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ENVIRONMENT
INSTITUTE OF
AUSTRALIA AND
NEW ZEALAND

Janet Holmes
Secretary
Standing Committee on Climate Change, Water, Environment and the Arts
House of Representatives
Parliament House
CANBERRA ACT 2600

Via email: ccwea.reps@aph.gov.au

Dear Ms Holmes

Re: Inquiry into climate change and environmental impacts on Australia coastal communities

The Environment Institute of Australia and New Zealand is pleased to have this opportunity to provide a submission to the House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts' Inquiry into climate change and environmental impacts on coastal communities. We are grateful for the Committee's agreement to receive this submission after the closing date, as discussed between Kate Sullivan and Justin Sherrard on 2 June 2008.

The Environment Institute of Australia and New Zealand is the peak professional body for environmental practitioners in Australasia, and promotes independent and interdisciplinary discourse on environmental issues. The Institute advocates that best environmental practices be delivered by competent and ethical environmental practitioners.

Our submission is attached to this letter. It is structured to provide comment on each of the Terms of Reference, and includes an additional section on other issues. Of particular interest to the Institute is promulgating the important role that environmental practitioners can play in managing coastal issues with respect to climate change.

We wish the Committee well in its inquiry into this important issue, and would be willing to assist the Committee by elaborating on any aspect of this submission.

Yours sincerely,

Bill Haylock
President

Environment Institute of Australia and New Zealand (EIANZ)

Submission to the House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts

Inquiry into climate change and environmental impacts on coastal communities

1 Preamble

The Environment Institute of Australia and New Zealand is pleased to have this opportunity to provide a submission to the House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts' Inquiry into climate change and environmental impacts on coastal communities.

The Institute's submission is structured to provide comment on each of the Terms of Reference, and includes an additional section on other issues. Of particular interest to the Institute is promulgating the important role that environmental practitioners can play in managing coastal issues with respect to climate change.

2 The Role of Environmental Practitioners

The Institute contends that environmental practitioners have an important role to make to the field of assessing and understanding climate change impacts on all resources, including the coastal zone, and in developing appropriate adaptation responses. Such a contribution could include the following.

- Providing an **information conduit** between climate change science and policymakers, community groups, industry and business, noting that environmental professionals are part of these groups too.
- **Advising decision-makers** at local, regional, state and national levels on how best to **integrate** the consideration of climate change impacts and adaptation requirements into land use planning and assessment decision-making.
- **Exploiting the synergies** between different areas of **environmental policy** – including between climate change mitigation and climate change adaptation strategies. For example, providing advice on eco-efficiency, adaptation, emissions reporting, clean energy, mitigation and social change.
- Providing **multi-disciplinary input** into standards and guidelines.

In relation to the Terms of Reference for this Inquiry, the Institute provides the following comments.

3 Existing policies and programs related to coastal zone management, taking in the Catchment–Coast–Ocean continuum

*Mindful of the fragmentation of responsibility in the Catchment–Coast–Ocean continuum which frequently results in a fragmented policy response, the Institute believes a solid scientific foundation is needed to underpin policy development, coupled with effective communication between scientists, policymakers and the community. **Where a solid scientific foundation does not currently exist, the Institute believes the precautionary principle should be applied to the management of future development.***

Given the importance of the coast in the Australian psyche - as evidenced by a large proportion of the population residing in close proximity to the coastal zone - there are already a large range of existing policy mechanisms for coastal zone management. In general terms, these policies are developed at a State level, and often implemented at a regional or local level.

However, few of these policies across Australian State and Territory jurisdictions have successfully integrated catchment and coastal management activities, or considered how these activities are affecting broader marine environments. This relates, in part, to the lack of understanding about the linkages between these environments and the capacity of land and water managers to effectively consider downstream environments. It also results from the poor integration of management planning activities, where a strong degree of overlap and duplication exists between the State and Commonwealth on issues such as ocean management.

The Commonwealth plays an important but somewhat limited role across the continuum through its involvement in development proposals that trigger the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). These triggers relate to matters of national environmental significance such as Ramsar sites, World Heritage Areas and migratory species. Under the EPBC Act, the relevant Commonwealth agency (Department of Environment, Water, Heritage and the Arts - DEWHA) is involved in the assessment and approval of controlled actions. The Commonwealth has also recently developed the National Cooperative Framework for Integrated Coastal Zone Management which, while an important milestone for national coordination and cooperation with the States, is limited in its scope and there is little awareness of its role and purpose, particularly in Local Government.

An example of an existing policy mechanism which has an influence over the Catchment–Coast–Ocean is the arrangements in place for the Great Barrier Reef Marine Park Authority. Local marine advisory groups were established in 1999 to enable local communities to have effective input into the management of the Great Barrier Reef Marine Park. From an environmental practitioners' perspective, some of these established groups feel frustrated by the lack of real on-ground outcomes in the management of the reef. This is evidenced by the Queensland Government's current review of the Reef Quality Protection Plan, which has so far yielded limited outcomes since completion of the previous version in 2003. Considerable work (much of it from community volunteers), went into this original plan.

In considering the Catchment–Coast–Ocean continuum, it is important that the coastal zone considers not just the immediate coastal area, but includes estuaries and coastal catchments as well. Estuaries play a vital role in linking the catchment and the coasts, but we are only just starting to understand the complex interrelationships between catchment processes, estuarine processes and the marine environment. Similarly, we need greater information and knowledge about the relationships between the ocean, atmosphere and land mass and the likely impacts of climate change on global sea level rise, sea water temperature and marine acidification.

The fragmentation of responsibility for Catchment–Coast–Ocean continuum continues to result in a fragmented policy response. A solid scientific foundation to underpin policy development is needed, coupled with effective communication between scientists, policymakers and the community. Where a solid scientific foundation does not currently exist, the precautionary principle should be applied to the management of future development.

4 Environmental impacts of coastal population growth and mechanisms to promote sustainable use of coastal resources

The Institute recommends the establishment of coordinating bodies in coastal areas to promote the sustainable use of coastal resources, to raise awareness of climate change impacts in local communities and among policy- and decision-makers and to integrate the consideration of climate change impacts and adaptation requirements into decision-making at all levels

The environmental impacts of coastal population growth are occurring now, as evidenced through a range of physical changes to the environment including:

- loss of habitat for fish and aquatic species;
- loss of nursery grounds for prawns and other economically important species;
- increased incidence of acidic discharges arising from impacts of acid sulfate soils;
- release of deoxygenated water into sensitive receiving waterbodies resulting in massive deaths of aquatic species;
- encroachment of mangroves into other more sensitive ecosystems (such as saltmarsh) and an ability of natural succession to keep pace with change;
- eutrophication of waterbodies from runoff of nutrient rich waters;
- sedimentation and shoaling of river entrances;
- coastal erosion and shoreline vulnerability due to encroachment of urban development on dunal areas; and
- modification of natural sediment movement and dynamics along coastlines.

When considering issues such as the coastal environment and climate change, it is also important to examine the implications of past/historical land use decisions on the coast undertaken at a time before there was sufficient understanding of the vulnerability of the coastal zone to climate change impacts. In some cases, there may be grounds to re-examine the location, design and feasibility of future development in coastal areas even where existing use rights are in place.

The Institute considers that in some jurisdictions it may be appropriate to consider establishment of a coordinating body for coastal communities to promote the sustainable use of coastal resources. This body would need to transcend Local Government Areas (and ideally the State/Territory boundaries) to be effective. In addition, all new mechanisms available to promote the use of sustainable coastal resources should have an adaptive management approach that is well resourced so that feedback to policy can be monitored and will be on-going as systems change.

5 Impact of climate change on coastal areas and strategies to deal with climate change adaptation, particularly in response to projected sea level rise

In order to better understand the impacts of sea level rise, the Institute considers that more detailed modelling is required, which includes the oceanographic responses across a range of scenarios. Furthermore, the Institute supports the proposed national approach to developing responses to sea level rise. Such an approach needs to be based on a good understanding of the above-sea-level topographic conditions and a detailed assessment of the near-shore bathymetry so that changes in wind and wave climate can also be assessed. The precautionary principle should be applied to all aspects of coastal zone management where a lack of information exists.

The Institute recognizes that there is extensive literature available on the impact of climate change on coastal areas, and reference should be made to the Australia and New Zealand chapter of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change released in 2007.

However, the coast is a complex system, with many inter-related aspects. The Institute considers that sea level rise will not be the only impact on the coast from climate change. At present, there are general predictions regarding changes in storminess, wave climates and wind strength and direction, and relatively little work has been undertaken to date to understand in detail what types of impacts are likely and where they will have most effect.

For example, a sea level rise of a few centimetres¹ could bring the following concerns, some of which are not yet well understood.

- Impacts on the drainage of storm water from coastal cities.
- Impacts on coastal sediment budgets. Since many coastal reaches are barely competent now, a small sea-level rise could lead to sediment accumulations that cause increased flooding and intertidal vegetation. Other possible effects include re-activating mobile dune fields, and possibly increasing the potential for vector borne disease.
- Effects on coastal ecosystem connectivity, especially between wetlands. This is not well understood (such as the role of groundwater movement) but would affect migratory species in particular, especially those that need both fresh and saline water at different stages of the life cycle (such as some fish species). This, in turn, may then tie in with food shortages.
- Impacts on perched beaches.
- Impact on groundwater. Increased saltwater intrusion could lead to the contamination of water.
- Impacts on saltmarsh and mangroves. This could affect the primary productivity of coastal areas, interactions with marine systems and the nursery ground function of these ecosystems.
- Impacts on sea grass meadows and other critical habitats. For example, will existing barred estuaries become “marine” estuaries?

In order to better understand the impacts of sea level rise, the Institute considers that more detailed modelling is required which includes the oceanographic responses across a range of scenarios. Modelling theory, such as the Bruun Rule exists, but a lack of resources has resulted in only a few areas modelled to-date. The application of modelling is considered to be particularly relevant in the central coast area of WA where significant areas of coast are sheltered by off-shore limestone reef platforms which may have a limit of attenuating wave action lower than predicted sea level rise.

As impacts of sea level rise are increasingly felt around Australia's extensive coastline (including estuarine embayments), the tension between the right to own and protect private property on the coast and the right to public access and enjoyment of foreshore areas such as open coast beaches will increase. In allowing such activities to proceed, the perceived rights associated with ownership of private property become increasingly entrenched, often to the detriment of the access and enjoyment of public open space on the coast by the community at large. While it is recognized that different jurisdictions have different policy and management approaches to this issue, effective and consistently applied policies (such as those in North and South Carolina, USA) relating to staged or planned retreat need more significant consideration.

¹ The majority of sea level rise projected to occur during this Century is mainly a result of thermal expansion of the oceans rather than significant ice cap melting. Therefore sea level rise of just a few centimeters could become important within the current planning period.

Another important issues in relation to climate change impacts on the coast are social issues. A wide range of social issues could arise.

Rather than an exhaustive list of impacts on coastal communities, the Institute has identified a number of potential social impacts arising from loss and/or change in biodiversity levels as a result of sea level rise and ocean warming. These issues include:

- Changes to the fishing industry. For example, WA's rock lobster industry could be severely impacted by changes to the Leeuwin Current, a primary driver of WA's coastal ecosystems.
- Tropical bird (and possibly fish) species moving further south, displacing existing rookeries.
- Impacts on migratory species and obligations under International treaties.
- A loss of experience – fishing, wildlife observation, calm low energy 'family' beaches.

In developing appropriate strategies to deal with climate change adaptation on the coast, it is clear that there is a role for all tiers of government to play, and that ideally the roles and responsibilities of the relative tiers be clearly defined and well understood both within and outside of government. The development of a detailed implementation plan for the existing National Adaptation Framework could provide a useful starting point. In addition to that work, examples of appropriate roles could include the following.

- **At a national level –**
 - continued **leadership** of the Australian delegation to meetings/conferences of parties to International conventions,
 - **recognition** and **promotion** of the significance of climate change adaptation as a field in its own right and separate (but linked) to climate change mitigation policy responses,
 - provision of **information** through funding and commissioning relevant research and development activities,
 - **coordination** of activities requiring a national approach, capacity building and training activities,
 - **partnerships** with research institutions, funding for key sectors and regions to undertake the impacts of climate change at a practical level,
 - **review of relevant policies and guidelines** such as the recently announced review of the Australian Rainfall and Runoff Manual by the Department of Climate Change
 - **support for lower levels of government** in undertaking priority projects, retaining (and acquiring new) call-in powers for assessment of projects of national environmental significance,
 - support and identification of opportunities for **private sector engagement** in climate change issues,
 - support and **active management/participation** for issues relating to climate change impacts relative to the Constitution's **external affairs** power (eg biodiversity conservation, Ramsar, World Heritage areas, desertification, migratory bird habitats, law of the sea and oceans and fishery management).

- **At a State / Territory level –**

- State-level **implementation** of National frameworks and projects, active and enthusiastic participation in nationally coordinated actions, funding for State-significant research and development,
- **development and implementation of appropriate policy frameworks** to include climate change issues (eg through including specific triggers for climate change in legislation for environmental impact assessment, strategic planning, coastal protection, environmental protection, pollution licensing, biodiversity conservation, fisheries management),
- **adequate resourcing** of agencies with increased responsibilities due to threats from climate change (eg bushfires, pressure on health system due to heat-related conditions and mosquito borne diseases),
- hosting and supporting **research hubs/centres of excellence** in areas of interest,
- respecting the **separation of the judiciary** and its right to recognise climate change as an issue at common law and as a legitimate issue of **public interest**,
- setting the **boundaries** for **local government** to operate in and giving guidance on contentious issues,
- active encouragement of the need for **strategic urban and regional planning** which explicitly considers climate change,
- supporting local government decision making in relation to development assessment where climate change is a contentious issue,
- encouragement for all sectors within government to **proactively identify** and address **threats** from climate change (eg need for air conditioned transportation of prisoners on hot days),
- ensuring liability aspects for decision making are managed through provision of '**good faith**' **clauses** where applicable,
- **high level support** for local government in undertaking its day to day responsibilities, especially relating to urban and regional planning including development assessment.

- **At a Local government level –**

- undertaking **strategic planning** within the State government framework, seeking National or State grants to undertake applied research into specific local issues,
- **following appropriate guidance** on incorporation of climate change considerations into decision making,
- making **sensible planning decisions** with due regard to the precautionary principle,
- **collaborating** with neighbouring local government authorities to examine **regional** issues where applicable.

The Institute supports the proposal of a national approach to developing responses to sea level rise. Such an approach needs to be based on a good understanding of not just the above-sea-level topographic conditions, but also needs to include a detailed assessment of the near-shore bathymetry so that changes in wind and wave climate can also be assessed. The Institute also considers that it is not possible to develop effective adaptation strategies until the impacts of issues are understood. At the very least and as a fallback position, the precautionary principle should be applied to all aspects of coastal zone management, where a lack of information exists.

6 Mechanisms to promote sustainable coastal communities

The Institute recommends consideration be given to the following suggested mechanisms to promote sustainable coastal communities:

- Provide **funding and support** to Local Governments for catchment management.
- Ensure that there is a process and ability to **engage the community** and to develop the political will for mitigating the impacts of development.
- Encourage and **support decision makers** to refuse consent for genuinely inappropriate coastal developments. For example through strengthening the role of advice and concurrence agencies.
- Develop **design criteria** for infrastructure projects in areas where vulnerable to climate change.
- Develop **practice manuals** / best practice guidance to assist practitioners and decision makers to adapt to climate change in a consistent and coherent way.
- Make more **sustainable planning** decisions, with consideration of application of the precautionary principle. This could be made possible through reducing the expectations of developers to expediency of approval processes which incorporate integrated development assessment, and instead focus on **good information** and sustainable outcomes.
- Consider the more extensive use of **regional planning**, such as is required in disaster preparedness. This would include consideration of natural disasters, water scarcity and other community issues such as health (such as heat stress, vector and water borne disease). For example, in Western Australia, Natural Resource Management groups are not statutory bodies, consequently do not have statutory force, and are classed as not-for-profit community organisations. As a result, the regional delivery model that NHT/NAP used has had mixed success and support. In practice, this has led to a power struggle between the Commonwealth and State Government and no real devolution of authority to regional groups.
- Base guidance provided for **catchment management** on integrated management principles, to negate the difficulties associated with the imposition of artificial administrative or governance boundaries.
- Ensuring that there are sufficient mechanisms for the protection of important catchment, coastal and marine ecosystems, with a focus on **ecosystem function**, rather than on species 'preservation'.
- The introduction of a **climate change trigger** for the *EPBC* Act to promote sustainable coastal communities. This can be justified as there could be increased climate change is a potential environmental impact arising from a proposed development.
- Consider the introduction of a full range of significant issues into federal, state, regional and local planning instruments to promote sustainable coastal communities when reviewing development applications (noting that this may already exist in some jurisdictions). These issues could include the following.
 - Potential climate change impacts in the next 10 to 20 years and measures to **manage these impacts** at the development level.
 - The consideration of **water efficiency** measures in planned development - water reuse/recycling, stormwater management, greywater reuse schemes etc.

- Consideration of **energy efficiency** measures in planned development.
- Considerations in planned development for **access to public transport**.
- Consideration of the effect of availability of **green space and public use areas** (noting that this will also have carbon emission implications too).
- Consideration of the maintenance of **community and urban vitality** in the application (such as not severing suburbs with large road systems).

In general, the Institute notes that through existing mechanisms, without an external trigger for State or Commonwealth Government involvement, it is mostly Local Government that approves development in the coastal zone.

7 Governance and institutional arrangements for the coastal zone

The Institute recommends the development of a National Coastal Policy that builds on the existing Framework for a National Cooperative Approach to Coastal Management. This should be supported by a long-term funding program for States and Territories and their Local Governments that is devoted to improvement in coastal management planning, assessment and management activities with a specific focus on managing population growth in the coastal zone and understanding/adaptation to climate change.

In reviewing governance and institutional arrangements for the coastal zone, it should be noted that the experience of the Institute is that one size does not fit all. Any new arrangements, especially at a national level need to include sufficient flexibility so that they can be appropriately implemented by each jurisdiction. This logic should also be extended to State Government introduction of polices to be applied at a Local Government level. In many instances, Local Government does not have sufficient resources to adequately train, implement or monitor new polices.

As identified by peak stakeholder groups such as the National Sea Change Taskforce, a stronger national approach to coastal management that embraces management of issues across the Catchment-Coast-Ocean continuum is vitally needed. In this context, the Institute recommends the following.

- Development of a **National Coastal Policy** that builds on the existing Framework for a National Cooperative Approach to Coastal Management.
- Development of a **formal, long-term funding program** for States and Territories and their Local Governments that is devoted to improvement in coastal management planning, assessment and management activities with a specific focus on managing population growth in the coastal zone and understanding/adaptation to climate change.
- **Closer integration** between management and funding for regional bodies in the areas of catchment and coastal management and the new coastal management funding program.
- Development of **research priorities** in the coastal zone to address research gaps and issues.
- Development of **standard monitoring indicators** to measure the effectiveness of a coastal zone management program.
- **Consistency** provisions to ensure Commonwealth activities in the coastal zone are consistent with endorsed State and local policies.