Regional Waste Management Strategy

North East Waste

2013-21

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The North East Waste region covers almost 21,000 sq kms of land area and has a population of almost 300,000. The seven member Councils within this region are Ballina, Byron, Clarence Valley, Kyogle, Lismore, Richmond Valley and Tweed Shire. There are 9 landfill sites, two recycling facilities, three organics processing facilities and eleven transfer stations situated throughout the region.

FOREWORD

North East Waste is a voluntary regional waste group, formed in 1997 and comprising Ballina, Byron, Clarence Valley, Kyogle, Lismore, Richmond Valley and Tweed Councils. This regional Strategy was developed in collaboration with its member Councils and aims to set the strategic direction of waste management in the region through a coordinated and collaborative approach that optimises our skills and resource sharing opportunities. It is driven by political, economic and environmental imperatives including the requirements of the State Government initiatives and strategies, the need to protect the environment and the economic benefits of sharing resources.

Our vision is to achieve more sustainable waste management and better resource recovery in the NE Waste region through a proactive, collaborative approach with our regional members Councils, the NSW EPA and our community.

Through this Strategy NE Waste aims to fulfil our objectives and meet targets by:

- Delivering targeted and effective projects that engage and build capacity in our communities to achieve improved waste minimisation and management outcomes.
- Creating strong Council partnerships that allow collaboration and optimize resource sharing and funding opportunities.
- Involving the community through social enterprises and the development of markets in recovered resources.
- Adhering to the principles of sustainability, equity and continuous improvement.
- Communicating and sharing our knowledge while striving for leadership and innovation in waste.

At present the region faces a number of challenges in waste management that this strategy hopes to address. They include

- the predicted pressure from increasing population growth and its implications for waste generation, landfill availability and service provision;
- the significant quantities of potentially recyclable materials, including organics, currently present in the residual waste stream;
- gaps in infrastructure and services required to maximise resource recovery across the region;
- a lack of uniform data and detail of the commercial sector's waste generation and resource recovery; and
- the need to ensure regional cooperation while maintaing equity and open communication between Councils.

In order to address these challenges this Strategy includes a uniform waste management system, enhanced services and drop off facilities and improved infrastructure, supported by a comprehensive education and communication program to maximise business and community engagement.

A full range of delivery mechanisms have been developed for the new strategy and final options for implementation of objectives have been assessed and prioritised into an action plan. It is intended that these actions and the Regional Waste Strategy objectives be adjusted annually as their progress against the key performance indicators are evaluated.

"This strategy has been supported by the NSW Environment Protection Authority (EPA) with funding from the waste levy."

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INTRODUCTION

1.1 Introduction to Strategy

This Regional Waste Management Strategy was developed in consultation with North East Waste member Councils. The Strategy draws on a number of studies undertaken by NE Waste and its previous regional waste strategy and is informed by current Regional, State and National planning instruments and initiatives. The key documents and programs underpinning this Strategy are the:

- NSW 2021: A Plan to make NSW number one (2012)
- Regional Waste Management Strategy Working Document (NOROC Councils RWMG 2011-14)
- NOROC Review of Resource Sharing Opportunities - Waste Management, Hyder Consulting February 2011
- Regional Waste Disposal Strategy for Northern Rivers 2012, Hyder Consulting
- North East Waste AWT Situational Analysis August 2013
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2007 and WARR Implementation Strategy 2012-15
- The National Waste Policy: Less Waste, More Resources 2011

More recently the Draft WARR Strategy 2013-21 and Waste Less Recycle More initiative have guided its development.

Investigations for this strategy began in 2010 through the review of existing arrangements to identify areas where improved resource sharing across the region could occur. While some efficiency in regional waste management was acknowledged, there was further potential for collaboration, especially as several member councils were undertaking new waste infrastructure development projects. At the time 2 current members of North East Waste were not member Councils and the initial Strategy for the region was developed in consultation with member and non-member Councils. This Strategy focused on 5 key results areas: Managing Residual Waste; Increasing Resource Recovery; Improving Kerbside Collection; Community Engagement and Education and Reducing Emissions.

Three major studies to guide the management of residual waste and landfill gas emissions were undertaken with the remaining objectives targeted through the existing programs of NE Waste and the combined efforts of the 7 member Councils. A summary of our key findings and progress against the original strategy objectives can be found in Appendix 2.

A number of additional studies, consultations and appraisals have recently been completed or are in progress. As this Strategy takes the form of a working document, subject to regular review, these new areas of research will continue to update and contribute to its planning horizon.

1.2 Key Drivers and Policy Context

Several key drivers and trends have been identified that support regional cooperation and the need for a regional waste strategy.

The key political drivers include:

- The encouragement of local councils to develop regional waste strategies under NSW 2021
- The requirement for a regional waste strategy to apply for funding under the Waste Less, Recycle More initiative
- The need to fulfil diversion targets set under the Draft WARR Strategy 2013-21
- The recognition at a number of political levels and jurisdictions that there is a need and opportunity for regional cooperation

Socio-Economic drivers include:

- The potential to involve the community, provide employment and develop markets through social enterprises in waste.
- The imperative of resource sharing due to diminishing landfill space
- Population growth and seasonal fluctuations within the region impacting on existing waste systems and infrastructure
- The potential to increase funding opportunities under a regional cooperation model and for local councils to realise the benefits of the $465.7 million funding opportunities available through the Waste Less Recycle More initiative
- The possibility of reducing costs and increasing economies of scale through cooperation and joint ventures
- Building regional capacity through knowledge exchange

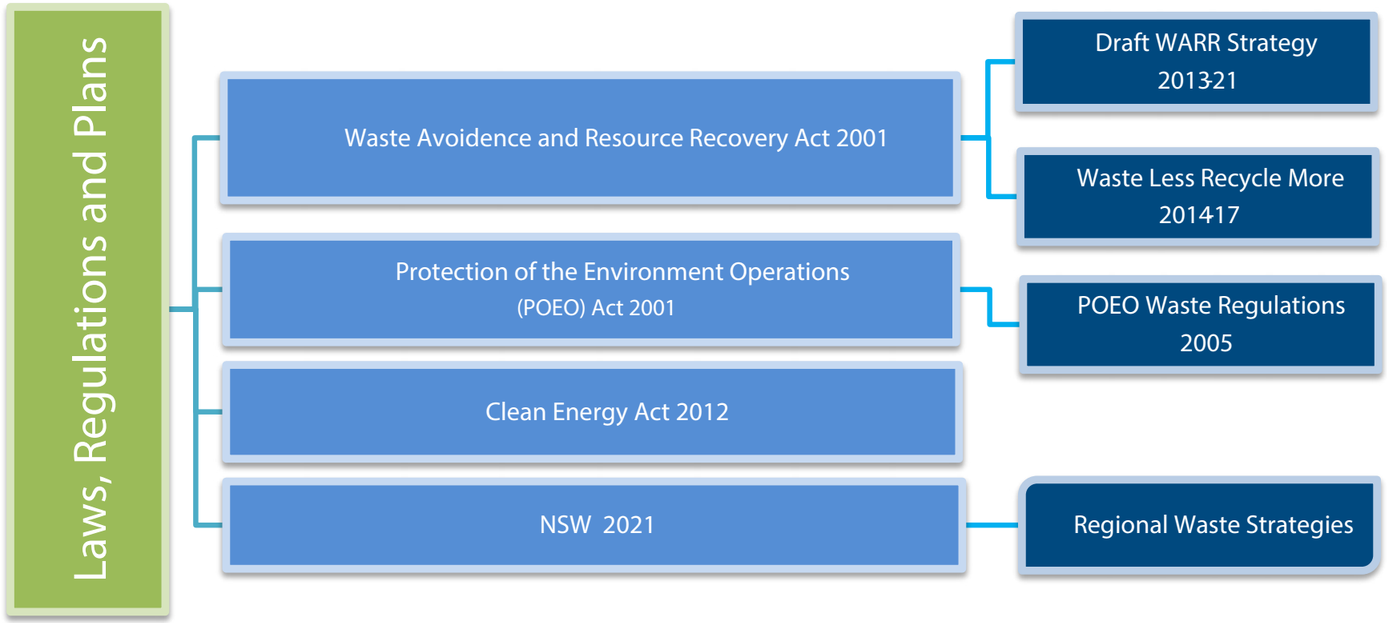
Environmental drivers include:

- Improving resource efficiency through collaborative efforts
- Improving the environmental performance of infrastructure
- Protecting the environment and improving sustainability through education and behaviour change
- Improving waste management to help mitigate the impact of human induced climate change

Legislative Framework

Several legislative instruments guide waste management in NSW. They define waste for regulatory purposes, establish licencing and levy requirements and set targets and strategic direction. At present a number are under review or in draft form.

Figure 1: Legislative, regulatory and planning Instruments guiding waste in NSW



The structure of this plan follows the guidelines provided by the NSW EPA and uses the Key Results areas identified in the Draft WARR Strategy to guide our choice of outcomes and develop our targets. Under this umbrella consultations and analysis have assisted us in redefining our strategic objectives, consolidating our previous strategy. A series of workshops have been held with key waste management stakeholders and additional research has been undertaken to support NE Waste in further refining our objectives and determining the mechanisms for delivery of this Strategy.

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BACKGROUND

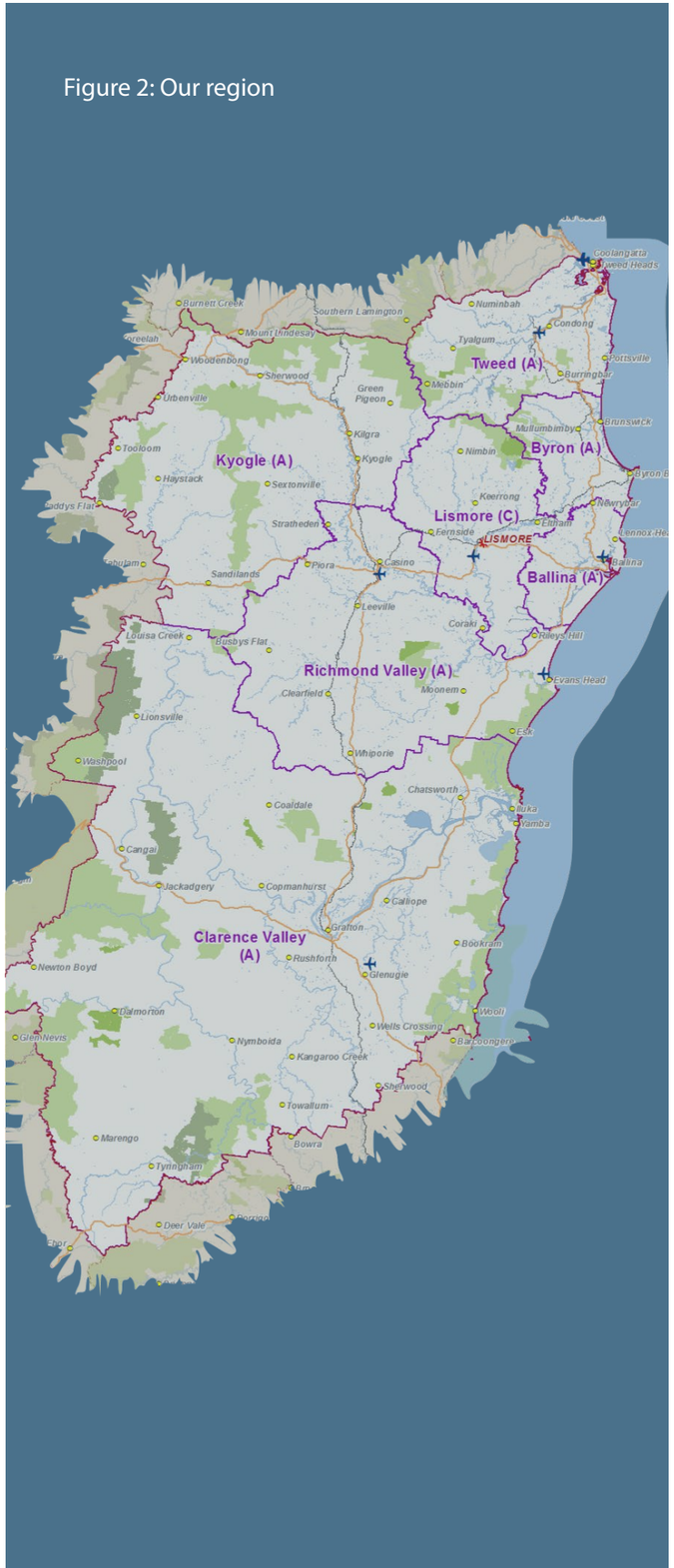
The North East Waste region covers almost 21,000 sq kms of land area and has a population of 287,809. The seven member Councils within this region are Ballina, Byron, Clarence Valley, Kyogle, Lismore, Richmond Valley and Tweed. Membership of the Voluntary Regional Waste Group, North East Waste, has been reasonably consistent since its beginnings in 1997, and today all local Councils are members. NEW is governed by a Memorandum of Agreement, with each Council having a vote and delegate at bi-monthly meetings. It is funded by the NSW EPA, contributions from Councils and grant funding. A Coordinator manages the administration of the group, the budget and its projects. Additional coordinators manage education, business and specialised projects, subject to need.

Waste infrastructure in the region has changed over time and there are now 9 landfill sites, three material recycling facilities (MRF), three organics processing facilities and eleven transfer stations situated throughout the region. (See figure 2)

Each Council has its own arrangements in place for waste collection, by contract with a private operator or by an in-house Day Labour service. All Councils have a kerbside recycling service for residents and five Councils provide a garden organics or combined food and garden organics collection. Recycling is available to commercial premises in all seven Council areas and organics collection for business is available in four.

To more accurately reflect the regional changes in waste generation and resource recovery that have occurred more recently, Council waste data for 12/13 has also been utilised in this section of the strategy. However to ensure that comparisons can be made across the State all additional 11/12 data is included in the appendices for reference.

Figure 2: Our region



National trends indicate that while diversion of recycling and organics has improved, the overall volume of waste generated has increased, making landfill capacity a pressing issue. Total available landfill capacity across the region is currently at 4 million cubic meters, with similar proposed additional void space available. Three Council landfills are currently near capacity and either have or are awaiting approval to develop new landfills. One Council landfill has closed due to constrained capacity and expansion issues and is currently transferring residual waste to South-East Queensland. Two of the Councils nearing capacity are also utilising this option while their new landfills are in development. There is also the potential to utilise other existing landfills in the region if the SEQ option ceases to be viable. Table 1 presents details of landfill capacity across the region.

The feasibility of developing a regional landfill facility at Richmond Valley Council's Bora Ridge site has recently been reviewed. A summary of the feasibility report (Hyder, March 2014) is available in Appendix 2. The review concludes that as most member councils either already have a long-term landfill solution, or are working to secure one, a regional landfill project should not be progressed at this time. However it is recommended that the site be retained and the proposal revisited as a future long term waste management option for the region.

Table 1

Landfill capacity and life for the NEW Councils

	Ballina	Byron	Clarence	Kyogle	Lismore	Richmond	Tweed	Total Capacity
Available Landfill capacity	200,000 (closed)	Near capacity	3,000,000	385,000	Near capacity	473,000 @ 2011	Near capacity (25yrs avail for inert)	4,058,000
Proposed additional capacity	Nil-	460,000	N/A	N/A	1,000,000	N/A	750,000 & 1,800,000	3,910,000
Landfill Life (years)	3	15-20	60	70	50	30-40	20-25	N/A

2.1 Regional Population and Demographic Profile

The North East Waste region has a population density of approximately 14 people per square kilometre. Compared to many other regional and rural areas of NSW this is relatively high. Table 2 presents demographic profile data sourced from the Australian Bureau of Statistics' (ABS) Population of Census and Housing 2011 and from local government EPA data returns 11/12.

Table 2

Population and Demographic Profile

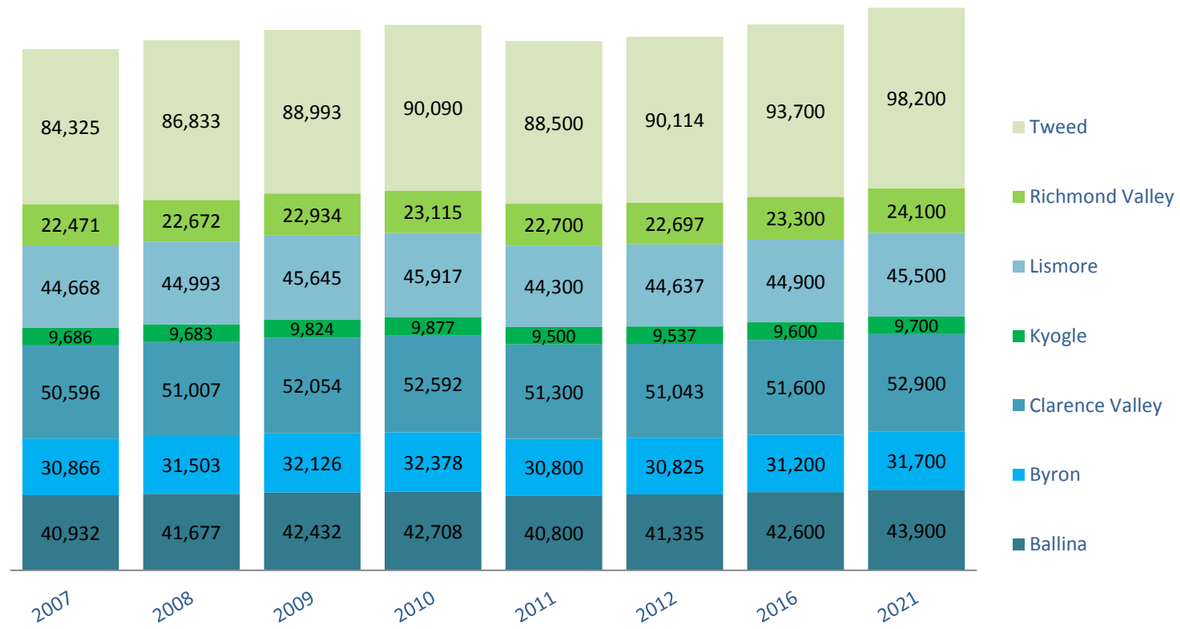
Council Name	Population [a] (2011/12)	Projected Population 2021 [a]	Total Number of Individual Households in LGA [b] (2011/12)	% Single Unit Dwellings (SUDs) [b] (2011/12)	% Multi Unit Dwellings (MUDs) [b] (2011/12)	*Socio – Economic Index [a]
Ballina Shire	40,753	43,900	16,691	75%	25%	980
Byron Shire	30,825	31,700	13,717	84%	16%	979
Clarence Valley	51,252	52,900	23,231	91%	9%	907
Kyogle Shire	9,537	9,700	4,033	99%	1%	902
Lismore City	44,282	45,500	17,947	82%	18%	946
Richmond Valley	22,697	24,100	7,078	100%	0%	888
Tweed Shire	88,463	98,200	37,717	60%	40%	949
Region	287,809	306,000	120,414	85%	15%	936

Source: a) ABS 2012 - b) Local Government Data Return 2011-2012

*The Index of Relative Socio-economic advantage and disadvantage (SEIFA) for the region summarises information about the economic and social conditions of people and households within an area. A low score indicates relatively greater disadvantage and a lack of advantage in general. A number of LGAs in the region are particularly disadvantaged, with the Richmond Valley, Kyogle and Clarence Valley being amongst the 20 lowest rankings in NSW.

Figure 3: Historical and Projected Regional Population Change

Population growth since 2007 has fluctuated with an overall increase of approximately 2 percent. Population projections from the Australian Bureau of Statistics indicate that an approximate increase of 6% is anticipated by 2021. The most significant growth areas are estimated to be Tweed Shire at 9.8% and Ballina at 7%.



2.2 Waste and Resource Recovery collection and processing systems

Kerbside Collection

The 7 member Councils of North East Waste are progressing towards a consistent 3 bin system for the kerbside collection of household waste.

All Councils operate a fortnightly comingled recycling service for dry recycling, except for Kyogle Shire which has a weekly split bin (waste/recycling) collection. Four Councils offer the larger 360 litre recycling bin to encourage improved diversion, with this now being the standard recycle bin option at Clarence Valley.

An organic collection is available across 5 councils. Ballina, Clarence Valley and Lismore provide a weekly combined food and garden organic (FOGO) service. Those Councils have also implemented a reduced, fortnightly collection schedule for residual waste, to further encourage the diversion of food and garden waste via the weekly organic service. Some Councils also provide as standard, a smaller 140 litre bin for the collection of residual waste.

Richmond Valley and Tweed Shire Councils currently provide a fortnightly garden organic only service but are progressing towards the introduction of a weekly FOGO service in 2014/15. Byron Shire Council is preparing to introduce its first organic (FOGO) service to urban single unit dwellings in 2015.

All North East Waste Councils, with the exception of Kyogle Council which is negotiation with its waste contractor to move to a 2 or 3 bin system in the future, have adopted a 3 bin system which complies with the Australian Standard (AS 4123.7-2006) bin lid colour requirements.

Table 3 Council's domestic waste and recycling collection systems

Council	Residual Waste (red lid)	Recycling (yellow)	Organics (lime green lid)
	Bin Size (litres) & Pick Up		
Ballina Shire	240 L x fortnight	240∞/360 L x fortnight	240 L Food & garden organics x wkly
Byron Shire	80/140∞/240 L x wkly	240 L x fortnight	N/A
Clarence Valley	240 L x fortnight	360 L x fortnight	240 L Food & garden organics x wkly
Kyogle Shire	120 L split bin x wkly	120 split bin x wkly	N/A
Lismore City	140∞/240 L x fortnight	240∞/360 L x fortnight	240 L Food & garden organics x wkly
Richmond Valley	240 L x wkly	240 L x fortnight	240 L Garden organics only x fortnightly
Tweed Shire	80/140∞/240 L x wkly	240∞/360 L x fortnight	240 L Garden organics only x fortnightly #

∞Standard bin size provided # Optional user pays service

Drop Off Services

Each Council provides drop off facilities located at landfill and transfer stations for residents to self haul waste for recovery or disposal. Gate fees apply at all Councils for the drop off of unsorted residual waste for disposal to landfill and for garden organics. Most dry recyclables can be dropped off free at Council facilities, except Ballina where a gate fee applies. The availability of suitable facilities for the collection of household quantities of special waste items, including electronic waste, mercury containing light bulbs, batteries, gas cylinder and oil varies across the region. Details of what is recycled where in the region is available in Table 18 in Appendix 1. The opportunity to improve and expand these facilities through a network of Community Recycling Centres (CRC) is in progress through the availability of Waste Less Recycle More grant funding.

Household Hazardous Waste

The region has Household Hazardous Waste Stores located in four LGA's – Clarence Valley, Lismore, Tweed and Richmond Valley. An annual household chemical clean up day is held in the other LGA's and chemical collection cabinets are being considered in association with the development of CRC's.

Annually Councils collect for disposal approximately 20 tonne of Hazardous waste. The majority of this is water based paints, but a range of more toxic chemicals still present throughout the year.

Other Services

Other waste and resource recovery services available to households across the region include: Tweed Shire's twice yearly kerbside clean up service and a free 'pick up on request' for scrap metal; Lismore City's four annual tip free days; Clarence Valley's annual kerbside clean up for residents; and Byron Shire's bulk waste drop off (1 voucher per household per year).

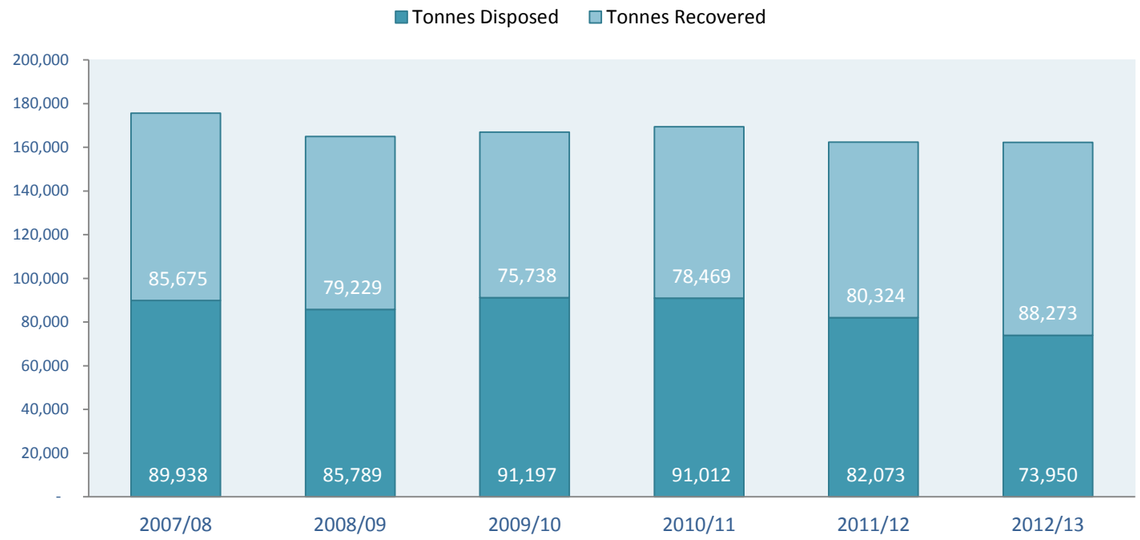
2.3 Waste and resource recovery tonnage data

2.3.1 Total Domestic Waste

In the NE Waste region there has been a reduction in total domestic waste generation from kerbside, clean up and drop off since 2007. During the same period the population has increased by around 2 percent indicating an overall reduction per capita of domestic waste generated.

In 2012/13 waste recovery in the region exceeded the tonnes of waste disposed to landfill for the first time. Four of the seven councils were achieving resource recovery rates of more than 50 percent of all domestic waste. This is a result of a number of improved services across the region including: the introduction of a food and garden organics (FOGO) service in both Ballina Shire and Clarence Valley; a new kerbside recycling service in Kyogle; a garden organic service in Richmond Valley; and the greater availability of drop off services for householders particularly for priority wastes e.g. Ewaste. Extensive education and communication campaigns have supported the successful implementation of these new and improved services. Figure 4 presents the total domestic waste generation and resource recovery in tonnes for the region since 2007.

Figure 4: Total Domestic Waste Generation and Resource Recovery

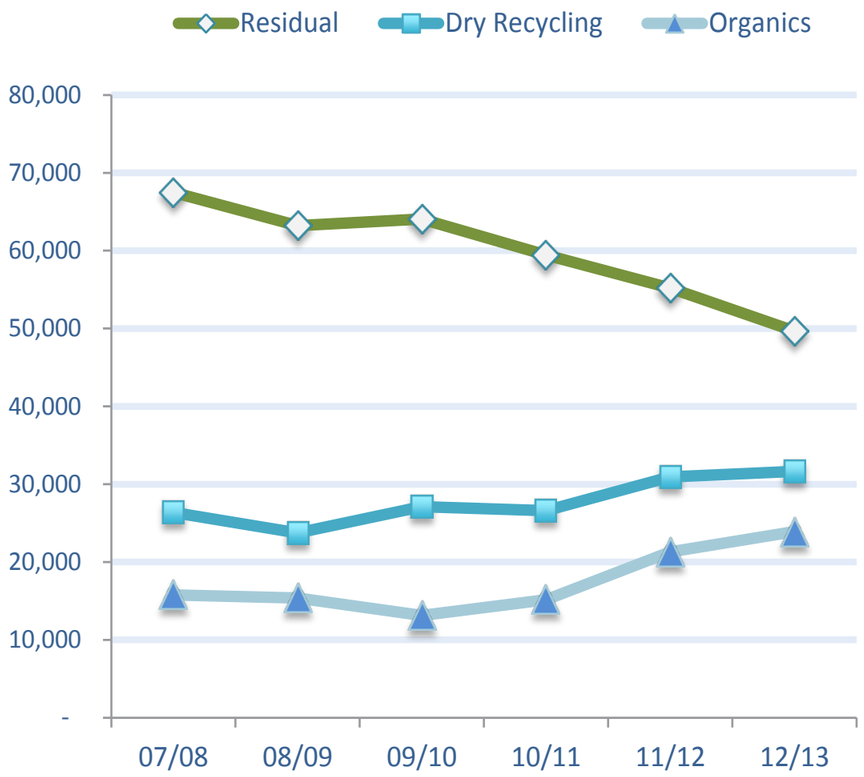


Since 2009 the regional resource recovery rate for domestic waste has increased from 46% to 54% demonstrating an above average performance for the state.

Total Kerbside Domestic Waste

Most domestic waste is collected via Councils kerbside bin services. Overall the total quantity of domestic waste and recycling collected in kerbside bins has been steadily decreasing by about 1 kilogram per household per week each year since 2007. Throughout this period there has been a steady increase in the diversion of both dry recycling and organics with a corresponding reduction in the disposal of waste to landfill via the residual waste bin as shown in Figure 5.

Figure 5: Total Kerbside Domestic Waste Generation



Total Municipal Solid Waste (MSW)

Solid waste from households including kerbside bins, kerbside clean ups and self haul to drop off centres comprises the majority of the MSW stream. However MSW also includes solid waste from local government operations such as waste collected from municipal parks and gardens, street sweepings, events, council engineering works and public council bins.

In 12/13 an estimated 5% of regional MSW was from sources other than households.

2.3.2 Construction & Demolition Waste (C&D)

In 12/13 approximately 26,400 tonnes of C&D waste was received at Council facilities across the region. This is a 20 % reduction in the quantity received in 07/08. This may be a result of a number of factors such as a decrease in construction activity due to economic downturns in recent years or an increasing diversion to the commercial sector for reuse. It may also be as a result of the impact of the section 88 waste levy introduced in 2009.

Incomplete data prevents the estimation of accurate recovery data for C&D at this time. Improved regional reporting and data capture systems are a key objective of this regional waste strategy and will allow future performance to be measured against the WARR Strategy C&D target of 80% recycling by 2021/22.

2.3.3 Commercial & Industrial Waste (C&I)

Reliable data about the commercial sectors waste generation and resource recovery performance is not currently available. This is due to the combined residential and C&I collection services provided by Councils and the existing weighbridge and MRF systems that do not allow accurate data separation for differing waste streams.

C&I data provided by Councils for 12/13 indicated diversion rates of approximately 33%. This is significantly lower than the estimated NSW C&I recycling rate of 57% in 10/11. The WARR Strategy (13-21) target for C&I is 70% by 2021/22.

The OEH Resource Recovery Infrastructure Needs Analysis Background Report (GHD Nov 11) included a review of NSW waste strategies and policies. A key finding indicated that the waste and environment levy is not impacting the C&I sectors as the levy is hidden within waste collection contracts, leading to minimal incentives for source separation.

2.3.4 Illegal Dumping

The incidence of Illegal dumping in the region has grown in recent years, with 403 incidents reported in 2012/13. There is an absence of reliable data on tonnages as collection is often shared across Council departments. This and the under-reporting of small incidences has resulted in poor data capture. The Illegal Dumping project has addressed some of these issues by instigating an online reporting tool and focusing on improving data collection.

2.4 Waste Composition

2.4.1 Kerbside Residual Bin

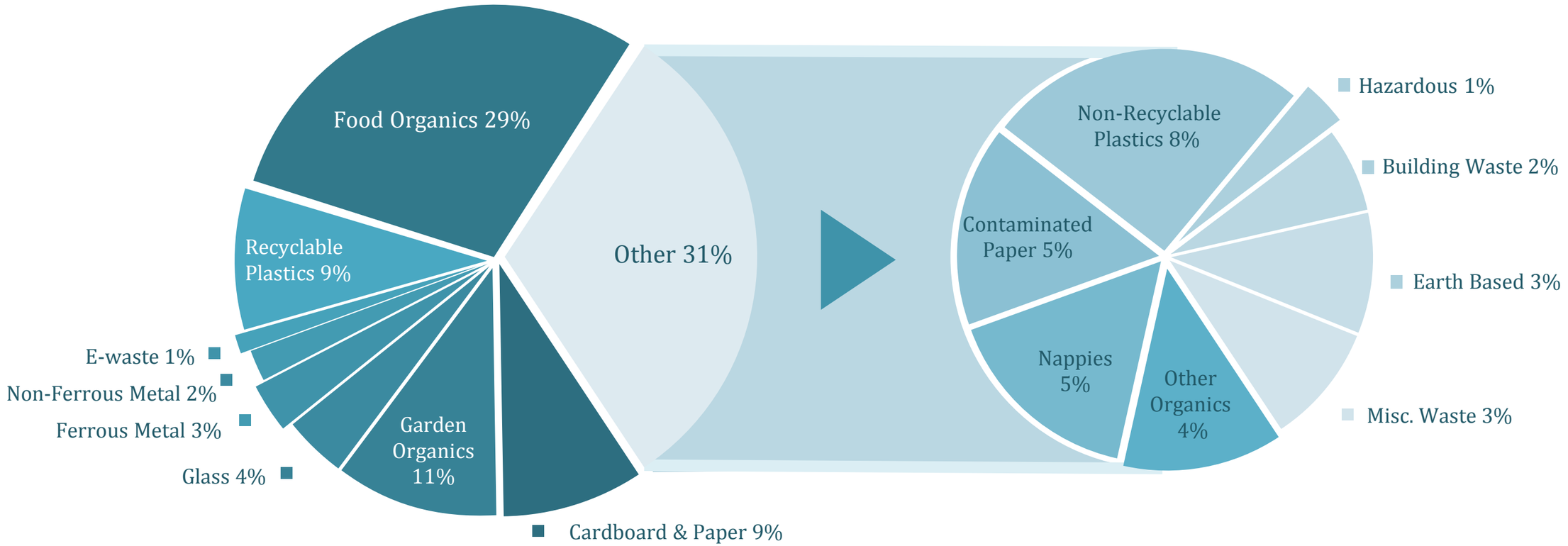
Table 4 shows the amount of residual waste generated per household across the NEW Councils in 2012/13. The amount of potential recycling being disposed to landfill (resource loss) via the kerbside residual bin was estimated from the most recent waste composition audit data for each Council.

Table 4 Kerbside Residual Bin Composition 2012-13

Domestic Kerbside Residual Bin	Council Name							NE Waste Region
	Ballina Shire	Byron Shire	Clarence Valley	Kyogle Shire	Lismore City	Richmond Valley	Tweed Shire	
Yield per household kg/hh/wk	8.05	10.50	6.24	6.66	7.79	10.92	10.01	8.60
Dry Recycling kg/hh/wk	3.35	1.94	1.33	1.79	2.57	2.50	2.42	2.31
Organics kg/hh/wk	3.27	4.74	2.80	2.73	1.62	4.31	5.46	3.52
Total Potential Recycling %	82.3%	63.7%	66.1%	67.8%	53.8%	62.4%	78.8%	67.8%

Figure 6 presents the average residual kerbside bin composition for the NE Waste region in 12/13.

Fig 6. NE Waste Region – Kerbside Residual Bin Composition



In 12/13 the average household residual bin (red lid) contained 8.6kg of waste per week. An estimated 68% of the bin contents were potentially recyclable (as indicated in the larger chart in Fig 6), including 40 percent food and garden organics, 27 percent dry recyclables and 1 percent Ewaste. This equates to an estimated 33,000 tonnes annually, which could potentially be recycled from kerbside bins across the region. Existing kerbside collection services provided by the 7 member councils allow for the diversion of this dry recycling and most of the organic waste. Ewaste however, needs to be self hauled to a Council drop off location to be recycled.

2.4.2 Kerbside Recycling Bin

Table 5 shows the amount of dry recycling per household in each NEW Council in 2012/13 and the level of contamination with residual waste and organics which cannot be recycled via the yellow lidded bin. The average yield per household across the region was 5.61 kg per week with a contamination rate of 4.6%. Only one council had a contamination rate in excess of 5 percent, but still below the 10 percent level required to avoid disposal to landfill.

Table 5 Kerbside Recycling Bin Contamination 2012/13

	Council Name							
	Ballina Shire [a]	Byron Shire [b]	Clarence Valley [a]	Kyogle Shire [a]	Lismore City [b]	Richmond Valley [a]	Tweed Shire [a]	NE Waste Region
Yield per Household kg/hh/wk	5.14	6.42	5.65	6.66	5.25	4.42	5.71	5.61
Contamination kg/hh/wk	0.214	0.499	0.229	0.333	0.127	0.184	0.262	0.264
% Contamination	4.2%	7.8%	4.0%	5.0%	2.4%	4.2%	4.6%	4.6%

Source: a) Local Government Data Returns 11/12 & 12/13
b) Council Waste Composition Audit Reports

2.5 Performance Assessment

This section reviews the performance of different waste collection systems and helps us understand how existing schemes are performing and where there is potential for improvement. The region's performance is measured against a number of indicators including the amount of household waste generated, the percentage recycled and the overall diversion from landfill. This analysis enables the NE Waste region's performance to be compared against other similar councils and regions.

2.5.1 Household Generation

Household waste generation has been steadily reducing since 2007. In 12/13 households across the region generated less than 9kgs of residual waste per week on average. The dry recycling rate at 5.6kgs continues to remain similar to previous years. The organics yield per household has reduced slightly each year from 07/08 to 12/13, which may be a result of increased home composting and mulching practices, but is still significantly higher than the 2011/12 Regulated Regional Area (RRA) average of 3.9 kg/hh/wk and the state average of 3.2 kg/hh/wk.

Figure 7 Household Generation

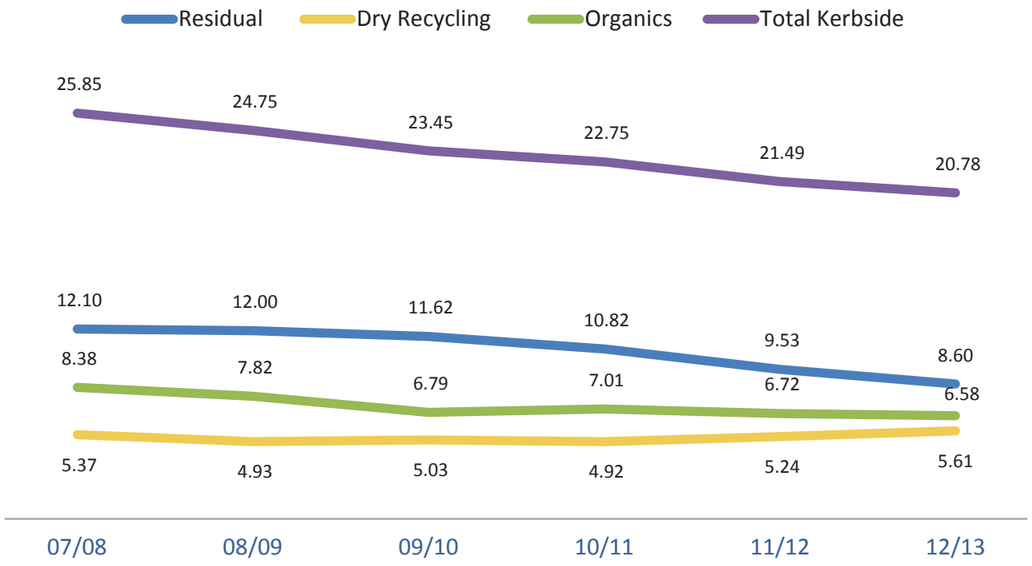


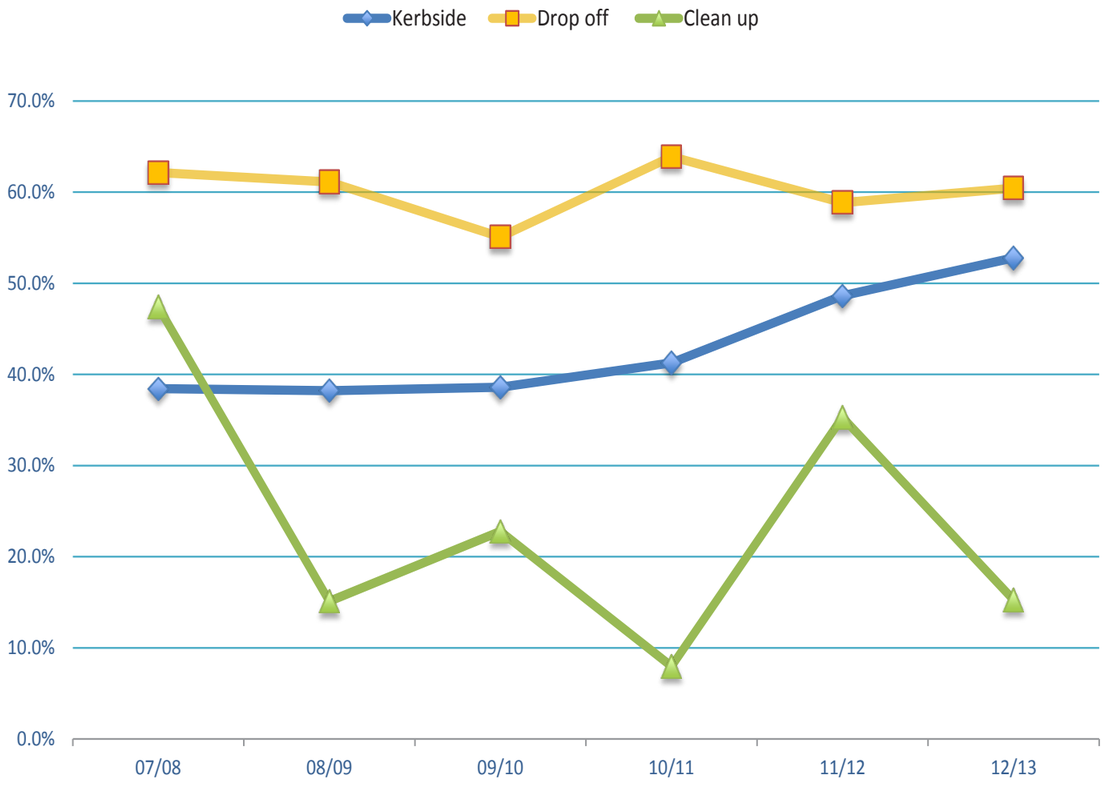
Table 6 NE Waste Councils Generation per Household

Council Name	Yield (kg/hh/wk) 2012/13				Recycling Rate
	Residual to landfill	Dry Recycling	Organics	Total	%
Ballina Shire Council	8.05	5.14	7.4	20.59	61%
Byron Shire Council	10.50	6.42	0	16.92	38%
Clarence Valley Council	6.24	5.65	8.25	20.14	69%
Kyogle Shire Council	6.66	6.66	0	13.32	50%
Lismore City Council	7.79	5.25	8.1	21.14	63%
Richmond Valley Council	10.92	4.42	3.66	19	43%
Tweed Shire Council	10.01	5.71	5.47	21.19	53%
NEW Region 12/13	8.6	5.6	6.6	20.8	59%
NEW Region 11/12	9.5	5.2	6.7	21.4	56%
RRA 11/12	9.1	4.9	3.9	17.9	49%
NSW 11/12	11.3	4.8	3.5	19.6	42%

2.5.2 Domestic Diversion

The total domestic diversion rate for the NE Waste region has been gradually increasing due mainly to improved diversion rates from kerbside bins. Diversion from clean up events has fluctuated broadly due to a variety of factors including the market value of scrap metal, regular changes in the services offered by Councils and incomplete collection data.

Figure 8 Domestic Diversion Rates



There is significant variation in the domestic diversion rates achieved by NE Waste member councils as shown in Table 7 below. This is due primarily to the differences in service availability and supporting infrastructure across the region.

Table 7 Domestic Diversion Rate

Council Name	Domestic Diversion Rate % 2012/13			
	Total Domestic	Total Kerbside	Total Drop Off	Total Clean Up
Ballina Shire	53.1%	58.6%	43.7%	0.0%
Byron Shire	47.2%	38.0%	58.8%	0.0%
Clarence Valley	63.2%	65.1%	62.1%	13.9%
Kyogle Shire	55.9%	50.0%	58.9%	0.0%
Lismore City	70.4%	59.5%	82.5%	73.5%
Richmond Valley	39.7%	42.5%	34.5%	0.0%
Tweed Shire	44.8%	45.7%	56.6%	0.0%
NEW Region 12/13	54.4%	52.5%	60.4%	15.3%
NEW Region 11/12	49.5%	48.6%	58.9%	35.3%
RRA 11/12	49%	54.5%	48.0%	36.9%

Regional diversion targets for domestic waste (Resource Recovery Infrastructure Needs Analysis Report – GHD Nov 11) are estimated to increase to 57% in 2014, 71% in 2017 and 83% in 2021. The NE Waste Councils are already well on target with 54% diversion achieved in 2012/13.

2.6 Waste and resource recovery collection, processing and disposal contracts

2.6.1 Waste Collection

Each Council has its own arrangements in place for waste collection, by contract with a private operator or by an in-house service. All Councils have a kerbside comingled recycling service for residents and commercial premises. Tweed Shire also offers bulk bins and a twice yearly kerbside domestic clean up service. Five Councils provide an organics collection service and those that do not already have an integrated food organic & garden organic (FOGO) service are planning up grades in the next 1 – 2 years. In addition Byron Council is planning to implement a new FOGO service in August 2015.

2.6.2 Waste Processing

There are three Material Recycling Facilities (MRF) in the region. Bryon, Tweed, and Kyogle have contracts with a private operator for processing at the privately operated Chinderah MRF. CVC recyclables are processed at the Grafton MRF, which is situated at the landfill. The new Lismore MRF has a minimum 15,000 tonne per annum capacity and begins processing dry recycling from Lismore, Richmond Valley and Ballina in June 2014, when existing contracts for processing at Visy, Carrara are completed. Lismore's organic recycling facility processes both Ballina and RVC's organic waste, via an open windrow composting system. CVC processes its organics via the In Vessel Composting system at the Grafton MRF site. Tweed's private contractor provides full landfill site management including the collection and processing of garden organics into mulch.

2.6.3 Waste Disposal

Most NE Waste Councils dispose of residual waste at their local licensed landfill facility, with the exception of Ballina, Bryon and Tweed Shire Councils, who currently have contracts with a private operator for disposal of residual waste at landfills in SEQ.

Further details on NE Waste Council collection, processing and disposal contracts is available in Tables 14 –16 in Appendix 1.

2.7 NE Waste Council Waste & Resource Recovery Infrastructure

In 2011 an infrastructure needs analysis identified the Northern Rivers as a high priority for new resource recovery infrastructure. Since that time a number of new facilities have become operational, addressing some of the infrastructure gaps identified. These include a new MRF at Grafton and Lismore, a organic processing facility at Grafton and 2 household hazardous waste sheds at Richmond Valley and in the Tweed Shire. Proposed infrastructure to address future needs and materials accepted at facilities are included in Tables 17 and 18 in Appendix 1.

A summary of existing and proposed infrastructure across the region includes:

Ballina Shire operates a transfer station and tip shop. The landfill is currently closed. Proposed infrastructure includes a pyrolysis plant (25,000 wet t/pa), expected to begin operations in June 2016.

Byron Shire operates a transfer station and tip shop. The landfill is currently closed. Proposed infrastructure includes a new landfill (25,000 t/pa) which is in the planning phase and a Material Resource Recovery Centre (7,500 t/pa) currently under development.

Clarence Valley operates one landfill (50,000 t/pa), a material recovery facility (12,000 t/pa), an organic composting facility (14,000 t/pa), a vehicle depot, a hazardous material store, six transfer stations and a tip shop. Proposed infrastructure includes two Community Drop off Centres.

Kyogle Shire operates two landfills (4,600 t/pa), four transfer stations and a tip shop. Proposed infrastructure includes a Community Drop off Centre.

Lismore City operates one landfill (40,000 t/pa), a vehicle depot, two transfer stations, an organic recycling facility, a new material recycling facility (15,000 t/pa), a hazardous waste store, a tip (Revolve) shop and a recycling drop off centre. Proposed infrastructure includes a dirty MRF, a concrete processing facility and a regional paint and mattress processing facility.

Richmond Valley operates two landfills (33,000 t/pa), four transfer stations, a Front End Resource Recovery Centre (FERRC) and a hazardous waste store. Proposed infrastructure includes a tip shop and a Community Drop off Centre.

Tweed Shire operates one landfill (75,000 t/pa), two transfer stations, a tip shop and a hazardous material store. Proposed infrastructure includes the construction of a new landfill with 2.5 million cubic meters capacity.

2.8 Waste Forecasting and Projections

Figure 9 Total Domestic Waste Generation (tonnes) Forecast to 2021

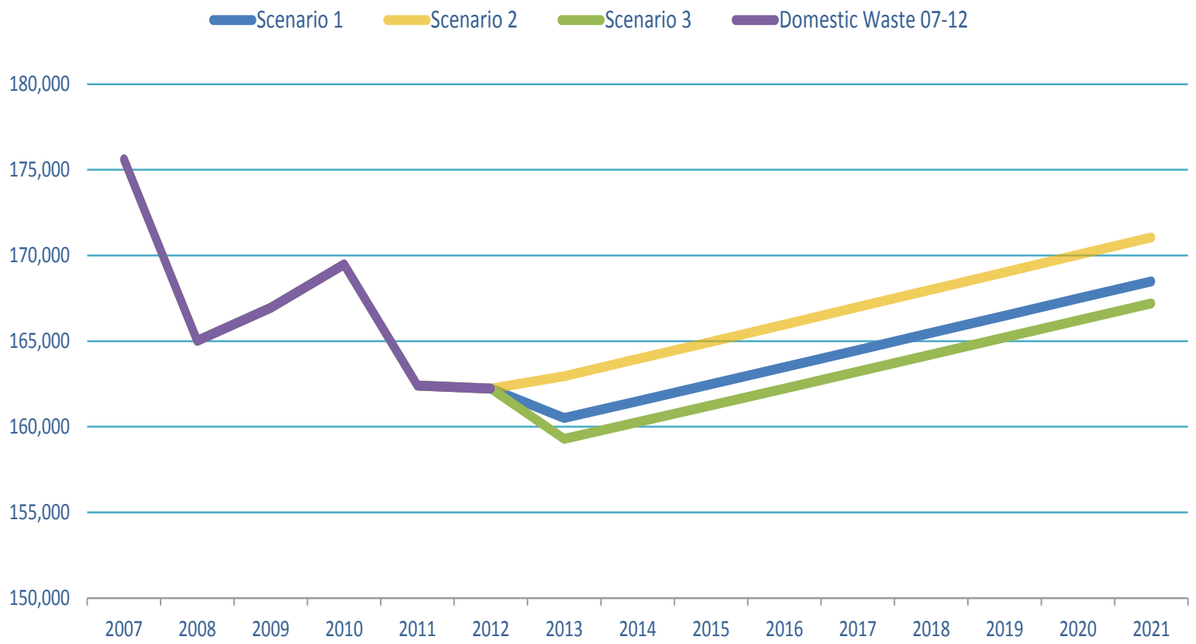


Figure 9 displays a number of waste scenarios based on ABS projected population data and the historical trends of domestic waste generation in the NE Waste region. The regions population is forecast to increase from 287,900 in 2011 to 306,000 in 2021. The scenarios display the possible change in tonnages of domestic waste over time, in line with the predicted population increase and changes in the generation of waste per person.

- Scenario 1 assumes a continuation of the overall trend of a reduction in waste generation of 1.5% per capita in the region.
- Scenario 2 assumes that domestic waste generation remains at the 2012 rate of 0.55 tonnes per year per capita.
- Scenario 3 assumes further improvement to a 2.25% reduction in domestic waste generation per capita, reflecting our aspirational target.

After 2013 all scenarios predict a steady increase in total domestic waste generation until 2021. These predictions could be influenced by a number of factors including the economic climate, behavioural change through education and regulation and natural disaster events.

The above forecasting is limited by the exclusion of commercial and Industrial and construction and demolition waste tonnages. Proposed improvements in data collection and reporting will enable more accurate prediction of waste generation across all waste streams.

2.9 Review of programs, initiatives and community expectations

NE Waste had delivered a broad range of waste education, business and community engagement programs over 17 years. In recent years the group has focused on delivering outcomes in the initiatives tabled below, with their key features and outcomes

Table 8 NE Waste Programs & Initiatives

Project and Initiatives	Features	Outcomes
Administration and Communication	Regular meetings and networking	Monthly meetings with member councils and contractors
	Communications	E-letters and Website providing information and interaction at www.newaste.org.au
	Media	Editorial and advertising to support projects
Regional Waste Strategy	Collaboratively identifying regional objectives and planning actions for implementation	Regional Waste Strategy 2011-15
School and Community Education programs	The Green House education unit	Community events and schools visiting program (> 42 event days pa) directly engaging with approx. 5,000 people/students p.a.
	Love Food Hate Waste Program	Integrated into above GH program, with its own marquee, education resources and performers. Approx. 14 community events p.a.
	Trip to the Tip Schools Program	Experiential learning for K-6 at their local waste facilities. Includes student handbook.
	National recycling week	Media campaign about Council recycling services
	Secondhand Saturday	The biggest garage sale day that involves up to 50,000 people in reuse through holding or visiting garage sales on the day.
	Early Childhood Waste Education Program	From 2007- 2010 reaching more than 50 preschools/early childhood centres. Holistic and integrated approach for centres becoming waste wise.
	High Schools Program	Including Students Using Sustainable Strategies Program (SUSS) run from 2004 – 2012. Waste Audit training with high schools run in conjunction with SUSS and now with Dorroughby EE Centre.

Project and Initiatives	Features	Outcomes
Business Waste Reduction Project	Business engagement and audit project	Actively engaged over 600 businesses since 2005. Stage 1 - audited 40 businesses and provided support to facilitate waste reduction practices. Stage 2 – precinct and sector based approach included 10 business cluster surveys and assessed 490 small businesses over 2 years.
	Waste Warriors project	Stage 3 – Waste Warriors utilises TV, electronic, social and print media, to engage businesses. A case management approach incorporates EPA Bin Trim tool and a detailed action plan to achieve increased diversion through facilitation of recycling partnerships, improved staff training and promotion of business success.
Problem Wastes	Regional contracts for specific problem wastes	Collections for ewaste, compact fluorescent lamps, tyres
Emissions Project	Greenhouse Gas Assessment	GHG assessment and emissions report
Contamination Management Project	Contamination survey	7000 dry recycling and organic bins assessed for contamination management across the region every 2 years with advice and information provided to householders.
Training	Landfill operator, Asbestos identification, Illegal dumping Education and Media training	Training provided for staff from member Councils for professional development on specific areas each year.
Compositional Waste Audits	Assisting Councils to complete physical waste audits	Assisting Councils to complete waste audits in house to EPA standards

Project and Initiatives	Features	Outcomes
Raising awareness of Illegal Dumping	Assist Councils to enforce illegal dumping prevention strategies. Provide a targeted and regionally appropriate marketing and media campaign.	TV, radio, print advertisements and editorial Posters, stickers, brochures, road signage, enforcement tape. Training for council staff in Illegal Dumping enforcement Development of online reporting for Illegal dumping Development of www.illegaldumping.com.au website Support and development of regional projects that focus and support the needs of the 7 local councils in NE Waste
Hazardous Waste Stores and Chemical Cleanout days	Providing stores and cleanout days in Councils without stores	4 regional HHW Stores accepting household waste HCC days each year in 3 council areas
Partnerships	Making links to other agencies and funding bodies	Regular meetings with RENEW NSW Grants funded by Environment Trust include Illegal dumping, ecofriendly youth project, love food hate waste Networks and projects with environmental educators, ROUS water,

2.10 Summary

The NE Waste region has reduced total domestic waste generation and improved recycling and resource recovery through individual council initiatives, ongoing regional collaboration and implementation of the Regional Waste Management Strategy 2011-14. However there is still work to be done to continue improving performance into the future.

At present the NE Waste region faces a number of challenges in waste management that this strategy will address. They include:

- The regions population is predicted to increase by 6% to 306,000 by 2021 and this has implications for waste generation, landfill availability and service provision.
- While all Councils currently have a dry recycling service and most have an organics collection, there is room for further expansion and improvement.
- Significant quantities (68%) of potentially recyclable materials are currently present in the residual waste bin and can be recycled through existing Council services
- Improved infrastructure is required to keep pace with future increases in population and waste generation. Additional landfill capacity is needed to cope with current and future residual waste disposal requirements. To achieve the WARR target of 75% diversion from landfill by 2021, the further expansion and sharing of regional resource recovery facilities is required.
- The lack of data about the commercial sector's waste generation and resource recovery makes planning for the future more difficult. Targets have been set for 70% C&I recovery, yet existing weighbridge systems and MRFs do not allow accurate separation of the data in the MSW and C&I streams.
- Ensuring regional cooperation, maintaing equity and open communication, while addressing the different needs of individual member Councils.

A strategy is required that addresses these challenges and includes a uniform waste management system, enhanced services and drop off facilities and improved infrastructure, supported by a comprehensive education and communication program to maximise business and community engagement. This will contribute to further increasing diversion, alleviating pressure and future expenditure on Council's facilities and improving resource recovery across the region.

3

STRATEGIC DIRECTION

3.1 Vision For The Strategy

Our vision is to achieve more sustainable waste management and better resource recovery in the NE Waste region through a proactive, collaborative approach with our regional member Councils, the NSW EPA and our community.

Through this Strategy we aim to fulfil our objectives and meet targets by:

- Delivering targeted and effective projects that engage and build capacity in our communities to achieve improved waste minimization and management outcomes
- Creating strong Council partnerships that allow collaboration and optimize resource sharing and funding opportunities
- Involving the community through social enterprises and the development of markets in recovered resources
- Adhering to the principles of sustainability, equity and continuous improvement
- Communicating and share our knowledge while striving for leadership and innovation in waste
- Adhering to the principles of sustainability, equity and continuous improvement

3.2 Key Result Areas and Objectives

The area of focus for the strategy and the objectives outlined in the following sections are informed by the analysis of the current situation presented in Section 2. Past experience, strategies and previous studies (summarised in Appendix 2) were also considered in identifying areas that required action. In addition, the current funding opportunities and the strategic aims of State and local Government also contributed.

The refinement of the existing strategic objectives occurred over a period of six month and involved multiple consultations with member Councils (October 13-March14). Initially, objectives and actions from the 2011- 15 Strategic Plan were reviewed for current applicability. Secondly, other State, Federal and local plans and Strategies were considered. A long list of potential objectives was developed and finally this was prioritised to a shorter, more achievable list, presented below.

Key result Area 1: Regional cooperation and communication:

A focus on regional cooperation and communication stems from the benefits gained to date when Councils have collaborated, exchanging information or sharing facilities and services. The first objective in this area is driven by the potential benefits from economies of scale, diminishing landfill options and the desire to establish a regional or subregional facility for residual waste disposal.

The need to improve data collection was highlighted in the gaps in information from previous reporting and the data requirements of this strategy. It is envisaged that targets will be easier to set and forecasting more accurate once data collection improves.

Objectives		Targets	
1.1	To identify, implement and support regional solutions to manage residual waste, recycling and organics processing	**1.1.1**	Research to investigate the feasibility of regional solutions and have solutions or facilities to manage all waste streams by 2020 A number of shared facilities or contracts
1.2	Improve regional reporting and data capture	**1.2.1**	A improved reporting system and data capture in place by 2015
1.3	Improve NE Waste operation and communication	**1.3.1**	Regular meetings and increase in communication across and within Council

Performance Measures

- Investigation or reports complete
- Number of shared facilities and contracts
- Comprehensive data collection and regular and accurate reporting
- Reviewed operational procedures and agreements
- Participation in Council meetings

Key result Area 2: Waste generation:

The need to reduce the amount of waste generated in the region is made evident by the predicted increase in population and the corresponding increase in waste generation. It will also limit the need for additional landfill and processing capacity. NE Waste will continue to successfully deliver a suite of campaigns, programs and projects to raise awareness in the community about waste minimisation and avoidance.

Objectives		Targets	
2.1	Reduce waste generation by encouraging waste avoidance through a targeted communication and engagement strategy	2.1.1	An effective community engagement strategy and waste/sustainability education initiatives and facilities across the region A reduction in waste generation per capita by 2021 Increased engagement of the business and broader community in waste reduction programs

Performance Measures

- % reduction in waste generation per capita
- number of waste education initiatives and facilities
- number of participants in waste reduction programs

Key result Area 3: Resource recovery

The need to improve recycling and resource recovery is a strategic direction in most waste strategies. It is made evident in our region by compositional waste audits, where there is a continuing loss of large quantities of potentially recyclable materials via the residual waste bin, despite the continuing improvement in the kerbside recycling rate.

The need to encourage source separation and the uptake of recycling services in the commercial sector is considered a priority to meet targets set in the strategy and reduce the need for mixed waste processing into the future. Improved data collection regarding resource recovery from this sector would assist in future planning.

Objectives		Targets	
3.1	Increase recycling rates to meet NSW EPA WARR Strategy targets		Increase in recycling rate to 70% for MSW and C&I and 80% for C&D
		3.1.1	Reduction in contamination rates in the recycling stream
			Increase participation rates and services for recycling and organics
3.2	Increase resource recovery by sharing facilities, improving engagement and collection	**3.2.1**	Increase the options and opportunities for shared resource recovery in MSW,C&I and C&D
		3.2.1	A uniform 3 bin system that includes food waste
			Extend the reach of resource recovery education and community engagement programs

Performance measures

- Change in recycling rate
- Proportion of recycling in the residual waste stream
- Household participation in recycling
- Number of businesses with a recycling/organics service
- Number of reuse shops and education initiatives targeting recycling
- Number of shared facilities for resource recovery
- The reach of resource recovery education and community engagement programs

Key result Area 4: Landfill diversion

The limited landfill capacity of several member Councils requires actions that divert the volumes of waste currently disposed to landfill. Increasing recycling and processing organics will save landfill space and diversion will reduce the impact of the waste levy on Council's resources. Landfill diversion will also minimise impacts on public health and the environment including reducing greenhouse gas emissions, odour, dust, noise nuisance and litter from Council's waste management activities.

Objectives		Targets	
4.1	Increase diversion rates from landfill	4.1.1	Increase diversion rate to 75% by 20-21
		4.1.2	Expand programs and projects that reduce waste generation and improve recycling
		4.1.3	Identify a range of individual or shared options to divert or recover waste destined for landfill

Performance measures

- Changes in diversion rate
- Completed review of infrastructure needs
- Range and number of options for diversion
- Number of waste diversion programs delivered

Key result Area 5: Problem Wastes

Large volumes of problem wastes are collected at present, however the existing system is not comprehensive or streamlined and as a consequence many items are still disposed of via the residual waste stream. CRC's will provide an opportunity to assist in a more comprehensive, accessible and uniform system of collection across our region to address current issues of limited sites, nonconforming receptacles, inconsistent and unclear signage and poor access and storage.

Objectives		Targets	
5.1	Reduce problem wastes to landfill by providing facilities and programs for managing household problem wastes	**5.1.1**	15% decrease in the disposal of problem wastes to landfill
			Extend the reach of problem waste education and community engagement programs
5.2	Seek opportunities for resource recovery of problem wastes	**5.2.1**	Established social enterprise or alternative to deal with mattresses, paints and other problem wastes
5.3	Manage Asbestos Waste	**5.3.1**	Policy and procedures for the safe handling of asbestos
			Increase participation in safe handling and disposal of asbestos

Performance Waste

- % of problem wastes in the residual waste stream
- an enterprise managing mattresses, paints and other problem waste
- number of community recycling centres and other facilities operating
- Number of Councils with policy and procedures for managing asbestos
- Number of participants in householder asbestos disposal scheme

Key result Area 6: Illegal Dumping and Litter

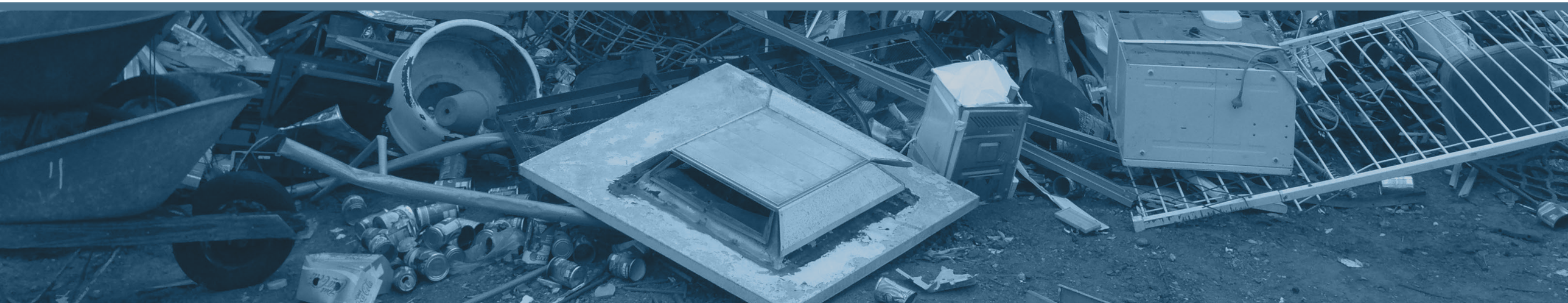
The increasing incidence of illegal dumping and the lack of a coherent reporting system make this a priority area and will be addressed through the continuation of the Illegal Dumping project. The lack of projects targeting litter in the past and the new opportunity to access resources to tackle litter and raise awareness make this a suitable area for focus.

Objectives		Targets	
6.1	Combat Illegal dumping and establish baseline data	6.1.1	Increase awareness and collect baseline data on illegal dumping
			Reduce incidence of illegal dumping
6.2	Encourage litter reduction in target audiences	6.2.1	Increased awareness and reduced litter

Performance measures

- Number of incident s of Illegal Dumping
- Number of reports of Illegal Dumping
- Quantity of litter

All key result areas focus on specific waste management issues and to achieve their objectives requires the support of a comprehensive communication and engagement strategy.



3.3 Member Council Strategy

This strategy also needs to reflect the individual strategies that guide each member Council. A brief summary of the relevant components of their community or waste strategies that align to this strategy's objectives are highlighted below.

Table 9 - NE Waste Council Strategies

Council	Summary of individual Councils waste strategy objectives
Ballina	The overall objective is to consider the management options for Ballina following consideration of the core waste management activities undertaken by Council and the waste management issues facing the Shire into the future. The actions will focus on waste collection, recyclables, organics and residual waste. Supportive Policy and Education are also key focus areas
Byron	The Strategy is consistent with the WARR strategy and its high level objectives are centred around Resource Conservation, Resource Recovery, Resource Depletion and Environmental Conservation The high level targets include: • Hold total waste disposal to landfill to 2010/11 levels • Increase recovery and utilisation of materials from municipal sector from 40% (2011/12) to 66% in 2014
CVC	This Strategy aims to standardise waste management practices across the Clarence Valley and to advance resource recovery goals. It explores issues of equity and access to services and importantly addresses ways of ensuring the delivery of solid waste services addresses the principles detailed in the Clarence Valley Sustainability Initiative.
Kyogle	**In development**
Lismore	The main focus areas of the strategy are: • Review of current activities and areas for improvement, including collection, education and public interaction • Development of new avenues for waste diversion, including glass crushing and waste sorting activities • Improving and expansion of organic processing facilities (including biosolids) to cope with changes to current contract arrangements and future regional needs • Development of a new landfill cell for residual waste • Capping of old landfill cells using non-conventional methods • Investigation of future alternatives for disposal of the remaining waste.
RVC	The Richmond valley Community plan includes aims to: • Facilitate and encourage community clean up days such as Clean up Australia Day • Provide adequate resources to respond to waste incidents appropriately • Provide programs and initiatives to encourage and support businesses within Richmond Valley Council to improve their waste production handling and disposal facilities • A reduction in waste generation
Tweed	The draft Strategy actions include: • Provide waste and recycling collection mechanisms to improve resource recovery • Provide infrastructure to appropriately manage waste and improve resource recovery • Provide strategic direction to improve resource recovery

All member Council strategies available are in line with the fundamental objectives of the NE waste Strategy. If Council waste strategies are reviewed before 2021 their new objectives will be tested against this strategy for compatibility.

4

IMPLEMENTATION

The development of a full range of potential delivery mechanisms (actions) for the new strategy was completed in consultation with Councils. Final options for implementation of objectives were assessed and prioritised in a series of meetings before a Multi Criteria analysis was used to prioritise each action. Each Council received the list of actions and a series of criteria for evaluation.

The criteria used to evaluate each proposed action were:

- Affordability
- Impact
- Likelihood to proceed
- and Sustainability

The Actions listed in the table 10 are the final outcome of this appraisal.

4.1 Action Plan

Who: *NC= North East Waste Councils, C=Coordinator, EC= Education Coordinator, BC= Business Coordinator, IDC = Illegal Dumping Coordinator
When (planning horizon): S: 2017, M:2019 L:2021 O: ongoing

Table 10 Strategy Implementation

Objective	ACTIONS	Activities	When / Who
1.1 To identify, implement and support regional solutions to manage residual waste, recycling and organics processing	• Investigate feasibility and potential partnerships/joint ventures for infrastructure and waste management projects • Explore regional contracts that benefit through economies of scale	• Catalogue existing shared arrangements • Research grant opportunities and potential social enterprises • Review regional contracts at July meeting 2014 • Identify waste flows from the C&I sector through the business project, Councils and networks for industrial ecology grant (TBC)	M - L NC C, BC
	• Monitor processing and landfill capacity and constraints • Assess opportunities for sharing resources	• Update infrastructure inventory and landfill capacity and constraint data • Discuss opportunities at 1/4ly meeting	O NC, C
1.2 Improve regional reporting and data capture	• Streamline and improve data capture & reporting methods • Monitor and evaluate existing programs	• Develop a new data collection template that is comprehensive and uniform across all member Councils • Collect quarterly reports from project coordinators	S NC, C
1.3 Improving NE Waste operations and communications	• Undertake regular meetings • Review MOU • Increase communication within and between Councils, the public, groups and agencies	• Create meeting schedule each July • Improve information flow to public and other parts of Council • Report meeting minutes and progress	O NC, C, EC, BC, ID

Objective	ACTIONS	Activities	Who/when
2.1 Reduce waste generation by encouraging waste avoidance through a targeted communication and engagement strategy	• Deliver the regional education program to encourage the adoption of waste avoidance and reuse practices to target audiences in member Council areas.	• Regional program with The Greenhouse mobile education unit for community and schools • LFHW program delivery	O EC, WEO
	• Support the development of sustainability/waste education initiatives and facilities	• Look for grant opportunities for education centres • Support waste educators from Councils	M-L NC, C, EC, WEO
	• Continue to engage business to improve waste management practices and minimise generation	• BAS and Waste Warriors • Develop and improve relationships to work with EDU and other business sectors in Councils	O BC, NC

Objective	ACTIONS	Activities	Who/ when
3.1 Increase recycling rates to meet NSW targets	• Design and develop projects and education campaigns to increase recycling and resource recovery • Promote reuse enterprise and expand reuse shops	• Determine programs for 2014-17 • Review programs from other areas • Assess current reuse shop performance and identify areas for improvement • Media promotion of reuse (SHS)	O NC, C, EC
3.2 Increase resource recovery by sharing facilities and improving collection services and education	• Improve food waste diversion & comingled dry recycling diversion in residual waste	• LFHW and WW campaigns • National recycling week	M_L, NC
	• Investigate infrastructure options and funding opportunities for C&I and C&D waste streams	• Update infrastructure inventory and review at meetings • Look at funding for Round 2 grants	S_M NC, C
	• Promote a uniform 3 bin systems that includes food waste recovery and more volume options	• Investigate Grant opportunities for FOGO collection, 360 litre recycling	S_M NC
	• Increase the accessibility to and range of services for C&I and encourage more businesses to take up the service.	• BAS project • Work to streamline process for up taking a commercial service where it's a barrier • Review Councils process for landlord service requirements	M BC, NC

Objective	ACTIONS	Activities	Who when
4.1 Increase diversion rates from landfill	Investigate opportunities and review infrastructure needs for regional facilities to use, divert or recover waste destined for landfill from the residual waste stream	Continue to assess opportunities and investigate technologies that divert recoverable materials from the MSW,C&I and C&D stream	**O**
	Deliver Education and communication activities that prevent contamination and encourage recycling, source separation and avoidance	• Deliver National Recycling week, Second hand Saturday, Contamination Management Program, LFHW, Litter project, Community Recycling Centres, HHW stores and Chemical cleanouts	**O** EC, C, BC

Objective	ACTIONS	Activities	Who when
5.1 Establish or upgrade facilities/programs for managing household problem wastes	• Construct facilities and plan services for problem wastes in each LGA • Hold HCC days • Educate the community about problem wastes, avoidance and disposal	• Ensure Community recycling centres at Grafton, Maclean, casino, Lismore and Kyogle are on track and reports completed to EPA • Apply for funding and hold household chemical cleanout days in Ballina, Byron, Tweed • Develop an education campaign for CRC's	**S** NC, C TBC
5.2 Investigate opportunities for resource recovery and raise awareness of problem waste streams	Investigate and develop opportunities to do joint ventures/ social enterprises for on-standard problem wastes such as mattress and paints	• Review other enterprises that have developed recycling facilities for problem wastes • Undertake a CBA and look for funding opportunities	NC, EC, C **S - M**
5.3 Manage asbestos wastes	Develop procedures, policy and education for the safe handling of asbestos	• Establish where each Council is in regard to policy and procedures and share information • Assist Councils to develop policy	**M** NC, C

Objective	ACTIONS	Activities	Who when
6.1 Combat Illegal dumping and establish baseline data	Deliver an ID project to engage the region	Continue to deliver the Illegal Dumping project, incorporating camera surveillance and a new education campaign to engage the public	**S_M** IDC, NC
6.2 Encourage litter reduction in target audiences	Investigate opportunities to reduce litter through appropriate levels of infra-structure, education and signage	• Implement litter project if funding secured. • Develop litter education resources if funding not secured	**S** NC, ID, C

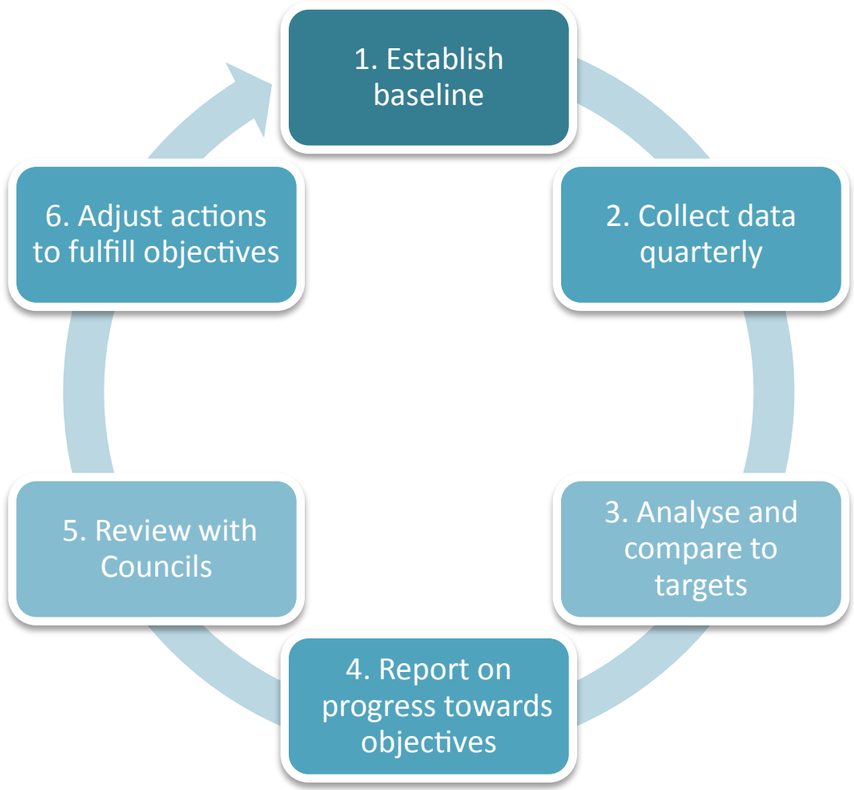
5

MONITORING AND EVALUATION

The Action Plan above forms the first step in implementing the objectives of our Strategy. It is intended to be a working document that will be updated annually as its progress against the key performance indicators are evaluated. In the interim, at quarterly meetings, the actions will be scrutinised as part of an ongoing monitoring plan to strengthen the strategy's implementation. A monitoring process will provide an opportunity to measure progress towards targets, check against original objectives and determine if our actions are on schedule. In this way, our implementation plan will be kept at the forefront of the groups discussions, providing a mechanism for the review of our objectives. It will also mean early identification of barriers to implementation and allow for the adjustment of future actions if required.

Approach to monitoring and data management

A schedule to collect the data required to assess the effectiveness of the actions in progressing the Strategy will be developed at the adoption of the Strategy in 2014. All member Councils and coordinators will contribute to the provision and collation of data, and the coordinator will be responsible for submitting the progress report to the NSW EPA.



APPENDIX 1 Supporting Tables

Table 11 Kerbside Residual Waste Bin Composition 2011/12

	Council Name							NE Waste Region	RRA
	Ballina Shire	Byron Shire	Clarence Valley	Kyogle Shire	Lismore City	Richmond Valley	Tweed Shire		
Yield per Household kg/hh/wk	8.10	10.40	10.80	11.10	6.40	13.20	9.90	9.50	9.92
Per Capita kg/ca/wk	3.30	4.50	4.40	2.40	2.60	3.90	3.80	3.70	3.90
Total Paper	19.72%	15.40%	20.70%	N/A	20.96%	18.48%	18.37%	19.27%	17.45%
Food Organics	23.10%	29.80%	28.89%	N/A	18.36%	35.09%	39.05%	30.83%	30.19%
Garden & Other Organics	17.50%	19.40%	10.11%	N/A	16.22%	12.07%	12.36%	13.55%	23.16%
Total Plastics	17.46%	13.40%	20.07%	N/A	19.38%	17.45%	14.99%	17.27%	10.97%
Potential Dry Recycling kg/hh/wk	3.37	1.93	2.29	N/A	2.11	3.02	2.39	2.53	2.38
Potential Organics kg/hh/wk	3.29	4.70	4.84	N/A	1.33	5.21	5.40	3.64	4.18
Total Potential Recycling %	82.3%	63.7%	66.1%	Unknown	53.8%	62.4%	78.8%	65.0%	66.0%

Table 12 Household Generation

Council Name	Yield (kg/hh/wk) 2011/12				Recycling Rate %
	Residual to landfill	Dry Recycling	Organics	Total	
Ballina Shire Council	8.1	5.2	8.1	21.4	62%
Byron Shire Council	10.4	5.1	NA	15.5	33%
Clarence Valley Council	10.8	3.6	6.3	20.7	48%
Kyogle Shire Council	11.1	4.8	NA	15.9	30%
Lismore City Council	6.4	5.4	6.7	18.5	65%
Richmond Valley Council	13.2	7.4	NA	20.6	36%
Tweed Shire Council	9.9	5.9	6.0	21.8	55%
NEW Region 11/12	**9.5**	**5.2**	**6.7**	**21.4**	**56%**
RRA 11/12	9.1	4.9	3.9	17.9	49%

Table 13 Domestic Diversion

Council Name	Domestic Diversion Rate % 2011/12			
	Total Domestic	Total Kerbside	Total Drop Off	Total Clean Up
Ballina Shire Council	57.6%	59.6%	74.3%	0.0%
Byron Shire Council	46.9%	32.9%	66.6%	23.3%
Clarence Valley Council	43.8%	44.1%	47.6%	15.8%
Kyogle Shire Council	12.0%	30.1%	0.0%	0.0%
Lismore City Council	67.1%	62.4%	81.1%	81.8%
Richmond Valley Council	39.9%	36.0%	55.4%	0.0%
Tweed Shire Council	46.2%	47.8%	47.3%	27.8%
NEW Region 11/12	**49.5%**	**48.6%**	**58.9%**	**35.3%**
RRA 11/12	49%	54.5%	48.0%	36.9%

Table 14

Waste & Resource Recovery Collection

Council Name	Waste Collection Contract details						
	Services Covered	Service Provider	Material Collected	Contract Duration	Contract Expiry date	Min/Max tonnages/yr	Specific conditions
Ballina Shire	Domestic Residual	Ballina Shire Council	Non recyclable waste	N/A	N/A		
	Domestic recycling	Ballina Shire Council	Comingled recycling	N/A	N/A		
	Domestic Organic	Solo	Food & garden organics	7 YEARS X 2	2018	5,700 t AVERAGE	NIL
	Commercial services	As for domestic	All of above	As for domestic	As for domestic		
Byron Shire	Domestic Residual	Solo	Mixed putrescibles Mixed putrescibles	7 yrs	31 August 2015		
	Domestic recycling	Solo	Comingled recycling	7 yrs	31 August 2015		
	Commercial services	Solo	All of above	As for domestic	As for domestic		
Clarence Valley	Domestic Residual	JR Richards	Non recyclable waste	10 year	30 June 2022		
	Domestic Recycling	JR Richards	Co mingled recyclables	10 year	30 June 2022		
	Domestic Organics	JR Richards	Food & garden waste	10 year	30 June 2022		
	Commercial Services	JR Richards	All of the above	10 year	30 June 2022		
Kyogle Shire	Domestic Residual	Solo	Mixed putrescible	6 years	2016	3600	
	Domestic Recycling	Solo	Comingled recycling	6 years	2016	2300	
	Commercial Services	Solo	As above	6 years	2016	600	
Lismore City	Domestic Residual	Lismore Council	Non recyclable waste	N/A	N/A		
	Domestic Recycling	Lismore Council	Co mingled recyclables	N/A	N/A		
	Domestic Organics	Lismore Council	Food & garden waste	N/A	N/A		
	Commercial Services	Lismore Council	All of the above	N/A	N/A		
Richmond Valley	Domestic Residual	RVC	Mixed putrescible	N/A	N/A	4155	
	Domestic Recycling	RVC	Comingled recycling	N/A	N/A	1682	
	Domestic Organics	RVC	Garden organics	N/A	N/A	1442	
	Commercial Services	RVC	Residual & recycling	N/A	N/A		
Tweed Shire	Domestic Residual	Solo	Mixed putrescibles	7 yr	Nov 2016	35,000 lifts per wk	
	Domestic Recycling	Solo	Comingled recycling	7 yr	Nov 2016	17,500 lifts per wk	Inc processing
	Domestic Organics	Solo	Garden organics	7 yr	Nov 2016	14,734 per fortnight	
	Commercial Services (TBC)	Solo	All of above			Bulk bin services also available for domestic & commercial	
	Kerbside clean up	Solo	General household items	7 yr	Nov 2016	2x annual residential	

Table 15

Waste Processing

Council Name	Waste Processing Contract details						
	Services Covered	Service Provider	Material Processed	Contract Duration	Contract Expiry date	Min/Max tonnages/yr	Specific conditions
Ballina Shire Council	Co-mingled Recyclables	Lismore City Council MRF	Comingled recycling	N/A	N/A	4,500 t	Begins Jun 14
	Organics Processing	Lismore City Council ORF	FOGO	N/A	N/A	5,500 t	
Byron Shire Council	Co-mingled Recyclables	Solo, Chinderah MRF	Comingled recycling	7 yrs	31 August 2015		includes collection
Clarence Valley Council	Co-mingled Recyclables	JR Richards, Grafton MRF	Co-mingled recyclables	10 year	30 June 2022		
	Organic Processing	JR Richards, Grafton MRF	FOGO	10 year	30 June 2022		
Kyogle Shire Council	Co-mingled Recyclables	Solo, Chinderah MRF	Comingled recycling	6 years	2016	2300	Includes collection
Lismore City Council	Co-mingled recycling	Lismore City Council MRF	Comingled recycling	N/A	N/A		Begins operating Jun 14
	Organics & green waste Shredding	Mulching Matters	Garden waste		Jan 2014		New tender to be confirmed Jun 14
Richmond Valley Council	Co mingle Recycling	Lismore City Council MRF	Comingled Recycling	N/A	N/A	1682	Begins operating Jun 14
	Organic Processing	Lismore City Council, ORF	Garden organics	N/A	N/A	1442	
Tweed Shire Council	Landfill site management	Solo	Full site management	1 yr + 1	Jan 2015 + 1	NA	Not weighbridge
	Organics processing	Solo	Garden organics	1 yr + 1	Jan 2015 + 1	8 – 10,000	Process & remove
	Comingled Recycling	Solo, Chinderah MRF	Comingled recycling	7 yr	Nov 2016	17,500 lifts per wk	Includes collection

Table 16 Waste Disposal

Council Name	Waste Disposal Contract details							
	Services Covered	Service Provider	Material Disposed	Contract Duration	Contract Expiry date	Min/Max tonnages/yr	Landfill Void Space	Specific conditions
Ballina Shire Council	Putrescible waste	Veolia & JJ Richards	Mixed putrescible	2 years	2014	15,491	4,585 m^3	Transport & disposal
	C&D waste	Veolia	Inert	2 years	2014	3,988	3,988 m^3	Transport & disposal
Byron Shire Council	Putrescible Waste	Ti Tree Bioenergy Facility	Putrescible waste	5 + 2	Oct 2018 + 2	7,500 – 12,500	Contingency void yet to be calculated	Transport & disposal Landfill in interim closure phase
	Inert Waste	Veolia Environmental Services	Inert Waste	5 + 2	Oct 2018 + 2	5,000 – 7,500	"	Transport &disposal
Clarence Valley Council	Residual waste l	Grafton Regional Landfill (CVC)	Residual Solid Waste	NA	NA	35,000 – 45,000	2.5 M m^3	
Kyogle Shire Council	Residual waste	Kyogle Landfill	Mixed putrescible	N/A	N/A		385,000 m^3	
Lismore City Council	Residual Waste	Lismore RRC	Residual solid waste	NA	NA	40,000		
Richmond Valley Council	Residual Waste	RVC Namoona	Solid Waste	N/A	N/A	24,000 – 28,000	30 yrs approx	
	Residual Waste	RVC Bora Ridge	Solid Waste	N/A	N/A	3,500 -5,000 Limit	3-4 year life	
Tweed Shire Council	Putrescible waste	Veolia	Putrescible waste	3 yr	31 Dec 2015	NA	Ti Tree Landfill	
	Non-putrescible waste	Veolia	Inert waste	3 yr	31 Dec 2015	NA	Wattle Glen landfill	

Table 17 NEW Council Waste & Resource Recovery Infrastructure Inventory

	Existing Infrastructure		Planned Infrastructure	
Councils	**Facility**	**Location**	**Facility**	**Comments**
Ballina shire	• Landfill (currently closed) Transfer Station Tip Shop	• Ballina Waste Management Centre (BWMC), 167 Southern Cross Drive, Ballina	• Pyrolysis Plant (BWMC)	• Expected to begin operating Jun 16
Byron Shire	• Landfill (temporarily closed) Tip Shop Transfer Station (no self haul)	• Myocum Resource Recovery Centre (MRRC), 115 The Manse Rd, Myocum	• Quarry landfill (MRRC) • Community Drop off Centre (MRRC)	• In planning phase EIS being finalised • Currently under development
Clarence Valley	• JR Richards vehicle depot • Grafton Landfill Material Recovery Facility (MRF) Organic composting facility (ORF) Hazardous waste store • Grafton Transfer station • Maclean Transfer Station Maclean tip shop • Copmanhurst Transfer Station • Baryulgil Transfer Station • GlenreaghTransfer Station • Tyringham Transfer Station	• Brickworks Ln, Sth Grafton • Grafton Regional Landfill, 704 Armidale Rd, Sth Grafton • Duke St & Kirchner St, Grafton • Paperbark Dr, Townsend • 1868 Clarence Way, Copmanhurst • 7477 Clarence Way, Baryulgil • George St, Glenreagh • Armidale Rd, Tyringham	• Community Drop off Centres: • Maclean Transfer Station • Grafton Regional Landfill	
Kyogle Shire	• Kyogle landfill Kyogle Transfer Station Tip Shop • Woodenbong landfill Woodenbong Transfer Station • Mallanganee Transfer Station • Bonalbo Transfer Station	• Kyogle Waste Management Centre, Runnymede Rd, Kyogle • Woodenbong WMC, Mt Lindsey Highway, Woodenbong • Dump Rd, Mallanganee • Clarence Way, Bonalbo	• Community Drop off Centre: Kyogle Waste Management Centre	

	Existing Infrastructure		Planned Infrastructure	
Councils	**Facility**	**Location**	**Facility**	**Comments**
Lismore City	• Lismore Landfill Vehicle depot Lismore Transfer station Material Recycling Facility (MRF) Organic Recycling Facility (ORF) Hazardous waste store Revolve shop • Recycling drop off centre • Nimbin transfer station	• Lismore Recycling & Recovery Centre(RRC), 313 Wyrallah Road East Lismore • Brewster Street, Lismore • Blade Road, Nimbin	• Community Drop off Centre: Lismore Recycling & Recovery Centre • Regional Dirty MRF • Concrete Processing Facility • Regional Paint & Mattress Processing Facility	• In partnership with community / charities
Richmond Valley	• Nammoona Landfill Nammoona Transfer Station Front End Resource Recovery Centre (FRRC) Hazardous Waste Store • Bora Ridge Landfill Bora Ridge Transfer Station • Evans Head Transfer Station • Rappville Transfer Station	• Dargaville Drive, Casino • Myall Creek Rd, Bora Bridge • Broadwater Rd, Evans Head • Carwong Rd, Rappville	• Tip Shop: Nammoona Landfill • Community Drop off Centre: Nammoona Landfill	
Tweed Shire	• Stotts Creek Landfill Stotts Creek Transfer Station Hazardous Waste Store Tip Shop • Tyalgum Transfer Station	• Leddys Rd, Stotts Creek • Boxsell Rd, Tyalgum	• Stotts Creek Landfill	• Approved to construct new facility with 2.5 million m^3 of capacity

Table 18 What can be recycled

Recycling we can accept	Ballina	Byron	CVC	Kyogle	Lismore	RVC	Tweed
Aluminium cans	✓	✓	✓	✓	✓	✓	✓
Builders Waste	✓	✓	✓	✓	✓	✓	✓
Batteries: Car	✓	✓	✓	✓	✓	✓	✓
Batteries: household					✓	✓	✓
CDs and DVDs					✓		
Chemical drums	✓	✓	✓	✓	✓	✓	✓
Electronic Waste		✓	✓	✓	✓	✓	✓
Fluro light bulbs	✓		✓		✓	✓	✓
Fridges	✓	✓	✓	✓	✓	✓	✓
Garden Waste	✓	✓	✓	✓	✓	✓	✓
Gas bottles	✓	✓	✓	✓	✓	✓	✓
Glass: containers	✓	✓	✓	✓	✓	✓	✓
Mobile phones	✓	✓	✓	✓	✓	✓	✓
Paints and chemicals			✓		✓		✓
Paper/cardboard	✓	✓	✓	✓	✓	✓	✓
Polystyrene					✓		
Plastic Film					✓		
Plastics:Hard	✓	✓	✓	✓	✓	✓	✓
Scrap metals	✓	✓	✓	✓	✓	✓	✓
Oil filters	✓	✓	✓	✓	✓	✓	✓
Prescription glasses					✓		
Steel cans	✓	✓	✓	✓	✓	✓	✓
Tetra paks	✓	✓	✓		✓	✓	✓
Smoke alarms					✓		✓
Tyres	✓	✓	✓	✓	✓	✓	✓
Used engine oil	✓	✓	✓	✓	✓	✓	✓
White goods	✓	✓	✓	✓	✓	✓	✓
Xrays					✓		

Waste we can accept	Ballina	Byron	CVC	Kyogle	Lismore	RVC	Tweed
General waste	Y	Y	Y	Y	Y	Y	Y
Builders waste	Y	Y	Y	Y	Y	Y	Y
Asbestos	NO	Y	Y	NO	Y	Y	Y

APPENDIX 2
NE Waste Regional Report Summaries

1. RWMG Waste Disposal Strategy
(Hyder Consulting Pty Ltd, Aug 12)

Hyder have been commissioned to develop a Regional Waste Disposal Strategy to identify the most efficient and effective disposal options for the NEW region over the short, medium and long-term.

Seven landfill sites across the region are considered as potentially being able to play an increased role in managing the regions' total residual waste stream, in light of increasing disposal costs (largely due to the NSW waste levy) and critical capacity constraints at some existing sites. This project considered relative costs of each site in terms of estimated facility operating costs and estimated costs to transport waste to the relevant sites for disposal.

The headline finding is that the cost of residual waste disposal across the region is estimated at $26 million under Business as Usual (BAU) conditions in 2011–12 and significant savings could be achieved by changing disposal patterns to take better advantage of lower-cost disposal sites. Under the best-performing scenario, savings of $11 million p.a. are estimated. This is a 40% reduction in regional disposal costs compared to BAU.

From 40+ possible scenarios considered, the three which offered the greatest potential to achieve regional savings are summarised in Table 1-1 below. They are in order of preference, based on changes to BAU to increase the utilisation of the sites as regional disposal facilities.

Additional issues for Council consideration, which have not been thoroughly explored within the scope of this current project include:

- Costs of reducing inputs to a landfill - maintenance & rehabilitation, operating a weighbridge even if the site is not used for disposal;
- GHG emissions associated with transport of waste and mitigation at disposal sites;
- Social impacts of a potential increase in the long-haul transport of waste and heavy vehicle movements within the region and / or across the Queensland border.

On the basis of the research and modelling undertaken for this project, the following course of action is recommended for the member councils:

Short-term actions

- The north-eastern councils (Lismore, Byron, Ballina and Tweed) consider transferring residual waste to SEQ for disposal while preserving existing void space for emergency / future use
- The remaining councils (Clarence, Richmond and Kyogle) continue on a BAU basis
- Further investigate a regional disposal facility at Kyogle and/or Bora Ridge as an alternative to SEQ in case of future changes to disposal costs.

Medium-term actions

- All councils continue to consider the use of SEQ disposal options
- Prepare Kyogle facility for potential increased tonnage if SEQ disposal becomes less viable in the medium term with short-term use of RVC or CVC landfills as a contingency if Kyogle is unavailable;
- Noting Kyogle may only provide 10 years' capacity if accepting regional tonnage volumes, necessitating development of a new regional landfill at Bora Ridge;
- Investigate co-development of advanced resource recovery infrastructure at Bora Ridge.

Long-term actions

- All councils continue to consider the use of SEQ disposal options
- A regional facility at Bora Ridge would provide a long-term (35-40 yr) regional disposal solution and much longer if resource recovery infrastructure was developed at the site.

Table 1-1 Summary of key issues associated with the shortlisted waste disposal options

Scenario Description	Average cost ($/t) & Timeline	Barriers/Issues/Comments
South East Queensland North-eastern councils (Lismore, Byron, Ballina and Tweed) transfer waste to SEQ, while CVC, RVC & Kyogle continue to use their own landfills.	$90/t (includes transport, disposal & carbon impacts) There is assumed to be no physical constraint on disposal capacity in SEQ over the timelines considered.	multiple well run, low cost, high capacity disposal facilities available to accept waste with minimal notice; uncertainty of future costs due to potential for introduction of a Qld landfill levy; potential for the NSW EPA to find an alternative way to recover the levy within the RRA; therefore, SEQ may only be a viable short to medium term solution.
Kyogle Regional Landfill A regional facility at Kyogle to be used by all councils except Clarence	$111/t (includes transport, disposal but excludes carbon impacts) Based on the assumption the full 1.4 million m3 of physical capacity is approved and developed, the site could handle current regional disposal volumes (approx 130k tpa), excluding Clarence, for around 10 years.	Kyogle landfill currently handles a low annual tonnage; development as a regional facility would require major changes including increased void space, weighbridge & other infrastructure & operational equipment; modifications to existing approvals may be difficult to secure; therefore Kyogle may not be viable in the short-term but may be a relatively low cost medium term regional disposal option.
Bora Ridge Regional Landfill A new regional facility located at Bora Ridge (RVC) to be used by all councils except Clarence.	$117/t (includes transport, disposal but excludes carbon impacts) Based on the assumption that 5.5 m m3 of capacity is approved and developed, the site could handle current regional disposal volumes (approx 130k tpa) excluding Clarence for around 35-40 years	Development of a regional landfill at Bora Ridge has been previously considered; a timeline of 7 yrs could be expected ; sufficient future feedstock would need to be guaranteed to warrant development; Bora Ridge could potentially be a relatively central and low-cost, long-term regional disposal solution.

2. NE Waste Members AWT Situational Analysis

(Hyder Consulting Pty Ltd, Aug 13)

The purpose of this report is to explore options for the seven member councils of North East Waste (NEW) to increase the recovery of resources from the domestic waste stream through the use of Advanced Waste Technologies (AWTs) and to determine if these systems present a cost effective opportunity for the region.

The current frontier in the expansion of resource recovery systems is the capture and reuse of food organics (FO), which make up around 50% by weight of the household residual waste stream. This makes food waste a prime target in efforts to divert waste. Best diversion options include introducing food waste collections (source separation), and developing AWT facilities to recover food and other organics from mixed residual wastes.

This Situational Analysis of AWTs is based on an assessment of waste streams and other relevant settings within each of the NEW councils, as well as a range of modelling assumptions and general AWT characteristics. Additional factors, which have not been fully considered and would need to be taken into account prior to Council decisions around infrastructure investment include:

- Differing levels of technology risk associated with the various AWTs;
- Market demand for the potential products of the various AWTs;
- Environmental impacts, such as net greenhouse emissions.

A conservative approach has been taken in estimating gate-fees and diversion rates due to limited experience and uncertainty regarding development and operation of AWT's and Energy from Waste (EfW) technologies particularly in an Australian regional context. A summary of general regional conclusions include:

- Regional collaboration is required for sufficient feedstock to justify an AWT facility for processing residual waste;
- Investment in a regional AWT for residual waste is not immediately commercially attractive, especially while member councils have access to low-cost disposal sites in SEQ;
- Over the modelling period considered (2015–2030) a broader range of AWTs (including EfW options) are likely to become available, which are likely to offer a higher diversion rate, so reducing disposal costs;
- In-Vessel Composting (IVC) offers the same diversion performance at a lower cost than other 44higher order technologies for processing source separated organics for the sake of landfill diversion;
- Applied across the region, the combination of IVC for source separated food and garden organics with an energy-from-waste technology for residuals is expected to result in landfill diversion rates in the order of 80-90% for the MSW stream, with estimated system cost ranging from 6% below to 19% above business as usual over the 15 year period (2015-2030) considered in this report.

On the basis of the information and results presented (and noting limitations) in this report, the following key recommendations are made:

Short to medium term (1-5 years): Development of an AWT for residual waste processing is commercially unviable for most councils with low cost disposal available in SEQ. To increase resource recovery rates, councils should consider continuing / expanding the collection of source separated organics, with IVC appearing to offer the best processing option for FOGO material.

Medium to long term (5-15 years): While noting significant current uncertainties around EfW technologies (especially in a regional setting) they may, over time, provide a cost effective opportunity to increase resource recovery from the residual waste stream, if suitable markets for the recovered products (especially energy) can be established. A watching brief on EfW developments should be maintained, with potential suitability re-evaluated as new information becomes available.

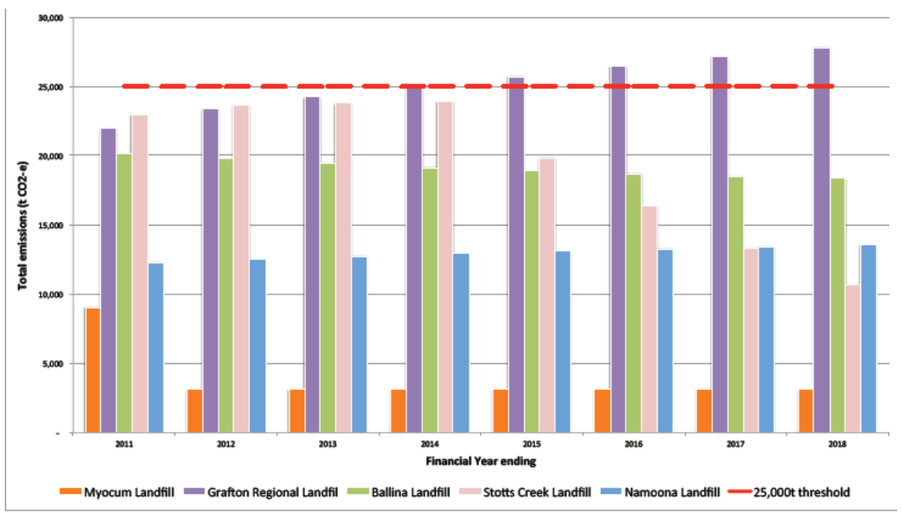
3. GHG Emissions Assessment for NEWF Member Council Facilities

(Mike Richie & Associates, Oct 12)

North East Waste Forum (NEWF) engaged Mike Ritchie and Associates (MRA) to estimate landfill emissions for the five NEWF Council owned landfills and investigate the options available to Councils for offsetting or minimising any landfill emission liabilities.

Overall emissions from NEWF owned landfills are low and no Council exceeded the 25,000t CO2-e threshold in 2011/12. Based on future projections, most landfills are unlikely to ever exceed the emissions threshold. Grafton landfill is the exception as its emissions are expected to grow significantly in the future. Figure 1-1 presents estimated emissions for all NEWF landfills. Emissions for 2011 and 2012 are based on actual waste data provided by councils while future emissions are based on projections and their corresponding assumptions.

Figure 1-1: Emissions (t CO2-e) for NEWF landfills. Post 2012-all emissions projections rely on estimates.



For those Councils with landfill emissions approaching the CPM threshold, gas capture is the fastest and most cost effective method for reducing or eliminating their liability. Also it presents an opportunity for creating a revenue stream through the creation of Australian Carbon Credit Units (ACCUs). Even Councils that are not in danger of exceeding the threshold but have sizeable landfill emissions should consider capturing gas in order to generate ACCUs under the Carbon Farming Initiative.

Myocum landfill at Byron Council is well below the threshold and the combination of the existence of a landfill gas management system and the impermeable rock formations on which it is located render the risk of methane gas movement offsite very small. Although all landfills should at least explore the possibility of installing a landfill gas management system to generate CFI credits, Stotts Creek in Tweed Shire, should do so as a matter of urgency in order to quickly lower total emission and thus reduce its future CPM emissions liability. Table 1-2 summarises the key recommendations for each Council.

Council	Landfill	Key recommendations
Byron Shire Council	Myocum Landfill	• Maintain gas capture system to combat odour issues • Register for a CFI project • Explore gas collection system expansion to capture more legacy waste
Clarence Valley Council	Grafton Regional Landfill	• Install a gas management system as a matter of urgency • Update Waste Strategy taking into account CPM implications • Minimise landfilling of organics • Maintain accurate waste data set
Ballina Shire Council	Ballina Landfill	• Investigate the installation of a gas management system and explore the potential for CFI credit generation • Work on reducing waste to landfill or at least maintain current disposal levels
Tweed Shire Council	Stotts Creek Landfill	• Fine tune and expand the existing gas management system to keep landfill under the threshold in future years • Register for a CFI project • Explore existing contractual arrangements with LMS that are relevant to gas rights, claiming credits etc. • Update Waste Strategy taking into account CPM implications • Minimise organics to landfill at the new landfill site: All waste will generate liable emissions once the new site exceeds the threshold
Richmond Valley Council	Namoona Landfill	• Contact landfill management companies to assess the likelihood of installing a gas management system at no cost to Council • Work on reducing waste to landfill or at least maintain current disposal levels

4. Bora Ridge Regional Landfill Feasibility Review

(Hyder Consulting Pty Ltd, March 14)

The purpose of this study is to provide a high-level review and assessment of potential constraints and issues that may limit the technical or financial viability of developing the Bora Ridge site into a regional landfill, for use by some or all of the seven NE Waste member councils.

The development of a regional landfill has been a long term consideration but interest has been renewed recently with some NE Waste councils facing landfill capacity shortages; rising operational costs; higher engineering and environmental standards; and challenging state-wide resource recovery targets. This report reviews the previous feasibility assessment (Maunsell-Aecom 2005), while considering the broader issues of availability of waste feed stocks, member commitment to supporting the project, costs relative to alternative options, and the impact of other waste infrastructure developments in the region. Key information such as approximate development costs and timeframes, and requirements for further investigations, have also been identified to inform future decision making by member councils.

Previous reports of particular relevance to this review are:

i) NOROC Regional Waste Disposal Strategy (Hyder 2012) which identified that in the long-term significant cost savings could be realised through the development of a regional landfill at the Bora Ridge site, which based on the 5.5 million cubic metres of airspace available and suitable site conditions, could satisfy regional disposal requirements for several decades;

ii) AWT Situational Analysis (Hyder 2013) which explored regional options and associated costs to increase recovery from the domestic waste stream through the use of AWT. It concluded that in the short term an AWT for processing mixed residual waste was unlikely to be financially viable but may be viable over the longer term as technologies such as energy-from-waste are more proven and cost effective. However any future AWT initiatives that increase recovery will reduce the volume of residual waste requiring disposal, which could impact on the viability of a regional landfill.

This review found that:

- The Bora Ridge site is considered a highly suitable location for a regional landfill, in terms of providing a relatively cost effective and technically sound waste disposal solution.
- The primary constraint on the viability of the project is the lack of need for new landfill capacity in the region in the medium term, and the current lack of support for the project among member councils that either already have a long-term landfill solution in place or are currently working to secure one. The exception is Ballina, which is currently transferring to South-East Queensland and could potentially utilise other existing landfills in the region if the cross-border transfer option ceases to be viable.
- Six other potentially critical technical and environmental constraints were identified and compared by Hyder using an MCA approach. While those issues have the potential to affect the viability of the project, Hyder considers adequate mitigation options are available to avoid significant impacts, subject to further investigations.
- Total preliminary capital costs to develop the landfill are estimated to be in the order of $12.2 million. Preliminary gate fees, including capital, operating and rehabilitation (but excluding the landfill levy) costs are estimated to range from $53 to $77 per tonne depending mostly on the annual input tonnage.
- The preliminary cost estimate suggests that gate fees for the facility could be significantly less than current landfilling costs of some members, even allowing for bulking and transport to the site.

In conclusion, the current lack of commitment by member councils to support the project in the short to medium term, indicates that there is little value in progressing the project at this point in time. However Hyder recommends that the Bora Ridge site should be protected and retained as a potential future landfill by Richmond Valley Council, as the concept of a regional landfill for NE Waste members still has merit and in the long-term, can potentially provide significant savings for some members.

END OF DOCUMENT

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