WESTERN AUSTRALIAN
LOCAL GOVERNMENT ASSOCIATION

MWAC Submission to The Productivity Commission Inquiry into Waste Generation and Resource Efficiency

PREPARED BY THE

MUNICIPAL WASTE ADVISORY COUNCIL
"Getting the Environment Right"

February 2006

Organisational Profile and Acknowledgements

The Municipal Waste Advisory Council is a standing committee of the Western Australian Local Government Association with delegated authority to represent the Association in all matters relating to waste management.

The Municipal Waste Advisory Council has been formed through collaboration with Regional Waste Management Councils who are not ordinary members of the Association. The resulting body effectively represents the views of all Local Government bodies responsible for waste management in Western Australia.

Decisions and positions adopted by the Municipal Waste Advisory Council are considered by a board of elected member representatives from each member organisation who are supported by an Officers' Advisory Group (OAG) which has officer representatives from each member organisation.

The Municipal Waste Advisory Council's member organisations are:

The Western Australian Local Government Association
The Eastern Metropolitan Regional Council
The Western Metropolitan Regional Council
The Geraldton Greenough Regional Council
The Southern Metropolitan Regional Council
The South East Metropolitan Regional Council; and
The Mindarie Regional Council

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1.0 Executive Summary

This Submission by the Municipal Waste Advisory Council (MWAC) on behalf of Local Government, reflects two parallel priorities for Local Governments, namely advancing sustainability and improving service delivery. The Submission describes a range of impacts associated with waste and waste management and articulates both interventions and reasons for undertaking those interventions. The core objectives of the Submission are to challenge cost shifting, to revive avoidance as a valid waste strategy and to promote resource efficiency as a central policy objective. The Submission provides a brief summary of municipal waste management today and likely five year trends and predicts that waste management will continue to improve end-of-pipe management, especially in urban areas but will largely ignore waste avoidance.

The Submission recognizes the importance of identifying market failures and suitable interventions to address them, but notes that this may not be a familiar approach for Local Governments. Accordingly, the Submission looks at the product lifecycle, with its focus on material and energy flows and overlays the operation of markets as a means of analysing familiar issues for Local Government within a market-oriented framework. The Submission identifies three distinct markets within the product lifecycle and discusses market failures in each case. Then, the Submission articulates a separate basis for intervention, summarized as 'planning imperatives' and sets out how sustainability underpins a fundamentally different approach to dealing with waste related issues.

The remainder of the Submission is devoted to analysing broad sets of waste related problems, namely:

- Waste data gaps
- Direct Impacts of Waste and Waste Management
- Indirect Environmental Impacts of Waste
- Indirect Political Impacts of Waste
- Indirect Structural Impacts of Waste Management

The Submission describes aspects of each problem; sets out the basis on which the problem warrants governmental intervention; discusses potential interventions; then concludes with a set of recommendations to address the problem. The recommendations have been collated in the section following the Executive Summary.

Waste data gaps

The Submission identifies gaps in our knowledge of the quantity and type of waste disposed and reprocessed and even more significant limitations in our ability to measure the amount of waste generated each year and thus to make meaningful comparisons. The Submission argues that these gaps compromise our ability to correct market failures, to make sound policy and to evaluate policy post-implementation. The Submission calls for interventions to facilitate consistent data gathering among Local Governments and enterprises, to integrate and unify data sets and to capture data about consumption from Australian businesses.

Direct Impacts of Waste and Waste Management

On pages 21-22 the Submission lists a large number of direct environmental, social and financial impacts associated with waste and waste management. These direct impacts are substantial and borne largely by Local Governments and their communities. The Submission argues for intervention on the basis that these impacts are incompletely costed, for instance, the cost of landfill may fail to reflect the full environmental costs associated with this disposal method. Furthermore, may of the

direct costs of waste and waste management represent externalised costs of consumption and production practices. The Submission also argues that a range of planning imperatives provide the basis for interventions to address hazardous wastes, greenhouse emissions and the additional per capita costs borne by small communities. By way of interventions, the Submission identifies some limited opportunities to improve waste charging, discusses the merits and limitations of subsidies, tax exemptions and landfill levies. The Submission also looks at structural interventions with the potential to make particular types of activities more easy to undertake for Local Governments and others, such as better provision for hazardous waste; fostering efficient transport; standards and protocols; industry start-ups; promoting appropriate technologies; funding for strategic waste initiatives; and landfill bans.

Indirect Environmental Impacts of Waste

The Submission identifies impacts which are either realised or avoided when waste is recycled/ recovered on the one hand or simply disposed of on the other. The Submission discusses the example of Aluminium but finds general support for the idea that recycling and resource recovery deliver net environmental benefits. The Submission argues that policy makers should focus on a narrow definition of resource efficiency in light of the usefulness of this as an indicator of sustainability. The Submission goes on to argue for intervention on the basis that current levels of waste disposed of straight to landfill are a reflection of market failures which make virgin raw materials cheaper than their full associated costs would suggest. The Submission also notes that an intervention seriously tackling externalities in commodity markets is politically unfeasible, so policy makers should take responsibility for setting resource efficiency objectives. Translating these objectives into targets and then establishing mechanisms is then the next challenge, for which the Submission offers subsidies, levies, deposits and trading schemes as sound options.

Indirect Political Impacts of Waste

The Submission raises the rarely identified impact of political tensions which emerge within and between communities as a result of the need to manage wastes. Siting facilities and selecting technologies are issues which take a significant toll on Local Governments. Councils find themselves in the firing line as they seek to solve problems created by others and this undermines the effectiveness of Councils in a range of ways. The Submission argues that the producers of special wastes should be co-opted into the planning process and provide financial and educational assistance to ensure that communities are better equipped to manage the negative consequences of their consumption patterns.

Indirect Structural Impacts of Waste Management

Finally, the Submission points to the way in which the focus in modern waste management on engineering solutions at the end of the economic pipe have helped to obscure the obligations of producers and lulled communities into a false sense that problems have been solved. The Submission argues for intervention on the basis that current structures frustrate the stated aspirations of citizens to live sustainably because it obscures the more important determinant of their environmental impacts – namely their consumption patterns. The Submission calls for interventions which price natural resource inputs more realistically, whether at the level of global or domestic markets. The Submission also calls for policies which force problems back onto producers so that the consumption transactions have to take the costs of managing these problems into account. Finally, the Submission reasserts the primacy of Avoidance as the ultimate strategy for sustainability within the waste context. The Submission argues that this strategy offers far greater potential for environmental benefit than any of the other strategies contained in the waste hierarchy.

2.0 Recommendations

- That State governments / EPHC develop consistent waste disposal data collection definitions and methodologies for Local Government implementation.
- That the EPHC engage on an industry-by-industry basis to obtain detailed consumption data within a secure and commercially acceptable framework.
- That State governments / EPHC provide improved systems for collating, correlating, combining and sharing recycling, disposal and consumption data.
- That State governments implement data programs with a view to minimising overlap and maximising administrative efficiency.
- That the EPHC commission thorough economic, environmental and social modelling of the long term costs of landfill and a range of alternatives; and
  That the EPHC identify and acknowledge the boundaries for this modelling – for instance, if it is to exclude indirect impacts, incompleteness of the modelling should be appreciated.
- That the Federal and State Governments establish a greenhouse emissions trading framework to provide economic incentives for abatement activities in waste management.
- That treatment costs for Hazardous Wastes be passed onto consumers of the materials which result in hazardous wastes.
- That State Governments take responsibility for planning for the treatment of hazardous wastes
- That the Commonwealth Government and the EPHC identify opportunities for national approaches to disposing of hazardous wastes.
- That State Governments identify opportunities for regional-level and cross-sectoral waste planning to be carried out to improve efficiency.
- That state governments invest in measures to improve waste management in small communities, including:
  - transfer facilities;
  - back-loading coordination; and
  - mobile infrastructure investment.
- That the EPHC and the Federal Government enable the adoption of regionally appropriate technologies, by:
  - coordinating and collating research into small scale composting technologies;
  - providing training and technical support for regional waste managers; and
  - providing grants for regional communities to begin composting waste.
- That the EPHC identify a priority list of wastes of concern, based on, among other things, the level of disruption these cause to resource recovery processes.
- That the EPHC undertake to minimise the impacts caused by these priority wastes and ensure that, collectively, the States and the Commonwealth possess the necessary regulatory powers to enact mandatory interventions.
- That the State and Federal Governments recognise the market failures inherent in resource intensive economic practices and make resource efficiency a central goal and an important economic indicator.
- That the State and Federal Governments explicitly recognise the limitations in their ability to correct these market failures at source by changing the price of natural resources and commodities.

- That the State and Federal Governments identify that interventions which are not economically optimal may be recognised as the best available interventions to achieve a correction downstream.
- That the EPHC be assigned the task of establishing national goals, objectives and targets for the recovery of used materials on the basis of improving resource efficiency.
- That the EPHC undertake the development of a 'toolkit' of economic instruments and identify and where possible overcome the impediments to deploying these instruments to achieve the identified outcomes.
- That State and Federal Governments explicitly acknowledge the political externalities of waste and the disproportionate burden on Local Government to absorb these externalities.
- That the EPHC investigate measures to involve producers in planning for waste disposal and educating consumers about the waste implications of their purchases.
- That the EPHC investigate measures to make producer organisations more publicly and politically accountable for their waste policy positions.
- That the State and Federal Governments explicitly recognise that reducing the resource intensity of consumption will provide far greater environmental benefits than end-of-pipe focussed waste policy.
- That the State and Federal Governments establish the shared goal of reducing the resource intensity of consumption.
- That the State and Federal Governments initiate dialogue with industry to achieve acknowledgement of this fact and to establish the opportunities for consensual policies directed at reducing the material intensity of consumption.
- That the State and Federal Governments investigate a broad suite of voluntary and mandatory interventions aimed at reducing the resource intensity of consumption.
- That the State and Commonwealth Governments include product takeback schemes in their policy toolbox on the basis of its potential to modify the way in which goods are designed, manufactured and marketed.
- That the State and Commonwealth Governments identify the process by which they would determine to intervene in the market to reduce consumption of critical products.

3.0 Introduction

3.1.1 The MWAC Perspective

The Municipal Waste Advisory Council (MWAC) is responsible for representing the views and interests of Local Government in waste related matters in Western Australia. Local Governments wear two hats in serving their communities. They are both representatives for community views and aspirations and the providers of a range of critical services. Thus as a representative for Local Government, MWAC routinely approaches waste related questions from these two perspectives. MWAC is concerned with helping Councils provide technically sound and economically efficient waste management services. MWAC is also concerned with helping Councils to understand and give voice to the community's desire to live sustainably and for their waste practices to be consistent with this. MWAC's Submission is strongly informed by this dual perspective which highlights the need for policy interventions which will both improve our ability to provide good waste services and which will help communities to adopt sustainable practices.

3.1.2 MWAC's Objectives

In making the Submission to the Productivity Commission MWAC hopes to raise the profile of a range of systemic problems associated with waste management and to influence thinking among government policy makers about how to address those problems. In addition to describing significant problems and failings and articulating the case for intervening to address them, the Submission aims to:

i. Challenge the shifting of costs away from producers and consumers onto Local Governments and residents for managing wastes on the basis that this shifting fails to give communities the best outcomes;

ii. Rejuvenate the strategy of waste avoidance along with its attendant obligations to intervene in production processes and to no longer be limited to engineering solutions at the end of the economic pipe.

iii. Reinforce the natural resources focus of the term 'resource efficiency' and promote this concept as a valuable tool for inquiring into the sustainability of our economic systems;

3.1.3 Where is waste management now and where is it heading?

It is useful to consider in this introduction, what the current state of municipal waste management is in Western Australia and to consider what short to medium term trends seem likely to be most significant over the coming years.

In 2006…

- The majority of municipal waste is landfilled.
- Around 6 landfills remain licensed to take putrescible waste in the metropolitan area.
- Urban landfills are generally managed to significantly higher standards that their non-urban counterparts;
- Opportunities to divert waste from landfill tend to be significantly restricted in non-urban councils;
- In 2004, councils collected around 1.44 million tonnes of waste (excluding any commercial waste) and consigned around 1.23 million tonnes of this waste to landfill.
- Councils will grow their recycling and resource recovery from 114 000 tonnes of traditional recyclables and 144 000 tonnes of organic waste composted/chipped and reused (2004 data).

- Recycling of municipal wastes is driven by both the value of recyclates and Local Government policy decisions about what and how much should be recycled.
- Local Governments operate programs to separate special wastes like household hazardous waste & consumer product wastes
- Separation of these materials often precedes specialised disposal or storage rather than recycling eg concrete encasement of batteries
- Waste avoidance is largely paid lip service.

In 2011…

- Several metropolitan landfills may approach their end of service and metropolitan landfill prices will rise significantly though probably not dramatically
- Up to three new major resource recovery facilities will be commissioned in the Metropolitan area – covering the majority of municipal waste generators
- Recycling processes will be improved in continuous but small increments
- Landfills will remain an important disposal route for municipal waste but with an increasing emphasis on taking the residues from recycling and resource recovery facilities rather than unsorted and untreated municipal waste
- The share of municipal waste received by landfills may fall below 50%;
- Rural and remote Local Governments will continue to struggle to meet community expectations about the extent of their waste services
- Separation and removal of special wastes will become an increasing priority for Councils in order to protect the integrity of compost processes;
- Waste avoidance strategies may remain ignored in practice

To summarise the major trends, we believe that metropolitan Local Governments will continue a shift away from landfill towards greater reliance on resource recovery and recycling. The gap in service delivery between urban Councils and rural and remote Councils will broaden. The focus on tackling special wastes will intensify. There is nothing to suggest that there will be significant progress in the area of waste avoidance.

3.1.4 Where is waste policy heading?

Licensing policies have helped to improve the management of landfills to minimise water pollution and aesthetic impacts. Recycling policies have helped to promote the adoption efficient recycling systems. Hazardous waste planning processes will hopefully help to overcome safety and community opposition problems associated with disposing of the State's hazardous wastes. Opportunities exist for resource recovery policies to encourage the adoption of resource recovery facilities. On the one hand, these examples give reason to be optimistic about the capacity for governments to intervene to achieve good outcomes for the community. On the other hand, this sample of policies reveal an entrenched paradigm for waste policy. That is, in spite of the popularity of terms such as sustainability and the waste hierarchy, waste policy remains predominantly aimed at managing waste that has already been produced.

We might consider waste related impacts along a continuum with immediate, direct and obvious impacts at the left end and long term, indirect and obscured impacts at the right. Interventions to address these impacts will tend to be broader the more diffuse the impacts are in time and space. Both this concepts are represented in Figure 1 below. We argue that waste policy in Western Australia as well as nationally exhibits declining relevancy, as it moves along this continuum.

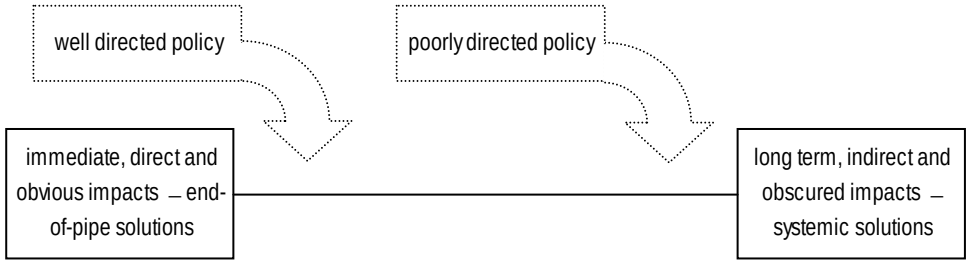

Figure 1: Continuum of waste-related problems and solutions. The relevance and effectiveness of associated policy responses declines towards the right of the continuum.

The objectives set out at the beginning of the introduction are intertwined with the view that waste policy is failing to address the largest and most important waste issues. Instead, waste policy concerns itself primarily with avoiding the most egregious impacts and promoting engineering solutions at the end of the economic pipe. The Submission will make recommendations relating to impacts and interventions at all points along the continuum. However, MWAC believes that waste policy makers will only begin to make a serious contribution to sustainability once they rise to the challenge of addressing those impacts which sit to the right of the continuum.

4.0 Definitions

Natural Capital	similar to natural resources but emphasises the economic harnessing of nature.
Natural Resources	Analogous to natural capital, these include energy, minerals, wood, petrochemicals, land and many other physical resources. They also include so-called ecosystem services which provide a range of intangible things to society, including the capacity to assimilate our gaseous, liquid and solid wastes.
Product life-cycle	The life cycle of a product covers all stages in its production, consumption and disposal, including extraction of natural resources, product design, manufacturing, marketing, distribution, sale, use and disposal of the product.
Product Wastes	Wastes arising from the end-of-life of consumer products. The term especially covers the class of consumer goods sometimes called 'durables'. These wastes are of particular interest because of their high levels of complexity; association with a manufacturer; and potential toxicity.
Recycling	Occurs when materials from waste streams are broken down into raw materials and reprocessed either into the same product(closed loop) or a new product (open loop).
Resource Efficiency	The relative quantity of natural resources required by a particular process per unit of output
Resource Recovery	Involves turning discarded materials (usually carbonaceous) into some kind of useful resource by chemically transforming those materials, typically into either energy or compost.
Sustainability	The achievement a rate of consumption of the planet's natural resources which is able to be ecologically supported indefinitely.

5.0 Rationales for intervention

The Issues Paper poses the question "Why should governments have policies on, or be otherwise involved in, the management of waste?" (Issues Paper, p18). It then goes on to set out several types of rationale on which intervention might be based – market failures; institutional and regulatory barriers and (un)sustainability. The emphasis given in the rest of the paper to market failures suggests that this is an area of particular interest to the inquirers.

The Productivity Commission will bring its own expertise and approaches to bear in answering the question of why should governments intervene, but it is important to recognise that Local Governments have found many different answers to this question. Some of these answers have a clear basis in economics, some may be without economic basis and some require reframing in order to make their economic basis clearer.

Insofar as possible, the Submission will identify market failures to help explain both why an outcome is undesirable and why a particular intervention is warranted. In the next section we look at failures including information gaps, split incentives and externalities. However, MWAC will not consider itself limited to expressing both problems and solutions in terms of market failures. This section aims to show how the particular expertise and perspectives found in Local Government inform thinking about problems and interventions. It is central to the aim of this section to make a case for broadening the role of interventions beyond exclusively correcting market failures.

This section will introduce the concept of planning rationales for undertaking an intervention. That is, in the context of profound market failures and significant uncertainties, sometimes it makes most sense to plan for a particular outcome and intervene in ways which ensure that that outcome is achieved. We submit in this section that this type of approach is often warranted in the case of threats to sustainability.

5.1 Waste in Context

Waste is an inevitable by-product of economic activity, yet the present nature of municipal waste streams has rapidly changed in ways that cannot have been predicted by the original architects of Local Government waste management systems. Social trends such as increasing scale and diversity of consumption patterns, rapid product obsolescence and increasing demands for both convenience and environmental protection have had huge impacts on both waste generation and the management of waste. The speed of these changes has caused substantial difficulties for Local Governments but have also emphasised the way in which waste issues are simply a subset of broader social, economic and environmental questions.

5.1.1 Product life-cycles

Considering the lifecycle of a product is a useful starting point in analysing the transactions, flows and effects associated with a generic consumer item. Figure 2 below represents stages through which we can track the generic consumer item through its lifespan. Figure 2 also shows flows of resources between stages and losses of natural resources as they are expended by various processes.

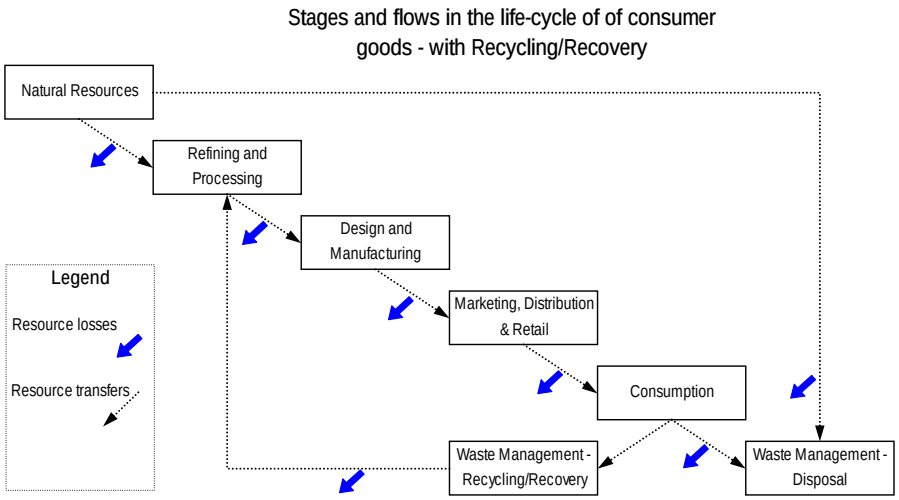

Figure 2: Dotted line arrows depict transfers of resources in the form of the economic outputs from each stage. Solid blue arrows depict resource losses due to expenditure of energy, material losses and consumption of assimilatory capacity (associated with pollution).

NOTE: Figure 2 does not attempt to represent the relative magnitude of resource transfers or losses realised at each stage in the life-cycle, since this would require an unjustifiable generalisation across all consumer products.

5.1.2 Looking at the product-lifecycle

The product lifecycle is a model with which many waste managers and waste policy reformers are very familiar. It underscores several of the common preoccupations of these practitioners.

- Firstly, it focuses on natural resources and their consumption and doesn't consider other inputs into production.
- Secondly, it emphasises the connectivity between the decisions taken at the start of the chain and the effects at the end but suggests little possibility for feedback to be pushed back up the chain.
- Thirdly, it reminds us that resource losses occur through every stage in the chain and suggests that the losses at the bottom of the chain are perhaps only a fraction of the total losses incurred during the lifecycle.

Some of the perspectives that the product lifecycle model provides for waste managers has already been touched upon by the Productivity Commission's Issues Paper.

- It promotes a systemic interpretation of Resource Efficiency rather than one limited to consideration of the resources consumed or conserved by waste management technologies. This interpretation causes waste managers to question whether sound decisions are being made at the top of the cycle.
- The product lifecycle model underpins the waste hierarchy and explains why avoidance is suggested to be the ideal approach to managing waste – namely because it avoids so many resource losses upstream. This is a key point, because it explains why waste managers have increasingly focussed on interventions which are quite removed from the practice of waste management.

- Finally, the product lifecycle model has reinforced for waste managers that they have a technical, economic and moral stake in the rest of the chain.

5.2 Market Failures

Here MWAC relates the types of market failures discussed by the Productivity Commission with the dynamics of markets relevant to waste and waste management.

5.2.1 Information Gaps

Information gaps hinder the operation of markets for waste services and for consumer products. Considering consumption first, Australian consumers appear not to understand (or take seriously) the impacts that their purchasing decisions have on their aspirations for sustainability. Ignorance about the waste problems associated with particular product types often render the idea of consumers driving companies to 'design for the environment' an unrealistic ideal. Turning to disposal, the users of residential rubbish services are understandingly bewildered by the diversity and the complexity of the materials they dispose of. As Local Governments pursue higher rates of recovery, the limitations imposed by community ignorance will be more keenly felt. There is little incentive for manufacturers to assist Local Governments to overcome these information gaps.

5.2.2 Split incentives - Consumers and residents

Residents (using Local Government waste services) are also consumers and consumers are also residents, but do they experience the same incentives and do they consider the same information during their purchase of consumer products as opposed to their purchase of waste services? We believe not. Landfill levies are sometimes suggested to operate as an incentive to reduce waste generation. Yet municipal waste generation continues to grow in Australia, even while the cost of waste services rises. It is now clear that the costs of disposal have little impact on the way that Australians consume – waste generation is simply not valued as a cost in consumer decision making processes. The transactions of buying waste services and buying products which will create waste and necessitate the purchase of waste services are so poorly linked that it presently makes more sense to think of consumers and residents as separate actors in the economy.

5.2.3 Externalities –Producers and Local Governments

A well documented consequence of the linear trajectory of products from factory, through the hands of consumers and onto Local Government waste operations is the disconnection between Producer choices and Local Government preferences. Local Government costs might lead it to prefer smaller volumes of waste, greater homogeneity, better information and different marketing strategies (eg leasing instead of sales). However, when a Producer makes its myriad of design and marketing choices, it considers only the costs and benefits which will directly affect its own operations. Local Governments can't communicate their preferences to Producers via the market because of the problems described in 5.2.2. Thus, the market not only shifts costs from Producers onto Local Governments, it also lacks the ability to send price signals back up to producers about the nature and quantity of waste produced.

5.2.4 Externalities – Producers/Consumers

Cheap raw materials and cheap energy make it feasible for producers to expend large quantities of these inputs to satisfy today's consumer wants. Some may argue that this represents an economically efficient solution for our society. MWAC argues that this is only true if one ignores the long-term costs and risks borne by both society and the environment. Furthermore, MWAC considers that the market

for consumer goods currently does precisely this. The greenhouse gas emissions associated with high levels of consumption remain largely free. Consumer prices make no allowance for the costs to be paid by future generations for resource depletion. These are certainly the most important market failures of those discussed in subsection 5.2.

5.3 Different Markets – Different Failures

Discussing interventions in terms of market failures will be made easier by taking a moment to distinguish between the operation of markets at different points in the process of generating and then managing waste. It should also be useful to identify the general nature of market failures in each of these separate areas.

5.3.1 Markets and the product life-cycle

Since it considers only the flows of natural resources, and excludes other factors of production like labour, the product lifecycle model fits poorly with the approach of considering markets and market failures. To achieve a better fit with this approach, it is useful to consider the operation of markets between the stages of the product lifecycle model. Figure 3 below depicts an approach to distinguishing between markets based on the product life-cycle model.

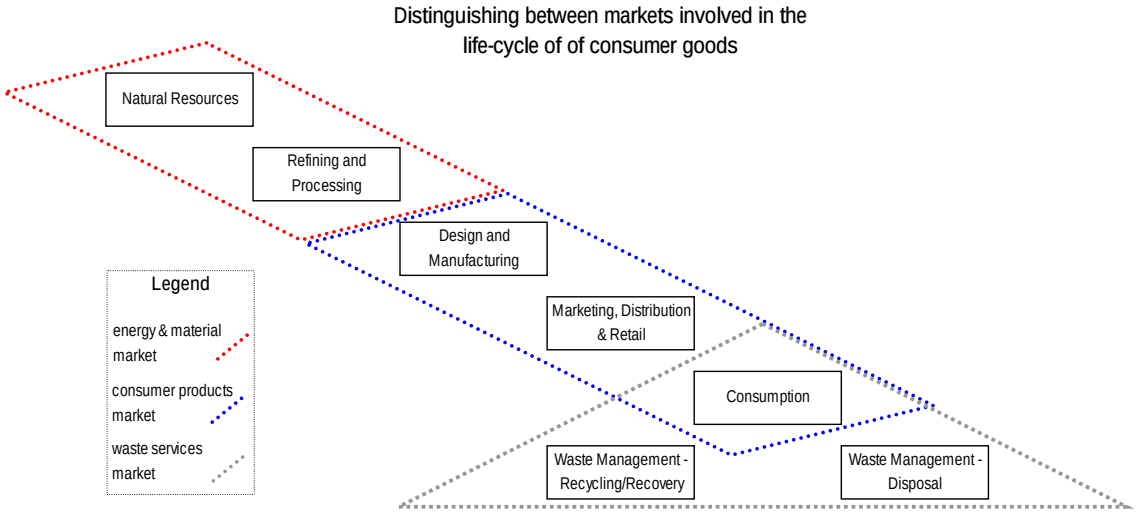

Figure 3: Depicts three markets which bear upon the lifecycle of consumer products. Note that other production factors like labour are assumed to be relevant to the operation of the markets depicted here, whereas in Figure 2, these factors were excluded. By including these factors, this market-based representation of the product life-cycle helps us to understand why our economy is resource intensive. For instance, relatively expensive labour costs might make energy and materially intensive production processes more favourable – increasing demand for natural resources.

5.3.2 Energy and material markets

This market mediates the initial conversion of natural resources into physical and energy inputs which are more familiar to us as economic inputs. It's the market for forests, mineral leases, agricultural land, rivers and fisheries and its outputs are commodities with neat, tradeable prices attached. While it is artificial to distinguish between this market and the market for consumer goods, it is in the market for energy and materials that the natural environment is first commoditised. MWAC contends that this process has tremendous significance for downstream markets and that it exhibits important characteristics which distinguish it from other markets. Failures to fully cost the impacts of material

and energy extraction and consumption in this market have profound effects in the lower markets. This is a market which is largely beyond the control of individual governments, yet access to natural resources is often contested in political arenas as much as in the market place[1]. These are two important facts which distinguish this market from the consumer products market.

The externalities in this market are profound and we argue in this submission that these have the effect of significantly undervaluing the energy and materials which form key production inputs downstream. This undervaluing has important impacts on the operation of downstream markets. Indeed this undervaluing can explain a great deal about the structure of the economy and the predominance of resource intensive production and consumption practices.

5.3.3 Consumer products market

While manufacturing, marketing, distribution and retail systems all continue to globalise, this trend is less advanced than with commodities. It is a highly flexible market, in that the products can be many different things and the products desired can rapidly change. This market is highly responsive to the relative price of energy and materials but is largely insulated from the prices and decisions which emerge from the waste services market.

This market might be said to operate very efficiently given the signals it receives from the upper and lower markets. The sub-optimal outcomes delivered by this market tend to be a consequence of either failures inherited from energy and materials markets or of the disconnect between this market and the waste services market.

5.3.4 Waste services market

This is the market in which Local Government waste managers are most directly involved. In the case of municipal waste, local democracy operates as a kind of market to determine the preferences of communities for waste management solutions on the basis of environmental benefits weighed against financial costs. Private waste management companies compete to provide services to households – typically through Local Government intermediaries. Costs for these services are ultimately borne by the householder, though the householder has little individual say over the terms on which they receive this service.

This market suffers a range on internal failures such as monopolies and imperfect gaps but more importantly, has little capacity to signal upstream to the other markets. We argue in this submission that this market suffers both from the failure of energy and material markets to appropriately price natural resources and from the failure of the consumer product market to incorporate the cost of appropriate end-of-life management. Communities aspirations drive participants in the waste services market to address environmental concerns, yet they must do so without the opportunity to transmit coherent signals upwards to the other markets.

5.4 Planning Imperatives

5.4.1 (Un)Sustainability

The Issues Paper visits the issue of sustainability only briefly. However, it is the view of MWAC that notions of sustainability, intergenerational equity and a number of associated concepts lie at the heart

[1] Witness, for example, the attention devoted by the Coal industry to the Asia-Pacific Partnership on Development and Climate, as a strategy for protecting its long-term right to mine and burn coal to produce electricity. This is an illustration of the integration of politics with the markets for natural resources. Political patronage or opposition may just as important in determining long term access to these natural resources as the interplay of market forces.

of modern waste management practices such as recycling, resource recovery, and waste minimisation. Sustainability arguments provided the primary underpinning for the shift to kerbside recycling services throughout the 1990s and continue to do the same for the present shift towards resource recovery. Sustainability, though poorly defined, provides a core rationale for a range of Local Government activities, including waste management, yet its implications remain poorly accounted for within the standard discussion of market failures. The concept underpins a conviction that the conservation of natural resources above certain minimum levels represents an economic, ecological and moral imperative.

NOTE: Additional discussion of Local Government views on sustainability and its impact on intervention have been included in Appendix 1.

5.4.2 Sustainability and market corrections

One view of the appropriate response to sustainability concerns is to use the concepts embodied in sustainability to identify market failures which can then be corrected to ensure that markets function sustainably. MWAC agrees that this will be an important long term project for economists, industry and policy makers. Another view of this issue, questions whether the theory and practice of intervening to correct market failures around sustainability are likely to enable sufficient interventions to be implemented within the necessary timeframes. According to this view, concerns about sustainability warrant interventions which focus more on outcomes than on the market failures to be corrected.

5.4.3 Some outcomes should be planned for

There is a strong mentality in Local Government that it is appropriate to plan for specific outcomes to ensure that a good result is achieved. In some cases, it is clear that community desires for intervention are based on a value judgement that a particular outcome is extremely important. The imperative to protect public health is an example of a rationale based on a core value. On the basis of this rationale, a large range of activities would continue to be demanded by communities irrespective of market interpretations of the value of the service. To the extent that markets are not expected to satisfy community expectations, governments step in to ensure that certain outcomes are achieved.[2]

In many cases it seems to us to be appropriate to invoke sustainability as the basis for an approach to intervention which is similar to the approach taken in relation to protecting public health. On the basis of sustainability arguments we conclude that some outcomes are sufficiently important that it is necessary to ensure those outcomes are achieved. We contrast this approach with that of asking how market failures can be addressed to ensure that an optimal outcome is able to be determined and delivered by the market (see 5.4.2). Sustainability will frequently demand interventions which markets will deem inefficient until some indeterminate time in the future when we are able to make markets fully incorporate sustainability interests. If we acknowledge the imperative to maintain certain minimum standards then we might also acknowledge that in some cases it makes more sense to focus on achieving a specific outcome than to ask whether the market is functioning correctly.

5.4.4 Resource efficiency in a planning context

The Productivity Commission calls for alternative interpretations of resource efficiency in the Issues Paper. In 6.3.4, we make a case for using a more restrictive definition of resource efficiency than the one proposed in the Issues Paper. Central to many of the points made in the Submission, is the belief

[2] This solution might be thought of as the satisfaction of demand for a public good though the market of democratic elections. Communities express their preferences for particular outcomes by electing the party whose policies best reflect those preferences.

that a role exists for policy makers to scrutinise outcomes and make determinations about what is required to make systems sustainable. In performing this role, a measure like resource efficiency, narrowly defined as the ratio of natural resource inputs to economic output, provides policy makers with an important tool to use in making these determinations.

6.0 Problems, Rationales & Interventions

In this section, a range of problems with waste and the way we manage it are identified and discussed. In each problem category, this section describes aspects of the problem and details how this problem may justify an intervention from a market failure or planning perspective.

6.1 Waste data gaps

Problem Description

A wide range of gaps exist in our present waste data sets. Data on non-metropolitan waste disposal quantities are incomplete and there is limited information available in Australia on the specific composition of waste streams. Appropriate data about the products consumed are also very limited, as are measures of material and energy density.

6.1.1 Disposal data

Gaps in our knowledge of waste disposal include:

- data about the quantities of key elements and pollutants being sent to landfill;
- regional and remote landfilling quantities and composition; and
- data about the air emissions associated with waste collection.

Disposal data is important for the purposes of assessing the magnitude of problems generated by waste directly.

6.1.2 Recovery rates

Waste recovery rates, that is (waste recovered)/(waste generated) are calculable in Australia typically only on a broad level or on an ad hoc basis. There are relatively few specific waste streams for which reliable, continually calculated recovery rates are available. Without recovery rate data, the performance of waste management systems can only be measured in absolute terms and we are left without means for making comparisons of technical efficiency.

6.1.3 Consumption data

Measuring Australia's waste recovery rates is hampered primarily by a lack of consumption data. Yearly data on the size and locality of sales of consumer items identified as "priority wastes" by a number of jurisdictions remains, to the best of our knowledge, largely unknown to the environmental agencies of Australia[3].

Consumption data is also important in setting policy priorities, especially in the case of special wastes for which recycling or recovery strategies are likely to be 'boutique' in nature. Whether stockpiled or discarded, knowledge about how much of this material enters Australian enterprises and households and where it enters is important to enable appropriate priorities to be set and to assess the adequacy of both regulatory and voluntary interventions.

[3] Victoria and NSW currently maintain priority waste lists which provide examples of waste for which accurate and regular data ought to be provided by distributors. These materials include computers; televisions; nickel cadmium batteries; used tyres; dry cell batteries; packaging wastes; polyvinyl chloride (PVC); other electrical products; treated timber; end-of-life vehicle residuals; household hazardous and chemical wastes. See http://www.environment.nsw.gov.au/waste/epr/eprps04.htm for NSW information and see p23 of the Victorian 2005 Towards Zero Waste Strategy, http://www.ecorecycle.sustainability.vic.gov.au/resources/documents/Towards_Zero_Waste_Strategy_(Sep_05)2.pdf for Victorian examples.

6.1.4 Material and energy intensity

Measures of material and energy intensity associated with particular product types are not generally available to governmental decision makers. This precludes systematic consideration of upstream resource extraction and manufacturing impacts when setting governmental priorities and determining approaches to managing wastes.

Rationale for Intervention

Planning Rationale (Primary rationale): There are a number of problems which are discussed in subsequent paragraphs for which planned outcomes are appropriate, but good planning requires better data.

Market Failure Rationale (Secondary rationale): Correcting market failures such as externalities requires better data about the size and nature of those failures.

6.1.5 Absence of Market Information

The price of a product is an amalgam of a wide variety of input costs and as such it sometimes said to be rich in information about the costs and benefits associated with the production process. However, if a wide range of environmental and social costs are externalised then the price of that product ends up providing no information about those costs. In the absence of policies which internalise the upstream environmental costs of certain products, it falls to policy makers to seek out the impact information. Comprehensively assessing the upstream impacts of wasted materials is a task for which life-cycle impact assessment techniques are especially well suited.

6.1.6 Impact of poor data on policy development

From a public policy perspective, the shortcomings in Australian waste data limits our capacity to dispassionately assess waste management priorities. This fact goes part way to explaining the erratic adoption of waste management priorities by the EPHC. Were the EPHC given the benefit of reliable, ongoing data on consumption, recycling and disposal and the direct and indirect environmental impacts of those things, it is likely that it would be more systematic in its selection of priorities.

6.1.7 Impact of poor data on policy evaluation

From a public administration perspective, the shortcomings outlined in paragraph 6.1 frustrate the assessment of program effectiveness against a consistent set of indicators relating to agreed outcomes. This inability to measure program effectiveness was manifest in the case of the National Packaging Covenant, when its first five year term expired in 2004. In that case, the initial failure to plan for hard indicators like waste tonnages and recovery rates left the EPHC incapable of determining whether the Covenant had succeeded or failed. This experience also underscored the dubious value offered by soft measures like participation rates and perceived effectiveness.

Interventions Contemplated

To address the impacts of waste data gaps, MWAC envisages interventions which provide consistency across jurisdictions; obtain consumption data on a wide range of products and unify and integrate data to enhance its value.

6.1.8 Identify useful data and definitions

Across jurisdictions, there are opportunities to increase the consistency in the classification of waste types; in the types of data collected; and in collection methodologies. The Australian Waste Database has fallen into disuse and the reporting of unhelpful catchall waste categories such as “mixed waste”

has increased in some states (Tony Beeson, 2006, pers comm). Efforts across jurisdictions to standardise data definitions should be redoubled.

6.1.9 Obtain data from industry

To obtain data on consumption, to in turn calculate recovery rates, governments must engage with industry to ensure that this important data is shared with the least amount of disruption to commerce. Concerns about confidentiality and commercial advantage must be respected and data systems must be rigorously designed and managed to accommodate those concerns. Equally, industries ought to engage constructively with these efforts rather than using their concerns as shields to prevent the collection of data.

6.1.10 Establish unifying and integrating data systems.

Governments, state and federal, should develop systems to ensure streamlined reporting and the timely sharing and linking of information about waste. The unification and integration of data should be informed by the objective – providing relevant data to permit better management by both public and private organisations. The United Kingdom provides a number of good examples of measures which support meaningful translations of high level directives into the operations of enterprises and local authorities. Governments should identify and pursue measures which permit comparisons of the relative importance of problems and which provide meaningful indications of performance. At the same time, implementation at the state level of programs to capture data should avoid unnecessary administrative burdens and overlap.

Recommendations

- That State governments / EPHC develop consistent waste disposal data collection definitions and methodologies for Local Government implementation.
- That the EPHC engage on an industry-by-industry basis to obtain detailed consumption data within a secure and commercially acceptable framework.
- That State governments / EPHC provide improved systems for collating, correlating, combining and sharing recycling, disposal and consumption data.
- That State governments implement data programs with a view to minimising overlap and maximising administrative efficiency.

6.2 Direct Impacts of Waste and Waste Management

Problem Description

Waste, whether well managed or poorly managed, causes a number of direct impacts. These impacts are mainly localised and include both environmental and social impacts. The financial cost associated with mitigating these impacts are substantial. These impacts are substantially borne by Local Governments and their communities.

6.2.1 Direct environmental impacts

- The leaching of acids, heavy metals, toxic organics and nutrients out of landfills, and potentially into ground and surface water receptors.
- Per capita, the environmental impacts from rural and remote landfills are higher than for metropolitan counterparts.
- The entry of waste, especially packaging, into the environment as litter, causing highly specific environmental disruption, with examples such as the ingestion of plastic bags by marine mammals being recently publicised.

- The release of household hazardous materials into the environment through inappropriate storage and disposal practices (oil, solvents, pesticides, asbestos, etc).
- The emission of CO_2 as well as NO_x, SO_x and particulate pollution by the truck fleets that cart waste out to landfills and other waste disposal/treatment facilities and the machinery which operates at those sites.
- The emission by landfills of methane which has a global warming potential 23 times that of CO_2 (IPCC, 2001, Section 6.12.2). This, along with CO_2 emissions from trucks has direct but delocalised impact by virtue of contribution to anthropogenic global warming.

6.2.2 Direct social impacts

- Loss of land from landfilling and waste processing sites as metropolitan sites removed from high value future uses. Mitigating these impacts by selecting low value sites further from cities exacerbates environmental and social impacts associated with transport.
- Loss of amenity due to littering.

6.2.3 Direct financial impacts

- The money spent on solid waste management by Local Governments in WA amounted to around $133 million in 03/04 (WA Local Government Grants Commission, 2005). This figure is slightly inflated because it includes a small allocation to managing liquid waste.
- Landfilling is becoming increasingly expensive as engineers strive to address its direct and immediate environmental impacts. These costs are too large to permit optimal landfilling techniques to be applied in non-urban situations.
- The future direct costs of post-closure management remain unknown and potentially large.
- Metropolitan councils have begun to invest large sums in Resource Recovery to avoid landfilling. Contracts to acquire these systems may cost anywhere between $50 million and $200 million.
- A range of special wastes cause costly interference with waste treatment systems, such as batteries and glass with composting. Feedstock contamination with a range of special wastes can undermine the environmental safety of the compost product, restrict the markets into which it can be sold and diminish public confidence in the processes generally.
- Local Governments across the state spend a considerable amount on litter prevention and management and the EPHC's policy response to address litter have emphasised the areas in which Local Governments could spend much more[4].

Rationale for Intervention

Market Failure Rationale: Environmental, social and financial impacts of waste are incompletely internalised into waste management decision making.

Planning Rationale: Maintaining and developing liveable settlements requires that the direct environmental and social impacts of waste be kept within limits acceptable to the community. Long term financial costs should be maintained at reasonable levels.

6.2.4 Landfills are incompletely costed

It is likely that the true cost of landfilling is currently understated in that it fails to take into account a range of long-term costs and risks. For instance, the price of land for landfill sites reflects present day real estate prices. Were the price to include the long term cost to the community of having to forgo high values uses for land situated close to major settlements, the cost would be expected to be higher.

[4] See EPHC Guidelines for Management of Plastic Bag Litter in Public Places, online, available http://www.ephc.gov.au/ephc/plastic_bags.html, accessed 24/01/2006

Hellweg et al recently published a comparative assessment of the environmental and financial impacts of a range of different waste treatment technologies including sanitary landfills. Their assessment found that given the criterion of achieving "the largest environmental benefit possible per unit of money invested", landfills proved the most expensive technology choice (Hellweg et al, 2005, p201). Such a conclusion might not hold for Australia given our geography and demographics, but in light of findings such as this one, it seems reasonable to believe that the true cost of landfill remains incompletely accounted.

6.2.5 Resource recovery facilities are more fully costed

The social, environmental and financial costs of resource recovery are likely to be much more effectively quantified than in the case of landfill. Consequently, they are often less financially competitive yet offer confidence that there will be fewer unforseen impacts – especially environmental and social costs in the future.

6.2.6 Greenhouse impacts

The fact that there are substantial greenhouse gas emissions associated with waste management activities provides two important bases for policy intervention. The first is that these emissions have associated global environmental implications for which Australian waste management systems pay nothing. This results in there being no direct economic incentive to reduce CO_2 emissions from collection and cartage trucks nor to reduce methane emissions from landfills. Moreover, the threats to sustainability associated with anthropogenic global warming provide a clear basis to argue that reducing greenhouse gas emissions should be an outcome for which we plan. It is appropriate to intervene to address the greenhouse implications of regional landfills – as a small component of the overall abatement strategy for Australia. Greenhouse abatement is not an activity for which communities can obtain any direct local benefit and national coordination seems logical in such instances.

6.2.7 Hazardous waste

The expense and risk associated with managing hazardous wastes suggests both market failures and a planning imperative. The suppliers of potentially hazardous materials, both present and past, have paid nothing for the inevitable expense associated with managing the left over wastes from their products. This both inflates sales of these products and leaves disposal and management options under-funded.

The WA Government has recognised a planning imperative to manage hazardous wastes, by setting up the Core Consultative Committee or 3C, to oversee an ambitious, whole of state planning process to select sites and technologies for hazardous waste treatment. With hazardous waste, the planning imperative may be more directly attributable to public health than to sustainability, yet the clear recognition of the role this imperative creates for Government is equally relevant to sustainability. Reliable State or Commonwealth programs to make hazardous waste easier to dispose of would make it feasible for Local Governments to offer more comprehensive and better promoted household hazardous waste drop-off facilities. We note that these responses would not address the continuing shifting of waste management costs onto Local Government, but would at least ensure a higher standard of management.

6.2.8 Integration of Waste Planning

Gains in efficiency, both economically and environmentally stand to be made where waste planning is undertaken in an integrated way, across both regions and sectors. The 3C process is potentially a

forerunner for other waste planning processes which consider the long term waste service needs of entire regions, across more than one sector.

6.2.9 Small communities and small waste management programs

The point is often made that it is natural for certain waste management technologies and approaches to be uneconomical for small communities. The argument is reasonable up to a point, but it can obscure quite reasonable planning grounds for intervention. It is appropriate to intervene to ensure the establishment of fundamental environmental protections such as basic landfill management. Communities which cannot afford to manage a basic landfill warrant external assistance to ensure that they can. It is appropriate to intervene to overcome critical infrastructure weaknesses – especially when the correction of these weaknesses can facilitate self-sustaining practices.

Interventions Contemplated

To address the direct impacts of waste and waste management, MWAC envisages interventions which provide meaningful price signals for waste generators, improve the financial value of recycled and recovered materials, provide for enabling infrastructure and investment to overcome initial structural barriers and promote smoothly operating markets by supporting industry standards.

6.2.10 Better Charging arrangements for waste disposal

There is currently no satisfactory financial linkage between domestic waste generation and domestic waste services. Residents can use as much or as little of their disposal capacity as they wish and will pay exactly the same. Pay-as-you-throw (PAYT) approaches have been proposed for Western Australian Local Governments and these are, to some extent, already applied. Local Governments often charge a larger marginal fee for additional disposal bins over and above the standard single bin. Another approach involves weighing bins as they're collected and then charging for disposal on a sliding scale based on weight. The technology to do this has been tested by one Western Australian Council but the technical difficulties and cost were ultimately prohibitive.

The PAYT model seems doomed to fail in view of the facts that it remains an indirect impetus to change consumer behaviour and that at costs sufficient to promote changes in behaviour the motivation to cheat the system through illegal dumping will be substantial. On the other hand a less ambitious interpretation of PAYT, coupled with other changes may be effective. Used in combination, the following policies might encourage residents to reduce their generation of garbage on economically rational grounds:

- Separating the cost of recycling services from the cost of the general waste service,
- gradually reducing the disposal volume available for general garbage,
- charging increasing marginal fees for additional general waste bins, and
- maintaining or expanding the size of recycling and recovery options

6.2.11 Subsidising recycled materials

It is sufficient to simply note that any intervention which improves the price paid for recycled materials (net of transport costs etc) will promote more recycling of those materials. The putative market failure thus corrected can be characterised as the incorporation of positive externalities associated with using recycled materials in place of virgin materials.

6.2.12 Tax relief

Although tax relief is simply another form of subsidy for any process, we include it separately as an example of the means available for supporting recycling processes because of its recent salience. In

2005, a company called Axiom Energy proposed a substantial investment in processing facilities designed to turn low grade mixed plastics into high grade, low sulfur diesel. The facilities would have expanded the markets available to Local Governments for their low-grade mixed plastics but the proposal relied on an exemption from the Federal Government from fuel excise. The exemption was refused and the proposal has since been suspended[5]. While the exemption would have amounted to a substantial subsidy, the potential impact on the economics of plastics recycling promised to be substantial. Moreover, the direct environmental dividend would have been proportionately larger than the Federal government's current proposal to exempt wheat derived ethanol from the excise.

6.2.13 Landfill levies

Landfill levies were originally proposed in the Australian context as a mechanism to incorporate the externalities of landfilling into the price of landfill and thereby to reduce demand for landfill. In practice, landfill levies have been used as a tool to raise revenue. The authors of a report commissioned by ZeroWaste SA made the following findings regarding landfill levies:

> "Levies have been wholly successful in generating revenues, usually hypothecated to support waste programs and the administration of public waste management agencies. But success in driving volumetric reductions in waste disposal to landfill has been more modest. In those jurisdictions where levy rates have been significant, some reductions in disposal rates is evident, particularly for high volume wastes such as construction and demolition and green wastes which can readily be reused or recycled." (BDA Group and EconSearch, 2004)

MWAC submits that Landfill Levies have limited potential as instruments for directly modifying behaviours, but notes the benefits of Landfill Levies in other respects (see 6.2.18).

6.2.14 Better hazardous waste planning and disposal

State and Commonwealth Governments could make the disposal of hazardous waste much easier and cheaper for Local Government by investing in the necessary planning and infrastructure. This investment need not necessarily come sole from consolidated revenue, since a range of products can be identified which would be appropriate to levy, in light of their important role in creating the need for this disposal capacity. The 3C process which the WA state government has invested in, will resolve much of the planning pressure but will not automatically resolve the need for financially accessible disposal infrastructure. MWAC does not take the view that hazardous waste disposal is solely a matter for state governments to resolve, since there is significant scope for national coordination of infrastructure investment and a national approach to obtaining financial contributions from industry.

6.2.15 Fostering efficient transport

Transport costs present one of the largest hurdles to increasing the recycling of municipal waste outside major urban centres. In order to increase recycling in these areas, the cost of transport per tonne of material has to reduce and ideally this would occur without resort to direct transport subsidies. Direct transport subsidies would serve to further conceal the existing environmental externalities associated with freight – especially road freight (Productivity Commission, 2005, p264).

A more intelligent approach to bringing down the costs of transport would involve strategies to improve the mass and value densities of consignments of recyclables. Density improvements in the order of 10:1 are achievable through the use of reasonably low technology equipment and processes to sort, compress and bale materials in preparation for transport. However, prohibitive infrastructure costs present obvious barriers for small Councils to acquire the necessary equipment to achieve these efficiencies.

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[5] See the Axiom Energy Media Statement of 7 October 2005, online available http://www.axiomenergyltd.com.au/announcements/downloads/axe_2005_10_07.pdf, accessed 20/01/2006

The investments required to bring this equipment to regional Australia would be much more feasible if the infrastructure costs were shared across regions. Models for mobile equipment and operator arrangements exist. However, these models require coordination by the State and/or Commonwealth governments to provide start-up funding and to ensure that Local Government and local industry investments and upgrades are designed and timed with region-wide processing services in mind.

6.2.16 Standards and protocols

The development of industry-wide standards and protocols can provide useful fixes for information gaps. As an example, market development for municipally produced compost will be aided by the development of broadly accepted standards for compost quality. In-time, these should permit consumers greater confidence in the safety of compost products and an enhanced ability to distinguish between composts of different qualities.

Naturally, standards and protocols are only useful if a substantial proportion of a given market cares to apply them. The Australia Council of Recyclers (ACOR) maintains online standards for packaging manufacturers to follow to ensure that their products can be effectively recycled. In relation to PET, the standards clearly point to the incompatibility of PVC labels with PET bottles from a recyclers perspective[6]. Sadly, PVC labels for PET bottles are marginally more profitable for the beverage industry than the more recycling-friendly paper alternative and this has led to widespread substitution of PVC for paper labels by the industry. This example demonstrates how standards will do little to support recycling or resource recovery where private incentives pull companies in the opposite direction.

Standards for the use of the term 'hazardous' in relation to product waste would be extremely useful both in terms of setting policy and making investment decisions. Policy making in Australia is slowed by protracted debates over whether a particular product is actually hazardous. 'Hazardous waste' remains a largely subjective designation based on individual assessments of quantities of hazardous elements and compounds and the likely use and disposal characteristics. If some objective, nationally agreed standards for identifying hazardous product wastes could be established, this would allow policy makers to move onto the next question of how to ensure that such waste is well managed. For Local Governments to invest in diversion processes, it would be useful for them to know well in advance, which are the hazardous product wastes which will need to be diverted. This certainty would provide a sound basis for inter-regional and state-wide cooperation to ensure that everyone will be catering for the same set of wastes. This would have benefits for public education and would help to develop economies of scale.

6.2.17 Industry Start-ups

The Lubricant Oil industry in Australia collects a small levy on new lubricant oil and sets this aside to provide so-called benefit payments to oil reprocessors. The Tyre industry has been negotiating with State and Federal Governments to create a similar scheme. In both cases, part of the logic of the programs has been that a levy-benefit scheme should assist companies to create a self-sustaining recycling industry. According to this logic, once the barriers associated with start-up costs and risks are cleared, the reprocessing industries will be able to make a business case for recycling materials even where the benefit may not apply. In the case of used tyres, Western Australia hopes to use the benefit payments to foster a tyre recycling industry. The WA Department of Environment hopes that

[6] ACOR, 2003, "Recycling Guide for Fillers Marketing in P.E.T.", online, available www.acor.org.au/pdfs/Recycling%20Guide%20for%20Fillers%20Marketing%20in%20PET.pdf, accessed 19/01/2006

once established, this industry will hunt out new sources of tyres, for example in landfills, with diminishing need for financial assistance.

Only a small number of municipal wastes appear able to sustain a profitable recycling industry on the basis of the market value of the materials alone. On the basis of this, we might expect that there are not be many household wastes for which start up costs are the only impediment to a viable recycling industry. Nevertheless, the materials for which such opportunities do exist should be identified and mechanisms to defray start-up costs and risks should be implemented.

6.2.18 Regionally appropriate composting

Composting is expanding in large steps in the metropolitan area of WA through the commissioning of large scale composting facilities with huge price tags. These types of plants will never be economically (or environmentally) appropriate for smaller communities. Accordingly, state governments should undertake research into more modest techniques for carrying out composting and embark on building knowledge and capacity among regional waste managers to enable them to introduce small scale composting into non-metropolitan areas.

6.2.19 Funding for strategic waste initiatives

While landfill levies have been generally found to be an ineffective instrument in respect of changing consumer behaviour to reduce waste generation, they have proved useful for the purpose of raising money in a reliable manner to fund some of the interventions discussed in 6.2.13 - 6.2.17. To this end, MWAC considers that it is essential that revenue raising mechanisms such as levies on landfills be firmly hypothecated to achieving the waste objectives of each state.

6.2.20 Landfill Bans

Some products cause significant process disruption or environmental detriment and State and Commonwealth Governments should consider banning their disposal into general waste disposal systems. Manufacturers would be concurrently obliged to provide separate and safe options for disposal. In view of the difficulty with enforcement and the possibility that such bans would encourage illegal dumping, it is likely that landfill bans would only be helpful in supporting other initiatives.

Recommendations

- That the EPHC commission thorough economic, environmental and social modelling of the long term costs of landfill and a range of alternatives; and
  That the EPHC identify and acknowledge the boundaries for this modelling – for instance, if it is to exclude indirect impacts, incompleteness of the modelling should be appreciated.
- That the Federal and State Governments establish a greenhouse emissions trading framework to provide economic incentives for abatement activities in waste management.
- That treatment costs for Hazardous Wastes be passed onto consumers of the materials which result in hazardous wastes.
- That State Governments take responsibility for planning for the treatment of hazardous wastes
- That the Commonwealth Government and the EPHC identify opportunities for national approaches to disposing of hazardous wastes.
- That State Governments identify opportunities for regional-level and cross-sectoral waste planning to be carried out to improve efficiency.
- That state governments invest in measures to improve waste management in small communities, including:
  - transfer facilities;

- back-loading coordination; and
- mobile infrastructure investment.

– That the EPHC and the Federal Government enable the adoption of regionally appropriate technologies, by:
  - coordinating and collating research into small scale composting technologies;
  - providing training and technical support for regional waste managers; and
  - providing grants for regional communities to begin composting waste.
– That the EPHC identify a priority list of wastes of concern, based on, among other things, the level of disruption these cause to resource recovery processes.
– That the EPHC undertake to minimise the impacts caused by these priority wastes and ensure that, collectively, the States and the Commonwealth possess the necessary regulatory powers to enact mandatory interventions.

6.3 Indirect Environmental Impacts of Waste

Problem Description

The materials and energy in discarded items are increasingly viewed as resources for which uses can and should be found. A corollary of this view is that when uses are found for these materials and energy, our future requirement for virgin natural resource inputs is marginally decreased and the environment is left slightly better off. Waste then, represents the flipside – the embodiment of upstream environmental impacts associated with additional demands for virgin natural resource inputs.

6.3.1 Upstream impacts of unrecovered materials – Aluminium Case Study

The upstream impacts from unrecovered packaging materials are discussed in the Environment Protection & Heritage Council's *Regulatory Impact Statement on Revised National Packaging Covenant* (EPHC, 2005). Based on the information contained in this report, the amount of aluminium packaging which is not recycled, amounts to roughly 3 petajoules of energy per annum, equivalent to around 400 000 tonnes of coal per annum for electricity production.[7]

6.3.2 Upstream impacts of unrecovered materials – General

Calculations similar to the one reflected in 6.3.1 can be carried out for other materials which are not recycled. In other cases, the more important measure might be air or water pollution, rather than energy consumption. In some cases, the data required for such calculations may be reasonably easy to obtain – as in the case of a range of packaging materials. In other cases the complexity and diversity of waste material types – such as appliances – make these calculations very difficult.

6.3.3 Environmental Benefits from Kerbside

A 2001 study into kerbside recycling concluded that the avoided environmental cost of production generated by kerbside recycling is 20 times greater than the environmental cost of collection and disposal of the material (NPCC, 2001). This provides a useful point of reference for anyone who fears that the efforts associated with some existing strategies for reducing waste to landfill are consuming more resources than they conserve.

Rationale for Intervention

[7] Based on tables 3.1 and C.1 in EPHC, 2005; and 25kJ/g for coal; and electrical generation and transmission efficiency of 30%,

Market Failure Rationale: Energy and material markets currently fail to reflect all the costs associated with natural resource extraction, processing and consumption. Consumer product markets therefore reflect diminished demand for recovery materials and energy.
Planning Rationale: Without detailed knowledge of the full costs associated with resource use, it is prudent to plan for resource efficiency, where this is defined as minimising the ratio of virgin natural resource inputs to economic output.

6.3.4 Resource Efficiency

The Productivity Commission discusses the definition of Resource Efficiency and asks what interpretations of the term should be taken into consideration in waste management policy. MWAC considers that the usefulness of the term relies on it being specifically applied to the management of our natural resources (or primary resources – as termed by the Productivity Commission). By virtue of special characteristics of our natural resources – finite, non-linear supply and shared with future generations – the efficiency with which we use these resources warrants special attention.

It should be remembered that economists take advantage of a range of specific input measures such as labour productivity, in order to assess the effectiveness with which we use those particular inputs. Resource Efficiency defined as the ratio of virgin natural resource inputs to economic output provides a policy guide which is useful regardless of whether our argument of special status for natural resources is accepted or not. Accepting that argument merely suggests that policy makers should lend much greater emphasis to measures of Resource Efficiency (so defined) than they currently do.

An economy which consumes a relatively large proportion of the world's natural resources for each unit of economic output should be a cause for concern for policy makers. Resource intensity makes environmental degradation an inevitable side-effect of development, which in turn draws into question the environmental protection rationale for fostering economic development. Resource intensity also arguably accelerates our approach towards critical levels of resource competition which have the potential to undermine security.[8] Recognising the profound market failures which drive resource intensive practices, economic planners must make resource efficiency a central goal and indicator.

6.3.5 Cheap natural resources – expensive recovered resources

By virtue of market failures in energy and material markets, virgin natural resources are frequently more price competitive than would be expected when compared to resources which have been recovered from our waste streams. As a recent example of this, Western Australia has suffered a marked and persistent decline in the prices for glass packaging over the last two to three years. The explanation is that the raw materials and the energy required to refine new glass are too cheap to leave the major glass manufacturer interested in recovering used glass at anything but exceedingly low prices. It is clear that more expensive virgin natural resource inputs would favour higher levels of recycling and resource recovery. Correcting this problem would sensibly occur in the energy and material markets where the externality originates. In practice, it may be more feasible to correct it by subsidising the outputs from recycling and resource recovery.

6.3.6 There will be no correction in energy and material markets

If the full externalised costs of natural resource extraction, processing and consumption could be precisely measured and were accepted uncontested, then governments might simply add the externalities onto the basic financial costs and allowing markets to find a satisfactory level for recovery

[8] Witness the destabilising effect of world reliance on oil.

rates from our waste streams. In practice, primary inputs are not about to be repriced and the full externalised costs of natural resources can't be quantitatively established with any certainty. The option of intervening in energy and material markets is discussed more in Appendix 3.

6.3.7 Planned higher recovery rates on the basis of uncertainty

If it is accepted that there are substantial market failures in material and energy markets and that sufficient upstream intervention is neither feasible nor likely, then interventions downstream may be the only means of addressing the failure. In turn, this raises questions about the type and magnitude of the corrective measure and the side-effects of the corrective measure, none of which can be answered with reference to the market since we have already accepted that it is solving an incomplete equation. The response to this uncertainty in Local Government has been to conservatively assume that natural resources are sufficiently undervalued that it is appropriate for the community to pay an additional amount for systems which reduce the consumption of natural resources

Interventions Contemplated

To address the direct impacts of waste and waste management, MWAC envisages interventions which are based on a clear statement of the levels of recycling and recovery to be achieved and makes much greater use of economic instruments like subsidies, levies, deposits and tradeable certificates.

6.3.8 Goals, objectives and targets for recycling recovery

Based on its views regarding sustainability and current market failures, MWAC considers that the market will not spontaneously deliver an acceptable allocation of scare natural resources. On this basis, MWAC sees a clear role for Government in setting goals, objectives and targets, which relate to the allocation of those scarce resource. As a proxy for resource efficiency, the recovery of used products and materials for subsequent reuse is one of the areas for which government target setting is appropriate. For further discussion of the role of objectives and targets, refer to Appendix 2.

6.3.9 Subsidising recycled materials

The point has been made in 6.2.11, that subsidies are required to allow recycled and recovered materials to properly compete with virgin alternatives.

6.3.10 Levies and deposits

There are many examples of schemes which provide incentives for materials to be collected and reprocessed. These schemes can be designed according to the identified limiting factors in achieving higher recycling and recovery rates. To the extend that higher recovery rates deliver environmental benefits, the environmental effectiveness of schemes based on financial incentives have tended to be fairly clear. Economic incentives to change practices have been effective in the case of the South Australian Container Deposit Scheme, the Commonwealth Product Stewardship for Used Oil Scheme and the price guarantee administered by the Publisher's National Environment Bureau. Assessments of the administrative and economic efficiency of these mechanisms are generally politicised and hence few have tended to resolve existing debates[9]. The States and the Commonwealth frequently point to the constitutional difficulties associated with deploying financial instruments, although these impediments have never been properly dissected on the public record and no move to overcome them has been publicly proposed..

[9] The studies published on Container Deposit Legislation provide the clearest example of this type of inconclusive research effort.

6.3.11 Tradeable Recycling Certificates

The Productivity Commission will be familiar with schemes based on a quantified legal obligation and trade in the services which fulfil that obligation. A recycling certificate scheme operates in the UK for packaging materials within which manufacturers must purchase certificates verifying the recycling of a certain proportion of the packaging material they sold in a given year. It should be clear that such a scheme relies on the establishment of a particular quantity or proportion as a recovery target. Some discussion of this approach can be found in Appendix 2.

Recommendations

- That the State and Federal Governments recognise the market failures inherent in resource intensive economic practices and make resource efficiency a central goal and an important economic indicator.
- That the State and Federal Governments explicitly recognise the limitations in their ability to correct these market failures at source by changing the price of natural resources and commodities.
- That the State and Federal Governments identify that interventions which are not economically optimal may be recognised as the best available interventions to achieve a correction downstream.
- That the EPHC be assigned the task of establishing national goals, objectives and targets for the recovery of used materials on the basis of improving resource efficiency.
- That the EPHC undertake the development of a 'toolkit' of economic instruments and identify and where possible overcome the impediments to deploying these instruments to achieve the identified outcomes.

6.4 Indirect Political Impacts of Waste

Problem Description

Municipal waste creates problems for which public authorities become responsible. Waste decision making is increasingly controversial and produces divisive and persistent conflicts which undermine the quality of public decision making and degrade public trust.

6.4.1 Waste is a divisive issue

As awareness of a number of popular waste issues increase, Local Governments are increasingly subjected to significant scrutiny, pressure and criticism for their waste management responses. Community outcry against landfills, recycling plants, composting operations and incinerators, is typically directed against Local Governments. These outcries may be based on a poor understanding of the processes and risks in question, but regardless of the merit of adverse claims, the negative impacts of the conflict which arises represent a real cost to our political systems (especially local).

Rationale for Intervention

Market Failure Rationale: Imperfect information in the consumer products market leaves citizens unable to identify the effect that consumer behaviour has on community cohesion and political processes.

Planning Rationale: The community and political impacts of waste are wholly predictable and are likely to be minimised through early interventions which either increase community ownership or physically reduce waste problems.

6.4.2 Political externalities of waste

It is arguable that the aforementioned costs would not emerge if consumer decision making was much more strongly informed by disposal consequences. For instance, some in the packaging industry have sought to promote the idea that incineration provides a safe and environmentally preferable option for disposal.[10] This may be a scientifically demonstrated fact, yet the inevitable political fallout from building an incinerator would be borne entirely by the public authorities responsible. It is difficult to imagine packaging companies petitioning the public directly about the merits of incineration. Were they to do so, the political costs of the idea would be borne by the companies involved – most likely in the form of product boycotts. Though unlikely, this presents a sketch for the internalisation of a political externality.

Interventions Contemplated

To address the indirect political impacts of waste, MWAC envisages interventions which bring raise the profile and participation of producers in the development of waste solutions, especially in the case of hazardous wastes.

6.4.3 Helping communities link consumption with disposal

It would be irresponsible to pretend that public authorities will be able to stop planning for waste disposal in the foreseeable future. Therefore, it is appropriate to plan for waste to be disposed and to plan for community expectations about how this will occur. MWAC takes the view that the manufacturers of products with especially problematic waste profiles must be co-opted into this planning process. This is important, not simply because they ought to assist with financing waste disposal, but because producers are in a unique position to assist community members to understand their personal role in generating waste. It is only with a degree of educational and political involvement by producers that communities will come to terms with their waste disposal obligations. MWAC notes the particular salience of the preceding observations and conclusions to the case of treating hazardous and problematic wastes. The management of these waste types have a particularly acute tendency to arouse suspicion and fear within communities.

Recommendations

- That State and Federal Governments explicitly acknowledge the political externalities of waste and the disproportionate burden on Local Government to absorb these externalities.
- That the EPHC investigate measures to involve producers in planning for waste disposal and educating consumers about the waste implications of their purchases.
- That the EPHC investigate measures to make producer organisations more publicly and politically accountable for their waste policy positions.

6.5 Indirect Structural Impacts of Waste Management

Problem Description

Modern waste management plays an indispensable role in facilitating a resource intensive consumer economy.

[10] See for example the comments made by INCPEN – a UK based packaging industry association in a submission to the UK Parliamentary inquiry in September 2000, online available http://www.parliament.the-stationery-office.co.uk/pa/cm199900/cmselect/cmenvtra/903/903m36.htm, accessed 17/01/2005.

6.5.1 Entrenching the paradigm of end-of-pipe planning

The origins and evolution of waste management encouraged the adoption of an engineering-focussed approach which treats waste as an inevitable input. Waste engineers 'solve' the problems associated with waste in ways which are at times technically innovative but arguably economically, environmentally and socially less preferable to avoiding those problems in the first place. However, this engineering approach demands little structural reform of the processes which sit above it and it has developed its own momentum. This process of structural entrenchment is insightfully discussed by Sharon Beder in relation to engineering solutions to sewage problems (Beder, 1993).

The power of a technical paradigm to solving a particular problem is important but the existence of standing capital may be just as significant in explaining structural entrenchment. The current system of treating waste disposal represents a significant level of investment and is assumed to have originally been based on a rational assessment of the different options. In financial literature this is referred to as adopting the system with the highest "Net Present Value", referring to a discount factor (adjusting for time and risk) being applied to the costs and benefits of different options. Any movement from the current system to a new approach to managing waste, which is based on more environmentally friendly approaches, involves an assessment of the cost of an entirely new system versus the maintenance of the existing one. As discussed, in the context of waste such assessments are based on flawed assessments of true costs and benefits of alternative waste management approaches.

To illustrate our argument that an engineering-focussed approach to waste management undermines alternative approaches, consider the comparisons to a topical end-of-pipe solution – geo-sequestration of carbon dioxide. Australia's coal industry has heavily pushed the option of sequestering liquefied carbon dioxide in the ground. The coal industry stands to lose most from alternative approaches because these approaches challenge the industry by both undermining its technical paradigm and by challenging the basis of its investment logic. Associated with geo-sequestration are significant uncertainties about technological feasibility, great financial costs and questions about whether it will make a sufficient contribution to reducing greenhouse emissions. Yet the fact that it represents a plausible bolt-on fix has tremendous political and moral significance because it permits governments to defer the paradigm shift – changing the way we use and generate power.

Engineering better landfills, better recycling plants, new resource recovery facilities are all commendable exercises to the extent that they will reduce environmental harm. We should prefer these improvements to the status quo, just as we should prefer geo-sequestration to the alternative of traditional coal-fired power stations. However, the contribution that waste engineering solutions can make to our resource efficiency is probably small compared to the changes which can be brought about by moving back up the product lifecycle towards the source. Reducing the material and energy intensity of our production and consumption is the only way to minimise the losses depicted at each stage in the cycle depicted in Figure 2 (solid arrows). We are concerned that ever more sophisticated waste management technologies help to obscure both the nature of and the need for upstream interventions and that the more the sector invests in end-of-pipe solutions, the greater the inertia we must overcome to pursue alternative approaches.

6.5.2 Top-of-pipe decisions

End-of-pipe waste planning which we can observe today allows companies to simplify their design and marketing objectives to focus exclusively on winning the most sales at lowest cost. This has promoted rapid growth in disposable products and the abandonment of a wide array of commercial arrangements for reuse and repair. For instance, the disposable glass stubby emerged in the 1970s with the advent

of cheaper glass manufacturing techniques. However, the technical capacity to make glass containers so cheaply that they could be disposable was not the only precondition for the successful uptake of this marketing strategy. An equally important precondition was the existence of a take-all domestic waste collection service, for which producers and consumers would not directly pay.

The same precondition has been equally important in facilitating markets growth for durable products like computers with short obsolescence periods. The dynamism of these markets promotes marketing strategies with virtually no regard for what will happen once a unit leaves the factory or shop floor. Consider an alternative marketing strategy which consumed fewer natural resources by limiting turnover to simply the components which were systemically or functionally obsolete[11]. In an economy where natural resources are undervalued and where the costs of managing the composite wastes from durables are external to producer and consumer transactions, the benefits of such a strategy are completely obscured. Thus when a new computer is required, it is frequently cheaper to replace the entire system, including peripherals, notwithstanding the ongoing utility of the majority of the components within that system. The momentum and significance of such marketing strategies are well illustrated by figures like the annual estimated landfilling rates for computers (1.6 million pa) and major appliances (2.5 million pa)[12].

Integrated product policy reflects an emerging view in Europe that the processes at the top-of-pipe are an appropriate focus for policy makers who may previously have concentrated on end-of-pipe problems.[13] Integrated product policy challenges the notions that product design and marketing decisions are the exclusive preserve of manufacturers and that waste planners must simply adapt to whatever decisions are made further up the pipe.

6.5.3 The Rebound Effect

A number of researchers have found evidence for a number of 'rebound effects' which predict that measures aimed at achieving an efficiency goal may be frustrated by counteracting side effects which increase consumption (Hertwich, 2005). Consumers are probably more likely to buy a product if they associate fewer environmental impacts with its consumption. On this basis, we may speculate that the measures which have addressed some of the obvious impacts of waste (eg better recycling services and landfills) have improved the business case for materially intensive manufacturing and marketing strategies. The indirect impacts associated with this material intensivity are simply too remote for the consumer to be mindful of.

6.5.4 Professionalism and externalisation of responsibility

By virtue of the facts that municipal wastes are efficiently collected and that a large number of households have a recycling service, there may be a tendency for communities to feel that waste engineers have solved the problems associated with their consumption patterns.

The externalisation of responsibility for achieving commonly desired outcomes is observable in relation to many public functions such as health, welfare and education and it is not the intention of the Submission to attack this trend. However, if it is proposed to emphasise the role of individual choice in

[11] For definitions of the terms systemic obsolescence and functional obsolescence as used here, see wikipedia, online available http://en.wikipedia.org/wiki/Planned_obsolescence, accessed 08/02/2006

[12] See Electrical and electronic product stewardship strategy – Department of Environment and Heritage website, online available http://www.deh.gov.au/settlements/waste/electricals/, accessed 08/02/2006

[13] See Europa Website for discussion of integrated product policy, online, available http://europa.eu.int/comm/environment/ipp/ippcommunication.htm, accessed 19/01/2006.

achieving better environmental outcomes through demand driven, market mediated change[14], then the externalisation of responsibility is a hurdle which has to be acknowledged. We do not suggest that this is a uniform response across all individuals, but the volume and nature of waste generation suggests a significant mismatch between peoples' consumer behaviours and their desire to live sustainably.

Rationale for Intervention

Market Failure Rationale: Undervaluation in energy and material markets and a disconnect between the waste services market and the consumer products market results in markets which excessively assign natural resources to consumption. Imperfect information in the consumer products market leaves citizens unable to identify the effect that consumer behaviour has on other aspirations.
Planning Rationale: Optimal planning for resource efficiency requires comparisons of the scale of impacts and improvements at different points in the product lifecycle and interventions at the points where greatest benefit can be realised.

6.5.5 Undermining citizens' aspirations

European policies and the frequently cited environmental consciousness of Europeans have combined to substantially increase recycling in Europe, yet this achievement is undermined by the growing size of the waste stream. The European Environment Agency reported in 2002 that "consumer and commercial behaviour is resulting in increases in the generation of [*per capita*] municipal waste including packaging waste." (EEA, 2002, 100). MWAC suggests that an outcome such as this raises the possibility that the current approach to Waste Management (6.5.1) is undermining the ability of citizens to achieve their aspirations of sustainable living because it is impeding changes in both producer (6.5.2) and consumer behaviour (6.5.3 and 6.5.4).

6.5.6 Sustainable consumption

Many waste managers recognise that their investments in education and technology are a patch applied to address the unsustainability of consumption practices. To these waste managers, the upper tiers of the waste hierarchy (avoidance and reuse) represent an unrealised aspiration that waste problems will be addressed by consumer choices. Given the resource losses inherent in the product life-cycle (see Figure 2), even an ideal technological fix applied at the end of the pipe would not necessarily make consumption patterns sustainable. Ultimately, only deep changes in consumption patterns will be sufficient to achieve sustainability. Sustainable consumption must go beyond the changes achieved through the 'buy green' campaigns operated to date and a suite of interventions will be required achieve this end.

Interventions Contemplated

To address the indirect structural impacts of waste management, MWAC envisages interventions which

6.5.7 Openly recognise the problem

As sustainability perspectives magnify the focus on questions of resource efficiency and fundamental environmental limits, the limitations of the approach of patching up end-of-pipe problems grow more obvious. Whether the natural resource in question is assimilatory capacity for greenhouse gases or finite supplies of farming land, the point which policy makers must acknowledge and address is that

[14] As an example of this emphasis, note the slogan used by the Australian Retailers Association in its Code of Practice for the Management of Plastic Bags: "Refuse, Reduce, Reuse, Recycle" where the highest priority strategy centres on the principle of 'refusal' by which customers will "minimise their acceptance of [plastic] bags". The Code is available from the ARA website www.ara.com.au.

economic growth remains reliant upon increased natural resource consumption and these increases are unlikely to be sustainable. Economic policy makers must be pushed to explain how international markets can be expected to deliver the necessary price corrections in the coming decades given manifest and profound market failures. Politicians must recognise the need for our communities to understand the implications of real and imminent limits and stop redefining the problem so that they can be seen to be addressing it.

6.5.8 Price the natural inputs internationally

On an international level, Australia must begin working to correct the market failures which prevent appropriate pricing of natural resource inputs. This is a long term project, but without it, sustainability will remain an aspiration rather than an achievable goal. Frameworks for pricing externalities into production processes would be a good start.

6.5.9 Identify domestic opportunities for repricing natural resources

State-based water trading and the proposal for an interstate greenhouse emissions trading scheme are examples of domestic policies which can address the pricing of fundamental inputs. It is not clear whether or how waste avoidance activities could obtain credit under such schemes but opportunities may well exist. Additionally, other frameworks might be developed and may be able to encourage manufacturing and marketing strategies which favour a reduction in waste.

6.5.10 Emphasising the producer – consumer relationship

Governments must begin to hand over to consumers and producers the responsibility for managing the full range of implications for their transactions. Product takeback is a policy option which has been embraced in other parts of the world as a means of making producers retain responsibility for the management of their products at the product's end-of-life, which in turn requires the producer to foster a more complex relationship with the consumer. MWAC recognises the substantial financial cost associated with takeback schemes but notes the potential for such an approach to modify the way in which goods are designed, manufactured and marketed.

6.5.11 Avoidance – the ultimate strategy

The Productivity Commission discusses the waste hierarchy and argues against using it as a strict order of preferability. MWAC acknowledges that there is sense in what the Productivity Commission has argued in relation to this but notes that little comment was made about the top of the hierarchy and the role that avoidance might play in waste policy. Notwithstanding its incorporation into strategies and statutes around Australia, waste policy makers have shared the Productivity Commission's preoccupation with the lower tiers of the pyramid. Therein lies an excellent illustration of our assertions about the focus of relevant waste policy in Australia in 3.1.4.

It is our view that sustainable consumption ultimately requires avoidance. By avoidance, we mean fewer physical products being bought and sold. We advance no view about whether this would require less consumption and production.[15] The point we emphasise is that no amount of attention at the bottom of the waste hierarchy can deliver the reductions in material and energy consumption which are possible by reducing the quantity of products which we purchase in the first place. Policies to reduce the purchase of physical goods may present significant costs to our welfare – particularly if defined in

[15] The commentator Michael Krockenberger suggests that our current modes of production and consumption are 'hot, heavy and wet' and implies that the transition to a 'cool, light and dry' economy is consistent with continuing economic growth. See "How many people doing what in Australia?", online available http://www.onlineopinion.com.au/view.asp?article=1911 , accessed 08/02/2006

strictly material terms. However, the sustainability imperative should change the way these costs are incorporated into public decision making. If a net reduction in material welfare is the required in order to live sustainably, then such a reduction is not only warranted, we argue that it is optimal.

6.5.12 Educative and promotional interventions to reduce consumption

Assume for a moment that it is politically accepted that market failures and sustainability imperatives necessitate a planned approach to reducing the resource intensity of consumption. If this assumption holds, then governments will acquire a responsibility to promote particular consumption patterns – a move which necessarily will make governments responsible for creating winners and losers (and probably more of the latter). Common arguments against governmental interventions like 'it's not the role of governments to pick winners', would seem in such circumstances to miss the point. As an example of the type of intervention which may need to be investigated, MWAC is seeking funding for a project to review strategies to reduce battery consumption. One strategy to investigate will be to encourage consumer substitution of rechargeable batteries for disposable batteries. Precisely how one might do this is not relevant here, what is relevant is the implication that governments would be providing free promotion to one group of manufacturers and directly undermining the market share of another group. However, we submit that government's need to begin to do exactly this.

Recommendations

- That the State and Federal Governments explicitly recognise that reducing the resource intensity of consumption will provide far greater environmental benefits than end-of-pipe focussed waste policy.
- That the State and Federal Governments establish the shared goal of reducing the resource intensity of consumption.
- That the State and Federal Governments initiate dialogue with industry to achieve acknowledgement of this fact and to establish the opportunities for consensual policies directed at reducing the material intensity of consumption.
- That the State and Federal Governments investigate a broad suite of voluntary and mandatory interventions aimed at reducing the resource intensity of consumption.
- That the State and Commonwealth Governments include product takeback schemes in their policy toolbox on the basis of its potential to modify the way in which goods are designed, manufactured and marketed.
- That the State and Commonwealth Governments identify the process by which they would determine to intervene in the market to reduce consumption of critical products.

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8.0 Appendix 1 - Sustainability and its Implications for Intervention

Sustainability motivates Local Governments and their communities by a combination of factors to strive for less waste, including moral factors (paragraph 8.1.8) and rational factors. These motivations are underpinned by beliefs such as the notion of fundamental limits (paragraph 8.1.1) and the need for caution in the face of uncertainty (paragraph 8.1.2). These beliefs weaken the case for applying cost-benefit analysis in some cases (paragraph 8.1.5), may justify significant spending on environmental conservation (paragraph 8.1.3), but recognise the need to be methodical in choosing the best means of achieving our aims (paragraph 8.1.6).

8.1.1 Critical levels of natural capital

In understanding Local Government and community interpretations of "sustainability" the notion of sustaining critical levels of natural capital is useful. An economically rationalist perspective on sustainability might argue we should allow certain minimum levels of natural capital to be breached "if the opportunity costs of doing so are unacceptably large" (Hanley et al., 1997, p430) However, a more meaningful interpretation of sustainability for many working in Local Government involves the notion that there are certain critical levels of natural capital which ought to be preserved at all costs.

8.1.2 Uncertainty about limits - Precautionary Principle

We must concede extremely large levels of uncertainty about what the critical levels might be in respect of a range of types of natural capital. Therefore, it is at least prudent to overestimate how much natural capital we should preserve for future generations and, arguably, morally reprehensible to do otherwise.

8.1.3 Sustainability as an over-riding imperative

There are a range of over-riding imperatives which exist in every society and which communities expect to be the pursed through centrally planned methods. Thus, we generally do not speak of market failures in relation to maintenance of national security or a criminal justice system, nor in the provision of a basic level of health care and education. This is not to say that the provision of these services cannot be viewed through that prism, rather we point to a general consensus in this country that it is appropriate for governments to take steps to ensure that outcomes like a safe, healthy and educated society are achieved. The corollary of this view is that conviction that any market determined allocation of resources which did not achieve these outcomes would be plainly wrong. It is the view of MWAC that the imperative to ensure our economies are sustainable shares the same character as those relating to security, health and education.

8.1.4 Expensive programs may be reasonable

It may sometimes appear that too much money and attention in the field of waste management is focussed on achieving modest environmental benefits. On the other hand, the perspective set out in 8.1.1 and 8.1.2 underpins a conclusion that the need to respect fundamental limits to the environment's resources and assimilatory capacity justify ambitious action in all areas.

8.1.5 Cost-benefit analyses and the concept of fundamental limits

In light of paragraphs 8.1.1 to 8.1.3, we submit that simple cost-benefit analyses of waste management policy and programs may sometime obscure the fact that a rational basis for those policies or programs does exist. It appears to us that implicit in cost-benefit analysis is a belief that all environmental values are measurable and reducible to units which permit them to be traded against other

socially/economically valued items. MWAC disagrees with this view and contends that a true commitment to sustainability requires that we all place some environmental values beyond trade-off.

8.1.6 On the role of cost-benefit analysis

Notwithstanding the view expressed in 8.1.1 and 8.1.5 regarding the reasonableness of declining to trade-off some parts of the environment, MWAC recognises that cost-benefit analysis has an important role to play in determining the most efficient means of protecting the natural environment. Where clear and meaningful environmental goals can be defined, it seems sensible to employ techniques such as Cost-Effectiveness Analysis to assess competing options for achieving those goals (see G.O.R.R., 1998).

8.1.7 Local Government attitudes to waste, resources and wastefulness

Waste in the sense of discarded materials and embodied energy is increasingly viewed within Local Government as a resource for which uses can and should be found. The corollary of this view is that when no use is found for these materials and energy, that the environment and the community are worse off.

8.1.8 Core values and wastefulness

The desire to avoid waste partly reflects a moral position, generally implied rather than plainly stated, that parsimony is good and wastefulness is bad. While this type of perspective may not appear to be economically rational, it is important to understand that values such as these probably help explain the overwhelming public support for Local Government recycling programs.

8.1.9 Sustainability and efficiency

The Productivity Commission observes in the Issues Paper that some definitions of Resource Efficiency seem to ignore the value of other inputs used in the product process. The sense in which someone from Local Government would be most likely to used the term Resource Efficiency would be in the narrower sense, focussing on the consumption of natural resource inputs. However, the efficiency focus on natural resource inputs prevalent in modern waste management thinking does not necessarily ignore the fact that other inputs are required in production processes. Rather it represents a recognition that our natural resources are distinct from other inputs by virtue of the fact that it is only the natural resource inputs which we must share with future generations.

The sustainability perspective creates a obligation to preserve enough of these natural resource inputs to satisfy the needs of future generations. In light of this obligation, the economic efficiency goal of "getting the best return for the community from the use of all its scarce resources" is qualified by one over-riding condition (Productivity Commission, 2005A, p18). This over-riding condition is that none of the possible assignments of the total stock of productive resources can be acceptable if it jeopardises the long term availability of natural resources to future generations.

9.0 Appendix 2 – Setting Goals, Objectives and Targets

9.1.1 Broad sustainability goals

Goals and objectives addressing how Australia will develop into a sustainable society and economy should be set by governments across the entire range of government responsibilities. The goals must cover more than simply waste or environmental portfolios. The objectives should include waste and environmental objectives, among others.

9.1.2 Targets

In the view of the Municipal Waste Advisory Council, targets are developed to translate goals and objectives into auditable performance requirements. A target provides a clear rationale for activity in a given area and the ability to objectively assess whether it is met is hoped to provide a spur to those responsible for achieving it.

9.1.3 Examples of recent approach to target setting

In line with the Productivity Commission's intimation, we would agree that target setting in waste management has, to date, not been directly based on economic efficiency considerations. In states such as Victoria and South Australia, targets have been set for waste to landfill and recycling rates.[16]

- These are simple, medium range targets for which no-one but the government bears direct responsibility for achieving.
- These targets were set under each state's strategic planning process and it appears that they were selected on the basis that they were ambitious but achievable within technical and economic constraints.
- The Victorian targets were economically assessed by the Allen Consulting Group, who concluded the net benefits would outweigh the costs. An economic assessment appears to have been applied after the Strategy was developed, rather than providing any input into the development of the target.

9.1.4 Strong support for setting targets

MWAC strongly supports the setting of targets on at least three separate bases.

Firstly, setting targets by which the effectiveness of a particular policy approach can be assessed is critical to political transparency and accountability in the selection of strategies and programs to achieve an objective. This has been especially important to Local Government in cases where policy approaches appear to have been preferred on the basis of expediency rather than efficacy. The practice of setting targets reminds policy proponents that regardless of the benefits of one approach over another, success or failure in achieving some specific outcomes (as defined by the targets) will form the crux of the final assessment of their preferred approach. Targets may described as "a bad political idea"[17], but they may also be one of the only ways to ensure that the stated objectives form the central focus of any policy proponent.

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[16] See Sustainability Victoria, (2005) Sustainability in Action: Towards Zero Waste Strategy, online available http://www.ecorecycle.sustainability.vic.gov.au/www/html/675-sustainability-in-action-towards-zero-waste.asp, accessed 18/01/2006. &
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[17] Geoff Kitney, paraphrasing Australian High Commissioner to the UK, Richard Alston, in "Smoke fires up climate debate", *Australian Financial Review*, Thursday 15 December 2005.

Secondly, once a particular policy approach is selected, targets provide a clarity which assists with the implementation of programs. Targets provide a common language which permit different stakeholders to consistently interpret the objectives of a policy.

Thirdly, targets are a necessary starting point for a number of economic instruments designed to motivate private enterprise to deliver a particular outcome. The Productivity Commission will be familiar with this rationale for target setting in view of its detailed consideration of National Energy Efficiency Targets as a basis for trading schemes to improve energy efficiency.

9.1.5 Targets and optimal social, environmental and economic outcomes

The Productivity Commission poses the question – how should targets be set to optimise social, environmental and economic outcomes? MWAC is not in a position to propose an economic methodology for optimising these outcomes. Rather this seems to be an opportunity for the Productivity Commission to present its own views on how to identify, evaluate and compare competing interests.

9.1.6 Should a target be set with reference to all costs and benefits?

The Productivity Commission's question in 9.1.5 raises the prior question of whether it is feasible to optimise (in the sense meant by the Commission) the social, environmental and economic outcomes associated with achieving a particular environmental objective.

In practice, we cannot accurately identify all of the social, environmental and economic costs and benefits associated with a given waste policy target, much less accurately quantify them. That we may one day be able to do so, suggests the future potential of applying cost-benefit analysis to environmental target setting, but does nothing to justify the application of this technique today. MWAC submits that it is too difficult, too contentious and too uncertain to use cost benefit analysis as the starting point in establishing what is an appropriate target and at what level it should be set.

9.1.7 The role of cost-benefit analysis in assessing targets

It is the view of MWAC that setting targets involves an intuitive, political form of cost-benefit analysis in which the magnitude and allocation of financial costs and the value ascribed by the community to the objective being pursued are weighed against each other. In this political forum, the role of values in the decision making process is made explicit and competition between rival value sets can occur in the public eye. The role for economic cost-benefit analysis of the kind commissioned by Sustainability Victoria from the Allen Group, seems appropriately limited to a kind of checking process. Such analyses can provide some insight into whether the economic impacts of a target are likely to be acceptable to the community. MWAC would be sceptical of any suggestion that these analyses are sufficiently sophisticated to do much more than this.

9.1.8 Targets, outcome certainty and compliance cost certainty

MWAC recognises that setting targets is attended by costs and it is not suggested that targets should be set for everything and in all cases. In some cases, it may be preferable to incorporate a fixed charge (perhaps on the grounds of correcting an externality) and then step back to allow the market to determine the new, 'optimal' level of waste. In this respect, we have found it useful to consider the analysis provided by the Allen Consulting Group in their review of the statutory arrangements for oil recycling. As they put it "the choice boils down to whether the focus of the regulatory scheme should be to provide certainty as to the quantities recycled or the compliance costs" (Allen Consulting Group, 2004). Recycling targets will be favoured for outcome-certainty and advance disposal fees or taxes for compliance-cost-certainty.

9.1.9 Objective assessments of outcome importance

In practice, it is very difficult to make an objective assessment of the importance of an environmental objective. For a clear example of the subjectivity which permeates such assessments, we need look no further than the same Allen Review. In concluding that compliance-cost-certainty should win out over outcome-certainty, the Review noted that "Australia is already a world leader in the percentage of oil recycled, and so the precise level is not so significant". Setting aside the question of whether world standards are relevant to Australia (a question raised by the Productivity Commission), it is worth noting that the 'not so significant' level of unrecovered material amounted to at least 50 Mega litres of fugitive lubricant oil per annum. The Review did not (indeed could not) assess what the potential environmental impact of failing to recover this much oil each year might be. That controlling financial costs should be given a higher priority than improving the recovery of used oil, was in truth an article of faith for the Reviewers rather than the outcome of a rational assessment.

9.1.10 Certainty preference is a function of values

The dichotomy proposed in 9.1.8 provides a useful insight into the priorities of policy makers to date. The few examples of economic instruments deployed in Australia to address waste indicate that policy makers have prioritised compliance-cost-certainty (*cf* taxes on landfills, levies on oil and deposits on containers). MWAC considers that the absence of outcome-certainty focussed economic instruments in the area of waste management reveals that the policy makers attached a low importance to the achievement of waste objectives. Furthermore, we suggest that the assignment of low importance to these objectives has more to do with subjective values than with a rational assessment of impacts. The example discussed in 9.1.9 was not raised to criticise the Reviewers nor the merit of their recommendations. Rather, it is presented as an illustration of the need to acknowledge the role that values inevitably play in assessing policy objectives. Assessments by economists, life-cycle analysts and other technical experts ought not be allowed to obscure the values at work.

9.1.11 Targets, Europe and integrated product policy

MWAC submits that the fact that the European Union has strongly emphasised the use of targets in waste policy, reveals that policy makers have assigned a high priority to a range of waste related objectives. Importantly, these objectives have not been limited to the avoidance of direct environmental impacts, but also towards reducing the life-cycle impacts of consumption generally. The waste related targets adopted in Europe do not simply reflect the technical obsession of a few waste utopians. These targets are part of a broad, economy-wide push, captured under the umbrella title of integrated product policy, to reduce the environmental impact of consumption. Absent some prior acknowledgement that Western consumption practices reflect significant market failures and are unsustainable, targets and the rest of the interventions contemplated by integrated product policy could not be justified. On the other hand, if one accepts these characterisations of Western consumption practices, then the weak focus on specified outcomes, witnessed in Australian waste policy to date begins to look like evasion.

9.1.12 Zerowaste

The Productivity Commission asks whether it is sensible to aspire to eliminate waste to landfill. MWAC takes the view that the vision of Zerowaste to landfill provides an effective statement of a collective mission for the community. Arguing about whether zerowaste is really achievable and about whether it represents the best environmental or social outcome, overlooks the reality that the zerowaste vision is used to provide a simple proxy for sustainability. Zerowaste implies more recycling, more resource recovery and less consumption. At present, all of these activities are likely to deliver more

environmental benefits than disbenefits. As communities approach zerowaste, the costs involved may become asymptotic. When this begins to happen, it is reasonable to expect that waste managers and communities will need to reassess whether the zerowaste proxy remains suitable to guide sustainability efforts in relation to waste.

10.0 Appendix 3 - Intervening in Energy and Material Markets

The ideal policy response to many of the concerns set out in the Submission would be directed towards the pricing of the fundamental inputs of production.

10.1.1 Repricing the basics

Carbon taxes, increased resource rents and a raft of other policies to provide mechanisms to ensure that the price of natural resources better reflect the cautiously estimated long-term cost of consuming those inputs. Such an approach could be tailored to address sustainability concerns in a systematic way by factoring the needs of future generations into price of inputs which must be shared with those generations.

10.1.2 Prices and resource efficiency

More expensive materials and energy would drive private enterprise interest in resource efficiency and resource recovery. These types of interventions would be explicitly directed at the conservation of natural resources and would allow flexibility in the downstream economic response.

10.1.3 Ideal response

In the view of the Municipal Waste Advisory Council, the type of approach set out in 10.1.1 and 10.1.2 represents the ideal response to market failures with fewer associated distortions and greater structural simplicity than alternatives.

10.1.4 Ideal response not available

The type of approach set out in 10.1.1 and 10.1.2 would need to be global in nature and the difficulty associated with this type of approach is clear from the experience of the Kyoto Protocol. Moreover, it is clear from the Issues Paper that the Productivity Commission will not be in a position to examine these types of interventions.

10.1.5 Micro-interventions

The policy approaches which are suggested in the remainder of section 10.0 contemplate more detailed Governmental interventions – analogous to microeconomic reforms. These micro-interventions may be less efficient, more distorting and less stable, than the macro-reforms proposed in 10.1.1 and 10.1.2. On the other hand, they may be implemented more quickly, without attempting global reforms and they may provide a starting point for a longer term transition to macro-reforms. More to the point, these types of interventions are the only ones likely to be made available to environmental policy makers.

10.1.6 Assessing interventions against alternatives

In relation to a proposal for trading in energy efficiency, the Productivity Commission drew attention to the need to avoid thinking of energy efficiency as an end in itself and to focus directly on the central policy objective, in that case greenhouse gas abatement (Productivity Commission, 2005, 317). In finding against the energy efficiency trading proposal, the Productivity Commission pointed to the superiority of direct trading in greenhouse gas emissions as a means of achieving the ultimate objective. While the Commission's analysis seems sound enough, the validity of using emissions trading as a benchmark for policy efficacy depends on whether this alternative was a legitimate and feasible policy alternative. The Productivity Commission failed to indicate whether it believed an emissions trading scheme was likely to be considered in Australia – a salient point to address in view of Australian Government staunch opposition to such an approach. Returning to the present Inquiry, we note micro-interventions, such as levies in a particular sector, are likely to be less economically

efficient than the approaches discussed in 10.1.1 and 10.1.2. However, we contend that proposals should not be assessed against options which have no political chance of being adopted.