Richmond Valley Council

2006 Supplementary State of the Environment Report

Prepared by Environmental Development Services

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RICHMOND VALLEY COUNCIL

2006 Supplementary

State of the Environment Report

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Produced by Richmond Valley Council's
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Every attempt has been made to give equal coverage to each of the indicators and to the entire Council area.

The report is a supplement to the *Richmond Valley Council 2004 Comprehensive SoE Report* and should be read in conjunction with that document.

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Coordination and Production 2005 & 2006 Reports: Janelle Bancroft
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Document availability:

Copies of the Comprehensive 2004 SoE Report and Supplementary SoE Reports may be purchased from Richmond Valley Council. Alternatively, the documents are freely available in PDF format from Council's website, www.richmondvalley.nsw.gov.au.

There is widespread and legitimate concern about some aspects of environmental quality, such as air pollution, degradation of waterways, loss of biodiversity and erosion of agricultural land. Decision-makers need reliable data on these and other key indicators of the state of the environment. They also need to know how the environment is changing.

(Lowe, 1998, p288)

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Executive Summary

Australia's National Strategy for *Ecological Sustainable Development* (Council of Australian Gov. 1992) recommended the introduction of regular state of the environment reporting to provide accessible and relevant data relating to ecological sustainable development. In New South Wales the Department of Environment and Conservation (formerly EPA) is charged with the production of the NSW SoE Report at least every 3 years in accordance with the *Protection of the Environment Administration Act 1991*. Likewise, NSW Local Government is required to produce a Comprehensive State of the Environment Report in the first year of a newly elected Council and a Supplementary SoE Report (or an optional Comprehensive Report) each other year as part of a council's Annual Reporting procedure.

In 1998 the *Northern Rivers Environmental Indicators Development Project* (NREIDP) commenced preparation of a series of recommended environmental indicators relevant to the Northern Rivers based on work already commenced by the Australian Local Government Association. The final report was produced in 2002 entitled "*Regional State of the Environment Reporting for Local Government Areas on the North Coast – Agreed and Consistent Indicators*" and is proposed to be published under the joint banners of participating NSW Government Agencies, LGA's and the Northern Rivers Regional Organisation of Councils as "*Environmental Signposts – A leading Step Towards Regional State of the Environment (SoE) Reporting for the North Coast Local Government Authorities*" (2002). The report identifies:

- environmental indicators which are relevant to local and regional decision makers and which will feed into local and regional state of the environment reporting for the Northern Rivers**;**
- data sources for each of the suggested indicators;
- recommendations for the incorporation of local state of the environment reports into a regional format; and
- monitoring, assessing and reporting requirements for indicators over time.

The Regional indicators identified by the NREIDP were not meant to be an all exhaustive compilation of facts and figures describing the entire environment but rather a snap shot of specifically selected and indicative parameters that could be interpreted to obtain an assessment of the State of the Environment for the Local Government area ("LGA").

This State of the Environment Report is the second supplement to the *Richmond Valley Council 2004 Comprehensive SoE Report* (Nov. 2004) and captures data for the period 1 July 2005 to 30 June 2006. This report, like the comprehensive report contains chapters each describing a mandatory environmental sector listed in the *Local Government Act 1993* (s. 428). This report and should be read in conjunction with the 2004 Comprehensive SoE Report.

The last State SoE Report was published in 2003 and was prepared by the NSW Environment Protection Authority, with guidance from the State of the Environment Advisory Council comprising independent experts and stakeholder representatives. The report shows that the nature of the environmental challenge is changing. Thirty years ago, the dominant issues were visible for all to see: sewage pollution on our beaches and smoking factory chimneys in our cities. We have made excellent progress in fixing these problems, as this report demonstrates with its information on cleaner beaches and cleaner air.

The future challenges to be faced may be far less visible to most people, but in many ways they will pose an equal or even greater threat to our long-term wellbeing. Protecting our unique biodiversity, improving river health, reducing the spread of salinity and doing our part to respond to global climate change are all problems that the Government and the NSW community must continue to address.

This supplementary State of the Environment Report has been produced for the reporting year of 2005-2006. It fulfils the requirements of the *Local Government Act 1993* and accords with the Regional environmental indicators model devised by the *Northern Rivers Environmental Indicators Development Project* (Nov 1998) ("NREIDP").

A summary is provided below for each of the seven mandatory environmental sectors and the 21 core Regional indicators:

Land
Inland Waters
Estuaries and Sea
Biodiversity
The Atmosphere
Human Settlement
Natural and Cultural Heritage.

Inland Waters and Estuaries and the Sea

1. Point source discharges

a) No., location and type of point source discharges – type and volume of discharge and any prosecutions.

The number and type of point source discharges is unknown by Council. A list of Scheduled (licensed) premises under the Protection of the Environment Operations Act (PoEO Act) is contained in Appendix A. There were no prosecutions during 2005-06.

b) Area of urban collection catchment, percentage of this area with discharge point sources (predominantly stormwater outlets) and percentage of this area treated to primary, secondary and tertiary stormwater treatment levels.

There is currently 723ha of urban stormwater catchment within the Area. These catchments have a variety of treatment devices, however, most would be untreated. Urban Stormwater Management Plans have been prepared and are being used to make improvements to the system.

2. Total no. of new septic approvals per year and percentage of population serviced by septics or sewer.

There were 91 new on-site sewage management systems approved during 2004-05. A further 97 new on-site sewage management were approved during the 2005-06 financial year. This is a slight increase over the previous financial year but a huge increase over the 55 approvals issued in 2002-03. The total number of domestic residences serviced by on site systems is 2,701. Approximately 5,804 domestic residences are connected to the sewer. Based on these figures it is anticipated that 31.8% or approximately 6,482 people (estimated Shire population is 20,383) are serviced by on site sewage management facilities.

3. Percentage exceedances of ANZECC water quality guidelines, or locally derived trigger values for recreation; aquatic ecosystem protection; irrigation and stock watering detected during routine monitoring programs (not one-off/incident/pollution event or issue identification).

No routine water quality monitoring data is available to determine if there have been exceedances of ANZECC guidelines. A need exists to implement a water quality monitoring program and to collect baseline data with which to assess it against.

4. Percentage of primary/secondary/tertiary waste water treatment.

All Sewerage Treatment Plants (STPs) are managed to at least secondary treatment. Casino and Coraki have tertiary ponds, while Rileys Hill has chlorinated tertiary treatment. Evans Head has been upgraded since the last SoE Report with the installation of UV tertiary treatment. Studies have now commenced for sewerage to Broadwater with pumping to Evans Head Sewerage Treatment Plant.

5. Annual total volume, percentage and per capita water use for percentage of population connected to the reticulated water supply.

Residential water consumption during 2005-06 has been estimated at 164.28KL per person per year from the reticulated urban water supply. This is slightly lower than 2004-05. However, the usage figures closely follow annual usage experienced in previous years

Land

6. Land uses in the LGA – surrogate measures of:

a) Intensity of key industry sectors, measured by

i) no. of people employed in key industry sectors, and

The total number of full-time employed people in RVC at 2001 Census was 6,828. The major employment sectors were in retailing, manufacturing (dominated by the food, beverages and tobacco sub-sector), and Agriculture, forestry & fishing (dominated by the agricultural sub-sector).

ii) no. scheduled activities under the PoEO Act.

There are currently 21 licensed Scheduled premises within the area. This has remained unchanged from previous reporting.

b) Land use zonings.

The Council area is covered by 3 LEPs representing the former Council's of Casino, Richmond River and Copmanhurst. These LEPs collectively have 12 rural zones, 5 urban/commercial/industrial/open space zones, 3 special purpose (road/rail) zones, and 8 national park/environmental protection zones.

7. Extent and degree of change of native vegetation

There is no way of comparing the extent of change to native vegetation as no figures have been recorded in previous SoE Reports. The Department of Environment and Conservation have calculated that there is approximately 52% of RVC covered by woody vegetation and 48% cleared, or at least less than 20% woody canopy.

A total area of 1,341.7 Ha of land is listed as being under a voluntary conservation agreement, wildlife refuge or as land for wildlife. This represents approximately ½% of the total Council area.

8. Acid sulphate soils indicators:

a) Extent and location of land identified with acid sulphate soils ASS

The extent and area of ASS has not changed from previous SoE Reports. Zones 1 to 4 from the ASS Planning Maps occupy a total area of 30,954.9ha, representing 10.1% of the Council area.

b) Extent and no. of identified ASS hot spots;

There are identified ASS hotspots at Sandy Creek – Bungawalbin Creek, via Coraki and Rocky Mouth Creek, Woodburn. The Sandy Creek hotspot may be extended in the future to include parts of Swan Bay.

c) Length of drainage system; and

The length of drainage systems within ASS areas is unknown. The DIPNR have mapped the extent of drainage along the Northern NSW Coastline, however, this data has not been supplied to local councils at this time.

d) New developments/works on ground (including for remediation) on identified ASS areas.

Very little in the way of works on ground have occurred in regards to ASS. However, several projects aligned with remediation and management have been commenced these include:

- Research project in Lower Bungawalbin by Southern Cross University
- Floodgate management by Landholder Committees and Richmond River County Council
- Construction of 2 in-drain weirs in Haughwoods Canal and monitoring of water quality by Department of Primary Industries.
- Floodgate Management at Boggy Creek and water quality monitoring by Department of Primary Industries.
- Continued implementation of Bungawalbin Catchment Management Plan with on-ground works to manage ASS.

9. No., and /or area, of contaminated sites, nature of contamination and remediation

The preparation of a comprehensive inventory of contaminated sites will be a priority for Council in the future. A data base of cattle tick dip sites and list of unhealthy building lands are currently held on file but will be expanded to include potentially contaminated sites such as service stations, tobacco or banana plantations, junk yards etc., as well as record remediation actions, where relevant.

Biodiversity

10. No. of introduced species and no. of declared noxious weeds.

A list of noxious weeds has been supplied by the Far North Coast County Council. It contains 40 species of plant with numerous others pending declaration.

Likewise, there are at least 5 species of feral animal and 6 species of marine pest known within the area.

11. No. of endangered and threatened species, populations and ecological communities (as specified in the *Threatened Species Conservation Act 1995*)

The Department of Environment & Conservation has supplied lists of endangered and threatened species, populations and ecological communities, and key threatening processes for the Richmond Valley Council area. They include 13 species of endangered fauna, 66 species of vulnerable fauna, 18 species of endangered flora, 16 species of vulnerable flora, 2 species of endangered invertebrates, 1 endangered population, 7 endangered ecological communities, and 24 key threatening processes. These lists have changed from last SoE report as the Scientific Committee makes determinations on the status of native species as they are nominated.

12. Effectiveness of the formal reserve system in accordance with its comprehensiveness, adequacy and representativeness within the region

The Area has 27,590.2Ha of formal National Park, Nature Reserve and State Conservation Areas. These reserves cover a vast number of forest ecosystems, however, many of the vulnerable ecosystems are still inadequately protected.

Atmosphere

13. Air quality

a) No. of EPA Licensed discharges.

Council has 21 licensed Scheduled premises under the PoEO Act with the DEC.

b) Percentage of sugar cane harvested green or burnt.

Little to no sugar cane is harvested green in the area. The Milling Co-op have a strategy to cease cane burning and this should be realised sooner rather than later if the Co-generation Project at the Mill is developed.

c) No and type of air quality complaints to Local Government Authority and the EPA and issues raised.

No statistics were received from the DEC on the number of complaints received. Council received a total of 10 for the period.

d) Greenhouse gas emissions produced within the LGA each year and change over time.

Data is unavailable to report on this issue.

14. No of noise complaints to Local Government Authorities and the EPA and issues raised.

The DEC Pollution Line records enquiries and complaints regarding a range of pollution types. During 2003-04 that majority of complaints received by DEC from residents in the area were regarding air quality. Noise represented the largest proportion of pollution complaints to Richmond Valley Council. The DEC recorded 3.33% of complaints being about noise. Council recorded 66.66% of pollution complaints to be about noise.

No statistics were received from the DEC on the number of complaints received. Council received a total of 22 for the same period.

Human Settlement

15. Population growth rates and population numbers.

Census statistics for the Richmond Valley Council area have shown a relatively steady population. However, recent inter-censunal activity would indicate that the population has been increasing at an accelerated rate. During 2005-06 there were 163 new dwellings, 2004-05 there were 152 new dwellings, 2003-04 there were 194 new dwelling approvals, and in 2002-03 there were 179 new dwelling approvals. In simplistic terms, if the occupancy rate for each dwelling averaged at 2.25, there would be an annual growth rate of about 2%.

16. No. and area of residential/rural residential lots approved and rate of uptake. (note residential added for this report)

Richmond Valley Council area has a total of 1789.1ha of land zoned for urban/commercial/industrial/open space land-uses. However, it is estimated that 1435.2ha of this land is currently developed for those purposes. This leaves approximately 353.9ha with urban/commercial/industrial development potential, although much of this has impediments for development, or comprise of non-residential uses such as schools, hospitals, railway lines, golf courses and the like. In addition, in this past financial year a further 178Ha of land has been allocated as urban in Council's urban Land Release Strategy.

Rural residential land occupies about 237.6ha, within the *Richmond River Local Environmental Plan 1992*, plus about 592.8ha, within the P1 – Planned Urban Control Plan area within the Casino Development Control Plan. Of these areas the only land available for further rural residential development is 47.3ha at Fairy Hill, 22.6ha at Swan Bay, and 79.8ha in the P1 at North Casino. Other P1 areas have had no development interest, would be restricted from subdivision due to constraints, or have insufficient land area to make an application.

There has only been one rural residential development application granted consent in 2003-04 and this was for 18 lots at Swan Bay.

Take-up on previous approvals has however been steady with 90 new rural residential lots being created during 2004-05 (more than double the previous year). A further 48 strata lots have also been created in the 2004-05 period. All of these lots have been sold and most have been built upon, or have approvals for dwellings.

There are other subdivisions with commencement, or valid consents, which may also come on-line in the near future, along with several applications for rural residential subdivisions in the Casino P1 areas.

Rural Residential rezoning applications under the *Richmond River Rural Development Strategy* have been received for 3 estates of varying scales, and enquiry has been fielded for further rezonings in the Casino and Woodburn localities.

17. Volume and percentage of municipal waste disposed to landfill (surrogate greenhouse measure) and volume or percentage of municipal waste recycled.

During 2005-06 there was 18,135.6 tonnes of waste disposed at Council's 2 landfills at Namoona, via Casino, and Bora Ridge, via Coraki. This waste included 1840.56 tonnes of material, such as metal, green waste, glass, paper/cardboard, and concrete/rock that was recycled.

The volume of waste to landfill has decreased slightly from that in 2003-04 and 2004-05. The materials recycled/recovered had decreased by 54.2% from 2003-04 to 2004-05. The reduced level of recycling and recovery may be because the Shire experienced less severe storms than in the previous year resulting in less destruction and thereby less green waste. It is also anticipated that impact of drought over the last financial year has too been a contributing factor. Further, crushed concrete has not been included in the recycling calculation for this financial year but was included in the recovered material in the 2003-04 year.

The figures from 2004-05 and 2005-06 are comparable, however. During 2005-06 financial year the recyclable component increased by 306.54 tonnes or by almost 20%.

Natural and Cultural Heritage

18. Aboriginal and Non-Aboriginal Heritage:

a) No. and nature of heritage sites, structures and landscapes.

There are 64 items of heritage significance identified for the Richmond Valley Council area. These comprise predominantly of built heritage from the Local Environmental Plans.

The National Parks and Wildlife Service have 100 items of Aboriginal heritage listed on the Aboriginal Heritage Information Management System dominated by sites with artifacts.

Council is mid way through the preparation of a Heritage Study which will identify heritage items and research their heritage significance. Meeting for this study have been held at Broadwater/Rileys Hill, Casino, Coraki, Evans Head, and Woodburn. The Study should be completed in 2006.

b) No of heritage items altered/destroyed/ demolished.

There were no known items of heritage significance altered, destroyed or demolished during 2005-06.

c) Area of LGA that is a heritage conservation area.

Coraki heritage conservation area has been identified by the North Coast Regional Environmental Plan. The only other Area identified is that of High Conservation Value

Old Growth Forests which have been listed on the State Heritage Register across 15 LGAs.

19. Presence or absence of riparian zone vegetation (if possible length or percentage of stream with vegetation).

Exact details of riparian vegetation is unknown. A survey carried out by the River Health Assessment Survey in 1999 identified that the overall condition of riparian vegetation within the Richmond River catchment is rated as being very poor (75.7% in poor to very poor condition).

20. Extent and degree of change of marine habitat types (mangroves, salt marshes and seagrasses).

Several studies have been undertaken for riparian and marine vegetation for the Evans River. A survey carried out in 1999 undertook to evaluate seagrass meadows in the Evans River. This was compared to aerial photo interpretation from 1943 and showed a dramatic reduction in the distribution of seagrasses. It is believed that this reduction is as a result of siltation and turbidity in the Evans River mainly from flood waters.

The second study, also in 1999, undertook to map riparian vegetation along the entire length of the Evans River as part of the estuary study. It showed that much of the River has good riparian vegetation.

21. Area and percentage of LGA occupied for different land uses (e.g. agriculture, recreation, forestry, conservation, residential, commercial, industrial)

There was 102,125ha of land recorded under productive agriculture in the 2001 Agricultural Census. This only represents those producing greater than $5,000 in commodities therefore the actual area will be greater.

State Forests NSW have advised that they have 49,221ha of land under public forestry. This is an increase on the previous years data and represents new land purchases by State Forests. It should also be noted that, of this land, 973 Ha were logged in 2004-05 but that 5,233 Ha is protected from logging.

Conservation areas representing public and private land total 37,101.6ha, however, this area excludes land within SEPP14 or environmental protection zoning under an LEP.

Urban Zoned land, excluding rural residential zoned land, has been estimated at 1789.1ha. This figure includes industrial & commercial lands and open space. Of this however, it is estimated that 885.3ha is active residential, 260.3ha is active commercial and industrial, and 289.6ha is open space/park land.

Conclusion

All the indicators used to assess the State of the Environment don't have equal weighting. Many indicators have shown improvement on previous years, however, most are showing that the environment is under stress.

A major stress is the continuing drought that has enveloped much of Australia. This results in reduced stream flows, increased bushfire risk, extreme heat, and the

associated flow-on effects such as restricted urban water supplies, increased concentration of point source discharges on receiving waters, impacts on biodiversity, increase energy use, and reduced agricultural productivity, to name a few.

Another stress on the environment is the North Coasts popularity for retirees, Sea-changers and tourists. Increased population pressures and development pressures result in competition for new land releases, and higher density living. It is for this reason that many are leaving the cities for regional areas, particularly the coast, and for the rural lifestyle. With more people living closer together in these regional areas there is evidence that the number of complaints at the urban/rural interface have been increasing, most probably due to people having lower tolerance limits and because many are new to the range of activities that routinely occur in rural areas.

Chapter 1 - Introduction

STATE OF THE ENVIRONMENT REPORTING

The State of the Environment Report (SoE) provides a summary of the environmental attributes and condition of the local government area and the human impacts on the environment. It also provides a public record of Council, industry and community activities and achievements in responding to pressures on the environment. In summary the SOE report is identified as a mechanism for reporting on progress towards Environmentally Sustainable Development (ESD). (DLG NSW 2000)

Local governments are required to provide, along with annual reports, a State of the Environment report under section 428 of the *Local Government Act 1993*.

State of the Environment reports must also be prepared having regard to any relevant guidelines that are issued. The Richmond Valley State of the Environment Report 2005 has been prepared having regard to the Department of Local Government *Environmental Guidelines State of the Environment Reporting by Local Government: Promoting Ecologically Sustainable Development, January 2000.* The report has also been prepared having regard to reports produced as part of the Northern Rivers Regional Indicator project.

Under the *Local Government (General) Regulations* 1999 the first SoE report of a council for the financial year ending after each Council election must be a comprehensive report. As no Local Government elections occurred in 2004 this year is a *supplementary reporting year,* NSW local governments are required to:

- Report on the eight environmental sectors of land, air, water, biodiversity, waste, noise, Aboriginal heritage and non-Aboriginal heritage, with particular reference to management plans relating to the environment, special council projects relating to the environment and the environmental impact of council's activities;
- Identify and apply appropriate environmental indicators for the eight environmental sectors;
- Consider and apply the pressure-state-response model;
- Compare the condition of each environmental sector with the condition reported in the previous Comprehensive SoE report; and
- Report on all major environmental impacts and related activities, including management plans relating to the environment; special council projects relating to the environment; and the environmental impact of Council activities.

The Richmond Valley Council produced a comprehensive report in 2000, 2001 and 2004. Therefore the information in this supplementary report compares trends during the period of time since the last comprehensive report, which was completed in 2004. Whilst this report draws on information from previous SoE Reports, it largely focuses on the period of 1 July 2005 to 30 June 2006, for the Richmond Valley local government area.

The structure of this comprehensive report reflects that of a regional initiate to co-ordinate a consistent approach between North Coast councils in terms of environmental reporting, and between Government Agencies for the delivery of consistent and relevant information. A consistent set of core environmental indicators have been utilised and the documents format is reflective of the recommended structure in relation to the eight mandatory environmental sectors of:

- Land
- Air
- Water
- Biodiversity
- Waste
- Noise
- Aboriginal Heritage
- Non-Aboriginal Heritage

One of the main values of SoE reporting is the provision of up-to-date and accurate information on the condition of the local environment and an assessment of current human activities and impacts. This information can form a basis for decision making and management activities across all sectors of activity so that adverse impacts can be avoided or addressed.

A wide range of approaches can be taken for SoE reporting, and these include:

- general descriptions of key environmental issues, or programs and approaches being undertaken to address such issues;
- identification of data gaps;
- environmental education, or promotion of environmental programs;
- summaries of results of environmental monitoring programs (eg. water quality);
- using environmental data to show trends in time or space;
- presentation of data bases;
- developing research priorities around questions that need to be answered.

ENVIRONMENTAL THEMES AND ISSUES

It is a requirement for SoE reporting by local government that reports consider the themes of land, air, water, biodiversity, waste, noise and Aboriginal and non-Aboriginal heritage. Themes used in Commonwealth and State SoE Reporting are slightly different, covering biodiversity, land resources, inland waters, estuaries and the sea, the atmosphere, human settlements and natural and cultural heritage.

To allow consistency between reports prepared at all levels of government, this report has been prepared using the State and Commonwealth themes, with a chapter dedicated to each as follows:

Chapter 1 - Inland Waters
Chapter 2 - Estuaries and the Sea
Chapter 3 - The Land
Chapter 4 –Biodiversity
Chapter 5 –The Atmosphere
Chapter 6 –Human Settlements
Chapter 7 – Natural and Cultural Heritage

At the start of each chapter general background information is provided about the environmental theme. This is followed by details about specific issues within the theme (for example – 'Water Quality' within Chapter 4 – Inland waters). Each issue is addressed in terms of pressure, state and response, indicators and trends. It is important to note that in some cases, indicators can be both a pressure and response indicator and these indicators are reported together for convenience.

Each chapter concludes with a list of recommended *Further Actions Required* to address current inadequacies in managing relevant issues.

ENVIRONMENTAL INDICATORS

Environmental indicators are used in SoE reports as simplified measures that represent key elements of a complex ecosystem or environmental issue. They are the physical, chemical, biological or socio-economic measures or aspects that can be used to assess natural resources and environmental quality. Indicators are used to:

- Reduce the number of measures that would normally be required to give an "exact" representation of the situation;
- Simplify communication of information about the results of measurement to the user; and
- Facilitate monitoring of trends in the environment by providing quantitative measures of changes in well defined characteristics over time.

Whilst many of these indicators may be able to be measured at the local and regional level, it is important that indicators specific to local or regional environmental issues are used in local reporting processes.

The *Northern Rivers Regional Environmental Indicator Development Project* (Luckie, 1998) prepared for the Northern Rivers Regional Organisations of Councils (NOROC), of which Richmond Valley Council was a member at the time, identified that a regional approach to environmental monitoring and reporting would be of value for improving and coordinating environmental management responses and approaches.

The aims of the project included the identification and development of environmental indicators that could be fed into the local and regional environmental reporting processes, identifying appropriate data sources for the indicators and providing recommendations for monitoring, and assessing and reporting on indicators over time.

To fulfill these aims, the project culminated in the North Coast Regional Coordination Program (2002) *ENVIRONMENTAL SIGNPOSTS: A Leading Step Toward Regional State of the Environment (SoE) Reporting on North Coast Local Government Authorities – 21 Agreed and Consistent State of the Environment Indicators for the North Coast of NSW*.

This project provides detailed descriptions of the agreed and consistent indicators with indicator rationale and identification of future monitoring considerations.

Richmond Valley Council has used the agreed regional environmental indicators in its 2006 report. Consistent application of these indicators has permitted trends in management of natural resources to emerge.

The 21 consistent and agreed indicators are provided below:

Table A Consistent and Agreed State of the Environment Indicators for the North Coast of NSW

No.	Consistent Indicator	Indicator Type *
1.	Point source discharges a) Number, location and type of point source discharges – type and volume of discharge and any prosecutions b) Area of urban collection catchment, percentage of this area with discharge point sources (predominantly stormwater outlets) and percentage of this area treated to primary, secondary and tertiary stormwater treatment levels.	P
2.	Total number of new septic approvals per year and percentage of population serviced by septics or sewer.	P
3.	Percentage exceedances of ANZECC water quality guidelines for recreation; aquatic ecosystem protection; irrigation and stock watering detected during routine monitoring programs (not one off/ incident/pollution event or issue identification).	S
4.	Percentage of primary/secondary/tertiary waste water treatment.	R
5.	Annual total volume, percentage and per capita water use for percentage of population connected to the reticulated water supply.	P
6.	Land uses in the LGA – surrogate measures of: (a) (1) number of people employed in key industry sectors; and (2) number of scheduled activities under the PoEO Act. (b) Land use zonings.	P
7.	Extent and degree of change of native vegetation.	P/S/R
8.	Acid sulfate soils indicators: a) extent and location of land identified with Acid sulfate soils; b) extent and number of ASS hot spots; c) length of drainage system; and d) new developments/works on ground (including for remediation) on identified ASS areas.	P/S/R
9.	Number and or area of contaminated sites, nature of contamination and remediation	P/S/R
10.	Number of introduced species and number of declared noxious weeds (describe key problems, area affected and extent of the problem).	P
11.	Number of endangered and threatened species, populations and ecological communities (as specified in the *Threatened Species Conservation Act 1995*).	S

12.	Effectiveness of the formal reserve system in accordance with its comprehensiveness, adequacy and representativeness within the region.	R
13.	Air quality a) Number of EPA Licensed discharges. b) Percentage of sugar cane harvested green or burnt. c) Number and type of air quality complaints to council and the EPA and issues raised d) Greenhouse gas emissions produced within the LGA each year and change over time.	P
14.	Number of noise complaints to Council and the EPA and issues raised.	P
15.	Population growth rates and population numbers.	P
16.	Number and area of rural residential lots approved and rate of uptake.	P/R
17.	Volume and percentage of municipal waste disposed to landfill (surrogate greenhouse measure) and volume or percentage of municipal waste recycled.	P/R
18A 18B	Aboriginal and Non-Aboriginal Heritage: a) Number and nature of heritage sites, structures and landscapes. b) Number of heritage items altered/destroyed/demolished. c) Area of LGA that is a heritage conservation area.	P/S
19	Presence or absence of riparian zone vegetation (if possible length/% of stream with vegetation).	*P/S/R*
20	Extent and degree of change of marine habitat types (mangroves, saltmarshes and seagrasses).	*P/S/R*
21	Area and % of LGA occupied for different land uses (e.g. agriculture, recreation, forestry, conservation, residential, commercial, industrial).	*P*

P = Pressure, S = State or Condition, R = Response

The point of consistent regional indicators is to be able to develop a picture of trends developing towards or away from environmental goals, which will inform appropriate future management decisions. Consistent indicators are also intended to make it possible to be able to compare meaningfully between regional councils.

During the comprehensive reporting period, the Richmond Valley Council State of the Environment Committee further developed a set of additional indictors for reporting, on the basis that is was important to expand the indicator set to include more of a socioeconomic focus. The additional indicators are provided in Table B below:

THE PRESSURE-STATE-RESPONSE MODEL

Commonwealth, State and Territory reports have adopted the pressure-state-response (PSR) model as the framework for SoE reporting in Australia and this model (see Figure A) has also been recommended for local government SoE reports.

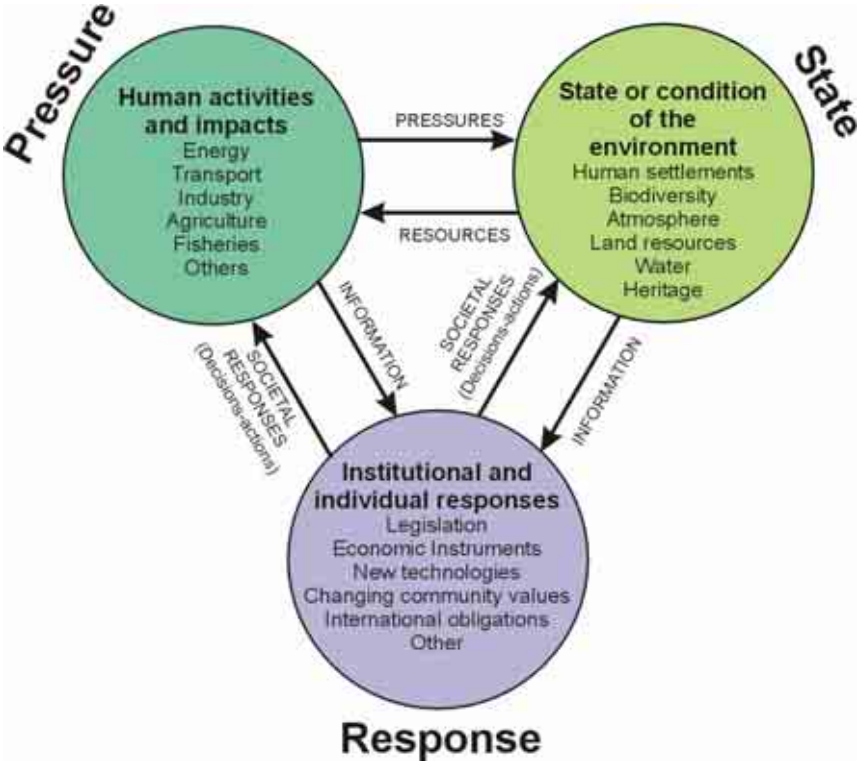
The PSR model is based on the use of indicators to show the effect of human activities on the environment. Three main types of indicators are used - pressure, state (or condition) and response indicators.

Pressure indicators highlight the positive or negative effects (pressures) that human activities place on a given environment. Pressures are often defined as human induced. It needs to be recognised that lack of responsive action can also be a pressure.

State (or condition) indicators describe the current condition of the environment. They register changes in the environment, reflecting the impact of the pressures and/or the effectiveness of responses.

Response indicators detail the actions taken by government agencies, councils, industries, communities and people in response to perceived or potential environmental problems and issues. Responses can be aimed at both pressures and states and appropriate responses will help reduce the impact of pressures.

Figure 1.1 – The Pressure-State-Response Model



(Source: Adapted from OECD, 1994)

The PSR model is a simplistic representation of a complex system. The implied cycle of cause and effect (between pressures, states/conditions and responses) provides a useful way to examine the impacts and linkages between human activities and the environment.

However, there is not always clear evidence linking pressures with changes in environmental states or conditions and the PSR model tends to simplify this

relationship by suggesting in some cases a simple linear relationship between cause and effect. The complexity of ecological and environmental relationships can make it difficult to categorise individual indicators as a discrete representation of "state", "pressure" or "response". States can reflect both pressures and the effectiveness of responses, or the indicator may change over time from a pressure, to a response indicator. For example, riparian vegetation can serve as a pressure indicator to highlight rate of clearing and loss of vegetation along the banks and edges of water courses, but it may also act as a response indicator to highlight replanting, fencing or bank stabilisation initiatives.

INTEGRATION OF STATE OF THE ENVIRONMENT REPORTING INTO THE MANAGEMENT PLAN

The Department of Local Government Environmental Guidelines, provide that the issues raised in the SoE should be used by Council for developing environmental strategies within the Management Plan and policy in relation to Council's role as an environmental steward and manager. (DLG 2000)

The amendments to the Local Government Act in 1997 clarified the relationship between SoE reporting and the strategic process of Council Management Planning, with the aim of the amendments identified as enhancing the strategic value of SoE reporting and ensuring Council's accountability to the application of ESD principals. (DLG NSW 2000) Therefore the SoE reporting provides a mechanism for reporting on achievements of Council Management Plan targets, with presumably outstanding and new matters then feeding back into Management Plan objectives.

In preparation of the Management Plan, Councils must apply principals of ESD and must have regard to the most recent comprehensive SoE report. Councils are charged with the responsibility for adopting policies and determining priorities in a manner that promotes ESD. (DLG 2000)

Integrating SoE Reporting with Environmental Management

The integration of SoE reporting with relevant environmental management strategies and frameworks can:

- provide regular, scientifically sound information about the current condition of the environment;
- evaluate the effectiveness of policies and programs developed to address environmental pressures;
- assess progress towards achieving environmental targets and standards and ecological sustainability;
- integrate environmental information into policy and planning processes;
- identify current and emerging environmental issues and important gaps in knowledge or data collection; and
- raise community awareness about the local environment and understanding of environmental impacts and approaches to address these impacts.

MONITORING FOR MANAGEMENT

The Richmond Valley Council has adopted a State of the Environment Reporting process that is consistent with the regional state of the environment indicator project prepared for NOROC (Luckie 1998).

This project not only identified and recommended consistent environmental indicators for North Coast Councils, but further recommended a 'monitoring-for-management' model. This model identifies regional and sub regional goals, targets and strategic responses to better manage human impact on the environment.

The 'monitoring-for-management' model has been developed having regard to the following regional and subregional strategies and plans (applicable at 1998):

- NREP
- North Coast Urban Planning Strategy (NCUPs (DOP 1995)
- Rural Settlement Guidelines (DUAP 1995)
- Northern Rivers Settlement Strategy in particular the principals policies and results of the Northern Rivers - Framework for a Sustainable Future (NSS Secretariat 1997)
- Draft North Coast (NSW) Natural Resources and Environmental Action Plan - DNREAP (Regional Catchment Committee - North Coast, October 1998)
- Regional Environmental Strategy - RES (Molino Stewart, 1996);
- A Vision for the Clarence Catchment - CCMS (1997);
- Clarence Valley Settlement Strategy
- Richmond Catchment Management Strategy (1996)
- Draft Tweed Catchment Management Strategy
- Northern Rivers Tourism Management Plan
- NSW Far North Coast Nature Based and Ecotourism Plan.

(Luckie 1998)

The purpose of this model is described as follows:

"The targets are the most critical components of the management-for -monitoring framework. Without baseline data, identification of relevant targets allows comparison and interpretation of environmental change and trends. Progress towards a target indicates that responses are effective in addressing the issue adequately. Large deviations away from a target indicate issues that require attention and a need to devise specific responses to address the situation." (Luckie 1998).

Richmond Valley Council SoE reporting identifies actions required to address environmental impacts. These actions are incorporated into Council's Management Plan, with the relevant department within Council identified as responsible for implementation of the identified action.

Having regard to the 'monitoring-for-management' model, in particular the numerous strategies developed during the comprehensive reporting period, it is fair to conclude that Byron Council is progressing towards improved management of human impacts on the environment.

THE SETTING – THE NORTHERN RIVERS REGION

The Northern Rivers are located in the north-eastern corner of New South Wales extending from the Clarence Valley, just north of Coffs Harbour, to the Queensland border at Tweed Heads, refer to figure 1.02. It covers 20,896 square kilometres along the NSW coastal strip east of the Great Dividing Range. There are seven local government areas (LGAs) in the Northern Rivers (upper North Coast) region of New South Wales – Tweed, Byron, Ballina, Lismore, Richmond Valley (amalgamation of Richmond River, Casino and part of Copmanhurst), Kyogle, and Clarence Valley (amalgamation of Pristine Waters, Copmanhurst, Maclean, Grafton, and part of Richmond Valley), refer to figure A.2.

Figure 1.2 – Map of New South Wales, Australia, identifying regions, refer to Figure 1.3 for further division of the Northern Rivers into Local Government areas (Source: Adapted from DLWC, 2001).

The natural catchment areas of the Clarence, Richmond, Brunswick and Tweed Rivers are the major sub-regions of the Northern Rivers. The lower parts of these sub-regional river systems are characterised by broad valleys dominated by floodplains and used extensively for agriculture. The upper parts of the river systems are generally comprised of relatively narrow valleys with steep timbered slopes. Agricultural activities tend to be located along the river valleys and on adjacent slopes. Although there are significant horticultural activities on the Alstonville plateau and Cudgen/Duranbah/Terranora where there are highly productive soils. Population and development in the Northern Rivers tends to be concentrated on, or near, the coastal zone, with more sparsely populated areas in the west of the region. Settlement in the region is characterised by the dispersed rural residential

development with a series of villages and other centres connected to the major towns and cities. High rates of population growth are one of the major pressures facing the region and environmental management.

Figure 1.3 - Local Government Areas of the Northern Rivers Region of New South Wales

RICHMOND VALLEY LOCAL GOVERNMENT AREA

Richmond Valley Council is located on the Far North Coast of NSW. It is located approximately 800km north of Sydney and some 260km south of Brisbane.

The LGA was created from the amalgamation of Casino Municipality and Richmond River Shire councils in 2000, and the subsequent addition of part of Copmanhurst Shire, and the loss of Jackybulbin and Doubleduke, as part of the Clarence Valley amalgamations in 2004.

The LGA now covers 3051 squared kilometres and stretches some 85km inland from the coast of Evans Head to the foothills of the Great Dividing Range. The Area encapsulates the southern side of the Richmond River valley at the lower portion of the river, and the northern end taking in the Casino hinterland. The southern and western boundaries roughly follow the top of the Richmond Range. The region comprises mountain bush and hilly scrubland, timber country and grazing land, sugar cane and tea tree stands to coastal heath.

The majority of the Council area is characterised by relatively flat or gently sloping terrain with ridges lying north south. The lower area of the Shire continues east along the Richmond River through flood plains to coastal heathland, rising to the Richmond Range on the south side. Substantial portions of this area are subject to major flooding.

The areas urban population predominates in Casino and Evans Head Townships and in the river-town Villages of Coraki, Woodburn and Broadwater/Rileys Hill.

The coastal fringe of the Council is dominated long sandy surf beaches broken up by a rocky headland and the mouth of the Evans River at Evans Head, and occasional outcrops of coffee rock. Of the approximate 35 kilometres of coastline bordering the LGA approximately 26.5 kilometres is contained within national park.

Figure 1.4 – Richmond Valley Council Local Government Area as defined in the Government Gazette of 27 August 2004