5th Western Australian State
COASTAL CONFERENCE 2009
Whose Coast Is It?
adapting for the future

6C:
Coastal Development and Marine Impacts:
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Orion Room

Value of Multi Purpose Reefs to Address Beach Erosion from a Local Government Councillor Perspective

PRESENTER:

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Introduction

Western Australia is the largest state in Australia, with the largest coastline and has the greatest number of beaches. Because of the warm weather that allows excellent outside living most residents choose outdoor activities to keep them both entertained and healthy. Statistically one in four people surf or use beach side activities annually in Western Australia. Perth, the states capital city is the most isolated City in the world and is the third windiest City in the world.

I am an elected member on the City of Stirling which is located 10 km north west of Perth and is the largest local government in Western Australia, and in the top ten Local Governments in Australia. Stirling has ~ 200,000 people and has an operating budget of ~ $200 million and continues to be debit free.

Councillors are elected by the people (non-compulsory voting) for a four year term and are non political. Many people do not realize that good Councillor representation is an excellent tool in ensuring that the community is heard and that the community has the capacity to excel in the future for further generations to enjoy and appreciate.

Many decisions especially with regard to planning of such items as hotels and multi density developments can be difficult in weighing up the objectives of Council policy and those outcomes preferred by the community.

To put it into perspective a Councillor in a Local Government/a Municipality/a Council/a Governing body, needs to be reminded that they have been voted into office by the people, as a community advocate and not as a developers catalyst for financial reward.

Councillor objectives should include :

- Economic Rationale.
- Community Perspectives/Participation/Respect.
- Community Services.
- Ensure Integrity/Good Governance.
- Encourage Diversity.

- Preserve the Environment/Heritage.
- Ensure Accountability.

Background

If we consider the history of the natural reef located at Scarborough beach in Western Australia, which is located 15 kilometres west of the central business district of the City of Perth and 5 kilometres from the heart of the City of Stirling.

In the 1920's sixteen people drowned in one day at Scarborough beach and the state and local government politicians and staff met down at the beach to discuss how they could address this tragedy.

It was decided that the army would be engaged to blow up a section of the existing reef between Scarborough and Brighton, to alleviate the situation. This was carried out and the wave height and frequency was reduced considerably in the area and since that time no one has drowned at that part of the beach front. When the tide is out some of the remnants of the rocks of the old reef are still visible and it would make environmental sense if we are to redevelop the reef again then we should consider using the existing foot print and build on that foundation. Hopefully when the report of the incident is available other issue will be realized. Unfortunately obtaining the actual business plan from that era has been difficult.

There is a rich social historical context to the Scarborough beach area that includes the Rock and Roll era (site of the 'Snake Pit'), transport (the plank road and the Scarborough Bus Service), Luna Park, Surf Life Saving and Surfing.

Council needs to consider numerous costs at all levels of service and are constantly implementing sustainable strategies it reduce cost and environmental impacts on our planet and on our lives both for now and the future.

There is an abundance of documentation written on the ability of the wave and wind energy from the ocean to supplement the power practices of the land users. The wind velocity and frequency coupled with the wave energy and magnitude can be an indicative source of power in a Council that is coming to terms with an ever increasing cost of just providing street lights to their residents, and also solar energy needs to be considered as an option for green energy.

Council already has to consider the costs/provision of services

Local governments need to consider in their annual budgets cost to maintain the coastal areas even withstanding a storm event! Cost can be associated with:

- Vegetation and maintenance of the dunes (planting/weeding etc.).
- Removal of beach inhibitors (dogs/cats/foxes etc.).
- Containment of the site (fences/retaining walls etc.).
- Maintenance of the site perimeter (footpaths/roadways etc.).
- Undesirable behavior (litter/graffiti/pollution etc.).
- Provision of signs (danger/safety/information etc.).
- Provision of services (water fountains/showers/toilets etc.).
- Capital works (sand dunes/car parks/toilet blocks/club rooms etc.).

The reef solution can be investigated as a longer term solution to the cost of continually nourishing the beach with sand and vegetation. In 2008, around the waterman area of the coastal line just north of Scarborough beach an additional 700 cubic metres or 70 truck loads of sand was taken to Waterman's Beach. The sand was used to replenish areas of serious erosion affecting infrastructure namely, the toilet block, two beach access ramps, and two sets of beach access steps.

Our western beaches naturally regress in winter and build up again in summer owing to changes in the direction and velocity of ocean currents which affect marine sediment transport (or sand movement) as well as seasonal changes in prevailing wind directions coupled with storm fronts. Under normal conditions, what is lost in winter is usually regained in summer and any excess gets blown further inland off the beach and goes towards the creation of dunes.

Role of government is always bound by legislative protocols and balances and we need always to be mindful of our governance and accountability responsibilities

Legislative Responsibilities of Local Government

The legislative requirements/responsibilities of local government can be onerous and costly however compliance is a necessary form of good governance: Various legislations need to be considered when we look at the coastal picture : namely:

- *Local Government Act*: with laws relating to jetty's; water skies; animals; conduct of people; shark alarms; swimming; boats and water drains etc.
- *Land Act*: the use of land for the public purpose, namely parks and car parks.
- *Environmental Protection Act* : approve of the applicable town planning schemes for the area which may include subdivisions; amalgamations; development of land; public open space requirements.
- *Public Works Act* : considers the acquisition of land for the development of infrastructure such as the jetty; boat ramps; navigational aides.
- *Fisheries Act*: controls the times they can fish , the type of catch, the locations of where people can fish, what they can fish; what they can use to catch fish and the quantity of fish to be caught and also the provision of a licence to fish.
- *Metropolitan Regional Town Planning Scheme Act,* where it states that land must be set aside for recreation/for reserves and for coastal beach reserves.
- Adherence to the individual Council own planning schemes, local laws. strategic plan etc.

Every one can say there are positives and negatives of everything, the glass if half full or is the glass half empty? It is sometimes our own perception of the situation?

But often we have to look at what is going on and is it really as it appears? Are we complacent because we just look and don't observe?

Case study of Trigg beach over time

The changes in the Trigg beach coastal area has been experienced over time an this can be due to climate change, sea level rising, the influence of the Lewwin current, the ice melting on the polar caps etc. This activity has caused the change in the currents/the change in the tides and the change in the way the sand has been deposited on and from our coastal area and into the ocean and further up and down the coast.

The pictures below depict the change in the beach landscape at Trigg beach:

Trigg Beach 1914

Trigg Beach 1949

Trigg Beach 2004

Case study: Waterman Beach over time:

By all account the Seas level is rising and it is on every agenda as we become increasingly aware of the coastal playground. The natural disasters as often framed are bringing not only a financial and environmental burden to local government but also the burden of what scientific path to follow. Issues such as damage to property, disruption to basic services and of course the insurmountable loss with human injuries and lives, can never be underestimated or ignored.

Waterman 1935

Waterman 2008

Waterman 2009

Jeffery's Bay South Africa April 2009

The beach erosion in South Africa and the fact that set backs from the ocean are not adhered to causing many buildings needing to be retreated from the shoreline.

Hard engineering seawalls, groins do not resolve the issue all it does is sometimes protect the area in question causing huge issues further along the beach.

In St. Francis one of the problems was to much vegetation planted to prevent normal dune blow out to replenish and allow nourishment on the beach, increase in 25 year storms, lack of data, history, previous scenarios

Is global warming already starting to manifest itself on our beach ? (past storms v future degradation!)

Conclusion

If we consider the benefits to a Council in providing a multi-purpose reef (with additional supplementary funding from the private sector and from state and national government as this can be seen as a state wide health and environmental benefit to the nation !)

Several beneficial points come to mind:

1. sustainability—use of alternative energy/assist with dunes erosion/ecosystems etc.;
2. recreational activities—surfing/fishing/snorkeling/swimming/etc.;
3. reduces surf rage/bullying for wave usage;
4. provides an alternative surfing area;
5. provides an alternative place for board riders to be away from swimmers;
6. not high maintenance (cost effective for Council);
7. fee community activity;

8. ability to utilize exiting beach facilities in winter;
9. venue for an desalination plant (assisting in water stock piles);
10. reduced travel for people wishing to go to an alternative location to surf (reduced carbon emissions as reduced car usage etc.);
11. encouragement of a healthy activity (reduction in obesity);
12. encouragement of the growth of marine organisms (balancing our ecosystems);
13. reduction in the sand erosions of the beach dunes;
14. increased economics in the area (more people buy property);
15. increase in tourism which benefits the whole economy;
16. increase in employment (as service in the area increase); and
17. people want to live in close proximity and therefore Council rates can increase.

If Local Governments are to be sustainable in the future both environmentally and financially then it makes good business sense and good community sense to provide infrastructure that will be of limited ongoing cost to the ratepayers and to the Council and this infrastructure will provide both a healthy and a vicarious lifestyle for all.

The building of and the use of building products associated with a multi purpose reef is paramount to both the sustainability code of a Council and also for the environmental benchmark that a society expects today.

If we consider the specifics of a multi purpose reef and the specific benefits to a Council, then to me the most significant aspect would be the sustainability issue !

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