coastal Collaboration Cluster





Towards a Coastal Adaptation Strategy

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Introduction

Climate change will lead to sea level rise and increased frequency of storm surges; consequently to increased erosion and coastal inundation; and ultimately to the retreat of the shoreline. Impacts may include:

- Loss of houses
- Loss of coastal ecosystems
- Loss of beaches, beach quality and amenity, sport and recreation
- Loss of infrastructure and economic value.

This document is designed to complement existing coastal vulnerability and adaptation projects. Given the ongoing uncertainty around methodologies of detailed studies, the aim of this document is to present general strategic themes focusing on no-regrets approaches that will build resilience and sustainability in the coastal area, regardless of the specifics of future plans.

Strategies

Coastal adaptation is a process of deliberate change in response to impacts, and can be proactive or reactive. The goal of coastal adaptation is to make changes that will promote sustainability. Below are some general strategies for coastal adaptation that will guide good practice.

Use a sustainability framework

Coastal sustainability is about finding positive interactions among economic, ecological, social and cultural aspects of our coastal lives, and ensuring they are there for future generations. It is important to consider climate impacts on all of these aspects, and develop adaptation goals that account for all of these aspects.

- The cultural aspect relates to how we make and share meaning. It may include: heritage and Indigenous sites, art galleries, music venues, museums and our lifestyle
- The social aspect relates to how we organise ourselves to provide for our needs. It may include: hospitals, libraries, schools, the police station, cafés and clubs
- The economic aspect relates to how we generate livelihoods and the resources required to meet our needs and wants. It may include: water, energy and waste disposal infrastructure, ports, airports, tourist sites, shops, mines, farms and factories.
- The ecological aspect relates to the natural world. It may include: beaches, sea, estuaries, bushland, and processes such as water and nutrient cycles.

Think long-term about strategy and resilience

Climate change operates over a long time scale, and the sea will continue to rise for several millennia beyond 2100. Future generations may live in a world that is very different politically, economically and socially. Coastal adaptation should anticipate a dynamic and retreating shoreline, but allow for flexibility and adaptation in governance and management. A buffer or transition zone should be established that identifies the most exposed areas of the coast. Coastal adaptation should include increasing the resilience of systems so that they can

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remain sustainable and return to a healthy state even after a trauma such as a cyclone. Resilience includes psychological, empowerment, institutional, ecosystem and infrastructure considerations.

Learn from Indigenous stories

Some coastal Indigenous peoples have cultural stories about the last ice age when they lived on coastal plains that are now seabeds, and how the sea levels rose at the end of the ice age to drown those coastal plains and change the shape of the coastline dramatically. So our current society is not the first to have experienced the need for coastal adaptation. It is important to record the stories Indigenous people are willing to share, and to learn from their experiences about how they achieved sustainability in the face of a changing coastal climate and shoreline. These stories could form the basis of a website or poster along the (see Indigenous Website Guidelines). Any proposal would require detailed consultation with the Traditional Owners.

Engage inclusively to enhance learning, literacy and capacity

Coastal adaptation is likely to affect whole communities, and the costs of adaptation may affect whole states and countries. The complexity of climate change means we have to learn and adapt continuously using the best information available at the time. Structured conversations among the community, government and scientists will help enable learning and literacy for coastal adaptation. Knowledge comes not only from scientists but from government and society as well. Learning will build coastal adaptation literacy and community capacity, and this will enable deeper, fairer, and more constructive conversations around difficult decisions. Many engagement methods and tools are available to help with the learning journey, such as: deliberations, participatory modeling, scenario analysis, visualisations, participatory mapping.

Work with community champions

Many individuals and community groups within the local government area are keen to promote coastal and estuarine sustainability and adaptation to climate impacts. These champions can help promote understanding and acceptance in the broader community thorough their networks. Investing in their efforts can have a multiplier effect.

Enable community monitoring and coastal sustainability report cards

Monitoring coastal environments give us the information needed to learn, share and respond. Community monitoring can fulfil several additional objectives. It can increase empowerment, social learning, sense of place and stewardship in relation to a valued environment. Community monitoring is ideally done in partnership with professional scientists. The partnership helps identify meaningful scientific questions about local environments, enables a rigorous monitoring methodology and helps interpret the significance of the findings. Community monitoring can enable agency scientists extend their environmental monitoring capacity. Digital technologies such as GPS and GIS enabled camera-phones provide increasing opportunities for community groups to collect coastal and estuarine data and contribute to the development of databases. There exist sets of guidelines and techniques that can be used to enhance processes and outcomes.

The results of both community monitoring and more technical monitoring can be reflected in coastal sustainability report cards which show the Council and the community in simple terms how well the local area is travelling on its journey to coastal sustainability.

Support community art and cultural development

Not all community members are interested in science or find it easy to interpret. Art projects including community cultural development can be very powerful means for community to express their love of the coast and their concerns about it. Art and community cultural development can potentially increase sustainability learning and build social and psychological resilience to climate change impacts on the coast.

Develop partnerships and boundary processes

Partnerships have become a useful means of sharing information and resources for coastal adaptation. The scale and nature of the partnerships depend on the purpose. One of the challenges of coastal adaptation is to span the boundaries between different types of complex knowledge, governance and the community. Research organisations, the local government association and NGOs can also be useful partners in providing provide boundary spanning processes than help convene stakeholders, translate science into plain English, mediate conflict and co-produce shared knowledge.

Use the coastal adaptation ladder

The coastal adaptation ladder is a hierarchy of planning decisions which are not mutually exclusive but can be ordered from highest to lowest desirability. They are:

a. Avoid creating future liability. Direct new development away from the coast. This guideline already exists in some state planning policies, but may be open to interpretation in some contexts. Embed operational guidelines in town planning schemes to provide clarity to planners and developers. Allow generous buffers between the sea and buildings in the form of native vegetation and public open space. Do not increase jeopardy for future generations by intensifying development in vulnerable areas or behind seawalls.

b. Protect and enhance natural buffer systems. Coasts have their own buffer systems such as dunes and wetlands. These can be strengthened through the planting of native vegetation and avoiding their destruction for development purposes. This can slow the erosion of shorelines.

c. Roll back existing development. Move existing coastal development to safer ground, or plan for its complete removal. This is a strategic planning process that will involve close community and stakeholder engagement. Specific policies, standards and guidelines will need to be developed.

d. Accommodate floods and sea level rise. Some development can be allowed to remain longer in a transition zone if it is resilient to occasional inundation or flooding. This includes some sports and recreation facilities or parkland. Some buildings can be made more resilient to flooding or inundation through retrofits or innovative design.

e. Defend highly valuable assets with coastal engineering structures. This option is attractive to many stakeholders but present problems in the form of: conflicts around prioritisation; expense of construction; false perceptions of long-term risk reduction; increased future liability for maintenance; transfer of risk along coast; and loss of beach.

Mitigate to adapt

The fewer greenhouse gases we emit, the less we will have to adapt in the future. Mitigation is an important part of adaptation, and local existing mitigation efforts are relevant and should be increased as possible.