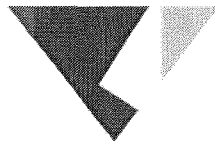


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**WALGA**

**Western Australian Local Government Association Submission to the  
Standing Committee on Climate Change, Water, Environment and the  
Arts.**

**Inquiry into climate change and environmental impacts on coastal  
communities.**

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## **Submission to the Inquiry into climate change and environmental impacts on coastal communities.**

### **The Western Australian Local Government Association**

The Western Australian Local Government Association (WALGA) is the united voice of Local Government in Western Australia. The Association is an independent, membership-based group representing and supporting the work and interests of all 142 Local Governments in Western Australia.

The Association provides an essential voice for almost 1,400 elected members and over 12,000 employees of the 142 Local Governments in Western Australia. The Association also provides professional advice and offers services that provide financial benefits to the Local Governments and the communities they serve.

In addition the Association works closely with both State and Federal Government Ministers and Departmental Officers to ensure Local Government has a strong voice across the political community, develops robust policy and policy projects and provides an advocacy role where necessary. The influence of the Association within the Local Government sector and on its behalf is significant and the Association has recently signed a Climate Change and Sustainability Partnership Agreement with the State Government ensuring that both Local and State bodies are working towards complementary objectives. This will be achieved through the construct of the State / Local Government Climate Change and Sustainability Council, comprising relevant State Ministers, the President of WALGA and officers of State and Local Government, as required.

### **Support for the Australian Local Government Association Submission**

The Association works with the Australian Local Government Association (ALGA) which represents Local Government Australia wide. Through this mechanism the Association is well placed to influence the decisions made at the Council of Australian Governments (COAG), on which the President of ALGA sits. ALGA has recently developed a National Policy Position on climate change.

The Association would like to officially support and reiterate the ALGA submission to the Inquiry, which captures many of the general issues and needs for Local Governments in coastal areas Australia wide. The Association does not feel it necessary to recapture these issues in the following submission.

The WALGA submission reflects the specific needs of Western Australian Local Governments and forms part of a collaborative approach, through ALGA, to climate change risks and opportunities.

### **Concerns of the Western Australian Local Government Association**

As the ALGA submission has outlined, Local Governments play a strong role in the development and delivery of climate change adaptation and mitigation projects and policies. In Western Australia specifically, Local Governments are the tier of Government most proactive in their research, participation and delivery of climate change actions. Additionally, Local Government is the most vulnerable sector in respect to climate change risks and impacts and conversely, the least well-resourced in terms of coping capacity.

Local Government in Western Australia has legal responsibility and liability for many planning, waste management and infrastructural management areas (including drainage, roads, bridges, embankments etc), as well as having general environmental responsibility as a land management agency and custodian of public open space.

Local Governments in Western Australia are significantly affected by a lack of dedicated local data for climate change impacts. Coastal Western Australian Local Governments are aware of their vulnerability to climate change impacts such as sea level rise, reduced rainfall, infrastructural issues, indemnity issues and the additional cost and human resourcing impacts of reporting requirements devolved to Local Governments through State and Federal policy, but are currently ill-equipped to manage these risks. Western Australian Local Governments look to their State agencies to provide advice, share information and collate relevant mapping and data, and are finding themselves without adequate resources through these agencies. This in part, is a result of the Departments themselves being under-resourced, however this does not alleviate the significant Local Government issues that climate change presents.

Significant work is now being undertaken in Western Australia by the Office of Climate Change (within the Western Australian Department of Environment and Conservation), however few other agencies are factoring climate change risks into their strategic planning at a local level and certainly little communication or collaboration between Government Departments is occurring. This however is being facilitated admirably by the Office of Climate Change, who are currently expanding to meet identified needs across all sectors and Government Departments.

### **Responding to the Terms of Reference**

The focus of this submission is on the impacts of climate change on the physical environment in the Western Australian coastal zone. It specifically focuses on the impacts likely to affect Western Australian Local Government, the sector on behalf of which WALGA works. The purpose of the submission is to outline the concerns of the sector with respect to climate change impacts in coastal areas, and to outline the sector's needs as a result of these concerns. It is important to note that many State/Territory Associations, with the assistance of ALGA, have undertaken large bodies of work in this area, much of which is publicly available and may assist with data collection for this inquiry.

The Terms of Reference are addressed sequentially below:

#### **Existing policies and programs related to coastal zone management, taking in the catchment-coast-ocean continuum.**

In Western Australia the policy framework surrounding coastal zone management is complex. Many agencies and organisations, both public and private, operate in the coastal management 'space', and as a result much of the on-ground work is undertaken on an ad-hoc basis when funds become available. With no strategic overview of policies and programs, and significant overlap and occasional policy conflict between State departments (for example the coastal setbacks embedded in the *State Coastal Planning Strategy* may be inadequate in light of recent climate science) it would seem that coastal management in general is poorly coordinated, and strategic linkages in State and Federal policy to climate change impacts broadly unaddressed.

The Department for Planning and Infrastructure has primary responsibility for planning policy and its current climate change management strategy is ill-defined and inaccessible. It has not yet determined how, if at all, climate change will be embedded in planning frameworks. Local Governments are principally guided by State policy and legislation, and when these are inadequate to meet their needs, they tend to develop policy and projects that will meet their needs internally. For the sector as a whole this does not present a 'best practice' scenario as much of the work that needs to be undertaken on behalf of the sector needs to happen on a regional or collective scale. When Local Governments are forced to act in an ad hoc manner through lack of coordination at a State or Federal level, it has a significant effect on the increasing financial deficit at Local Government level, as well as a negative effect on regional cooperation.

Having said that, the Office of Climate Change is currently working closely with the Association to ensure planning frameworks take climate change into account and that Local Government planning professionals have access to tools, information and assistance for climate change management. The Association sees this as a commendable first step towards the proactive vertical integration of climate change management.

A coordinated cross-departmental approach is essential to ensure adequate catchment management is undertaken for coastal communities. This is particularly true when the catchment-coast-ocean continuum is taken into account, because at present in Western Australia it would seem that three separate Government departments have primary responsibility for these three faces of land management.

**Recommendations:** That State agencies are required to develop linked climate change strategies/policies and coordinate with each other on climate change policies.

Where State policies and programs affect Local Government frameworks, ensure that responsibilities, costs and resourcing requirements are communicated.

Ensure that these requirements are both facilitated and resourced at a Federal level.

**The environmental impacts of coastal population growth and mechanisms to promote sustainable use of coastal resources.**

#### Coastal population growth impacts

As always, increased coastal population growth corresponds to increased pressure on both the natural and man-made assets residing within that community. Western Australia's most famous natural wonders are likely to be affected by climate change. Northern Western Australia's coastal wetlands may be inundated, and many unique flora and fauna species may disappear from the South-West region, which is an internationally recognised 'Biodiversity Hotspot'. While this presents a natural emergency, it also presents a significant financial impact for Western Australian Local Government planning, environmental and tourism workers.

Reduced runoff, higher riverine, estuarine and coastal aquifer salinity, and increased algal blooms would exacerbate water supply and water quality problems in some urban areas (notably Perth and the South West) and in a number of smaller inland communities. Some small communities with particular dependence on adversely affected agricultural and tourism industries may be threatened.

A greater frequency of extreme events such as floods, fires and high winds may adversely affect the willingness of tourists to visit climate change affected areas. Tourism would be adversely affected by the death of coral reefs and loss of some freshwater ecosystems.

Tourism in Australia also has a significant "carbon footprint". This is largely composed of emissions from aviation, about half of which is tourism-related, and which contributes 2.5% of global greenhouse gas emissions. The number of international travellers is expected to increase about 270% from 594 million in 1996 to 1.6 billion by 2020. If nothing is done to lighten its carbon footprint, tourism will be responsible for very large and escalating greenhouse gas emissions.

<http://www.uneptie.org/pc/tourism/sust-tourism/env-global.htm>

#### Mechanisms to promote sustainable use of coastal resources

While many measures can be taken to inform community and advocate for individual climate change action and environmental sustainability, policy must be developed at a higher level to truly generate outcomes. Local Governments, as is often the case, are working individually and through the Association, to develop a raft of policies, projects and strategies to both mitigate and adapt to climate change impacts, however the setting of hard targets for emissions reduction and environmental protection would assist Local Governments to meet these aspirational outcomes.

In general, at Local Government level, the sustainable use of coastal resources is being promoted. It is not a new issue and for most Local Governments falls under general land management strategies. It is higher level coordination and information that is largely lacking from the 'space', in particular, access to accurate modelling, vulnerability assessment and GIS/DEM data. The adequate provision of this, at a useable resolution, will in turn provide Local Government with a concrete way to prioritise

and protect the biodiversity and natural values of an area. This could be provided through the Department for Planning and Infrastructure, Landgate or CSIRO.

**Recommendations:** The appropriate State and Federal Government Departments work to provide access to relevant, local level vulnerability mapping, modelling and GIS/DEM facilities.

That hard percentage targets for emissions reduction and natural area protected are set by Federal Government and adequate resourcing considered to fund these outcomes.

**The impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to projected sea level rise.**

### **The impacts of climate change on coastal areas**

#### Storm Surge and Flooding Impacts for WA Coastal Local Governments

While climate change will result in reduced rainfall for parts of WA it may also present a higher risk of more intense rainfall events in the South West land division and subsequent flooding in some areas. The increased risk of climatic and weather extremes resulting in inundation in coastal and flood prone areas adds pressure to the drainage and waste water system. This in turn puts financial pressure on Local Government to upgrade, maintain and repair ailing infrastructure. There is also an associated flood hazard of water contamination and thus human health risks due to drainage/sewerage inundation.

#### Sea Level Rise Impacts for WA Coastal Local Governments

Although a long term risk, sea level rise will have a significant impact on coastal infrastructure and communities. The risk to coastal development, particularly canal/estuary development, could create significant liability and cost issues for Local Government. Liability may also fall to Local Government involved in the land use planning process at development approval stage due to insensitive planning which does not take into account sea level rise impacts.

#### Increased saline intrusion Impacts for WA Coastal Local Governments

In simple terms saline intrusion is the influx of sea water into an area that is not normally exposed to high salinities. This could be the inflow of seawater into a fresh water wetland or a fresh water aquifer. Both are likely to impact estuaries. As sea levels rise, their saline water will be able to overcome natural barriers to move into low lying areas now dominated by freshwater. While this impact may not be noticed at surface level it could affect groundwater that seeps into estuaries. In Western Australia this is particularly likely to affect coastal and canal style developments, such as those prevalent in Mandurah.

Additionally, critical physical and chemical processes may be affected if the natural magnitude and variation of freshwater inflow to coastal waterways is modified. Many estuarine organisms have specific salinity requirements which may vary depending on the stage that they are at in their life cycle. Many fish species use freshwater and salt water habitats at various times (opportunistically, annually, seasonally) and for different reasons (early development, growth, spawning) during their life cycles. The dissipation of salinity gradients under reduced freshwater inflow or enhanced tidal flows therefore has the potential to contract the amount of freshwater habitat available to some species.

#### Vector Borne Diseases Impacts for WA Coastal Local Governments

The occurrence of vector borne diseases may increase as a result of climate change. Local environmental conditions and the resilience and immune status of the human population are of concern in respect of and movement or increase in vector borne disease. Climate change increases potential for the temperature and humidity conditions to become suitable for a variety of vector borne diseases, in particular the mosquito vectors for malaria and dengue fever, but more locally Ross River Virus. [http://www.ozestuaries.org/indicators/vector\\_born\\_disease.jsp](http://www.ozestuaries.org/indicators/vector_born_disease.jsp) - top#topWhile there are many

potential human health issues linked to climate change, the change in occurrence and distribution of vector borne diseases is of specific importance to coastal waterways, particularly those in northern Western Australia.

### Planning and Infrastructure Impacts for WA Coastal Local Governments

The threats posed by climate change to community and infrastructure management are many and varied, with significant environmental, social, and economic implications. Some anticipatory measures, such as greater flood control and larger water reservoirs, can be undertaken, but these have social and economic costs of their own. One important measure would be to base new construction on engineering standards revised to take account of changing climate.

For instance; the impact of climate change on the ways in which weather influences road maintenance costs will require consideration. Rainfall, moisture, salinity and high water tables can accelerate wear, as do high temperatures. Given the projections of increased temperatures and flooding due to climate change, it is likely that road maintenance costs will be affected, although they may fall in some areas. Further, the indirect impacts of climate change, such as alterations in the location of population and human activity are likely to affect the demand for roads.

In the long term, higher sea levels could increase coastal erosion and damage from storm surges, and present problems for coastal infrastructure including roads, marinas, buildings, water supply and sewage disposal systems. Additionally, storm surge, increased adverse weather conditions and flooding could affect infrastructure and impact on the integrity of foundations (pipelines, bridges and buildings) as well as increasing the requirement for water control structures.

In both urban and rural areas, human settlements and associated essential services and community infrastructure are especially vulnerable to extreme weather events. Cyclones, floods and major storms can result in significant damages to homes, business, and infrastructure. This is likely to result in an increased liability for Councils if planning provisions for matters such as coastal set backs or flood prone areas have not been adequately considered in Councils land use plans.

### Health and Community Impacts for WA Coastal Local Governments

Health and community impacts are high priority concerns for many coastal Western Australian Local Governments. The Intergovernmental Panel on Climate Change (IPCC) has defined vulnerability as 'the degree to which a system is susceptible to or unable to cope with, adverse effects of climate change' (IPCC 2001). Vulnerability is a function of exposure, sensitivity and adaptive capacity. In terms of health impacts, sensitivity can be experienced through a range of factors such as age, health status and socio-economic status. The low level of coping capacity (or adaptation capacity) within Western Australian Local Government is a contributing factor to the vulnerability of different sectors, regions and groups, to specific health impacts. Conversely, health impacts will affect and cross over into other sectors, such as emergency management and water management and as such, responsibility for some impacts may be shared. Although by no means an exhaustive list, some health impacts for Western Australian Local Governments, attributable to climate change are outlined below:

#### Coastal health impacts attributable to climate change

- Increase in health issues and deaths from heat stress.
- Increase in incidence of skin cancers.
- Increased flooding leading to reduction in water quality and inundation of drainage/sewage infrastructure and subsequent increase in water borne disease, particularly in isolated Northern regions and indigenous communities.
- Isolation of communities due to increased extreme events, leading to limited resource availability, including medical/health services, particularly in isolated Northern regions and indigenous communities.
- Decrease in water quality and availability leading to increased vector borne disease.

## Liability and Financial Sustainability Risks for WA Coastal Local Government

A heightened concern exists for the financial sustainability of Local Government that will arise from climate change, due principally to the expanded risk and liability scenario for Local Government decision making and policy frameworks and the increasingly adverse implications for asset management as a result of accelerated replacement and maintenance regimes.

The Association has been working towards a consolidated approach to the potential indemnity and liability issues for the sector arising from climate change, and has approached a number of insurance providers to assess the risks to Local Government on this issue. Our research has shown that climate change poses significant liability risks to Local Governments.

The Insurance Council of Australia (ICA) recognises that Climate Change poses significant concerns for the insurance industry, in both the property and the liability sectors of the industry, and that these will, in turn, affect Local Government operations. As a strategy it would be of benefit to Local Governments that climate change be included in risk management frameworks for Local Government insurance products and services as well as raising awareness of the issue as a whole.

Council decisions may become the subject of increasing litigation and legal challenge on the basis of climate change impacts, particularly in relation to policy frameworks such as Town Planning Schemes, Land Zonings, Town Planning Policies, Building Approval regimes, major construction plans, Environmental Protection Policies, etc. Council decision making will need to be cognisant of climate change implications in a very demonstrable way in order to meet the test of "reasonableness" in their defence.

The propensity for the courts to award significant damages to plaintiffs against public sector agencies such as Local Governments suggests that there could be significant financial implications for the sector if climate change is not treated seriously in the decision making process of Local Government (England, Issues Paper 6, 2007).

## Asset Management Impacts for WA Coastal Local Governments

The *Systemic Sustainability Study into WA Local Governments (sponsored by the WA Local Government Association and conducted by an independent expert panel)* found significant challenges to Local Government's financial sustainability were posed by the sectors accumulated infrastructure funding deficit, estimated at \$1.75 Billion. This converts to an annual funding shortfall of around \$100 million that must be sourced to address the current backlog.

Climate change impacts which accelerate the degradation of infrastructure, such as rising tide-lines, more frequent storm events, flooding, etc, will significantly increase the costs associated with asset management, repair and replacement. This will place ever increasing financial pressures on a Local Government revenue base that is already proven to be inadequate for the infrastructure challenge that currently exists.

**Recommendations:** Acknowledgment and adequate resourcing of the significant community assets/infrastructure that Local Government has responsibility for in coastal communities.

Acknowledgment of the climate change impacts on coastal infrastructure and the degree to which Local Government will have liability for these impacts.

Resourcing for Local Government to update and indemnify coastal assets where they fall under Local Government responsibility.

## **Strategies to deal with climate change adaptation**

### Catalyst for change

Less rainfall and the subsequent water shortages may become a catalyst for the reuse, recycling, and best practice management of water resources. While some new water technologies (i.e. desalination plants) may have adverse effects on the environment or may emit large quantities of greenhouse gases, good water management and planning, efficiency and effective policy would assist in the development of innovative water management solutions. A necessity toward best practice urban water use will increase investment into the industry, ensuring creativity and innovation in the addressing of water management issues.

### An Integrated Health System

An integration of climate change knowledge into health services, coupled with updated tools and coordinated health/emergency management delivery, could see Western Australian Local Governments capacity to cope with climate change (adaptation capacity), significantly increased. While much of the health services provided to the state are coordinated at a state level, if Local Government were resourced to develop specific emergency and health management procedures, based on knowledge of impacts and internal tools, community resilience to climate change related incidents will be augmented and coordination improved.

### Planning and Development

Climate change presents implications for town planning and building control on two counts: Firstly planning and building control are mechanisms by which adaptation to climate change impacts is possible, and secondly both can influence the level of emissions produced by human settlements.

WA's planning and building systems can play a significant role in identifying and implementing adaptation measures to reduce emissions and other causes of climate change as well as reducing the impacts of climate change on infrastructure and human settlements, but only if this is supported at a State and Federal level.

The full inclusion of climate change in water management, risk management and insurance industry frameworks would give more certainty to the development of planning tools for flood and emergency management and increase Local Government's capacity to actively plan for these eventualities. Adequate regional modelling and mapping tools would increase capacity in Local Governments to identify and indemnify those Local Government assets and infrastructure which lie in flood prone areas or those likely to be susceptible in the future. Greater certainty around timeframes and frequency of extreme climatic events would increase Local Governments resilience. Currently the lack of adequate data prohibits the incorporation of potential climate change affected scenarios into the land use planning frameworks (i.e. regional planning schemes, coastal planning strategies, town planning schemes etc). This presents Local Government with a major gap which would need addressing before Local Government resilience measures can be realised.

### Increasing efficiency and reducing demand

The threat of climate change further exaggerating an already obvious water shortage in parts of the state may have the effect on increasing community awareness and uptake of water efficiency measures. Sprinkler bans, water efficiency campaigns, grey-water usage, home rainwater tanks and recycled water usage may gain support as a result of an increasing awareness of climate change and its affect on water availability in the state. With these efficiency measures in place through various agencies there can be an expectation that demand on our constrained water supplies will be reduced.

**Recommendation:** An integrated, cross-departmental approach with collaboration between Federal, State and Local Government bodies be developed to ensure that delivery mechanisms for climate



change adaptation (in particular Local Governments) have clearly articulated roles and responsibilities, and reasonable funding attached.

### **Governance and institutional arrangements for the coastal zone.**

Governance arrangements for coastal zone management for Western Australian are largely covered within the relevant State legislation, policies and programs, however, these are not always at a level which Local Governments can easily access or utilise. Additionally, Western Australian policy and legislation seldom captures climate change directly, which will necessitate an overhaul or amendment to most legally binding State documents in order to ensure this issue is covered. Climate change specific 'Law Reform' will at least ensure that liability for climate change impacts and decision making processes is clearly articulated within the legal structure for the bodies responsible.

While the Association would not consider it of benefit to devise a set of Federal implementation strategies for local areas; access to data on a Federal level, as well as a State and Local level, would be of significant benefit to Local Governments and would aid in the implementation of local strategies.

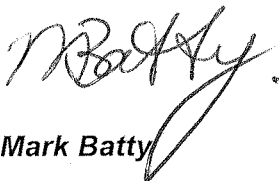
If the Federal Government is developing strategies to ensure coastal zone management takes climate change into account, resourcing the State Departments most responsible for this work would be the most valuable strategy.

However, if the delivery mechanism for these strategies is to fall largely to Local Government by virtue of their land and infrastructure management responsibilities, it is necessary for Federal and State Government to consider the cost implications for Local Government, and resource accordingly.

**Recommendations:** That the Federal Government consider issuing a directive that all policies, legislation and regulations are bound to take climate change impacts into account to the level that they will affect each area (i.e. all planning policy to incorporate climate change decision making frameworks and risk analysis).

That delivery mechanisms/responsibility for Federal and State policies and strategies in this area is clearly articulated so that those expectations can be adequately resourced, particularly when these responsibilities are to be devolved to another agency (i.e. Local Government).

Yours sincerely



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