



State of the Environment Reporting:
Template for the Lower Hunter &
Central Coast Councils

February 2003

LOWER HUNTER &
CENTRAL COAST REGIONAL
ENVIRONMENTAL MANAGEMENT STRATEGY



Prepared by Twyford Consulting for the Lower Hunter & Central Coast Regional Environmental Management Strategy (LHCCREMS) including the Councils of Cessnock, Maitland, Port Stephens, Newcastle, Lake Macquarie, Wyong, & Gosford.



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How to Use This Template

This template has been designed to assist Council staff in preparing State of the Environment (SOE) Reports and Management Plans. It provides a basic structure with suggested indicators and information on sources of data in order to encourage comparability across local Councils and facilitate future reporting on regional issues.

This Template was developed with the participants at workshops on state of the environment reporting as part of the Capacity Building Project. It is intended to be a working tool. Councils can adapt this Template to suit their circumstances.

The Template may be used in preparing supplementary and comprehensive State of the Environment Reports.

Integration of SOERs with Management Planning

Supplementary SOE reports should:

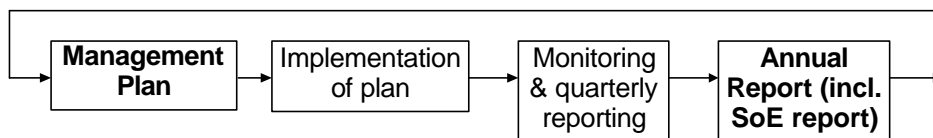
- identify any new environmental impacts or new information on the state of the environment since the last SOE report;
- update trends in environmental indicators where possible;
- identify new responses (by Council, State or Federal Governments) to environmental issues, and
- make recommendations as appropriate for the next management planning cycle.

This Template aims to integrate these functions into the structure of SOE reports. In particular, the Template is designed to assist the integration of state of the environment reports and management plans, by making the integration explicit throughout the report. For example, the template suggests the inclusion of sections that evaluate Council responses and make suggestions as to how Councils may move forward in terms of **“issues for Council’s consideration”**.

“The local SOE report is primarily a management tool of the council. It constitutes part of the council’s annual report and as such, comes within the management planning – annual reporting cycle” (Department of Local Government). The following diagram illustrates the basic elements of the planning cycle:

Figure 1: Annual Local Government reporting cycle

Annual Reporting Cycle



Source: Department of Local Government (1999), *Environmental Guidelines* p.4

Areas Covered by the Template

The template addresses the eight environmental sectors of land, air, water, biodiversity (including recovery plans), waste, noise, Aboriginal heritage and non-Aboriginal heritage required by the legislation and explicitly sets out sections on stormwater, coasts and estuaries and sewage as required by the regulation.

In addition, the template includes sections relating to economic and social development (in a chapter titled towards sustainability). In a chapter on human settlements, sections are included on energy and transport and chemicals management. These sections follow the approach of State and Commonwealth state of the environment reporting and we believe are essential to give a rounded picture of reporting on environment protection and environmental management. At the start of each chapter, any relevant Management Plan objective/environmental policy objectives (if available) are described.

Summary Tables

Each chapter has two summary tables:

1. at the beginning - an overview 'at a glance' table summarising pressure, state and response with a qualitative assessment (good, reasonable, limited), and
2. at the end - a 'summary of response' table indicating the adequacy of the responses to date listing the responses, actions to date, and new action for Council's consideration.

These tables are based on those used by Gosford City Council in their State of the Environment Report 2001. Depending on the size of the report and its format, these two tables for each chapter may be summarised and placed in the over-arching chapter on 'sustainability' or at the end of the Report's Summary.

In the 'at a glance' tables, qualitative terms can be used for each of pressure, state and response, particularly where no quantitative assessment is feasible. Where quantitative data are available, more definitive statements may be made.

Environmental management typically applies a cyclical review of the adequacy of existing responses, identifies any new action for Council's further consideration and suggests priorities. Standards or targets for reducing pollutants, even for a much large geographical area, such as NSW or Australia (in the case of a global impact) can be used as a surrogate for the Council or the region. Such targets can be detailed in the explanatory text. For example, Gosford Council set a corporate greenhouse gas reduction goal of 20% below 1996 levels by 2010 and a Draft Action Plan to meet this target has been prepared.

Example table - “At a glance”

Issue	Summary (status)	Comment
Greenhouse: State	Uncertain	Gosford’s contribution to greenhouse gas emissions is comparable with other LGAs in Aust, however it is generally accepted that current emission rates are not sustainable.
Pressure	Increasing	Greenhouse pressures have been forecast to increase in line with population growth into the 21 st century.
Response	Good	Council has set a corporate greenhouse gas reduction goal of 20% below 1996 levels by 2010 and a Draft Action Plan to meet this target has been prepared.
<u>Issue:</u> State		
Pressure		
Response		
<u>Issue:</u> State		
Pressure		
Response		

The ‘summary of response’ table reports on responses to each program that contributes to protecting the environment such as energy efficient DCP or investigation of noise complaints. The proposed actions should indicate some relative priority in order to comply with the Guidelines on state of the environment reporting. For actions undertaken to date, for example, ‘X is being developed’, new actions should go beyond ‘Council consider continuing development of X’. Statements about new actions for Council’s consideration should consider questions such as:

- how much of X was developed last year, and what is proposed for X this year?
- when will the development of X be completed?
- are there recent changes or new information which suggest different (Y) actions?

Example table – “Responses developed in the state of the environment report for consideration in development of Council’s management plan”

Responses	Action to date	New action for Council’s consideration
Energy:	Energy Reduction Program Cities for Climate Protection Program Energy Efficient DCP	
Issue:		
Issue:		

Suggested Report Structure

For each sub-section of each environmental sector, the following structure has been used:

- ❖ **Name of subsection eg. energy**
Statement of short and long term goals for the Council

- ❖ **Analysis**

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of environmental quality/issues for sustainability.
And/or brief description of changes in environmental quality since last SOE report.

Possible indicator(s):
Possible data source(s):

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures that are contributing to the issue

Possible indicator(s):
Possible data source(s):

❖ ***Suggested Responses and Actions***

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide references where appropriate)

Possible indicator(s):

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what is the potential for developing partnerships on programs to improve the state of the environment
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

Rationale for the structure of this template

The rationale for this approach in the Template is based in part on the European Environment Agency's Technical report No 47 (2000), *Questions to be answered by a state-of-the-environment report: The first list*. This report details questions for 14 key environmental issues used in EEA reports, i.e:

- Climate change
- Ozone layer depletion
- Acidification
- Tropospheric ozone
- Air quality
- Inland waters
- Marine and coastal environment
- Soil degradation
- Waste
- Chemicals
- Noise
- Technological and natural hazards
- Nature and biodiversity
- Urban environment

A questioning approach has been adopted to encourage report writers to focus on the needs of the report readers and users. We also have used this approach in order to offer a comprehensive scope for managing environmental risks and for identifying effective programs. Other material prepared and presented as part of the Lower Hunter & Central Coast Regional Environmental Management Strategy (LHCCREMS) State of the Environment reporting project will focus on presentation and testing of reports.

Acknowledgements

This template was prepared using the Department of Local Government's *Environmental Guidelines: State of the Environment Reporting by Local Government and Promoting Ecologically Sustainable Development* (1999) and their *Guidelines: Management Planning for NSW Local Government* (2000). It was also based on an analysis of the legislative requirements for state of the environment reporting detailed in the report, *Legal and conceptual frameworks for state of the environment reporting* (Mason, Kuiper and Woodward, 2002) prepared for LHCCREMS. It was also significantly informed by interviews with state of the environment report writers in the Lower Hunter and Central Coast and by a review of the state of the environment reports from the region. We welcome feedback on the contents and structure of this template.

Template State of the Environment Report

The State of Environment Report should include a table of contents, list of figures and list of tables at the front of the document, to enable easy reference.

Note: As a useful source, refer to *Style Manual pp236-243*.

The Report should also include a Summary that contains the major findings and highlight the top five or so issues, both achievements and areas for further priority work. The title 'Executive Summary' is best avoided; it is unnecessarily exclusive; the simple heading 'Summary' is sufficient.

1. Towards Sustainability

Management plan objective/environmental policy objective

Short and long term goals

1.1. Introduction

The issue: What is sustainability?

Monitoring progress toward ESD

Describe, including:

- SOE reporting and integration with management planning

Environmental & socioeconomic data

Describe, including:

- HROC Sustainability indicators
- ABS SEIFA maps

Approach taken with this SoE report

1.2. Key determinants

The physical environment

Describe, including:

- Climate trend and projected climate trends in NSW

The human environment-population & resource consumption

Describe, including:

- Consumption patterns

Economic profile and economic development

Describe, including:

- Housing

Possible indicator(s): Number of households on Rent Start Assistance Scheme (*HROC Sustainability indicator*)

Possible data source(s): Department of Housing

Social profile

Describe, including:

- Health issues

Possible indicator(s): Annual admission to hospital with respiratory illness (*HROC Sustainability indicator*)

Possible data source(s): University of Newcastle

Possible indicator(s): Levels of 'active transport' (walking, cycling, using public transport) to reach particular destinations (e.g. Council, TAFE, hospital etc)

Possible data source(s): Council, TransportNSW

Possible indicator: Overdue Immunisation for children aged 18 months old (*HROC Sustainability indicator*)

Possible data source(s): Hunter Public Health Unit

1.3. Implementing ESD

The Council's role

Describe, including:

- Intergovernmental cooperation
- Environmental management planning
- Integrated planning mechanisms
- Council's activities related to the promotion of ESD

Possible indicator(s): Environmental Grants awarded

Possible data source(s): EPA

The environmental impact of Council activities

Assess Council activities in terms of risk to environment and opportunities for market transformation (i.e. supporting environmentally preferred products and local services), including:

- polices relating to sustainability or environment and/or ESD promotion for the activities of Council;
- land management;
- waste minimisation including chemicals and pesticide management;
- energy efficiency;
- new buildings - location and energy efficiency;
- car fleet management - potential use of FleetSafe program;
- introduction of bicycles into Council's vehicle fleet;
- building - lighting, heating/cooling;
- street-lighting;
- member of EnergySmart Business (SEDA) and/or Cities for Climate Protection Program (ICLEI);
- water conservation;
- Council procurement policy - use of "ESD Products" through NSW Supply (see <http://www.supply.dpws.nsw.gov.au> for a copy of NSW Government Procurement Guidelines, Environmental Management May 2000);
- education seminars/briefings on putting ESD into practice;
- Council library - collection of ESD resources

Community Involvement

Describe.

Possible indicator(s): Community attitudes survey

Possible data source(s): Council, EPA (Who cares about the environment)

Possible indicator(s): Community group membership

Possible data source(s): Council

Possible indicator(s): Participation in environmental education programs

Possible data source(s): Council

1.4. Future directions in environmental reporting

Current reporting. Describe, including:

- Data needs for environmental reporting
- Future reporting and integration with management planning

2. Human Settlements

2.1. At a glance

(a) Summary of state, pressure and response

(b) Issue	Summary (status)	Comment
<u>Population & settlement patterns:</u> State		
Pressure		
Response		
<u>Drinking water quality:</u> State		
Pressure		
Response		
<u>Energy:</u> State		
Pressure		
Response		
<u>Transport:</u> State		
Pressure		
Response		
<u>Waste management:</u> State		
Pressure		
Response		
<u>Noise:</u> State		
Pressure		
Response		
<u>Community Lands:</u> State		
Pressure		
Response		

(insert more rows as necessary)

2.2. Population & settlement patterns

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of environmental quality/issues for sustainability and/or *brief* description of changes in environmental quality since last SOE report.

(Cross reference to Biodiversity and Water Chapters.)

Check Council policies and practices regarding 'compact cities'.

Possible indicator(s): Current population in LGA

Possible data source(s): ABS

Possible indicator(s): Population distribution figures across LGA ie. distribution densities of residential and rural residential areas – both those given in the LEP and actual densities

Possible data source(s): ABS

Possible indicator(s): Growth rate – residential; commercial/industrial

Possible data source(s): Council – DA approvals

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures including State Government policy (for example, 'Shaping the Central Coast'), resourcing and rate of growth.

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Include responses related to:

- Land-use management & planning
- Integration of transport and land-use including mixed land use for accessible facilities, public transport, walking and cycling
- the provision of transit-orientated development, 'smart growth' and 'compact cities'
- the protection of natural habitats and agricultural land
- energy-efficient built forms

- protection of habitat
- Water-sensitive urban design

Possible indicator(s):

Possible data source(s):

4. What more could be done? (future directions)

Outline and suggest for population and settlement issues:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

As appropriate: include information on what's new in terms of Federal and State policies.

2.3. Drinking water quality and consumption

Management plan objective/environmental policy objective

Short and long term goals

(Cross reference to the Water Chapter of the Report)

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of drinking water quality, consumption and level of treatment.

And/or brief description of changes in environmental quality since last SOE Report.

Possible indicator(s): Compliance with NHMRC guidelines and recording variations
(*DLG indicator*)

Possible data source(s): Council, Wyong and Gosford Water Authority, Hunter Water

Possible indicator(s): Volume and consumption by sector (residential, industrial, agricultural) (*DLG indicator*)

Possible data source(s): Council, Wyong and Gosford Water Authority, Hunter Water

Possible indicator(s): Water use by type (eg. domestic, industrial)

Possible data source(s): Council, Wyong and Gosford Water Authority, Hunter Water

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures , including the state of infrastructure (pipes)

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan, DCPs (especially with reference to rainwater tanks)
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s):

Possible data source(s):

4. What more could be done? (future directions)

Outline and suggest for drinking water quality:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

2.4. Energy

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of energy issues for sustainability

And/or brief description of changes in energy issues since last SOE report.

Possible indicator(s): Energy sources (electricity, gas)

Possible data source(s): Council?

Possible indicator(s): Energy use by Council by type (electricity, gas)

Possible data source(s): Council

Possible indicator(s): Energy use by community/industry by type (ie: electricity, gas)

Possible data source(s): energy suppliers

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures .(including, for example, generic information on energy consumption by housing type)

Possible indicator(s):

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan, Cities for Climate Protection
- community/industry involvement in responses (provide reference where appropriate)

Including responses related to:

- Construction of energy efficient housing
- DCPs for building
- HROC policy for minimum standards

Possible indicator(s): Green Power purchasing

Possible data source(s): Energy suppliers

As appropriate: include information on what's new in terms of Federal and State policies and best practice for energy suppliers

4. What more could be done? (future directions)

Outline and suggest for energy:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

2.5. Transport

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of transport issues for sustainability.

And/or brief description of changes in transport issues since last SOE report.

Possible indicator(s): Vehicle Registrations per resident (*HROC Sustainability indicator*) by type and by fuel

Possible data source(s): ABS

Possible indicator(s): Mode of transport to work (*DLG indicator*)

Possible data source(s): ABS; Transport Data Centre, TransportNSW

Possible indicator(s): Travelling times to work (?)

Possible data source(s): Council, ABS; Transport Data Centre, TransportNSW

Possible indicator(s): Public transport use

Possible data source(s): State Transit, other operators

Possible indicator(s): Vehicle movements on key roads

Possible data source(s): RTA

2. Why is it happening? (Driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s):

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan, road safety programs
- community/industry involvement in responses (provide reference where appropriate)

Including responses related to:

- Cities for Climate Protection
- Planning for sustainable transport
- Integrated land use & transport
- Improving rail freight
- Making cars, trucks & buses cleaner
- Creating safe conditions for cycling

Possible indicator(s): Annual implementation review - a report on progress with bicycle planning to cover:

- infrastructure works completed in the last 12 months
- active promotions and bicycle programs organised by council in the last 12 months
- a record of bicycle-related queries and actions
- funds spent on bicycle facilities in the last 12 months.

Possible data source: Council

As appropriate: include information on what's new in terms of Federal and State policies (including draft SEPP66)

4. What more could be done? (future directions)

Outline and suggest for transport:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

2.6. Waste management

Management plan objective/environmental policy objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of waste management issues and changes since last SOE, including:

- hazardous wastes
- illegal dumping
- organic wastes (including animal wastes)
- littering

Possible indicator(s): Total waste recycled and domestic waste recycled (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Components of domestic waste (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Proportion of total waste by source (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Capacity of waste landfill sites; projected life of sites (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Environment Protection Licensing

Possible data source(s): EPA

2. Why is it happening? (Driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s): Total waste disposed (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Total waste to landfill (*DLG indicator*)

Possible data source(s): Council

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Include responses related to:

- Industry waste reduction plans
- Green waste/composting
- Construction & demolition waste
- Commercial & industrial waste
- National Packaging Covenant
- Waste education
- Council waste reduction
- Cleaner production
- Market development
- Litter Act implementation

Possible indicator(s):

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies.

4. What more could be done? (future directions)

Outline and suggest for waste management:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

2.7. Tranquillity and noise

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of noise issues (including aircraft noise) for sustainability.
And/or brief description of changes in noise issues since last SOE report.

Possible indicator: Number of premises with EPA Environment Protection Licence (noise) (*DLG indicator*)

Possible data source: EPA

Possible indicator: Number of noise complaints

Possible data source: Council

Possible indicator(s): Loss of tranquillity (see UK Royal Commission on Environmental Pollution 1994)

Possible data source(s): Council

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s):

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s):

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for noise:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

2.8. Community lands

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of community land issues for sustainability.

And/or brief description of changes in community land since last SOE report.

Possible indicator(s): Area of open space and category

Possible data source(s): Council

Possible indicator(s): Area of community land (relating to % of Council land??)

Possible data source(s): Council

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s): Area of weed infestation

Possible data source(s):

Possible indicator(s): Bushland loss/decline

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s): Volunteer hours/number/dollars spent

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for community lands:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

Human Settlements

Responses developed in the state of the environment report for consideration in development of Council’s management plan

Responses	Action to date	New action for Council’s consideration
<u>Population & settlement patterns:</u>		
<u>Drinking water quality:</u>		
<u>Energy:</u>		
<u>Transport:</u>		
<u>Waste management:</u>		
<u>Noise:</u>		
<u>Community open space:</u>		
State		
Pressure		
Response		

(insert more rows as necessary)

3. Land

3.1. At a glance

Issue	Summary (status)	Comment
<u>Land-use changes:</u> State		
Pressure		
Response		
<u>Soil erosion:</u> State		
Pressure		
Response		
<u>Induced soil salinity:</u> State		
Pressure		
Response		
<u>Induced soil acidity:</u> State		
Pressure		
Response		
<u>Chemical contamination:</u> State		
Pressure		
Response		

(insert more rows as necessary)

3.2. Land-use changes

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of land use issues for sustainability.

And/or brief description of changes in land use since last SOE report.

NB: Cross reference to transport in Human Settlements Chapter.

Possible indicator(s): number of type of re-zonings for greenfields development (in Ha's and % of total area)

Possible data source(s): Council

Possible indicator(s): area of open space per capita (*DLG indicator*)

Possible data source(s): Council; catchment studies, SNR

2. Why is it happening? (Driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s): Number of development consents and building approvals for subdivisions, single lots, commercial (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Area of new release proposals impacting on environmentally sensitive land (loss of habitat) (*DLG indicator*)

Possible data source(s): Council; REMS

Possible indicator(s): New road construction by total area or distance in kilometres (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): New roads through bushland areas (fragmentation)

Possible data source(s): Council

Possible indicator(s): Council's clearing approvals (Ha)

Possible data source(s): Council; SNR

Possible indicator(s): Changes in vegetation coverage (*DLG indicator*)

Possible data source(s): Council; SNR

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan, tightening of policy (DCPs)
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s): % of measurable change in open space, conservation zones, scenic protection zones or conversion of large areas of rural to urban zoned land

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

NB: Cross reference to Biodiversity Chapter in Report.

4. What more could be done? (future directions)

Outline and suggest for land use change:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

3.3. Soil erosion

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of soil erosion issues for sustainability, including grazing, land clearing and bushfires.

And/or brief description of changes in soil erosion since last SOE report.

Possible indicator(s): Construction sites audits - % compliance

Possible data source(s): Council

Possible indicator(s): Dredging – tons removed (toxic tests on material

Possible data source(s): Council

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s):

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s):

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for soil erosion:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

3.4. Induced soil salinity (including sodic soils)

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of soil salinity for sustainability.

And/or brief description of changes in salinity since last SOE report.

Possible indicator(s): Extent of dryland salinity (*DLG indicator*)

Possible data source(s): SNR

Possible indicator(s): Area affected by salinity

Possible data source(s): Council?

Possible indicator(s): Areas of rising watertables

Possible data source(s): Council?

Possible indicator(s): Soil sodicity

Possible data source(s): Council?

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Intensive agriculture (eg. vineyards) -> cumulative impact

Possible indicator(s):

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s):

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for soil salinity:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

3.5. Induced soil acidity (including acid sulfate soils)

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of soil acidity issues for sustainability.

And/or brief description of changes in soil acidity since last SOE report.

Possible indicator(s): Areas with potential acid sulphate soils (by map) (*DLG indicator*)

Possible data source(s):SNR

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s): DAs approved in PASS areas

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s): Number of approvals with specific conditions to treat PASS and development

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for soil acidity:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

3.6. Contaminated land

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of contaminated land for sustainability.

And/or brief description of changes in contamination since last SOE report.

Possible indicator(s): Number of contaminated sites

Possible data source(s): EPA/Council

Possible indicator(s): Area of LGA contaminated and types of contamination

Possible data source(s): EPA/Council

Possible indicator(s): Significant risk of harm sites

Possible data source(s): EPA

2. Why is it happening? (Driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s):Rezoning of industrial/commercial zones to residential

Possible data source(s): Council

Possible indicator(s):Number of approvals for potentially contaminating activities

Possible data source(s): Council

Possible indicator(s):Number of landfills (previous landuse)

Possible data source(s): Council

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Including responses related to:

- Actions under legislation and regulation - Contaminated Land Management Act 1997; State Environmental Planning Policy No. 55; Unhealthy Building Land Act 1990

- Consent conditions applied for above approvals
- Biosolids management (only relevant where Council deals with own water)
- Residue surveys
- Pesticides management (for Council only)

Possible indicator(s): Council pesticide use

Possible data source(s): Biosolids management (?)

Possible indicator(s): Number of sites decontaminated

Possible data source(s): Council?

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for chemical contamination:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

Land

Responses developed in the state of the environment report for consideration in development of Council’s management plan

Responses	Action to date	New action for Council’s consideration
<u>Land-use changes:</u>		
<u>Soil erosion:</u>		
<u>Induced soil salinity:</u>		
<u>Induced soil acidity:</u>		
<u>Chemical contamination:</u>		
<u>Community open space:</u>		

(insert more rows as necessary)

4. Atmosphere (air)

4.1. At a glance

Issue	Summary (status)	Comment
<u>The enhanced greenhouse effect:</u> State		
Pressure		
Response		
<u>Air quality:</u> State		
Pressure		
Response		
<u>Odour:</u> State		
Pressure		
Response		

(insert more rows as necessary)

4.2. The enhanced greenhouse effect

Management plan objective/environmental policy objective
Short and long term goals

Stratospheric Ozone Depletion could be discussed here in connection with the NSW State of the Environment Report

NB: Cross reference to Transport & Energy sections of the Human Settlements Chapter in the Report.

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of the enhanced greenhouse effect stratospheric for sustainability. And/or brief description of changes in transport issues since last SOE report.

Possible indicator(s): Greenhouse gas emissions related to electricity consumption
(HROC Sustainability indicator)

Possible data source(s): Energy Australia

Possible indicator(s): Annual greenhouse gas emissions

Possible data source(s): SEDA/CCP inventories (Council)

Possible indicator(s): Atmospheric concentrations of greenhouse gases

Possible data source(s): Australian Greenhouse Office

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s): Vehicles kilometres travelled (at least VKT of Council vehicles)
(DLG indicator)

Possible data source(s): Council

Possible indicator(s): Vehicles kilometres from ride-on lawnmowers

Possible data source(s): Council

Possible indicator(s): Fuel consumption per transport output

Possible data source(s):?

Possible indicator(s): Fuel consumption of Council vehicles

Possible data source(s): Council, CCP data, AGO website

Possible indicator(s): Vehicle movements

Possible data source(s): Council/RTA

NB: Cross reference to energy and transport in Human Settlements Chapter in Report.

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Including responses related to:

- Cities for Climate Protection
- Energy
- Transport
- Agriculture
- Waste
- Land-use change & forests
- Sustainable Energy Development Authority programs in Council area, including Energy Smart homes
- Council's Energy Management Policy
- Emissions trading

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for greenhouse gas emissions:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

4.3. Air quality

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of air quality issues for sustainability.

And/or brief description of changes in transport issues since last SOE report.

Possible indicator(s): Number of days on which visibility and pollutant level standard is exceeded (*HROC Sustainability indicator*)

Possible data source(s): EPA

Possible indicator(s): EPA Regional Pollution Index (*DLG indicator*)

Possible data source(s): EPA

Possible indicator(s): Lead emissions

Possible data source(s): EPA

Possible indicator(s): Nitrogen dioxide emissions

Possible data source(s): EPA

Possible indicator(s): Sulfur dioxide emissions

Possible data source(s): EPA

Possible indicator(s): Particulate emissions

Possible data source(s): EPA

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures, especially motor vehicles and industry emissions

Possible indicator(s): Council or licenced premises monitoring data

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Including responses related to:

- Promoting sustainable transport - walking, cycling and public transport
- Making cars, trucks & buses cleaner
- Promoting cleaner homes
- Managing the impact of open burning
- Monitoring, reporting on & reviewing air quality

Possible indicator(s):

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for air quality:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

4.4. Odour

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of odour issues for sustainability.

And/or brief description of changes in transport issues since last SOE report.

Possible indicator(s): Number of complaints

Possible data source(s): Council, EPA

2. Why is it happening? (Driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s):

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s):

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for odour:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

Atmosphere

Responses developed in the state of the environment report for consideration in development of Council’s management plan

Responses	Action to date	New action for Council’s consideration
<u>The enhanced greenhouse effect:</u>		
<u>Air quality:</u>		
<u>Odour:</u>		

(insert more rows as necessary)

5. Water

5.1. At a glance

Issue	Summary (status)	Comment
<u>Freshwater riverine ecosystem health</u> State		
Pressure		
Response		
<u>Surface water extraction:</u> State		
Pressure		
Response		
<u>Groundwater issues:</u> State		
Pressure		
Response		
<u>Water Quality:</u> State		
Pressure		
Response		
<u>Point-source discharges:</u> State		
Pressure		
Response		
<u>Diffuse-source pollution:</u> State		
Pressure		
Response		
<u>Algal blooms:</u> State		
Pressure		
Response		
<u>Major marine & estuarine pollution incidents:</u> State		
Pressure		
Response		

(insert more rows as necessary)

5.2. Freshwater ecosystem health

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of river issues for sustainability, including:

- Flow-water quality relationship
- NSW water quality objectives
- Surface water quality
- Phosphorus, turbidity & temperature
- NSW Key Sites Water Quality Monitoring Program
- Temperature alterations in NSW rivers
- Surface water salinity
- Point-source discharges to fresh waters
- Estimated proportional contributions of diffuse & point sources
- Sediment contamination

And/or brief description of changes in river issues since last SOE report.

Possible indicator(s): River Health, Assessed by Macro-invertebrate Assemblages Particles (*DLG indicator*) (or physico/chemical ?)

Possible data source(s): Council; EPA; SNR; NSW Fisheries; Research institutions, Streamwatch

Possible indicator(s): Riparian vegetation – extent of coverage (where possible over time, differentiate between native vegetation, exotic vegetation and noxious weeds) (*DLG indicator*)

Possible data source(s): SNR (in the future)

Possible indicator(s): Compliance with river flow and water quality objectives in catchment based on river or water management plans (*DLG indicator*)

Possible data source(s): Council; local water authority; SNR; Streamwatch

Possible indicator(s): Freshwater blue-green algal blooms

Possible data source(s): ?:

Possible indicator(s): Climatic factors, eg rainfall vs evaporation

Possible data source(s):

Possible indicator(s): Aquatic weeds

Possible data source(s): Council

Possible indicator(s): Point-source discharges to fresh waters, wastewater treatment & reuse

Possible data source(s):

2. Why is it happening? (Driving forces, pressure)

Brief description of driving forces/causes/pressures including extraction, discharges (point sources), estimated nutrient loads (non-point sources)

Possible indicator(s): Changes in licences to pump/extract water

Possible data source(s): Council; local water authority

Possible indicator(s): Changes in pipelines to industry (eg. wine)

Possible data source(s): Council; local water authority

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Including responses related:

- NSW water reforms
- Regulation to protect water quantity & quality
- Monitoring
- Rivercare plans

Possible indicator(s): Rehabilitation projects (streambank) (both public and private land)

Possible data source(s):

Possible indicator(s): Funding allocated to freshwater health

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for freshwater riverine ecosystem health:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

5.3. Surface water extraction and water consumption

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of water extraction and consumption issues for sustainability.

And/or brief description of changes in transport issues since last SOE report.

Possible indicator(s): Water flows and diversions/ extractions (*DLG indicator*)

Possible data source(s): Council; SNR; Hunter Water Corporation

Possible indicator(s): Exceedances of surface water quality objectives (phosphorus & turbidity) & temperature alteration

Possible data source(s):

Possible indicator(s): Surface water salinity

Possible data source(s): EPA?

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s): Breakdown of water extraction by usage eg. potable, agricultural, industrial

Possible data source(s): SNR; Hunter Water Corporation

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan, policies on rainwater tanks (cross reference to Human Settlements chapter)
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s): Uptake and implementation of water efficiency program eg. CCP, Waterwise

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for water extraction and consumption:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

5.4. Coasts and estuaries

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of coastal and estuarine issues for sustainability – including:

- Seagrasses, saltmarsh, mangroves, macroalgae, phytoplankton, nutrients, oyster harvest closures
- Marine & estuarine water quality (coasts and estuaries)
- Point-source discharges to fresh waters
- Point-source discharges to marine & estuarine waters
- Estimated proportional contributions of diffuse & point sources
- Oil spills
- Introduced marine pests
- General marine pollution
- Sediment contamination

And/or brief description of changes in coastal issues since last SOE report.

Possible indicator(s): Water quality

Possible data source(s): Council; Research institutes; NSW Fisheries

Possible indicator(s): Number of stormwater discharges (outlets) to beaches, creeks or other water courses (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Number of sewer outfalls (*DLG indicator*)

Possible data source(s): EPA; Council

Possible indicator(s): Marine & estuarine algal blooms

Possible data source(s):

Possible indicator(s): Major marine & estuarine pollution incidents

Possible data source(s):

Possible indicator(s): Fish catch – abundance and diversity

Possible data source(s): Council; Research institutes; NSW Fisheries

Possible indicator(s): Beachwatch water quality - Enterococci compliance (*HROC Sustainability indicator*)

Possible data source(s): EPA

Possible indicator(s): Number of swimming days lost (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Beach pollution (days within bacterial pollution guidelines) (*DLG indicator*)

Possible data source(s): Council

2. Why is it happening? (Driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s): Reduction in area of sea grasses

Possible data source(s): Council; local water authority; SNR

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan, estuary management plan, coastal management plan, coastline hazard plans, foreshore management plan, stormwater management plan
- community/industry involvement in responses (provide reference)

Including responses related to:

- Environment Protection Licences
- Load-based licensing
- National Pollutant Inventory
- Effluent management
- Sewer overflows program
- Stormwater
- Rural run-off
- Biosolids management
- Premier's Lake Macquarie Taskforce

Possible indicator(s): Beach and Harbour Water Quality Assessment

Possible data source(s): EPA

Possible indicator(s): Number of marinas with pumpout facilities

Possible data source(s): Council

Possible indicator(s): *Caleurpa taxifolia* infestation

Possible data source(s): Council; Research institutes; NSW Fisheries

Possible indicator(s): Aquatic weed infestation

Possible data source(s): Council; NSW Fisheries

As appropriate: include information on what's new in Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for coasts and estuaries:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

5.5. Groundwater issues

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of groundwater issues for sustainability.

And/or brief description of changes in groundwater issues since last SOE report.

Possible indicator(s): Groundwater extraction licences (agriculture, industry, domestic – with qualifier that many are unlicensed)

Possible data source(s): SNR

Possible indicator(s): Number of exceedances of groundwater quality guidelines (*DLG indicator*)

Possible data source(s): SNR; Hunter Water Corporation; Water Authority

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s): Rise (or decrease) in water table levels (*DLG indicator*)

Possible data source(s): SNR; Water Authority

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Including responses related to:

- Groundwater policies
- Groundwater management plans
- Water efficiency program (cross reference to Human Settlements chapter)

Possible indicator(s): Cumulative impact of greywater/waste water/septic systems on groundwater (depends on geology, climate, etc)

Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for groundwater:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

5.6. Stormwater

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of stormwater issues for sustainability.

And/or brief description of changes in transport issues since last SOE report.

Possible indicator(s): Detention time in constructed wetlands

Possible data source(s): Council

Possible indicator(s): Number of stormwater outlets

Possible data source(s): Council

Possible indicator(s): Tonnage of gross pollutants removed

Possible data source(s): Council

Possible indicator(s): Measure of volume of water through constructed wetlands

Possible data source(s): Council

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s):

Possible data source(s): Council; local water authority; SNR

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan, Catchment Management Plan, Environmental Management Plan, Stormwater Management Plan, Stormwater education programs, Rainwater tank policy, Water sensitive urban design provision
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s):

Possible data source(s):

Possible indicator(s): Number of houses built to water sensitive urban design planning guidelines
Possible data source(s):

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for stormwater:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

(c) Water

Responses developed in the state of the environment report for consideration in development of Council’s management plan

Responses	Action to date	New action for Council’s consideration
<u>Freshwater riverine ecosystem health</u>		
Surface water extraction:		
Groundwater issues:		
Water Quality:		
Marine & estuarine water quality:		
Point-source discharges:		
Diffuse-source pollution:		
Algal blooms:		
Major marine & estuarine pollution incidents:		

(insert more rows as necessary)

6. Biodiversity

Biodiversity is the variety of all life forms. This chapter reports on biodiversity in terms of ecosystem diversity and species diversity for both terrestrial and freshwater areas and for marine and estuarine areas. Terrestrial (land) and freshwater (lakes, wetlands and rivers) systems are considered together because of their overlapping and interconnected nature. Similarly, marine and estuarine areas are considered together. This chapter has particular connections to land use in the Human Settlements chapter, the Water chapter (in particular, cross-link to wetlands) and the Land chapter that are indicated where appropriate. The biodiversity chapter also links to the Aboriginal heritage section of the Heritage chapter due to issues including the spiritual value of biodiversity, totemic species, important landscapes (eg. Sugarloaf) and escarpment to coast linkages.

Biodiversity is an important issue for local government in the Lower Hunter and Central Coast (LHCC) because Councils have the primary responsibility for implementing ecologically sustainable development through the Environmental Planning and Assessment Act (1979) and the Local Government Act (1993).

Further to this statutory imperative, there is also an increasing number of local, state, national and international policies requiring local governments to manage biodiversity as one element of ESD.

The Councils of the LHCC have taken a proactive stance to this legislative responsibility, and approached the task collectively through the creation of the regional biodiversity project.

The LHCC is a dynamically growing region. In this environment of growth, Councils are charged with managing ESD in balance with economic growth and social well being.

All development has an impact on the environment in which it is placed. The degree of impact may be managed appropriately for the specific environment or relocated if the impact is too high an impact for the ecological function of the site. The rate of development in the study area is reducing the overall biological resources. However it is also impacting on similar types of ecosystems thus reducing their resources at a greater rate than others.

Healthy ecosystems provide basic life services such as clean air, the water cycle, productive soil, mineral resources and genetic variations (amongst others). They underpin the economic prosperity that is sought by local government for the study area.

As well as being important for the economic prosperity of the region, biodiversity also plays an important role in our social prosperity. Through scenic amenity, biodiversity is actually linked to our sense of place. It distinguishes the region from Sydney and other regions. The beautiful natural assets attract new residents and visitors to the region.

The need for a biodiversity strategy underpinned by region wide data therefore became evident in order for councils to effectively manage land use patterns. In the words of Peter Dormand "if you can't measure it you can't manage it" apply equally to energy consumption and the consumption of biological resources. (Extract from the Lower Hunter Central Coast Regional Biodiversity Conservation Strategy: Volume 1 Draft Dec 2002)

This chapter of the State of the Environment report provides an important, annual status report of biodiversity issues in each local government area.

The Biodiversity chapter has been structured around four areas, in terms of ecosystem and species diversity for land and freshwater systems and marine and estuarine systems. In other words, the report identifies species or communities for which we are providing habitat, and species or communities for which we are not conserving sufficient habitat.

1. Native vegetation communities (as a surrogate measure of terrestrial ecosystem diversity due to the difficulty in examining all terrestrial ecosystem diversity)
2. Terrestrial and freshwater (land, lakes, wetlands and rivers) species diversity
3. Marine and estuarine ecosystems biodiversity
4. Marine and estuarine species diversity

6.1. At a glance

issue	Summary (status)	comment
<u>Terrestrial/freshwater biodiversity - Native vegetation communities or terrestrial ecosystems</u> State		
Pressure		
Response		
<u>Terrestrial/freshwater species diversity</u> State		
Pressure		
Response		
<u>Marine/estuarine biodiversity - Aquatic ecosystems</u> State		
Pressure		
Response		
<u>Marine/estuarine Species diversity</u> State		
Pressure		
Response		

(insert more rows as necessary)

6.2. Native vegetation communities or terrestrial ecosystems

Management plan objective/environmental policy objective

Short and long term goals

Note: Vegetation communities are used as a surrogate measure of terrestrial ecosystem diversity

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of native vegetation issues for sustainability

Description of native vegetation (type, extent and condition) in the LGA , including vegetation map and details - community/association description from LHCCREMS project

Consider:

- What vegetation communities occur across the LGA? Where?
- Conservation significance (SEPP 14 wetlands, SEPP 26 Littoral Rainforest, Endangered Ecological Communities (EECs) (State and Federal), SEPP44 (Koala Habitat, SEPP19 (Urban Bushland)) and biodiversity values (habitat/corridors)
- How much of each community remains? (since European occupation or Pre 1750)
- What condition are they in (size, connectivity, viability)?
- What level of protection are they afforded (tenure) and via what mechanisms (formal reservation, by prescription, through zoning, covenanting, other)?

And/or brief description of changes in native vegetation since last SOE report.

Possible indicator(s): **Type**, Extent & condition of native vegetation communities– Significant locations with viable remnant vegetation; % of LGA (*DLG indicator*)

Possible data source(s): SNR; Council, NPWS, RBG, LHCCREMS.

Possible indicator(s): Area covered by conservation agreements (property management plans, land for wildlife, wildlife refuges) and areas known to be revegetated with native species through Council activities (*modified DLG indicator*) (as part of vegetation map)

Possible data source(s): NPWS; SNR; Council

Suggested Indicators:

Indicator	Source	Rationale
<p>Type, Extent & condition (qualitative) of Regionally significant native vegetation (focus on vegetation areas under threat) – eg Lower Hunter Spotted Gum Ironbark Forest, 27,609 hectares in the LHCC or xx ha in LGA Of mixed condition, often modified understorey</p>	<p>Type – LHCCREMS mapping, Council mapping Extent – GIS function on above mapping. See spreadsheets accompanying REMS mapping. Condition – LHCCREMS mapping -patch size. Option commission GIS analysis of patch size frequency in own LGA of each veg type LHCCREMS mapping also has code for canopy density. Summarise amount of canopy disturbance from LHCCREMS mapping, councils own Corridor/connectivity analysis where completed, anecdotal evidence or expert opinion on fragmentation. No known viability data exists.</p>	<p>The different types of veg present is more informative to environmental managers than the total amount of vegetation. Amount of each type may be indicator of change. Condition of veg is important for habitat potential, and ability to survive over the long term. Structural complexity is presence and health of ground cover, understorey, mid storey, upper storey, canopy. Canopy density is a coarse indicator of disturbance (as long as it can be established that this is not a function of vegetation types). Patch size is often an indication of quality in terms of disturbances and habitat potential. Structural complexity is a better measure if known. High numbers of large patches can be a good sign, but this depends on the vegetation type – some vegetation types are naturally restricted eg. reed land). Connectivity is indicator of the degree of isolation and therefore likelihood of long term survival of species within patch. Fragmentation is opposite to connectivity.</p>

Indicator	Source	Rationale
		Viability is a complex mix of the above features plus others. Use if known.
Significant locations with healthy remnant vegetation	Local knowledge, local studies and mapping	Can be reference point for overall management progress eg health of Porters Creek catchment year to year would indicate council decisions, success of education programs etc Icon areas known & valued by community
% of LGA total veg, (DLG and ANZECC indicator)- as a box (see below) –	LHCCREMS mapping (calculated by cutting out LGA area from REMS map, & sum total of all veg types). Any new API commissioned by Council.	Indicator of gross change. Does not contain information on what types of environments are changing. This can be done for regionally significant vegetation (see above).
% of vegetation of high conservation value is found on reserves; unreserved public lands; Community Land; and private land. Eg 1566 ha of LHSGIF is in formal reserves in LHCC. Or x ha reserved/LGA	LHCCREMS mapping & accompanying spreadsheets. GIS function to cut out rem veg in LGA from LHCC, intersect with reserve layer.	Informative about degree protected, and unprotected. Indicator of change in reserve system.

Possible data source(s): LHCCREMS, SNR; Council, NPWS, RBG

Why is this indicator important? Ecosystem diversity may be correlated with the extent and condition of native vegetation types within them. Different vegetation types are the products of different ecological and environmental conditions and, therefore, could reflect different habitats and components of ecosystems e.g. species composition and amount of available habitat.

Why was this indicator selected? The extent and condition of native vegetation, by type, is the best available surrogate for the condition of terrestrial ecosystem diversity at this time.

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures. Links with strategic planning or lack of it. Changing demographics, landuse patterns, land pricing, zoning, Government/Council policy? Incentives to clear. Target areas? Lack of enforcement or relevant legislation?)

Other threatening processes (fire management, altered hydrology, pollution, salinity, introduced species etc.)

THREATENED SPECIES CONSERVATION ACT 1995 –

Schedule 3 - Key threatening processes (Section 8)

- Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands (as described in the final determination of the Scientific Committee to list the threatening process)
- Anthropogenic Climate Change
- Bushrock removal (as described in the final determination of the Scientific Committee to list the threatening process)
- Clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the key threatening process)
- Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)
- Competition from feral honey bees, *Apis mellifera* L.
- High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition
- Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972
- Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations
- Infection of native plants by *Phytophthora cinnamomi*
- Invasion of native plant communities by *Chrysanthemoides monilifera*
- Loss or degradation (or both) of sites used for hill-topping by butterflies
- Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish) (as described in the final determination of the Scientific Committee to list the threatening process)
- Predation by the European Red Fox *Vulpes Vulpes* (Linnaeus, 1758)
- Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)
- Predation by the Ship Rat *Rattus rattus* on Lord Howe Island

Table of threatening processes by vegetation type:

Vegetation Group	Threatening processes
Freshwater Wetlands	Altered hydrology, clearing, introduced species, nutrient run off
Seagrasses	Boating activities, sedimentation, harvesting
Mangroves	Clearing (and filling)
Coastal Foot Hills Forest	Clearing, fire management, introduced species
Riparian Etc	Clearing, including grazing, introduced species

For more specific information contact LHCCREMS for their 2002 analysis of vulnerability. LHCCREMS spreadsheet of each veg type in residential, industrial, high vulnerability, environment protection zones etc = 2002 snapshot. This can be recreated by intersecting new LEP controls with veg from year to year.

Possible indicator(s): Rate of clearing, in hectares per annum, of terrestrial native vegetation types, by clearing activity (and reason for clearing?)

(ANZECC indicator)

Possible data source(s): LHCCREMS, SNR; Council

Why is this indicator important? The National Strategy for the Conservation of Australia's Biological Diversity lists clearing of native vegetation as a threatening process. Clearing vegetation reduces the total area of habitat available to species, and can increase the risk of local extinction. Clearing native vegetation means any one or more of the following:

- cutting down, felling, thinning, logging or removing native vegetation,
- killing, destroying, poisoning, ringbarking, uprooting or burning native vegetation,
- severing, topping or lopping branches, limbs, stems or trunks of native vegetation,
- substantially damaging or injuring native vegetation in any other way.

Why was this indicator selected? This indicator is a direct measure of the threatening process.

Current monitoring status - liaise with council development assessment manager to find clearing data for council consent

See SNR website or regional landscapes manager for clearing data where SNR is consent authority. Also, NPWS is the consent authority in some cases.

Potential for better integration of data & collection methods.

Some estimates of the rate of clearing are available, particularly for the Intensive Landuse Zone at broad scales.

Development & interpretation issues

Australia is currently working toward an agreed, hierarchical vegetation classification through the National Vegetation Information System (NVIS) project, with an agreed methodology available in the year 2000. In the first instance, it may only be possible to report the total area of native vegetation cleared or to use very broad vegetation types. While this is useful information, it will be more valuable to know the amount of clearing by more finely classified vegetation types. The location of clearing also needs to be considered in interpreting this indicator.

Methodology being developed in collaboration with the NLWRA and BRS.

[Saunders et al: *BD 2.1*]

Possible indicator(s): Area (in hectares) or % and type of native vegetation cleared in the past year and since 1788 (*DLG indicator*)

Possible data source(s): SNR; Council; LHCCREMS; Royal Botanic Gardens

Possible indicator(s): Area burnt by bushfires (*DLG indicator*) and hazard reduction works

Possible data source(s): Council; NPWS; State Forests; Rural Fire Service

Possible indicator(s): Condition & extent of riparian vegetation communities

Possible data source(s): LHCCREMS

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council/within the responsibility of State Agencies eg. Voluntary Conservation Agreements, see p. 64)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan, recovery plans of management
- community/industry involvement in responses (provide reference where appropriate)
- rate rebates, development trade offs
- participation in recovery plans for threatened species

Consider:

- How is remnant vegetation managed (bushland management plans, property management plans)?
- Priorities for management?
- What programs are in place to restore or enhance these remnants (regeneration, rehabilitation, replanting)?
- Who funds these and how?
- What management plans are in place for community land?

Include responses related to:

- Council policies
- Progress in implementing LHCCREMS Regional Biodiversity Conservation Strategy
- Greening plans, or other related plans
- Voluntary conservation agreements
- Incentives (s. 94 contributions plan/rate rebates)
- Community involvement in conservation activities
- Legislation and regulation? NB amendments to Local Government Act
- External funding programs NHT/Environmental Trust?
- Studies or co-operative research programs?
- Data collection programs
- NSW Biodiversity Strategy
- National Local Government Biodiversity Strategy
- Regional Vegetation Management Plans
- NSW Native Vegetation Conservation Strategy
- Availability and access to information (LHCCREMS and other Vegetation Mapping Programs)

- Local/regional conservation targets?
- National Forest Policy?

Possible indicator(s): Area of native vegetation approved for clearing annually (by type) (*HROC Sustainability indicator*)(see above?)

Possible data source(s): SNR; Council

Possible indicator(s): Terrestrial protected areas (different levels of reservation and both private and public lands) (by vegetation type) see above

Possible data source(s): LHCCREMS; Council; NPWS

Possible indicator(s): Report on -status of regional vegetation plans (required by the legislation) and consents granted when RVMP operational – total number granted, rejected, amount veg effected, types veg effected. – as below

Possible data source(s): Council; SNR

Possible indicator(s): Number of applications to SNR for clearing and number (%) of applications approved see above

Possible data source(s): SNR; NPWS

Possible indicator(s): Report on implementation of plans relating to the environment eg. regional vegetation plan, biodiversity action plan, species recovery plan, threat abatement plans (*DLG indicator*)

Possible data source(s): Council, SNR, NPWS, land holders

Possible indicator(s): Changes in zones to conservation types (and vice versa) (in hectares)

Possible data source(s): Council; NPWS

Possible indicator(s): Revegetation of riparian zones

Possible data source(s): SNR, New API analysis, LHCCREMS

Other sources of data include Catchment Management Boards and the NSW Coastal Council and the Rural Fire Service

NOTE: Information in the following table is available from LHCCREMS Regional Biodiversity Conservation Strategy.

Vegetation type	Protection by area	
	<u>Amount in each LGA</u>	
	<u>Amount in LHCC region</u>	
	<u>Clearing Status</u>	

As appropriate: include information on what's new in terms of Federal and State policies, including the Amended Rural Fires Act (1997)

4. What more could be done? (future directions)

Outline and suggest for native vegetation:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

6.3. Terrestrial/freshwater species diversity

(With a focus on species of plants and animals that are of conservation significance)

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of issues surrounding retaining species diversity for sustainability.

What (locally and regionally) threatened species, populations and endangered ecological communities occur in the LGA (State and Commonwealth)? Protected species? Other species of conservation significance? Distribution (location and vegetation type)? Abundance? Level and type of protection?

And/or brief description of changes in flora and fauna issues since last SOE report.

Possible indicator(s): Terrestrial extinct, endangered & vulnerable species & ecological communities in protected areas
Possible data source(s): NPWS

Possible indicator(s): Actions taken to improve the conservation of specific species of flora and fauna listed under the Threatened Species Conservation Act or other documents (*DLG indicator*)
Possible data source(s): Council; NPWS; Environment Australia

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures - Key threatening processes (loss of habitat through clearing, frequent fire, predation by and competition with introduced species, change in natural flow regimes, disease, collection, pollution and other disturbances associated with the urban interface).

Species	Habitat (vegetation communities)	Threatening processes	Mechanisms to address threatening processes

Councils may compile this information from different sources, including LHCCREMS flora and fauna survey guidelines, but mainly from NPWS and own studies.

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Include responses related to:

- Implementation of Threat Abatement Plans and management of key threatening processes
- Recovery Plans and other conservation initiatives
- Greening Plan
- National/State Funding Programs (NHT and Threatened Species Network/Environmental Trust) and industry funding programs (eg. BHP)
- Community involvement in conservation activities
- National & international initiatives
- Legislation/Regulation
- Community education programs
- Studies and research partnerships
- Inventories/data collection
- International obligation (CAMBA, JAMBA, Bonn Convention, Ramsar)
- Weed control
- Pest animal management
- Biological control programs

Possible indicator(s): Report on implementation of plans relating to the environment eg. regional vegetation plan, biodiversity action plan, species recovery plan (*DLG indicator*)

Possible data source(s): Council; SNR; NPWS; EA

Possible indicator(s): Actions taken to minimise the impact or reverse the occurrence of threatening processes for species protection e.g. feral animals, weeds

Possible data source(s): Council; NPWS; Central Coast Community Environmental Network (CCCEN); NSW Fisheries

As appropriate: include information on what's new in terms of Federal and State policies

4. What more could be done? (future directions)

Outline and suggest for terrestrial species diversity:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

6.4. Aquatic ecosystems

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of aquatic biodiversity and aquatic ecosystems for sustainability and/or *brief* description of changes in aquatic issues since last SOE report, including beach closures

Cross-reference to stormwater section, acid sulphate soils section.

Possible indicator(s): Actions taken to improve the conservation of specific species? of flora and fauna listed under the Threatened Species Conservation Act, the Fisheries Management Act 1994, the Environment Protection and Biodiversity Conservation Act 1999 (Cth) or other documents (*DLG indicator*)

Possible data source(s): Council; NSW Fisheries

Possible indicator(s): Extent & condition of aquatic habitats under the Environment Protection and Biodiversity Conservation Act 1999 (Cth)

Possible data source(s): ?:

Possible indicator(s): Extent & condition of wetlands

Possible data source(s): Council; LHCCREMS; SNR; EA; Planning (SEPP 14)

Possible indicator(s): Extent & condition of mangroves

Possible data source(s): Council; LHCCREMS; SNR; NSW Fisheries

Possible indicator(s): Extent & condition of saltmarshes

Possible data source(s): Council; SNR; Universities; The wetlands centre

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s): Applications based on SEPP14 (by number and area) (wetlands clearing)

Possible data source(s): Council

Possible indicator(s): Applications based on SEPP26 (by number and area) (rainforest clearing)

Possible data source(s): Council

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)
- habitat protection plan - mangroves

Including responses in relation to:

- International obligations & national initiatives
- Ramsar wetlands
- migratory seabirds (EA/EPBC)

Possible indicator(s): Report on implementation of estuary and coastal management plans (*adapted DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Extent of marine protected areas (*DLG indicator*)

Possible data source(s): Council; NPWS; State Forests; Coastal Council

As appropriate: include information on what's new in terms of Federal and State policies, especially Coastal Protection SEPP71– see 'new info' sheet

4. What more could be done? (future directions)

Outline and suggest for aquatic biodiversity and aquatic ecosystems:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

6.5. Marine/estuarine species diversity

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of aquatic species diversity, including introduced aquatic species and aquatic harvesting and aquaculture *and/or brief* description of changes in aquatic species diversity since last SOE report.

Cross-reference to algal blooms section.

Possible indicator(s): Status of aquatic extinct, endangered & vulnerable species & ecological communities

Possible data source(s): Fisheries, NPWS

Possible indicator(s): Health of oyster leases

Possible data source(s): Fisheries

Possible indicator(s): Estimated wild fish stocks

Possible data source(s): Fisheries; Council; Healthy Rivers Commission

Possible indicator(s): Number of fishing licences issued in the LGA (by length of licence)

Possible data source(s): Fisheries

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s):

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)
- marine protected areas, marine reserves, intertidal protected areas

Possible indicator(s): Status of aquatic recovery plans

Possible data source(s): ?:

Possible indicator(s): Status of estuary management plans

Possible data source(s): SNR; NSW Fisheries; Oceanwatch

As appropriate: include information on what's new in terms of Federal and State policies, including Coastal Mgt Plans – SNR, and see the 'new info' page for Healthy Rivers Commission report

4. What more could be done? (future directions)

Outline and suggest for aquatic species diversity:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

Biodiversity

Responses developed in the state of the environment report for consideration in development of Council’s management plan

Responses	Action to date	New action for Council’s consideration
<u>Terrestrial/freshwater biodiversity - Native vegetation communities or terrestrial ecosystems</u>		
<u>Terrestrial/freshwater species diversity</u>		
<u>Marine/estuarine biodiversity - Aquatic ecosystems</u>		
<u>Marine/estuarine species diversity</u>		

(insert more rows as necessary)

7. Heritage

7.1. At a glance

Issue	Summary	Comment
<u>Aboriginal heritage:</u> State		
Pressure		
Response		
<u>Non-Aboriginal heritage:</u> State		
Pressure		
Response		

(insert more rows as necessary)

7.2. Aboriginal heritage

Management plan objective/environmental policy objective
Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of Aboriginal heritage issues for sustainability *and/or brief* description of changes in Aboriginal heritage issues since last SOE report.

Possible indicator(s): No. (of types) of Aboriginal sites (*DLG indicator*)

Possible data source(s): Council

2. Why is it happening? (Driving forces, pressure)

Brief description of driving forces/causes/pressures , including lack of knowledge and experience

Possible indicator(s):

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)
- Memorandums of Understanding with local Lands Council for funding for protection of significant Aboriginal heritage sites
- Research into Aboriginal heritage sites
- Training of staff in identification of Aboriginal heritage sites

Possible indicator(s): Number of approvals that impact on Aboriginal heritage sites

Possible data source(s): Council

As appropriate: include information on what's new in Federal and State policies

4. What more could be done? (future directions)

Outline and suggest:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

7.3. Non-Aboriginal heritage

Management plan objective/environmental policy objective

Short and long term goals

1. What are the issues for sustainability? And how are they changing? (state)

Brief description of Non-Aboriginal heritage issues for sustainability *and/or brief* description of changes in Non-Aboriginal heritage since last SOE report.

Possible indicator(s): Heritage sites in register of National Estate; National Trust Register or LEPs (*DLG indicator*)

Possible data source(s): National Trust; Council; NSW Heritage Office

Possible indicator(s): Buildings lost/added to heritage inventory (*DLG indicator*)

Possible data source(s): Council

Possible indicator(s): Number of approvals that impact on non-Aboriginal heritage sites

Possible data source(s): Council

2. Why is it happening? (driving forces, pressure)

Brief description of driving forces/causes/pressures

Possible indicator(s):

Possible data source(s):

3. What are the responses and how effective are they? (response)

Describe the implementation of relevant plans and programs and assess:

- the effectiveness of environment management programs in protecting the environment (within the responsibility of Council)
- special council projects relating to the environment
- the environmental impact of council activities,
- other Council plans and programs – eg. LEP, social plan
- community/industry involvement in responses (provide reference where appropriate)

Possible indicator(s):

Possible data source(s):

As appropriate: include information on what's new in Federal and State policies

4. What more could be done? (future directions)

Outline and suggest:

- what could be done differently by Council to improve the state of the environment (new actions for Council's consideration)
- what could be done differently by regional programs or regional cooperation and coordination to improve the state of the environment

7.4. Heritage

Responses developed in the state of the environment report for consideration in development of Council's management plan

Responses	Action to date	New action for Council's consideration
<u>Aboriginal Heritage:</u>		
<u>Non-Aboriginal Heritage:</u>		

(insert more rows as necessary)

Endmatter

Insert text on the following topics, as appropriate:

References

– including industry reports and Council documents

List of shortened forms or abbreviations

Glossary

Appendices

may include vegetation habitats/communities
endangered species list

Index (where possible)

Feedback form