2016-2021
STATE OF THE ENVIRONMENT REPORT

Moree Plains and Narrabri Local Government Areas

Moree Plains SHIRE COUNCIL

NARRABRI SHIRE DISCOVER THE POTENTIAL

Acknowledgements

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Prepared by:
Molino Stewart Pty Ltd
02 9354 0300
www.molinostewart.com.au

Design:
Melissa Wykes Design
0409 389 036

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Abbreviations

AHIMS	Aboriginal Heritage Information Management System
BCT	Biodiversity Conservation Trust
DCP	Development Control Plan
EECs	Endangered Ecological Communities
EPA	NSW Environment Protection Authority
GJ	Gigajoule
GL	Gigalitre
GPT	Gross Pollutant Trap
ha	Hectare
IP&R	Integrated Planning and Reporting
kL	Kilolitre
km²	Square kilometres
LEP	Local Environmental Plan
LGA	Local Government Area
LLS	Local Land Services
ML	Megalitre
NSW	New South Wales
RSoE	Regional State of the Environment
SoE	State of the Environment
TSR	Travelling Stock Reserve
VCA	Voluntary Conservation Agreement

Why a SoE report?

A State of the Environment (SoE) Report is an important management tool which aims to provide the community and Council with information on the condition of the environment in the local area to assist in decision-making.

Environmental issues are not restricted to Council boundaries. Regional State of the Environment (RSoE) Reports have been recommended by the NSW Government and used by some groups of Councils in NSW to enable a better understanding of the state of the environment in a regional context and to identify future collaborative pathways. More specifically, a regional approach to reporting:

- facilitates a better understanding of the state of the environment across the region
- encourages collaboration in regards to partnering on projects and sharing ideas and resources
- assists in the management of shared environmental resources
- forges stronger regional links across participating Councils.

For these reasons, Moree Plains Shire Council and Narrabri Shire Council have decided to combine to produce a regional report across the two local government areas (LGAs).

This report

In 2009, the *Local Government Act 1993* was amended to require the use of an Integrated Planning and Reporting (IP&R) Framework to guide Councils' future strategic planning and reporting. As part of the IP&R Framework, Councils are required to develop environmental objectives with their communities in relation to local environmental issues. These environmental objectives form part of each Council's overarching Community Strategic Plan.

The IP&R Framework requires Councils to prepare annual reports which will include reporting on environmental objectives in their Community Strategic Plans. It is only in the year in which an ordinary Council election is held (planned for 2021) that the annual report must include a SoE Report.

The themes covered in this report relate broadly to both Council's environmental objectives. The themes are:

- Land
- Biodiversity
- Water and Waterways
- People and Communities
- Towards Sustainability

Indicators are important management tools used in environmental reporting. They summarise and communicate information about the condition of key aspects of complex environments so that decision making can be better informed.

In this report, a suite of indicators has been identified that help report on the environmental themes listed above.

The Councils prepared a joint SoE report in the previous year of an ordinary Council election (2016). This report analyses trends in the environmental indicators over the ensuing five years.

There is a description for each indicator trend within the chapters and an explanation of possible reasons for it occurring. There are also case studies highlighting responses to environmental issues across the region.

The trend arrows in the summary tables are based on comparing the average of data from the past four years with the data for 2016-21, where direct comparison can be made.

The trend arrows used in the summary table are:

↑ Improvement
→ No or little change
↓ Worsening trend

Council Snapshot Reports

In the main report, data for each indicator is aggregated across the region. At the back of the report, a tailored 2016-21 snapshot report is provided for both LGAs.

Background

Moree Plains and Narrabri LGAs are located in north-western NSW (see Figure 1). Together they extend across approximately 31,000 sq. kms.

The climate of the region is temperate, with average temperatures of 4°C–19°C in winter and 18°C–33°C in summer. The annual average rainfall is 585 mm.

The main geologic feature of the region is the Nandewar Ranges including Mount Kaputar National Park, created by erupting volcanoes between 17 and 21 million years ago.

The Gamilaraay (pronounced Gam-ill-a-roy) people were the first inhabitants of the region. Radiating from Narrabri, their land extends north to Goondiwindi, west to Lightning Ridge and south to Quirindi. In the Moree Plains LGA, Aboriginal people make up about 22% of the population, whilst in Narrabri LGA it is 12%.

The region overlies a portion of the Great Artesian Basin and has access to extensive artesian and sub-artesian underground water resources. Surface water, flowing from the tableland region of northern NSW into the extensive inland river system crossing the plains, is also in reliable supply. This access to water along with fertile black soils has enabled the region to become one of the most productive agricultural areas in Australia. Large scale cereal crops and cotton provide export industries for the region, while sheep, cattle, oil seeds, olives and pecan nuts contribute significantly to the local and national economy.

The region is well endowed with extensive coal and natural gas deposits with several coal mines currently operating in Narrabri LGA.

The total population of the two LGAs is about 27,000, almost equally divided between them. The two main towns are Moree (population 9,500) and Narrabri (population 7,500). Other towns include Wee Waa, Boggabri, Boggabilla and Mungindi. These towns provide extensive manufacturing and support industries, and well-developed artistic, cultural, educational, sport, recreational and social opportunities.

The primary transport routes are the Newell Highway, which connects Victoria with Queensland, the Kamilaroi Highway west from Walgett to Willow Tree and the Gwydir Highway, which connects the east coast with western NSW. Trains, regular air services and the major coach lines provide transport for passengers, and rail services provide seasonal services for the transport of bulk agricultural produce.

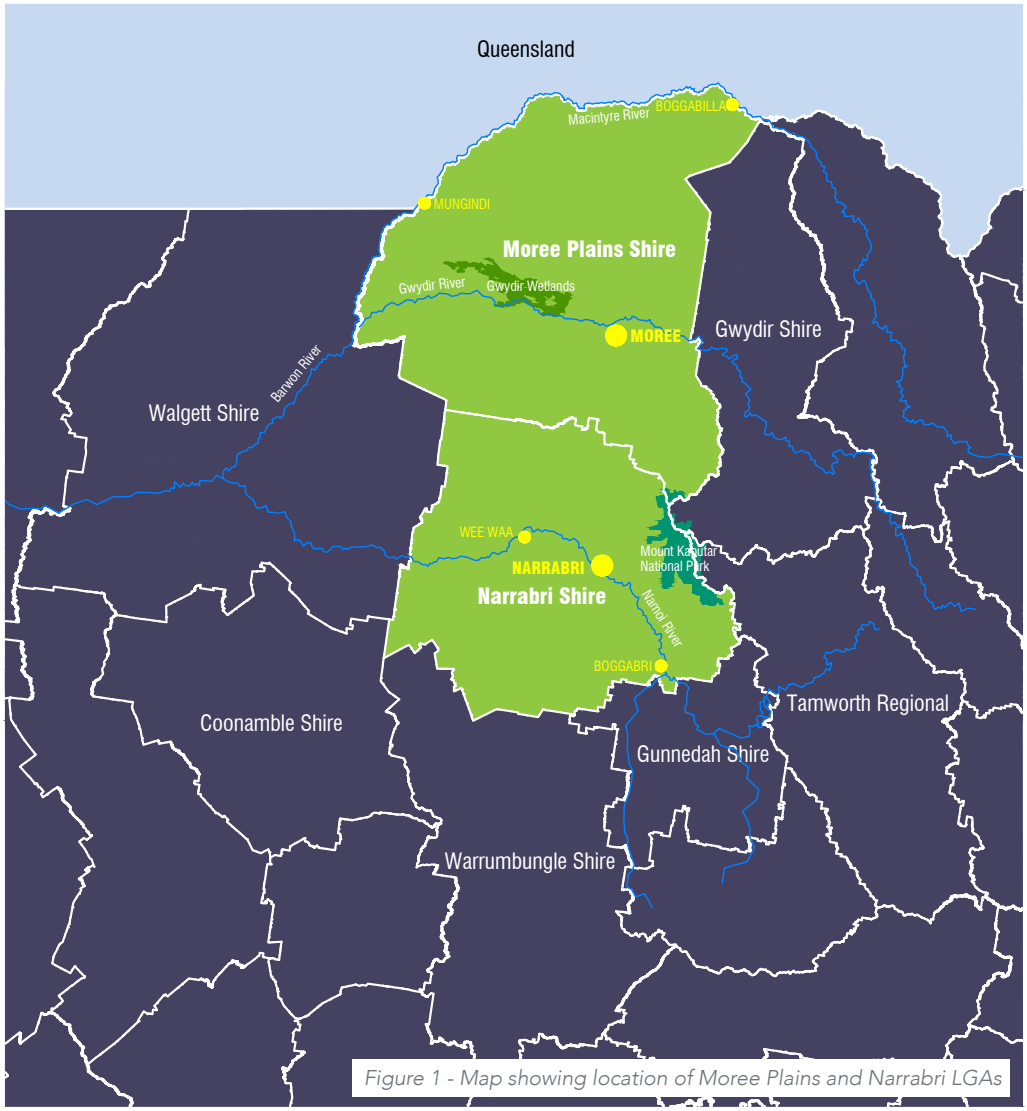


Figure 1 - Map showing location of Moree Plains and Narrabri LGAs

Environmental Objectives

According to the *Local Government Act 1993*, the Community Strategic Plan should be developed and delivered as a partnership between Council, state agencies, community groups and individuals. It should address a broad range of issues that are relevant to the whole community. These issues can include ones relating to the environment.

Moree Plains LGA

The Moree Plains 2027 Community Strategic Plan comprises of four key themes:

1. An Inclusive, Caring Community
2. Sustainable Spaces and Places
3. A Vibrant Regional Community
4. A Leading Organisation

Within the first two key themes, as shown in the table below there are several environmental strategies related to the five indicator themes used in this report:

Environmental Strategies	Indicator Themes
C2.1 Preserve and promote our Aboriginal and European heritage and culture	People and Communities
C2.4 Encourage volunteering, community ownership of challenges and opportunities for community members to get actively involved in decision-making	People and Communities
S1.1 Identify and manage threats to our native flora and fauna	Biodiversity
S1.2 Protect and enhance productive farmland, our artesian water and other water resources	Land, Water and Waterways
S1.3 Encourage community acceptance and use of renewable energy sources including solar	Towards Sustainability
S1.4 Planning controls reflect environmental values	Land
S2.2 Reduce resource consumption and provide rubbish collection, disposal and recycling services which minimise waste to landfill	Towards Sustainability
2.3 Secure sustainable water supplies for the Shire	Water and Waterways
S3.1 Evaluate and respond to flood impacts associated with land use and development	Towards Sustainability

Narrabri LGA

The 2017-2027 Narrabri Shire Community Strategic Plan has four strategic directions:

1. Safe, Inclusive and Connected Community
2. Environmentally Sustainable and Productive Shire
3. Progressive and Diverse Economy
4. Collaborative and Proactive Leadership

In the second strategic direction as shown in the table below there are several environmental strategies that are related to the five indicator themes used in this report:

Environmental Strategies	Indicator Themes
2.1.1 Conserve our Aboriginal heritage through improved awareness	People and Communities
2.1.2 Planning controls appropriately identify and conserve open spaces and natural environmental areas	Land, Biodiversity
2.1.3 Passive recreational open spaces are well maintained and accessible for public use	Land, Biodiversity
2.1.4 Minimise the impacts of noxious weeds and feral and domestic animals on the environment	Biodiversity
2.2.1 Community emergency service providers are well resourced to adequately prepare and respond to natural disasters and emergencies	Towards Sustainability
2.2.2 Protect and rehabilitate degraded and fragmented areas and enhance corridors that connect remnant bushland	Land, Biodiversity
2.2.3 Ensure Council and government agencies have a robust compliance program to protect environmental assets	Land, Biodiversity, Water and Waterways, Towards Sustainability
2.2.4 Decision making will be informed by the principles of Ecologically Sustainable Development and the precautionary principle	Towards Sustainability
2.3.1 Investigate and implement alternative energy technologies to reduce Council's carbon footprint	Towards Sustainability
2.3.2 Implement a waste management strategy focusing on waste avoidance, reusing and recycling to minimise the proportion of waste sent to landfill and to maximise the use of our natural resources	Towards Sustainability
2.3.3 Conserve and manage our natural water resources for environmental and agricultural sustainability	Water and Waterways
2.3.4 Minimise inappropriate disposal of waste through the expansion of recycling and collection programs	Towards Sustainability

Land

This chapter focuses on aspects of sustainable land management in the region. There are a number of challenges to the sustainable use and management of our soil and land resources, such as wind and water erosion, soil contamination, soil acidity, soil salinity, soil structure decline, soil nutritional fertility and water repellence. These challenges can be caused by overgrazing and contamination from disused operations such as petrol stations. The sustainable use of soil and land in agricultural areas of the region is of increasing significance, particularly in the face of a changing climate.

Indicator - Contaminated land sites (Contaminated Land Register)

Across the reporting region there were a total of two sites currently on the Contaminated Land Register at 30 June 2021, all in the Moree Plains LGA. The number of sites decreased from four in 2016-17.

The sites are:

- Former Freedom Service Station Site, Moree
- Caltex Service Station, Moree

Indicator - Contaminated land sites (potentially contaminated sites)

Sixteen potentially contaminated sites have been identified in the Moree Plains LGA. This amount has risen from zero in 2017-18. Sixty-seven sites are currently being rehabilitated in Moree Plains LGA.

Narrabri LGA currently has seven potentially contaminated sites.

Indicator - Number of development consents and building approvals

In both LGAs there was a decline in development consents and building approvals over the past five years. In Moree Plains LGA the number declined from 270 in 2016-17 to 163 in 2020-21 and in Narrabri LGA from 183 in 2016-17 to 126 in 2020-21.

Indicator - Landuse conflict complaints

There were minimal landuse conflict complaints received by both councils over the past five years with only one complaint received in the Narrabri LGA in 2019-20 and 2020-21.

Indicator - Loss of primary agricultural land through rezoning

Primary agricultural land was lost in 2020-21 when 454 hectares was rezoned in the Narrabri LGA. No primary agricultural land was lost in Moree Plains LGA over the last five years.

Indicator - Number of mining and exploration titles

Area covered by mining and petroleum exploration projects

There are currently 29 mining and exploration titles across the two LGAs with 2.17 million hectares available for mining and exploration. The area of mining in the Moree Plains LGA has remained constant in the last two years, whilst it has declined in the Narrabri LGA from 1.12 million hectares in 2019-20 to 1.03 million hectares in 2020-21.

Aerial view of the Moree Township

Case Study

Illegal Dumping - Keeping the Moree Plains Clean (Moree Plains LGA)

In 2020-2021, Moree Plains Shire Council and the NSW Environment Protection Authority (EPA) teamed up to tackle illegal dumping across the Moree Plains LGA.

The project aims to prevent illegal dumping across the Moree Plains LGA and to do this, project initiatives focused on changing behaviours. The program included various marketing campaigns engaging and educating residents on how to dispose of different waste streams such as greenwaste or household waste for free without dumping it.

The project leveraged what Moree Plains Shire Council already does to help prevent illegal dumping in the community. Community Clean Up Teams were established in South Moree, Boggabilla and Toomelah to visit households to promote the Community Clean Up and offer a helping hand to residents to put their household waste on the kerb ahead of Moree Plains Shire Council's bulky waste collection. A Collection Competition was also run across the Moree Plains LGA to encourage households to participate. A Lucky Door Competition and media campaign is planned for late 2021 to promote Moree Plains Shire Council's free domestic waste disposal at landfills.

Activities like community clean ups are a great way for residents to get engaged on waste issues, work together and tidy up their homes and neighbourhood.

The project included asbestos awareness, helping the community understand the risks asbestos poses during home DIYs and how to dispose of dangerous building materials correctly and safety. Twelve Moree Plains Shire Council staff members completed Asbestos Removal courses to enable them to handle illegally dumped asbestos.

Other prevention activities included signage installation at hot spot dumping locations, a mobile surveillance camera and additional ranger patrols to deter would-be dumpers.

A significant portion of the funding was dedicated to the clean-up of dumping sites across the Moree Plains LGA, including high value environmental areas, such as along the Mehi River bank. Grant funding and Moree Plains Shire Council's co-contribution brought the project investment to almost $190,000.

Adam Marshall MP Member for Northern Tablelands pictured with Moree Plains Shire Council's Waste Support Officer Dayna Walker, left, Director of Planning and Community Development Angus Witherby, and Miray Birray's Community Clean Up Team Members Nicholas Binge, Michael Kirk, Northern Tablelands MP Adam Marshall, Selwyn Benge and James Smith, kneeling left, and Brandon Saunders.

Case Study

New Approach to Clean-Up Notices (Narrabri LGA)

Between 2019 and 2020, Narrabri Shire Council worked cooperatively with the NSW Environment Protection Authority (EPA) to establish a new approach to issuing clean-up notices.

In April 2019, the Narrabri Waste Management Facility (NWMF) was unknowingly in receipt of hazardous waste (in the form of Self-Contained Self Rescuer Cannisters, also known as oxygen cannisters) contrary to Council's Environmental Protection Licence issued in accordance with Schedule 1 of the *Protection of the Environment Operations Act 1997* (NSW). These cannisters supply underground mining workers with oxygen during incidents in underground mines. The units contained between 90 and 120 kilograms of potassium hydroxide, which is classified as a corrosive dangerous good as it can generate very high pH levels when exposed to liquids. Over 100 cannisters were inappropriately disposed of in general waste bins at a mine within the Narrabri Shire LGA by Narrabri Coal Operations Pty Ltd (NCO). These general waste bins were then transported to NWMF and disposed of in the general waste cell by NCO's waste removal contractor.

From mid-April 2019, Council experienced several fires in the general waste cell leading to an EPA investigation which concluded that the source of these fires was the inappropriately disposed of cannisters. When split open by compaction of the landfill cell, chemicals from the units can ignite. This is not only a safety issue but a breach of hazardous waste rules.

Ordinarily, the onus to clean-up the hazardous waste and remediate the site would fall on the operator of the NWMF, being Council. However, due to the ability to identify the source of the cannisters and Council's cooperation with the investigation, the EPA's Notice of Clean-Up Action was varied to place this onus back onto NCO via an enforceable undertaking. Enforceable undertakings are a tool the EPA can use as an alternative to prosecution. The legally binding agreements are designed to prevent similar incidents occurring in the future and improve environmental outcomes.

Following the incident, NCO hired a contractor to manually search through 700 cubic metres of general waste to try to recover the self-rescue units. A five-week search recovered only twelve of the units. A clean-up operation continues within the impacted waste cell to ensure the site is safe for workers and the environmental impacts are addressed.

Community Recycling Centre at the Narrabri Waste Management Facility

Biodiversity

Biodiversity is the variety of all life forms on earth - the different plants, animals and micro-organisms and the ecosystems of which they are a part.

Ecosystems that are rich in biodiversity are more resilient and healthy and are better able to recover from outside stresses such as drought, pests, bushfire and climate change.

Indicator - Total area in the National Parks Estate

The National Park Estate includes national parks, nature reserves, state conservation areas and regional parks. In June 2021, the total area of the National Park estate in the two LGAs was approximately 200,000 hectares, 80% of which is in the Narrabri LGA.

Indicator - Total area protected under voluntary conservation agreements and property agreements

The Conservation Partners Program managed by the BCT supports landholders in voluntarily protecting and managing native vegetation, wildlife habitat, geological features, historic heritage and Aboriginal cultural heritage on their properties. Landholders wishing to permanently protect and conserve biodiversity on their land can apply to enter an in-perpetuity Conservation Agreement at any time. An in-perpetuity Conservation Agreement is a voluntary agreement between the landholders and the BCT to conserve and manage biodiversity on an area of their land. These agreements are registered on the land title and are binding on subsequent landholders.

Local Waterway in Narrabri - Photo by Darrel Tiemens

Indicator - Total Area of State Forests

In June 2021, there were 184,498 hectares of State Forests in the Narrabri LGA and none in the Moree Plains LGA.

Indicator - Total Area Protected in Wildlife Refuges

The Wildlife Refuges scheme, currently managed by the Biodiversity Conservation Trust (BCT), has existed since 1948 and is one of the longest-running schemes in Australia that supports conservation on private and public land. Wildlife refuges may contain remnant native vegetation, as well as habitat provided by wildlife corridors, windbreaks, woodlots or farm dams. The area protected in Wildlife Refuges on private property for the two LGAs is 11,659 hectares, almost 90% of which is in the Moree Plains LGA.

Approximately 8,500 hectares of land was protected under Voluntary Conservation Agreements (VCAs) and property agreements in 2020-21 with about 90% in Narrabri LGA. The amount of land under VCAs has doubled since 2015-16 across the two LGAs.

Indicator - Extent of Travelling Stock Reserves

When grazing or moving stock around the state, the grazing industry uses a network of parcels of Crown land called travelling stock reserves (TSR). In addition to grazing and moving stock, the TSR network also has other values such as biodiversity conservation, Aboriginal and European culture and recreation.

The total TSR network in NSW covers almost two million hectares, with 75 percent (including Stock Watering Places) in the Western Division of NSW.

In the two LGAS, TSRs are managed by Local Land Services (LLS). There are currently 83,711 hectares of TSR in the two LGAs, with 54,901 hectares in the Moree Plains LGA and 28,810 hectares in the Narrabri LGA.

Indicator - Roadside vegetation management plans

Moree Plains Shire Council reported that it has a roadside vegetation management plan in place. Narrabri Shire Council does not have a plan in place yet.

Indicator - State Threatened species listed in the region

There are 322 listed threatened species, Endangered Ecological Communities (EECs) and Endangered Populations across the region. There are a total of 166 species/EECs listed in Narrabri LGA and 156 in Moree Plains LGA.

Indicator - Fish restocking activities: native species

Over the past five years there has been a significant increase in the restocking of native fish species into waterways in the two LGAs. In 2020-21, 105,000 native fish fingerlings were stocked into local waterways, comprising 85,000 in Narrabri LGA and 20,000 in Moree Plains LGA.

Indicator - Fish restocking activities: non-native species

There was no restocking of non-native fish (for recreational fishing) in either LGA during the past five years.

Indicator - Number of declared priority weeds

Weeds impact the economy, environment and community through lowering their production or degrading their values. The Regional Strategic Weed Management plan prioritises weeds into various landscapes and details action plans. It is a document to be used by a wide cross section of the community responsible for land management.

The North West Regional Strategic Weed Management Plan list 107 priority weeds across the two LGAs.

Indicator - Invasive species (listed priority or Weeds of National Significance) under active management

Twenty different priority weed species are being actively managed across the two LGAs. African Boxthorn, Cats Claw Creeper and Madeira Vine are the only three species being actively managed by both Councils.

Mehi River, Moree

Case Study

Eradication of Priority Weeds (Narrabri LGA)

Narrabri Shire Council's Weeds Team works collaboratively with neighbouring councils and Local Land Services to provide the front line preventing and removing biosecurity threats to protect local primary industries and promote biodiversity.

Council's Weeds Team not only monitors the ecosystem within the Narrabri Shire, it also monitors and assists to eradicate biosecurity threats that are located upstream and in nearby LGAs to prevent future issues.

Narrabri Shire Council's and Moree Plains Shire Council's Biosecurity and Weeds Teams have also teamed up to assist the neighbouring Gwydir Shire Council to eradicate Parthenium in Croppa Creek, NSW. Parthenium is a prohibited noxious weed in NSW and costs Australia's beef industry $16.5 million per year and cropping industries several million dollars per year. Croppa Creek is small village located 67 kilometres north-east of Moree and 167 kilometres north-east of Narrabri, within the Gwydir Shire LGA. Croppa Creek's economy is founded solely on primary production, with a focus on broadacre cropping and beef cattle farming; a parthenium outbreak here would be detrimental to the local economy and the economies of the surrounding LGAs.

In addition to being the boots on the ground, Council's Weeds Team also provides guidance and support to local primary producers to obtain financial assistance from both the NSW and Australian governments to further control noxious weeds and pests and promote biodiversity. In 2019 Council's Weeds Team were excited to announce it secured a further $52,680 in drought funding for property owners to control Mother of Millions and African Boxthorn in the Pilliga, Gwabegar and Cuttabri area. This is a welcome boost to the funding already received in the same area to combat pest animals and weeds. The project was a vital injection to a drought-affected community, helping stimulate the economy and provide an environmental benefit through the control of pest animal numbers and priority weeds

Council's Weed Coordinator marking Parthenium for the Narrabri Shire Noxious Weeds Eradication Program

Case Study

Water Hyacinth Control in the Gingham Wetlands - 50 Years of Treatment (Moree Plains LGA)

Moree Plains Shire Council has a long history working with other agencies, such as the North West Local Land Services and the National Parks and Wildlife Service, to deliver positive biodiversity outcomes within the Moree Plains LGA.

In 1955, water hyacinth - an invasive weed that thrives in aquatic environments - was found in the Gingham Watercourse, an ephemeral flood channel northwest of Moree. The Watercourse forms part of the lower Gwydir Valley's 'inland delta'.

Moree Plains Shire Council's Biosecurity Officers (previously Weed Officers) have been heavily involved in the control of water hyacinth for over 50 years.

In 1976, it was reported that 7,000 hectares of the Watercourse was infested. Water hyacinth was becoming a significant threat to the entire Murray-Darling Basin. At its peak, the weed was found just 45 kilometres from the Barwon River, a waterway connected directly to the Basin.

Since then, programs have been introduced to eradicate the water hyacinth problem. Some approaches include chemical, mechanical, biological and even drying out infested areas.

In 1999, the Gwydir Wetlands - which the Gingham Watercourse is a part of - was listed as an area of international significance because of its unique flora and fauna.

The Watercourse's hyacinth problem has been a concern for the nearby Gwydir River. The two watercourses merge further downstream during major floods and the water hyacinth could easily have migrated, infecting the locations of the Crinolyn and Windella subsites.

Over the last decade, Moree Plains Shire Council and its affiliates have had huge success in gaining control of the water hyacinth infestation. Through aerial and ground spraying efforts, the weed has now been contained.

Quad bikes were used to follow sections of channel and an eight-wheeled Argo all-terrain vehicle was needed to reach more inaccessible, deeper water parts.

In 2021, only 18 hectares required treatment by aerial spraying.

Gwydir Wetlands

Water and Waterways

Increasing water consumption and declining water quality are two main issues in the region. The quantity of available water is often variable due to the periodic effects of drought and flood. Many rivers in the Murray-Darling Basin have been dammed to provide a reliable water supply for agriculture and urban use and increasing demand is placing pressure on inland water systems.

The quality of water within the river and groundwater systems is also under threat from industrial, urban and agricultural pollution sources, as well as from treated wastewater and stormwater.

Regional impacts of climate change and variability will include less reliable water supplies in the catchments as a result of higher temperatures, variable rainfall and higher evaporation rates. There are increased risks of relatively rare but more intense storms and flooding between protracted droughts.

Indicator - Average salinity levels in selected streams

The average salinity levels in local streams remained relatively constant across the past five years, with a slight reduction in the Moree Plains LGA streams and a slight increase in the Narrabri LGA streams.

Indicator - E.coli remote from wastewater plants

Escherichia coli (E. coli) is the most reliable and specific indicator of recent faecal contamination in drinking water. In 2018-19, there was an extremely high E.coli count remote from wastewater plants. This has rapidly declined to the 2020-21 figure. There has been no E.coli detected remote from wastewater plants in the Moree Plains LGA over the past five years.

Indicator - Riparian vegetation recovery actions

In 2020-21, Moree Plains Shire Council undertook one riparian recovery action but none in the previous four years.

Indicator - Erosion & Sediment Control complaints received by Council

There was only one complaint reported in the Narrabri LGA in 2020-21.

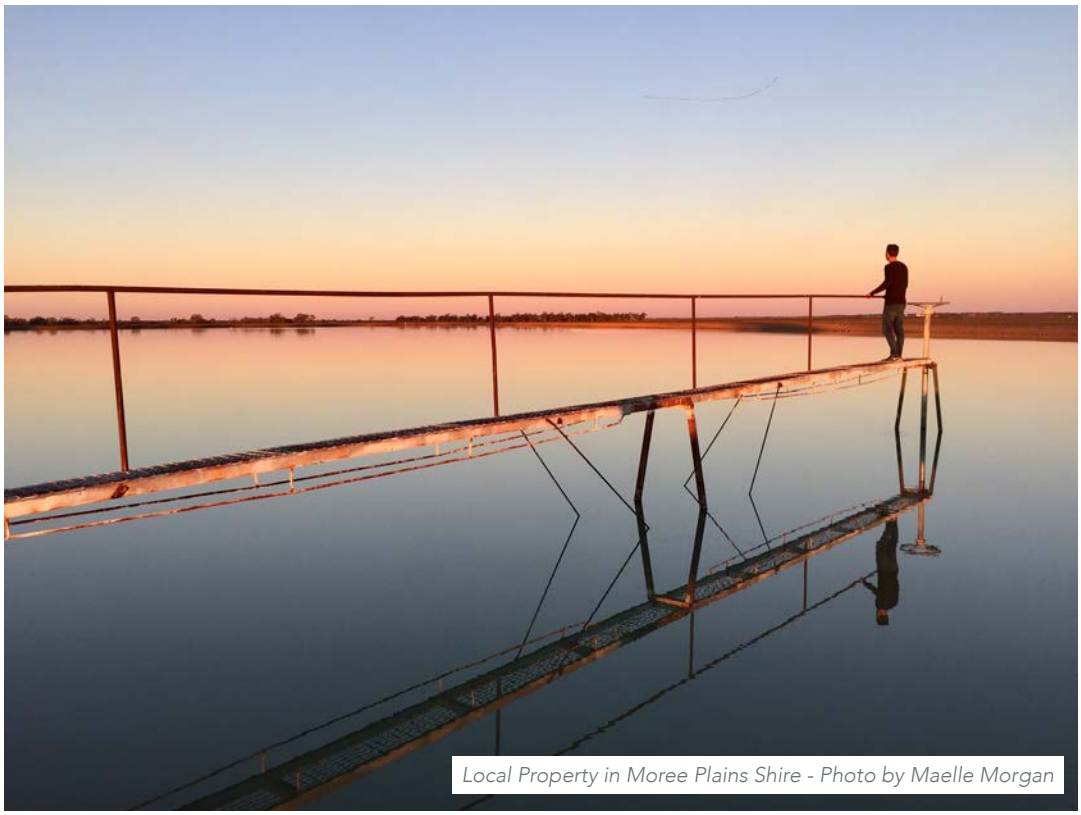
Indicator - Number of Gross Pollutant Traps (GPTs) installed

Indicator - Total catchment area of GPTs

The Moree Plains LGA has five gross pollutant traps (GPTs) with a total catchment area of 171 hectares. Narrabri has no GPTs installed.

Indicator - Water pollution complaints

There was a general increase in the number of water pollution complaints to the two councils over the last five years. The majority of the complaints were from the Narrabri LGA with 61 in 2020-21 compared with only two in the Moree Plains LGA.



Local Property in Moree Plains Shire - Photo by Maelle Morgan

Indicator - Number of Water Supply Work Approvals from surface water sources

Indicator - Volume of surface water permissible for extraction under licences

The right to extract irrigation water from surface water sources is regulated under the *Water Management Act 2000 (NSW)*. Under this Act, every pump used to extract water has to have a "Water Supply Work Approval". Therefore, tracking the number of Water Supply Work Approvals across the region will provide an indication of the demand for water from irrigation (or other uses, e.g. industrial).

Whilst the Moree Plains and Narrabri LGAs have roughly similar numbers of surface water approvals, the Moree Plains LGA has over four times the approved volume permissible for extraction compared with the Narrabri LGA. In 2020-21, approximately 10% of permissible irrigation water was extracted.

Indicator - Number of Water Supply Work Approvals from groundwater resources

Indicator - Volume of groundwater permissible for extraction under licences

The right to extract water from groundwater sources via bores is regulated under the *Water Management Act 2000*. As with surface water, every bore used to extract water has to have a "Water Supply Work Approval".

Across the two LGAs there were approximately 5,400 approvals to extract groundwater with about 60% being in the Narrabri LGA. In total, approximately 150,000 GL is permissible for extraction with 80% in Narrabri LGA. Approximately 91,000 GL of ground water was extracted in 2020-21 across the two LGAs.

Indicator - Irrigated council managed parks, sportsgrounds, public open space

Moree Plains Shire Council reported that it irrigated 13 hectares of Council-managed parks, sportsgrounds and public open space. Narrabri Shire Council irrigated 51 hectares.

Indicator - Water used by Council for irrigation (treated and untreated)

There was a general reduction in the amount of water used by both Councils across the five years. This reflects the drought years during that period and increased rainfall in 2020-21.

Indicator - Annual water consumption (from WTP)

Indicator - Average annual household mains potable water usage

Water consumption from water treatment plants (WTPs) generally declined in the past four years in both LGAs, as did the average annual household mains potable water usage.

Indicator - Level of water restrictions implemented

Level One restrictions were in place in Narrabri LGA over the past five years, whilst parts of Moree Plains Shire such as Mungindi were on Level Five restrictions.

Indicator - Number of water conservation programs

There were two water conservation programs in the Moree Plains LGA in each of the last years and one program in the Narrabri LGA in each of the last two years.

Indicator - Number of instances that drinking water guidelines were not met

In the Moree Plains LGA the number of instances that drinking water guidelines were not met hovered between one and two instances over each of the past five years. However, in Narrabri LGA the number of instances peaked at 45 in 2019-20 but declined to 21 in 2020-21.

Indicator - Number of drinking water complaints

The number of drinking water complaints to the two Councils generally declined over the past five years. Approximately three-quarters of the drinking water complaints were from the Narrabri LGA.

Narrabri Creek

Case Study

Moree Water Park
(Moree Plains LGA)

The Moree Water Park was constructed by Moree Plains Shire Council as a way to manage environmental issues relating to the disposal of spent artesian water, from Moree's world renowned artesian water industry into the Mehi River.

Rather than opting to construct evaporation ponds, Moree Plains Shire Council elected to reuse the spent artesian water and construct a multi-purpose water park, which has turned an environmental issue into a positive economic, tourism, recreation, and sporting outcome. This has now realised the following benefits:

- Enhanced health and wellbeing activities for the Moree Plains LGA and region;
- Increased range of water-based recreation and sports activities;
- The hosting of Australian Waterski National Championships in 2019; and
- Economic and tourism opportunities for local and regional businesses.

During construction

Water skiing on one of the filled lakes

The Park is located approximately 8km south of Moree on land purchased by Council to provide opportunities for environmentally sustainable activities.

The facility is designed to cater for an array of water-based activities such as canoeing, dinghy sailing, dragon boat racing, jet skiing, kayaking, model boating, rowing, wakeboarding and water skiing.

There are two water ski lakes built in compliance with international and Australian water ski tournament standards, which are 800 metres long. The third lake is designed as a circuit lake with an island in the middle for a wide range of water sports. It is almost 1.2 kilometres long with two runs of 100 metres wide.

There are a range of shore-based facilities such as amenities, vehicle and boat trailer parking areas, viewing areas and landscaping.

The lakes are filled primarily by spent artesian water, discharged from the Moree Artesian Aquatic Centre and the Moree Artesian spa industry, which was made possible by construction of a pipeline from Moree to the lakes. Rainwater is captured on-site is also directed into the lakes.

The lakes are constructed to prevent overland flow collection and water seepage into the groundwater aquifers. This required extensive detailed design, quality-controlled soil assessments and construction procedures.

Since 2018, a tree planting project has been underway at the facility with more than 1,000 trees planted. The Moree Water Ski Club has a licence agreement with Moree Plains Shire Council to maintain the property and has propagated and planted trees using work for the dole participants.

Case Study

Water Supply Across the Narrabri Shire (Narrabri LGA)

In June 2017, Narrabri Shire Council completed the $4.46 million Baan Baa Water Supply Project sustainably securing and distributing potable water to approximately 45 properties. The Project also provides an outlet with fire-fighting capacity.

Baan Baa is a village located 38 kilometres south-east of Narrabri, within the Narrabri Shire LGA. The Project was jointly funded by Narrabri Shire Council and Restart NSW and was completed two months ahead of schedule and $600,000 under budget.

The Project required a variety of construction techniques to overcome challenging geotechnical conditions and strategic coordination with existing services (including telecommunication lines, low and high voltage power, rail lines and road networks).

The Project focused on sustainability and efficiency, installing a 50-kilowatt solar panel system connected to the grid, to not only reduce the cost of supplying the water, but to generate an additional income stream for Narrabri Shire Council. An automated remote meter reading system also ensures water use efficiency and captures data to allow GIS mapping of asset performance. SCADA and telemetry improvements, which reduced operator travel requirements (ultimately driving down operational costs), provided greater oversight of quality, and improved maintenance systems have provided a higher level of service and better water quality.

Prior to the Project's completion, Baan Baa's residents relied on capturing rainwater and accessing, pumping and capturing catchment dam water. With the more severe side effects of the most recent drought beginning to take hold in the North-West Region in 2017, the timing of the Project provided much needed water security to the community. The Project demonstrates innovative design providing a genuine and tangible benefit to the community. The Project was so successful, Narrabri Shire Council was able to reduce the volumetric charge of water in Baan Baa from $3.33 to $1.32 in 2018.

The Project was recognised for its innovation, sustainability, and efficiency at the 2017 NSW Local Government Professionals Awards, winning the Excellence in Service Delivery and at the IPWEA Engineering Excellence Awards, receiving the Highly Commended Award.

In addition to the Baan Baa Water Supply Project, Narrabri Shire Council has installed four Bulk Water Dispensing Units (WDUs) in the Narrabri Shire LGA villages of Baan Baa, Bellata, Gwabegar, and Pilliga. These WDUs have the capacity to provide potable water 24 hours a day, seven days a week, with the ability to self-serve via EFTPOS.

Solar Array at the Baan Baa Water Treatment Plant

People and Communities

This chapter reports on environmental issues relating to people and communities including development, cultural heritage and air quality.

Development may have economic and social benefits to communities but may also have negative impacts on the environment such as increased water pollution and loss of habitat through vegetation clearing.

Councils are responsible for urban planning, infrastructure, some aspects of environmental and heritage restoration, protection and conservation of resources, provision of community facilities, and community services.

Community volunteering is important to the implementation of environmental actions in many Council areas. Volunteers can be bought together for specific projects or can be drawn from existing community groups including Landcare, Greening Australia and other local environment groups.

Cultural heritage incorporates both Indigenous and non-Indigenous heritage and both may be threatened by increased development and a lack of management and awareness

Indicator - Environmental volunteers working on public open space

The Moree Plains LGA recorded a decline over five years in the number of environmental volunteer activities including botanical gardens, National Tree Day, Graffiti Removal Day and Clean Up Australia Day. In 2020-21 the volunteering was reduced due to COVID-19 restrictions. Narrabri Shire Council does not capture this information. However, there have been volunteers from the community that help during public events and clean up public spaces.

Indicator - Number of growers markets/local food retailers specialising in local food operating within LGA

The Narrabri LGA recorded an increase in local growers' markets over the last five years, whilst there were none in the Moree Plains LGA.

Indicator - Number of indigenous sites on AHIMS register

In both LGAs there was a general increase in the number of Aboriginal sites listed on the AHIMS register over the last five years. In 2020-21, the Moree Plains LGA had 561 sites and the Narrabri LGA has 1,447 sites registered.

Indicator - Inclusion in Development Control Plans (DCPs) & rural strategies

Moree Plains Shire Council has included Aboriginal heritage considerations in its Growth Management Strategy. Narrabri Shire Council has included a section on the consideration and management of Aboriginal heritage into its draft DCP.

Indicator - Extent of liaison with indigenous communities (self-assessed from 0 = none to 3 = High)

Both Councils reported that they have a high level of liaison with their indigenous communities.

Nosh on the Namoi in Narrabri

Indicator - Development on listed indigenous sites

There were no developments in either LGA on listed Aboriginal sites during the past five years.

Indicator - Actions to protect indigenous heritage (including management plans)

Narrabri Shire Council adopted a Reconciliation Action Plan in July 2016. Moree Plains Shire Council considers Aboriginal heritage through procedural practice.

Indicator - NSW Heritage Inventory items

There are three sites listed under the *Heritage Act 1977 (NSW)*: Alloway in Moree Plains LGA and in the Narrabri LGA, the Narrabri Gaol and Residence and Waterloo Creek Massacre Site.

Indicator - Locally listed heritage items

The Moree Plains and Narrabri LEPs list 27 and 39 heritage items respectively.

Indicator - Actions to protect non-indigenous heritage (including management plans)

The number of actions to protect non-indigenous heritage increased over the last five years in both LGAs.

Indicator - Heritage buildings on statutory heritage lists demolished/degraded in past year

There were no heritage buildings in both LGAs demolished or degraded during the last five years.

Indicator - Heritage buildings on statutory heritage lists renovated/improved in past year

In Narrabri LGA there was one heritage building renovated or improved in 2020-21.

Sandstone Caves - Photo by Dumindu Weerasinghe

Case Study

Federation Farm: A Treated Effluent Farm (Narrabri LGA)

In the 1990s, it was identified that a major contributor to the algal problems in the Murray-Darling Systems was the discharge of treated effluent (nitrogen- and phosphorus-rich) into the river system. Many Local Government Areas were identified in this discovery, including the Sewage Treatment Plant (STP) discharge from the Narrabri LGA.

To eliminate the impact that Narrabri Shire Council had upon the river systems, it implemented an innovative solution in the form of Federation Farm. Federation Farm is a 303-hectare property located 14 kilometres from Narrabri's STP. Here treated wastewater and bio solids from the STP is transported and used to produce irrigated cotton and wheat crops.

The Council-owned Federation Farm is operated through a share-farming agreement, by the NGO, Narrabri Community Education Trust (NCE Trust). The NCE Trust distributes the profits from Federation Farm back into the town's schools on a per capita basis. To date, over $600,000 worth of equipment, such as electronic whiteboards, sporting equipment and shelters, has been distributed back to Narrabri's schools.

Federation Farm has been highly acclaimed, receiving a Commendation Award in the National Awards for Innovation in Local Government in 2001, and contributed towards the Narrabri Shire Council winning the Waste Minimisation Award from the NSW Tidy Towns Committee in 2006 in conjunction with improved management at the Narrabri landfill to protect groundwater from contamination.

Federation Farm was awarded the myBMP (Best Management Practice) certificate. The Federation Farm's manager, Gary Coulton ensured that the site met the list of 404 requirements to qualify for this myBMP certificate. The categories that were addressed include biosecurity, energy and input efficiency, fibre quality, human resources and work health and safety, integrated pest management, sustainable natural landscape (natural assets), pesticide management, petrochemical storage and handling, soil health and water management. The myBMP certification extends for five years and provides Federation Farm with the ability to charge a premium price for its cotton and the inclusion into the Better Cotton Initiative (BCI) (the world's largest cotton sustainability program).

Federation Farm makes effective use of treated effluent to produce more sustainable and profitable broadacre crops, through reducing irrigation and fertilisation costs. Federation Farm is not only a wonderful environmental initiative, but it is a great community asset. It allows students of Narrabri to be involved with the agricultural activity which occurs on the farm and gives them the opportunity to propagate trees which are later planted as part of a Landcare strategy.

Sharefarm Agreement signed in 2019
Back: Trust member Louise Gett, Narrabri Shire Council General Manager Stewart Todd,
Front: Trust Chairperson Warwick Stiller, Mayor Cathy Redding, Farm Manager Gary Coulton

Case Study

Local Drug Action Plan and the Management of Aboriginal Indicator - Liaising with the Aboriginal Community and Providing Native Food Pedagogy (Moree Plains LGA)

In 2021, Moree Plains Shire Council received funding from Alcohol and Drug Foundation (ADF) to deliver a Local Drug Action Team (LDAT) Program in Boggabilla and Toomelah.

Moree Plains Shire Council partnered with Winangali Infusion (local Indigenous mentors and educators) on the LDAT Program to work with the young people of Boggabilla and Toomelah and their families. The program was about reconnecting the people to their traditional culture with the purpose to re-enthuse and restart the struggling lives of the Indigenous communities.

The program aimed to educate young people on the affects that drug and alcohol abuse has on the lives and environment of our communities and its people, whilst teaching them about their country and bush tucker.

The Boggabilla and Toomelah communities face significant challenges with many youths being disengaged and disconnected from school, society and their families, impacting negatively on their ability to develop essential skills and relationships. With the development of the Program in both communities, youth took the opportunity to actively engaged in cultural song and dance, education methods reconnecting them to the traditional culture/heritage to re-engage our people with their country and community.

The program empowered young people with the tools, knowledge and skills to better make informed decisions regarding their cultural, educational, health and wellbeing needs and aspirations. It is a great opportunity to overcome those barriers associated with the suffering of high levels of grief, depression and low self-esteem.

The program was deemed a success, seeing sessions of more than 60 people in attendance, taking part. The Healing Practices were delivered through a unique, creative and interactive format tailored specifically to suit the needs of the Boggabilla and Toomelah communities. It emphasised the ancient art of storytelling, art, language song and dance, as well as nurturing all aspects of traditional culture.


1


2

1. Yulu-gi Dhulu (Dance Sticks) how to identify certain trees and use for ceremony and special occasions. Connection to country, lore and maintain respect for country.

2. Bandarr (Kangaroo) Tracks. Learnt about locating their behaviour and food & water routes.


3


4

3. Ghinbay (small muscles) food source.
Learning how they act as filters for the river system and can also be used for dance accessory and cutting tool.

4. Warrigal Greens -Learning to identify native spinach and how to prepare them for meals.

Towards Sustainability

Environmental sustainability involves making decisions and taking action that are in the interests of protecting the natural world, with particular emphasis on preserving the capability of the environment to support human life.

Local councils, which play a key role in managing the natural environment and leading by example, need a sound understanding of sustainability so they are able to reduce environmental impacts and associated costs and improve the quality of life for their local communities.

Indicator - Total waste entombed at primary landfill

Indicator - Drummuster collections

Drummuster provides Australian agricultural and veterinary chemical users with a recycling pathway for eligible empty agvet chemical containers. The number of drums collected declined in the Moree Plains LGA in the past three years but rose in the Narrabri LGA.

Indicator - Household Hazardous Waste collected

Over the last five years there was an increase in the amount of household hazardous waste collected in the Narrabri LGA with a slight decline in the Moree Plains LGA.

Moree Solar Farm - Photo by Robert Dunn

Indicator - Total waste entombed at other landfills (excluding recyclables)

Indicator – Average total waste generated per person per annum

There was a general decline in the amount of waste sent to landfill in the Moree Plains LGA, whilst the Narrabri LGA recorded a slight increase over the last five years. In 2020-21, 8,674 tonnes were entombed in landfill in the Moree Plains LGA, with 9,052 tonnes entombed in the Narrabri LGA.

Indicator - Average cost of waste service per residential household

The cost of waste services is rose slightly in Moree Plains LGA but declined in Narrabri LGA in the last two years.

Indicator - Garden organics collected (diverted from landfill)

Both Moree Plains and Narrabri Shire Councils have kerbside collections of garden organics, which totalled 5,061 tonnes in 2020-21. In both LGAs there was a general increase in the amount of green waste collected over the last five years.

Indicator - E-Waste collected (diverted from landfill)

The amount of e-waste collected declined in the last five years in both LGAs. In 2020-21, 8.3 tonnes were collected in the Moree Plains LGA with 1.7 tonnes collected in the Narrabri LGA.

Indicator - Volume of material recycled

Indicator - Quantity of material recycled per person

There was a general increase in the amount of material recycled in both LGAs during the past five years. A total of 8,294 tonnes was recycled across the two LGAs in 2020-21, with 345 kg of waste recycled per person in the Moree Plains LGA and 289 kg per person in the Narrabri LGA.

Indicator – Number of illegal waste complaints to Council

The majority of illegal waste complaints were in the Moree Plains LGA and these generally stayed constant over the past five years with 75 complaints in 2020-21.

Indicator - New road construction

Indicator - Road upgrades

There was new road construction (27kms) in the Moree Plains LGA in 2020-21, with none in Narrabri LGA. There were significant road upgrades in both LGAs, mostly resealing and rehabilitation of regional and local roads.

Indicator - Increase in area covered by flood management plans/ flood mapping

Although no new plans or mapping were completed in 2020-21, the revised flood study for Narrabri was completed during the last five years.

Indicator - Office paper used by Council

There is a significant disparity in office paper use between Moree Plains and Narrabri Shire Councils, not just in total consumption, but also in the use of recycled paper. The overall paper use has generally increased by Moree Plains Shire Council and decreased by Narrabri Shire Council in the last five years.

Indicator - Annual electricity consumption for Council controlled facilities

The amount of electricity consumed by both Councils has declined over the past five years. For Moree Plains Shire Council, in 2020-21 this is due to factors such as:

- Only one aeration tank operational at the Moree Sewage Treatment Plant
- The Aquatic Centre shifting to solar, and also not being operational for 2021 due to COVID-19 restrictions
- The Moree Artesian Aquatic Centre going solar and not being operational due to construction works.

Indicator - Total fuel consumption

Council owned vehicle fleet and plant in Narrabri LGA showed an increase in consumption during the last two years compared with previous years. The consumption of bottled gas also rose in Narrabri Shire Council's facilities.

Indicator - Council facilities consuming Greenpower

No Greenpower is currently used by Council in either the Moree Plains or Narrabri LGAs.

Indicator - Council total operational greenhouse gas emissions

Total emissions for the two Councils take into account energy consumption from council facilities (electricity, gas, bottled gas), fuel consumption by council vehicle fleet and emissions from landfill.

Total operational greenhouse gas emissions for the two Councils in 2020-21 were 22,375 tCO^2-e/year compared with 23,884 tCO^2-e/year in 2015-16.

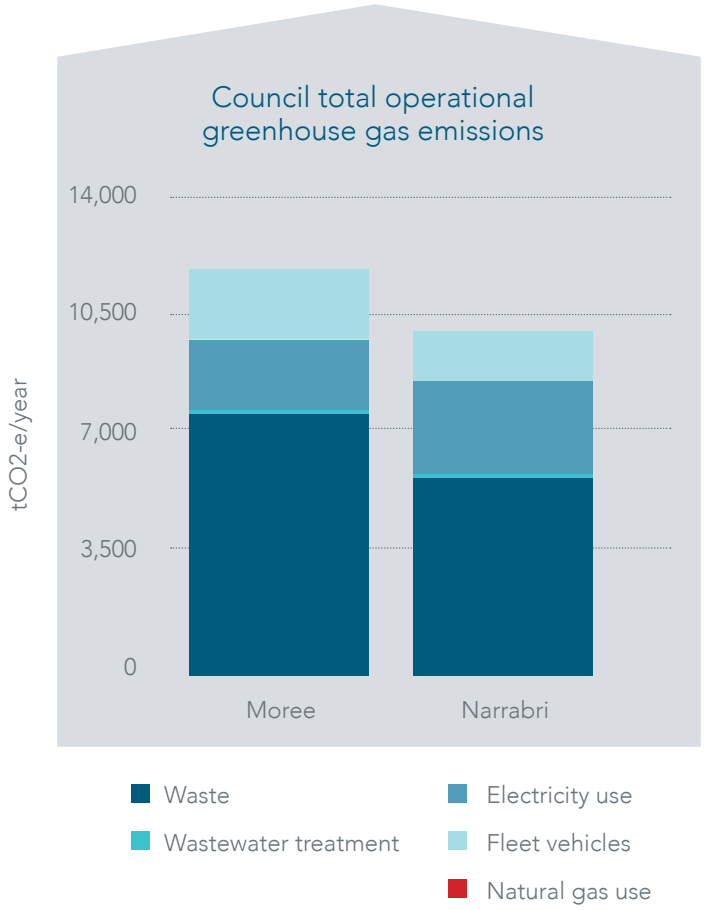


Figure 2: Council total operational greenhouse gas emissions 2020-21

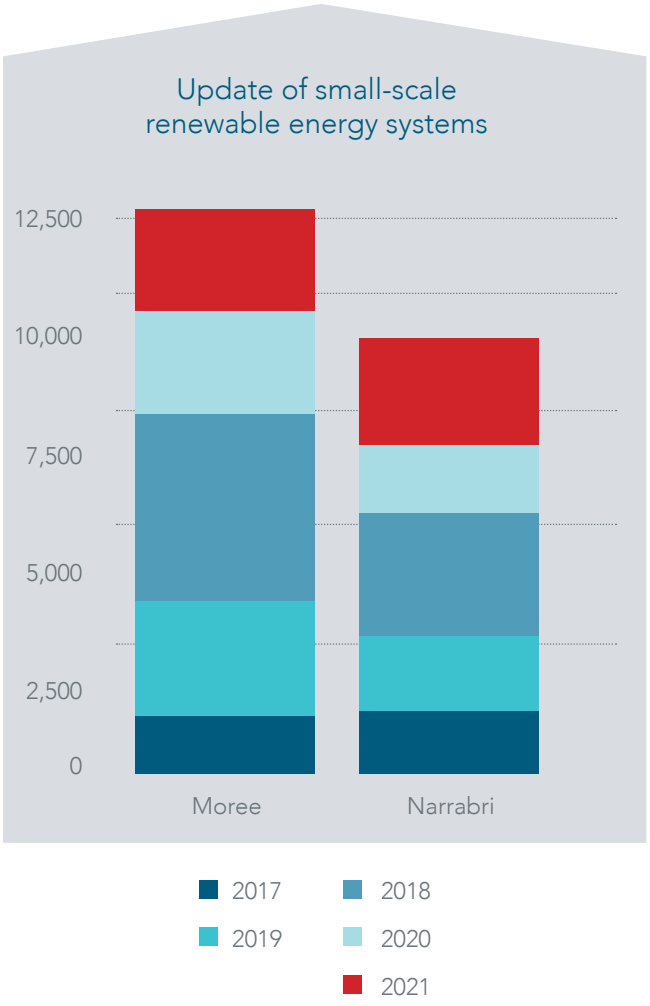


Figure 3: Uptake of small-scale renewable energy systems across the region (kW)

Indicator - Small scale renewable energy uptake

The Small-scale Renewable Energy Scheme creates a financial incentive for owners to install eligible small-scale installations such as solar water heaters, heat pumps, solar panel systems, small-scale wind systems, or small- scale hydro systems. This indicator tracks the total kilowatts installed for solar panels and small-scale wind and hydro systems.

As shown in Figure 3, there has been slight decline in installations of small-scale renewable energy systems across the two LGAs in the past two years.

Indicator - Number of solar water heaters and heat pumps installed

A total of eight solar water heaters and air sourced heat pumps were installed across the two LGAs in 2020-21, a slight reduction from previous years.

Case Study

Narrabri Waste Management Facility: Piggyback Cell (Narrabri LGA)

The Narrabri Waste Management Facility (NWMF) commenced operations in 1984 and provides for the waste disposal needs of over 13,000 residents across the Narrabri Shire LGA. The NWMF site covers approximately 25 hectares, with the existing landfill area nearing capacity. To resolve this issue, Narrabri Shire Council has developed plans to create an additional void space at the NWMF. The need for the creation of a new void space at the NWMF is required to not only cater for the current community's needs but to accommodate the anticipated population growth that the LGA is expecting to incur with the developments of the Narrabri SAP investigations, Inland Rail Construction, Narrabri Gas Project, and the development of the Northern NSW Inland Port (N2IP).

Narrabri Shire Council is currently at the Tender Stage of the EPA-approved Piggyback Cell project, which will see the creation of the new lined cells over existing, previously landfilled areas of the site. The piggybacking approach presents multiple technical challenges that need to be considered during design, construction, and operation of the cell, including:

- Settlement of the underlying landfilled waste
- Slope stability of the liner system
- Management of landfill gas generated by the underlying landfilled waste.

The Narrabri Piggyback Cell Project will provide an extension to the NWMF's useful life, minimise environmental impacts and maximise compaction of the site. In addition to the new Piggyback Cell Project, the Shire's waste management network includes nine high quality, EPA-compliant, transfer stations located at Edgeroi, Bellata, Baan Baa, Maules Creek, Boggabri, Wee Waa, Pilliga, Gwabegar and Narrabri. These transfer stations are accessible 24-hours, seven days a week, to ensure all residents have the ability to dispose of waste appropriately at all hours of the day, reducing illegal dumping.

The NWMF also operates an EPA-funded Community Recycling Centre (CRC). The CRC enables residents to responsibly drop-off common household problem waste items (such as batteries, electronics, paint cans and motor oils) free of charge.

Community Recycling Centre at the Narrabri Waste Management Facility

Case Study

Moree Community Recycling Centre (Moree Plains LGA)

In 2017, the NSW Government and Moree Plains Shire Council launched the Moree Community Recycling Centre (CRC) at the Moree Waste Management Facility. The CRC has been well received by the Moree community and in combination with extensive CRC marketing campaigns, the Centre has helped Shire residents become more engaged on problem household waste and the best and safest way to dispose of it.

Funded by the NSW EPA, the convenient drive-through drop-off centre accepts domestic problem wastes from Shire residents, specifically paints, gas bottles, fire extinguishers, motor oils, car and household batteries, electronic waste, smoke detectors and fluoro globes and tubes.

The CRC is a great success. Since its opening, large quantities of problem waste have been collected and redirected for reuse where possible, including 3,761 litres of paint, 8,810 litres of motor oils and 315 gas bottles. The CRC complements Moree's existing recycling services, minimising waste and illegal dumping and increasing recycling.

Moree Plains Shire Council looks forward to partnering with the NSW Government to continue to deliver the CRC into the future.

Moree Community Recycling Centre

Free disposal of household wastes

Page 36 and 40 under Land table on both pages: arrows relate to wrong trend – orange vertical arrow should be no or little change, red downwards arrow should be worsening trend

Land

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Contamination	Contaminated land sites - Contaminated Land Register		4	2	2	2	↑
	Contaminated land sites - potentially contaminated sites		0	2	4	16	↓
	Contaminated sites rehabilitated	0	0	53	58	67	↑
Erosion	Erosion affected land rehabilitated (ha)			0	0	0	→
Land use planning and management	Number of development consents and building approvals	270	252	232	152	163	↑
	Landuse conflict complaints	0	0	0	0	0	→
	Loss of primary agricultural land through rezoning (ha)	0	0	0	0	0	→
Minerals and Petroleum	Number of mining and exploration titles				7	7	→
	Area covered by mining and exploration titles (ha)				1.14M	1.14M	→

↑ Improvement

→ No or little change

↓ Worsening trend

Note - the trend is based on comparing the average of the previous four years of reporting with 2020-21

Biodiversity

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Habitat Loss	Total area in the National Parks Estate (ha)				34,710	34,710	→
	Area of State Forests (ha)				0	0	→
	Area Protected in Wildlife Refuges (ha)					10,440	→
	Area protected in conservation reserves and under voluntary conservation agreements (ha)					777	→
	Area of travelling stock reserves (ha)				60,823	54,901	↓
	Habitat areas revegetated (ha)	0	0	0	0	0	→
	Number of clearing complaints	40	16	15	4	3	↑
	Roadside vegetation management plan	Yes	Yes	Yes	Yes	Yes	→
	Roadside vegetation rehabilitated (ha)	Yes	Yes	13	17.5	27	↑
Threatened Species	State threatened species listed					156	→
	Threatened species actions implemented (e.g. PAS, recovery plans)	0	0	0	0	0	→
	Fish restocking activities: native species	3,000	5,000	0	0	20,000	↑
Noxious weeds and feral animals	Fish restocking activities: non-native species	0	0	0	0	0	→
	Number of declared priority weeds					107	→
	Invasive species (listed priority or WONS) under active management	6	6	6	6	6	→

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Surface and Ground Water	Average salinity levels in selected streams (EC)	390	401	304	306	333	↑
	E.coli remote from wastewater treatment plants (per 100ml)	0	0	0	0	0	→
Riparian	Riparian vegetation recovery actions	0	0	0	1	0	↓
	Riparian vegetation recovery area (ha)	0	0	0	0.1	0	↓
Industrial/ Agricultural Pollution	Load Based Licencing Volume (kg)						→
	Erosion & Sediment Control complaints received by Council						→
Stormwater Pollution	Number of gross pollutant traps installed	5	5	5	5		→
	Total catchment area of GPTs (ha)	171	171	171	171		→
	Water pollution complaints	1	3	1	1	2	→
Water extraction	Number of Water Supply Work Approvals from surface water sources					304	→
	Volume of surface water permissible for extraction under licences (GL)					2M	→
	Actual volume extracted through surface water licences (GL)					252,532	→
	Number of Water Supply Work Approvals from groundwater resources					2,017	→
	Volume of groundwater permissible for extraction under licences (GL)					35,004	→
	Actual volume extracted through ground-water licences (GL)					28,442	→
Council water consumption	Area of irrigated Council managed parks, sportsgrounds, public open space (ha)	13	13	13	13		→
	Water used by council for irrigation (in-cluding treated and untreated) (ML)	267	330	351	267		↑
Town water consumption	Annual metered supply (ML)	22	32	32	17		↑
	Annual consumption (Total from WTP) (ML)	2,429	2,590	2,771	2,479		↑
	Average annual household mains potable water usage (kL)	369.9	388.8	412.1	367.8		↑
	Average level of water restrictions implemented	0.0	0.0	0.0	2.0		↓
	Water conservation programs	2	2	2	2		→
Town Water Quality	Number of instances drinking water guidelines not met	2	1	1	2		→
	Number of drinking water complaints	16	17	15	11		↑

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Active community involvement	Environmental volunteers working on public open space (hrs)	90	112	103	84	18	↓
	Number of environmental community engagement programs	2	3	3	3	1	↓
	Number of growers markets/local food retailers specialising in local food	0	0	0	0	0	→
Aboriginal Heritage	Number of Aboriginal sites on AHIMS register	483	491	503	521	561	↑
	Inclusion in DCPs & rural strategies	Yes	Yes	Yes	Yes	Yes	→
	Extent of liaison with Aboriginal communities (self-assessed from 0 = none to 3 = High)	3.0	3.0	3.0	3.0	3.0	→
	Development approvals on listed Aboriginal sites	0	0	0	0	0	→
	Number of Aboriginal heritage management actions/responses	2	2	2	3	3	↑
Non-Indigenous Heritage	NSW Heritage Items	2	2	2	2	2	→
	Locally listed heritage items	27	27	27	27	27	→
	Actions to protect non-Indigenous heritage (including management plans)	2	2	2	3	3	↑
	Heritage buildings on statutory heritage lists demolished/degraded in past year	0	0	0	0	0	→
	Heritage buildings on statutory heritage lists renovated/improved in past year	0	0	0	0	0	→

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Waste Generation	Total waste entombed at primary landfill (tonnes)	10,618	8,469	13,195	12,459	8,499	↑
	Total waste entombed at other landfills (exc recyclables) (tonnes)	395	470	276	112	185	↑
	Average total waste generated per person (tonnes)	0.81	0.67	1.01	0.95	0.66	↑
	Average cost of waste service per residential household	$438	$440	$440	$440	$440	→
Hazardous/Liquid Waste	DrumMuster collections (number of drums)			72,513	18,523	32,966	↓
	Household Hazardous Wastes collected (kg)		12,270	10,545	9,706	9,978	↓
Reduce	Garden organics collected (diverted from landfill) (tonnes)	2,195	2,161	2,099	2,258	2,667	↑
	E-Waste collected (diverted from landfill) (tonnes)	3.97	11.83	12.82	11	8.31	↓
Recycle	Volume of material recycled (tonnes)	6,403	4,671	3,626	3,047	4,518	↑
	Volume of material recycled per person (kg)	470	348	272	230	345	↑
Littering and illegal dumping	Number of illegal waste disposal complaints to Council	52	67	97	81	75	↓
Engineering, Infrastructure and Civil Works	New road construction (km)	0	0	13	17.5	27	↓
	Road upgrades (km)	0	85	37	46	49	↓
Risk Management	Flood management plans/ flood mapping - increase in area covered (ha)		0	0	0	0	→
	Number of hazard reduction burns		0	0	0	0	→
Climate Change Mitigation	Office paper used by Council (A4 reams)	4,085	4,065	4,105	6.060	6,055	↓
	Council sustainability initiatives		0	0	0	0	→
	Council mitigation initiatives		0	0	0	0	→
Council Greenhouse Gas Emissions	Annual electricity consumption for Council controlled facilities (MWh)	5,176	4,982	4,822	4,733	2,246	↑
	Annual natural gas consumption for Council controlled facilities (Gj)	0	0	0	0	0	→
	Annual bottled gas consumption for Council controlled facilities (L)						→
	Total fuel consumption (KL)	0	0	0	0	0	→
	Proportion of Council's electrical energy demand met from council-owned renewable energy infrastructure	0.0%	0.0%	0.0%	0.0%	0.0%	→
	Council total operational greenhouse gas emissions (tCO^2-e/year)				12,144		→
Community Greenhouse Gas Emissions	Small scale renewable energy uptake (kW installed)	1,018	1,993	3,255	1,788	1,756	↓
	Number of solar water heaters and heat pumps installed	2	5	3	3	5	↑

Land

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Contamination	Contaminated land sites - Contaminated Land Register		0	0	0	0	→
	Contaminated land sites - potentially contaminated sites					7	→
	Contaminated sites rehabilitated						→
Erosion	Erosion affected land rehabilitated (ha)						→
Land use planning and management	Number of development consents and building approvals	183	171	170	157	126	↑
	Landuse conflict complaints	0	0	0	1	1	↓
	Loss of primary agricultural land through rezoning (ha)	0	0	0	0	454	↓
Minerals and Petroleum	Number of mining and exploration titles				33	22	↑
	Area covered by mining and exploration titles (ha)				1.12M	1.04M	↑

↑ Improvement

→ No or little change

↓ Worsening trend

Note - the trend is based on comparing the average of the previous four years of reporting with 2020-21

Biodiversity

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Habitat Loss	Total area in the National Parks Estate (ha)				169,551	169,537	→
	Area of State Forests (ha)				184,498	184,498	→
	Area Protected in Wildlife Refuges (ha)					1,219	→
	Area protected in conservation reserves and under voluntary conservation agreements (ha)					7,756	→
	Area of travelling stock reserves (ha)				29,423	28,810	↓
	Proportion of Council reserves that is bushland/remnant vegetation				0%		→
	Habitat areas revegetated (ha)	0	0	0	0	0	→
	Number of clearing complaints	19	20	8	4	6	↑
	Roadside vegetation management plan	No	No	No	No	No	→
	Roadside vegetation rehabilitated (ha)	0	0	13	0	0	→
Threatened Species	State threatened species listed					166	→
	Threatened species actions implemented (e.g. PAS, recovery plans)	0	0	0	0	0	→
	Fish restocking activities: native species	68,146	11,363	6,493	13,333	85,000	↑
Noxious weeds and feral animals	Fish restocking activities: non-native species	0	0	0	0	0	→
	Number of declared priority weeds					107	→
	Invasive species (listed priority or WONS) under active management	14	14	14	14	14	→

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Surface and Ground Water	Average salinity levels in selected streams (EC)	386	448	448	401	427	↓
	E.coli remote from wastewater treatment plants (per 100ml)	0	0	1,189,600	214,197	8,580	↑
Riparian	Riparian vegetation recovery actions						→
	Riparian vegetation recovery area (ha)						→
Industrial/ Agricultural Pollution	Load Based Licencing Volume (kg)						→
	Exceedances of license discharge consent recorded						→
	Erosion & Sediment Control complaints received by Council					1	→
Stormwater Pollution	Number of gross pollutant traps installed						→
	Total catchment area of GPTs (ha)						→
	Water pollution complaints			5	77	61	↓
Water extraction	Number of Water Supply Work Approvals from surface water sources					238	→
	Volume of surface water permissible for extraction under licences (GL)					556,031	→
	Actual volume extracted through surface water licences (GL)					91,778	→
	Number of Water Supply Work Approvals from groundwater resources					3,421	→
	Volume of groundwater permissible for extraction under licences (GL)					124,281	→
	Actual volume extracted through ground-water licences (GL)					63,254	→
Council water consumption	Area of irrigated Council managed parks, sportsgrounds, public open space (ha)	51	51	51	51	51	→
	Water used by council for irrigation (including treated and untreated) (ML)	-	19	41	34	22	↑
Town water consumption	Annual metered supply (ML)			2,309		1,528	↑
	Annual consumption (Total from WTP) (ML)	924	3,972	2,356	3,095	2,760	↓
	Average annual household mains potable water usage (kL)		471	510	454	326	↑
	Average level of water restrictions implemented	1.0	1.0	1.0	1.0	1.0	→
	Water conservation programs	0	0	0	1	1	↑
Town Water Quality	Number of instances drinking water guidelines not met	44	25	24	45	21	↑
	Number of drinking water complaints			14	74	33	↑

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Active community involvement	Environmental volunteers working on public open space (hrs)	0	0	0	0	0	→
	Number of environmental community engagement programs	0	0	0	0	0	→
	Number of growers markets/local food retailers specialising in local food		2	2	5	6	↑
Community Impacts	Number of days that air pollution maximum goals for particulate matter were exceeded	0	1	15	54	1	↑
Aboriginal Heritage	Number of Aboriginal sites on AHIMS register	947	982	330	1,387	1,447	↑
	Inclusion in DCPs & rural strategies	Yes	Yes	Yes	Yes	Yes	→
	Extent of liaison with Aboriginal communities (self-assessed from 0 = none to 3 = High)	1.0	2.0	3.0	3.0	3.0	↑
	Development approvals on listed Aboriginal sites	0	0	0	0	0	→
	Number of Aboriginal heritage management actions/responses	0	0	0	1	1	↑
Non-Indigenous Heritage	NSW Heritage Items	1	1	1	1	1	→
	Locally listed heritage items	39	39	39	39	39	→
	Actions to protect non-Indigenous heritage (including management plans)	1	1	0	1	1	↑
	Heritage buildings on statutory heritage lists demolished/degraded in past year	0	0	0	0	0	→
	Heritage buildings on statutory heritage lists renovated/improved in past year	0	0	0	0	1	↑

Issue	Indicator	2016-17	2017-18	2018-20	2019-20	2020-21	Trend
Waste Generation	Total waste entombed at primary landfill (tonnes)	8,287	7,579	7,445	9,080	9,052	↓
	Total waste entombed at other landfills (exc recyclables) (tonnes)	0	0	0	0	0	→
	Average total waste generated per person (tonnes)	0.62	0.57	0.56	0.69	0.69	↓
	Average cost of waste service per residential household	$268	$336	$298	$394	308	↑
Hazardous/Liquid Waste	DrumMuster collections (number of drums)			4,387	4,054	13,556	↑
	Household Hazardous Wastes collected (kg)		7,079	8,378	7,077	9,601	↑
Reduce	Garden organics collected (diverted from landfill) (tonnes)	1,466	1,302	2,116	2,370	2,394	↑
	E-Waste collected (diverted from landfill) (tonnes)	6	4	16	1	2	↓
Recycle	Volume of material recycled (tonnes)	1,187	1,542	486	3,137	3,776	↑
	Volume of material recycled per person (kg)	89	115	37	239	289	↑
Littering and illegal dumping	Number of illegal waste disposal complaints to Council	3	1	1	0	0	↑
Engineering, Infrastructure and Civil Works	New road construction (km)	0	0	0	0	0	→
	Road upgrades (km)	147	60	44	90	72	↑
Risk Management	Flood management plans/ flood mapping - increase in area covered (ha)	12,179	0	22,578	40,242	0	↓
	Number of hazard reduction burns	0	0	0	0	0	→
Climate Change Mitigation	Office paper used by Council (A4 reams)	304	418	849	437	422	↑
	Council sustainability initiatives			2	4	2	↓
	Council mitigation initiatives	0	0	1	0	0	↓
Council Greenhouse Gas Emissions	Annual electricity consumption for Council controlled facilities (MWh)	3,735	1,665	3,213	3,379	3,052	↓
	Annual natural gas consumption for Council controlled facilities (Gj)	0	0	0	0	0	→
	Annual bottled gas consumption for Council controlled facilities (L)			8,214	6,180	8,966	↓
	Total fuel consumption (KL)	485	485	343	604	567	↓
	Proportion of Council's electrical energy demand met from council-owned renewable energy infrastructure	0.0%	0.0%	0.0%	0.0%	1.6%	↑
	Council total operational greenhouse gas emissions (tCO^2-e/year)					10,231	→
Community Greenhouse Gas Emissions	Small scale renewable energy uptake (kW installed)	1,120	1,298	2,124	1,182	1,857	↑
	Number of solar water heaters and heat pumps installed	17	11	6	8	3	↓