LANDSCAPE MANAGEMENT FOR COASTAL REGIONS: CASES OF AUSTRALIA AND THEIR APPLICABILITY TO KOREA

Presentation to the International Experts Forum on Landscape Management
Seoul, Republic of Korea
3 November 2009

Dr Andrew Lothian, Director, Scenic Solutions, Australia

CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Coastal landscape studies</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Coastal Viewscapes Project</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Coastal Development Survey</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>Wind farms in South Australia Project</td>
<td>14</td>
</tr>
<tr>
<td>6</td>
<td>Victor Harbor Landscape Amenity Project</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>Coastal Strategic Planning and Management</td>
<td>19</td>
</tr>
<tr>
<td>8</td>
<td>Application to the Namhea Coastal Region</td>
<td>23</td>
</tr>
<tr>
<td>9</td>
<td>Conclusions</td>
<td>24</td>
</tr>
<tr>
<td>10</td>
<td>References</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Appendixes</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Surveys of landscape quality</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>Australian coastal planning policies</td>
<td>33</td>
</tr>
<tr>
<td>3</td>
<td>Application of coastal strategic hierarchy</td>
<td>46</td>
</tr>
</tbody>
</table>

Contact details
Address: PO Box 3158, Unley, Adelaide,
South Australia, 5061, AUSTRALIA
E: lothian.andrew@gmail.com.au
I: www.scenicsolutions.com.au
Ph/Fax (618) 8272 2213
1. INTRODUCTION

A challenge:
- *Do the people of Korea, an advanced scientific, technological and industrial society, appreciate the contribution that beauty, and landscape beauty in particular, can make to the well being of their society?*
- *Can it apply its scientific abilities to rigorously assess the quality of its landscapes?*
- *Can it reconcile the benefits of landscape conservation with necessary development?*
- *Will it learn from the failure of many Western countries to protect their attractive landscapes from insensitive developments?*
- *Can Korea do what no other nation has done and quantitatively assess the extent and quality of its landscapes thereby providing a basis for their protection and management?*

I pose these challenges to you as people who, through your attendance and participation in this forum, are probably sensitive towards and have an interest in landscape beauty.

I do not presume to know your response to these challenges, but I hope that they will be in the positive. Also I know little, virtually nothing, about the extent of Koreans' appreciation of their landscapes and the degree to which you protect and manage them now. However, I am assuming through your invitation to me to contribute to this forum that you are interested in the work that I have undertaken in Australia in regard to landscape quality.

I envisage the following objectives:

The Republic of Korea:
- Applies its scientific and technological capability to the measurement and mapping of its coastal scenic quality resources
- Quantitatively assesses the visual impacts of developments upon these resources
- Establishes clear strategic planning principles and development management measures to safeguard its scenic quality resources

My paper commences with descriptions of three studies I have conducted which relate to the coast. Following this the paper discusses strategic planning and development management measures that could be employed to protect and manage scenic resources. Finally the paper describes how these may be applied to the Namhea coastal region of Korea.

Appendix 1 describes surveys of coastal landscape quality from various countries, however in contrast to my studies which are based on community preferences, these studies rely on the judgement of landscape architects and other professionals. Appendix 2 summarises coastal planning policies from various Australian states. Appendix 3 details the application of the coastal strategic hierarchy to various activities and uses.
2. COASTAL LANDSCAPE STUDIES

Over the past decade, and through the experience of conducting ten studies of landscape quality and of the visual impacts of development, I have developed and refined a robust and effective methodology for measuring and mapping scenic quality (Figure 1).

The landscape which is the subject of the project comprises the independent variable as its characteristics and qualities remain the same regardless of whether or not humans view them. The ratings that humans attribute to the landscape are the dependent variable in that the ratings depend on the characteristics and quality of the landscape viewed.

A survey instrument is used to gain the ratings of the landscape by a sufficient number of participants (minimum 400) and the results are subjected to extensive statistical analysis. The results may then provide the basis for mapping scenic quality as well as strategic planning, development management, and landscape enhancement and management measures.

Four surveys that I have undertaken have particular relevance to the Korean Namhea region:

- Coastal Viewscapes Project: measured and mapped landscape quality of South Australia’s 4,800 km coastline
- Coastal Development Project: assessed the visual impacts on the coast of various forms of development
- Visual impacts of wind farms in South Australia: measured the likely visual impact of wind farms in coastal and inland regions of South Australia
- Victor Harbor Landscape Amenity

I will summarise these surveys. Further details of these and other surveys I have undertaken may be found on my website: www.scenicsolutions.com.au. The website also summarises the international literature of landscape studies and describes the science of measuring landscape quality.
3. COASTAL VIEWSCAPES PROJECT

The Coastal Viewscapes Project aimed to measure and map the scenic quality of the South Australian coastline and was commissioned by the Coastal Protection Branch of the Department for Environment and Heritage. The Branch recognised that increasing developmental pressures on the coast threatened the very qualities that the community valued. Development pressures included housing and land division, marinas, aquaculture, wind farms and access roads and trails. The outcomes of the project were intended to assist in the development of planning policy and the assessment of development applications. The project was undertaken during 2004 - 5.

In essence the approach involved photographing the region and becoming familiar with it, classifying the coast into units of similar characteristics, sampling these landscape units by the use of photographs, selecting photographs for an Internet-based survey, arranging for the scenic quality of these scenes to be rated by participants via the Internet survey, analysing and modelling the results, and using the results as the basis for mapping the scenic quality of the South Australian coastline (Figure 2). The entire accessible coast was travelled, covering over 10,000 km during which nearly 1700 photographs were taken.

Photographs have been shown by studies (e.g. Kellomaki & Savolainen, 1984; Daniel & Boster, 1976, Dunn, 1976, Stewart et al, 1984) to provide a satisfactory alternative to field assessments providing they meet specific criteria which standardise as far as possible the scenes so that the landscape is rated in a

![Figure 2 Steps of Landscape Quality Assessment Methodology](image)
consistent manner. In a meta-analysis of studies, Stamps (1990) found a 0.86 correlation between field and laboratory preferences. Following are the criteria for photographs (based in part on Shuttleworth, 1980; Trent et al, 1987).

Overall the ratings should reflect the quality of the scene, not the quality of the photograph, and standardizing photographs as far as possible through the application of the following criteria assists in ensuring this is achieved:

- Photograph in colour to capture the full characteristics of the landscape.
- Photograph at 50 mm focal length
- Photograph in horizontal landscape format, not the vertical portrait format. The photographs should extend where possible to the horizon and avoid close-up confined views.
- Avoid photographic composition of a scene to frame a view or to lead the viewer into a scene; such composition can enhance its appearance
- Minimise extraneous features such as people, sheep or cattle, wildlife, fences, electricity poles and wires, and excavations or other eyesores, each of which can influence preferences either positively or negatively
- Aim for sunny cloud-free conditions to standardise scenes against a blue sky.
- Avoid transitory effects of special atmospheric lighting such as sunsets or particularly vivid side lighting. Heavy cloud dampens the colour saturation while spectacular cloud formations can enhance the scene.
- Photograph at ground level. When these include scenes from hills and mountain tops of valleys and vistas below they should include some foreground to provide context as otherwise the scene can appear as though it was taken from an aircraft.

At my request, the Department prepared maps showing the land that can be seen from the sea (Figure 3). This viewshed comprised land with a sea view which was likely to come under greater development pressure than land without this view.

The South Australian coast was classified into five main landscape units: high cliffs, low cliffs & beaches, headlands & bays, beaches & dunes, and the samphire-mangrove formation. Each was described and its length measured. The proportion of each landscape unit per region provided the basis for the selection of photographs.

The Internet-based survey instrument used 138 coastal scenes plus 28 scenes from non-coastal South Australia to ensure the rating of the coastal scenes reflected a State-wide perspective. The scenes were shown in random order which changed for each participant. Ratings were on a 1 – 10 scale (low-high). The survey was placed on the Internet and over 3,300 people participated in the survey over a month. The
complete ratings of over 2200 participants (66%) provided the basis for analysis.

The scenic quality of scenes varied reflecting the presence or absence of certain features. The presence of the following factors in each scene was scored on a 1 – 5 scale: indentation of the coast, area of water, tranquillity/awe, diversity, naturalness, quality of beach, and the height of land forms. Each was scored by small groups of participants.

Figure 4 summarises the ratings for the entire South Australian coast. This indicates that around 42% of the length of coast rated 7 and a further 2% rated 8 which are very high scenic quality ratings. Figure 5 illustrates the distribution of ratings for the coast while Figure 6 illustrates an example of the ratings at a regional level.
Average ratings of scenes ranged from a low of 3.38 to a high of 8.65. The highest rating region (Figure 7) was Kangaroo Island (7.15) while the lowest were the
northern parts of the two Gulfs, St Vincent (4.64) and Spencer Gulf (4.57). The ratings by landscape unit (Figure 8) were: high cliffs 7.84, low cliffs 6.32, headlands & bays 7.02, dunes & beaches 6.30, samphires & mangroves 4.75. It is evident from this that cliffs and headlands rated the highest.

Combining the landscape factor scores with the scenic quality ratings allows the strength of their influence to be quantified. Figure 9 illustrates the relationships between landscape factor scores and scenic quality ratings.
Figure 9 Relationship of landscape factors with scenic quality ratings
The steepness of the slope indicates the strength of the influence of the factor on scenic quality ratings (Table 1).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Trend line Equation</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>$y = 0.95x + 4.12$</td>
<td>0.47</td>
</tr>
<tr>
<td>Height of landforms</td>
<td>$y = 0.83x + 4.18$</td>
<td>0.65</td>
</tr>
<tr>
<td>Indentation of coast</td>
<td>$y = 0.74x + 4.57$</td>
<td>0.48</td>
</tr>
<tr>
<td>Quality of beach</td>
<td>$y = -0.02x + 6.55$</td>
<td>0.0004</td>
</tr>
<tr>
<td>Diversity</td>
<td>$y = 1.50x + 2.17$</td>
<td>0.55</td>
</tr>
<tr>
<td>Naturalness</td>
<td>$y = 1.00x + 2.38$</td>
<td>0.29</td>
</tr>
<tr>
<td>Tranquility - Awe</td>
<td>$y = 1.17x + 3.36$</td>
<td>0.68</td>
</tr>
<tr>
<td>Seaweed on beach</td>
<td>$y = -0.55x + 7.55$</td>
<td>0.43</td>
</tr>
<tr>
<td>Waves</td>
<td>$y = 0.43x + 5.83$</td>
<td>0.22</td>
</tr>
<tr>
<td>Steepness of landforms</td>
<td>$y = 0.46x + 5.43$</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Diversity had the strongest influence followed by the tranquillity-awe factor (in particular the quality of awe), naturalness and the area of water in the scene. The quality of the beach (e.g. rocky vs sandy) had an essentially neutral effect while the presence of dead seaweed on the beach had a distinctly negative effect.

Multiple regression analysis was used to develop predictive models for the scenes. Its purpose was to identify the influence of the various factors that had been scored on the scenic quality rating that had been obtained by the survey. Models were derived for all the scenes, and then for each of the landscape units. The results of each model were tested against the survey ratings to assess their accuracy.

A model for the entire coast which explains 85% of the variance was:

$$Y = 1.02 + 0.49 \text{ Tranquility/Awe} + 0.31 \text{ Quality} + 0.27 \text{ Naturalness} + 0.25 \text{ Area} + 0.227 \text{ Height} + 0.22 \text{ Diversity} + 0.16 \text{ Indentation}$$

($R^2 = 0.85; F = 102.5, \text{ df 7, 130, } p = 0.000$)

A model for headlands and bays landscape unit which explains 66% of the variance was:

$$Y = 1.51 + 0.67 \text{ Tranquility/Awe} + 0.19 \text{ Quality} + 0.55 \text{ Naturalness} + 0.24 \text{ Area}$$

($R^2 = 0.66; F = 19.5, \text{ df 4, 41, } p = 0.000$)

The project required scenic quality to be mapped a 1:50,000, a scale sufficient for planning and policy development. The following three zones were defined for mapping:

- **Zone 1**: The water/land interface and land immediately facing the sea.
- **Zone 2**: The land inland from Zone 1 from which the sea was visible (as illustrated by Figure 3).
- **Zone 3**: Land where the sea was not visible and comprised agricultural land, parks and other uses.

Figure 10 shows the three zones on a map at the local council level.

---

1. Diversity, the “busyness” of the scene, is the combination of the land forms, land use, land cover, water and other features in the landscape.
In summary, the study showed that landscape quality can be measured objectively and rigorously, and enable this key environmental resource to be factored into coastal planning and management frameworks.

Figure 10 Council Landscape Quality Map covering Zones 1, 2 and 3
4. COASTAL DEVELOPMENT SURVEY

This survey was conducted as an adjunct to the Coastal Viewscapes of South Australia study. An Internet-based survey was conducted to ascertain the impact of development on scenic quality. The survey covered housing-type developments of various forms and scales, plus marinas and aquaculture. Scenes were prepared digitally with development included and the same scene without the development. The survey comprised 82 scenes. Scenes were rated on 1 – 10 scale (low-high) basis of their scenic quality.

The survey was held during May, 2005 and 2413 people participated. Of these, 1659 (69%) completed all scenes and provided the basis for analysis.

The scenes without development averaged 7.09 and with development 5.00, a significant difference of over two units.

Interestingly, analysis showed that the impact was independent of the particular level of scenic quality and was uniform across the range of scenic quality (Figure 11). The decrease in scenic value attributable to development averaged around two units regardless of whether the scenic quality was eight or six.

Table 2 summarises the means for the three forms of development. The greatest difference was for housing followed by marinas and aquaculture.
Table 2 Mean ratings of scenes by forms of development, with and without development

<table>
<thead>
<tr>
<th>Form of Development</th>
<th>Without</th>
<th>With</th>
<th>Difference</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing (36 scenes)</td>
<td>7.1</td>
<td>5.0</td>
<td>2.1</td>
<td>30.2</td>
</tr>
<tr>
<td>Aquaculture (2)</td>
<td>6.9</td>
<td>5.8</td>
<td>1.1</td>
<td>16.6</td>
</tr>
<tr>
<td>Marina (3)</td>
<td>6.7</td>
<td>4.7</td>
<td>2.0</td>
<td>29.3</td>
</tr>
</tbody>
</table>

Table 3 summarises the means for the two landscape units represented in the scenes, headlands and dunes. It indicates a reduction of up to one third in the ratings.

Table 3 Mean ratings of scenes by types of landscape units, with and without development

<table>
<thead>
<tr>
<th>Form of Development</th>
<th>Without</th>
<th>With</th>
<th>Difference</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headlands (28 scenes)</td>
<td>7.3</td>
<td>5.2</td>
<td>2.1</td>
<td>28.8</td>
</tr>
<tr>
<td>Dunes (11)</td>
<td>6.6</td>
<td>4.4</td>
<td>2.2</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Table 4 compares the means for differing forms of housing development, covering shacks (old inferior housing), contemporary housing, and high rise developments.

Table 4 Mean ratings of scenes by differing forms of housing development, with and without development

<table>
<thead>
<tr>
<th>Form of Development</th>
<th>Without</th>
<th>With</th>
<th>Difference</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shacks (3 scenes)</td>
<td>6.6</td>
<td>4.0</td>
<td>2.6</td>
<td>39.0</td>
</tr>
<tr>
<td>Housing (28)</td>
<td>7.25</td>
<td>5.2</td>
<td>2.05</td>
<td>27.9</td>
</tr>
<tr>
<td>High rise (5)</td>
<td>6.75</td>
<td>4.2</td>
<td>2.6</td>
<td>38.0</td>
</tr>
</tbody>
</table>

In summary, the study showed that any development adversely impacted visual quality, and the visual impact increased with the scale and form of the development. Housing had the greatest impact, particularly high rise developments, followed by marinas and aquaculture.
5. VISUAL IMPACT OF WIND FARMS IN SOUTH AUSTRALIA

With the growing use of wind farms to generate carbon-free electricity, the potential for them to significantly impact scenic areas increases correspondingly. This is exacerbated by the increasing dimensions of the turbines (Figure 12).

![Figure 12 Growing size of wind turbines (hub height in metres)](source: World Wind Energy Association [www.wwindea.org](http://www.wwindea.org))

To assess the visual impact of wind farms a survey was undertaken in 2004. Photographs of potential locations were used with and without the wind farm included. Photographs were taken of 21 coastal locations and 47 inland locations which had been proposed for a wind farm or could be a potential location. Photomontages of wind farms were inserted into the photographs. Care was taken to ensure the size of the turbines in the scene corresponded with the distance from the viewer. The survey comprised 150 scenes, 136 with and without the wind farm (i.e. 68 scenes with the wind farm and 68 without), and a further 14 scenes comprised variations in colour of turbines and their distance.

Nearly 380 participants were shown each scene in random order, with and without a wind farm. The perceived scenic quality of each scene was rated on a 1-10 (low-high) scale.
Figure 13 summarises the results for wind farms in coastal areas with the scenic quality ratings arranged in descending order. It indicates that in all cases, the presence of the wind farm reduced the scenic quality rating of the area.

Without wind farm: \( y = -0.15x + 9.3, r^2 = 0.96 \)

With wind farm: \( y = -0.08x + 6.9, r^2 = 0.36 \)

Figure 13 Coastal scenes arranged in descending order of rating

Figure 14 enlarges the graph and shows that the impact is greatest for scenes of high scenic quality rating and diminishes for scenes of lower scenic quality rating. The graph clearly shows the trend lines converging towards each other at the lower ratings.

Figure 14 Coastal scenes trend lines

The inland scenes used in the survey had lower scenic quality ratings than the coast and this enabled the trend lines to be extended and to show the point at which they
crossed over (Figures 15 and 16). The point of cross over is the rating of 5.1; above this the wind farm diminishes scenic quality while below 5.1 the wind farm enhances scenic quality. This means that for scenes of low scenic quality, the presence of the wind farm actually enhances scenic quality. This may be explained by the added interest the wind farm injects into an otherwise plain landscape.

The results enable the likely visual impact of wind farms to be predicted quantitatively.
for a given area. The results for the South Australian coast are summarised by Table 5. Table 6 describes the generic landscape for the ratings 5 – 8.

### Table 5 Predicted effect of wind farms on coastal scenic quality

<table>
<thead>
<tr>
<th>Rating without wind farm</th>
<th>Rating with wind farm</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0</td>
<td>7.31</td>
<td>-2.69</td>
</tr>
<tr>
<td>9.5</td>
<td>7.04</td>
<td>-2.46</td>
</tr>
<tr>
<td>9.0</td>
<td>6.77</td>
<td>-2.23</td>
</tr>
<tr>
<td>8.5</td>
<td>6.51</td>
<td>-1.99</td>
</tr>
<tr>
<td>8.0</td>
<td>6.24</td>
<td>-1.76</td>
</tr>
<tr>
<td>7.5</td>
<td>5.97</td>
<td>-1.53</td>
</tr>
<tr>
<td>7.0</td>
<td>5.71</td>
<td>-1.29</td>
</tr>
<tr>
<td>6.5</td>
<td>5.44</td>
<td>-1.06</td>
</tr>
<tr>
<td>6.0</td>
<td>5.17</td>
<td>-0.83</td>
</tr>
<tr>
<td>5.5</td>
<td>4.91</td>
<td>-0.59</td>
</tr>
<tr>
<td>5.0</td>
<td>4.64</td>
<td>-0.36</td>
</tr>
</tbody>
</table>

### Table 6 Description of generic landscape ratings for coastal scenes

<table>
<thead>
<tr>
<th>Rating 8</th>
<th>Rating 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>High, sheer or very steep cliffs, frequently indented coast (maximum edge), reefs, islands, pronounced wave motion, beaches backed by steep cliffs or high land. Overall contains a high vertical element and strong awe inspiring effect.</td>
<td>Headlands, long wide beaches, sloping cliffs, extensive dunes, wave motion, low rocky cliffs, reefs, some islands, smoother coastline – less indented. Overall, a lower vertical element, sloping cliffs and less coastal indentation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rating 6</th>
<th>Rating 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaches, low hinterland, no cliffs, islands, mangrove flats, low dunes, little wave motion. Overall very little vertical element.</td>
<td>Flat hinterland used for agriculture or other non-natural uses, coastline lacking indentation, rocks or other features of interest.</td>
</tr>
</tbody>
</table>

Note: A rating of a given unit, say 6, covers the range 6.00 to 6.99.

Overall, wind farms had a negative effect in all coastal locations where scenic quality is high. In the inland locations, the wind farms had a negative effect in landscapes of high quality but for low quality landscapes the wind farm actually enhanced landscape quality. Wind farms should thus avoid areas of high perceived scenic quality, particularly on the coast and be located in areas of low to moderate scenic quality.

### 6. VICTOR HARBOR LANDSCAPE AMENITY PROJECT

Although this project did not entail surveys of landscape preferences and instead applied knowledge gained from other studies, it addressed the particular issues of a fast growing coastal resort town in South Australia which is pertinent to the situation faced by towns on the Namhea coast.

The project analysed the land forms, land cover, land use, presence of water, viewpoints and viewsheds for the region. It identified landscape features and defined landscape units. Based on previous studies it established generic ratings for the region. Figure 17 illustrates the generic ratings for differing combinations of land form and land cover and Figure 18 shows the scenic quality ratings for the region.
Figure 17 Generic landscape ratings, Victor Harbor
7. COASTAL STRATEGIC PLANNING AND MANAGEMENT

A summary of Australian planning provisions relating to the coast is provided by Appendix 2. The following is a synthesis based on this review.

Vision

Celebrate and appreciate the beauty of our coast and its contribution to our quality of life and economic well being.

Objectives.

- Identify the scenic quality of the coast.
- Protect and manage the scenic quality of the coast with priority to areas of high scenic quality.
- Development should be compatible with the protection and enhancement of coastal scenic quality through design of developments to be in harmony with coastal landscapes.
- Prohibit certain developments in areas of high scenic quality.
- Protect areas which form an attractive background to urban and tourist developments.
- Protect vistas, scenic outlooks, the skyline and the view from scenic routes including roads and trails.

Principles

- Development should not be undertaken that may adversely affect coastal features or significant views.
- Parts of the coast should remain largely inaccessible to protect high quality landscapes.
- Developments which are proposed to be located outside urban and tourist zones should be sited and designed to not adversely affect:
  - Areas of high scenic quality;
  - Views from the coast, near-shore waters, public reserves, tourist routes & walking trails

Classification

Identify and protect landscapes of national significance being landscapes which are recognised as having exceptional or unique national or international aesthetic values.
Definition of coastal zone

- State waters to 3 nautical miles, including islands
- Land subject to tidal influence including dunes, wetlands, mangroves, estuaries, coastal river and coastal lagoons
- One kilometre landward of the open coast high water mark
- A distance of one kilometre around all bays, estuaries, coastal lakes, lagoons and islands

A strategic approach widely used in Australia is to concentrate development in areas of lower environmental value and protect areas of higher environmental value in a natural condition while leaving agriculture to pursue its activities separately. Three broad zones may be designated:
- Development zones where tourism and housing is concentrated
- Conservation zone which is retained in a natural condition
- Agricultural zone for normal agricultural activities

The Coastal Viewscapes Project proposed that the coast be zoned into three zones:

- Zone 1 The coast being the land immediately facing the sea including cliffs, beaches, dunes, headlands etc 100 m in width above HWM
- Zone 2 Land from which the sea is visible inland to a distance of 5 km
- Zone 3 Land within 5 km of the sea from which a view of the sea is obscured by topography; note that this may be near the sea (see Figure 3)

The sea includes the ocean, inlets, bays and estuaries.

Three scenic quality categories were defined: SQ1 \( \geq 7.25 \), SQ2 = 5 to 7.25, and SQ3 = 3 to 5 (Figure 19). The scenic quality ratings did not exceed 8 in South Australia which is the reason the high quality category threshold was chosen as 7.25.

![Figure 19 Scenic Quality (SQ) categories](image_url)
Based on the strategic framework of Figure 20, Table 6 defines the overall strategic hierarchy covering land use developments, structures and facilities for the coastal zones.

**Table 6 Strategic Hierarchy of Coastal Scenic Quality Planning Policy**

<table>
<thead>
<tr>
<th>Zone 1</th>
<th>SQ 1</th>
<th>SQ 2</th>
<th>SQ 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensuring high levels of protection, management &amp; enhancement while providing for public access and viewing where appropriate. No structures or made vehicular access routes. Maintain natural character &amp; scenic quality. Essentially no modification.</td>
<td>Protecting the key characteristics of the Zone while providing for public access, facilities and limited development where appropriate and which complements the scenic character &amp; scale. Maintain natural character &amp; scenic quality. Limited structures and modification.</td>
<td>Ensuring the protection of environmental values while providing for access, facilities and developments where appropriate. Maintain natural character &amp; scenic quality. Limited structures and modification.</td>
<td></td>
</tr>
<tr>
<td>Zone 2</td>
<td>Ensuring the protection of the quality of Zone 1 while providing for access, facilities and developments where appropriate and which complement the scenic character &amp; scale. Within 1 km ensuring development and access has negligible impact on scenic quality.</td>
<td>Ensuring the protection of the quality of Zone 2 while providing for access, facilities and developments. Within 1 km ensuring development and access has minimal impact on scenic quality.</td>
<td>Ensuring the protection of environmental values while providing for access, facilities and developments.</td>
</tr>
<tr>
<td>Zone 3</td>
<td>Ensuring the protection of the quality of Zone 1 while providing for access, facilities and developments where appropriate. Within 1 km ensuring development and access has negligible impact on scenic quality.</td>
<td>Ensuring the protection of the quality of Zone 2 while providing for access, facilities and developments. Within 1 km ensuring development and access has minimal impact on scenic quality.</td>
<td>Ensuring the protection of environmental values while providing for access, facilities and developments.</td>
</tr>
</tbody>
</table>
Examples of the application of this strategic hierarchy to coastal access, visitor facilities, structures and infrastructure, commercial developments, tourist resort developments and housing developments are contained in Appendix 3.

The Victor Harbor Landscape Amenity Project developed comprehensive recommendations covering key scenic components:

- Hills faces – land sloping towards the sea around Victor Harbor was identified as important to retain in its natural and agricultural setting with tree planting to enhance its character and controls over subdivision and development.
- Trees – planting of trees on barren areas, along creeks, and encouraging natural regeneration of natural vegetation.
- Rivers Inman and Hindmarsh flow through the region and are key landscape and environmental assets which require protection. Linear parks were recommended along them.
- Sea view – these need to be protected and not built out, and viewpoints established along roads.

Drawing on an analysis of coastal planning policies from elsewhere (Appendix 2), planning objectives, policies and strategic planning proposals were developed for the region of rapid growth.

**OBJECTIVES**

1. To maintain, protect and enhance the scenic quality of the region’s landscapes including the views to the sea.
2. To minimise the visual impact of land division, developments and structures, and infrastructure on viewsheds, skylines and the key components of landscape quality.

**POLICIES**

1. Protect the natural character and form of the hills faces (defined locations) by preventing further subdivision and developments, structures and infrastructure that would affect their scenic quality.
2. Protect the vistas available from the Ring Route and from significant (defined).
3. Protect skylines from buildings and structures which would form a silhouette against the sky when viewed from the Ring Route, the Bluff or other significant viewing points.
4. Minimise the visual impact of land division, developments and structures, and infrastructure through careful design and regard to scale, height, bulk, siting, site coverage, external materials and colours, and use of planting materials and screening.
5. Ensure the colours of roofing and wall materials of all buildings and structures are of subdued toning and blend with the environment to minimise visual impact.
6. Encourage a reasonable sharing of views between properties of significant landscape features.
7. Incorporate in subdivision plans, building envelopes or restrictions designed to achieve a reasonable sharing of views between properties.
8. Ensure planting of appropriate plants to lessen the visual impact of housing developments, associated structures, and infrastructure.

9. Ensure no net loss in the number and coverage of existing trees and native vegetation.

10. Protect the streamside vegetation adjacent to the Inman and Hindmarsh River.

11. Ensure the protection of roadside vegetation and encourage its further establishment.

12. Encourage and assist rural land owners to maintain and where possible extend tree cover on their properties.

13. Encourage home owners to maintain their properties so as to enhance the scenic quality of the locality and to minimise their visual impact.

In addition to these provisions relating to planning and development, positive measures should be taken to enhance the enjoyment of the coast through:

- Setting aside areas as parks
- Establishing walkways, cycle paths and scenic byways and lookouts
- Providing visitor facilities and information areas
- Ensuring high quality design to complement the high quality landscape

8. APPLICATION TO THE NAMHEA COASTAL REGION

From photographs of the Namhea coast that I have seen, it is clear that it is an outstandingly beautiful area, parts of which are likely to rate highly, in the 7 – 8 range. Pressures of population, development and infrastructure are, however, evident and it is likely that without decisive action, the quality of the region will gradually diminish. Future generations will then lose the benefits of the beautiful region available to the current generation and they will certainly be the poorer for that. As well, the appeal of the region for tourists from other countries will diminish and the income and wealth that this generates will diminish.

From the photographs it is likely that naturalness will be a key characteristic which should be protected. Naturalness, the degree by which the landscape appears visually natural (whether or not it is ecologically natural) is an important complement to water. It underlies much of the landscape significance of water as well as mountains and trees. Access to natural areas appears to be a key human requirement, and there are extensive research findings which indicate the health and psychological benefits of viewing and visiting natural areas (e.g. Kaplan & Herbert, 1987; Kaplan & Kaplan, 1989; Kaplan, 1995; Ulrich, 1984 and 1991, Herzog et al, 2003).

Studies support the view that nature exerts a powerful influence on human landscape preferences. In most of its manifestations, whether as coast and sea, rivers and lakes, mountains and hills, trees and forest, the natural element nearly always produces
positive preferences. Where the presence of humans is apparent, such as through clear felling of forests, grazing by stock, water pollution, dams and structures, as well as the presence of houses and other structures, landscape preferences are affected adversely. In respect to the Namhea coastal region of Korea, these findings are particularly pertinent. Protection and management of its scenic quality will require that the sense of naturalness is retained and ideally that views of the water are readily available to visitors.

Basic to its protection, management and enhancement are data on the scenic quality values of the form that I have outlined. A survey to measure and map the scenic quality of the Nahmea coast would provide such data and should be regarded as a priority. A survey based on community preferences would reflect the Korean community’s judgement about its scenic quality values and would not impose values from outside Korea. As an adjunct to the survey, the visual impact of various forms of development likely to be encountered along the coast could be assessed in a separate but complementary survey. This would indicate the community’s appraisal of their visual impact and provide an input into planning and development management.

The results of such surveys would quantify the scenic quality of the region and provide a sound basis for its planning and management.

I am unaware of what, if any, planning authority and/or management authority exists for the Namhea region. If, however, it is considered from a national viewpoint that the area deserves special protection and management then a dedicated body responsible for this would be desirable.

The establishment of a vibrant, well qualified and dedicated Namhea Coastal Management Authority with sufficient mandate and resources could play a very significant role in ensuring the long term well being of the area and its enjoyment by all Koreans, both now and in the future. The mandate for development control of such a body should cover both the public and private sectors and the Authority should be resourced sufficiently to establish parks and visitor facilities.

Local groups can play a major role in bringing local knowledge and experience to assist in the management and enhancement of the region and resources should be dedicated to assisting them.

9. CONCLUSION

I appreciate very much the opportunity of sharing with you my experience in measuring and mapping scenic quality. I hope that this will be of benefit to you in your endeavours to address protection and development of the Namhea region which is obviously a deeply revered and loved region in Korea.
10. REFERENCES


APPENDIX ONE  SURVEYS OF LANDSCAPE QUALITY

This Appendix summarises surveys of landscape quality from the United States, Canada, United Kingdom, New Zealand and Australia.

UNITED STATES

Californians acted in 1972 to “Save our Coast” and passed a voter initiative that:

*It is the policy of the State to preserve, protect, and where possible, to restore the resources of the coastal zone for the enjoyment of the current and succeeding generations*

In 1976 the California Coastal Act was passed and the California Coastal Commission (www.coastal.ca.gov) established to plan and regulate development and natural resource use along the coast in partnership with councils.

“The coast is the scene of never-ending struggle among natural and human forces” stated the Commission in a description of its role. Protection of scenic landscapes and views of the sea were among the Commission’s policies. The major focus of the CCC has been Local Coastal Programs which established the planning ground rules for development in the coastal zone of 74 cities and counties.

Among the standards used by the Commission was the protection of scenic landscapes and views of the sea. The Coastal Act provided that:

*The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of the surrounding areas, and were feasible, to restore and enhance visual quality in visually degraded areas... (Sec 30251)*

Although scenic quality was referred to in many hundreds of development decisions (see website), no survey of coastal scenic quality could be identified.

Interestingly, however, a report from the Commission’s Executive Director in May 2004 addressed the protection of views from the ocean to the land. The paper recognised that with increasing numbers of boaters, fishers, kayakers, surfers and other ocean users, the view from the ocean should be taken into account in development decisions. It referred to the State of Maine which in 2003 had amended its coastal management program to protect views from water toward land.

In Oregon, the Statewide Planning Goals and Guidelines covered coastal shorelands (Goal 17). The policy included aesthetics in conservation, protection and development. It required inventories of shorelands including aesthetics “in sufficient detail to establish a sound basis for land and water use management”. Based on the inventory, the comprehensive plan for coastal areas should cover shorelands which were to include “areas of exceptional aesthetic or scenic quality, where the quality is primarily derived from or related to the association with coastal water areas.”

The Statewide Planning Goals and Guidelines also covered natural resources, scenic and historic areas and open spaces (Goal 5). This required local governments to adopt programs to protect these resources. Inventories of scenic views and sites were required and presumably these were to be undertaken at the local level.

Oregon’s Natural Heritage Plan covered ecosystems including fauna and flora, and geological formations, but did not cover scenic values associated with natural areas including the coast.

In Washington State, the Department of Ecology operates the Shorelands and Environmental Assistance Program funded under the Federal Coastal Zone Management Act 1972. It provides grants and carries out conservation activities. The website illustrates coastal scenic quality by photographs (10,000 oblique aerial photographs) but scenic quality does not appear to have been surveyed. As indicated by its name, the Department has a strong ecological focus. The Washington Department of Natural Resources is largely concerned with forestry management but has responsibility for State-owned aquatic resources including the “bedlands” of Puget Sound, rivers and lakes. Again, although the State legislature
recognised state aquatic lands as "a finite natural resource of great value and irreplaceable public heritage" there appeared to be no program to assess its scenic resources.

On the eastern coast of the United States, Rhode Island carried out a landscape inventory (see http://envstudies.brown.edu ). The inventory had its origins in the 1980s with a law to inventory areas worthy of special designation as “scenic”. The inventory was undertaken in 1990. Rhode Island included coastal resort towns and a coastal plain. The planners who surveyed scenic values differentiated three ratings:

- **Distinctive** landscape which had the highest visual appeal and variety of form, line, colour and texture – 15% of the total area
- **Noteworthy** landscape which were scenic but of a lesser visual quality – 11% of the total area
- **Common** landscape covered the remainder of the Island – 74% of the total area

The results were used in planning and development assessment. The method used to classify the landscape by the planners was not described.

Interest in Massachusetts’ scenic resources began with the 1933 Massachusetts Landscape Survey (see www.mass.gov/dem/ programs/Histland/landSurveys.htm). A set of categorical landscape types were chosen as "...kinds of Massachusetts scenery that are believed to have special character of outstanding value...". These included ocean beaches and dunes, moor and seashore uplands, and flooded lands in the coastal plain. Many of the areas identified were subsequently acquired as parks.

In 1980, the Department of Environmental Management initiated a further Statewide inventory of scenic landscapes. These were based on methodologies of the US Forest Service and Countryside Commission of Scotland. Physiographic regions were evaluated on the basis of a set of scenic feature guidelines. The inventory was published in 1982. More recently Massachusetts has embarked on a heritage landscape inventory program.

**CANADA**

Nova Scotia in Canada has mapped scenic quality based on land form, land cover, land use and water (see http://museum.gov.ns.ca). Scenic quality was assessed on 10 X 10 km square blocks (which is a large area), the components rated separately and added to produce composite scores of 0 - 15. The method was based on many untested assumptions – e.g. that scenic quality increased with increasing land relief but at a declining rate, variety was more valuable than monotony, and the positive scenic quality of water declined only marginally when more water is seen. The addition of these components assumed that each component was of equal worth, which is unlikely (e.g. land use and water). The resultant map indicated the areas of highest landscape value are “where prominent hills meet the ocean or where farming areas abut an indented coastline”.

**UNITED KINGDOM**

The United Kingdom has a long tradition, extending back to after World War 2, of recognising and protecting its outstanding landscapes. Many of its Areas of Outstanding Natural Beauty (AONB) were defined by the 1949 National Parks Act and others have been designated in more recent years. More recently, the Countryside Agency has conducted landscape assessments of some 30 AONBs and other significant areas.

These landscape assessments covered the following:

- Description of physical and human influences that have shaped the landscape
- Review of the features contributed to special character of the area
- Classification of landscape into a number of distinct and recognizable landscape types including a description of the characteristics of each
- A review of the forces of change influencing the landscape now and in the future
- Information on the perception of the landscape over time
- A summary of the special character and quality of the area that makes it of national significance

These landscape assessments were largely descriptive as evidenced from their scope. Their purpose has
been to raise awareness of the importance of the area and to guide planning policies. Their focus has been the characteristics of the landscape rather than its quality.

In an early study, Wallace (1974) described the character of 290 km of the Essex coast and extending up to 2.5 km inland. He based the evaluation of landscape quality on the following factors:

- Land form
- Land use
- Development present
- Special landscape features – hedgerows, eyesores
- Compositional effect – harmony, variety and interest
- Viewpoints
- Feeling of isolation and remoteness

Wallace sought to make a relative, rather than absolute, assessment of landscape quality and aimed to make a “subjective interpretation applied in a consistent and rational manner.” Four evaluators were involved and produced four rankings of landscape quality: uninteresting, modest, important, and dominant & attractive. He mapped the resultant evaluation.

**NEW ZEALAND**

In New Zealand, the Waikato Regional Council covers coastline in the northern part of the North Island including the attractive Coromandel Peninsula. The Council prepared a Regional Coastal Plan as required under the Resource Management Act 1991. Among its principles it stated:

> Cultural, historical, spiritual, amenity and intrinsic values are the heritage of future generations and damage to these values is often irreversible.

The Resource Management Act defined amenity values as:

> those natural and physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes

The Plan included a map delineating areas of national, regional and local significance. The criteria used in deriving these were described in *Revised Draft Conservation Management Strategy for the Waikato Conservancy* (1994). It appeared that they had been derived on the basis of explicit criteria rather than by community preference surveys.

**AUSTRALIA**

The following summarises studies by State in Australia.

**Queensland**

During the 1990s, Alan Chenoweth, a Queensland planning consultant, developed a methodology to assess the scenic resources of parts of the Queensland coast. His Coastal Landscape Assessment (CLA) Methodology was developed for the Coastal Management Branch of the Department of Environment and Heritage. CLA “assessed a range of scenic and cultural landscape values associated with coastal settings, and identified significant landscapes as an input to coastal land use planning”. The methodology was applied to four regions: South East Queensland, Wide Bay – Burnett, Mackay – Whitsundays, and the Wet Tropics.

CLA provided a comprehensive approach and involved the following components:

- **Hierarchical assessment** of (coastal) scenic resources, cultural themes and heritage values, followed by a regional analysis which provided the framework for smaller units;
- **Cultural themes and associations** were identified from coastal history, heritage registers, regional focus groups;
Landscape Management for Coastal Regions

- Landscape setting units were defined comprising identifiable places bounded by viewsheds to provide basis for assessment, GIS, planning and management;
- Scenic quality indicators comprised naturalness, pattern, built form & activity, landform, vegetation & wildlife, and water & shoreline. These were based on the US Forest Service Scenic Management System. The indicators were assessed by landscape professionals for each landscape setting. The criteria had been validated by community focus groups but apparently not calibrated across assessment teams. Relative ratings (Very High to Low) were derived but not given arithmetic values;
- Landscape character and identity – the distinctiveness of the character and strength of identity;
- Land types at a local scale covering foreshore, island, foothills, plains etc. These were evaluated for landscape sensitivity, scenic integrity, positive and negative elements, and cultural heritage sites.

The products of the methodology were maps of landscape settings ranked according to their scenic significance – State, regional, local. Data were also provided of cultural significance and sensitivity and of landscape elements which contribute to scenic and regional identity.

The coast was divided into 58 individual coastal landscapes and classified into one of the following landscape character types: regional city, low intensity coastal plain, extensive coastal plain, coastal valley, steep coastal range, major peninsula and island groups, and major island groups.

Level 1 scenic quality landscapes (e.g. Whitsunday Islands, Port Douglas) were considered to be highly outstanding and distinctive. Criteria for their inclusion were:
- the landscape is recognised as having exception or unique statewide, national or international aesthetic values
- the landscape displays high visual quality indicators for landform, landcover and waterform

Chenoweth claimed the methodology was credible, repeatable and capable of yielding maps, data and recommendations for planning measures. Although it is comprehensive and used focus groups to review criteria, the derivation of scenic quality ratings was based on expert assessment, not community preferences. Fairly coarse categories of value (very high – low) were derived. The method does not provide ordinal quantification of scenic quality. Nevertheless it provided a comprehensive approach which relied on expert assessment and it attempted to go some way towards ensuring its replicability and validity.

EDAW (Aust) carried out an assessment of Queensland's scenic resources for the Coastal Management Branch of the Queensland Department of Environment in 1996 (EDAW, 1996) (see also www.epa.qld.gov.au/register/p00607af.pdf accessed 20/3/05). The methodology built on Chenoweth's work among others and involved three steps:

- Step 1 Identification of the coastal 'viewshed' and coastal landform types; this used physical criteria to identify viewsheds and the basic types of coastal landforms;
- Step 2 Identification of 'coastal landscapes'; this classified coastal landscapes of similar characteristics and carried out a field inventory of coastal landscapes;
- Step 3 Overall scenic amenity assessment and development of scenic quality criteria; this assessed scenic amenity by categories of visual quality and prepared scenic quality criteria for each landscape character type.

Step 1 mapped the coastal landscape into four landform types – coastal ranges, coastal lowlands, coastal plains, and coastal islands. These were mapped at 1:250,000 scale. The report noted that the coastal viewshed, which comprised all land seaward of the dominant coastal range, extended from two kilometres to several hundred kilometres on Cape York and the Gulf of Carpentaria.

Step 2 adopted Chenoweth’s classification of the coastal landscapes: regional city, low intensity coastal plain, extensive coastal plain, coastal valley, steep coastal range, major peninsula and island groups, and major island groups. Step 2 also involved the videoing of the entire Queensland coast from the air using a low flying aircraft.

The scenic quality assessment of Step 3 indicated the relative distribution of scenic quality indicators in a number of categories. Chenoweth’s four level classification of scenic qualities was used:
• Level 1 Highly outstanding and distinctive
• Level 2 Outstanding and distinctive
• Level 3 Somewhat distinctive or outstanding
• Level 4 Tend to be present in other parts of the coast

These grades of relative scenic quality were depicted on a map of the Queensland coast. These comprised blocks of the same level extending for a distance along the coast and inland for varying distances – to the nearest range. Based on this, a further map depicted relative scenic management priority – high, medium and low.

Tables containing the recommended scenic quality criteria for the eight landscape character types (i.e. regional cities, linear coastal strip etc) were defined. These comprised matrices of the level of scenic quality (high, moderate, low) across and landform, land cover and waterform down the matrix. Desirable scenic quality criteria were defined for the matrix. Part of one of these matrices is provided by Table 1.

<table>
<thead>
<tr>
<th>Landform Type</th>
<th>High scenic quality</th>
<th>Moderate scenic quality</th>
<th>Low scenic quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountainous</td>
<td>Strongly contrasting landforms such as localized mountains/ outcrops/ peaks/ headlands, particularly when adjacent to flatter areas or forming a backdrop to semi developed areas</td>
<td>Low rising hills with some contrast with adjoining areas</td>
<td>Minor rises with limited to no contrast with adjoining areas</td>
</tr>
<tr>
<td>Distinctive gorges &amp; valleys</td>
<td>Hilly – rolling</td>
<td>Minor valleys</td>
<td>Undulating – plains</td>
</tr>
<tr>
<td>Distinctive gorges &amp; valleys</td>
<td>Distinctive gorges &amp; valleys</td>
<td>Minor valleys</td>
<td>Undulating – plains</td>
</tr>
<tr>
<td>Strong/ dense patches of remnant vegetation particularly when contrasting with adjoining areas</td>
<td>Areas with significant vegetation such as open forest</td>
<td>Areas extensively cleared of vegetation</td>
<td></td>
</tr>
<tr>
<td>Major river systems, including wild &amp; scenic rivers</td>
<td>Minor rivers and creeks</td>
<td>Absence of waterforms</td>
<td></td>
</tr>
</tbody>
</table>

Source: EDAW, 1996

New South Wales

Planning New South Wales carried out the Comprehensive Coastal Assessment (CCA) over 2001 – 04 at a cost of $8.6 m. It aimed to identify, analyse and assess data and information on the physical, biological, social and economic values of the State’s coastline. It included a visual assessment which mapped areas of high scenic quality that are important for preservation.

The Assessment described scenic quality as a resource:

Coastal visual resources not only make a major contribution to tourism and recreation but strongly influence the amenity of those who live, work and recreate within the coastal zone. Visual resources are particularly significant as most people are immediately responsive to them. (Visual Project Summary)
Its emphasis on scenic quality as a resource is significant as it underlies much tourism and recreational activities. The study's objective was:

*to characterise, assess and document the visual resources of the NSW coast to assist in the protection and effective management of that resource through well-informed decisions on conservation, development and management.*

The coastal visual assessment defined the extent and character of the coastal landscape, the extent of the visual catchment, identified management opportunities, and established a framework for local detailed visual assessment, planning and design.

*Visual catchments* enclosed landscapes which comprised the coastal viewing experience. They could extend up to 10 – 15 km inland to coastal ranges. *Viewing situations* defined locations from which the surrounding areas of landscape were viewed - e.g. roads, rivers, trails as well as from residential, commercial, industrial and agricultural areas. These were differentiated into primary and secondary viewing situations. *Seen areas* were those portions of the landscape that were visible from Primary Coastal Viewing Situations.

The concept of a *visual catchment* is a useful innovation, preferable to viewsheds. However the terms *viewing situations* and *seen areas* are rather clumsy.

The Visual Resource Management System for the NSW Coastal Landscapes had the following components:

- **Landscape Management Structures** described at state and local levels.
- **Landscape Assessment** to determine what parts of the coastal landscape contribute to coastal landscape settings and classification of landscape systems and units on the basis of land form and land cover (vegetation).
- **Landscape Analysis** which examined their visual features and qualities and visibility of the coastal landscape from significant locations. It defined Viewing Situations and Landscape Features which included landform, land cover and water features as well as ephemeral features such as light and atmospheric conditions. Visual Elements were the formalist features of form, shape, pattern, line, colour and texture. Visual Values assessed the landscape in terms of visual integrity, diversity/contrast, balance/harmony, distinctiveness, adjacent scenery, rarity, ability to accept change and visual quality. The landscape analysis was thus based on explicit descriptive information and qualitative judgements.
- **Landscape Management** defined the level at which the visual resource of the landscape should be managed based on considerations of uniqueness, integrity and the visibility from regionally significant locations. Four management levels were defined:

  1. Preservation – High visual quality + visible from viewing situation + high ecological or natural values
  2. Conservation – High visual quality + visible from viewing situation
  3. Modification – Low visual quality and low visibility from viewing situation

High quality landscapes visible from regionally significant locations were ascribed a preservation or conservation status while more common landscapes were ascribed as suitable for various development potentials. Degraded landscapes (e.g. quarries) were ascribed a restoration prescription. This layer was the most difficult to describe as it has overlapping themes with conservation, agriculture and forestry, and geological features. By these means the visual management system defined the management needs of the coastal landscape to maintain visual quality.

The NSW Visual Resource Management System for Coastal Landscapes provided a comprehensive and resource intensive, assessment of landscapes. Objective data were used to describe the landscape and qualitative judgements used to describe its landscape quality attributes. This information will be of value to planning and management. Although the landscapes were described in qualitative terms; high, low, and very low, the derivation of these was not described. Like the Queensland study, the NSW approach provides a wealth of information about the landscape but was inadequate on the crucial element of...
establishing their quality.

The Visual Resource Management System was applied to a 35 km section of the Tweed coast (northern NSW) as a pilot project.

The visual quality of a given unit was defined over five grades by a matrix of viewing situations and the four levels of visual management; thus the top grade comprised preservation and conservation areas in the foreground, middleground and background of primary coastal regional viewing situations.

It identified and mapped 87 landscape units and classified their visual qualities by their visual integrity diversity/contrast, etc. Overlay maps of each were produced and combined into a single map of visual quality. The small scale and poor quality of the map made this difficult to interpret. Finally it defined a range of visual management strategies for application in this region.

**Victoria**

In 1998, Tract Consultants and Chris Dance Land Design prepared a report: *Landscape Setting Types for the Victorian Coast* as an input to the Victorian Coastal Strategy. The identification of landscape setting types was based on site and aerial field work. The following criteria were used to determine the zones:

- The landscape as viewed from a number of points, including the sea
- Natural systems (landforms/geomorphology/land cover)
- Cultural systems (settlements/structures)
- Stability or energy level of the landscape – exposure to winds/sea
- Capacity of the landscape to absorb change without creating visual impacts from prominent viewpoints
- Cultural influences and impacts, both Aboriginal and European
- Landscape character - climatic, experiential, visual, spiritual aspects of the coastal environment

Based on these, 34 setting types were identified and defined. These provided a brief description of the physical characteristics, viewing points including a diagram, and considerations relating to planning (see [www.vcc.vic.gov.au/landscape/ type3.htm](http://www.vcc.vic.gov.au/landscape/ type3.htm)).

In 2003, the consultants, Planisphere carried out *The Great Ocean Road Region Landscape Assessment Study*. The study assessed the landscape character of the region and the way in which various types of development can be managed in different landscape types. The study included an assessment of "distinctive landscape elements, features, characteristics, character, quality and extent of the landscape within the region, and their value or importance."

The study involved the confirmation of landscape character types defined in a preliminary assessment and the identification of additional landscape types, undertaking a “visual and sensory analysis from a professional outsiders’ point of view”, and the definition and delineation of precincts within each landscape character type.

In 2006, the *Coastal Spaces Landscape Assessment Study* (Planisphere, 2006) was completed in Victoria. It assessed distinctive landscape features, characteristics, character, quality and extent. Landscape character was based on landform, water form, vegetation and land use. Visually significant landscapes were defined on the basis of landform features, views, edges or contrasts, and its natural character. Community input was incorporated into the assessment. It identified 14 landscapes of State significance, and 17 or regional significance.
APPENDIX TWO AUSTRALIAN COASTAL PLANNING POLICIES

The following provisions describe policies relating to scenic quality in the coastal zone and also to the consideration of development within that zone. They cover all Australian states.

QUEENSLAND

State coastal management plan, (2001?)

Designated Landscape Area

Areas of State significance (Cultural heritage) are places declared as Designated Landscape Area. A Designated Landscape Area is declared under the Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987 (Cultural Record Act) to prevent or regulate the entry of persons so as to protect areas of landscape value. The policy is that decisions regarding uses and activities adjacent to “areas of State significance (cultural heritage)” are to be compatible with the protection of the area’s values.

The context of the Act however makes it clear that these are landscapes of indigenous significance, not aesthetic landscapes.

Section 2.7 Coastal landscapes

Coastal management outcomes

The scenic and cultural values associated with coastal landscapes are protected.

Principles

7A The values of coastal landscapes are conserved and recognised for their importance to the quality of life of both residents and visitors, as well as to the economic development and growth of Queensland.
7B The dominance of the natural character of the coast (excluding developed urban areas) is retained, including elements of landscape and vegetation.
7C The cultural and spiritual values of coastal landscapes are recognised and conserved through the involvement of the relevant Indigenous Traditional Owner communities.

Policies

2.7.1 Areas of state significance (scenic coastal landscapes)

This policy seeks to achieve the following ‘Coastal landscapes’ principles: 7A, 7B

Policy context

‘Areas of state significance (scenic coastal landscapes)’ are areas of outstanding and distinctive scenic quality and are high priority areas for scenic landscape management within Queensland (refer to Schedule 2). The richness of the Queensland coast is partly due to the diversity of coastal landscapes. If all landscapes were the same, resources and opportunities and their associated economic and social values would be greatly reduced. In particular, Queensland’s tourism industry is reliant upon this richness and diversity. Natural coastal landscapes also serve to separate and balance more intensively developed coastal landscapes.

Policy

In preparing regional coastal plans, ‘areas of state significance (scenic coastal landscapes)’ are to be identified and their diversity, quality and extent of scenic landscape values are to be recognised and protected. Schedule 2 provides the preferred criteria for determining ‘areas of state significance (scenic coastal landscapes)’, however the identification process should use other relevant and current information including landscape studies for the region.

The preparation of regional planning strategies and local government planning schemes for areas that
include ‘areas of state significance (scenic coastal landscapes)’ as identified by regional coastal plans, are to include measures that protect areas with coastal landscape values from incompatible land uses.

Where ‘areas of state significance (scenic coastal landscapes)’ have not been identified by a regional coastal plan, regional planning strategies and planning schemes are encouraged to protect scenic landscape values from incompatible land uses.

**2.7.2 Other coastal landscape values**

*This policy seeks to achieve the following ‘Coastal landscapes’ principles: 7A, 7B, 7C.*

**Policy context**

Coastal landscapes form an important resource of the coastal zone. Some are of national significance while others are highly valued by local communities and visitors. Coastal landscapes embrace both visual amenity.

*State Coastal Management Plan—Queensland’s Coastal Policy* 41

How Queensland’s coastal zone is to be managed and cultural values and include residential, industrial, rural and natural areas. Landscape values encompass a number of concepts:

- something perceived and appreciated by human senses, primarily sight;
- close relationships with a place or places;
- embracing a number of different yet integrated elements; and
- perceptions that depend on the personal and cultural values of individuals and communities.

**Policy**

When assessing landscape values, the importance of coastal landscapes to the state and regional community is to be addressed. In particular, the relevant Indigenous Traditional Owner communities are to be involved in the assessment of landscape values (policy 2.5.2). In addition to policy 2.7.1 which focuses on scenic values of coastal landscapes of state significance, regional coastal plans will assess the following:

(a) for areas identified as ‘areas of state significance (scenic coastal landscapes)’ — other coastal landscape values such as cultural and spiritual values that are of state or regional importance;

(b) for areas not identified as ‘areas of state significance (scenic coastal landscapes)’ — the importance of coastal landscape character and associated values; and

(c) the coastal landscapes’ sensitivity to development and change.

Investigations into landscape values will be undertaken as part of the preparation of regional coastal plans to identify the values identified in this policy. Other relevant and current landscape studies for the region will be identified and used in these investigations.

Regional planning strategies and local government planning schemes for coastal areas should protect areas with state and regionally important coastal landscape values, identified by regional coastal plans, from incompatible land uses.

Where state and regionally significant coastal landscape values have not been identified by a regional coastal plan, regional planning strategies and planning schemes are encouraged to protect coastal landscape values that are consistent with this policy.

*State Coastal Management Plan —Queensland’s Coastal Policy* 87

**Schedule 2: Scenic coastal landscapes Areas of state significance (scenic coastal landscapes)**

Coastal landscapes with either ‘Level 1 Scenic Quality’ and/or ‘High Scenic Management Priority’ are determined to be ‘areas of state significance (scenic coastal landscapes)’ for the purposes of coastal management (refer to policy 2.7.1).
Levels of scenic quality and management priority were investigated by the 1996 report *A View of the Coast: An Overview of the Scenic Resources of the Queensland Coast*. The intention of this report was to:

(a) formulate a sound and repeatable methodology for compiling a continuous scenic resource inventory for the entire Queensland coast, including an appropriate set of criteria for assessing scenic quality;
(b) assess the relative values of such resources; and
(c) develop recommendations regarding the relative urgency of conservation measures of scenic landscape values for particular locations.

Further investigation and use of other relevant regional landscape studies are encouraged.

The Queensland coastline was divided into 58 individual coastal landscapes and classified into one of the following coastal landscape character types:

- regional city;
- linear coastal strip;
- low intensity coastal plain;
- extensive coastal plain;
- coastal valley;
- steep coastal range;
- major peninsula and island groups;
- major island groups.

The report investigated the scenic quality as well as priority areas for management of scenic landscape values for each of the 58 individual coastal landscapes.

Areas of ‘Level 1 Scenic Quality’ are those areas that are highly outstanding and distinctive. Criteria for inclusion as a Level 1 Scenic Quality area are as follows:

- landscape is recognised as having exceptional or unique statewide, national or international aesthetic values; and
- landscape displays high visual quality indicators for all three criteria of landform, landcover and waterform.

Examples of these areas include Moreton Bay, Great Sandy Region, Keppel Islands, Shoalwater Bay, Whitsunday Islands, Palm Islands, Hinchinbrook, Mossman/Port Douglas and Cape Tribulation.

‘High Scenic Management Priority’ areas were assessed against the following criteria:

- the distribution and relative abundance of each of the different landscape character types to determine any areas of scarcity;
- correlation of the scenic quality rating to the scarcer landscape types to determine areas in low relative abundance; and
- application of an overall rating based upon observed or known threats to an area such as likely land development or urban growth.

Examples of these areas include Gold Coast hinterland, Brisbane basin, Moreton Bay, Sunshine Coast, Blackall Range, Town of 1770, Keppel Bay/Yeppoon, Corio Bay, Port Curtis/Gladstone, St Helens, Whitsunday Islands, Townsville, Hinchinbrook, Mulgrave River, Malbon Thompson Range, Cairns, Cape Tribulation and Endeavour River/Cooktown.

**Scenic management issues**

The report also identified relevant scenic management issues for each of these coastal landscape types.

A description of the coastal landscape type and relevant scenic management issues, as included in the *View of the Coast* report are outlined below. These issues are to be considered when undertaking regional and local planning within the relevant ‘areas of state significance (scenic coastal landscapes)’.
State Coastal Management Plan—Queensland’s 88 s Coastal Policy

**Regional cities**
This coastal landscape character type focuses on the state’s major coastal urban centres. Typically, they are based on a major river system and comprise mostly established or developing areas. Examples include the Brisbane basin, Cairns and Townsville. The following scenic management issues are relevant:

(a) maintaining the integrity of major river corridors and estuaries;
(b) protecting scenic/mountainous backdrops to cities and urban areas;
(c) avoiding development unsympathetic to the landscape and built form;
(d) minimising development of prominent foothills;
(e) maintaining urban scenic character;
(f) maintaining major areas of remnant vegetation, particularly on prominent hills and ridges;
(g) protecting headlands;
(h) sensitive design and location of major city infrastructure such as roads, power stations and transmission lines;
(i) scenic management of harbour and port areas;
(j) preventing merging of coastal villages and townships into continuous urban form; and
(k) scenic management of quarries and extractive industries.

**Linear coastal strips**
These coastal landscape character types are coastal landscapes that comprise major urban centres, however they are distinguished by the concentration of built development towards the land/water edge, with more scattered development located inland. An example is the Sunshine Coast. The following scenic management issues are relevant:

(a) avoiding development in close proximity to the land/sea edge;
(b) controlling the scale and height of development;
(c) protecting headlands subject to development pressure;
(d) maintaining the integrity of river corridors and estuaries;
(e) avoiding inappropriate development of foothills and rolling landscape;
(f) maintaining rural landscapes as a scenic feature;
(g) protecting coastal wetlands and lakes;
(h) avoiding the modification of rivers and low lying areas into canals; and
(i) avoiding uncontrolled continuation of linear development.

**Low intensity coastal plains**
This coastal landscape character type, the predominant for the Queensland coast, is characterised mostly by gently undulating lowlands and plains with a range from rural to low intensity townships and urban areas to semi-natural and natural areas. The major difference between this category and ‘Extensive coastal plain’ is that the distance from the shoreline to the dominant coastal range is far less, usually in the vicinity of 10km.

Examples include Keppel Bay/Yeppoon, Mossman/Port Douglas and St Helens. The following scenic management issues are relevant:

(a) avoiding the merging of coastal villages and townships;
(b) protecting the setting of landscape features such as prominent mountains and hills from inappropriate development;
(c) protecting ‘passage’ landscapes;
(d) maintaining areas of natural character;
(e) avoiding extensive land clearing close to the land/sea edge;
(f) inappropriate development of river mouths and estuaries;
(g) growth of villages along rivers and creeks;
(h) protecting backdrop to growing cities and townships;
(i) protecting natural settings of headlands and bay settings;
(j) maintaining the integrity of river corridors;
(k) protecting prominent peninsulas;
(l) protecting natural character of smaller islands, close to shore;
(m) enhancing foreshore areas in developed areas;
(n) scenic management of harbours and port areas;
(o) visual integration of large scale industrial and processing facilities;
(p) maintaining natural character of wetland areas;
(q) protecting rural character; and
(r) sensitive design and location of utility infrastructure such as roads, power stations and transmission lines.

**Extensive coastal plains**
This coastal landscape character type is typified by more northern areas of the state with very limited relief and an extensive coastal plain, sometimes beyond an applied ‘limit’ for the study of 100km. Land uses comprise mostly natural and semi-natural areas with an extremely limited degree of settlement.

**Coastal valleys**
This classification applies to both:

- inland coastal valleys based on major river systems which run either parallel or perpendicular to the coast; and
- inland coastal ‘hinterland’ areas of sufficient size and contrast to the adjoining landscape.

Examples include the Blackall Range, Endeavour River, Gold Coast Hinterland and Mulgrave River.

The following scenic management issues are relevant:

(a) avoiding inappropriate development of foothills and backdrops;
(b) appropriate management of scenic routes;
(c) avoiding the merging of villages and townships;
(d) protecting the estuaries from inappropriate development;
(e) maintaining field/rural pattern; and
(f) maintaining the natural character of prominent ridge and ranges.

**Steep coastal ranges**
This coastal landscape type applies to limited sections of the coastline where, for an extended area, the region is dominated by a continuous mountain range formation. Examples include Malbon Thompson Range and Cape Tribulation. The following scenic management issues were identified:

(a) maintaining natural character of ranges;
(b) managing major infrastructure such as roads, power stations and transmissions lines;
(c) avoiding the merging of coastal townships and villages;
(d) protecting river estuaries;
(e) protecting the surrounds and settings of prominent hills and mountains;
(f) maintaining integrity of river and creek corridors; and
(g) protecting open exposed headlands.

**Major peninsula and island groups**
This coastal landscape type applies to island groups that have in their formation a segmented link to the mainland coast. In particular, they are not generally known as ‘off-shore’ islands.

Examples include Moreton Bay, Great Sandy Region, Shoalwater Bay, Whitsunday Islands, and Hinchinbrook.

The following scenic management issues are relevant:

(a) protecting ‘passage’ landscapes;
(b) managing the impacts of sand mining and recreational use;
(c) managing the growth of island villages and townships;
(d) integration for tourism development;
(e) avoiding extensive clearing of hills and ranges;
(f) managing roads and scenic routes;
(g) maintaining areas of natural character;
(h) appropriate siting and management of major infrastructure such as roads, power stations and
(a) transmission lines;
(i) avoiding development along ridgelines;
(j) protecting and enhancing foreshore areas;
(k) rehabilitating degraded areas;
(l) maintaining backdrop to townships and villages; and
(m) improved appearance of island ‘arrival points’.

Major island groups (Omitted here)

NEW SOUTH WALES

NSW Coastal Policy, 1997

The 1997 NSW Coastal Policy responds to the fundamental challenge to provide for population growth and economic development without placing the natural, cultural, spiritual and heritage values of the coastal environment at risk.

It specified nine goals of equal importance including:

- Protecting and enhancing the aesthetic qualities of the coastal zone.

Its objectives included:

- Protection of areas of high aesthetic quality.
- Cultural heritage items and landscapes managed & conserved

Key actions included:

- The aesthetic qualities of both the natural and built environments will be identified, protected and promoted through the continued acquisition of coastal lands under the Coastal Lands Protection Scheme and the implementation of design guidelines, planning instruments, management plans, programs and regulations.

The coastal zone was defined to include:

- three nautical miles seaward of the mainland and offshore islands;
- one kilometre landward of the open coast high water mark;
- a distance of one kilometre around: all bays, estuaries, coastal lakes, lagoons and islands;
- tidal waters of coastal rivers to the limit of mangroves, as defined by NSW Fisheries’(1985) maps or the tidal limit whichever is closer to the sea;

Visual Management System for NSW Coast & Tweed Coast Pilot Project, 2004

This report, prepared by the NSW Department of Infrastructure, Planning and Natural Resources (2004), proposed visual management strategies to conserve the regional landscape visual values of the coast.

The report proposed four levels:

- Level 1: Preservation
- Level 2: Conservation
- Level 3: Modification
- Level 4: Restoration

It provided guidelines covering eight landscape units including beaches, and headlands. The guidelines describe the visual character of each unit and then provide guidelines under the four levels. The following are extracts from the guidelines for beaches and headlands

Beaches

Level 1 Preservation

- No structures with the exception of breakwaters adjacent to creeks and river, subject to EIA
• No structures including drainage pipes are to cross the beach or be visible from the beach
• No structures adjacent to the beach dune shall intrude into or above the dominant height of the vegetation

Level 2 Conservation
As for Level 1 plus:
• All structures are to be designed sympathetically to this visual setting and should not be taller than the coastal dune vegetation which will form a backdrop.

Level 3 Modification
As for Level 2 plus:
• Buildings such as houses may be visible from the beach but are to be well integrated into dune vegetation by virtue of scale, colour and texture.
• (Sub-level 2): Buildings such as houses and commercial elements will dominate the front dune and become part of the beach visual setting.

Level 4 Restoration
• Dune vegetation is to be restored
• Structures on the fore dunes are removed or integrated depending on VML level (Visual Management Level) desired.

Headlands

Level 1 Preservation
• Headland areas to be free of structures with the exception of lighthouse facilities
• Recreation structures are to be limited to at grade walking trails.
• Any vertical elements such as seating must be within adjoining vegetation that can provide screening.
• Headland vegetation is to be restored.

Level 2 Conservation
• Recreation structures are to be limited to at grade walking trails which may include boardwalks with guardrails and other protective fencing.
• Adjoining vegetation should screen any vertical elements such as seating or fencing.
• Headland vegetation is to be restored to achieve screening of structures.

Level 3 Modification
• Recreation structures including boardwalks, viewing platforms and picnic facilities and car parks occupy headlands and create skyline conditions.
• Screening or integrating vegetation is generally absent
• Vegetation which may include exotic species is planted to achieve visual integration
• (Sub-level 2) Development structures occur on the headlands, including houses, commercial buildings, telecommunication elements, etc

Level 4 Restoration
• Headland vegetation is planted according to the VML level that is prescribed
• Structures on the headlands are removed or integrated depending on the VML level desired.

Lake Macquarie City Council Scenic Quality Guidelines, 2004

In New South Wales, the Lake Macquarie City Council adopted Scenic Quality Guidelines in 2004. This differentiates the landscape into three zones, A, B and C with A referring to areas of the highest Scenic quality and Visual Accessibility, B being highly valued areas and C being areas of moderate to low Scenic Quality. They are areas “of critical value to the scenic image of the City and are the most sensitive to development change.”

Zone A

In respect of the foreshore and coastline, the Objective for Zone A was to “protect the natural character
dominance of the coastline and foreshore by minimising the visual impacts of development." The Strategies it identified under this Objective were as follows:

Development within the 7(4) Environmental (Coastline) zone:

- Is in accordance with the Lake Macquarie Coastline Management Plan
- Development and landscape treatments comply with requirements, such as height, scale, species (sic) to ensure they are not visible from the beach or significant viewpoints and do not impact on the natural processes associated with this area.
- Development on the foreshore is:
  - Designed to complement the character and scale of surrounding development
  - Restricted to ensure protection of the scenic quality by:
    - No vegetation removal within 20 m of HWM
    - Vegetation removal with 20 – 50 m of HWM does not exceed 10% of the existing canopy
    - The number and size of jetties and boat moorings maintains the naturalness of the foreshore
    - Ensuring recreational facilities, including jetties, camping grounds, toilets and car parks have minimal impact on the landscape character and naturalness of the foreshore.

Zone B

The objective was to maintain the dominant natural character in foreshore and coastline areas while allowing some modification and rehabilitation of areas with diminished scenic quality. Strategies included:

Development within the 7(4) Environmental (Coastline) zone:

- Development is restricted in the beach processes zones
- Height of development within 100 m of the beach processes zone is restricted to minimise overshadowing of the beach
- The scale, form and extent of development within 100 m of the beach processes protects views inland from beach
- Development on the foreshore:
  - In open or semi-open grassland areas of the foreshore, development is limited in location, size and scale to minimise visual impact
  - Screening of buildings and structures and rehabilitation planting is implemented along the foreshore to achieve a 50% screening coverage, within 5 years
  - Where predominately treed, development is sited and designed to minimise the need for vegetation clearance and to maintain a natural appearance for the foreshore, within 20 m of HWM
  - Development beyond the 20 m buffer zone is restricted in scale, height and extent to maintain a dominant natural character and only partial visibility of buildings or structures when viewed from the water
  - Height of structures does not extend above the tree canopy

VICTORIA

Victorian Coastal Strategy, 2002

The Strategy aimed to encourage:

- recognising the established and valued community uses of the coast

The Vision was introduced by:

_It is a vision that preserves the diversity of our coast, its flora and fauna, its natural beauty, and the diversity of activities you’ll find there._

The hierarchy of principles for planning and management of the coast included the protection and management of significant environmental features. This included:

- Coastal and marine features of ecological, geological, geomorphological, cultural, landscape, scientific and historical significance will be protected.
• Parts of the coast will remain largely inaccessible to protect and retain areas with a sense of remoteness and exploration.

A further principle was Suitable Development for the coast. Under this, the following actions were defined:

• There are relatively pristine areas and important vistas along the coast where no development will be appropriate.
• Appropriate coastal development is development that (inter alia):
  ➢ is sensitively sited and designed, having regard to the ‘Siting and Design Guidelines for Structures on the Victorian Coast’ and ‘Landscape Setting Types for the Victorian Coast’;

Objectives and actions for the coast were set out under six themes yet they and the actions scarcely covered scenic quality. It did include the promotion and protection of the values of scenic coastal roads (presumably the values of people who use these roads!).

The Built Environment and Coastal Infrastructure theme provided for the protection of the scenic landscape. This was solely through:

“the application of planning scheme overlays to manage development in visually sensitive and prominent areas as determined in the ‘Landscape Setting Types for the Victorian Coast’ will be encouraged.”

The same theme provided to:

• Ensure sensitive sites are identified to protect against inappropriate development and use.

An action under this was that:

• Information on sensitive sites (vegetation, fauna, cultural, geomorphological, coastal forms and processes, landscape units) will be identified and made available to coastal managers.

The Victorian coast was defined to include State waters and land and inland waters within the coastal catchment.

TASMANIA

Tasmanian State Coastal Policy 1996 (Revised 2003)

The policy’s principles included the protection of natural and cultural values. The principle recognised that:

• the natural character of the coastal zone is of special cultural value to Tasmanians and to visitors from elsewhere.

The policy required:

• Places and items of cultural heritage will be identified, legally protected, managed and conserved where appropriate

The policy did not specifically cover scenic resources. However it did require in relation to development:

• The design and siting of buildings, engineering works and other infrastructure, including access routes in the coastal zone, will be subject to planning controls to ensure compatibility with natural landscapes.

The coastal zone covered state waters and extended 1 km inland of HWM.

SOUTH AUSTRALIA

Planning Strategy for Regional South Australia
The Strategy included under the heading of Environment & Resources:

**Landscapes**

South Australia has a diversity of landscapes and scenic areas ranging from arid lands, rivers, lakes, coasts, remote islands and areas of native vegetation. There is an increasing appreciation and valuing of natural landscapes for recreation and tourism. The quality of South Australia’s landscape resources should be assessed and managed.

**Development Plan**

Development Plans have been prepared for all councils and included many common themes and measures. The following samples relevant coastal provisions from a selection of coastal councils. It does not attempt to be exhaustive.

**Coastal Development Objectives included:**

- Development liable to detract from the appearance of the land should not be undertaken in areas of landscape significance.
- Preserve areas of high landscape amenity value including stands of vegetation, exposed cliffs, headlands, islands and hilltops, and areas which form an attractive background to urban and tourist developments.
- Maintain and protect the spectacular coastal scenery, vistas and scenic outlooks
- Protection or management of areas or places of heritage and cultural significance including places of aesthetic, historic, scientific or social value for past, present or future generations.
- The amenity of localities not impaired by the appearance of land, buildings and objects.

**Coastal Development Principles included:**

- Development which is proposed to be located outside urban and tourist zones should be sited and designed to not adversely affect:
  - The natural, rural or heritage character of the area;
  - Areas of high visual or scenic value;
  - Views from the coast, near-shore waters, public reserves, tourist routes & walking trails
  - The amenity of public beaches by intruding into undeveloped areas
  - Development should not prejudice the (coastal) zone’s landscape qualities

**Coastal Zone Objectives included:**

- The retention of the coast primarily in its natural state, with scenic beauty and natural features of coastal land preserved.
- The conservation, preservation or enhancement of scenically attractive areas, including land adjoining water or scenic routes.
- Preservation of landscapes of aesthetic merit, and sites and localities of natural beauty.
- Protection of the natural skyline from artificial intrusion.
- Protection of the visual qualities for the scenic coastal landscape, including rocky cliffs, sandy beaches, dunes and estuaries and native vegetation.

**Coastal Zone Principles included:**

- Development that may adversely affect coastal features …or significant views should not be
undertaken.

Development of land should not prejudice the landscape qualities of the zone.

Tourist developments should not be located within areas of high landscape quality or significant scenic beauty.

Development should be compatible with conservation and enhancement of the coastal environment and scenic beauty of the zone.

**Coast Protection Board Policy Document, 2003**

Vision Statement:
The Coast Protection Board recognises that the South Australian coast is one of the State’s most valuable assets. The coastal zone includes many diverse marine, estuarine and terrestrial ecosystems, which are subject to great natural change and variability. The diversity of coastal and marine plants and animals is rich and includes many unique species. Many special areas need identification and protection.

The document stated:
The coast is a place of great natural beauty, that is a source of inspiration for many South Australians, and a space for reflection and relaxation.

The Coast Protection Act defined the coast as including land above and within 100 m of HWM as well as 3 nautical miles to sea. It included land within an inlet, estuary, rive, creek, bay, or lake subject to the tide.

Regulations under the Development Act 1993 (Schedule 8) determine that “coastal land” in rural areas, in the absence of a coastal zone or similar between the subject land and the coast, includes land within 500 m of MHWM.

Under its Development Policy, the Board sought to protect scenic amenity.

Heritage and Landscape was one of the Board’s six policy areas. It recognised the importance of heritage and landscape values, that while some areas were protected in reserves, others were less secure.

The intrinsic attractions of coastal areas include aesthetic qualities, which are significant both to tourism and recreation, as well as providing a sense of identity and well being for local people. The economic opportunities and the social values of South Australian coastal landscapes in part depend on its diversity of natural and semi-natural landscapes. Maintaining this richness of diversity poses a challenge in setting priorities for the development of the State’s terrestrial, estuarine and marine coastal areas. For this reason the Coast Protection Board seeks to establish a state wide assessment of coastal landscape quality.

Policy 5.2 stated that the Board opposed development that would have a significant visual impact on coastlines with significant landscape value. The policy referred to the visual impact from both the land and the sea.

**Living Coast Strategy, 2004**

The principles included:

- Coastal, estuarine and marine environments are a valuable and common resource
- Ecologically Sustainable Development is fundamental to the long-term conservation and productivity of coastal, estuarine and marine environments

The objectives included:

- To conserve and safeguard the natural and cultural heritage of our coastal, estuarine and marine environments
- To protect our coastal, estuarine and marine environmental assets
In describing the significance of South Australia’s coastal and marine environment, it stated:

The South Australian coastline includes high quality landscapes with high amenity and scenic value. The significance or quality of landscapes is derived from a combination of landform, land cover, land use, water, diversity, naturalism and colour. Features that have particular visual significance include undeveloped prominent landforms (such as cliffs / rocky headlands), undeveloped areas, unique features (such as lighthouses) and specific elements of vegetation cover.

Under the objective to protect coastal assets, it includes the need for a strategic vision of the coast. It stated:

The State Government needs to be more specific in regard to what areas will be kept development free, where development should be focussed, what coastal use is appropriate and where resources should be concentrated.

As a priority, there is a need to identify high-quality landscapes at risk from development on the coast. The vision, … would provide policy directions and principles addressing a range of coastal land management aspects including viewscapes, significant ecosystems, coastal hazards, … and linkages with the marine environment.

The coastline has high amenity value and includes high-quality landscapes that need to be protected.

Actions under this objective included:

- Identify quality landscapes on the coast at risk of development
- Protect landscape qualities and amenity values through appropriate policies in Development Plans …

WESTERN AUSTRALIA

Coastal Zone Management Policy for Western Australia, 2001

The Policy’s vision was based on a ESD approach and whole-of-government management of the coastal zone.

Its principles, derived from the 1997 State Planning strategy included:

Environmental principle:
To protect and enhance the key natural and cultural assets of the State and deliver to all Western Australians a high quality of life which is based on environmentally sustainable principles.

Its environmental objective included:

Protection and conservation of areas of environmental and cultural significance through appropriate means…

Its Community objective included:

Protection and improvement of the visual amenity of the coast.

Government policies for planning and management of the coast included:

12. Scenic values are an important aspect of community enjoyment of the coast. In order to protect the visual amenity of the coast, the design of coastal developments should be in harmony with coastal landscapes.

The coastal zone comprised:

- State waters,
- the mobile beach zone and modern(Holocene) dune systems, mangroves, and wetlands and flats subject to tidal influence;
• areas potentially subject to shoreline
• movements; and
• estuaries and coastal lagoons.

NORTHERN TERRITORY

Coastal Management Policy, 2001

In 2001, the NT Government published the Coastal Management Policy Implementation Strategy. It recognised that it has value for aesthetic experiences. Its goals included the identification and protection of areas of cultural importance.

Although NT legislation protects of places of aesthetic values the strategy did not specifically cover it other than in a broad measure to help conserve coastal cultural values.
## APPENDIX THREE  APPLICATION OF COASTAL STRATEGIC HIERARCHY

### Visitor Facilities

<table>
<thead>
<tr>
<th>Zone</th>
<th>SQ 1</th>
<th>SQ 2</th>
<th>SQ 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>Seats, guard rails, boardwalks, steps, low interpretation signage.</td>
<td>Seats, guard rails, boardwalks, interpretation signage, shelters, fences. Minimise height of facilities.</td>
<td>Seats, guard rails, boardwalks, interpretation signage, shelters, fences. Interpretation and visitor facilities.</td>
</tr>
<tr>
<td>Zone 3</td>
<td>Seats, guard rails, boardwalks, interpretation signage, shelters, fences. Interpretation and visitor facilities. Ensure facilities are not visible from sea.</td>
<td>Seats, guard rails, boardwalks, interpretation signage, shelters, fences. Interpretation and visitor facilities.</td>
<td>Seats, guard rails, boardwalks, interpretation signage, shelters, fences. Interpretation and visitor facilities.</td>
</tr>
</tbody>
</table>

### Structures & Infrastructure

<table>
<thead>
<tr>
<th>Zone</th>
<th>SQ 1</th>
<th>SQ 2</th>
<th>SQ 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 3</td>
<td>Carefully designed and located permanent structures &amp; infrastructure. Ensure structures &amp; infrastructure are not visible from sea.</td>
<td>Carefully designed and located permanent structures &amp; infrastructure. Vegetative screening.</td>
<td>Carefully designed and located permanent structures &amp; infrastructure.</td>
</tr>
</tbody>
</table>

### Commercial Developments

<table>
<thead>
<tr>
<th>Zone</th>
<th>SQ 1</th>
<th>SQ 2</th>
<th>SQ 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>No commercial developments</td>
<td>S sensitively designed and located commercial developments. Low scale. Vegetative screening.</td>
<td>Sensitively designed and located commercial developments. Vegetative screening.</td>
</tr>
<tr>
<td>Zone 2</td>
<td>No commercial developments within 1 km. Beyond 1 km, sensitively designed and located commercial developments. No multistorey buildings. Vegetative screening.</td>
<td>Sensitively designed and located commercial developments. Vegetative screening.</td>
<td>Sensitively designed and located commercial developments. Vegetative screening.</td>
</tr>
</tbody>
</table>
Zone 3: Carefully designed and located commercial developments. Ensure buildings & associated structures are not visible from sea.

Tourist Resort Developments

<table>
<thead>
<tr>
<th>Zone</th>
<th>SQ 1</th>
<th>SQ 2</th>
<th>SQ 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>No tourist resort developments</td>
<td>Sensitively designed and located tourist resort developments. Low scale. Vegetative screening.</td>
<td>Sensitively designed and located tourist resort developments. Vegetative screening.</td>
</tr>
<tr>
<td>Zone 3</td>
<td>No tourist resort developments within 1 km. Beyond 1 km, carefully located tourist resort developments. Ensure buildings &amp; associated structures are not visible from sea.</td>
<td>Carefully designed and located tourist resort developments. Vegetative screening.</td>
<td>Carefully designed and located tourist resort developments.</td>
</tr>
</tbody>
</table>

Housing Developments

<table>
<thead>
<tr>
<th>Zone</th>
<th>SQ 1</th>
<th>SQ 2</th>
<th>SQ 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>No housing developments</td>
<td>No housing developments</td>
<td>No housing developments</td>
</tr>
<tr>
<td>Zone 2</td>
<td>No housing developments within 1 km. Beyond 1 km, sensitively located compact housing developments. No multistorey buildings</td>
<td>S sensitively designed and located compact housing developments. Vegetative screening.</td>
<td>S sensitively designed and located compact housing developments.</td>
</tr>
<tr>
<td>Zone 3</td>
<td>No housing developments within 1 km. Beyond 1 km, carefully located compact housing developments. No multistorey buildings. Ensure buildings &amp; associated structures are not visible from sea.</td>
<td>Carefully designed and located compact housing developments</td>
<td>Carefully designed and located compact housing developments.</td>
</tr>
</tbody>
</table>

OTHER LAND USES AND DEVELOPMENTS

Mining and extractive industries

Mining and extractive industries should not be located within 1 km of SQ1 coast. Mining and extractive industries in SQ2 coasts should minimise their visual impact on scenic quality and have stringent post-operational restoration requirements.
**Wind Farms**

Wind farms should not be located within 1 km of Zone 1 on a SQ1 coast. Offshore wind farms should not be located within 5 km radius of a SQ1 coast.

**Aquaculture**

Aquaculture facilities at sea (e.g. fish pods, oyster racks) should not be placed near a SQ1 coast. They should be a minimum of 1 km distance from the coast (LWM).

**Marina**

Marina facilities should not be located adjacent to SQ1 coasts.

**Marine Infrastructure**

Jetties, loading or transfer facilities, permanent buoys and other permanent marine infrastructure should not be located within 1 km of SQ1 coast, except to fulfil safety requirements.