



The State of Waste in Australia

Dr Ron Wainberg

Team Leader, Sustainability – Waste & Resources
Hyder Consulting Pty Ltd, Sydney

National President
Waste Management Association of Australia

Australia – an overview



Statistics

Area: 7.69 m km²

Population: 21 m

GDP: USD 795 b (2007)

Governments:

- 1 Federal
- 5 State
- 2 Territories
- 609 Local

- **Low population & density**
- **Vast distances**
- **No constitutional authority to nationally regulate waste**
 - **7 jurisdictions**
 - **7 sets of regulations and levies**
- **No physical shortage of landfill sites**
- **High community environmental awareness**
 - **New landfills difficult to establish**
 - **Incineration not tolerated**
- **Solid waste included in proposed emissions trading scheme**
- **Open to innovation**

Waste Statistics in Australia

	Disposal (kt)				Recovered (kt)				Diversion Percent
	MSW	C&I	C&D	Total	MSW	C&I	C&D	Total	
NSW	2144	2985	1972	7101	1037	1835	3147	6019	45.9%
Vic	1727	1060	1138	3925	1055	2356	2947	6358	61.8%
Qld	1767	1053	1466	4286	1366	1398	617	3381	44.1%
WA	1015	585	1939	3539	408	891	409	1708	32.6%
SA	344	496	304	1144	408	871	1155	2434	68.0%
ACT	85	91	21	197	270	68	229	567	74.2%
Tas	244	145	251	640	15	1		16	2.4%
NT				85	1			1	1.2%
Total	7,326	6,415	7,091	20,917	4,560	7,420	8,504	20,484	49.5%

	Population	Kilograms per capita			Diversion Percent
		Disposed	Recovered	Generated	
NSW	6,888,000	1,031	874	1,905	45.9%
VIC	5,205,000	754	1,222	1,976	61.8%
QLD	4,181,000	1,025	809	1,834	44.1%
WA	2,106,000	1,680	811	2,491	32.6%
SA	1,584,000	722	1,537	2,259	68.0%
ACT	340,000	579	1,668	2,247	74.2%
TAS	493,000	1298	32	1331	2.4%
NT	215,000	395	5	400	1.2%
Total	21,012,000	995	975	1,970	49.5%

Exclusions:

- Agriculture
- Mining
- Hazardous
- Nuclear

Disposal & Recycling Trends

State / Territory	Landfill	Recycled	Total Generated
	% increase from 2002/03 to 2006/07 (or current reporting period)		
NSW ¹⁾	12%	3%	8%
Victoria	-6%	44%	19%
Qld	57%	170%	93%
WA	31%	107%	49%
SA	-10%	13%	4%
ACT	-5%	21%	13%
Australia ²⁾	20%	37%	28%
¹⁾ NSW current reporting period is 2004/05			
²⁾ Australian data for 2002/03 excluded Tasmania and NT			

- Decreased disposal in 3 States
 - **Active C+D, C+I**
 - **Increased diversion opportunity**
 - **Smaller domestic bins**
- Other effects:
 - **Economic activity**
 - **Government programmes**
 - **Levy**

Resource Recovery

Estimated Materials Recovery 2006 - 2007

Material	mt pa
Paper/cardboard ¹⁾	2.65
Glass ¹⁾	0.58
Ferrous ¹⁾	3.49
Non Ferrous ¹⁾	0.35
PET ¹⁾	0.03
HDPE ¹⁾	0.04
Concrete ¹⁾	5.00
Organics ²⁾	5.17
Other	3.18
Total	20.48
¹⁾ Australian Council of Recyclers	
²⁾ Recycled Organics Unit	

- **Increasing landfill environmental regulation**
- **Programmes to encourage resource recovery**
- **Extended Producer Responsibility (EPR) / Product Stewardship (PS) Schemes:**
 - ❑ **Waste Oil**
 - ❑ **DrumMUSTER – Agricultural chemical containers**
 - ❑ **Newsprint - Voluntary**
 - ❑ **Packaging - Voluntary**
 - ❑ **Mobile phones - Voluntary**
 - ❑ **WEEE – in discussion**
- **Range of landfill levies**
- **National Waste Policy – under development**

Landfill Levies & Disposal Charges



State	Levy A\$ (A\$1.00 = US\$0.85)	Typical Charge A\$/t (includes Levy & GST)	Comments
NSW	\$58.80 / \$52.40 (city) \$10.00 (rural)	\$173.00	Annual increase \$10 + CPI
Vic	\$9 (MSW) \$15 (C+I, C+D) \$230 (Contaminated)	\$70.00	
Qld	Nil	\$65.00	Plan to introduce a levy
WA	\$7 (Putrescible) \$3 (inert)	\$85.00	\$28 (Putrescible) \$12 (inert) } Increase on 1 Jan 2010
SA	\$25.20 (city) \$12.60 (rural)	\$100.00	Includes transfer
ACT	Nil	\$113.85	
Tas	Nil	\$65.00	
NT	Nil	\$44.50	

State-based Waste Reduction Targets

State	Target
NSW	Reduce waste to landfill by 2014: MSW: 66%; C&I: 63%; C&D:76% (2000 baseline)
Vic	By 2014 reduce waste generation by 1.5 mt, recover 75% of the remainder
Qld	No targets set.
WA	Resource recovery targets: Inert – 100%; Organics – 95%; Recyclables – 100%; Problematic – 80%; Hazardous – 75%
SA	Reduce waste to landfill > 25% by 2014 (2004 baseline)
ACT	Zero Waste to landfill by 2010 (abandoned in 2009)
Tas	No targets set. (Plan to set by 2012.)
NT	No targets set.

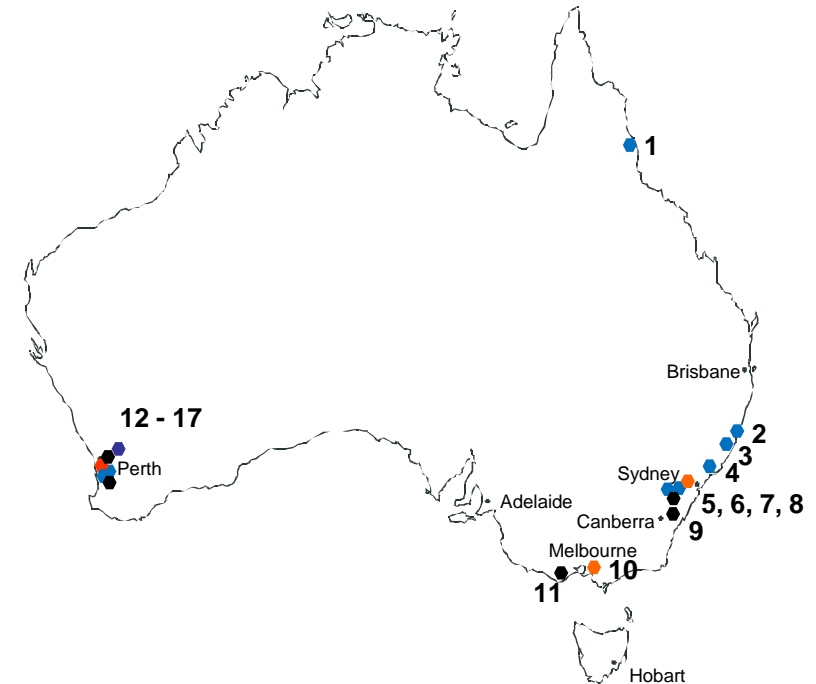
MBT in Australia

	Location	Process	Capacity (kt pa)	Feed
1	Cairns	Aerobic	110	MSW + Bio
2	Coffs Harbour	Aerobic	50	MSW + Bio
3	Port Macquarie	Aerobic	40	MSW + Bio
4	Port Stephens	Aerobic	35	MSW + Bio
5	Camellia	Anaerobic	70	Bio
6	Eastern Creek	Aerobic/Anaerobic	175	MSW
7	Kemps Creek	Aerobic	120	MSW + Bio
8	Jacks Gully	Aerobic/Anaerobic	120	MSW + Bio
9	Woodlawn	MBT	150	MSW
10	Dandenong	Aerobic	30	Bio
11	Barwon	Aerobic/Anaerobic	80	MSW
12	Canning Vale	Aerobic	110	MSW
13	Shenton Park	Aerobic/Anaerobic	55	MSW
14	Stirling	Aerobic	25	MSW
15	Mindarie	Aerobic	100	MSW
16	Kwinana	Aerobic	10	Bio
17	EMRC	tba	100	MSW

Commissioned

Proposed / in construction

Source separated organics



- NSW per capita MBT facilities extraordinarily high
- Opportunities - Technology suite not yet fully developed
- Dynamic emerging industry sector

SITA *Bedminster* - Cairns

WMAA 
Waste Management Association of Australia



SITA SAWT – Kemps Creek

WMAA
Waste Management Association of Australia



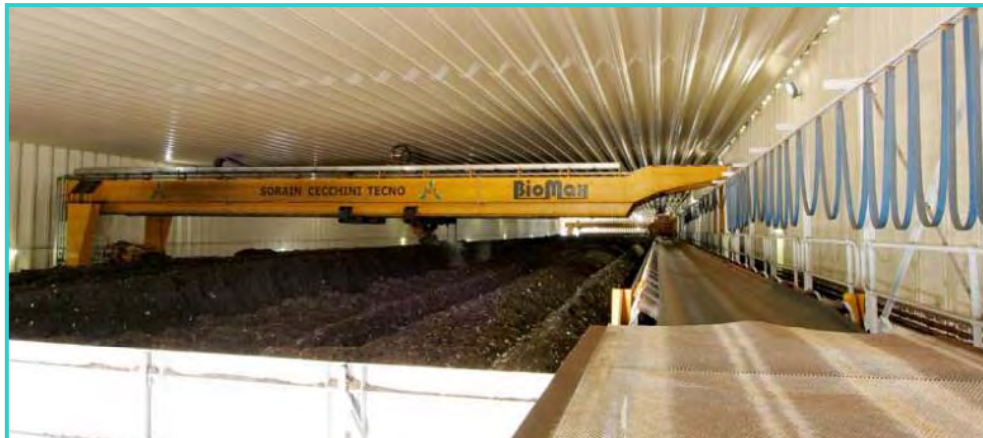
WSN Arrow Bio – Jacks Gulley

WMAA
Waste Management Association of Australia



GRL UR3R – Eastern Creek

WMAA
Waste Management Association of Australia



Veolia Woodlawn Bioreactor

WMAA
Waste Management Association of Australia



Waste Industry Structure

Federal Government

- Coordination
- EPR / PS
- International treaties (eg Basel)

State Government

- Policy
- Regulation
- Planning
- Targeted programmes

Local Government

- Local planning
- Local disposal facilities & services
- Contract management

- Household waste responsibility
- Might subcontract collection, processing & disposal

Waste Industry

- Collection
- Consolidation & transfer
- Sorting & processing
- Final disposal

Waste Legislation

New South Wales	Protection of the Environment Operations Act 1997. Protection of the Environment Operations (Waste) Regulation 2005. Waste Avoidance and Resource Recovery Act 2001. Waste Avoidance and Resource Recovery Strategy 2006.
Victoria	Environment Protection Act 1970 Environment Protection (Amendment) Act 2006 Waste Management Policy (Siting, Design and Management of Landfills) 2004 Towards Zero Waste Strategy 2005 Environmental Sustainability Framework 2005
Queensland	Environmental Protection (Waste Management) Policy 2000 Environmental Protection (Waste Management) Regulation 2000 Waste Management Strategy for Queensland 1996
South Australia	Environment Protection Act 1993 Zero Waste SA Act 2005 South Australia's Waste Policy 2005-2010 Environment Protection (Waste) Policy
Western Australia	Environmental Protection Act 1986 Environmental Protection Regulations 1987 Environmental Protection (Landfill) Levy Act 1998 Contaminated Sites Act 2003 Contaminated Sites Regulations 2006 Waste 2020 Statement of Strategic Direction for Waste Management in Western Australia (2004) (published by the WA Department of the Environment, Waste Management Board) Controlled waste inventory
Tasmania	Environmental Management and Pollution Control Act 1994 Environment Management and Pollution Control (Waste Management) Regulations 2000 Landfill Sustainability Guide 2004
ACT	Environment Protection Act 1997 Waste Minimisation Act 2001 (Amended 2006) No Waste by 2010 Waste Management Strategy (1996) Turning Waste Into Resources (2004)
Northern Territory	Waste Management and Pollution Control Act 1998 (as amended) Litter Abatement and Resource Recovery Strategy 2003 Guidelines for the Siting, Design and Management of Solid Waste Disposal in the Northern Territory 2003

MSW & C+I Waste Collection

Geographical Spread of Operations

	QLD	NSW	ACT	VIC	TAS	SA	WA	NT
All Bulk Waste						✓		
Citywide Service Solutions				✓				
Doyle Bros.		✓						
Haulaway				✓			✓	
J.J. Richards	✓	✓		✓				
Jones Waste Management					✓			
K&S Waste								
Kelly's Waste Management					✓			
OneSteel	✓	✓		✓	✓	✓	✓	
Reefway Waste		✓						
Remondis	✓	✓		✓		✓	✓	
SA Waste Management						✓		
SITA Environmental Solutions	✓	✓	✓	✓		✓	✓	
SMS		✓						
Solo Resource Recovery	✓	✓		✓		✓		
Speedie Waste				✓				
Staples		✓						
Stows				✓				
Thiess Services	✓	✓	✓	✓	✓	✓	✓	✓
Transpacific Cleanaway	✓	✓	✓	✓	✓	✓	✓	✓
URM		✓						
Veolia Environmental Services	✓	✓	✓	✓	✓	✓	✓	✓
Visy Recycling	✓	✓		✓		✓	✓	
Wanless Wastecorp	✓	✓		✓	✓	✓	✓	
WM Waste Management Services				✓				
WSN Environmental Solutions		✓						

Source: The Blue Book, WME Media

Landfill Disposal

Geographical Spread of Operations

	QLD	NSW	ACT	VIC	TAS	SA	WA	NT
ACT Trade Waste			✓					
Boral Waste Solutions				✓				
Brandown		✓						
Hanson Landfill				✓				
Integrated Waste Services						✓		
Kimbriki Recycle & Waste Disposal		✓						
Kurnell Landfill Company		✓						
Lonsdale Landfill						✓		
Moltoni Corporation				✓			✓	
Penrith Waste		✓						
Recovery Recycling Industries				✓				
SITA Environmental Solutions	✓	✓		✓			✓	
Solo Resource Recovery	✓	✓		✓		✓		
Southern Region Waste Resource Authority						✓		
Southern Waste Depot						✓		
Thiess Services	✓	✓						
Transpacific Cleanaway	✓	✓		✓		✓	✓	
Veolia Environmental Services	✓	✓				✓	✓	
Wingfield Waste Mgt. Centre						✓		
WSN Environmental Solutions		✓						

- **National waste policy**
 - Aim to coordinate and harmonise
- **National Recycling Initiative**
 - Industry and Environment Movement
 - Economic benefits of resource recovery
- **Carbon Pollution Reduction Scheme (ETS)**
 - Waste is “in”
 - “Legacy” waste is “out”
- **Increasing value and coverage of levies**
 - Organics
 - More AWT capacity

Thank you.

ron.wainberg@hyderconsulting.com