

Increased temperatures are also associated with hotter and more frequent fires, which has severe impacts on the already vulnerable – e.g. asthma, other lung problems.

The health impact of increasing extreme heat can include both direct illnesses such as heat exhaustion and indirect illnesses such as heart failure and even death.^x

Like elsewhere in the world, those who have benefitted the least from the industries that have produced and profited from the production of carbon, will be the most negatively impacted.

The group of people who have participated in preparing this submission live in Broome. Given limited capacity to voluntarily respond to the submission, our responses focus mainly on Broome, but of course the negative impacts of temperature increases for nearby towns and communities is something we are very concerned about and will have impacts on many Broome residents who visit Derby and Fitzroy Crossing for work, recreation and to catch up with family.

Under a business as usual (BAU) scenario on greenhouse emissions, the CSIRO projects that Derby could experience as many as 41 days over 40 degrees per year in 2030...compared to the current average of currently 14 days per year from 1981–2010.^{xi}

Many non-Aboriginal people live in the Kimberley despite the hot wet seasons because of the lifestyle. Increased temperatures over longer periods will dramatically affect this. Popular recreational activities for both Aboriginal and non-Aboriginal people like fishing, boating, camping, walking, going to the beach etc would be restricted both in times of day and times of year that these were still enjoyable.

A future of such extreme heat days matched with high humidity represents a serious threat to the wellbeing of people in the Kimberley region and to Australia's wider population. The rise in extreme heat increases irritability and psychological stress, and can lead to heat-related illness and death.^{xii} Hot weather affects patterns in domestic violence,^{xiii} interrupts sleep patterns and reduces capacity and willingness to exercise.

The IPCC scenarios for global climate action range from RCP 2.6 (low emissions) to RCP 8.5 (high emissions/current government policies). *'RCP 8.5 is the current trajectory due to the failure of most polluting governments to implement necessary climate policies.'^{xiv}*

Impacts on the environment

2. What steps can we take to further enhance the resilience of our regions and our primary industries?

- People must be supported and assisted to access renewable energy.
- All workplaces need to consider flexible work hours to make the most of cooler times including the option of a 'siesta' during the hottest times of the day and when the UV is at its highest.
- We need to measure the urban heat island effect – all future planning should be based on these measurements and include strategies to reduce it.
- Town planning and local building regulations should restrict the amount of bare concrete and brick and instead offer incentives and financial subsidies to assist people, the building industry, planners and local government to increase the amount of climate suitable vegetation to help cooling and provide shade, in towns and communities. For example, recent new roundabouts in Chinatown – instead of providing shade and cooling with lush native vegetation were built with more brick.
- Black bitumen should be replaced with paler surfaces to reduce the significant heat given off by black surfaces. The recent award-winning 'Revitalisation of Chinatown' could have included road surfaces built from solar-powering glass.
- Cooling-off stations – ice cold water to drink, fans and pay-as-you-go solar-powered air-conditioning.
- The WA Government needs to work with local governments and communities to ensure that more regional and remote communities are assisted to become more self-sufficient in food. Kimberley towns and communities are particularly vulnerable to food shortages and inconsistencies during erratic weather events and fires because the vast majority of food is trucked in. When trucks can't get through, the fresh-food shelves in supermarkets are empty within two days.

- State and Local Planning – all buildings should be climate-friendly.
- Invest in upskilling community for future industries and climate environmentally friendly practices and start this at school so children and young people grow up learning about this and are ahead of current thinking.
- The changes to the Local Government Act are an important opportunity to ensure that local governments take measurable steps to ensure that all is done to reduce carbon emissions immediately, including binding regulations and policies to support and strengthen these measures. New economies must be promoted, by subsidising if necessary.

3. How can we support the agricultural sector to participate in the low-carbon transition?

- The WA State Government needs to be encouraging local, environmentally friendly farming – smaller scale, not monoculture. European based urban farming of foreign hybrids, which were never intended for Australian soils, require more (fossil fuels) fertilisers and pesticides.
- Moving away from live export trade as it is land, water and energy-intensive – for very little caloric output.
- Diversifying local agriculture to incorporate bush foods, and supporting Indigenous people and local farmers to do so.
- The WA Government should insist that all agricultural activities incorporate carbon farming and a carbon credit system, which could be traded or sold to contribute to a WA emissions target – which WA should introduce immediately. The Kimberley is particularly well suited to fire management and revegetation (including from livestock damage to native ecosystems) based carbon farming.

4. What opportunities do carbon offset markets present for Western Australian land managers, including Aboriginal groups?

We currently have only private carbon offset markets and it is a failure of Federal and State Governments that State Governments only have limited power to enforce national standards re carbon offsets. There is no clarity or consistency.

5. What matters should the State Government take into account in developing a strategy for carbon farming in Western Australia?

A legislated target that mandates coordinated efforts between the WA Government, Industry, Aboriginal Native Title Holders and Land Managers, NGOs and individuals coordinating carbon farming activities. This coordination would include employment opportunities, training, and expertise sharing across regeneration, tree planting, burning and carbon protection opportunities and projects.

Waste reduction

1. What areas can we target to further reduce greenhouse gas emissions from waste?

State Government approvals for industrial developments, manufacturing and imports must include requirements that those who profit from these, must include all costs to recycle associated waste, including the gas emissions produced during the life-cycle of the product, development or industry.

2. What can households, businesses and government do to reduce their waste and compost more?

Whilst we thought that there could be vastly improved incentives to encourage waste reduction (see immediately below) we felt that this was not the priority when addressing climate change emissions. Some waste suggestions included:

- More local recycling and waste streaming.
- Education programs to encourage recycling.
- Local plastics recycling.
- Incentives for reusing and upcycling.
- Not allowing plastics into Broome that can't be recycled.
- Woolworths and Coles and all major suppliers (Bunnings, Coke, beer companies) to be responsible for all their own waste.
- Ratepayers should not be paying for the recycling at the tip when those who made profits do not.
- Small and remote communities to receive assistance to increase recycling options.
- Legislated container deposit scheme to be introduced immediately.

- Ban junk mail.

Safe & healthy communities

1. What are the main climate risks for your household or your community?

- That the WA State Government and the Australian Government ignore science and irresponsibly insist on ‘business as usual’ and do not stick to the Paris Agreement.
- If the WA Government does not legislate immediately to limit carbon emissions and make the carbon polluters ‘pay’ for the damage they cause.
- If this Government doesn’t show appropriate leadership commensurate with the impacts of climate change and legislate the transition to clean energy now.

1a) What can be done to manage these risks?

The people of Western Australia choose to vote for a government that acts in the best interest of WA in the medium to long term, a government that is prepared to act decisively now with a future in mind that has stabilised the climate for the benefit of its people and environment.

2. What are your biggest concerns about Western Australia’s future climate?

That the WA Government ignores this opportunity to start immediately building for a more just future for its people and environment, instead choosing climate inequity and the degradation of our unique and precious environments and native species, and acting as if this is inevitable collateral damage from the necessary subsidising and propping up of polluting industries.

3. What could be done to ensure your community is better prepared for possible climate impacts?

Access to locally generated electricity. Funding to support local initiatives to educate and engage people about climate change and what can be done to stop, slow or lessen the rate of climate change. Subsidies to allow more people to access renewable and climate-friendly technologies and services. State Government funding to regional areas to include carbon-reducing initiatives as a funding criterion. Reduced taxes and charges for services and initiatives that reduce carbon pollution.

Water security

1. What can we do to encourage Western Australians to use water more efficiently and adapt to a drying climate?

With the carbon footprint of the Canning Basin’s unconventional gas resources being equivalent to about double the whole of Australia’s carbon budget under the Paris Agreement, water extraction to be used for the hydraulic fracture stimulation needs to cease immediately. Large volume water extraction for industries like unconventional oil and gas should not be permitted in a drying climate nor should any potential risky industry that threatens our water security be allowed to continue.

2. What are the best management options to deal with water security implications of climate change for our agricultural sector?

No new mines, or industries including broad-scale agriculture, which demand large volumes of groundwater or extraction of water from freshwater rivers. (Murray-Darling River – never to be repeated).

Liveable towns & cities

1. What are the key barriers to improved energy efficiency for our built environment?

Lack of leadership and political will to make overdue changes to mandatory building regulations. All new buildings and renovations should be subject to strict environmental and climate standards – including reducing embedded carbon in materials, design and construction to be regulated ensure that all aspects of construction and fitting and environmentally friendly and as least carbon-producing as possible.

Towns and cities are still being built based on car dependency. The WA Government continues to subsidise private vehicle use at the expense of investment in public transport. Frequent, reliable, affordable public transport alternatives should be legislated. Likewise, car-free pedestrian areas, walk/cycle dual pathways to

encourage and safeguard people walking and cycling. Not like in Broome, where ‘pedestrians give way to vehicles’!

2. What information or tools do you require to improve energy efficiency in your household or workplace?

There should be free and easily accessible support and services for anyone – individuals and/or businesses to get their existing houses and/or workplaces audited for environmental and climate efficiency. This audit should also list changes that could be done to improve these and a subsidy should be made available to assist anyone who wants to make these changes.

3. What energy efficiency standards or disclosure measures do you support for our homes and offices and the appliances we use in them?

The star rating system is good but needs to be improved and updated. The WA Government could introduce a transition for industry and imports to phase out energy-intensive appliances to reflect new technologies and new standards. Subsidies could be offered to people based on amount of carbon saved from more efficient appliances. The WA Government might encourage individuals, streets, neighbourhoods, towns and communities to compete in a similar way to the Tidy Town competitions, as to who could reduce their carbon footprint the most.

WA Local Governments, and all State Government agencies and funded bodies, need to model best practice with regard to carbon control, which is the opposite of current practices. State Government workers in the Kimberley receive substantial power rebates for approximately 6 months of the year – so many leave their air conditioning on all the time because they don’t have to pay much to do so.

All Local Governments or Shires should have staff dedicated to providing free advice to their communities, local businesses and industries about carbon reduction technologies and subsidies. They could provide advice and practical support to local carbon reduction initiatives and activities in their local communities.

4. How do you think climate change will affect the liveability of your neighbourhood or region?

If governments don’t act responsibly and climate change isn’t curtailed, and temperatures increase in Broome as predicted, it will decrease the liveability of neighbourhoods and the region. People enjoy Broome because it is flat and easy to walk or cycle around. People in Broome love outside activities and they wouldn’t be able to do as many, as often. People would spend more time inside and become more sedentary, which in turn would lead to higher rates of ill health. A lot of people leave Broome because of the heat as it is. If Broome becomes hotter, fewer people will want to stay which would increase transience, which in turn affects liveability, employment patterns and strength of community.

Broome’s economy relies on tourists; increased temperatures, higher fuel costs (both to get here and to travel whilst here) will discourage tourists and restrict them to the coolest months.

If Broome becomes a lot hotter as predicted, people will be less likely to live here year-round which will make it harder for certain businesses and service organisations to remain in Broome, which will, in turn, reduce services and the liveability of the town.

5. How can we improve the retention of vegetation, particularly tree canopy, in our cities and suburbs?

Broad-scale replanting of local species adapted to the climate that are strong and resilient. Local food trees such as gubinge, wild bananas, cocky apples and many other native and local species provide healthy food. Some non-local fruit and nut trees are also hardy when grown from local seed stocks, for example, cashews and mangoes.

Local Government to introduce incentives for people who plant and retain native trees on their properties and who plant vegetation on their verges.

Fund local practical education about growing food, native plants, vertical gardens on their properties

Support community gardens.

Resilient infrastructure & businesses

1. What are the key climate risks for the primary industry or resources sectors?

One key risk is that the public is going to become increasingly angry about the huge subsidies that both the Federal and State Governments give to the resources sector, who continue to ignore science and make profits at the expense of the planet and people.

The Australia Institute claimed that if tax concessions provided to mining companies were included, Federal Government subsidies in 2013 were just under \$5 billion and this ‘...doesn’t include any state-based subsidies or concessions’^{xv}.

In 2014, the WA Government spent \$6 billion in subsidies for the mining industry. *‘The Western Australian Government has spent about as much money as it spent on its police force. So, these are enormous sums of money...Dr Denniss says there is no logic to subsidising mining, as the companies will go to whichever state has the best natural resource deposits...’^{xvi}*

Many members of the public are already demanding that taxpayers’ money immediately stop propping up these unsustainable industries and instead a carbon tax and emissions limits be immediately applied.

Protecting biodiversity

1. Can existing land use and biodiversity management practices be modified to reduce vulnerability and improve resilience?

Global warming is the third biggest factor driving species extinction after changes in land and sea use and the direct exploitation of organisms, according to the report by the UN’s biodiversity science body IPBES...Though some ecosystems act as better sponges than others. Coastal habitats, such as mangroves, sea grass and salt marshes can soak up carbon up to 40 times faster than tropical forests.^{xvii}

The (IPBES) report acknowledges current conservation strategies, such as the creation of protected areas, are well-intended but inadequate. Future forecasts indicate negative trends will continue in all scenarios except those that embrace radical change across society, politics, economics and technology... Business as usual with small adjustments won’t be enough.^{xviii}

The Kimberley offers a huge opportunity for biodiversity protection and restoration by continuing to learn from Aboriginal land management practices and knowledge, and by increasing the numbers of rangers working in partnership with ecology-trained scientists. Many Aboriginal communities and individuals are still reeling from the negative impacts of European colonisation and subsequent policies. By supporting partnerships and working relationships based on recognition of Aboriginal cultural and ecological wealth, Aboriginal land management is the foundation upon which to base and build a Kimberley response to climate change.

Globally biodiversity is in decline, and like many other areas, climate change is inevitably going to have significant impacts on biodiversity in the Kimberley. If the increased heat is associated with a drier climate or changing weather patterns, this will further impact already vulnerable and threatened species and ecological communities. Recent, post-colonial agricultural practices in the Kimberley, including free-ranging cows for beef, have a devastating impact on large areas of native vegetation — especially to waterways, soil compaction and weeds. Pastoralists need to be supported with incentives, subsidies, education and retraining. As a condition of being granted a pastoral lease, they should continually improve their practices, including protecting biodiversity and water, and reducing carbon outputs.

Riparian and savannah ecosystems act as carbon stores and must be protected.

A number of people who took part in the informal community discussion which resulted in this submission, want large-scale cattle farming in the Kimberley phased out, and live export of cattle banned, because of the impacts of cattle on native vegetation and ecosystems, the cruelty of sending animals long distances to be slaughtered and because the meat industry is a huge contributor to climate change.

...the production of red meat from cows, sheep and goats is one of the biggest contributors to climate change, producing more emissions globally than transport.^{xix}

...our red meat industry largely export-based, so there is little national remit in terms of emissions...^{xx}

Even the Meat and Livestock Australia (MLA) has committed to bringing Australia's red meat industry to carbon neutral by 2030; this again highlights how inadequate and behind the times the WA Government's aspirational target of being carbon neutral by 2050, actually is.

Whilst significant areas of Kimberley's native vegetation and waterways have been impacted by cattle, much of it is still largely intact – there are few large areas of permanently cleared bush and small-scale developments that have reduced its resilience to some degree. Many tourists, visitors, scientists from around Australia and the world marvel at how intact it seems compared to many other regions. It is well documented that fragmentation of landscapes or ecosystems decreases their resilience. The WA Government must consider all proposals for development for any purpose and assess them as to the degree of fragmentation and degradation they would cause. If the WA Government is serious about increasing resilience, it will refuse to allow any developments or activities that either cause or contribute to further fragmentation of any ecosystem or ecological community.

2. Are there opportunities for new collaborations with landholders or communities to address climate risks and improve biodiversity outcomes?

New opportunities are possible through assets already in existence, such as biodiversity, environmental and river flows, cultural strengths. With new infrastructures such as an array of renewable energy generation forms, this offers a new economic approach to build an 'at scale' economy from the ground up. The idea is connecting strengths across pre-existing networks. Social and cultural networks are strengths to build upon for resilient Kimberley futures.

ⁱ Climate Analytics, 'Western Australia's Gas Gamble - Implications of natural gas extraction in WA' (Report, March 2018) <<https://climateanalytics.org/media/climateanalytics-report-westernaustraliasgasmble-2018.pdf>>.

ⁱⁱ Government of Western Australia, Issues Paper: Climate Change in Western Australia, page 7.

ⁱⁱⁱ EDO Issues paper – Climate Change in Western Australia, November 2019

^{iv} The Guardian, 'Human society under urgent threat from loss of Earth's natural life', by Johathan Watts, 6 May 2019, <https://www.theguardian.com/environment/2019/may/06/human-society-under-urgent-threat-loss-earth-natural-life-un-report?fbclid=IwAR3oThPV-IT2PdekFSNqu2kQj0ndb9yx0EP7T4TOdG-BJscpOMpXqs8IBxU>, downloaded 23 Nov 2019.

^v IPCC (2018) Global Warming of 1.5 °C, p 1:4, <https://www.ipcc.ch/report/sr15/>

^{vi} BOM (2019) Special Climate Statement 68- widespread heatwaves during December 2018 and January 2019, 33.

<http://www.bom.gov.au/climate/current/statements/scs68.pdf> as cited by The Australia Insitute (2019) *HeatWatch Extreme heat in the Kimberley* report.

^{vii} The Australia Insitute (2019) *HeatWatch Extreme heat in the Kimberley* report, Page 10.

^{viii} Auliciems and Di Bartolo (1995) Domestic violence in a subtropical environment: police calls and weather in Brisbane. International Journal of Biometeorology 39 (1) as cited by The Australia Insitute (2019) *HeatWatch Extreme heat in the Kimberley* report, Page 8.

^{ix} The Australia Insitute (2019) *HeatWatch Extreme heat in the Kimberley* report, Page 28.

^x The Australia Insitute (2019) *HeatWatch Extreme heat in the Kimberley* report ANU report, page 35

^{xi} Ibid, page 21

^{xii} Queensland Health (2015) *Heatwave Response Plan*.

https://www.health.qld.gov.au/__data/assets/pdf_file/0032/628268/heatwave-response-plan.pdf as cited by The Australia Insitute (2019) *HeatWatch Extreme heat in the Kimberley* report, page 8

^{xiii} Auliciems and Di Bartolo (1995) Domestic violence in a subtropical environment: police calls and weather in Brisbane. International Journal of Biometeorology 39 (1) as cited by The Australia Insitute (2019) *HeatWatch Extreme heat in the Kimberley* report, Page 8.

^{xiv} The Australia Insitute (2019) *HeatWatch Extreme heat in the Kimberley* report, Page 9.

^{xv} ABC Rural, 'Mining subsidies top \$4.5bn: Australia Institute', by Flint Duxfield, 25 June 2013, <https://www.abc.net.au/news/rural/2013-06-25/nrn-dist-mining-subsidies/4778042>, downloaded 24 Nov 2019

^{xvi} ABC AM, 'Mining industry receives billions of dollars in state subsidies: report' by Simon Frazer, Rachael Brown and staff, 24 June 2014, <https://www.abc.net.au/news/2014-06-24/mining-industry-receives-billions-of-dollars-in-state-subsidies/5545714> downloaded 24 Nov 2019

^{xvii} Summary for Policymakers IPBES Global Assessment Report, May 2019, https://www.dropbox.com/sh/yd8l2v0u4jqtp3/AACpraYjOYWpTxAFv5H-2vrKa/1%20Global%20Assessment%20Summary%20for%20Policymakers?dl=0&subfolder_nav_tracking=1 downloaded 26 Nov 2019

^{xviii} The Guardian, 'Human society under urgent threat from loss of Earth's natural life', by Johathan Watts, 6 May 2019, <https://www.theguardian.com/environment/2019/may/06/human-society-under-urgent-threat-loss-earth-natural-life-un-report?fbclid=IwAR3oThPV-IT2PdekFSNqu2kQj0ndb9yx0EP7T4TOdG-BJscpOMpXqs8IBxU>, downloaded 23 Nov 2019.

^{xix} Gerber, P. et al., 2013. Tackling climate change through livestock – A global assessment of emissions and mitigation, Rome: Food and Agriculture Organisation of the United Nations (FAO).

^{xx} The University of Sydney, [Sydney Environment Institute](http://sydney.edu.au/environment-institute/blog/australia-need-tax-red-meat/), Opinion – Does Australia Need a Tax on Red Meat? Anja Bless, <http://sydney.edu.au/environment-institute/blog/australia-need-tax-red-meat/>, downloaded 22 Nov 2019

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