THAT SINKING FEELING: A TOWN PLANNING RESPONSE TO SEA LEVEL RISE

Tarnya Fitzgibbon - Senior Associate, McCullough Robertson Lawyers

Abstract

This paper outlines the planning initiatives which may be used in Queensland to mitigate the impacts of climate change, particularly sea level rise on coastal areas. An overview of the Queensland State Coastal Management Plan will be provided, focussing specifically on the strategic and planned approach to the way in which coasts are used and to meet the current and emerging issues such as adapting to the impact of climate change. An overview of Commonwealth initiatives will also be provided. The paper also provides a brief discussion of the potential liability of planning authorities for losses which may arise out of planning decisions.

Key Words: Queensland, Commonwealth, planning initiatives, liability

Introduction

Climate change has now largely been accepted by the community to be occurring. While the phenomenon itself may have been accepted, there is still strenuous debate about the nature and extent of impacts arising from climate change.

Recent newspaper articles on erosion in coastal areas has been prominent for most states, including Queensland, New South Wales, Tasmania and Western Australia. The common theme of these articles is the need for a town planning response to these issues now, in order for local communities to cope with the aftermath of large storm events. However, the impetus behind these planning responses should also require a response to potential sea level rise.

The challenge for local governments and developers is to adapt to the potential impacts of sea level rise now, rather than facing the aftermath following a major disaster, which would be certain to cause economic, environmental and social havoc.

The likely coastal impacts of climate change

The Intergovernmental Panel on Climate Change (**IPCC**) released its report on *Impacts, Adaptation and Vulnerability* (2007a), which highlights some of the hazards which are likely to arise in coastal areas. The IPCC (2007a) reported that coasts are highly vulnerable to extreme events, such as storms, which impose substantial costs on coastal societies.

Queensland has experienced several extreme weather events over the last two years, including Cyclone Larry which devastated the coastal communities around Innisfail. The estimated cost of repairing public infrastructure as a result of the extreme rainfall event in Mackay earlier this year is estimated to be $5.5 million (Daily Mercury, 2008). Although the rainfall event itself was extreme (it was said to be a 1 in 200 year Average Reoccurrence Interval event), a high tide impacted upon the stormwater drainage infrastructure, which lead to the catastrophic flooding. Similar rainfall events were experienced in Townsville which also caused extensive flooding and damage in the low lying areas around Townsville (Townsville Bulletin, 2008).

Global sea level rise through the 20th century has been identified as contributing to increased coastal inundation, erosion and ecosystem losses (IPCC, 2007a). However, there is considerable local and regional variation in these impacts due to factors other than sea level rise (IPCC, 2007a).

The IPCC (2007a) has expressed a very high confidence of the increased risks of exposure of coastal areas to impacts such as erosion, over the coming decades, due to climate change and sea level rise. These changes include: an accelerated rise in sea level of up to 0.6 metres or more by 2100, a further rise of 3 degrees Celsius in sea surface temperatures, and intensification of tropical and extra-tropical cyclones, larger extreme waves and storm surges, altered rainfall and run off, together with ocean acidification (IPCC, 2007a).

Human-induced pressure on coastal areas has the potential to exacerbate the impacts of climate change on coasts. The IPCC (2007a) found that the increasing numbers of people and assets at risk in coastal areas are subject to additional stresses due to land use and hydrological changes in catchments, including dams that reduce sediment supply to the coast.

The IPCC (2007a) concluded that the unavoidability of sea level rise conflicts with current settlement trends and land use patterns. The report states:

'The issue is reinforced by the increasing human use of the coastal zone. Settlement patterns … have substantial inertia, and this issue presents a challenge for long-term, coastal spatial planning.' (IPCC, 2007a, p317).

An integrated approach to managing coasts is considered desirable by the IPCC (2007a) to combat the impacts of climate change. According to the IPCC (2007b), over 80% of the Australian population lives in the coastal zone. Approximately 711,000 addresses are within 3 kilometres of the coast and less than 6 metres above sea level (IPCC, 2007b). More than 60% of these dwellings are located in Queensland and New South Wales (IPCC, 2007b).

The predicted impacts of sea level rise include greater coastal inundation, erosion, loss of wetlands and salt water intrusion into freshwater sources (IPCC, 2007b). As a result of these impacts, infrastructure and coastal resources are at risk of being damaged or destroyed, making existing coastal management plans redundant.

Impacts for Queensland

Since 1950, there has been an increase of temperature of between 0.4 to 0.7 degrees Celsius. This has seen an increase in the intensity of droughts, as well as a rise in sea level of about 70 mm in Australia (IPCC, 2007b). Floods, landslides and storm surges are very likely to become more frequent and intense (IPCC, 2007b).

Ongoing coastal development in South-East Queensland and in areas such as Cairns is projected to exacerbate risks from sea level rise and increase the severity and frequency of storms and coastal flooding by 2050 (IPCC, 2007b). The Great Barrier Reef and Queensland Wet Tropics are likely to suffer a significant loss in biodiversity by 2020 (IPCC, 2007b).

Of most concern to all Queensland local governments is the predicted risks to major infrastructure are likely to increase. These risks include failure of floodplain protection and urban drainage and sewerage systems, and increased storm and fire damage. The IPCC (2007b) has predicted that by 2030 extreme events are very likely to frequently exceed their design criteria.

According to the Queensland Government (2006), Cyclone Larry is reported to have cost US$263 million. These costs comprise of the significant damage and disruption to houses, businesses, industry, utilities and infrastructure (including road, rail and air transport, schools, hospitals and communication systems). The storm surge of 1.75 metres occurred during low tide (Queensland Government, 2006).

Adapting to sea level rise: Queensland style

The Queensland Government has taken the predicted threats from sea level rise on the coasts seriously. There are numerous planning related policy documents developed by the Queensland Government to assist with regulating development within the coastal

zone. These include the State Coastal Management Plan, regional coastal management plans and ClimateSmart 2050.

State Coastal Management Plan

The State Coastal Management Plan (**Coastal Plan**) commenced in 2002. The vision statement for the Coastal Plan is:

'Queensland's coast – the dynamic strip that straddles land and sea – is recognised as a precious part of our landscape, and government, industry and community work together to understand its natural systems, protect and rehabilitate important areas and ensure that our activities and settlements are sustainable.' (EPA, 2002, p2)

The Coastal Plan is a statutory instrument and has statutory effect under the *Coastal Protection and Management Act 1995* (**Coastal Act**). The Environmental Protection Agency (**EPA**) administers the Coastal Plan, which is triggered under the *Integrated Planning Act 1997* (**IPA**), when development is proposed within a coastal zone.

The Coastal Plan applies to the coastal zone. The coastal zone is defined under section 11 of the Coastal Act to be:

'[C]oastal waters and all areas to the landward side of coastal waters in which there are physical features, ecological or natural processes or human activities that affect, or potentially affect, the coast or coastal resources.'

State and local governments implement the Coastal Plan in making relevant planning and land use decisions for activities in the coastal zone that may adversely impact on coastal resources, including the preparation of regional coastal management plans (EPA, 2002). Local governments have an additional role to play through the coordination and integration of relevant parts of the Coastal Plan into planning schemes developed under IPA (EPA, 2002). Alternatively, where the provisions of the Coastal Plan have not been incorporated into the planning scheme, local governments can assist in implementing the Coastal Plan when assessing applications for impact assessable development under the Integrated Development Assessment System (**IDAS**) contained in IPA (EPA, 2002).

In addition to the Coastal Plan, regional coastal management plans will be developed and will operate in conjunction with the Coastal Plan, concentrating on region specific policies and defining the boundaries of areas such as control districts and key coastal sites (EPA, 2002). There are 11 coastal regions in Queensland. These are:

(a) Gulf of Carpentaria Coast;

(b) Torres Strait – extends to near the southern coastline of Papua New Gunea;

(c) Cardwell-Hinchinbrook;

(d) Whitsunday Coast – from the northern border of the old Whitsunday Shire Council to the southern boundary of the old Sarina Shire Council;

(e) Curtis Coast – from the northern boundary of the old Calliope Shire Council to the southern boundary of that Shire;

(f) South-East Queensland Coast – from the northern boundary of the old Maroochy Shire Council to the Queensland-New South Wales border;

(g) Cape York Peninsula Coast;

(h) Wet Tropical Coast – northern boundary of the old Douglas Shire Council to the southern boundary of the old Johnstone Shire Council;

(i) Dry Tropical Coast – from the northern boundary of the old Thuringowa City Council to the southern boundary of the old Bowen Shire Council;

(j) Capricorn Coast – from the northern boundary of the old Broadsound Shire Council to the southern boundary of the old Fitzroy Shire Council; and

(k) Wide Bay Coast – from the northern boundary of the old Miriam Vale Shire Council to the southern boundary of the old Noosa Shire Council (EPA, 2002).

Of these 11 regional coastal areas, only 4 of the regional plans have been developed to date. These are the Wet Tropical Coast, Cardwell-Hinchinbrook, Curtis Coast and South-East Queensland (EPA, 2008b). There are three further regional coastal plans that are in the process of being developed. These are the Mackay-Whitsunday, Wide Bay and Dry Tropical Coast (EPA, 2008b).

Under section 42 of the Coastal Act, coastal plans must be reviewed within 7 years of commencement. The Coastal Plan is currently undergoing a review. The purpose of the review has been stated by the EPA (2008a) to be to:

(a) assess the effectiveness of the plan and its policies;

(b) consider how coastal planning systems can address current and emerging coastal planning, development and management issues in a strategic manner (including adapting to the impacts of climate change);

(c) examine ways to integrate planning and management activities and resolve overlaps between statutory roles and administrative regimes;

(d) identify how to achieve the best outcomes for the coasts within the IPA framework and natural resource management programs; and

(e) investigate ways of providing greater certainty about the most appropriate locations for new and expanding urban development, coastal dependant development including maritime infrastructure and industry.

The EPA (2008a) concludes that by adopting a planned and strategic approach to the manner in which coastal areas are used, current and emerging issues such as adapting to the impacts of climate change can be addressed.

One of the principles of coastal management under the Coastal Plan is that the use and development of the coastal zone occurs in an ecologically sustainable manner (EPA, 2002). Interestingly, Principle 1F of section 2.1 of the Coastal Plan relating to coastal use and development is that the precautionary principle is to be adopted in making decisions where there is a risk of significant adverse impacts on coastal resources (EPA, 2002).

The coastal management outcome for section 2.2 of the Coastal Plan for physical coastal processes is that the coast is managed to allow for natural fluctuations to occur, including any that occur as a result of climate change and sea level rise, and provide protection for life and property (EPA, 2002).

Principle 2A of section 2.2 of the Coastal Plan requires that *'trends in climate change, including sea level rise, more extensive storm tide flooding and associated potential impacts are taken into account in planning processes'* (EPA, 2002, p27).

Predicted impacts resulting from climate change, which are listed in the Coastal Plan relate to physical, social and economic impacts on the coastal zone and human settlements (EPA, 2002). Some of the predicted impacts outlined in section 2.2.1 of the Coastal Plan are:

- increased vulnerability of beach and dune systems to erosion;
- shorelines potentially receding;
- coastal lowland inundation;
- more extensive and more frequent storm surges and flooding;
- potentially more frequent cyclones and severe storm events;
- saltwater intrusion into aquifers and estuaries;

- changes to groundwater systems due to predicted long term changes to rainfall patterns;
- reduced coastal habitats;
- increased reef vulnerability and mortality, including coral bleaching;
- altered deposition patterns for sediment in near shore areas, which may change coastal and estuarine processes;
- displacement of coastal wetlands and reduction of marine biodiversity;
- increased damage to coastal infrastructure such as port and marina facilities;
- possible reduction in the water quality of coastal rivers; and
- impacts on the economy through loss of tourism, recreation and transport functions and impacts on agriculture in coastal areas (EPA, 2002, p27).

Progressive adaptation to climate change has been determined to be the ultimate goal. The Coastal Plan provides at section 2.2.1 that (EPA, 2002, p27):

'Trends in climate change including sea level rise and more extensive storm tide flooding necessitate impact and vulnerability assessments before strategic plans for progressive adaptation can be made.'

The EPA (2002) has identified four policy areas to target under the Coastal Plan. These areas are:

(a) avoidance of development on vulnerable areas;

(b) improved knowledge and understanding of climate change;

(c) assessments of impacts and vulnerability; and

(d) incorporating adaptation strategies into coastal planning and management.

A hierarchy of approaches to coastal planning to address the potential impacts of climate change is also included in the Coastal Plan. The hierarchy of approaches is:

'1. avoid - focus on locating new development in areas not vulnerable to the impacts of climate change;

2. planned retreat – focus on systematic abandonment of land, ecosystems and structures in vulnerable areas;

3. accommodate – focus on continued occupation of near-coastal areas but with adjustments such as altered building design; and

4. protect – focus on the defence of vulnerable areas, population centres, economic activities and coastal resources.' (EPA, 2002, p28).

Section 2.9 of the Coastal Plan requires that coastal management is coordinated and integrated across all levels of government and within the community (EPA, 2002). Principle 9A of section 2.9 requires that planning processes and management decisions made by government agencies and non-government groups are integrated and coordinated, and reflect the outcomes, principles and policies of the Coastal Plan and any relevant regional coastal management plan (EPA, 2002).

The Coastal Plan also outlines the roles and functions of certain ministers with responsibilities under statutes with an environmental focus, such as the *Environmental Protection Act 1994* and the minister responsible for administering the IPA (EPA, 2002) Roles have also been included for local government, regional consultative groups, the Aboriginal and Torres Strait Islander Community and the community at large, together with the role of industry groups and the Commonwealth Government (EPA, 2002).

To assist local governments in fulfilling their roles under the State and Regional Coastal Management Plans, the EPA has developed an Implementation Guideline for Planning Schemes (**Planning Scheme Guideline**)

(EPA, 2008c). The Planning Scheme Guideline provides a structure for the incorporation of the State and regional coastal policies into Planning Schemes. The structure outlined in the Planning Scheme Guideline (EPA, 2008c) includes:

- providing strategies to protect or manage coastal resources and their values consistent with the coastal plans in the Strategic Framework of a planning scheme;
- including relevant coastal management definitions in the interpretation section of the planning scheme;
- developing Desired Environmental Outcomes relating to coastal management – an example provided is: *'Use and development of the coastal zone is ecologically sustainable, allowing for natural fluctuations and coastal processes, providing opportunities for public access and protecting, managing and restoring cultural resources, cultural heritage, scenic coastal landscape values and coastal ecosystems.'* (EPA, 2008c, p7);
- land use allocation and zoning – planning measures associated with the coastal management outcomes (eg. assessment tables and development codes);
- overlays – overlays may be used to address coastal management policies that affect more than one zone or area designation. Levels of assessment and development assessment criteria that achieve the required coastal management outcome should be specified;
- assessment requirements – guidance should be provided in the planning scheme on the types of development that should be assessed and the relevant assessment criteria. Examples of the outcomes and solutions are provided in the Planning Scheme Guideline; and
- Planning Scheme Policies – these may outline information requirements for addressing the coastal planning policies in development applications.

A *State and Regional Coastal Management Plan Implementation Guideline for Development Assessment* has also been developed by the EPA (2008d). This guideline is an interim guideline to assist local governments in assessing developments against the policy outcomes of the State and Regional Coastal Management Plans, until such time as the local governments have incorporated those policies into their planning schemes and the planning scheme has been approved by the Minister as appropriately reflecting the coastal plans (EPA, 2008d).

As a result of the increased knowledge on the potential impacts of climate change on coastal areas, particularly sea level rise, it is hoped that adaptation strategies can be incorporated into any amendment to the Coastal Plan arising from the review process. It is anticipated that these amendments would then be included in local government planning scheme reviews to incorporate coastal planning policies into the local government planning schemes.

ClimateSmart 2050

The Queensland Government introduced *ClimateSmart 2050 Queensland Climate Change Strategy 2007: A Low-Carbon Future* (**ClimateSmart**) in June 2007. ClimateSmart proposes numerous actions and policies for adapting to climate change.

Queensland has one of the highest per capita rates of greenhouse gas emissions in the world (State of Queensland, 2007). ClimateSmart is the plan designed to improve Queensland's emissions profile in the short, medium and long term and contribute to the national target to reduce emissions by 60% below 2000 levels by 2050 (State of Queensland, 2007).

Some of the initiatives contained in ClimateSmart include:

- clean coal technologies;
- Queensland Climate Change Fund;

- Queensland Renewable Energy Fund;
- investigating geosequestration sites;
- setting a 10% target for renewable and low-emissions technologies by 2010;
- increasing the Queensland Gas Scheme (using natural gas to generate electricity rather than coal-fired generation) from 13% to 18% by 2020;
- establishing a feed-in tariff for solar power, which will pay consumers for energy they contribute to the grid from solar panel systems;
- Solar towns such as Thargomindah in Western Queensland and Townsville;
- ClimateSmart Homes rebate program in areas which do not have access to full retail competition for their electricity (eg. rebates for solar hot water systems, installing insulation and compact fluorescent light bulbs); and
- ClimateSmart Living education campaign to raise awareness about climate change and highlight actions that individuals can take to reduce greenhouse gas emissions (State of Queensland, 2007).

The Queensland Government has acknowledged that well planned and designed urban environments are an essential component of responding to climate change (State of Queensland, 2007). The importance of considering the implications of climate change at the planning and design stages are critical to ensuring the longevity of the built environment and supporting infrastructure (State of Queensland, 2007).

Policies are being developed to improve the efficiency of new and existing building stock, as well as ensuring that new dwellings and commercial buildings (particularly office buildings) incorporate high levels of energy efficiency and water consumption to reduce greenhouse gas emissions and lower energy costs for occupants (State of Queensland, 2007).

All new homes approved in Queensland from 1 March 2006 have been required to comply with minimum design measures to ensure that the houses are water conservative and energy efficient under the Sustainable Housing initiative. The measures under this initiative include greenhouse efficient hot water systems, energy efficient lighting, three-star rated shower roses, dual flush toilets and water pressure limiting devices (State of Queensland, 2007). It is estimated that these measures will reduce electricity consumption by up to 33 percent and decrease water consumption by up to 36 per cent, as well as reducing the running costs of the house for the occupier (State of Queensland, 2007).

To ensure that climate change considerations are applied consistently across Queensland, the Queensland Government is developing a State Planning Policy for Climate Change. This will ensure that areas vulnerable to the impacts of climate change, such as coastal areas, have appropriate development controls incorporated in to planning schemes and the development assessment processes outlined under the IPA (State of Queensland, 2007).

Other mechanisms that have been used in Queensland have included the prohibition on broadscale clearing of native vegetation under the *Vegetation Management Act 1999*. It is estimated that this initiative alone prevented 20 million tonnes of greenhouse gas emissions from entering the atmosphere (State of Queensland, 2007). The Queensland Government is claiming this action to have been *'largely responsible for assisting Australia* [to] *meet its Kyoto targets'* (State of Queensland, 2007, p22).

Future initiatives are currently being developed by the Queensland Government, including the Carbon Offset Policy to position Queensland to benefit from offset opportunities that will be available under a proposed national emissions trading scheme (State of Queensland, 2007). An Environmental Offset Policy is also being developed (which currently excludes carbon), to reduce environmental impacts of developments by requiring offsets to occur (State of Queensland, 2007). An example of

how this policy might work would be if a developer was required to clear a certain category of vegetation to develop a site, the developer would be required to ensure that an area of a similar size to that being cleared is replanted (possibly in a different location).

Actions relating specifically to coastal areas are also being developed. Threats to Queensland's coastal areas are in the process of being mapped and a computer model developed to predict flooding and erosion caused by extreme weather events, such as cyclones, and sea level rise (State of Queensland, 2007). The models will be used to create maps which will help local governments manage their coastal areas and develop appropriate development assessment criteria. The modelling and maps will also assist in identifying coastal areas likely to be the hardest hit by a natural disaster (State of Queensland, 2007). The current projects include:

- the Burnett Mary Regional Group for Natural Resources Management coastal vulnerability assessment project, to create climate change impact maps of the coastline between Noosa and Gladstone;
- Gold Coast City Council project to model the tidal flow, water quality and sediment transport dynamics of the Broadwater and upstream estuaries; and
- a project assessing the health impacts of climate change in low lying communities in the Gold Coast region (State of Queensland, 2007).

Commonwealth response to sea level rise

There are numerous national initiatives which seek to address climate change and require the input of each state and territory to ensure success. These initiatives include:

- National Climate Change Adaptation Framework;
- National Agriculture and Climate Action Plan;
- National Biodiversity and Climate Change Action Plan; and
- Great Barrier Reef Climate Change Response Program.

None of these plans or programs relate directly to the impacts of climate change on coastal areas or sea level rise.

The Council of Australian Governments (**COAG**) developed the *National Climate Change Adaptation Framework* (**NCCA Framework**) (2007), which identifies coastal regions as an area of vulnerability. The NCCA Framework identifies the work undertaken by the Natural Resource Management Ministerial Council, having adopted the *Framework for a National Cooperative Approach to Integrated Coastal Zone Management* as the preferred method of investigating coastal vulnerability (COAG, 2007).

COAG (2007) identifies that an integrated and coordinated national assessment of the vulnerability of Australia's coastal systems to climate change is a priority. The assessment must involve all jurisdictions within Australia and major industry sectors (COAG, 2007). COAG (2007) has identified three areas requiring development which relate directly to coastal management. These are to (COAG, 2007, p12):

(a) develop and apply models for analysing coastal responses to changes in sea-level, wave action, storm surge and near shore activities;

(b) assess the vulnerability of infrastructure, settlements and environments of significance using biophysical and socio-economic modelling and inundation scenarios; and

(c) identify vulnerable coastal areas and apply appropriate planning policies, including ensuring the availability of land for migration of coastal ecosystems.

The introduction of the emissions trading scheme is likely to require the introduction of

further initiatives and adaptation strategies to reduce the impact of climate change. The emissions trading scheme is unlikely to have any direct incentives relevant to coastal areas or sea level rise.

Future legal implications

If the impacts predicted to occur as a result of climate change do come to fruition, there are likely to be legal consequences in the future. At present, climate change litigation is in its infancy, but is evolving at a rapid pace.

The *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**), which is the centrepiece of the Australian Government's environmental laws, remains silent on regulating greenhouse gas emissions and climate change (McGrath, 2007). Section 520(3)(k) of the EPBC Act allows the government to make regulations to give effect to the United Nations Framework Convention on Climate Change to regulate greenhouse gas emissions.

While the Commonwealth Government does have the power to regulate activities which may contribute to climate change under the EPBC Act, the decision of the Federal Court in *Wildlife Preservation Society of Queensland Proserpine/Whitsunday Branch Inc v Minister for Environment and Heritage & Ors* [2006] FCA 736 indicates that greenhouse gas emissions are not being regulated under the EPBC Act. This decision demonstrates that even projects involving large emissions of greenhouse gases such as coal mines are not considered to have a significant impact on protected matters under the EPBC Act, when considered in the context of total global greenhouse gas emissions (McGrath, 2007).

The difficulties with cases in which the emitter is being pursued will often relate to a difficulty relating to causation. As McGrath (2007, p12) suggests:

'[T]he complexity of the scientific knowledge about climate change is compounded by the difficulties of attributing legal responsibility for impacts caused by the cumulative emissions of greenhouse gases from human activity around the globe spanning several centuries.'

While it may be difficult to pursue the emitters, it is likely that local governments and other authorities regulating planning and development activities may be pursued in the future for planning decisions made now if sea level rise and other impacts occur.

The High Court has already considered the liability of planning authorities responsible for coastal areas in *Graham Barclay Oysters Pty Ltd v Great Lakes Council* (2002) 211 CLR 540 (**Barclay Oyster Case**). McGrath (2007) considers the Barclay Oyster Case noteworthy for providing the principle that public authorities are liable for losses due to activities over which they exercise regulatory control. However, McGrath (2007, p16) considers that the liability of public authorities for the impacts of climate change are likely to be limited, but may arise *'where planning approval is given in the face of known risks of climate change such as sea level rises and increased severity of storms'*.

McDonald and England (2007) have also considered the liability of development authorities for climate change impacts in light of changes to the common law principles of negligence in Queensland under the *Civil Liability Act 2003*. McDonald and England (2007) conclude that the provisions relating to public authorities under sections 35 and 36 of the *Civil Liability Act 2003* provide key principles which will limit the potential liability of planning authorities for decisions they make even if the impacts of climate change are known.

The issue of protecting the coastal zone, is being taken into consideration in some Planning and Environment Court matters. The case of *Charles & Howard Pty Ltd v Redland Shire Council* [2006] QPEC 095 is an example of this. This case involved fill being placed on land, the requirement of a buffer zone and the effect the fill would have on issues such as inundation and storm surges.

The EPA takes a very active role in protecting the coastal zone. In the case *of Wall v Douglas Shire Council* (2007) QPELR 517, the EPA pursued Douglas Shire Council for not obtaining approval from the EPA, through the IDAS processes, to remove a small

amount of earth to create a slab for a toilet block in an area adjacent to the Daintree River.

It is likely that as the provisions of the Coastal Plan are integrated in to planning schemes that these issues will become more prominent in Planning and Environment Court appeals.

While it is likely that this area of law will continue to develop, it appears at this stage that there is only limited potential for planning authorities to be held liable for losses that may arise out of the impacts of climate change, including sea level rise. However, as knowledge about the impacts of climate change and potential for sea level rise increases, the liability of planning authorities for their decisions may also increase in the future.

Conclusion

The Queensland Government has adopted a planned approach to both mitigating the impacts of climate change and developing policies to help Queenslander's adapt to the impacts of climate change. The Coastal Plan has an integral role in regulating and managing development along Queensland's coast and the use to which the coast is put. The guidelines which have been developed to assist local governments to implement the Coastal Plan and ensure that the provisions of the Coastal Plan are integrated into local government planning schemes is imperative in the successful management of the coast.

While the law relating to climate change is in its infancy, it is likely to evolve rapidly over the next decade. While it is likely that planning and development authorities may be pursued for losses resulting from the impacts of climate change, it is likely that the liability for planning and development authorities for their decisions to approve developments and uses will be limited.

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