



AUSTRALIAN COUNCIL OF RECYCLERS INC

THE VOICE OF THE RECYCLING INDUSTRY

The Committee Manager  
Standing Committee on Public Works  
Parliament House  
Macquarie St  
Sydney NSW 2000

13<sup>th</sup> April 2006

Dear Committee Manager

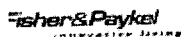
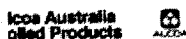
The Australian Council of Recyclers (ACOR) welcomes the opportunity to make this written submission to the Inquiry into Municipal Waste Management in New South Wales.

New South Wales has in many ways led the national agenda on waste management, and has much to be proud of, having advanced its rate of recycling beyond that of many developed countries, and setting the very ambitious target of 66% diversion of municipal waste from landfill by 2014.

Similarly, local governments have moved a long way from a focus only on "roads, rates and rubbish" and are the providers of a large range of services to the communities they serve. Of all the services delivered by local councils, waste management is one that interfaces with every household every week. The community have an expectation that local government will discharge their responsibility by providing a user friendly, value for money service that meets the needs of the community. These community needs are now being recognised as depending fundamentally on "goods and services" provided by the environment.

Australia's current consumer choice revolution and increased prosperity has lead to a increase in consumption and a corresponding increase in waste generation. The majority of households seek to dispose of redundant and used products which are increasing in quantity, diversity, toxicity and complexity through their council waste service. It is vital that governments provide the leadership required to replace this 'take-make-waste' pattern with a more sustainable mode of consumption, reuse and recycling.

The time has come for local government to move past a "rubbish" focus to a "resource" focus. This resource focus is reflected throughout the State Waste Strategy, but it is clear that we are lacking an Implementation Plan to move from where we are to where the government, industry and the community believe we should be. The current strategy is hampered by a focus on landfill diversion and types of waste streams, rather than on the environmental goods desired and the types of products and resources that are designed for recovery. The strategy should at least have targets for environmental goods such as greenhouse gas reduction and plan for the infrastructure required to recover the paper, metals, glass, plastics, organics and energy that the landfill diversion targets imply.



Progress towards the ambitious waste targets adopted for NSW has slowed in recent years. Private sector investment in infrastructure, technologies and processes is essential to increase resource recovery. Sound business cases must be developed based on resource security, site and environment risks, accurate and recent data and reliable forecasts which will drive the investment required. These strategic issues have not been addressed by recent waste policy, and the tendency has been to rely increasingly in waste levy increases.

New South Wales, by increasing the waste levy and applying it “across the board” has lost the ability to reward reprocessing of wastes to create lower environmental impact residues. There is a danger that the recently announced levy increase will actually discourage some current recycling practices and encourage inefficient recycling in other areas.

The time is overdue for abandoning the focus on waste management and addressing the sustainable management of our resources. This paradigm shift calls for the cessation of ad hoc waste programs and the implementation of technology and infrastructure that sustains resources in the economy rather than disposing of them into the environment. We need to not only value ‘goods’, but also the recycling and recyclability of these goods. New South Wales needs to replace its waste management strategy with resource management strategy.

ACOR members currently reprocess and recycle nationally over 11.3 million tonnes of material annually otherwise destined for landfill. Our members are increasingly coming under pressure to abandon recycling opportunities, as these cannot be accessed economically within the existing waste policy and associated regulatory framework. Continuing to value recycled commodities only on the basis of their secondary material market value will not create the sort of conditions necessary to lift resource recovery levels.

A recent cover story in The Economist, entitled ‘Rescuing environmentalism (and the planet)’, advocated three things needed for a new market based green revolution:

- ‘Get the price right’ for the services of nature;
- Develop the information that is required to set prices correctly; and
- Embrace the concept of cost-benefit analysis (recognising that some things in nature are irreplaceable).

ACOR would also add: develop the planning and infrastructure required to deliver sustainable outcomes; as well as a number of associated recommendations in the attached submission.

It is imperative that financial rewards are attached to recycling outcomes, based on the ‘true’ eco-service benefits provided by resource recovery. These eco-service benefits include waste avoidance, greenhouse gas reduction, energy savings, material resource provision, fossil fuel replacement, soil formation, land and water pollution prevention, human illness prevention, and social amenity preservation. At present eco-service benefits from recycling are enjoyed by the community for no charge.

The reason that government waste targets have not been achieved is because recyclers receive no recompense for the true value of their recycling services. There will only be minor improvements in recycling services and resource sustainability until this underlying 'market failure' is fixed.

A national and state policy of 'maximum resource recovery and continuous improvement in resource efficiency' would seek to value resource recovery eco-services, create mechanisms to overcome existing market failures, financially reward eco-service provision, improve data collection, improve planning and provision for recovery infrastructure, further develop standards for procurement of products containing recycled content and establish funds for resource recovery industry development. New South Wales has a great opportunity to provide leadership in this area first of all by establishing an independent Resource Recovery Authority.

The creation of such an Authority would overcome the governance problem that arises in coordinating contracts with indeterminate combinations of over 40 councils in the Sydney region. It is very difficult to imagine how any change in regulation in waste management or recycling is going to be any more effective over the next 10 years than it has over the last while ever the governance problem remains unresolved. The Authority should have planning and site acquisition powers to allow it to identify and set aside "Eco Industrial Parks" on a scale that suits local community needs, but integrated into a metropolitan and State-wide resource recovery strategy.

We welcome this inquiry and trust that our comments will be taken on board as practical recommendations to generate better resource recovery outcomes for the people of New South Wales.

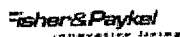
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Yours faithfully,



Anne Prince  
CEO





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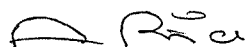
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Anne Prince  
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# **Standing Committee on Public Works**

## **Inquiry into Municipal Waste Management in NSW**

**Submission**

**by**

**Australian Council of Recyclers**

**April 2006**

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## **Executive Summary**

NSW has in many ways led the national agenda on waste management, and has much to be proud of in advancing the rate of recycling in NSW beyond that of many developed countries, and setting the very ambitious target of 66% diversion of waste from landfill by 2014.

The current Inquiry into Municipal Waste Management in NSW provides an ideal opportunity to take stock and reorganise public policy so that the ambitious targets are achieved.

ACOR is about recycling, and we believe the NSW community strongly supports a policy emphasis on recycling rather than wasting. They don't want to see more dumps, no matter how these are dressed up as "latest technology tips". We believe that the time for reorganising waste strategy as resource recovery policy is ripe.

Despite early public support for the development of Waste Boards in NSW, which were amalgamated into Resource NSW and then rebadged as the Sustainability Programs Division of the Department of Environment and Conservation, a further reorganisation along these lines would be greeted only with scepticism.

A recent report commissioned by ACOR demonstrates that meeting the 2014 State Waste Strategy targets will require the recovery and recycling of an additional 1.8 million tonnes of resources (wastes) per annum, almost tripling current recycling levels. This requires massive infrastructure development which will not be delivered without a radically different regulatory framework. What is needed is the creation of a new Statutory Authority – Resource Recovery Authority - with the ability to coordinate with local government, industry and local communities the establishment of this new Resource Recovery infrastructure. At the moment, the planning system is driving recycling industries out of Sydney, and Sydney's waste management system is comprised mostly of obsolete equipment designed to facilitate wasting (dumping) rather than recycling.

ACOR recommends the adoption of a new strategy of "maximising resource recovery and continuous improvement in resource efficiency" (sustainable resource management). This will allow NSW to continue moving in the direction of international trends towards zero waste, and certainly zero landfilling of unprocessed waste.

The new Resource Recovery Authority would need to be guided by life cycle assessment (LCA) tools so that it could concentrate its efforts where they will be most environmentally effective. This will need a system for determining the "Eco Services" required of the new infrastructure. NSW has an opportunity here to extend its ground breaking work in Renewable Energy Certificates and NSW Greenhouse Abatement Certificates to a system which will "get right the pricing for the services of nature" in Municipal Solid Waste (MSW) management. An LCA approach would properly value the upstream impacts of resource recovery as well as the avoided dumping impacts of disposal so that the role of recycling in avoiding virgin material extraction and manufacturing impacts is properly accounted for. ACOR repudiates the view that the value of recycling is only realised in comparison to the avoided landfill emissions impacts and supports comprehensive LCA.

The NSW Section 88 Landfill Levy has certainly been effective at driving up the amount of recycling delivered in the Construction and Demolition waste sector, but its limitations in the MSW sector have been demonstrated by the much lower level of recycling in this more complex waste stream. The landfill levy system needs to be organised to not only punish waste disposal but to reward recycling. The levy needs to reflect the relative environmental impacts of different waste streams, and not penalise the residues of recycling, or inert wastes at the same level as toxic, hazardous and putrescible wastes. While the increase of the levy to around \$60/tonne is welcomed by many recyclers, there will be adverse consequences in some materials streams, driving poor recycling outcomes merely to avoid landfill tax. The waste levy should exist to drive and support resource recovery and should not adversely impact on recycling industries.

A market for "Eco Services" in resource recovery needs to be developed to direct revenue into recycling either directly from the levy to or indirectly through landfillers being required to purchase "Resource Recovery Certificates" from recyclers.

Direct support for recycling infrastructure has been lacking in NSW compared to other states (particularly Victoria) which tend to have achieved higher recycling rates at lower costs in some cases by targeted support of recycling infrastructure. The development of a market-based system that supports recycling is an important way to drive progress towards the 2014 targets.

Local Government waste management should benefit from the sort of integrated system that has been developed in the United Kingdom. Annual performance targets are necessary rather than "aspirational goals" that are too far off for any meaningful impact.

Finally, ACOR believes that it is essential that NSW continues to lead the national agenda on sustainability by reconfiguring its waste management strategy as resource recovery strategy and diligently seeks to influence the Commonwealth and State Governments across Australia in the same direction

## 1. Introduction to ACOR

The Australian Council of Recyclers (ACOR), established in 1983, is Australia's peak industry association representing companies involved in recovering secondary resources. ACOR's mission is to maximise resource recovery and achieve the highest resource order of Australia's recovered materials. Our guiding principles to achieve our mission include:

1. *To encourage governments, industry and the community to take actions that promote resource recovery, recycling and optimise the profitable recovery and recycling of secondary materials.*
2. *To facilitate the removal of barriers to economic and sustainable recycling and promote changes to legislation and government policies where such changes will benefit members*
3. *To encourage uniformity of government policy nationally in relation to resource recovery and recycling and promote policies which are non prescriptive in nature and equitable in outcomes in order to open up opportunities to effectively reintroduce secondary materials for reuse.*
4. *To maximise the opportunity of substituting recycled materials for virgin raw materials and closing the recycling loop through members producing a range of quality recycled raw materials, in accordance with locally and internationally recognised and developed materials specifications.*

In summary, we seek to encourage governments, industry and the public to take actions that advance the optimal use of Australia's secondary materials and to facilitate the removal of barriers that hinder effective recycling and reprocessing. Through our members reprocess more than 11.3 million tonnes of material and directly employ over 5,000 people in resource recovery activities.

Current ACOR membership spans the following sectors:- aluminium, batteries, cardboard, computers, construction and demolition material, electronics, ferrous and non-ferrous metals, glass, mobile telephones, mobile garbage bins, paper, newsprint, plastics – HDPE, LDPE, LLDPE, PET, PVC, tyres and whitegoods.

ACOR's members include:

ACI Packaging	Norske Skog
Alcoa Rolled Products Australia	Norstar Recylers
Alex Fraser Group	ResourceCo
AMCOR Paper Recycling	Sell and Parker
Australian Vinyls	Sims Group
Bluescope Steel	Smorgon Steel Recycling
Boral Recycling	SULO
Fisher & Paykel	Visy Recycling.
Global Renewables Ltd	

ACOR members seek to maximum resource recovery and continuous improvement in resource efficiency in the context of ecological sustainable development.

## 2. Background

This Inquiry comes at a time when public interest and support for improved environmental outcomes is high and has the opportunity to increase economic output, improve environmental outcomes and meet community expectations through providing guidance and input into policy formulation at state, federal and local government level.

The Inquiry also offers the chance to engage directly with the sustainability agenda to deliver resource recovery and efficiency for the long term, a superior option to lurching from one crisis to another as landfill space fills up and communities oppose the establishment of new disposal facilities.

Terms such as 'sustainability', 'sustainable development', 'ecologically sustainable development' (ESD), 'triple bottom line' (TBL) and 'corporate social responsibility' (CSR) have been used (and misused) by corporations, governments and environmental NGOs alike to further their cause. Perhaps the most widely used definition describes sustainable development as meeting current needs without compromising the ability to meet those of the future.<sup>1</sup>

Australia's National Strategy for Ecologically Sustainable Development (ESD) defined ESD as 'A pattern of development that improves the total quality of life both now and in the future, in a way that maintains the ecological processes on which life depends'.<sup>2</sup>

It is generally agreed that sustainability encompasses the three core elements of environment, society and economics as shown in the figure below.

There are few who would argue that we live in a sustainable society. Many changes need to be made by business, governments and individuals before accelerated progress to this goal can be realised.

The current sustainability agenda is driven by 'crisis management' events of global warming. The majority of debate within this agenda surrounds not whether change needs to occur (this is a given), but the targets and methods (or pathways) for meeting these targets.

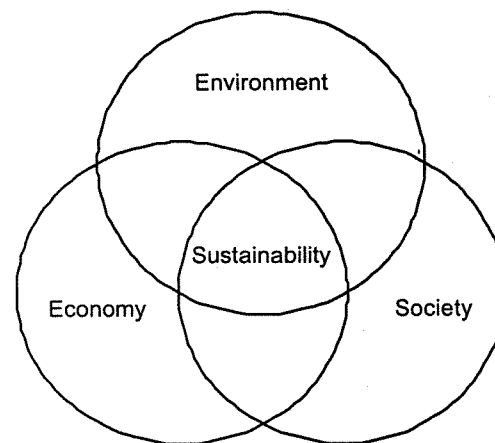


Figure – Main elements within the sustainability concept

One of the central challenges that sustainability presents to our western economies is reducing the unacceptably high levels of waste generation and a correspondingly low amount of resource efficiency. This comes as a result of there being very little understanding and therefore waste minimisation policies directed at, linking resource recovery to the volume of new materials and products being generated.

One way to operationalise the principles of sustainability is to use nature as a model when designing systems of production and consumption. This is also known as

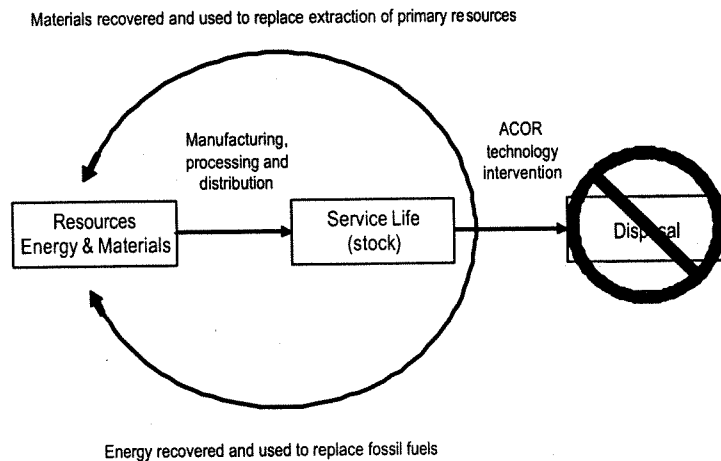
<sup>1</sup> 'Our Common Future' (1987), otherwise known as the Brundtland Report, cited in 'Towards Earth Summit 2002: Briefing Paper', <http://www.earthsummit2002.org/Es2002.PDF>

<sup>2</sup> Steering Committee for the National Strategy for Ecologically Sustainable Development (1992), - <http://www.deh.gov.au/esd/national/nsepd/strategy/index.html>.

biomimicry, which is the design of products and processes on the basis of understanding the functions of natural organisms and ecosystems and applying these lessons to the mode of manufacture and operation of the product.

Industrial Ecology applies these biomimetic principles on a macro scale, and provides a framework based on the operation of natural systems to both assess the impacts of industry and technology on the environment, and to design industrial systems that reduce these impacts. For example, the modification of manufacturing processes and the development of new businesses so that residues from one manufacturing operation are used as material inputs for another. Under this approach, as in nature, there is no room for disposal. Disposal is an indication of poor system performance and is ultimately unsustainable.

Implementing 'nature as model' thinking and completing the move to cyclical patterns of production and consumption requires a technology intervention to convert end-of-life 'wastes' into material and energy products ready to be assimilated back into the economy, as shown in the figure below. In Australia these technology interventions are provided in the main part by ACOR members.



In order to maximise resource recovery and achieve the highest resource value of Australia's secondary materials, an increasingly sophisticated system of 'reverse distribution' is required. This system in turn needs appropriate policy settings, planning for and provision of infrastructure and elimination of market failures arising from externalised costs that provide an unwarranted competitive advantage to disposal options.

### **3. Resource Recovery and Resource Efficiency**

ACOR supports a net benefits approach to choosing optimal resource recovery options (reuse, direct recycling, indirect recycling and energy recovery), to deliver resource efficiency outcomes but only if improved valuation methods are used in this assessment. Currently, recycling is constrained by a net benefits approach as it relies almost exclusively on commodity prices as the indicator of value. This approach:

- does not value the positive eco-services that are provided by resource recovery
- does not account for negative externalised costs of waste disposal technologies.

To move forward in an environment of increased waste complexity, variability of materials and volatile commodity prices, resource efficiency needs to take into account the society-wide investment in materials and energy during the three major stages of a product's life cycle (pre-consumer, consumer and post-consumer). This differs from the current simplistic definition of improved resource efficiency as reducing waste associated with a given product or resource. A society can only become more resource efficient when it maximises the return on material and energy investments made across a product's life cycle (Attachment 1).

Measuring resource efficiency necessitates a multi-criteria approach, but the best current data relates only to landfill diversion. Landfill diversion is a useful but crude measure of progress toward sustainability, because it does not discriminate between the benefits of keeping different materials out of landfills (compare the impacts of inert materials against hazardous materials). Better metrics might relate to categories of materials recycled but ideally should relate primarily to national strategy goals. Ultimately these goals need to be expressed in a way that relates to ecosystem services.

Landfill diversion or recycling rates have been useful indicators of our wastefulness. However, measuring eco-services, through ecodollars, conservation of embodied energy, or CO<sub>2</sub> emissions, would be a step towards metrics that are more fully related to life cycle impacts.

Other resource efficiency metrics and improvements will take longer, but are nevertheless important. These include:

- amounts of virgin and recycled materials used in manufacture
- recycled content and embodied energy (similar to the energy and water ratings) within a given product
- totals of recycled content used and embodied energy at a state/territory and national level (this would allow comparisons of economic output per unit of resource input).

The purpose of these resource efficiency metrics is to better inform the net benefits approach to determining resource recovery options. In this way policy settings can be fine tuned to achieve higher resource value outcomes, contributing to continually improving levels of resource efficiency within society.

Improved valuation methods and metrics will create the situation where increased levels of resource efficiency always increase net benefits to society. The need for improved valuation mechanisms highlights the current market failure, which has delivered an over-provision of disposal and an under-provision of resource recovery.

#### 4. Market Failure

The over-provision of disposal operations and under-provision of resource recovery services is a result of allowing resource recovery to develop in a distorted 'free market' that does not value 'eco-services'. Waste generators are economically encouraged to externalise their environmental costs. This market failure can only be overcome by policy intervention that ensures the true valuing of 'eco-services' provided by the resource recovery sector, and that allows this sector to be adequately recompensed through a variety of mechanisms for the saved primary resources, energy savings, methane emissions, land pollution, leachate generation, human health and ecosystem impacts (amongst others) it provides (Attachment 2).

Use of the Ecodollar concept allows the valuing of these eco-services. Ecodollar estimates provide a dollar value based on:

- avoided water and air pollution
- avoided global warming potential
- resource conservation of mineral, forestry and water resources
- resource conservation benefits from composting and benefits from avoided solid waste (Attachment 3).

The overprovision of disposal services results in some 19 million tonnes of potential resources being wasted nationally each year (see Attachment 4 for contributing calculations). This translates to 6,341,000 tonnes disposed in NSW compared to 5,828,500 tonnes recycled.<sup>3</sup>

ACOR supports an approach to economic efficiency that seeks to deliver the maximum value return (including social and environmental values) per unit of investment. In order to determine optimally efficient solutions, valuation mechanisms need to account for these additional values.

The above analysis demonstrates that the value provided by the resource recovery sector comprises not only the commodity value of recovered materials, but also savings in embodied energy and the provision of eco-services. However, the resource recovery sector will not be able to finance the delivery of these benefits unless they are recognised through mechanisms that directly benefit the recovery sector.

To do otherwise, will result in the resource recovery sector being forced to only concentrate on commercial value within a distorted marketplace. This will discourage increased recycling and service delivery and will force the sector to ignore the higher waste/lower recovery materials and 'hard to treat' items that are fundamental to increasing current recovery rates. State Governments will lose the opportunity to deliver on projected waste targets, and the capacity of the environment to deliver services for future generations will continue to decline. This is far from an optimal result and highlights again the underlying contributing market failure.

'Optimal approaches for resource recovery and efficiency and waste management'<sup>4</sup> should maximise resource recovery and have no place for any form of 'properly constructed and managed landfills and other types of waste disposal in Australia'<sup>5</sup> when the resources can be practically recovered. Regardless of the number of

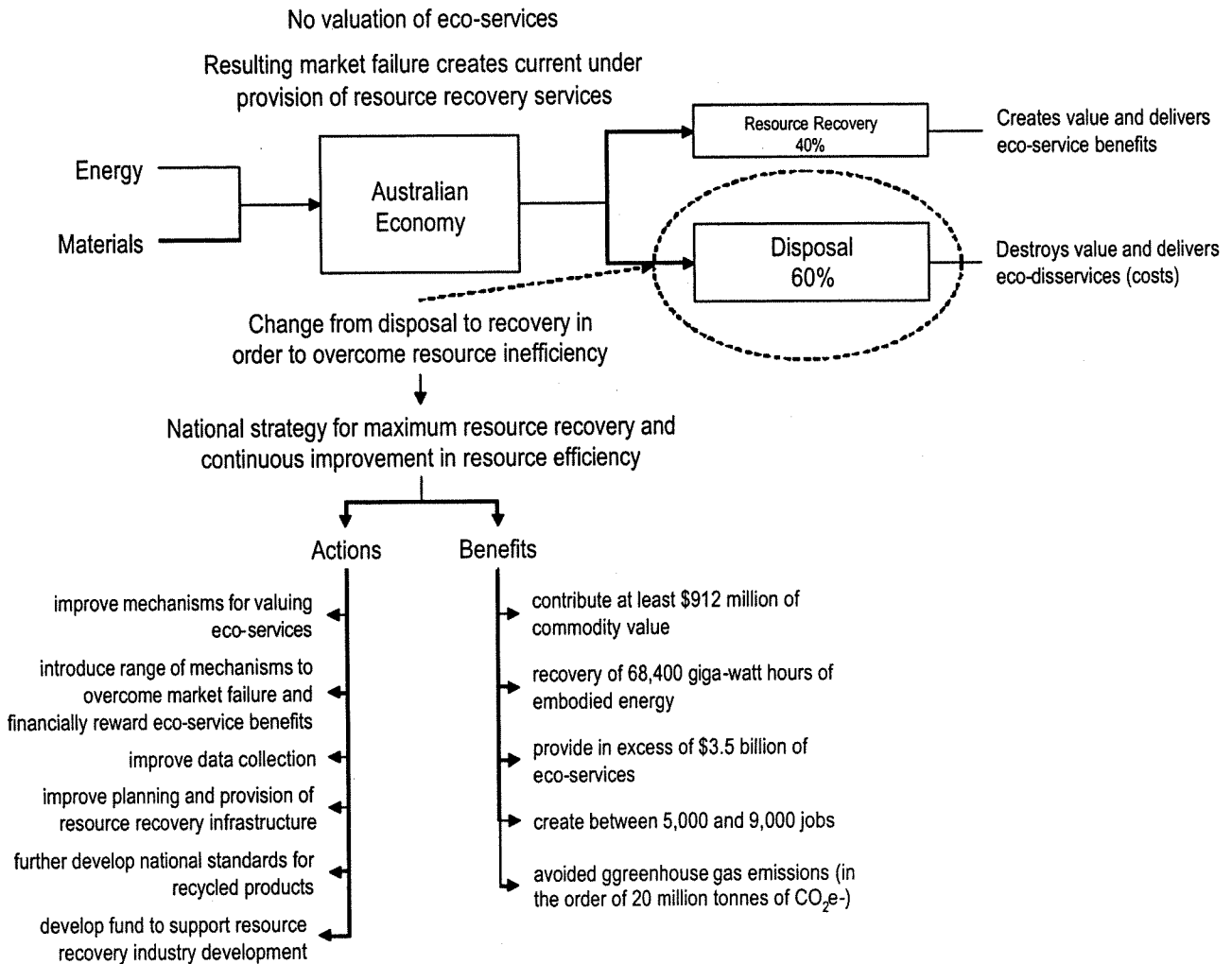
<sup>3</sup> [http://www.resource.nsw.gov.au/data/strategy/Progress%20report\\_web\\_inc%20cover\\_V2.pdf](http://www.resource.nsw.gov.au/data/strategy/Progress%20report_web_inc%20cover_V2.pdf)

<sup>4</sup> Inquiry into Waste Generation and Resource Efficiency – Terms of Reference #1

<sup>5</sup> Productivity Commission Issues Paper – Waste Generation and Resource Efficiency, page 20, <http://www.pc.gov.au/inquiry/waste/issuespaper/waste.pdf>

extractive voids requiring rehabilitation in Australia, disposal presents a negative return on the inherent material and energy investments within products and creates an enduring legacy of eco-disservices (including the long term pollution of the extractive void that was 'rehabilitated'). When environmental externalities are taken into account, any form of disposal is a sign of inefficiency within the economy and highlights areas where improvements must be made.

Adopting a national strategy of maximum resource recovery and continuous improvement in resource efficiency (as shown in the figure below) has the potential to contribute to the national economy at least \$912 million of commodity value, recover 68,400 giga-watt hours of embodied energy and provide in excess of \$3.5 billion of eco-services, in addition to between 5,000 and 9,000 jobs.





## 5. Current NSW Strategy

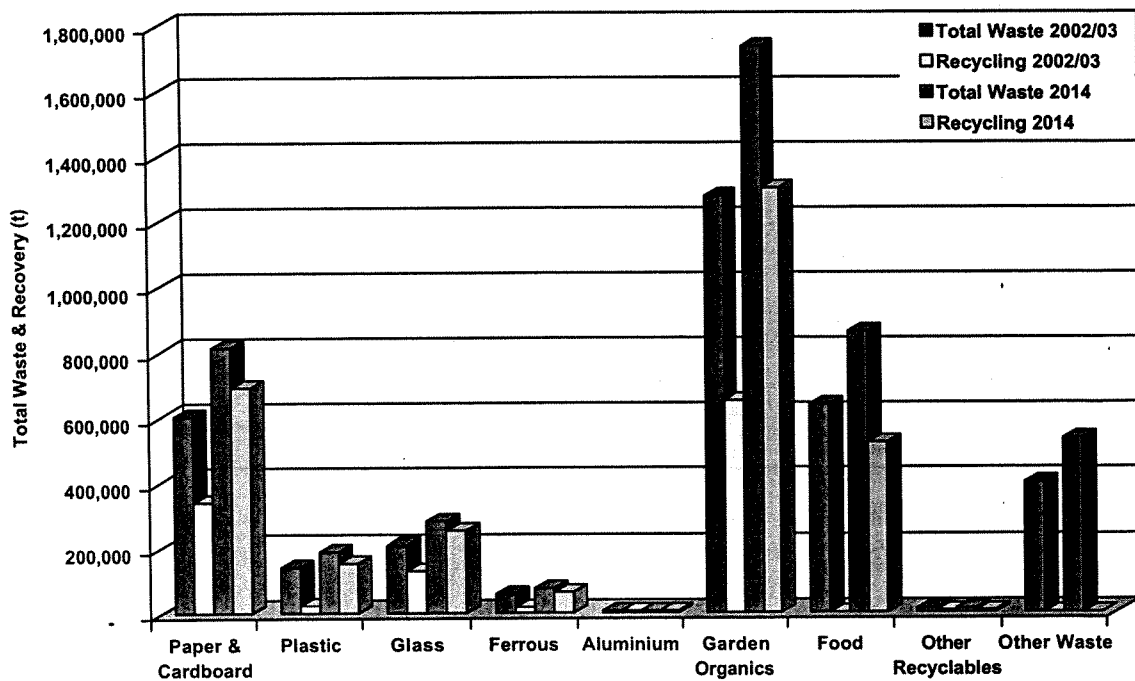
The NSW government has set an ambitious target to reduce waste to landfill by 66% for the municipal waste stream by the year 2014 and to maintain the current rate of waste generation. However, based on population and GDP growth the total municipal waste stream is projected to increase to just over 4.5 million tonnes by year 2014.

In 2002/03 municipal waste generation was reported as 3.3 million tonnes with a diversion rate of just 35% or 1.2 million tonnes. The five major contributing materials (representing 99.7% of total recovery) were garden organics, paper & cardboard, glass, plastic and ferrous metal.

Based on the projected waste quantities and the State waste diversion target for 2014, the quantity of recycled material arising from the municipal sector needing to be recovered would be around 1.6 million tonnes. The additional materials to be recovered are detailed in the table and shown graphically below.

**Table 1 Municipal Waste Recovery in NSW in 2002/03 and 2014 (t/yr)**

Material	2002/03			2014		
	Total Waste	Recycling	Recycling Rate	Total Waste	Recycling	Recycling Rate
Paper & Cardboard	601,000	337,000	56%	814,000	692,000	85%
Plastic	139,000	25,000	18%	188,000	150,000	80%
Glass	207,000	126,000	61%	280,000	252,000	90%
Ferrous	57,000	15,000	26%	77,000	62,000	80%
Aluminium	3,000	2,000	73%	4,000	4,000	80%
Garden Organics	1,280,000	651,000	51%	1,734,000	1,301,000	75%
Food	637,000	-	0%	863,000	518,000	60%
Other Recyclables	8,000	2,000	21%	10,000	6,000	60%
Other Waste	395,000	-	0%	535,000	-	0%
<b>Total</b>	<b>3,326,000</b>	<b>1,156,000</b>	<b>35%</b>	<b>4,507,000</b>	<b>2,985,000</b>	<b>66%</b>



**Figure I: Total Municipal Waste (Garbage) and Recycling in 2002/03 and 2014**

Recovery of these additional quantities of materials from the municipal waste stream requires additional costs to collect, transport and process. In many cases these costs are greater than the revenue derived from sale of the recovered resource. However, for those materials currently already collected through kerbside recycling programs the marginal costs i.e. costs of handling incremental quantities will not necessarily go up but in fact may even reduce due to economies of scale within the available capacity of the current system (EPHC, 2005).

The actual (net) cost per tonne of material recovered and recycled may vary depending on how much of that material is already being recycled and beyond a certain level of recovery the unit costs of additional material is likely to increase disproportionately. This phenomenon of 'diminishing returns' can occur for the following reasons:

- Greater costs in separating (at source) additional quantities;
- Greater costs in separating materials from a mix
- The need for more sophisticated sorting and beneficiation processes to pre-process recycled materials containing contaminating residues (eg ink in newsprint, ceramics in glass, plastics in steel); and
- Increase in residuals that cannot be recycled and must be disposed of adds to the costs of recycling.

The marginal cost of recycling varies greatly with material type and recovery rate. The revenues from recovered product sales ranging from \$20 / tonne for garden organics to \$1500 for aluminium are incorporated into the marginal cost estimates.

The table below shows the overall costs and benefits of increasing recycling to match State Government diversion targets, taking account of both the marginal financial costs of increased recycling and the associated monetarised environmental benefits. Here the monetarised environmental benefits have been assigned as only 20% of those estimated using the Nolan-ITU environmental economic valuation ('Ecodollar') model.

The results illustrate that – should recyclers/reprocessors be able to benefit from only a small proportion (example 20%) of the estimated environmental value provided as part of their service, this would be more than sufficient to compensate for increased financial costs and hence provide significant incentive to achieve the stipulated diversion targets.

As shown in the tables below, the additional environmental benefit for municipal waste is estimated at \$96 million using the '20% environmental value'. This results in an overall estimated net benefit of \$29 million from the municipal sector. Note that the actual total estimated environmental value (100%) of such an increased material recovery amounts to approximately \$480 million.

**Table 2: Overall Cost-Benefits from Municipal Recycling in 2014**

Material	Additional Recycling (t/yr)	Marginal Cost (\$)	Eco-Benefits (20%)	Overall Cost-Benefit <sup>1)</sup>
Paper & Cardboard	356,000	-\$3,557,000	\$28,454,000	\$32,011,000
Plastic	126,000	-\$628,000	\$25,126,000	\$25,754,000
Glass	126,000	-\$632,000	\$5,057,000	\$5,689,000
Ferrous	47,000	-\$468,000	\$7,486,000	\$7,954,000
Aluminium	1,000	-\$12,000	\$694,000	\$706,000
Other Recyclables	5,000	\$234,000	- <sup>1)</sup>	-\$234,000
<b>Subtotal</b>	<b>660,000</b>	<b>\$5,063,000</b>	<b>\$66,817,000</b>	<b>\$71,880,000</b>
Garden Organics	650,000	\$19,508,000	\$14,306,000	-\$5,202,000
Food	518,000	\$51,786,000	\$14,500,000	-\$37,286,000
<b>Subtotal</b>	<b>1,168,000</b>	<b>\$71,294,000</b>	<b>\$28,806,000</b>	<b>-\$42,488,000</b>
<b>Total</b>	<b>1,630,000</b>	<b>\$66,231,000</b>	<b>\$95,623,000</b>	<b>\$29,392,000</b>

<sup>1)</sup> No ecodollar value applied due to lack of characterisation

This analysis identifies that:

- The very substantial amount of additional recovery and recycling of materials from the domestic is necessary to achieve the government's targets;
- There will be a need to establish both sorting and beneficiation infrastructure to deliver the increased resource recovery;
- There are significant environmental benefits of increased resource recovery;
- There is substantial financial costs associated with additional resource recovery.

## 6. ACOR Recommendations

ACOR recommends the following actions be considered to encourage optimal and continuous improvement in resource efficiency and recovery in NSW from the municipal sector.

### 6.1 Develop a National and State Resource Recovery Strategy

To date there has been a fragmented response to waste policy issues by Australian governments, with differing levels of service delivery amongst almost 700 local government authorities, varying targets and regulation amongst states and territories and no current national coordinating strategy. Furthermore, while some state agencies are developing sophisticated yet sensible approaches to the sustainability challenges modern day society present (for example greenhouse issues), there are other instances where departments avoid engaging with the complexity of the sustainability debate (for example over simplification in waste regulation). There are also instances where state departments work at cross purposes to others, for example infrastructure planning and waste policy.

This lack of coordination directly undermines opportunities to maximise resource recovery and improve the resource efficiency of Australian society as a whole. A new approach is needed to consolidate gains made to date and to further accelerate progress in resource recovery and resource efficiency.

ACOR is calling for a National Resource Recovery Strategy, as opposed to waste management and disposal plans, that seeks to maximise the recovery of resources while continuously improving resource efficiency.

This strategic approach should contain the following aspects:

- improved mechanisms of valuation that account for resource recovery eco-services and disposal disservices
- net benefits approach to determine the most appropriate resource recovery option (reuse, direct recycling, indirect recycling and energy recovery) based on valuation of eco-services
- removal of ineffective waste 'hierarchy' (a net-benefits approach that internalises externalities will ensure optimal outcome)
- increased resource recovery at a level that provides the greatest return on materials and energy investments embodied within 'waste'
- removal of any validation for disposal as a management option
- identification of areas where strategy and technology development are required
- increased efficient delivery of net benefits to society as a whole.

This National Strategy requires improvements in the measurement of resource efficiency at a national, state and local levels to move beyond a measurement based on waste disposal from a single product or commodity stream. Resource efficiency could then be used to measure progress towards sustainable resource recovery and to identify where improvements in recovery amounts, levels of recycled content and phasing out of disposal options for certain products and material streams should be made, in line with the goal of continuous improvement.

Appropriate advisory bodies should also be developed to allow governments to effectively engage with the resource recovery industry and gain advice on improving the recovery of certain materials.

Importantly, a national strategy will ensure a unified response across Australia, ideally with standardised waste regulations that are applied across the board with no exceptions for 'small sized' operations that exploit loopholes to operate with no licences. This will assist in keeping the associated costs of resource recovery, for example licensing and reporting, to a minimum.

The NSW Resource Recovery Strategy would then fit under this overarching document and clearly articulate the integration of planning, infrastructure provision and service delivery with an economic model that promotes triple bottom line outcomes from the community.

## **6.2 Improve methods of valuation to include eco-service benefits**

In order for a net benefits approach to resource recovery and efficiency to operate effectively, there is a need for accurate accounting of all benefits and costs. Improved methods of valuation that include eco-service benefits and disposal disservices are required. The logical long term impact of landfilling is that resources end up mixed in uneconomic concentrations and spread all over Australia. If nothing else, this is an intergenerational inequity.

In this submission ACOR has presented the eco-dollar method of valuation in order to demonstrate the magnitude of eco-services that are provided through resource recovery, and conversely the size of the opportunity that is lost through a reliance on disposal. Other methods of valuation could be developed, for example:

- expanding and refining the eco-dollar concept
- using an approach more closely based on ISO 14040 – Life Cycle Assessment
- basing the valuation purely on global warming potential, or CO<sub>2</sub> emissions.

An approach based on greenhouse gases could lead to a strategy of processing all materials prior to disposal to ensure that they were biologically inactive, and would also provide an opportunity to recover all metals, which have a high embodied energy content. This option would be a positive step in the right direction and could be further refined over time.

The importance of improving methods of valuation cannot be overstated as the present failure to account for externalities is causing a market failure that over-provides disposal options or disservices and under-provides resource recovery eco-services.

## **6.3 Apply market based instruments to overcome market failure**

With mixed wastes, it is in general artificially cheaper to waste the commodity value and embodied energy of materials than to return materials as secondary resource inputs into the economy. Because there is no reward for the eco-services provided by resource recovery, it is not profitable to recover resources from the more highly-mixed waste streams. Self funding mechanisms are required to overcome this market failure and reward the eco-service benefits provided by resource recovery.

There are many mechanisms that can be used to address current market failures that support the generation and disposal of waste. Those favoured by ACOR are presented below:

### **6.3.1 Extended Producer Responsibility (EPR) and Product Stewardship (PS) schemes for specific products**

EPR and PS schemes can be effective mechanisms to recover select product types. There are many examples of schemes in operation or under development in Australia, including (amongst others):

- the Used Oil Stewardship Program
- the National Packaging Covenant
- development of a national approach for recycling of tyres and electronics.

Approaches could include the implementation of 'deposit' legislation applied to both materials and complex products to facilitate multi-material processing and recovery or an EPR/PS payment at point of sale, with graduated benefit payments made on the sale of recycled commodity, relative to highest resource value and scaled according to the delivery of eco-service benefits.

ACOR supports across the broad deposit schemes such as advance disposal or recycling fees but does not support restricted CDL or deposits schemes applied in a partial manner.

There are many opportunities to develop additional EPR/PS schemes, however these must be done on a national basis. Resource recovery statistics become readily available under such schemes and can be used to benchmark manufacturers and encourage resource efficiency in product lines.

The NSW state government should seek to influence their federal counterparts to proceed with implementation of EPR/ PS schemes as recovery of toxic and multi – material complex products is not currently viable and will not occur without financial support through such programs.

### **6.3.2 Market Based Instruments (MBIs) such as tradeable certificates**

MBIs such as tradeable certificates have the following advantages:

- can be applied to broader material types or waste streams
- act to directly increase resource recovery
- address the materials that EPR and PS schemes do not cover
- have existing Australian parallels such as Renewable Energy Certificates or NSW Greenhouse Gas Abatement Certificates.

The principle of recognising and rewarding the eco-service benefits that resource recovery provides should be starting point for an MBI, whatever the chosen mechanism.

#### **Case Study : The Landfill Allowance Trading Scheme**

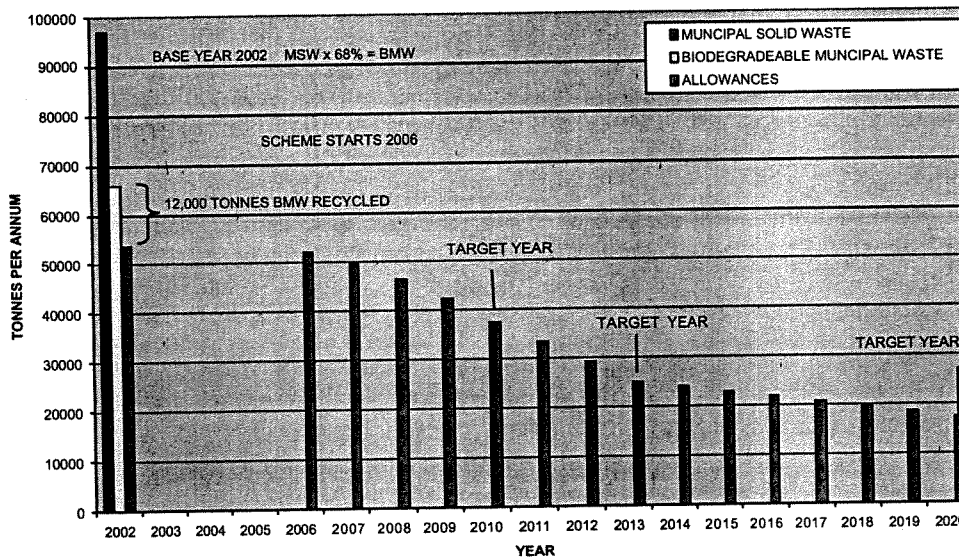
*The UK Government has instituted a world leading system that has seen recycling of household waste alone double in just 3 years, from 13% in 2001-2 to 24% in 2004 -5.*

*The UK has introduced some of the most effective market based instruments (MBIs) ever seen in the world of waste management.*

***The Landfill Directive:** The Landfill Directive has arisen because of a European desire to reduce the impacts of climate change and pollution. Given the potential of organics (paper, food and garden waste) to degrade in landfill, generating methane and contributing to global warming, the Landfill Directive seeks to reduce the degradable fraction being landfilled in the*

interests of sustainability and to improve resource recovery. Targets are based on the amount of organics landfilled which is measured in terms of Biodegradable Municipal Waste (BMW). In England each tonne of MSW is deemed to contain 68% or 0.68 tonnes of BMW. The UK targets require that by 2010 the amount of BMW going to landfill will be reduced to 75% of the 1995 figure, then to only 50% by 2013 and to just 35% by 2020.

LANDFILL ALLOWANCES FOR A WASTE DISPOSAL AUTHORITY



The only way to realistically meet these targets is by rapidly building new infrastructure for recycling, composting and using Mechanical Biological Treatment (MBT) and incineration of MSW.

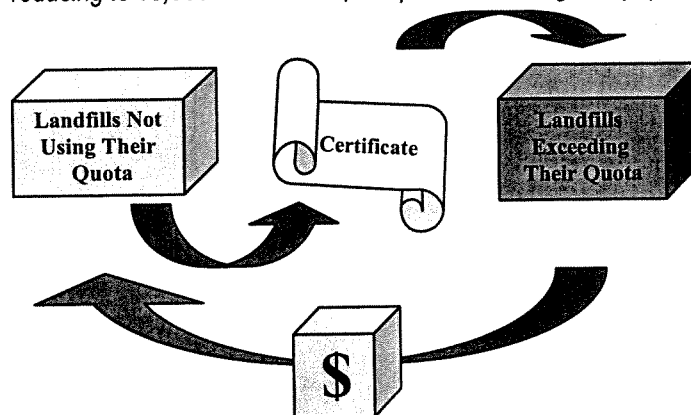
Mechanisms to support change and make things happen include a comprehensive range of measures including :

- **Landfill Tax:** for MSW is currently at £18/T and rising by £3/T each year until £35/T. Inert and in active materials are charged £2/T. A clear example of differentiated levies based on potential for environmental impact.
- **Fines:** Should Councils exceed their BMW allowances, fines of £150/T are imposed
- **Aggregates Tax:** introduced to reduce the environmental impact from quarrying and to stimulate the rate of recycling of construction materials. All excavated materials e.g. sand, gravel and crushed rock except shale are taxed at £1.60/T.

Funds raised from the Landfill tax has been used to fund the following programs:

- Waste Minimisation and Recycling Fund for local government recycling and composting programs, 2002-6 funding available £270 M.
- Business Resource Efficiency & Waste Program, 2005-8 funding available £284 M
- £631M available in 25 year loans to councils as Private Finance Initiatives

**Landfill Allowance Trading Scheme (LATS)** : the world's first scheme started in April 2005 assigning every Waste Disposal Authority an allowance for BMW to landfill for each year from 2005-6 to 2019-20. WDAs can put in the infrastructure to meet allowance targets or bank, borrow or trade allowances with other WDAs. As an example the chart below shows the current and future allowances for the Bath and NE Somerset Authority. Population 175,000, MSW generation 97,000 T in 2001-2 with a 68% biodegradable content equates to 66,000 T of BMW. However the region is already recycling 12,000 T of BMW so the allowance is set at 54,000 T reducing to 18,000 T in 2019-20, irrespective of changes in population.



Should an Authority wish to trade, an electronic register of allowances is established and a Bulletin Board posts notices for buying and selling with price varying depending upon supply and demand. The first sale of landfill allocations recently took place in Hampshire where due to excess capacity it sold 138,000 T of its 2005-6 allocation for £2.7M so the market price for reducing 1 tonne of BMW going to landfill is equivalent to A\$47. It is likely the price will increase as compliance becomes harder over future years. The contrast with Australia couldn't be more obvious: our councils are financially encouraged to seek lowest cost landfill disposal, and are not rewarded for recycling ahead of any "target". UK councils are rewarded for recycling.

A key issue with the LATS model is that it may be extremely difficult to put individual caps on landfillers who have previously obtained approvals from the regulator for a maximum (annual) tonnage to be landfilled, e.g., approvals not inherently linked to broader environmental and/or social goals. An alternative here might be that in order to dispose of waste, landfillers must purchase recycling certificates in a set proportion from a central clearing house in order to be able to dispose without penalty. Thus, to achieve a target of 50% diversion, a landfill would have to purchase one resource conservation certificate for every tonne of waste disposed; for a diversion of 66%, the landfill would have to hold two certificates for every tonne of waste disposed.

### 6.3.3 Waste Levies

Waste levies act as a final disincentive to disposal for those products and materials not captured under EPR/PS and tradeable certificate MBIs. However, undifferentiated levies used primarily to raise revenue have the following consequences:

- do not differentiate on the basis of environmental impact (for example the same levy is applied to one tonne of concrete as to one tonne of electronic scrap, although the environmental impact is markedly different)





