

29<sup>th</sup> November, 2020

Re : Submission on Climate Change in WA Issues Paper

Climate Change Consultation

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Department of Water and Environmental Regulation

Locked Bag 10, Joondalup DC, WA 6919

Dear Consultants:

Please accept my submission on the Climate Change in WA Issues Paper.

**Climate change is the most important issue facing the world today. Without urgent action now, we face mass ecosystem collapse and the associated extinctions of plant and animal species which will affect the well-being and survival of mankind.**

We can no longer sit back and conduct business as usual. We must strongly and quickly. People at home, in business and in government must be prepared to sacrifice. We must have the courage to act.

We must cut emissions drastically, and that starts with a reduction in the LNG sector. We must achieve zero net emissions as soon as possible.

We must move to a new economy, one that is circular, based on renewable energy, not on growth. It is impossible to have infinite growth on a finite planet, particularly at the rate of our current consumption and wastefulness.

In conjunction with this plan there must also be a plan to stop the growth of human population and the growth of the city of Perth. At our current rate of over-consumption, Perth has reached its limit of growth. Perth is one of the worst cities in the world for urban sprawl. Perth, without its desalination plants, would not have enough fresh water for its inhabitants. As the climate continues to dry, Perth will be one of the cities hardest hit by climate change.

Perth is also one of the most biodiverse cities on the planet. Insect and bird populations are plummeting. We should be ashamed. We have the duty to protect and enhance what is left of Perth's natural heritage. We have a duty to protect and care for other creatures, other than just humans. Currently we are failing, big time.

We do have the technological and the resources to turn things around. Don't think for a moment that we don't. We can turn WA into a carbon neutral state and create a virtual paradise to live in, with meaningful jobs and lives.

## **1. TRANSFORMING ENERGY GENERATION**

The energy sector should aim for zero emissions by 2030 or sooner, i.e. a shift to 100% renewable supply ASAP.

*What are the main challenges for decarbonising WA's electricity supply while ensuring adequate generation capacity, security and reliability?*

The main challenge is to ignore the opposition from the fossil fuel companies and just start building solar-thermal plants and wave and wind farms. We have the technology to provide baseload power through the day and night as we transition to renewable energy. We lack the political will.

Another huge challenge is to greatly reduce the amount of power everyone consumes. I think that we over produce energy simply because we are extremely wasteful. Unfortunately, the messages to consume less

power and become more efficient from the government and the energy companies seem to have disappeared because the energy sector has become semi-privatised. Companies that sell energy are interested in selling more power to make more profit; they are not interested in having their clients consume less. Why would the energy sector want to sell less power? But they must, especially if the power is from fossil fuels.

**The LNG sector from 5 facilities is currently the single biggest emitter of greenhouse gas emissions in WA** (Ref. [CCWA's Key Findings](#)): "Emissions from current WA LNG facilities make up 36% of WA's total annual emissions. If the proposed Woodside Burrup Hub expansion is approved, opening up the Browse and Scarborough gas fields, emissions from WA's current and proposed LNG facilities will account for 47% of WA's annual emissions." It should be noted these figures are for production only. It does not include the impacts of the transport or consumption of the product which makes their real footprint even bigger.

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

- Stop all new LNG mining projects and shift away to 100% renewables.
- Make fossil fuel companies pay for their environmental damage for both production and consumption of their product. For example, charge them levies to pay for this damage and use the money for programmes to reduce emissions. Chevron is failing in its obligation to store CO2 underground for the Gorgon Project. Force Chevron to pay for and implement CO2 offsets equivalent to injecting CO2 into the ground until they actually do it. Use the money for programmes to reduce emissions.
- Put in place targets and incentives to reduce energy use and become more efficient. These targets must apply to power companies as well. Power companies need the government to set targets to reduce fossil fuel energy production and transition to 100% renewable energy over the next 10 years. But they also need to reduce all energy production as everyone becomes more efficient (using and wasting less power and using more efficient electronic devices).
- Create smarter grids/power programmes where people can purchase power for cheaper prices when power is less in demand. Smarter air-conditioning where it cycles off and on, not run continuously (or better yet no aircon at all by better housing design that uses insulation and shade)
- Have better housing standards: smaller, better insulated, use less power to run, mandatory use of a proportion of recycled material, etc.
- Stop all new and extensions of fossil fuel mining in WA and offshore. This includes LNG, coal, coal seam gas fracking, oil.
- Western Power must be supported to adapt the power grid system for renewable technology.
- Householders should be given grants or subsidy incentives to install solar panels, battery storage, solar hot water systems and two-way meters.
- All new apartment buildings must be better designed to reduce power use and maintain smoke green space (6-star system inadequate) and include some forms of solar power (panels, wind, better insulation and passive design). Also use less material and make more efficient use of space, e.g. having 2 bathrooms instead of 4.
- State government grants should be given to homeless shelters and those living in poverty to install renewable systems.
- The payment for solar power exported to the grid or to immediate neighbours needs to be increased as an incentive. In some areas, a localised grid with battery storage could best be installed.
- All local Governments should install solar panels/battery storage/micro-wind turbines on all their facilities and buildings and set targets to reduce power consumption.
- All State Government buildings should have solar panels/battery storage/micro-wind turbines installed and set targets to reduce power consumption (including not moving unnecessarily to new buildings – an incredible waste!)
- The State Government should help fund the development of wave energy production near Albany. This would provide stable base load power for Albany and surrounds.

*Should the electricity sector make a pro-rata (or greater) contribution to Australia's national greenhouse gas emission targets?*

Yes.

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

The transition should be happening NOW. Subsequent governments have been dithering for decades.

## **2. INDUSTRY INNOVATION**

*What measures have been implemented by your business to lower energy use or emissions?*

I do not run a business, but our family is very conscious of conservation. We have installed solar panels for electricity and hot water, use fans rather than air-con, (close house up in the morning and open with the sea breeze), turn off lights when not in use, do not own a clothes dryer, have one fridge, etc. I do find the collective attitude not good enough and not focused enough on consuming less energy.

*What are the barriers to decoupling energy use and emissions in the resources sector?*

Subsidised fossil fuel energy prices. Not taking into account their impact on global and local climate change, and hence the environmental impacts that go along with that. No penalties from government for their damage.

*Have you assessed the implications of the low carbon transition for your business or sector? How are these risks disclosed to stakeholders? n/a*

*What exemptions should apply to trade-exposed sectors in reducing our emissions?*

There should be no exemptions. Businesses should not run solely for profit. They have a duty to the people and the environment as well.

*How can the Government of WA foster clean industries and technologies?*

- No more subsidies for fossil fuels. Charge more (the real price) for energy produced by fossil fuel, i.e., include the externalities: the damage done to mental and physical health, the environment, people's properties, etc.
- Support the battery industry as stated. In addition, subsidise installation of batteries before the meter especially for low income earners, homeless shelters, remote communities.
- Require renewable energy supply for mining and energy projects as stated in the opportunities for industry innovation.
- Require phasing out of all LNG and coal mining and production as soon as possible. Apply a new, very high State resource tax from 2020 to encourage this fast transition out of LNG and coal mining.
- Refuse approval of all new and extended LNG mining projects, including those currently being assessed by the EPA.
- Set better standards for electronic goods so that they require less power to run and last longer.

## **3. FUTURE MOBILITY**

There is a main message missing here. Perth is designed for the car, instead of people, and is one of the worst urban sprawl models in the world. Electric cars are not the answer but will help by being quieter and putting out lower emissions. We need way less cars in the city. The use of the car must be discouraged by improving public transport, taxing households with more than 1 car (or giving tax breaks to people with 1 or no cars), making neighbourhoods more walkable and liveable (more shade, all amenities local when possible and efficient), etc. We need to limit (and even stop) building more roads. The Department of Main Roads needs to be disbanded and become a division under the Department of Transport.

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

- High purchase cost and public places to charge the vehicle

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

- Install more charge points, including quick charge points along tourist/popular rural routes
- Invite and support production of electric vehicles (EV) in Australia, e.g in SA where production ceased recently.
- Support development of small EVs as driverless cars.
- Support conversion of existing petrol vehicles to EVs.
- Introduce hydrogen fuelled buses, trucks in cities and towns in WA.

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

- Make roads/shared paths shady and people friendly by planting more trees along them.
- Make public transport rides quicker and more efficient by adding local feeder buses/shuttles to take people to train stations and main bus lines.
- Increase bus frequency.
- Keep fares low.
- Increase fossil fuel and mining taxes/levies/royalties and use income to subsidise public transport keeping fares low or even free.
- Have bus lanes for peak hours, not by adding another lane, but by converting an existing car lane to a bus lane. The idea is to facilitate public transport and reduce number of cars on the road.
- Do not allow school children to be driven to school. They should walk, cycle, take public transport or a designated school bus. Provide funding to public schools. Make private schools fund their own school buses.
- Set an Urban Growth Boundary for Perth NOW to prevent further urban sprawl and clearing of native vegetation and green space.
- No further urban development on the urban fringe regardless of current zoning.
- Limit urban development to infill along current public transport corridors.
- Accelerate implementation of the State Government's 'Transit Oriented Development' (TOD) policy, with associated public awareness.
- There is a glut of apartment blocks and vacant property in Perth which impacts urban sprawl. Allow only residents and companies of WA to purchase property so that housing becomes more affordable especially in inner suburbs areas.

*How can we ensure that Western Australia isn't left behind in the transition to cleaner transportation?*

- Set emission standards for all vehicles and do emissions testing like the UK (MOT Test)
- Ban the use of all diesel fuelled buses by end of 2020.
- Ban the use of diesel trucks by end of 2022. (Note this is being done in the UK.)
- Support the introduction of clean hydrogen fuelled buses and trucks.
- Do not locate new heavy rail lines or other forms of public transport in Bush Forever sites and areas of native vegetation to preserve our biodiversity.
- Retain, restore and build more rail. Get goods transport off trucks and back on rail, including sea containers, rural and regional deliveries.

#### **4. REGIONAL PROSPERITY**

*How will climate change affect your regional community?*

- The south west of WA is a global biodiversity hotspot. Over 70% of the region has already been cleared and will be one of the areas most impacted by climate change. We have the responsibility to reduce emissions and keep those impacts to a minimum and protect and enhance what is left.

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

- Stop land clearing.
- Stop all native forest logging.
- Stop all land clearing in the Wheatbelt.

- Increase local native tree planting and carbon farming as below.
- Plant native trees as crops in the south west and Wheatbelt.

*How can we support the agricultural sector to participate in the low carbon transition?*

- Make environmental education about climate change and its effects mandatory in the WA curriculum starting early on in primary school.
- Provide State Government landcare grants and expertise to propagate and plant local tree and shrub species on farms. Establish inter-connecting linkages across the farm landscape. The Gondwana Link ( [www.gondwanalink.org](http://www.gondwanalink.org) ) is an excellent role model.
- Provide advice to farmers about regenerative farming practices.
- Provide advice for reduced beef cattle farming and their replacement with carbon farming as stated in the opportunities.
- For the leased Rangelands' properties in the north, remove the requirement for cattle, sheep animal farming and allow carbon farming to replace this, with the possibility of kangaroo or emu or other suitable native species production. Also allow tourism to be the main income earner. Encourage and support traditional Aboriginal landowners on their country to manage these lands.
- Support the State Government's Outback Ranger Program, working with traditional landholders.
- In low rainfall areas and the south west, on lands already cleared, support carbon farming of local native species as crops. Examples are for sandalwood production, other tree species such as Jarrah, Marri, Karri with wood suitable for building industry, furniture etc.

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

- I support opportunities for Aboriginal groups described.
- Land managers can use regenerative farming practices, planting native vegetation to restore the hydrology and increase production on their land while opening up opportunities for tourism and enhancing and protecting our unique biodiversity.

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

- Monitor and regularly report the density of vegetation cover (NDVI) in each IBRA region of WA from satellite imagery (such as Land Monitor) to ensure it increases each year, thus increasing carbon sequestration. The Government should invest in employing specialists in this data collection, management and reporting in an appropriate State agency. This information should be shared locally, nationally and internationally.
- It is also essential for land clearing to be stopped in the over-cleared wheatbelt and in the south west IBRA region. This is an obvious first step in increasing carbon sequestration as well as biodiversity conservation.
- Avoid large scale prescribed burning as now practised in the south west. It counteracts carbon sequestration achievements from carbon farming and destroys biodiversity in native vegetation. Use other methods for reducing fire risk and to extinguish fires by fast attack. There should not be any prescribed burning permitted on the Swan Coastal Plain especially as grassy weed growth increases and thus worsens fire risk.

## **5. WASTE REDUCTION**

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

- Set targets to drastically reduce household and commercial waste.
- Soft plastics should be banned from sale and use in WA.
- Glass bottles should be re-used or huge levies placed on them. Ideally this would re-open manufacturing industries in Australia.

- Products which are not re-useable, repairable or recyclable should not be permitted for sale or use in WA as they end up in landfill waste or in the environment including waterways and the oceans and produce emissions and/or plastic waste.
- Introduce EXTENDED PRODUCER RESPONSIBILITY so that the producer pays for environmental impact and disposal costs of their product.

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

- Environmental education programs should be introduced into the WA curriculum to reduce waste (power included) and learn how to compost.
- Standardise the recycling practice in all councils and educate the public/school children on how to do it properly.
- Actually recycle the recycling material produced. Create a recycling industry. If it can't be recycled don't allow it to be produced in the first place.
- More money should be allocated and restored to environmental education programmes, like Herdsman Lake.
- Every local council should have a mandatory Environmental Education Officer.
- DWER should have education officers to support local government.
- On-site aerobic composting and worm farms should be encouraged and supported so that organic kitchen waste and garden waste do not go to landfill.
- Stop using single use plastics such as takeaway cups, straws, soft plastics. This needs to be put into legislation by the State Government so that it is rigorously enforced. Put the environmental cost onto the producer: mandate EXTENDED PRODUCER RESPONSIBILITY

## **6. SAFE AND HEALTHY COMMUNITIES**

*What are the main climate risks for your household or your community? What can be done to manage these risks?*

- Air quality, heat stress
- Air quality will decrease, especially with more frequent smoke from wildfires and prescribed burns.
- Extreme weather events, unseasonal and increasing hot weather and decreased rainfall are all significant in our south west hotspot for native flora, fauna and for us humans. The homeless, elderly, young, unemployed, low income earners and those suffering allergies and related medical conditions suffer most.
- Local increases in temperature from urban heat island effects will make houses and gardens hotter and make people use air-con more contributing again to more greenhouse gas emissions. Planning design codes need to have larger gardens, mandatory trees and permeable ground to combat this.
- Install underground power in all suburbs so that more tree planting and cooling can take place, and risk of fallen power lines in wild weather is removed.
- Dry grassy weeds along street verges and adjacent to bushland reserves is an increased fire risk. Road verges should all be mown before seed set and drying by the LGA or Main Roads, or by residents in suburban streets.

*What are your biggest concerns about Western Australia's future climate?*

- Increase in average temperatures, damage and resultant costs from increased extreme weather events, reduced rainfall especially in the south west region
- Significant destruction and loss of biodiversity and ecosystem stability. Loss of native fauna and flora species.

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

- Fix the planning design codes so that houses have a bigger garden with trees/shade and more permeable green space.
- Stop increasing the amount of pavement/cement. Instead reduce the amount of hard surface and plant more trees, shrubs and groundcover (and urban forests), especially with local native species that are resilient to a dryer and hotter climate.

- Retrofit existing housing with insulation and daylighting, as well as reducing outdoor hard areas and replace it with planting of trees, shrubs and lawn.
- Provide underground power to all suburbs
- Invest more in fire control and prevention.
- More education programs about climate change, its effects and what you people can do to mitigate and adapt.

## 7. WATER SECURITY

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

- Set a new water pricing regime that gives people a small and adequate amount for a nominal and affordable fee but then rises exponentially to prevent waste
- Further reduce the amount of water used for watering gardens
- All borehole water use should be metered.
- No new boreholes should be allowed for urban centres.
- Immediately make domestic home bore water use the same as for potable scheme water – and look to reduce this amount for both.
- The volume of groundwater used by LGAs for irrigating sports facilities, public places etc should be reviewed and reduced. Sprinkler systems which deliver large droplet sizes (compared with fine spray and misting) are more efficient and should be mandatory.
- Groundwater use should not be permitted in areas adjacent to bushland reserves within the local zone of depression. There are examples where localised drawdown by bores has caused a sudden death of mature Banksias such as at Cottonwood Crescent Bush Forever site.

*Are there policies adopted in other jurisdictions we should consider for Western Australia?*

- Require the Water Corporation to recycle all wastewater for re-use rather than pumping secondary treated water out to sea. This is currently an issue with the Water Corporation proposing to duplicate the SDOOL2 pipeline rather than upgrade treatment for re-use – especially for potential industrial etc use at Kwinana. The SDOOL2 pipeline risks destruction of the CE TEC Lake Richmond thrombolites and DWER/EPA needs to stop this.
- Work towards getting recycling water to drinking standards.

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

- For the drying Wheatbelt region, invest in revegetation with local species on farms and along roadsides. Revegetation will result in increased local and potentially mesoscale rainfall.
- Grow appropriate crops that are more resistant to a drying climate.
- The most efficient irrigation techniques should be mandatory for all licensed horticultural users.
- New limits in the next Gnamptara groundwater allocation plan as described are strongly supported. Substantial new limits on groundwater availability are urgently needed.
- The failure of adequate government control of water use in the Murray-Darling Basin is an on-going catastrophe and is a situation which must be avoided in WA.

## 8. LIVEABLE TOWNS AND CITIES

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

- Lack of passive solar design and regulation to require energy efficiency through passive solar design for both residential buildings and commercial developments.
- Lack of solar panels and solar hot water on buildings. They should be mandatory for all new buildings and renovations.

- Excessive use of concrete and paving resulting in far too much hard surface area and lack of vegetation and shade. This includes 'plastic lawn' that is laid on a hard base (often crushed granite), stopping water infiltration and also creating a heat sink.
- Concrete production produces very high emissions. Lack of public recognition and regulation of the extent of use of this factor is a significant barrier.
- Excessively large houses on small-medium blocks where no tree and vegetation cover has been retained.
- The average house size is too big and there is too much wasted space in these huge homes. Too many bathrooms mean more resources are used and more water is used to clean more toilets as well as oversized houses.

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

- Education on insulation, solar energy, energy and water efficiency and waste, double-glazed windows, shade, window coverings, etc. Programs like the "earth carers" (how to do all the listed above) need to be more widely available and part of school and offered on-line.

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

- Require better construction and appliance standards to improve efficiency and reduce power consumption.
- Require rooftop solar panels and solar hot water systems.
- Retrofit older houses with passive solar design features, including north facing windows, windows for natural air flows, daylighting, space lighting not multiple downlights, insulated ceilings and walls.
- Build small: Retrofit or build with small smart interior design. Build small houses with 50% green area retained on the site. Current houses are much too big and use excess concrete and materials. Limit concrete use and hard cover area.
- Install roof gardens on multi-story buildings where feasible.
- No black or dark coloured roofs.
- Avoid tall fences and dark coloured fencing. Minimise all fencing and paving. Fence bottoms should be open in part to allow for fauna movement.
- Plant local native trees and shrubs to provide shading especially on west side of buildings.

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

- It will make it hotter, less pleasant and may force us to use air conditioning (which we currently use less than 2 weeks per year).

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

- Introduce a total ban on clearing of native vegetation and remnant trees (regardless of the zone of the land).
- Have a state tree protection policy. Retain trees and native vegetation remnants in redevelopments.
- Provide greatly increased funding for DBCA Swan Region so that all Threatened Ecological Communities (TECs) and habitat of endangered species and all Bush Forever Areas are properly protected and restored. This includes the Banksia Woodlands TEC and Tuart Woodlands CE TEC.
- Cost out the value of the ecosystem services and health benefits of trees and green space and make this public. Include these costs in the development approval process -the triple bottom line.
- Stop all outer urban sprawl with introduction of an 'Urban Growth Boundary'.
- Install underground power in all suburbs and cities.
- Introduce a program to decrease the area of concrete and hard cover on verges, driveways and around houses and other buildings. Require an increase in green area cover in established suburbs.
- Require 50% green area in redevelopments and new areas.
- Plant local native trees and shrubs in suburban street verges and in gardens.
- Ensure commercial properties have green space and trees on their sites.

## 9. RESILIENT INFRASTRUCTURE AND BUSINESS

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

- Destruction of property and infrastructure due to flooding and storms
- Reduced rainfall and the impacts of more intense and frequent storms will have devastating effects for farmers.

*Do you currently assess the impact of physical climate risks on your business, assets or infrastructure? n/a*

*Is there information which would assist you to do this better?*

- All people, whether they run a business or not, needs more education about climate change, the effects, how to mitigate and adapt.

*What are the best ways to enhance the resilience of public and private infrastructure?*

- In coastal areas, retain the fringing vegetation (particularly mangroves) as these will protect inland infrastructure far better than any man-made structures.

## 10. PROTECTING BIODIVERSITY

We have taken too much and have lost the balance with the natural world. All remaining native vegetation needs to be protected and enhanced, not only because we have a duty to other life on this planet, but because we also depend on it for our own survival.

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

- YES. Land clearing of native vegetation must be halted and reversed to improve ecosystem resilience to climate change and improve the biodiversity, hydrology, soil and air quality.
- It is essential for the State Government to monitor and regularly report on the density of vegetation cover (NDVI) in each IBRA region of WA.
- Prescribed burning practices need further research and need to be modified with the primary goal of protecting biodiversity, not human property. New housing developments should not be allowed in fire prone areas.
- The Bush Forever program should be completed as planned with all sites fully protected and managed as 'A' class reserves.
- Invest in protecting and restoring linkages between existing patches of bushland in the Perth and Peel regions and especially along regionally significant ecological linkages and potential linkages as defined in Bush Forever.
- Complete implementation of all Regional Parks recommendations and greatly increase State Government and Local Government funding for their conservation management.
- Increase collaborative support and funding for community groups to assist in managing bushland reserves especially in the Perth and Peel regions. Note this should not replace the need for increased government funding.
- Increase re-introduction of quenda and kangaroos or wallabies to Bush Forever Areas and other reserves as they greatly help reduce grassy weeds and associated fire risk.
- Actively control foxes and stray cats in the Perth and Peel regions especially, and also in the south west region.
- Stop all further clearing of the south west IBRA region and the wheatbelt. This should include retaining small patches and individual mature remnant trees, and all roadside vegetation especially in the wheatbelt and in the Perth and Peel regions.
- Improve awareness amongst LGAs about the need to retain and manage remnant trees and vegetation on all their lands, especially roadsides.
- Improve management capacity and expertise by LGAs to properly manage and restore their native vegetation remnants and linkages.

- In the Perth and Peel regions especially, increase funding by DBCA and LGAs for grassy weed removal which will help reduce vulnerability to fire and its biodiversity destruction. This should involve hand weeding by trained hand weeding teams – for example as those provided by the South East Centre Regional Centre for Urban Landcare (SERCUL [www.sercul.org.au](http://www.sercul.org.au)).
- Stop widening roads.

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

- Yes. But I am cautious this will involve more volunteering. Environmental volunteers are mentally and physically exhausted as there is simply too much to do. And it is depressing at the moment watching the native vegetation around us being devastated. Way more support is needed from LGAs and the State Government.
- Planting, weeding, feral animal control and other citizen science programs should be led by Local or State Government in all neighbourhoods. Strong direction, leadership and education from paid experts makes volunteering easier and more efficient. More outcomes are achieved.
- So much more research about our flora and fauna throughout the state is needed, like the southwest or the Ningaloo Reef. There are opportunities for government to fund and lead new citizen science projects for surveys of flora, vegetation communities, fauna, invertebrates, birds, mammals. And so many other projects!

## **11. STRENGTHENING ADAPTIVE CAPACITY.**

*Are there gaps in the availability of adaptation knowledge, climate information or skills for your community, organisation or sector?*

- Yes. Huge gaps. And where can you find such info? It is scattered over so many different places. Council websites vary enormously about info on climate change, conservation, waste, biodiversity etc. People are busy and need to find this info in one easy place. And there still seems to be too much noise from climate sceptics. The State Government must make it perfectly clear that climate change due to humans is real. And why it is such an important issue for everyone.

*How can these be addressed?*

- Government education programs for the general public and school children. Climate change mitigation and adaptation should be part of the WA school curriculum. Promotion and advertising need to be mainstream.

*What are the main barriers to the adoption of effective climate change adaptation?*

- Resources and funding, at personal and all government levels.
- Lack of State Government leadership.
- Lack of State Government funding and incentives for education programs, native vegetation and tree planting programs
- Lack of Government will to change legislation so that adaption will be facilitated, to prevent land and tree clearing, and improve planning design codes, city planning, public infrastructure and transport, etc.

Thank you for your consideration.

By Heidi Hardisty

