

# COASTAL SUSTAINABILITY – The way ahead

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Bruce Thom  
Wentworth Group of Concerned Scientists

Thank you for the opportunity to contribute to Sustainability Week. My talk will have a coastal flavour as I fervently believe that even more than at present, Australia's future rests with the sustainability of its coastal regions.

I would like to acknowledge three people. First, the late Professor Peter Cullen. Your invitation to the Wentworth Group of Concerned Scientists specifically requested Peter as a keynote speaker. Sadly he passed away last month. Australia has lost a great leader in water science and river protection. His legacy lives on and many of his recent talks can be accessed on the Wentworth Group web site.

Secondly, I would like to thank my friend and colleague Professor Colin Woodroffe. As a resident of Wollongong, and a senior scientist at the University, Colin is respected internationally for his work in coastal geomorphology. His text on the subject is a must for any serious student. Colin has provided you with an excellent context for my presentation especially the need to understand the nature and uncertainty of change along coasts.

Thirdly, I wish to acknowledge the work of a former colleague and former member of the University of Wollongong, Professor Sharon Beder. She is recognised as one of Australia's most influential engineers. Sharon has written extensively on Sustainable Development. Her works have provided me with insights about the many complex technical, societal and governance issues arising from the concept of "sustainability". I recommend her work for further reading.

My topic this evening, "Coastal Sustainability – the way ahead", embraces the thinking of Cullen, Woodroffe and Beder. It is a topic which requires me to think about:

1. the need to maintain and improve the quality and availability of our water resources;
2. the threats posed by global warming in coastal areas already under pressure from population growth; and
3. whether economic activities can be harmonised with environmental protection; whether there will emerge new technologies that limit or even overcome the impact of economic growth on the environment; and whether pressing environmental problems that are with us now, and will potentially be greater in the future, can be solved without social and political disruption.

Cullen, Woodroffe and Beder have all provided us with a better understanding of these three issues.

Let us first look at the concept of "sustainability". Much has been written about the need for governments, industry, agriculture, urban communities and individuals to think and act "sustainably". But that term can mean different things as Beder has shown. Recognition of

negative impacts of economic activity on environmental or natural assets, so vital for continued prosperity and societal well-being, drove governments to invoke principles of “sustainable development”. Limits to growth, finite resource base, and loss of ecological integrity (e.g. algal outbreaks in rivers) made communities and governments more aware of the need to embrace and think of new ways to manage natural systems if economic growth was to continue. And one of those ways was through use of new technologies. Changes to institutional structures may be another.

The Brundtland Report, “Our Common Future”, in 1987 succinctly defined Sustainable Development as:

...development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

In Australia, in the early 1990s, we formulated our own vision of Ecological Sustainable Development meaning:

“...using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained and the quality of life, now and in the future, can be increased”.

A number of principles underpinned this definition such as intergenerational equity, precautionary, integrating environmental and economic goals etc. Federal and State legislation were changed to incorporate the principles of ESD as objectives to statutes. But to what effect?

Beder’s work highlights the difficulties in interpreting and implementing the principles of sustainable development (sustainability) in general and ESD in particular. Given the nature of our capitalist society and our multi-layered democratic, legal and bureaucratic systems, it is no wonder that conflict, competition and self-interest frequently intrude upon the application of such principles. Yet by having the ESD debates in the 1990s; by having the droughts of the last 10 years; and by having an increased awareness of the potential threats of climate change, we Australians are perhaps more prepared than ever to strive for higher levels of “sustainability”.

The challenge for the rest of the 21<sup>st</sup> century is to incorporate into our capitalist economy forms of governance (decision-making frameworks if you like) that enable us to achieve the noble aspirations of sustainable development and ESD.

In coastal Australia, meeting that challenge will not be easy for a variety of reasons some of which can be found in the works of Peter Cullen on water and as outlined tonight by Colin Woodroffe in relation to sea-level change. Along the coast we have to ensure our demand for natural resources does not outstrip supply. This not only applies to water, but also to land where demand at sites which are vulnerable is clearly not a sustainable option.

My first of three propositions is that for coastal regions, such as the Illawarra, we cannot and must not assume an equilibrium or steady state in relation to environmental conditions, nor can we assume a business-as-usual approach to managing the economy. There will be changes. Some arise externally through global forces, others are caused by national forces and for those who live here, by forces that operate locally. The people of the Illawarra must be aware of what is happening, globally, nationally and locally and be prepared to adapt with or without the help of governments.

What will be those changes?

As Colin has pointed out, global warming will have local and regional consequences. Sea-level rise; more intense storms with overtopping surges; water shortages due to prolonged droughts; heat and water stress problems for plants and animals; heat and other health issues for humans; and possibly other lesser known impacts all make for an uncertain and different world from the present. To be sustainable we must find ways to adapt to these changes. But:

- What are the rates of change; will foreshores be insidiously inundated by rising water levels invading properties and requiring relocation of roads and pumping stations?
- What will be the frequency of droughts; will they be more severe than 2002 when Lake Illawarra dropped to levels that exposed its stinking bed as the entrance closed?
- What scenarios of change developed by IPCC, CSIRO or other groups should we plan for; do we plan for worst cases and start introducing into LEPs no go areas or no new development with or without compensation?
- How do we apply sustainability principles and eco-technologies in the context of uncertainty of global warming? Will this require more intervention in the market?

We must try to answer these difficult questions as part of our adaptive strategies for the future. These questions arise from projected changes to the natural system. What of changes to society and the economy? For instance does limiting demand by increasing prices of services create social inequity?

There is little doubt that coastal NSW over the next 20 years will continue to experience population growth. We can expect between 1%-3% annual growth in the Illawarra to 2030. We can also expect that many communities within this region and to the south will show a demographic shift to an ageing, more dependent society. Planners and developers, councils and state agencies are preparing for this influx as we speak. West Dapto is typical of new developments on the near horizon. How much more growth can we expect for Shellharbour and Kiama and will there be any more grand urban centres planned for the Shoalhaven?

People who live on or near the coast have various aspirations. One thing in common is the basic human trait to protect one's property. Legal protection of private property rights combined with political pressure to support individual and commercial interests will surely lead to continued conflict between public good and private benefit. Conflicts over developer interests in Wollongong offer examples where community views get divided and expensive litigation and inquiries arise. Inevitable attempts in future to manage environmental systems at the expense of perceived private rights will provoke community conflict. One can foresee more such conflicts in future.

Well-informed residents aware of the consequences of growth as climate changes will seek to protect public good environmental values. They will contest any rights claimed by new comers and land holders seeking to subdivide. These conflicts exist now on the South Coast. Sandon Point is a classic case. We cannot expect such conflicts to go away as developers seek to satisfy the land hungry. This is why we need innovative developers (not necessarily an oxymoron!) who will use sustainable urban design principles such as those produced by the former Coastal Council of NSW in 2002. Tulimba may be one such example on the South Coast. Hatch is also pioneering in Wollongong innovative ways of sustainable construction of office buildings.

There are other pressures that will change existing relations between coastal communities and the environment. We can expect governments to continue to foster economic growth. Creation of wealth and associated creation of jobs is fundamental tenet of both political parties in Australia. Migration will help stimulate growth. Governments will use a range of monetary and fiscal measures to ensure that household expenditure is maintained; that corporate profits grow; that budgets stay in surplus; that tax relief is available in some form; and that the blessed GDP indicator is always positive.

I'm no economist, however, I think we can expect for the foreseeable future that many in our federal and state governments, as well as our corporations and businesses, will focus on short-term economic benefits and thus let the long-term take care of itself. Yet Al Gore, Nicholas Stern and now Ross Garnaut in Australia are challenging this economic paradigm.

Global warming requires action now to avoid much more serious costs and consequences later. Emissions must be contained and reduced and energy switched to more renewable sources. If this can be done, some argue, we will not suffer economically. Here is where coastal living has many advantages. We must expect some form of tax on fossil fuel emissions. This will add to costs of energy and transport unless alternatives start coming on stream soon. Here is where innovative urban design embracing sustainable and information technologies can bring about new ways of urban living and working in compact coastal villages that minimize commuting and maximize lifestyle choices linked to the quality of the south coast climate.

Our coast is blessed with wave energy and clean water. Innovation here at Port Kembla is pioneering one way to trap the power of waves (Oceanlinx). We may also be able to better capture wind energy. Wave and wind could help provide electricity to desalinated water to assist in offering the portfolio of measures to overcome expected water shortages. Recycling of the scale pioneered by BlueScope Steel highlights various ways water supplies may be managed but the ever growing population of Sydney may continue to erode the water base of the south coast. However, energy from various sources in a region with diversified primary, secondary and tertiary industries will offer the Illawarra enormous advantages to foster sustainable growth.

So a second proposition emerges: that coastal economies, such as those of the Illawarra, can experience sustainable development provided , one, the region embraces an innovative array of technologies that capture energy and water from the sea and air to minimize polluting sources of energy and allow rivers to maintain environmental flows; and two, that we adopt sensible planning policies and urban design practices involving all levels of government to constrain the type and location of development to areas which do not become burdens on the public purse under local impacts of climate change.

Another area of change that we can expect over the next 20 years is institutional arrangements.

Under the Howard and, I expect, the Rudd Government we will see signs of increasing federal engagement in state, regional and local affairs. Constitutional limitations are slowly being modified by decisions of the High Court, by negotiation, and by fiscal actions. The Commonwealth is becoming more interventionist.

Global economic and climate changes require national policy in the way we are to tackle natural resource and other problems. The NWI of the Howard era, incidentally inspired by the thinking of Peter Cullen, highlights the way national interests can or cannot be pursued by the federal government. Institutional limitations are profound and in coastal Australia they are horrendous. Inquiry after inquiry (with a new one announced on 20<sup>th</sup> March) indicates why and how the Commonwealth should exercise leadership. But time and time again there is resistance.

Recommendations of these numerous inquiries (e.g. RAC1993) point to ways a more consistently applied national coastal policy could work. Climate change adaptation does provide a new stimulus for co-ordinated action. Nationally there is no room for climate change deniers who resist introducing guidelines which if implemented will reduce future liabilities and ensure sustainability of coastal communities. So under the second proposition, I have noted the need to constrain development in areas at risk to the impacts of climate change.

The new federal Department of Climate Change is active in defining vulnerable coastal areas supported by the research of Colin and other scientists using the latest technologies (eg LIDAR). We have no Corps of Engineers as in the USA to protect threatened properties and beaches. State agencies are not well resourced to tackle the magnitude of issues that confront councils and CMAs. We have to invent through COAG new ways to get financial and technical support to local authorities to assist in adapting to new threats. This will mean a higher level of cooperation in coastal management than we have ever witnessed in Australia with the possible exception of the GBR. As I have commented elsewhere, a national Coastal Management Act could provide the necessary driver for integrated solutions to our precious coastal domains if constructed in ways to provide strategic direction and support for local communities.

The third proposition is that Commonwealth leadership is vital. Otherwise sustainable solutions risk being limited in time and location. State and local governments do not have the resources to provide continuity of thinking, of technical back-up, of funding and for consistent policy responses to the challenges of population growth, infrastructure needs and adaptation to climate change. CSIRO, GA and other national research facilities, including the need to properly fund universities for R&D, can be best supported by the national government for applications at local as well as for more generic purposes. Perhaps the Commonwealth should introduce a Future Fund to assist local communities become more sustainable with support for innovation as a component to long term investment in ways that ensure they can adapt and thrive under the challenges.

In conclusion, I have made three propositions in this presentation which if adopted would contribute to a more sustainable future for the Illawarra and South Coast. The first requires high level of awareness of the challenges faced by the region from global warming. The university, in particular, can do a lot to raise awareness and point to options for adaptation.

The second proposition requires innovation. Here is where the Centre and its partners can help develop and introduce technologies and practices that enhance the quality of living during future times of stress induced by demographic, economic and climate change. Improved energy and water use, better urban design and strong planning rules are necessary under this proposition.

And thirdly, governance arrangements for coastal Australia must change. Local councils need guidance and guaranteed support not for one electoral cycle but for decades. The federal government must be more engaged. This is a hard ask under our constitution and current system of federal- state-local relations. But the challenges facing the nation from climate change necessitate levels of planning, commitment and monitoring never experienced in history.

We will not have a sustainable future in this or any other coastal region without a sustainable program to raise awareness; without a sustained commitment to innovation and application of new sustainable technologies; and without more effective governance that offers long term leadership, direction and support for the needs of local communities. It can be done. The political, scientific, technical and community stars are aligning so that over the next 2 to 3 years efforts must be mobilised to progress these issues.