

Rural Lands Issues Paper:

MINING, DISUSED MINES AND LANDFILL



CGRC Rural Lands Strategy
MINING, DISUSED MINES AND LANDFILL
Finalised October 2018

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1. Executive Summary

Within New South Wales the minerals industry makes a significant contribution to the economy and employment. Mining is particularly important to some regional NSW economies. It directly represents almost 20% of the economy and 10% of jobs in the Central West region.

There were approximately 573 derelict mine sites in New South Wales at 30 June 2012. The NSW Government has a derelict mines policy that prioritises expenditure of funds on matters including public safety and environmental risks posed by mines as well as cost effectiveness of remediation works.

Cootamundra-Gundagai has a history of mining commencing in the 1850s with gold being predominant. Gravel quarries are currently the main type of extractive industry. Mining employment is not significant in terms of employee numbers as a proportion of the total workforce within the Cootamundra-Gundagai Regional Council Local Government Area (LGA).

There are two current exploration licences for minerals near Cootamundra and four around the Gundagai area.

In 2013 it was estimated that NSW accommodated 369 landfills, 121 resource recovery facilities and 166 transfer stations. Trends suggest that since the 1990s, the number of landfills in Australia has fallen but the average size has grown. These large sites are increasingly sophisticated and generally run by large private companies. Around 75% of landfilled waste in Australia goes to 38 sites.

Within the LGA residents and property owners are able to access landfill sites at Wallendbeen, Stockinbingal, Cootamundra and Gundagai. Residents and property owners in the villages of Coolac, Muttama, Nangus and Tumblong have access to waste transfer stations.

NSW Government Agencies designate landfill and mining and extractive industries as potentially contaminating land activities.

Key issues associated with mines and landfills are contamination, remediation and safety of existing mines, waste recycling, legislative requirements and social concerns regarding landfill management.

Identified opportunities include maximising existing infrastructure potential, recommissioning assets, recycling centres, biofuels and community composting.

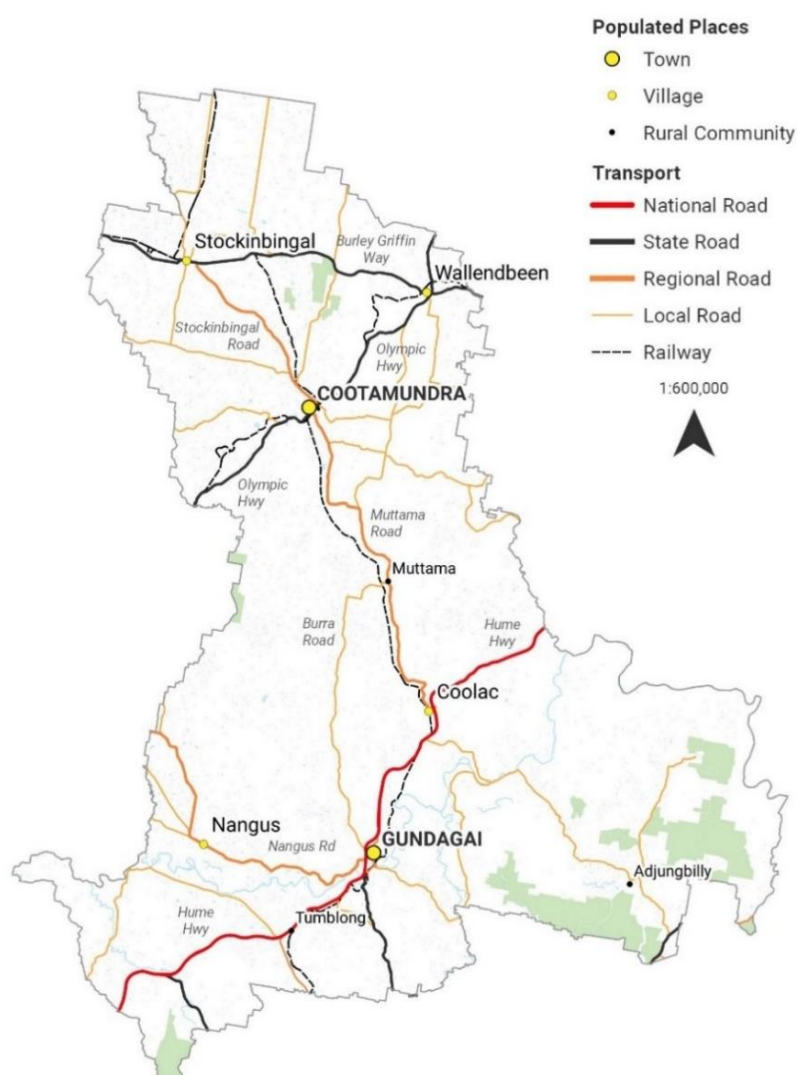
2. Introduction

Cootamundra-Gundagai Regional Council is the merged local government area of former Cootamundra and Gundagai Shires. The two towns of Cootamundra and Gundagai are the main population centres with a number of villages and rural communities also serving as residential options. All of these residential areas have strong existing and historical connections to the surrounding rural lands and the architecture and wealth of the towns in particular are directly attributable to the agricultural industry.

The total land area is 398,141.7 hectares, home to 11,141 people (ABS, 2016). Agriculture, Forestry and Fishing is the largest employment industry, employing 15.3% of employed persons. Manufacturing (which includes agricultural value add industries) is a close second, employing 10.6% of employed persons. (*Census Time Series Profile, 2011*)

In 2011 the combined value of agricultural commodities produced from the Cootamundra-Gundagai Regional Council Local Government Area was \$103 million, however this figure does not capture other agricultural outputs such as agritourism, local markets, events and so on.

Figure 1: CGRC LGA



Rural Lands Strategy Background

The merger of Gundagai Shire Council and Cootamundra Shire Council as Cootamundra-Gundagai Regional Council has stimulated the need for new planning instruments and policies; in particular a Local Environment Plan and Development Control Plan which cover the regional council area. A strategy to deal specifically with the rural lands of CGRC is proposed which aims to analyse agricultural trends and opportunities for the area. This strategy will help to update mapping for the new Local Environmental Plan while also providing rationale and reasoning for zoning and minimum lot sizes in rural areas.

Rural land is often neglected from a planning perspective due to more pressing planning needs in larger centres, however agricultural land often has a disproportionate impact on residential and economic activity when compared to development in a town, with intensive feedlots, quarries, landfills, etc. Furthermore, agricultural activities themselves such as piggeries, vineyards, feedlots and so on have a long-term impact on the use and viability of the site and surrounding lands. Through the strategic planning process, controls and principles of development can be placed on agricultural land to ensure the viability of the land into perpetuity as well as providing opportunities for emerging and new agricultural enterprises to establish in the area.

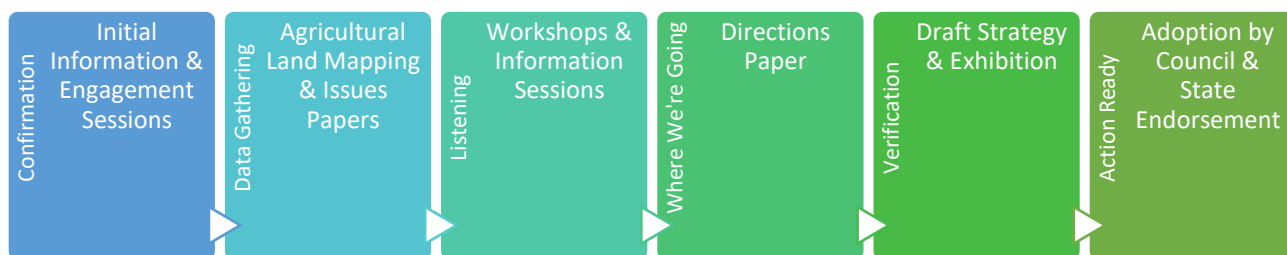
The two former shires have varied terrain and soil quality which makes formulating one course of action or plan for rural land difficult. However, this should be viewed as an opportunity which will make Cootamundra-Gundagai Regional Council more attractive and marketable to residents, visitors and prospective residents as a wide variation of agricultural pursuits can be explored in this single local government area.

It is Council's intention that the Rural Lands Strategy serves not only as a land use planning document, but as a plan for economic success and growth through the shared identity of agriculture. This leverages off what Cootamundra-Gundagai Regional Council does best (agriculture), connections to logistic hubs and routes as well as capitalising on changing recreation and tourism trends.

Purpose of the Issues Papers

The Issues Papers are integral to the success of the Rural Lands Strategy as they are background documents based on research and science; analysing trends elsewhere and juxtaposing this with the situation within Cootamundra-Gundagai Regional Council.

There are ten Issues Papers which will be produced with the community having shaped not only the overarching theme of each paper, but also having identified a number of existing constraints and opportunities to be investigated. Based on the findings of the Issues Papers and workshops during the “listening” phase, a directions paper will be produced which will list key directions for the Rural Lands Strategy.



3. Mining, Disused Mines and Landfill

3.1 NSW Background

Mining

Within New South Wales the minerals industry makes a significant contribution to the economy with the coal sector alone generating approximately \$9.6 billion each year (*The Centre for International Economics [CIE] 2014 p1*). Other resources such as copper, zinc, lead and silver are also mined throughout the state and generate approximately \$1.6 billion per annum (*CIE 2014 p1*).

3,880 square kilometres (km²) of land in NSW is under production titles while over 140,000km² are privately held coal and mineral exploration titles.

Value-added land under mining in NSW generated \$12,510 million (2012 – 2013) which equates to \$3.2 million per square kilometre.

Most minerals produced are used overseas.

The minerals industry paid the NSW Government approximately \$1.6 billion (1.32 billion in royalties, 134.5 million in payroll taxes and 145.8 million in land taxes) and a further \$1.47 billion to the Commonwealth Government (*CIE 2014 p1*).

Mining is particularly important to some regional NSW economies. It directly represents almost 20% of the economy and 10% of jobs in the Central West region.

Within New South Wales the minerals industry employs over 40,000 people. Almost 28,000 of the people are employed in coal mining with the remaining almost 16,000 being employed in 'other metal ore' and 'other mining' (*CIE 2014 p2*).

During 2014 – 2015, in the selected mining (coal mining, oil and gas extraction, metal ore mining and non-metallic mineral mining and quarrying) industry New South Wales contributed 17% (23,486 people) of the national employment total. Employment for the selected mining industry decreased by 3.1% (4,411 people) nationally which in NSW was a reduction of 8.6% (2,203 people). (*Australian Bureau of Statistics 2016 States and Territories 2014-15*)

Renewable energy and mining are specified as 'priority growth sectors' in the 'Riverina Murray Regional Plan 2036'. (*NSW Planning and Environment p15*)

An analysis of the expenditure patterns of 26 NSW exploration and mining companies to determine the economic contribution of the industry throughout NSW in 2016/17 was undertaken on behalf of the NSW Minerals Council. Spending data including employee salaries and wages, business purchases, community contributions and local and state government payments, was collected by postcode to allow local, regional and state-wide economic benefits to be assessed. (Lawrence Consulting 2018 pi).

Twenty-six of the 34 companies surveyed responded thus representing most of the New South Wales mining sector based on current value of production. (Lawrence Consulting 2018 p2)

Direct expenditure results were as follows:

“The 26 companies surveyed directly spent an estimated \$10.4 billion in the NSW economy in 2016/17, comprised of:

- \$2.9 billion in wages and salaries to approximately 22,821 full-time equivalent residing employees (including contractors); representing an average salary level of \$125,817 per annum across the sector;*
- \$5.9 billion in purchases of goods and services from approximately 6,681 local businesses, community contributions and payments to local government (including rates, developer contributions and other payments); and*
- \$17.5 billion in state government payments (including royalties, stamp duty, payroll tax and land tax.)”*

(Lawrence-Consulting 2018 pi)

Indirect and total economic impacts were summarised:

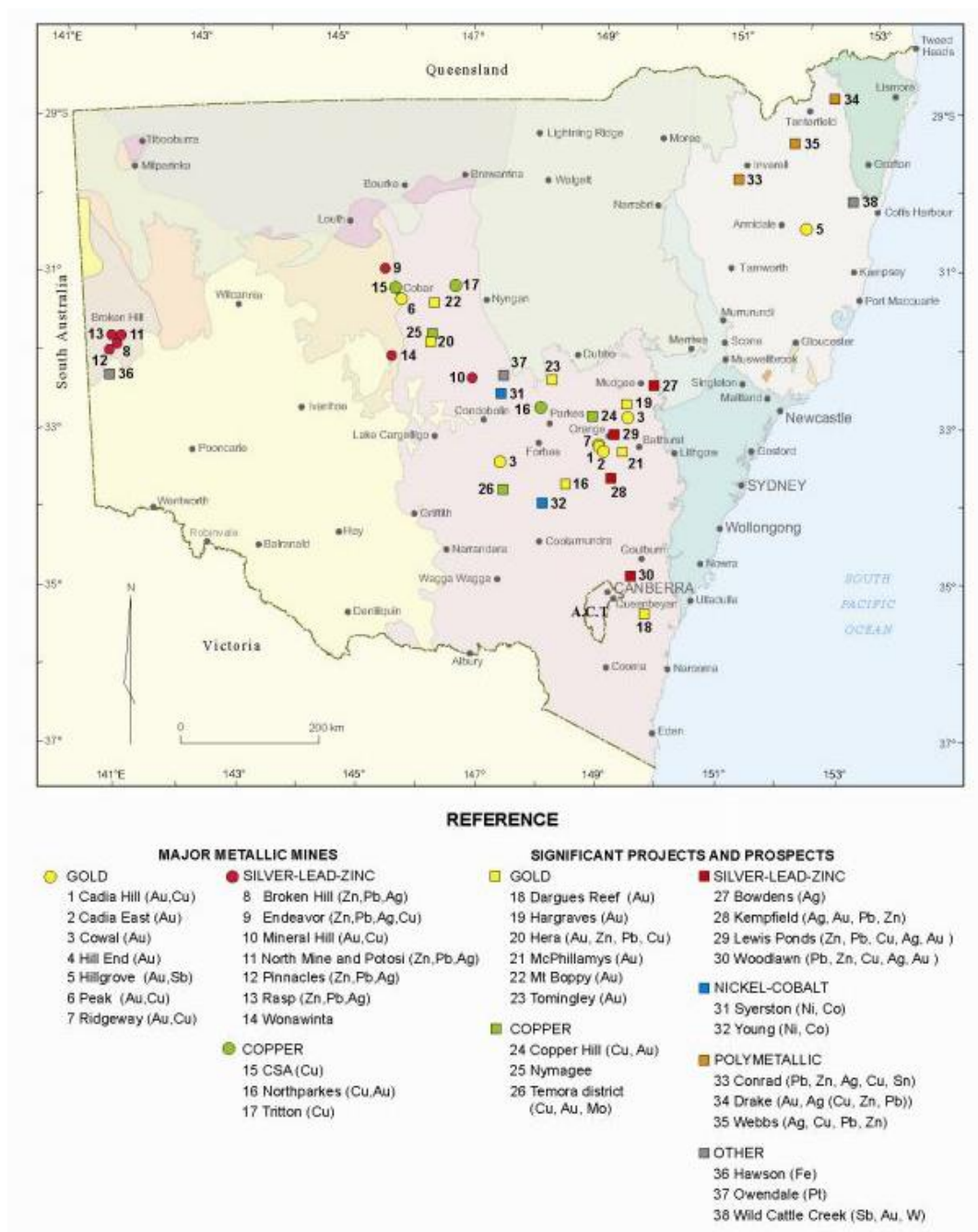
“Economic modelling of the flow-on effects of the surveyed companies’ direct expenditure allowed the indirect and total economic impact to be estimated. Across NSW, the total economic impact of the surveyed companies in 2016/17, based on Type II multipliers (i.e. including both indirect industry and consumption-induced effects), amounted to:

- \$25.5 billion in output/turnover (a measure of direct and supply chain purchases from businesses);*
- \$22.8 billion in value added (contribution to Gross State Product), amounting to 4.0% of GSP for NSW in 2016/17, through \$10.5 billion in direct effects and \$12.4 billion in supply chain and consumption-induced effects;*
- \$9.8 billion in income (wages and salaries) paid to direct and indirect workers; and*
- 130,167 full time equivalent jobs supported, or 3.4% of total employment in NSW during 2016/17.”*

(Lawrence-Consulting 2018 piii)

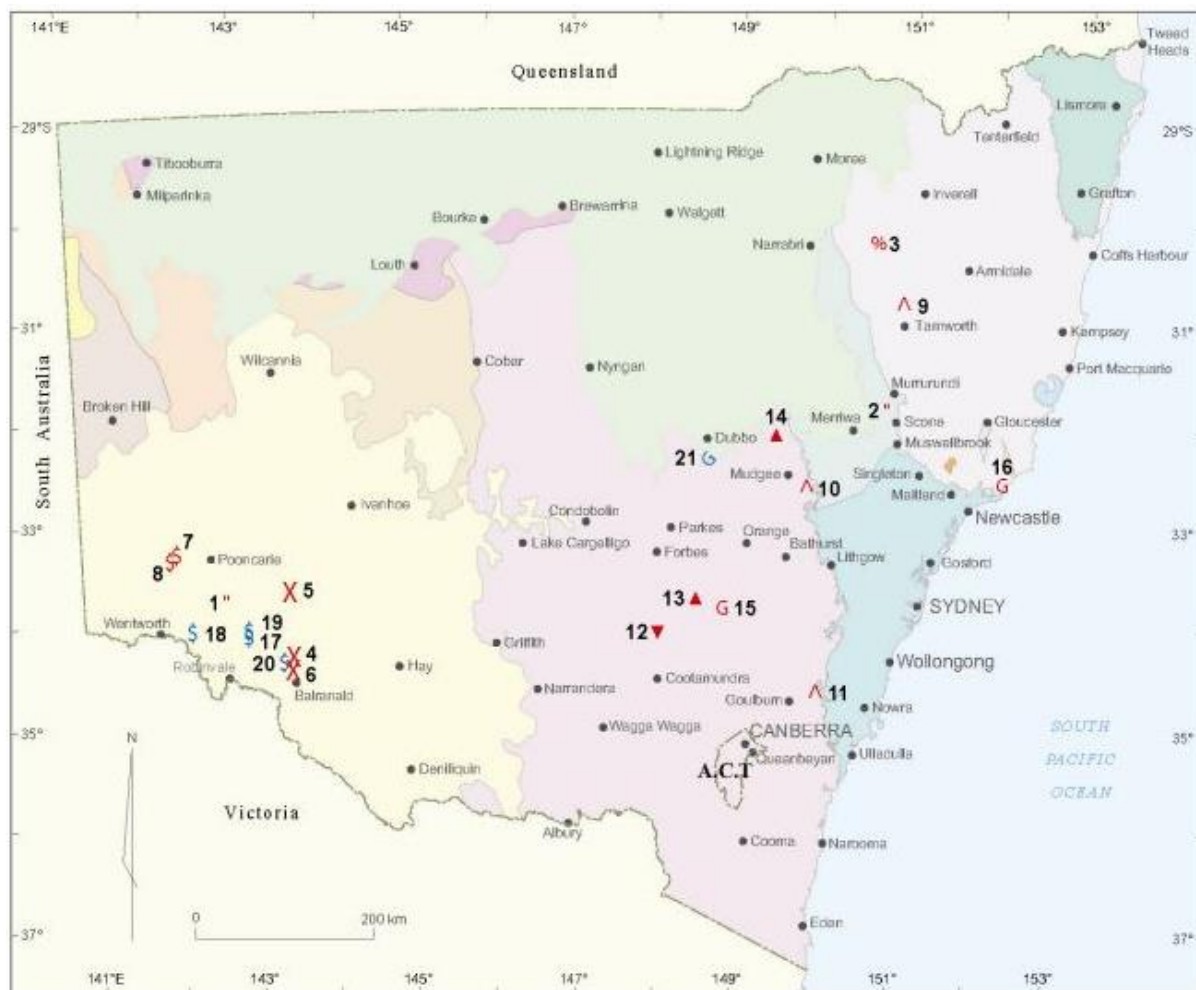
Maps summarising contemporary mining and quarrying in NSW are provided in Figure 2, Figure 3 and Figure 4.

Figure 2: Major Metallic Mines and Significant Projects and Prospects



Source: NSW Trade & Investment 2012 pviii

Figure 3: Major Industrial Mineral Mines and Significant Projects and Major Construction Material Quarries



REFERENCE

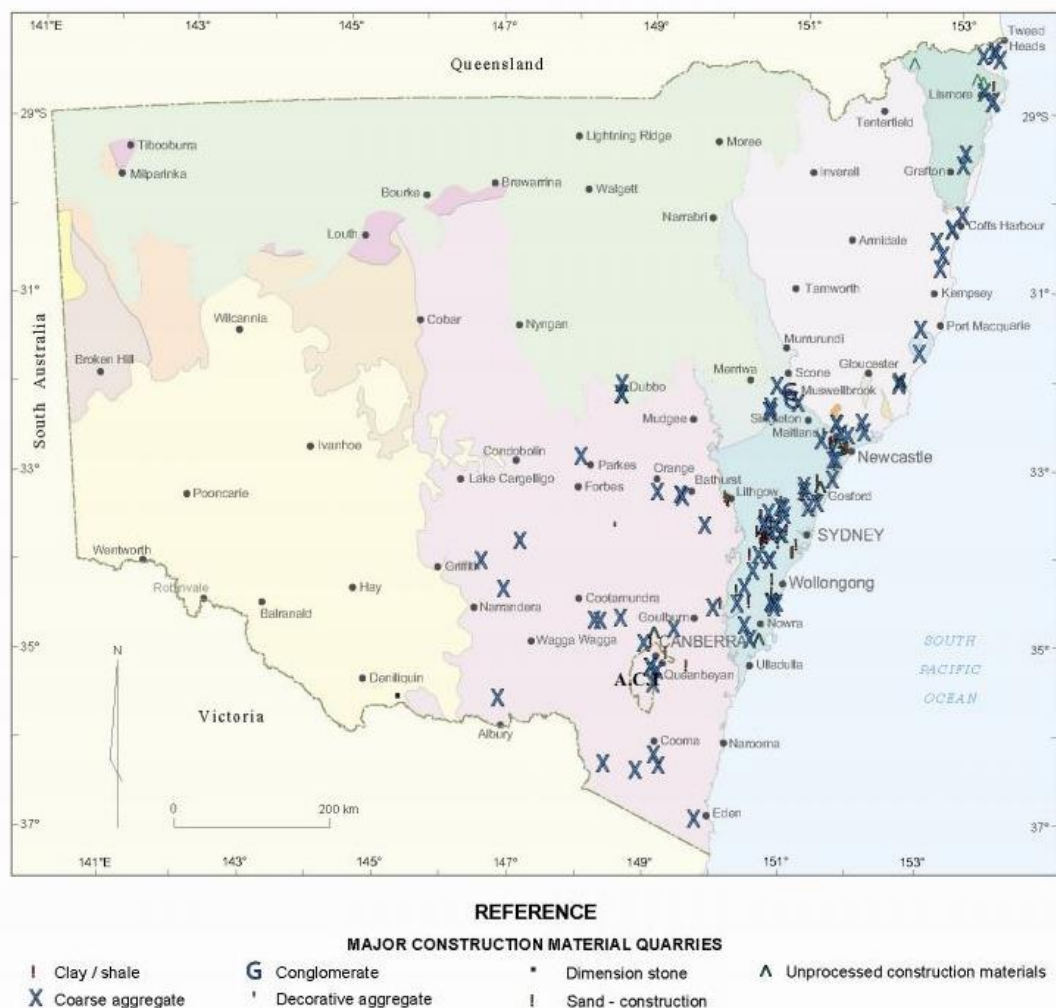
MAJOR INDUSTRIAL MINERAL MINES

- * Bentonite
- 1 Arumpo
- 2 Cressfield
- % Diatomite
- 3 Kyooma
- X Gypsum
- 4 Norms
- 5 Paxton
- 6 White Plains
- \$ Heavy Mineral Sands
- 7 Ginkgo
- 8 Snapper

- ▲ Limestone
- 9 Attunga
- 10 Kandos
- 11 Marulan
- ▼ Magnesite
- 12 Thudungra
- ▲ Magnetite
- 13 Broula
- 14 Tallawang
- G Silica Sand
- 15 Glenella
- 16 Stockton Bight - various

SIGNIFICANT PROJECTS

- \$ Heavy Mineral Sands
- 17 Atlas
- 18 Euston (group)
- 19 Campaspe
- 20 West Balranald
- Zirconia and Rare Earth Elements
- 21 Dubbo Zirconia



Source: NSW Trade & Investment 2012 ppix-x

Figure 4: Mines in NSW

While only 0.1% of NSW is used for mining, our mines are located right across the state, and our miners support a variety of groups and services, including services to improve health, safety and education, in their local communities.



Source: <http://www.nswmining.com.au/industry/mines-in-nsw>

Disused Mines

The 'NSW Auditor General's Report to Parliament |Volume Six 2012| Department of Trade and Investment, Regional Infrastructure and Services' (p.131) states:

"There were approximately 573 derelict mine sites in New South Wales at 30 June 2012. In 2011-12, the Derelict Mines Program (DMP) rehabilitated 27 sites with funding of \$2.1million."

DMP Policy states:

"DMP prioritises expenditure of allocated funds on consideration of a variety of matters including public safety and environmental risks posed by the mine as well as cost effectiveness of the proposed remediation works."

The DMP aims to:

- *reduce or eliminate risks to public health and safety and to the environment;*
- *stabilise and prevent further degradation of derelict mine sites;*
- *remove or contain contamination or sources of nuisance (such as water seepage or odours) at their source and prevent them from spreading.*

Secondary objectives include:

- *optimise beneficial reuse of derelict mine sites;*
- *encourage native plant and animal life;*
- *conserve items of significant heritage value; and*
- *improve visual amenity.*

The DMP has no statutory or legislative responsibility to remediate any derelict mine site and only provides funding for projects after all other avenues have been exhausted.

Projects are only considered for funding where no person or company with direct responsibility for the rehabilitation of the mine site can be located. Projects that cannot demonstrate a clear and significant link to former mining operations will not be funded by the DMP."

(NSW Department of Industry p1)

The Australia Institute (p1) makes the point that few reliable statistics are available in respect to abandoned mines and rehabilitation. Information included in Table 1 is based mainly on correspondence with the NSW agency responsible for overseeing the mining industry, the Division of Resources and Energy (DRE).

Table 1: State of Mining in NSW

Category	Low Estimate	High Estimate
Mines in operation	85	109
Mines in care and maintenance	NA	123
Mines closed and undergoing final rehabilitation	1	Unknown
Mine sites rehabilitated and relinquished or sold	1	Unknown
Abandoned mines	112	410
Rehabilitation bonds held	\$2.2 billion	\$2.2 billion
Estimate of total current rehabilitation costs	>\$2.9 billion	Unknown
Estimate of current rehabilitation liabilities for abandoned mines	Unknown	Unknown

Source: The Australian Institute 2017 p1

Landfill

48 million tonnes of solid waste materials generated each year in Australia's material intensive economy are handled through 2846 waste management facilities which are generally grouped into transfer stations, resource recovery facilities and landfill. Australia's 1168 operational (licensed and unlicensed) landfills receive approximately 20 million tonnes of waste annually. (Department of the Environment & Energy *Overview – Australia's Waste and Resource Recovery Infrastructure* 2013 pp1-2)

Waste management facilities numbers and per capita waste data ascribed to NSW are included in Table 2 and Table 3:

Table 2: Waste Management Facilities in NSW

Jurisdiction	Landfill	Resource Recovery Facility	Transfer Station	Total
NSW	369	121	166	656

Source: Department of the Environment & Energy *Overview – Australia's Waste and Resource Recovery Infrastructure* 2013 p1

Table 3: Waste General Data in NSW

State	Generation	Disposal	Recycling	Energy Recovery	Recovery Rate
NSW	2.38 tonnes/capita	0.83 tonnes/capita	1.49 tonnes/capita	0.07 tonnes/capita	65%

Source: Department of the Environment & Energy Overview – State and Territory Waste Generation and Resource Recovery Data 2013 p.1

“Since the 1990s, the number of landfills in Australia has fallen but the average size has grown. These large sites are increasingly sophisticated and generally run by large private companies. Around 75% of landfilled waste in Australia goes to 38 sites.

The Woodlawn landfill, 240km southwest of Sydney, gets more waste than any other landfill in Australia.” (McCabe, B., & Clarke, W., 2017)

(McCabe, B & Clarke, W 2017)

3.2 CGRC Background

Mining

Within the Cootamundra-Gundagai Local Government Area (Figure 1) there is a brief history of mining occurring predominately along the Gundagai-Wallendbeen belt. Commencement of mining dates to the late 1850’s early 1860’s.

Some of the other minerals mined in the region include chromite, ironstone, limestone, copper and aggregate. While many of these were found along the Gundagai-Wallendbeen belt there is little information known about the years of mining, quantity of resource extracted or exact deposit locations.

A report prepared by the NSW Department of Mineral Resources titled ‘Mining History of the Cootamundra 1:100,000 Sheet ^{GS1973/479}’ articulated that gold-reef mining had been the most significant source of revenue in the subject area. Total reported production of gold was approximately 129,150oz. It is hypothesised that total production was likely to be about 200,000oz.

Other important products included construction materials, chrome and talc.

Manganese and quality brick clays also were mined in the Cootamundra 1:100,000 sheet area.

Base metal deposits of lead, zinc, copper, silver and iron occurred in uneconomic concentrations.

Landfill

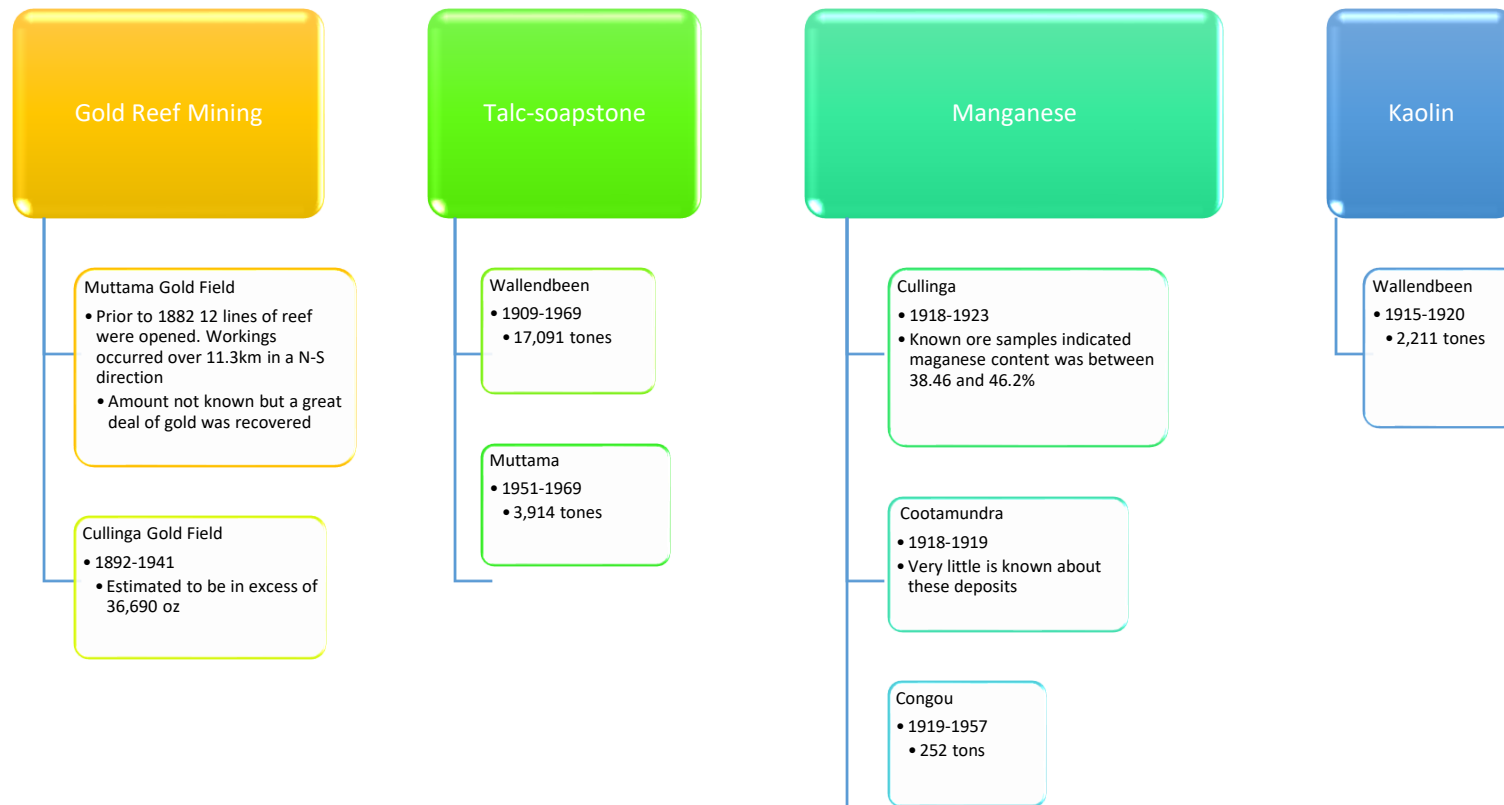
There are several waste collection facilities which service the towns and villages within the Cootamundra-Gundagai Local Government Area (LGA). Council residents and property owners are able to access landfill sites at Wallendbeen, Stockinbingal, Cootamundra and Gundagai. For residents and property owners in the villages of Coolac, Muttama, Nangus and Tumblong there are also waste transfer stations available. A summary of the current waste facilities is provided in Table 4.

Table 4: Waste Facilities in the Cootamundra-Gundagai Local Government Area

Town, Village or Community	Type of Waste Facility	Access*	Managed
Stockinbingal	LF	Fee	Elouera Industries
Wallendbeen	LF	Fee	Elouera Industries
Cootamundra	LF	Fee	Elouera Industries
Muttama	TS	Key	Council
Coolac	TS	Key	Council
Nangus	TS	Key	Council
Gundagai	LF	Fee	Council
Tumblong	TS	Key	Council
Adjungbilly	-	-	-
*Annually set fees and charges payable at gate (fee) or deposit fee for key (key).			

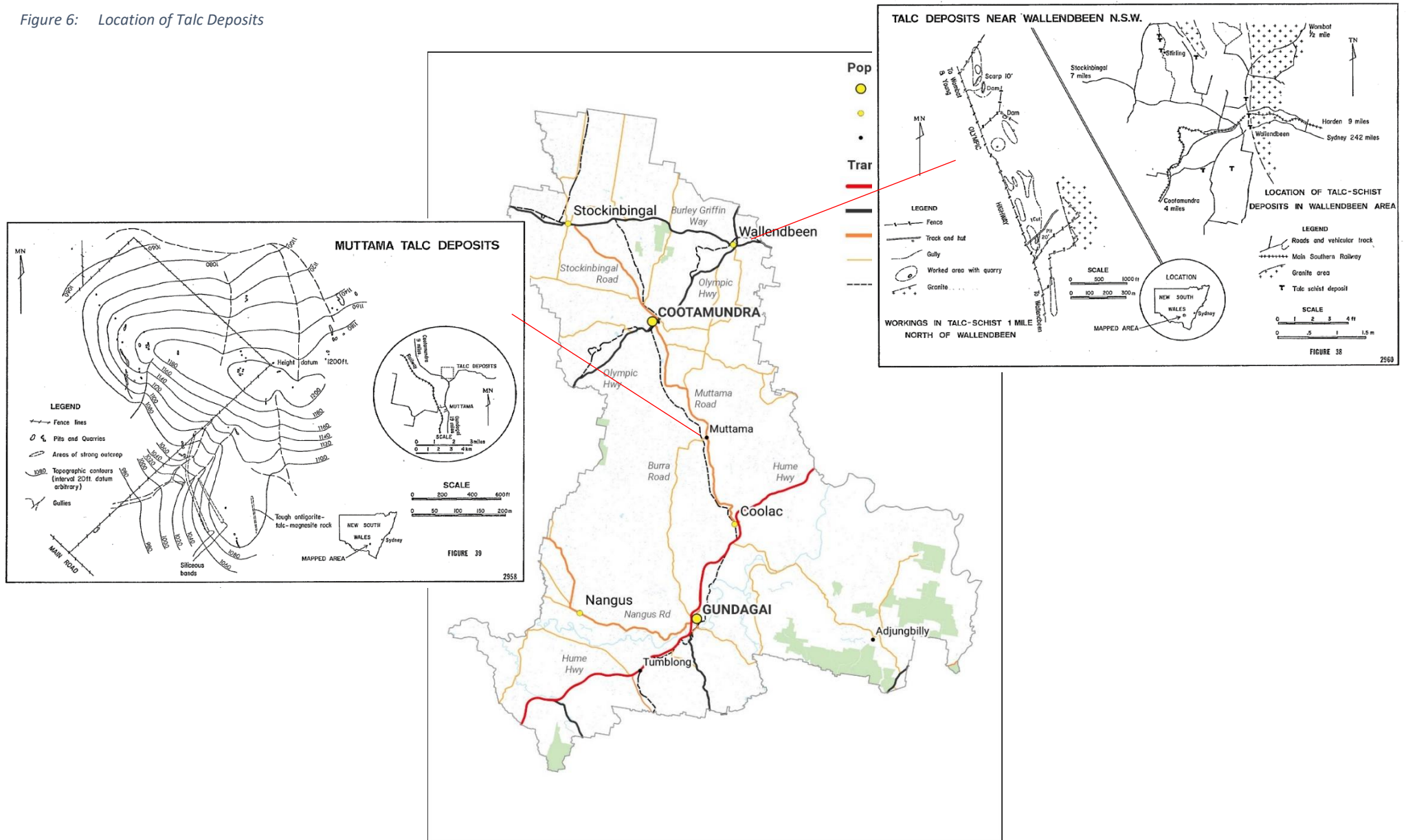
Figure 5 provides a history of mining in the LGA. Figure 6 provides the location of talc deposits in the LGA.

Figure 5: History of Mining in the LGA



Note: The Congou deposits occurred predominately within the Wombat area, north/north-west of Wallendbeen though some deposits may occur within the CGRC LGA.

Figure 6: Location of Talc Deposits



NSW Department of Mineral Resources 1973 pp178a and 184a

4. Legislation and Guidelines

It is not intended to provide details of the individual pieces of legislation applicable to mining and waste in this Issues Paper. Relevant legislation is listed below. The legislative framework is extensive and complex.

Information included in the 'NSW Minerals Action Plan 2015' (p.6) espouses:

"The planning system is complicated and there are multiple steps in the process to ensure that risks are appropriately addressed. These steps include:

- *Request for an environmental assessment report.*
- *Preparation of environmental assessment requirements.*
- *Preparation of an environmental impact statement.*
- *Exhibition.*
- *Response to submissions.*
- *Assessment and determination.*

These timeframes include the time taken for the applicant to provide information to the Department as part of the assessment process – a proponent takes between 400-500 days on average to prepare an environmental impact statement - but exclude the work the NSW Government requires from applicants before they submit an application for development consent. The timeframes also include the time taken for other NSW agencies to respond to the Department of Planning in relation to issues raised in the assessment process (for example, the Department of Trade and Investment, the Environment Protection Authority and the Office of Environment and Heritage).

The cost to business of this uncertainty and time delay is substantial and risks the future of the industry."

Examples of the time it takes from lodgement of a development consent application to final determination lodged with the NSW Government Department of Planning and Environment for both new projects and mine extensions/modifications range from 693 – 1,323 days. It is the aim of the Government to halve the decision-making timeframe to 500 days. (NSW Minerals Industry Taskforce 2015 p.7)

State

- *Mining Act 1992;*
- *Mining Regulation 2016;*
- *Rehabilitation security deposits – coal, mineral and petroleum;*
- *Work Health and Safety (Mines and Petroleum Sites) Act 2013 No 54;*
- *Waste Avoidance and Resource Recovery Act 2001;*
- *Waste Avoidance and Resource Recovery Amendment (Container Deposit Scheme) Act 2016;*
- *Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulation 2017;*
- *Waste Recycling and Processing Corporation (Authorised Transaction) Act 2010;*
- *Contaminated Land Management Act 1997;*
- *Environmentally Hazardous Chemicals Act 1985;*
- *Environmentally Hazardous Chemicals Regulation 2017;*
- *National Environment Protection Council (New South Wales) Act 1995;*
- *Protection of the Environment Administration Act 1991;*
- *Protection of the Environment Operations Act 1997;*
- *Environmental Planning & Assessment Act 1979;*
- *Environmental Planning and Assessment Regulation 2000;*
- *State Environmental Planning Policy No 33—Hazardous and Offensive Development;*
- *State Environmental Planning Policy No 55—Remediation of Land;*
- *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007; and*
- *State Environmental Planning Policy (Infrastructure) 2007.*

Local

- *EPA license;*
- *Cootamundra Local Environmental Plan 2013; and*
- *Gundagai Local Environmental Plan 2011.*

Irrespective of the provisions of the Cootamundra and Gundagai Local Environmental Plans the provisions of State Environmental Planning Policies take precedence.

In accordance with the provisions of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* underground mining is permitted with consent on any land and broader mining on land where development for the purposes of agriculture or industry may be carried out.

Certain types of activity may be carried out without development consent:

- Mineral exploration and fossicking;
- Rehabilitation, by or on behalf of a public authority, of an abandoned mine site;
- Mining within a mineral claims district pursuant to a mineral claim under the *Mining Act 1992*
- Petroleum exploration; and
- The construction, maintenance or use (in each case, outside an environmentally sensitive area of State significance) of any pollution control works or pollution control equipment required as a result of the variation of a licence under the *Protection of the Environment Operations Act 1997*, being a licence that applies to an extractive industry, mine or petroleum production facility in existence immediately before the commencement of this clause.

Landfills (waste or resource management facilities) may be carried out with consent in any of the following zones under the provisions of *State Environmental Planning Policy (Infrastructure) 2007*:

- RU1 Primary Production;
- RU2 Rural Landscape;
- IN1 General Industrial;
- IN3 Heavy Industrial;
- SP1 Special Activities; and
- SP2 Infrastructure.

A waste or resource transfer station may be carried out with consent (in addition to the abovementioned zones) in any of the following zones:

- B5 Business Development;
- B6 Enterprise Corridor;
- IN2 Light Industrial; and
- IN4 Working Waterfront.

Also, in accordance with the provisions of *State Environmental Planning Policy (Infrastructure) 2007* waste or resource transfer stations may be carried out with consent on land on which development for any of the following purposes is permitted under any environmental planning instrument:

- Industry;
- Business premises or retail premises; and
- Freight transport facilities.

Guidelines

- Environmental Guidelines: Solid Waste Landfills Second Edition (2016) NSW Environment Protection Authority;
- EIS Guideline: Landfilling (1996) NSW Department of Urban Affairs and Planning;
- Managing Land Contamination: Planning Guidelines (1998) NSW Department of Urban Affairs and Planning and Environment Protection Authority; and
- Contaminated Land Planning Guidelines – Draft (2018) Department of Planning and Environment and Environment Protection Authority.

Guidelines can play a significant role in the assessment of proposals. A recent example relates to a proposal to extend an existing private landfill in an abandoned gravel quarry pit at 303 Burra Road Gundagai.

Determination of the application was the province of the Southern Joint Regional Planning Panel. In December 2017 the Panel refused the application for four reasons. One of the reasons was:

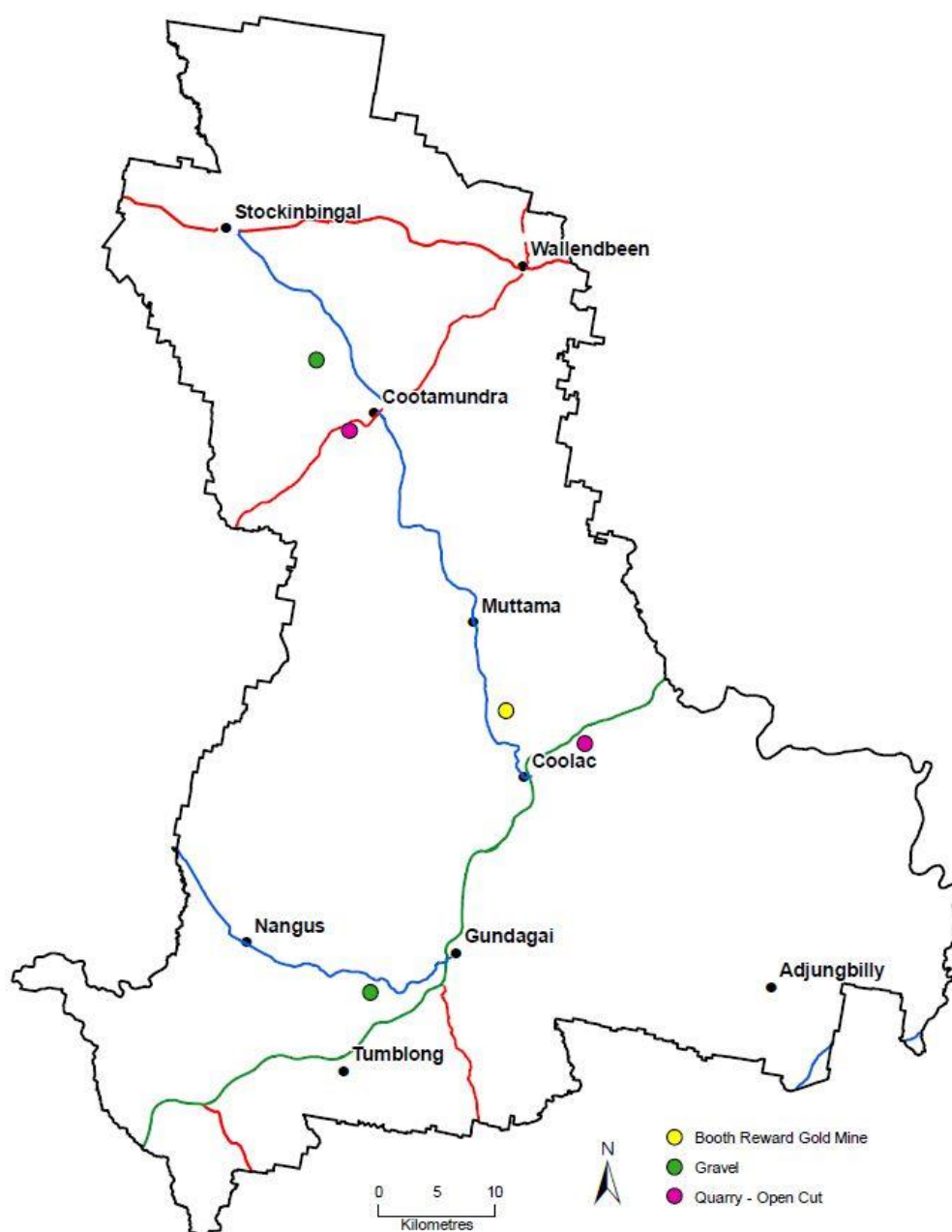
“The proposed development is inconsistent with the provisions of the EIS Guideline Landfilling NSW Department of Urban Affairs and Planning September 1996, in relation to site selection procedures, which identifies the site as being fundamentally unsuitable for landfilling due to environmental constraints.”

5. Mining and Landfill in CGRC

Scale of Mining

Figures included in the *CGRC Environmental Pressures Issues Paper 2018 (p.14)* demonstrate that a total of 274.83ha within the Cootamundra-Gundagai LGA is devoted to mining that includes mines, quarries, tailings and extractive industry not in use. Figure 7 shows the location of quarries and mines.

Figure 7: Mines and Quarries in Cootamundra-Gundagai RC



A snapshot of industry activities in 2014 reported that Unity Mining was undertaking exploration drilling at its Booth's Reward prospect. (<http://www.ga.gov.au/scientific-topics/minerals-archive/mineral-resources/gold>)

Scale of Landfill

An outline of the waste management facilities in the LGA is provided in Table 5.

Table 5: Type of Waste Facilities in the Cootamundra-Gundagai Local Government Area

Town, Village or Community	Type of waste facility*	Access**	Managed by	EPA License	Waste received
Stockinbingal	LF	Fee	Elouera Industries	Unlicensed	<ul style="list-style-type: none"> Domestic/putrescible Construction/demolition Recyclable Green/organic Public self-haul
Wallendbeen	LF	Fee	Elouera Industries	Unlicensed	<ul style="list-style-type: none"> Domestic/putrescible Construction/demolition Recyclable Green/organic Public self-haul
Cootamundra	LF	Fee	Elouera Industries	5895	<ul style="list-style-type: none"> Domestic/putrescible Construction/demolition Industrial Recyclable Green/organic Commercial bulk bin Public self-haul
Muttama	TS	key	Council	Unlicensed	<ul style="list-style-type: none"> General domestic Recyclable
Coolac	TS	key	Council	Unlicensed	<ul style="list-style-type: none"> General domestic Recyclable
Nangus	TS	key	Council	Unlicensed	<ul style="list-style-type: none"> General domestic Recyclable
Gundagai	LF	Fee	Council	Unlicensed	<ul style="list-style-type: none"> Domestic/putrescible Construction/demolition Industrial Recyclable Green/organic Commercial bulk bin Public self-haul
Tumblong	TS	key	Council	Unlicensed	<ul style="list-style-type: none"> General domestic Recyclable
Adjungbilly	-	-	-	-	-
* Landfill (LF) or Transfer Station (TS)					
** Annually set fees and charges payable at gate (fee) or deposit fee for key (key).					

A total of 3.87ha of land within the Cootamundra-Gundagai LGA is utilised for waste treatment and disposal including effluent ponds, landfill, solid garbage, incinerators and sewage/sewerage (CGRC *Environmental Pressures Issues Paper 2018 p.14*).

Mining Employment

In the 2011 Census 0.5% of the total workforce of 2,787 persons of the then Cootamundra Local Government Area were employed in mining. This equates to approximately 14 people. Mining business numbers are not included.

The then Gundagai Local Government Area had three mining businesses operating in the locality as of 30 June 2015. In the 2011 Census 0.5% of the total workforce of 1,682 persons were employed in mining which equates to approximately nine people. A total of 17 people were employed in the mining industry in the Cootamundra-Gundagai Regional Council area according to the 2016 Census.

Landfill Employment Estimates

Statistics regarding employment associated with landfill in the LGA do not appear to be available.

Access Economics (2009 p21) has estimated the direct full time equivalent (FTE) employees per tonnes of waste for landfill as follows:

“The number of FTE employees per company surveyed ranged from one to 1,000. Based on survey results, the estimated direct FTE per 10,000 tonnes of waste is 9.2 for recycling and 2.8 for landfill.”

It was estimated in the report that for every FTE job in landfill there would be a further 0.84 indirect employment opportunities. (Access Economics 2009 p25)

Mining Economic Impact

An analysis of the expenditure patterns of 26 NSW exploration and mining companies was undertaken to determine the economic contribution of the industry throughout NSW in 2016/17. Spending data, including employee salaries and wages, business purchases, community contributions and local and state government payments was collected by postcode to allow local economic benefits to be assessed. (Lawrence Consulting 2018 pi)

Data relating to mining in the LGA is provided in Table 6 and Table 7.

Table 6: *Direct Impacts of Spending by Companies Surveyed by LGA 2016/17*

LGA	Residing Employees (FTEs)	Associated Salaries (\$M)	Business Purchases and Community Contributions (\$M)	Total Direct Spending (\$M)	No. of Businesses Directly Supported
Cootamundra-Gundagai (A)	3	0.2	0.0	0.2	1

Source: *Lawrence Consulting 2018 p33*

Table 7: *Estimated Total Economic Impacts of Spending by Companies Surveyed by LGA (Type II Impact)*

LGA	Total Estimated Value Added (\$M)	% of Gross Regional Product (GRP)	Total Employees (FTEs)	% of Total Regional Employment
Cootamundra-Gundagai (A)	0.4	0.1%	5	0.1%

Source: *Lawrence Consulting 2018 p36*

Landfill Expenditure

Council's waste management charges for 2018 – 2019 are contained in the publication Fees and Charges 2018 – 2019. (*CGRC 2018 pp53-58*)

Income from domestic waste management services and non-domestic waste management services for the period 13 May 2016 to 30 June 2017 were \$1,870,000 and \$216,000 respectively. (*CGRC 2017 p22*)

Waste disposal tipping fees resulted in an income of \$342,000 for the period 13 May 2016 to 30 June 2017. (*CGRC 2017 p23*)

Specific purpose grants for pensioner's rate subsidies and green waste for the same period resulted in \$77,000 and \$85,000 respectively additional funding for domestic waste management. A capital grant of \$14,000 for landfills also applied. (*CGRC 2017 p25*)

Council's budget included in its '*Operational Plan*' for 2018-19 indicates total waste management income is \$2,266,000 as compared to expenses for waste management being \$2,238,000. (*CGRC 2018 p41*)

Cootamundra- Gundagai Regional Council's '*Asset Management Plan 2018/2028*' (p156) valued its waste assets such as landfills and transfer stations, as having a replacement value of \$1.593 million.

Planned upgrades for waste facilities in 2018 – 2019 shown in the 'Asset Management Plan 2018/2028' (p178) are shown in the Table 8.

Table 8: Upgrades for Waste Facilities 2018 - 2019

Asset Type	Description	Planned Expenditure \$
Waste	Cootamundra Waste Facility Upgrade	1,000,00
Waste	Gundagai Waste Facility Upgrades	400,000

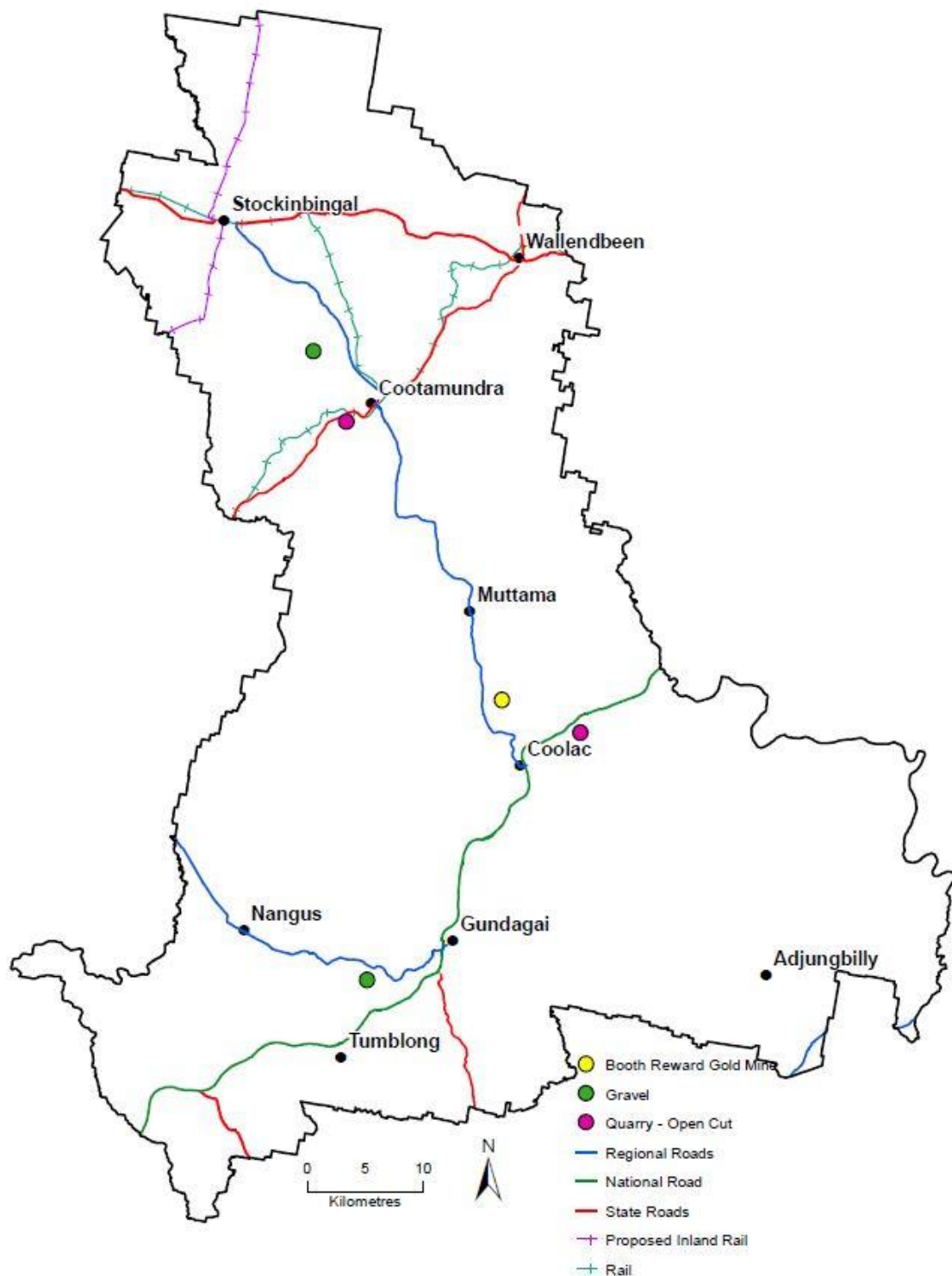
Source: CGRC, 2018 Asset Management Plan 2018 – 2028, p178

6. Inter-Related Issues

Roads and Transport

The location of quarries and mines in the LGA in relation to major transport links is provided in Figure 8.

Figure 8: Location of Quarries and Mines in Relation to Major Transport Links



Contamination

Clauses 6 and 7 of *State Environmental Planning Policy No 55—Remediation of Land* (SEPP 55) requires the following to be considered when contemplating the zoning or rezoning of land and assessing development applications:

- Whether land is contaminated;
- If land is contaminated whether it is suitable in its contaminated state (or will be suitable after remediation) for all the purposes for which land in the zone concerned is permitted to be used; and
- If land requires remediation it will be remediated before the property is used for a permitted purpose.

SEPP 55 is to be amended in 2018. *‘The core aims, and structure of SEPP 55 will be replicated in the new Remediation of Land SEPP.’* (Smith C & Smith L 2018)

A summary of changes are as follows:

“The Remediation of Land SEPP will still require consent authorities to consider contamination when determining development applications more generally. The same tests and requirements in clause 7 of SEPP 55 will appear in the new SEPP.

Apart from development applications, SEPP 55 requires planning authorities to consider matters relevant to contaminated land when preparing an environmental planning instrument to zone or rezone land. These provisions will be removed from the SEPP and provided in a specific section 117 direction. Current indications are that the new provisions will be much the same.”

(Smith C & Smith L 2018)

Both the current *‘Managing Land Contamination: Planning Guidelines’* (Department of Urban Affairs and Planning and Environment Protection Authority 1998) and new draft *‘Contaminated Land Planning Guidelines’* (Department of Planning and Environment and Environment Protection Authority 2018) designate landfill and mining and extractive industries as potentially contaminating land activities.

Chemicals/materials that may be associated with landfill activities include methane, carbon dioxide, ammonia, sulphides, heavy metals, organic acids, hydrocarbons and asbestos. In the instance of mining and extractive industries arsenic, mercury and cyanides (and explosives) aluminium, arsenic, copper, chromium, cobalt, lead, manganese, nickel, selenium, zinc and radio-radionuclides. The list of heavy metals should be decided according to the composition of the deposit and known impurities. (Department of Planning and Environment and Environment Protection Authority 2018 pp40-41)

Records demonstrate that acid and cyanide were used in the Cullinga and Muttama gold fields mines. (NSW Department of Mineral Resources 1973 pp98a-100,129)

Agriculture and Mining

An article published on the internet by NSW Resources and Geosciences summarises the potential benefits and issues associated with mining in rural areas:

“Agriculture and mining — a co-existence

Agriculture and mining are both vital industries in NSW and share many common beliefs and interests.

The successful coexistence of these industries has enormous benefits for the state, particularly in regional areas.

Although landholders may own the land, most mineral resources in NSW are owned by the state.

This means that the royalties and economic benefits from the mining of these resources contribute to the provision of services for the people of NSW.”

The purpose of land access arrangements is to ensure the orderly search for minerals, while recognising the rights of landholders to conduct their activities free from unreasonable interference or disturbance.

Both landholders and explorers have clear legal rights regarding access to land for mineral exploration.

In particular, the Mining Act 1992 provides specific landholder protections in respect of dwellings, gardens and significant improvements, as well as providing a statutory right to compensation for any 'compensable loss' suffered due to exploration carried out under an exploration licence or assessment lease.

The vast majority of relationships between explorers and landholders are positive. Courtesy, respect and honesty go far in building relationships between explorers and landholders.

All access arrangements should be based on the understanding that explorers are 'visitors' on private land, and an appreciation by landholders of the needs and rights of mineral explorers.'

(<https://www.resourcesandgeoscience.nsw.gov.au/landholders-and-community/minerals-and-coal/template-for-land-access>)

7. Discussion

7.1 Key Issues

The key issues for the LGA in relation to mining and landfill include:

- Contamination;
- Remediation and safety of existing mines;
- Waste recycling;
- Legislative requirements; and
- Social concerns regarding landfill management.

The demand for global minerals is forecast to grow but information suggests that minerals production in NSW could stagnate or decline in the case of non-coal resources unless new mines are quickly brought into operation. (CIE 2014 p2)

Recycling has been the subject of investigation recently by the Sydney Morning Herald (*Topsfield J 2018*):

“Australia’s national recycling body has urged governments to address stagnating recycling rates and lagging energy capture from waste, warning the nation is “now at a crossroads”.

The Australian Council of Recycling is calling for an increase in landfill levies, a \$1.5 billion investment into recycling in Australia and lower taxes for products with recycled materials, in a 10-point plan aimed at “rebooting” domestic recycling.

The federal government is poised to announce six national targets – including the diversion of 80 per cent of waste from landfill by 2030 – to tackle the crisis precipitated by China’s import restrictions on recyclables....

In the 10-point plan, the council calls for appropriate landfill levies in each state, which would increase over time, to provide an incentive to recycle.

Landfill levies are inconsistent across each state. As of 2017 the metro levy ranged from \$138.20 per tonne in NSW to no levy in Queensland, which led to thousands of tonnes of rubbish from NSW being dumped in Queensland landfills....

The council says \$1.5 billion from these waste levies should be invested into recycling, including meeting the unfunded costs of kerbside recycling and enhanced sorting and reprocessing of recyclable material.

“Independent reports show that domestically remanufacturing 50 per cent of the material formerly sent to China leads to some 500 jobs here and reduces greenhouse gases equivalent of 50,000 less cars,” the council says.”

[\(https://www.smh.com.au/environment/sustainability/\)](https://www.smh.com.au/environment/sustainability/)

Topsfield (September 2018) in a separate article stated in respect of the six national targets:

“The policy, which will be released by the end of the year, includes six national targets to tackle Australia’s waste crisis and provide greater certainty for business over the next 12 years.

These also include phasing out unnecessary plastic and halving the amount of organic matter sent to landfill.”

[\(https://www.smh.com.au/politics/federal/australia-to-set-national-targets-to-reduce-waste\)](https://www.smh.com.au/politics/federal/australia-to-set-national-targets-to-reduce-waste)

An audit of kerbside recycling bins from selected Riverina Eastern Regional Organisation of Councils’ (REROC) members was undertaken in 2017 and the results were as follows:

- “• On average, the volume of recyclables (including contaminants) was 10.7 kilograms per recycling bin. It was noted that some rural properties only present their bin when it is full and as such, this may be a slight overestimation of the average weight per bin for each fortnightly collection.*
- The overall content of all audited bins was almost 40% Paper and Cardboard, around one third Glass Bottles and Jars, and just under 10% recyclable plastics.*
- Contamination in bins ranged from an average of 6.2% at Coolamon which can be considered a low contamination rate, through to 24.5% at Junee, which can be considered a high contamination rate. The overall contamination rate was 13.5%.*
- Container Deposit Scheme (CDS) items averaged almost 32 items per 240L bin. This is 8 times more than South Australian councils, which have had a similar scheme in place since 1977. It is worth noting that with this many CDS items per bin, the 10c CDS containers have the potential value of \$2.7M per annum across all audited Councils.”*

(Rawtec 2017 p2)

Table 9 was also included in the audit report.

Table 9: Overall Data by Council/Township

Council Township	No. of Bins Collected	Ave Weight per 240L Bin	Contamination %	No. CDS Items per 240L Bin
Coolamon Shire Council	50	9.6kg	6.2%	30
Junee Shire Council	50	8.1kg	24.5%	22
Cootamundra township	50	10.5kg	16.0%	24
Gundagai township	50	9.8kg	10.7%	29
Tumut (Snowy Valleys Council)	100	8.0kg	9.8%	35
Wagga Wagga Council	200	11.5kg	15.0%	31
Culcairn (Greater Hume Shire Council)	50	13.5kg	12.2%	38
Lockhart Shire Council	50	15.3kg	13.1%	46
Overall	600	10.7kg	13.5%	32

Source: Rawtec 2017 p2)

REROc (2017 p2) espouses:

“Distance, high transport costs, small population centres and low quantities of feedstock continue to throw challenges up to the implementation of sustainable waste management and resource recovery solutions. This requires that the Waste Forum identify innovative solutions and this approach is evidenced in many of the projects that have already been implemented by the Forum and will be implemented in the future.”

A detailed *Action Plan* is included in the REROc document on pages 30 – 36.

7.2 Opportunities

Opportunities for the LGA in relation to mining and landfill include:

- Maximising existing infrastructure potential;
- Recommissioning assets;
- Recycling centres;
- Biofuels; and
- Community composting.

NSW Planning and Environment – Resources and Geoscience Common Ground web site specifies that there are two current exploration licences for minerals near Cootamundra and four around the Gundagai area. (<https://www.commonground.nsw.gov.au/Show All Resources/Exploration Licence>)

Tan (2013) discusses biofuels as follows:

“The current liquid biofuels (bioethanol and biodiesel) are mainly produced from first generation feedstocks (such as sugarcane, maize, rapeseed) and constitute only a small fraction (1%) of present transportation energy. Second generation biofuels will come from dedicated perennial energy crops (such as miscanthus, switchgrass, agave, pongamia), and in the near future, hydrogen gas may be produced from algae, bacteria, or artificial photosynthesis to fuel hydrogen-cell powered cars....

In Australia, biodiesel is being produced from used cooking oil (an agricultural by-product), tallow and canola seed; and bioethanol is produced from sugarcane molasses, grain sorghum and waste wheat starch....

The first generation of biofuels produced from starches, sugars and oils of agricultural food crops, including maize, sugarcane, rapeseed (including canola) and soybean have faced disfavour for competing with food and feed production.

Hypothetically, if all the main cereal and sugar crops (wheat, rice, maize, sorghum, sugar cane, cassava and sugar beet), representing 42% of global cropland, were to be converted to ethanol, this would correspond to only 57% of total petrol use in 2003, and leave no cereals or sugar for human consumption (although the reduced sugar in the human diet would have health benefits).

These first generation biofuels also have large carbon and water footprints. Greenhouse gas emissions during agricultural production of biofuel crops contribute 34-44% of the greenhouse gas balance of maize ethanol in the United States and more than 80% in pure vegetable oils. In general the water footprint of biofuels is two to five times larger than the water footprint of fossil fuels.

Clearing undisturbed native ecosystems such as rainforest, savanna and grassland for biofuel production also increases net greenhouse gas production due to a change in land use.

Due to food and energy security concerns, many countries are promoting biofuel crops that can be grown on land not suited for food production, so that the two systems are complementary rather than competitive.”

(<https://theconversation.com/explainer-what-are-biofuels>)

Alternatively, Bioenergy Australia advocates:

“Biofuels represent an immense growth opportunity around the world and have an important role to play in displacing the fossil fuels the world has relied upon in the past with a cleaner, renewable alternative.

The environmental benefits of biofuel use have been widely documented. The reduction in greenhouse gas emissions resulting from the use of biofuels and biofuel blends is closely aligned with the Government’s “Direct Action” approach to climate change. Australian biodiesel has the potential to reduce emissions by over 85% in comparison to diesel and Australian ethanol can reduce emissions by approximately 50%.

The issue of sustainability is of paramount concern to the Australian Biofuel industry and the BAA was the lead participant in Australia’s involvement in the development of an ISO Sustainability Criteria for Bioenergy.

Australia’s biofuel industry has been built on a strong sustainable base where our biofuels are made from feedstock including waste starch, molasses, tallow, sorghum and waste cooking oil. None of these feedstocks compete with human food and all have positive impacts on the environment when measured on a paddock to pump basis taking into account the full life-cycle of the product.

While there have been concerns regarding the use of food crops in some other countries, Australian producers are using only environmentally sustainable feedstocks which do not impact the affordability or availability of food within Australia.

As technology advances the efficiency of conventional biofuel processes and the technological advances occurring within the advanced biofuel area offer a grand vision for what biofuels could provide in years to come.

Today more than 98 percent of the energy used in Australia’s transportation industry is derived from liquid fossil fuels. With Australia facing significant change in terms of the make-up of industries that once drove our economy, the burgeoning biofuels industry is a relatively new player that, if fostered, can contribute future investment and jobs.

The BAA recently commissioned Deloitte Access Economics to undertake a study on the economic contribution of the Australian Biofuels Industry. The interim results of this report show that, net of the Cleaner Fuel Grants and Ethanol Producer Grants paid, in the 2012-2013 financial year, the industry generated an economic contribution of approximately \$466 Million and provided about 3,387 FTE jobs as a result of the industry’s activities, and that this could grow to \$554 Million and 4,002 FTE jobs should the industry utilise its installed capacity. Given that the biofuels industry currently represents just 1% of fuel sales, we believe this demonstrates the significant economic potential that this industry has to contribute to Australia’s future.

Biofuels provide an extra dimension for the Australian agricultural sector, providing more demand for Australian farmers produce and diversifying the markets they can sell their agricultural products providing much needed improved returns to our regional communities”

<http://biofuelsassociation.com.au/biofuels>)

Community gardens and composting are addressed in the ACT Waste Management Strategy 2011-2025:

“Strategy 1.2: Support for community gardens and home composting

Community gardens provide an opportunity for many different members of the community to engage in gardening activities and growing food for personal use and pleasure. Community and home gardens also provide an excellent opportunity for householders to reduce waste by composting household organic materials. Home grown food also avoids waste associated with commercial food production and distribution.

The ACT Government supports the establishment and operation of community gardens in the ACT through initiatives including:

- A ‘one stop shop’ approval process to facilitate the granting of a licence to establish a community garden, including a waiver of licence fees and exemption from development approval on unleased land.*
- The development of Site Selection Criteria under which licence applications for community gardens will be assessed. The Site Selection Criteria will require to the proponent to take into account relevant Development Code provisions in the Territory Plan and undertake community consultation to demonstrate support from the neighbouring community.*

The ACT Government also supports social and personal horticulture by sponsoring courses in sustainable organic gardening, providing the necessary skills for community gardeners or those gardening on their own land.”

(ACT Government Environment and Sustainable Development 2011 pp17-18)

“Strategy 2.3: Develop markets for organic and residual waste resources

The ACT’s future waste system development will adhere to the principle that waste should be directed to the highest-value use.

Submissions to the draft strategy highlighted the potential and advantage of composting organic and food waste. Composting and worm farming (to break down organic matter) can produce organic soil conditioners. However, composting also produces greenhouse gases and is not suited to producing high value products from residual household organics.

Nonetheless, composting or worm farming is a suitable technology for some clean waste streams including garden waste and well sorted commercial food waste. Home composting has substantial benefits in that it allows the organics to be collected and beneficially reused on site without associated transport or supply chain costs.

The ACT Government’s policies and programs such as AuSSI schools and the ACTSmart Office and ACTSmart Business programs are diverting a large amount of garden and food waste into composting businesses and worm farms.”

(ACT Government Environment and Sustainable Development 2011 pp24-25)

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