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Mr Stephen Palethorpe
Secretary
Senate Environment and Communications Legislation Committee
PO Box 6100
Parliament House
Canberra ACT 2600

Email: ec.sen@aph.gov.au

Dear Mr Palethorpe,

Supplementary Submission – Inquiry into the Product Stewardship Bill 2011

I apologise for the lateness of this additional submission, but I was prompted to again read the evidence given to the inquiry by members of the Department of Sustainability, Environment, Water, Population and Communities.

In particular I want to address four issues raised during that session:

- The consultation processes;
- Regulatory Impact Assessments (RIS);
- The product stewardship criteria; and
- Implementation issues

The consultation processes

Concern was expressed as to whether a draft of the proposed legislation had been subjected to wider consultation and it was confirmed that the Bill had not been circulated to stakeholders prior to it being tabled in the Senate.

Although this is common practice, it is unsatisfactory.

The Committee should note although it is a requirement under the COAG arrangements that legislation that has a potential for cost impacts undergoes a process of consultation, the process has a number of deficiencies. These include:

- Agencies are required to note any comments received but are not required to act on them. This means that if a comment received contradicts the agency's predetermined objective it can be ignored;
- Agencies directly concerned with the regulatory initiative control the process. A recent trend is to publish discussion papers containing a series of questions respondents can address. This has the effect of channelling

comments in a certain direction – it becomes a directed consultation and has the potential to miss important input;

- The first stage of the regulatory impact assessment process is usually the development of a 'Consultation RIS' which gives the opportunity for input which may or may not result in changes to the approach taken;
- The agency then prepares a 'Decision RIS' which is not made available to stakeholders until after the decision has been made by the minister or government. There are often significant differences between the matters raised in the 'consultation RIS' and the 'decision RIS' and between the 'Decision RIS' and the final Bill introduced into Parliament. This means that the legislation put before the parliament often differs significantly in critical detail to the matters raised during the consultation process.
- As the 'decision RIS' is not circulated it is not possible to check whether information provided during the consultation process has been used effectively, nor is it possible to determine the direction to be taken by the government in advance of the tabling of the legislation – by which time it is too late to change anything.
- There is no independent check on the veracity of information used. There is no requirement to cross-check with other departments on the contents of an RIS.
- Although the process is overseen by the Office of Best Practice Regulation, they have no expertise on the detailed information within each RIS document – they can simply confirm that the process has been followed.

In my view the current process does not have sufficient rigour and is open to manipulation those promoting regulatory intervention. I addressed this issue in a paper presented at Ecoforum 2009¹ (copy attached) which shows how data was invented and manipulated in relation to the plastic shopping bag issue and how the RIS for the introduction of compact fluorescent lights (CFL) was deficient to the extent that, had a proper analysis been undertaken, the change to CFLs could not have been justified.

Note that the 'Data Quality Act' reference refers to a US requirement re the need for verification of facts in data used by federal agencies.

The conclusion that can be reached here is that it would not be safe to proceed with the Bill in its current form, given that its development has relies on a flawed consultation process. i.e. we cannot be sure of the validity of its underpinning assumptions.

The Regulatory Impact Assessments

The regulatory impact assessments used in support of the current regulatory push are also problematical.

I go back to the evidence presented to the inquiry by the department. Dr Wright refers in her opening statement to the need for the legislation was based on Australia *'to more effectively manage the environmental health and safety impacts of products and particularly those associated with the impacts of disposal'*. Yet the RIS that underpins the

¹ The need for a Data Quality Act: A review of the COAG Regulatory development process with emphasis on waste and recycling policy, G van Rijswijk, NARGA

legislation does not assess these issues. Instead it derives its cost-benefit assessment savings on the basis of centralising proposed stewardship programs under the Commonwealth instead of each state running its own scheme.

This assumes firstly that such product stewardship programs are necessary (no analysis is available to suggest they are the best option) and that each state was about to implement such programs.

Dr Wright said: *'This analysis showed that a national framework approach to product stewardship for problematic waste, compared to separate jurisdictional approaches, generates savings of \$147 million over 20 years.'*

The RIS document, however concluded the following:

'The Regulation Impact Statement modelled a national framework approach to product stewardship for problematic wastes compared to separate jurisdictional approaches. A national framework approach was found to generate administrative costs to government of \$65 million over twenty years at a 7 per cent discount rate but achieve \$147 million in savings over the base case. A fragmented jurisdictional approach resulting in up to an additional 5 product stewardship programs was found to generate extra costs of between \$0 and \$212 million in administration alone, compared to the base case, and a 70 per cent loading on administrative costs compared to a more coordinated approach dealing with the same number of extra products.'²

Let's translate this. The national framework approach is to cost the Commonwealth \$65 million over 20 years. It will save between \$0 and \$212 million depending on how many of these 'product stewardship schemes' get up and then only if all jurisdictions would have instituted one in their own right. The maximum saving of \$147 million comes from subtracting the \$65 million running cost from the maximum possible state government costs of \$212 million.

Put simply the regulatory proposal is for the Commonwealth to bypass the states – who have the carriage of waste matters and centralise product stewardship schemes at a cost of \$65 million,

The second RIS of note is the one covering the TV and Computer recycling scheme³. I addressed the misrepresentation of the cost of that scheme in the evidence given by the Department in an earlier submission – where the cost of the scheme estimated in the RIS to approach \$1 Billion was represented as a saving to the community because the community was 'willing to pay' up to \$1.7 Billion to recycle!

However, the comment that needs to be made this time around is the, in spite of the fact that the legislation is supposed *'to more effectively manage the environmental health and safety impacts of products and particularly those associated with the impacts of disposal'*, the RIS fails to address the environmental health and safety aspects of TV and computer disposal and ignores the reality that these materials are less safe when repeatedly handled during collection and processing than they would be if simply disposed to landfill.

² RIS National Waste Policy, the Allen Consulting Group, October 2009, page vii

³ Decision RIS, Televisions and Computers, PwC October 2009

The approach being proposed could be all cost and little benefit.

The department has also issued a discussion paper on proposed regulations for the TV and computer recycling scheme. It states that it is proposed to make the industry solely responsible for the cost of the scheme and its implementation.

This approach contrasts with that of the Australian Packaging Covenant where there is shared responsibility between industry, state governments and local governments. The latter is supported through the National Environment Protection Measure mechanism under the NEPC Act in each jurisdiction.

This confirms two things:

- There is already an existing mechanism capable of bringing about concerted and cooperative action; and
- The Commonwealth regulatory approach may not be capable of assigning responsibilities to state, territory and local governments so that their cooperation can be secured.

The first point puts doubt on the necessity for the proposed legislation and the second point highlights a major barrier to its effectiveness.

Again we can conclude that it would not be safe to proceed with a Bill that gives the minister wide powers to impose substantial additional costs on the community and is reliant on a flawed RIS process- one obviously capable of manipulation – as the sole mechanism providing input into any decision reached.

Product Stewardship Criteria

Considerable concern was expressed during the public hearings about the loose criteria that apply to the targeting of products for stewardship schemes. As they stand, virtually any product can be targeted.

The Departmental response appears to rely on the effectiveness of the RIS process to filter out products that do not warrant inclusion in the scheme. According to Dr Wright *'not every product or material will get through the regulatory impact assessment and be a suitable candidate for regulation.'*

However in the next line she confirms that tyres did not get through the RIS process but that the industry was being asked to adopt a 'voluntary' scheme. Note that this is in spite of the fact that the relevant RIS confirmed that it was not viable – in Dr Wright's words: *'(It) did not deliver an overall community benefit.'*

Senators should note that a 'voluntary' scheme is easily translated into a 'co-regulatory scheme' subject to regulation. This is achieved by the bureaucracy highlighting the need for co-regulation to avoid 'free riders' as happened in the case of the Australian Packaging Covenant which started off as a proposed voluntary scheme.

Schemes such as the one for mobile phone recycling which is currently a voluntary one could also be targeted for inclusion under a co-regulatory regime.

Let us look at the criteria in detail:

- (a) *The products are in a national market;*
- (b) *The products contain hazardous substances;*
- (c) *There is a potential to;*
 - (i) *increase the conservation of materials used in the products, or increase the recovery of resources(including materials and energy) from waste from the products; and*
 - (ii) *contribute to the amount of greenhouse gasses emitted, energy used or water consumed in connection with products and waste from products*
- (d) *Reusing, recycling, recovering, treating or disposing of the products involve a significant cost to the Commonwealth, or State, or Territory, or local government*
- (e) *The consumer is willing to pay for action that reduces the impact:*
 - i. *That the products have on the environment, throughout the lives of those products;*
 - ii. *That substances contained in the products have on the human environment, or on the health and safety of humans.*
- (f) *Taking action to reduce those impacts will offer business opportunities that would make a contribution to the economy*

Should the legislation proceed, requirement (a) should be a mandatory criterion.

Requirement (b) is problematic because the Bill does not define 'hazardous', and in the absence of a definition many materials can be described as hazardous even though they have little or no impact and present no risk in regular usage or disposal. The lead contained in CRTs and solder is an example and there are many others. This criterion needs to be reworded in terms of the material in question presenting a genuine hazard in use or if disposed of in a way other than proposed under a scheme.

Criterion (c)(i) is nonsense. The recovery of any product can 'increase the conservation of materials' – The question is whether, in the context of resource availability, the quantities of materials involved are significant and their recovery is the optimum way of addressing any resource scarcity. Note that I do not believe an RIS necessarily makes such distinctions. The TV and Computer RIS (Page 59) lists the following materials as being relatively scarce (quoting an article in the *New Scientist* magazine when reliable data is available from the government's own agency – Geoscience Australia).

- Tin – 40 years;
- Lead – 42 years;
- Zinc – 46 years;
- Copper – 61 years; and
- Nickel – 90 years.⁸⁸

The data was supposed to suggest that these materials were scarce – in fact close to running out and therefore we had better start recycling. A number of factors were not addressed by the RIS in relation to using TV and computer recycling as a means of addressing any perceived scarcity. They included:

- The current practices relating to recycling of e-waste to determine whether any of these materials were in fact targeted for recovery;
- The quantity recoverable and its relationship to current worldwide usage (i.e. would recovery from such a source make a genuine impact on the availability of the resource)
- The relative cost of recovery compared with other conservation mechanisms
- The fact that the minerals sector meets future needs as necessary through increased exploration – i.e. current levels of each resource do not imply a limit.

Criterion (c) (ii) needs to be expressed in terms of significance against each of the factors mentioned and conditional on the relative cost of action being proportionate.

Criterion (d) applies to all waste. It cuts across the responsibilities of state and local government and, if used as a prompt for action could see all waste management funded by a levy of some sort. We would then have a waste system which, instead of being funded and coordinated at local government level, becomes fragmented and inefficient. The criterion could be used to justify a levy on farmers for the food they produce!

Willingness to pay (e) is a poor criterion to use as it assumes that respondents have available all of the pertinent information and have a detailed understanding of the relevant issues. I note that 'willingness to pay' has been used as a justification for action in the TV and computer recycling RIS but the way that the questions were asked has, in my view, led to a false outcome.

Criterion (f) is nonsense. Any subsidised program – **as all of these schemes are** – is capable of offering a business an economic return. The more pertinent question is whether they are value for money for the community.

I suggest that the original criteria come from a perception that substantial environmental benefits can be obtained by keeping products out of landfill and, in particular by recycling them. Further that such benefits are achieved in a cost effective manner so that they result in a net benefit to the community.

This assumption underpins the whole of the *National Waste Strategy* of which this proposed legislation is a part.

Unfortunately the assumptions remain untested.

I propose a more rational set of criteria:

- The products are in a national market;
- The program addresses a genuine environmental hazard or risk (i.e. disposal of the product in landfill as part of general waste will result in genuine risk of harm);
- Product recovery for recycling is the best most cost effective way of addressing these hazards;
- The program would not be self funding – i.e. it needs intervention.

It is clear that the product stewardship criteria are loosely worded and fail to properly address critical issues of conservation, environmental and public health and safety. They give the minister and his advisors too much scope to introduce a 'product stewardship remedy' for matters that with rigorous assessment would appear to be non-issues. Proceeding with the Bill in its current form is therefore ill advised.

Sustainability and Subsidy

All would agree that the purpose of this Bill and other environmentally based legislation is to improve the sustainability of our society. However, sustainability relies on ensuring that measures taken are optimally efficient and cost effective. The Bill does not contain any provisions that ensure such an outcome.

Instead it proposes to establish a framework that, by definition, calls for a series of schemes to be set up to be supported and funded by a range of industry sectors – resulting the development of a series of **subsidised** industries.

We already have a highly subsidised household recycling scheme for packaging and paper, subsidised through council rates and landfill levies. It is doubtful that the community is getting value for money in terms of any environmental outcomes achieved.

Landfill levies in the various states and territories are also subsidising a range of activities including for example the recycling of soil, concrete and other building materials – adding significantly to building construction costs – again based on the concept of reducing landfill rather than any rigorous assessment of merit.

It is proposed to use this Bill in the first instance to provide the mechanism for the recycling of TVs and computers at an estimated cost to the community of close to \$1 Billion (as previously highlighted, this is a gross underestimation of the final cost given the changes to the scheme proposed in the regulation discussion paper).

We have already heard that the Department is targeting tyres – **even though these did not pass the public benefit test.**

EPHC working groups are targeting other products including batteries (non-lead acid). The rationale is to 'save' the community from adverse effects of cadmium, even though a thorough risk assessment undertaken by the EU (after their battery directive had been in place for over ten years) found the 99% of human exposure to cadmium came from non-battery sources, principally the fertilisers used on food crops.

Mention has also been made of transitioning the successful Australian Packaging Covenant into a scheme under the Bill. In fact the Department has recently closed a tender for a consultation to define the 'problem of packaging' and its 'solution'.

Should packaging transition to a European style EPR scheme under this legislation the cost to the community in product taxes would, judging by the German experience, exceed \$1 Billion per annum for little improvement in recycling outcome.

At best these schemes are a costly means of deriving a marginal improvement in environmental outcomes, at worst they are a waste of a finite community resource – money.

The question that needs to be addressed before this legislation is passed is whether Australia should go down the path of a fragmented waste recycling program supported by a series of product taxes when we do not know whether this would result in any substantive improvement in the environment, resource security or public health and safety – because the assessments have not been undertaken.

Language trumps logic

There is a tendency in the development of waste policy to use language that 'begs the question' or assumes that a particular policy outcome is beneficial. A good example is the tendency to talk about waste as a 'resource' without necessarily going to the trouble of determining the significance of the particular part of the waste stream in question as a valid and viable source of 'resources'.

The 'resource' argument, although invalid, now underpins all waste policy.

This loose approach to language has found its way into the Bill (as it has into other waste related legislation) with the result that objectives and potential outcomes are loosely defined and lack specificity.

For example, whilst it is possible to 'recover resources' through schemes under the Bill there is no requirement for such recovery to be significant in terms of future resource security or for it to be cost-effective.

Whilst it is possible for schemes set up under the Bill to produce outcomes which reduce risk to environmental and public health and safety, such reductions do not have to be significant in the context of total environmental risk or risk to public health and safety. In fact it can be stated that most schemes involving the transfer of material from landfill to other means of waste management do little to reduce real risk or improve public health and safety – some even increase such risks. Further, risk assessment has been notably absent in and of the RIS documents prepared to date.

What is needed is a comprehensive assessment of resource availability and resource security to provide a backdrop against which claims of resource recovery can be assessed. Geoscience Australia, another government agency, has such information to hand.

What is also needed is a full environmental risk assessment and public health assessment of the landfilling of waste materials to provide context for any proposed alternative treatment of waste. As each product is then assessed for inclusion in schemes under the Bill an assessment can be undertaken to determine the level of improvement that would result to the existing risk profile and the significance of such improvement in the context of total environmental and public health and safety scenario.

I suggest that such analyses would show that the proposed schemes would result in little net benefit.

Concluding comment

By way of background to the proposal for 'Extended Producer Responsibility' included in the Bill I attach a paper presented to a local conference in 2009⁴ and one presented to a conference in Brussels in 2000⁵ at a time when the EPR concept was evolving at an international level.

The question that the Senate needs to address is whether Australia needs to go down the EPR track, if the end result will be a series of taxes on a range of different products aimed at 'saving' them from landfill with a net negative community benefit.

Summary

- *We contend that there appears to be little basis for proceeding with this Bill as the mechanisms it proposes to establish is available under the National Environment Protection Council Act 1994 (NEPC Act) which allows for the establishment of National Environment Protection Measures (as demonstrated by the schemes already in place). The NEPC Act requires the involvement of the states and therefore provides a wider range of checks and balances against excesses which are so lacking in the current Bill. State and territory involvement also provides opportunities for a more cooperative approach to the solution of genuine waste related issues not capable of being provided for in the proposed Bill.*
- *Should the parliament decide this legislation is warranted, it should not be passed before:
 1. *The identified deficiencies in the Bill have been addressed*
 2. *An analysis be conducted by a suitably qualified independent agency of the current resource base and the status of our resource security together with the true significance of any resource saving that could result from the schemes proposed under the Bill in terms of future resource security.*
 3. *An analysis be conducted on the environmental and public health and safety issues associated with disposal of waste to landfill together with the a measure of any improvement in outcome that would result from alternative approaches proposed under the Bill and the significance in total community benefit terms of any improvement identified;**As without the information derived from the above two assessments we would most likely be entering into arrangements which are a waste of community funds and resources.**

We trust this assists your inquiry.

Please contact me should you have any questions.

Yours sincerely

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⁴ Extended Producer Responsibility – An Analysis of Policy and Practice

⁵ Extended Producer Responsibility and Resource Efficiency, Brussels, Dec 2000

Extended Producer Responsibility – An Analysis of Policy and Practice

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Abstract:

This paper reviews the local and international background to the development of current EPR policy and practice. It examines the theoretical basis of EPR, how theory translates into practice and its influence on environmental outcomes.

A number of case studies are used to demonstrate key points, one being the local computer industry.

Key words: Extended Producer Responsibility, EPR, recycling, container deposits, packaging, computers, electronics, resources.

Introduction

Extended Producer Responsibility is defined by the OECD as “an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s life cycle. There are two related features of EPR policy:

- (1) the shifting of responsibility (physically and/or economically; fully or partially) upstream toward the producer and away from municipalities, and
- (2) to provide incentives to producers to incorporate environmental considerations in the design of their products¹

OECD goes on to explain that EPR ‘seeks to integrate signals related to the environmental characteristics of products and production processes throughout the product chain’²

The initial concept was developed in a series of discussions, workshops and papers coordinated through the International Institute for Industrial Environmental Economics at Sweden’s Lund University. Thomas Lindqvist at the university developed the concept in a series of reports for the Swedish Ministry of the Environment in the early 1990s. The concept was further developed through workshops organised in cooperation with the UNEP IE Cleaner production Program.

¹ OECD Guidance Manual – Extended Producer Responsibility, P9, 2000

² Ibid

Early definitions of EPR involved a range of concepts including:

- **Liability** – responsibility for specific environmental impact at a given stage in the product life-cycle, as determined by legislation.
- **Economic responsibility** – contribution to all or part of the cost of collection, recycling and / or disposal
- **Physical responsibility** – physical management of products or of their effects.
- **Informative responsibility** – the provision of information (e.g. via labelling) on the means of minimising impact.

So far EPR based programs that have been instituted around the world have used the EPR cost transfer mechanism to transfer product or packaging recycling costs from local government to the manufacturer or marketer, who then passes this cost on to the consumer through the product price (together with the costs of administration of associated schemes).

The EPR concept and the OECD Guidance Manual were widely debated over a four year period (1997 – 2001) through a series of OECD organised workshops and, although the concept was strongly supported by some European countries (who make up the majority of OECD membership), it was not supported by economies such as the USA who saw a stronger role for a more market based approach.

Throughout this process comments from industry groups and others were fed back to the OECD secretariat drafting the document, but these concerns were addressed. For example, the basic requirement to spell out the environmental problem being addressed by a proposed EPR program is not part of the OECD recommended approach. OECD has also failed to demonstrate, either through theoretical argument or by reference to existing programs, that the EPR approach is superior to other policy options.

Literature here and elsewhere has also started to refer to these programs as “Product Stewardship” programs. This term is seen as a ‘softer’ way of referring to a new way of taxing business (and indirectly the consumer) in order to achieve product or packaging recovery targets.

British Columbia in Canada is one jurisdiction that has adopted this nomenclature for its EPR based schemes. Here in Australia, EPHC also prefers to use this term in the development of an NEPM to cover EPR schemes.

In Europe directives are now in place covering the collection for recycling of a wide range of materials, including consumer packaging, batteries, consumer electronics / appliances and motor vehicles.

Whether called EPR or Product Stewardship, this taxing or levying mechanism has a number of advantages for the regulator:

- It allows the targeting for recovery of those materials that are not profitable to recover – i.e. where the recovery costs exceed the value of materials recovered
- As the funding for these programs comes from industry, funds do not have to be sought from local or state governments,
- As the cost of the program is contained within the price of the product purchased by the consumer, it is not seen as a government tax (or an increase in local council rates)

The benefits of the EPR approach have been widely promoted. More often than not, the claimed benefit results, not from the EPR taxing mechanism, but from the underlying activity, which could have been funded by other means – as outlined in the table below.

EPR 'Benefit'	Comment
EPR internalises a product's environmental cost	The cost internalised is the cost of collection and recycling. This has no direct relationship to the product's environmental performance or impact – it is not an environmental cost
EPR provides an incentive for the producer to improve the environmental performance of a product	The levy charged is passed on to the consumer – even if there is a significant differential in levy costs between one manufacturer's product and that of a competitor (usually not the case), competing design factors reduce the likelihood of product change. If there is change, there is no guarantee that this change is of overall benefit to the environment
EPR sends a signal to the producer to improve the recyclability of the product or package	Most EPR scheme levies are based on the recovery of recycling costs related to the material or product. The European packaging experience has shown that design shifts do occur in an attempt to decrease these costs. However there is no guarantee that any net environment benefit results from any change, as environmental merit does not rely on recyclability alone – often the change in material needed to achieve recyclability results in an increase in weight
EPR helps optimise the use of natural resources	Only if, in the program being funded by EPR, fewer resources are used in the recovery and recycling of materials than are recovered through the program. Those benefits then do not result from EPR; they are the result of the program, regardless of how it is funded.
EPR improves the efficiency of resources used in products	Companies do not need EPR to be conscious of resources used, because all resource use comes at a cost. Reduction of this cost is the driver of product

	change. EPR may distort this process.
EPR improves resource recovery	Only if fewer resources are used in the recovery process through the EPR funded program. Benefit is not unique to EPR as a funding method.
EPR minimises the generation of waste	The generation of waste within the manufacturing sector is related to resource use efficiency and unlikely to be influenced by EPR. Post consumer waste may be reduced, but at a cost – financial and environmental – and this can be achieved by other funding mechanisms
EPR incorporates product management costs into consumer price signals	That is not unique to an EPR based scheme. Consumers could be charged a direct waste disposal fee and be exposed to a waste related price signal, rather than one hidden within the product price.
EPR sends a signal to the consumer about the relative recyclability of a product	Most non-packaging programs charge a common fee related to product type. The relative recyclability of the product then has no impact on product price. Nor is recyclability an indication of overall environmental merit.
EPR reduces risk to human health from poor management of products	Not unique to EPR. Only true in relation to product disposal if and when a risk to human health can be identified. This is not the case for most products and packaging targeted for EPR schemes – these do not impose such a risk as they are inert in landfill.
EPR increases the level of re-use and recycling of products	Not unique to EPR. Assumes that re-use or recycling is always desirable and / or beneficial. This is not so.
EPR leads to more environmentally compatible designs	If the cost of a levy is high enough, EPR may change product design to improve recyclability, but only if charges on the product directly reflect these costs and there are no more strongly competing design criteria. However there is no guarantee that a more recyclable product has a better overall environmental performance – as many other factors impact on this. Insisting on recyclability may inhibit the development / use of new and better technology.
EPR helps close material loops to promote sustainable development	Not unique to EPR. Not true if the impacts of closing the loop exceed the benefits of doing so, or if financial costs are excessive. Costly schemes are not sustainable

Supporters of an EPR approach to the management of products and packaging also need to look more closely at the suitability of EPR to the type of product being considered. Whilst EPR can be used to fund a recovery and recycling program (as can a variety of taxing regimes), an EPR based or levy based approach is not suited to many product recovery situations.

The 'not suitable' category includes the following:

- Those products where markets / market forces will lead to recovery programs based on the value of recovered materials (e.g. newsprint) – intervention is not needed to bring about product recovery and it cannot be claimed that the recovery program is EPR based.
- Those products that have low value relative to collection costs (collection is not self sustaining) but low impact (e.g. most packaging) – the imposition of a levy and the administrative cost of running the levy collection and funding program, is disproportionate to any benefit (if such benefit exists). The collection for recycling of glass is an example.
- Genuinely voluntary programs driven by CSR or other commercial considerations (e.g. the recovery of obsolete pharmaceuticals, farm chemicals and chemical containers, printer cartridges)
- Products that have low residual value relative to collection costs (collection not self sustaining) but medium environmental impact if disposed of in landfill – a decision needs to be made as to whether intervention is warranted – and then re the type of intervention. Schemes other than those based on EPR may be more appropriate. (e.g. household chemical collections)
- Products that have low value relative to collection costs (collection not self sustaining) high environmental impact if disposed of in landfill, but a complex market in terms of brand owners, importers and companies that have gone out of business (leaving orphan products) and / or stored legacy / historic products. In this case an EPR scheme that imposes levies on new products may be difficult / costly to administer and / or inequitable. Other funding approaches should be considered.

This suggests that an EPR based approach may only be suited to relatively few situations, ones that meet the following criteria:

- The program addresses a genuine environmental hazard (i.e. disposal of the product in landfill as part of general waste will result in genuine risk of harm)
- Product recovery for recycling is the best way of addressing these hazards
- The program would not be self funding

Before we discuss examples of specific EPR based programs, we need to look at the question of sustainability – as it is improved sustainability that is often used as the rationale for the introduction of EPR based schemes.

It is assumed that **any** recovery of material or **any** diversion of material from landfill improves society's overall sustainability. This approach appears to be based on the idea that 'we are running out of resources' and has led to recycling be renamed 'resource recovery'.

Unfortunately reality is more complex. There is no reason to believe that the materials we are targeting for recovery will run out any time soon – there is not a genuine resource scarcity so as to warrant a program to recover consumer waste materials. A quick visit to Geoscience Australia's website would confirm this fact.

This would suggest that recovery of materials for recycling can only be justified if doing so was in fact truly sustainable. Sustainability implies a tick against economic and social objectives, as well as environmental objectives. Given the fact that the materials in question are not scarce and, with very few exceptions, do not pose a risk when disposed of in landfill, are we entitled to ask the community to spend funds and other resources (personal time) to 'save' them from landfill?

One consideration needs to be the financial / economic viability of any recycling program. A program that has to be subsidised (e.g. via an EPR based tax or levy) must be a net user of resources – i.e. the net resources used are greater than the net resources recovered, as signalled by the cost. When the market says 'don't recycle', the market is right.

Most jurisdictions have not let reality interfere with a good environmental story – and have adopted EPR based approaches as a means of recovering materials from the waste stream. It appears that recycling rather than sustainability has become the objective.

Early examples of EPR are from Europe. It needs to be pointed out that the European Commission is fond of issuing binding directives on member states, but does not conduct any cost-benefit analysis until the directive has been in force for ten years. They appear to be based on a concept of 'it appears to be a good idea' – an important point to consider when assessing the need for WEEE or RoHS type legislation here.

- **Germany's DSD and the subsequent packaging and packaging waste directive.**

The German government introduced the packaging ordinance in 1990. This allowed consumers to return any packaging to shops and supermarkets and resulted in the establishment of the industry funded

'Green Dot' or DSD system of packaging recovery. DSD costs soon ramped up to an equivalent of AUD 4 billion per annum, with an additional equivalent amount spent by industry on transport and reprocessing.

The DSD organisation employed 400 people in order to manage the system. (In recent years DSD has competition from a number of parallel schemes and its efficiency is further hampered by Germany's new beverage container deposit system).

Following the introduction of the EU Packaging and Packaging Waste Directive in 1994 nearly all EU member countries have adopted a 'Green Dot' based system, even though the directive itself did not specify a specific approach to funding. Levies (taxes) vary considerably from scheme to scheme – confirming a lack of environmental basis for these charges.

The result is that Europe now spends many billions of Euros on recycling.

- **The battery recycling directive**

The battery recycling directive has been in place for more than ten years, so a cost-benefit analysis has been conducted on it. The directive covers a wide range of batteries and has as its objective the minimisation of harm that could result from landfill disposal. Whilst the recovery of lead-acid batteries has been relatively successful, batteries from households, including NiCd batteries, have only achieved an average 20% recovery rate.

The rationale for recovering NiCd batteries was the toxicity of cadmium. However, the cost-benefit study showed that NiCd batteries were responsible for less than 1% of the cadmium exposure risk – with the major part of that risk coming from fertilisers applied directly to food crops. This means that even a 100% NiCd battery recycling rate would not help reduce the risk of cadmium exposure.

- **The WEEE directive**

This requires the recovery for recycling of electrical and electronic products. No cost-benefit analysis has been undertaken. Costs are transferred to consumers via product based levies (taxes). Each country is developing its own approach – resulting in a multitude of Producer Responsibility Organisations (PRO) – which adds cost without adding benefit.

Meanwhile the US EPA has classified electronic products a 'universal waste' which means that household quantities can safely be disposed of in landfill.

- **RoHS directive**

This seeks to restrict the use of 'hazardous' substances such as heavy metals and flame retardants in electronic products. Again, no cost-benefit analysis has been undertaken. Importantly, little assessment appears to have been undertaken of the relative hazard of replacement materials or of any increased fire risk.

Further, it appears that the relative impact on landfill attributable to the products covered is also low.

An assessment of the EU approach to RoHS applied to the Australian situation resulted in a conclusion that '...it appears unlikely that EEP³ are a major source (i.e. greater 1%) of emissions in Australia'.⁴ (The conclusion suggests that there is little basis for the recovery of these products, given the high cost of doing so.)

- **The National Packaging Covenant**

The new Covenant has introduced recycling targets – on a global and on a per material basis. Increased levels of recycling are to be achieved by recycling more of the materials already in the system and adding further materials to the system. The availability of recycling is to be extended to 'away from home' situation.

Costs to business (and hence the community) have also increased because of the requirement to generate an extensive data set.

Absent is a rigorous cost-benefit assessment.

Costs and potential for impact are being ignored as evidenced by the solutions proposed for the processing of collected broken glass in Sydney and Brisbane.

- **South Australia's Container Deposits**

Under legislation in SA a 5c deposit applies to a wide range of beverage containers. The recovery system is supported by an additional service fee

³ Electrical and Electronic Products

⁴ Preliminary Environmental and Economic Assessment of Australian RoHS Policy, August 2007, Hyder Consulting for DEWR

of approximately 5c per container and the scheme runs in parallel with a kerbside collection program run by local councils.

It is proposed that the deposit be increased to 20c per container – at which point it would no longer be possible for national marketers to absorb the cost of the SA scheme. The result will be substantial price increases.

Absent again is a rigorous cost-benefit assessment.

Western Australia is examining the introduction of a similar scheme, based on higher deposits, even though there is no local outlet for collected glass. Alternative uses being considered include grinding glass back into 'sand' or using it as (very expensive) road base material.

There is no cost-benefit analysis supporting this new deposit based approach.

- **NSW WARR Act**

This legislation has targeted a range of materials for EPR schemes, again in the absence of any cost-benefit assessment.

- **EPHC approach to 'Product Stewardship'**

The discussion paper produced by EPHC proposes an NEPM that would provide a framework for EPR / Stewardship schemes. A number of products are being targeted and discussions are underway with a number of industry sectors including computers, televisions and batteries, each of whom have been asked to come up with their own scheme. No cost-benefit assessment has been undertaken on the schemes, or on the proposed EPR / Stewardship mechanism and possible alternatives to it.

Computer / TV recycling has significant OH&S implications which, along with the economic factors discussed earlier, would suggest these materials should be allowed to flow through to landfill.

A thorough cost-benefit analysis needs to be undertaken on the recovery and recycling of each of the products targeted by EPHC before pressure is put on the sector to develop a product return mechanism.

Plastic shopping bags

The current debate on plastic shopping bags is an exercise in misinformation. Since Ireland introduced its bag tax in 2002, pressure has been applied to retailers locally to reduce plastic bag use, culminating in

proposals for a mandatory tax or ban. A consultation RIS has been issued promoting these options.

Several mentions are made in the RIS of the Irish approach to plastic shopping bags where, in March 2002, a tax was imposed on them. It is claimed that plastic bags use reduced by more than 90% and that plastic bag litter was reduced from an initial 5% to current levels (level not quoted). The source of this information was a submission to a Scottish parliamentary inquiry on a similar tax proposal, written by the Irish Department of Environment Heritage and Local Government (DEHLG). The author(s) of the RIS do not explain that the Scottish inquiry rejected the bag tax proposal.

The true level of plastic bag litter in 2002, according to DEHLG reports, was 0.75% and has stabilised at 0.53% in 2006. Plastic bag import data shows little change in the volume of bag material imported into Ireland, showing that substitution with other bag types has taken place. For example, the sales of kitchen tidy bags have increased by 400%.

Australian state and federal government documents contain a range of claims relating to plastic shopping bags used to justify regulatory intervention. These claims range from a misrepresentation or misinterpretation of data to pure invention as detailed below:

Claim	Fact
Plastic bags kill 100,000 marine animals a year	The study referenced refers to birds caught in fishing nets – The plastic bags referred to in studies are most commonly bait bags or bags associated with disposal of garbage at sea (not shopping bags). The rate of entanglement is typically 0.2%. Much of the material is of foreign origin.
Between 50 and 80 million plastic shopping bags are littered each year	Pure invention
0.8% of plastic shopping bags become litter	Pure invention
Plastic shopping bags make up more than 2% of litter	National Litter Survey data shows they are typically 0.7%, with proportions of other plastic / bag-like items much higher than this Plastic shopping bags do not make the 'Dirty Dozen' list
Plastic bags don't break down in landfill	That is good – it means they will not contribute to leachate or emissions

There are an ever-increasing number of bags in the environment	Where are they?
Further claims of link between plastic shopping bag use and marine animal harm in RIS	Study quoted pinpoints the fishing industry as primary cause of the problem

Having been told repeatedly by green NGOs and government that plastic bags are 'bad for the environment', it is not surprising that respondents to surveys indicate support for a tax or ban.

Not surprisingly the Productivity Commission found as follows:

'Based on the evidence available to the Commission, it appears that the Australian, State and territory Governments do not have a sound case for proceeding with their proposed phase out of plastic retail carry bags. Similarly, there does not appear to be a sound basis for the Victorian Government's proposed per-unit charge on plastic bags....'⁵

Given that the cost to the economy of a ban on plastic shopping bags is around \$1.3 billion, proposals to phase them out cannot be justified.

Conclusion

It appears that EPR is a taxing mechanism that is being employed to advance a recycling objective and, because costs can be shifted to consumers through making companies 'responsible' there is less of an incentive for governments to properly assess the sustainability of the various product recovery schemes.

The fact that EPR schemes have to be employed suggests that these recovery programs are not self-funding – i.e. not sustainable – as the excess cost signals the fact that the resources used in the recovery of these exceeds the resources 'saved'.

Given the fact that the materials targeted for recovery are not scarce and do not pose a risk if disposed to landfill, the implementation of levy (tax) based EPR programs for their recovery cannot be justified. The EPR policy approach to waste is not sustainable.

⁵ Op Cit. Page 216

It appears that much of waste policy is myth rather than fact based – there is a dearth of rational analysis underpinning current waste policy and legislation.

Recycling either delivers a net benefit, is neutral in benefit terms or results in net disbenefit. This suggests that the decision to recycle should be based on its merits. Using an EPR tax to get recycling over the line financially cannot be justified.

The need for a Data Quality Act: A review of the COAG Regulatory development process with emphasis on waste and recycling policy

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ABSTRACT:

COAG has developed clear guidelines on the development of legislation, including voluntary instruments. These guidelines include the requirement of regulators to conduct a cost-benefit assessment as part of the process and to subject the intended regulatory measure to public consultation, supported by a Regulatory Impact Statement (RIS). However the RIS in itself does not guarantee a beneficial outcome. The merit of this process is very much dependent on the quality of the information made available throughout this process. It is a case of 'Garbage in – Garbage out'.

This paper reviews recent RIS material for accuracy and uses the information obtained to argue for a 'Data Quality Act' that would require information issued for and on behalf of government to be accurate and of a quality that could reliably be used as a basis for policy formation.

THE USA 'DATA QUALITY ACT'

The US 'Data Quality Act' is not a separate act of the Congress but passed as a section of the 2001 appropriations legislation. It is, in effect, a two sentence addition to a government budget Bill and, as such does not have its own designation. However, it soon became known as the 'Data Quality Act'.

It required the Office of Management and Budget to draft government wide guidelines under the United States Code 'that provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility and integrity of information (including statistical information) disseminated by Federal agencies in fulfilment of the purposes and provisions of Chapter 35 of title 44, United States Code....'

The legislation also required the ability of affected persons to seek and obtain a correction of any information disseminated by any agency. As result the Act introduces two additional quality checks into the regulatory development process;

a requirement for improved accuracy and an appeal mechanism capable of addressing errors.

THE COAG APPROACH

In Australia the Council of Australian Governments (COAG) made up of the Prime Minister and state Premiers / Chief Officers, has for a number of years provided guidance to its ministerial councils on best practice regulation. Under agreements reached by COAG these principles have also been adopted at the state level and apply in general to all regulatory and rule making bodies. The guidelines outline arrangements to maximise regulatory efficiency including:

- The establishment of gate-keeping mechanisms to ensure that the regulatory impacts of a proposed mechanism are made fully transparent to decision makers and the public in advance of decisions being made;
- Improvement in the quality of regulatory impact analysis
- Better measurement of compliance costs
- A broadening of the scope of impact analysis to include the impact on individuals and on business, including the assessment of alternative approaches

In general, then, new legislation is accompanied by a Regulatory Impact Statement (RIS) which outlines a risk analysis, a cost-benefit analysis, an assessment of compliance costs and competition effects and the outcome of community consultation.

However the process fails to serve its purpose of ensuring regulatory efficiency when, as is the case in most jurisdictions, ministers can direct that an RIS is not necessary, or when the process does not result in a fully transparent and accurate assessment of the underlying issue or the facts relating to that issue.

Whilst most jurisdictions now have processes that mirror the COAG process they tend to lack a data verification or data correction loop. For example, whilst a RIS may go out for public comment there may be no requirement to correct misinformation or faulty data on the basis of the information received from that consultation process.

In some cases the jurisdiction requires the agency concerned to prepare an internal summary of comments, to provide a public report on the comments received, or to 'note' the comments received in preparation of a final RIS or advice to the minister. I am not aware of any jurisdiction that requires the *correction* of data in a RIS before it goes forward for a final decision.

EXAMPLES OF RECENT REGULATORY IMPACT & POLICY STATEMENTS

The limitations of the current COAG model can be seen in the following examples.

Plastic shopping bags

Plastic shopping bags became an issue following environmental NGO pressure in 2002 after Ireland's introduction of a plastic bag tax. A consultant's report in December 2002¹ prepared under the direction of the Department of Environment and Heritage contained a range of factual errors and misquotes. It claimed that up to 80 million plastic bags are littered each year and repeated green NGO claims that 100,000 marine animals are killed by plastic bags each year. The litter claim was pure invention and the study quoted referred to a 1987 study² which estimated of the number of sea birds and mammals caught in fishing nets over a four year period off the Newfoundland coast. It had nothing to do with shopping bags. No other verifiable data showing that plastic shopping bags were a significant contributor to the marine debris issue were presented.

Interestingly in relation to the marine debris claim there was at the time (and still is) an extensive range of local data on the department's website, much of it relating to marine litter and entanglement studies funded by that same department. However, these did not support the claim that plastic bags posed a genuine entanglement risk.

In January 2007 EPHC published a consultation RIS on plastic shopping bags³. It referred back to the discredited consultant's report in the section dealing with marine debris and went on to outline the broader problem of marine debris which, by implication made shopping bags a 'problem'. The litter 'estimate' was revised down to 60 million per annum as the Allen Consulting Group, who had in the meantime conducted a cost benefit assessment, had realised that the original consultant had not deducted his original estimate of up to 20 million bags recovered during clean-up activity – another invented number.

In April 2008 EPHC released a Decision RIS on plastic bags⁴. It too contained errors of fact too numerous to mention here and, like the previous version, presented no hard data on the incidence of plastic shopping bags in the marine environment and again the available data was not accessed. This time around the litter 'estimate' had shrunk to 35 million bags p.a. and the clean up rate was

¹ Nolan ITU et al, Plastic Shopping Bags – Analysis of Levies and Environmental Impact, December 2002

² Incidental catch of marine birds and mammals in fishing nets off Newfoundland, Canada, Piatt F et al, Marine Pollution Bulletin, Vol 18 No.6B pp 344 – 349, 1987

³ Consultation Regulatory Impact Statement (RIS)-Investigation of options to reduce the environmental impact of plastic shopping bags, EPHC January 2007

⁴ Decision Regulatory Impact Statement – Investigation of options to reduce the environmental impact of plastic shopping bags, EPHC April 2008

now reduced to up to 10 million. Part of the explanation for the new 'estimate' was a suggestion that the 'inadvertent' littering from landfill had shrunk from an original 20-30 million to just 785,000.

We should note here that the latest national litter survey⁵ shows that plastic shopping bags make up just 0.6% of litter.

Needles to say, the original consultant's report and the two RIS documents have been the subject of much correspondence between NARGA and the Department. Detailed information was given to the department in the form of letters and submissions. The department also had access to detailed information contained in submissions to a Productivity Commission inquiry into waste management.

It is clear that both the Consultation RIS and the Decision RIS lack a factual basis and do not provide an informed input into the regulatory development process.

Unfortunately there appears to be no requirement to correct erroneous information contained in an RIS or other official publication before the issue goes to ministers for a final policy decision.

Compact fluorescent lamps

In September 2008 a Consultation RIS⁶ was released supporting the phase out of incandescent lamps. Although generally of a higher standard than the documents referred to above, this document still raises some concerns. These include, among others, the failure to compare like with like when assessing different lamp technologies – and as a result the potential energy and carbon savings may be overstated; and the suggestion that 'we' as regulators need to make these decisions on behalf of the general public as there is "a sizeable minority without strong pre-purchase assessment skills' that prevents the market from working properly. Such an argument could be advanced for placing many everyday decisions in the hands of government.

An example of the first problem is the saving presumed from the replacement of standard incandescent globes with halogens. The latter consume 70% of the energy of the former – suggesting a 30% saving – but are either replace a lamp with the same wattage (i.e. same energy consumption but more light) or multiple lamps replace a single incandescent – as in the conversion to halogen down-lights, in which case energy consumption actually increases.

⁵ National Litter Index Annual Results Tabulations 2007/08, Keep Australia Beautiful, July 2008

⁶ Regulatory impact Statement Consultation Draft – proposal to phase out inefficient incandescent light bulbs, Syneca Consulting for DEWHA, September 2008

This and other errors of fact suggest that the proposed phase out of incandescent lamps will do little to reduce energy use and that regulatory intervention was not warranted.

The question that must be asked in both of these examples of an RIS is whether they are written to provide an independent assessment or to support a decision or policy position already taken.

Product stewardship

New South Wales Department of Environment and Climate Change (DECC) is the lead agency for the development of the EPHC position on product stewardship and has, for a number of years promoted product stewardship for a range of products. A formal mechanism exists for the inclusion of a product or material in a list of 'wastes of concern' that forms part of an Extended Producer Responsibility Priority Statement. However, whilst criteria exist for the nomination of products the process lacks technical rigour and an appeal mechanism – there seems to be no way of correcting input data (which is not made public) or removing a product from the list.

The EPR / Product Stewardship concept has been adopted by EPHC and a number of products are under consideration. These include electronic products such as mobile phones, televisions and computers, as well as tyres and plastic shopping bags.

The policy and target list has been developed outside of the COAG process and are being progressed towards possible regulatory intervention without the benefit, of rigorous analysis of the need for intervention and its costs and benefits. In the meantime not too subtle pressure is being applied to the sectors involved to 'solve' these 'problems'.

The question we should ask here is whether a mechanism is required similar to an RIS to assess an issue before a policy position is taken. Note here that EPHC in its latest strategic plan⁷ resolved to 'develop and promote approaches to enhance the integration of scientific research and economic analysis in policy development'. This intent requires a suitable mechanism for its implementation.

OTHER MECHANISMS

At the national level the Office of Best Practice Regulation (OBPR) provides advice on the COAG process and reviews RIS documents. Whilst it is able to monitor process and, to some extent the logic within an RIS, OBPR cannot verify the information and technical data that underpins an individual RIS, or the analysis that was undertaken to reach a certain recommendation. For this reason it would be appropriate to make the accuracy and veracity of information a statutory requirement.

⁷ EPHC of Australia and New Zealand Strategic Plan 2009-2011

The national government in the Netherlands has taken a different approach. It has set up a central agency that is required to vet policies prior to their acceptance as government policy – i.e. individual ministers need to make a strong case for intervention – and then develops, with departmental assistance, the documentation that is equivalent to our RIS. This approach recognises the reality that expertise in the area of policy assessment does not reside in each department and that a degree of independence into the regulatory assessment process is required. In this way each department is not judge and jury of its own policy initiatives.

SOUND ANALYSIS OF DATA AT THE CENTRE OF GOOD POLICY

Whilst the Data Quality Act requires data accuracy, there may be a need to also ensure that technical and scientific data is properly reviewed. In a paper published by the USA Fraser Institute⁸ authors McCullough and McKittrick suggest a due diligence process is required to underpin policy formation and, in particular, to the need to make available the underlying data so that it too can be checked. The paper outlines the failings of the peer review process and data retention policies of technical journals and lists numerous examples of where poor analysis of good data has led to the wrong message getting to policy makers.

Studies critiqued and found to have formed the wrong conclusions include:

- The Boston Fed Study that concluded minorities were not given adequate access to housing loans which led to legislation requiring banks to lend providing the basis of the sub-prime mortgage crisis
- The arctic climate impact assessment that from limited data incorrectly showed a warming pattern in the arctic at odds with other assessments;
- The work on the US obesity epidemic by the US Centre for Disease Control that indirectly linked overweight with higher death rates;
- The Mann Hockey Stick graph, used by the IPCC in its third and fourth assessment report on climate change which used a faulty algorithm to exaggerate twentieth century warming;
- A CSIRO study on droughts in Australia where a reviewer later found that the models used by CSIRO were unable to replicate observed historical trends, let alone future trends.

These examples suggest that policy papers not only need to be based on scientific data, but that the data itself needs to be robust and verifiable.

CONCLUSION

⁸ Check the Numbers: The Case for Due Diligence in Policy Formation, McCullough B D and McKittrick R,

The success and validity of the current COAG process for the development of policy and regulation is very much dependent on the quality of the analysis and assessments undertaken in support of any policy or regulatory proposal.

At present there appears to be no general requirement obliging departments to correct errors of fact or analysis prior to a final report being prepared for a policy determination.

This paper concludes that the quality of regulatory assessment and policy development would be improved by the establishment of such a requirement in statutory law. It would underpin the validity and veracity of information used throughout the policy development process.

EXTENDED PRODUCER RESPONSIBILITY AND RESOURCE EFFICIENCY

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ABSTRACT:

The OECD has completed a guidance manual for governments on Extended Producer Responsibility (EPR). EPR claims to 'internalise' the cost of recycling or disposal of product related waste by making the producer of the product responsible for it. The OECD claims that the result of implementing EPR based policies should be a reduction in the amount of waste requiring disposal and a reduction in raw material use, therefore increasing resource efficiency.

EPR proponents suggest that the act of transferring the responsibility for solid waste outcomes from the consumer, on whose behalf the municipality acts, to the producer provides a sufficient and consistent signal to the whole of the production chain to optimise resource efficiency.

This paper will, using food packaging as an example, examine EPR's resource efficiency claim and show that is not supported by fact or analysis. It will show that the forces introduced through EPR based schemes can bring about unforeseen distortions that result in a reduction in overall system efficiency.

EPR is examined in economic and resource efficiency terms and an alternative approach is recommended.

It is suggested that the inability of EPR to produce significant overall efficiency gains lies in its reliance on solid waste and recycling outcomes to provide the feedback into the system of production, and the fact that there is little linkage between these outcomes and total system efficiency. Misinterpretation of the costs of waste management as environmental costs, the failure to consider the total value chain from raw material production through to consumption and the lack of recognition of the valid role of packaging within it ensures EPR cannot live up to its resource efficiency claim. EPR asks the (solid waste) tail to wag the (total system) dog, which clearly it cannot do.

INTRODUCTION

The OECD defines Extended Producer Responsibility (EPR) “as an environmental policy approach in which the producer’s responsibility, physical and/or financial, for a product is extended to the post consumer stage of a product’s life cycle.....A primary function of EPR is the transfer of the costs and/or physical responsibility (full or partial) of waste management from local government authorities and the general taxpayer to the producer. Ultimately, the environmental costs of treatment and disposal would be incorporated into the cost of the product. This creates the setting for a market to emerge that truly reflects the environmental impacts of the product, and in which consumers could make their selection accordingly.”¹

OECD claims that the result of implementing EPR based policies or legislation should be a reduction in the amount of waste requiring disposal, and a reduction in raw material use (amount of raw/virgin material input per unit of production), therefore increasing resource efficiency.

The definition implies that EPR based schemes will send the correct signals up and down the chain of production – up to producers in the form of costs and down to consumers in the form of prices – to optimise resource use and hence environmental outcomes. This is because producers will choose the ‘right’ materials (in quantity and type) and consumers will choose the ‘right’ (lower waste/impact) products.

SOME IMMEDIATE DIFFICULTIES

Looking at that definition some immediate problems emerge. Firstly waste and recycling costs are not per se *environmental* costs, they are the actual or financial costs of these activities and are costs that vary by location and system (i.e. they are not even a characteristic of the product). Their transfer up the chain therefore does not reflect the transfer of an environmental impact related signal and could result in distortions to the system that result in less than optimal environmental outcomes. This is discussed in more detail later.

Waste management activities do have an environmental cost but this is typically a small fraction of the financial cost and does not justify transfer of the full cost of the waste management activity back to the producer or product. Waste associated impacts are small when compared with production impacts and so their transfer back to the system adds little to the internalisation of environmental costs.

An inherent assumption of the EPR approach is that some cost signal relating to the quantity of material disposed of or treated needs to be transferred back to the producer in order to provide an incentive to reduce material use and hence

¹ OECD – *Extended Producer Responsibility – A Guidance Manual for Governments* – OECD Working Party on Pollution Prevention and Control, Paris, 10-11 May 2000.

both material and waste flows. It is not generally recognised that a material use optimisation signal or a signal related to material intensity already exists within the system. It is the cost of the raw materials used to produce products and packaging. It is this cost that has traditionally driven design improvement programs aimed at reducing material use and hence waste flows. This is particularly true in the case of packaging.

This material related signal is more closely related to packaging material impacts as in most modern economies production related environmental impacts are usually fully internalised by regulations aimed at controlling and minimising pollution. EPR proponents do not attempt to explain why, in the case of packaging, an additional cost signal is required.

It is also assumed that the consumer recognises the cost signals that an EPR based scheme transfers to the product resulting in optimum product choice. This is not necessarily so as the size of the signal can be swamped by other pricing factors and, in the case of packaging, lacks a differential quality if all materials are similarly taxed.

EPR has also been promoted on the basis that it is a move away from 'end of pipe' style regulation to one that considers the whole of the product life cycle. This is certainly not the case. It merely tries to crudely transfer the cost of an end of pipe product characteristic, i.e. solid waste outcome, as an 'environmental signal' to a point higher up in the value chain, without regard as to how the total system is going to be affected by that cost transfer. It is trying to make the tail wag the dog.

THE NEED TO CONSIDER THE TOTAL SYSTEM – A LIFE CYCLE APPROACH

If the objective is to minimise the environmental impact associated with the production, distribution, consumption and disposal of packaged goods we need to examine the total system involved - to take a life cycle approach.

If we use packaged food as an example we find that the total system consists of a number of distinct sub-systems comprising food production, processing, packaging, distribution, and retailing, followed by consumption and disposal by the consumer and then by the recovery of materials and treatment of residual wastes. Several of these stages are linked by transport stages that together add significantly to the total system impacts.

The total system does not lend itself to a simple transfer of a waste based 'signal' up the production chain as implied by EPR based policies. This is because there are several complex interactions within the system that need to be considered. Those between the product and the package and between the

packaging and packaged item and the transport/distribution system are probably the most significant.

So how do we go about optimising that system? We could start by looking at where the majority of environmental impact occurs.

A study² by Prof Jan Kooijman of packaging within the UK food supply system showed that the energy used for packaging represented around 11% of the energy used by the total system – energy was used as an indicator of overall environmental impact. It is overshadowed by consumer energy used in transport, refrigeration and cooking and totally swamped by the energy requirements of food production.

The greatest single factor affecting total system impact was the energy associated with producing the food – farming, fishing, harvesting etc. which represents over 50% of total energy used.

Other studies also show the high environmental impact associated with food production. A study³ by Australia's premier government research agency, CSIRO, points to the huge volumes of water required by agriculture. Some 1000 litres are needed for each kilo of wheat, up to 100,000 litres for each kilo of beef and whilst potatoes only require 500 litres per kilo, rice needs 5000 litres.

At a simpler level it would be clear to the average user of packaged products that the packaging represents only a small proportion of the total shipped volume – typically less than 10% - and that the major component of the total packaged product, in terms of the quantity of material involved, is not the pack but its contents. Why then, when the resource efficiency of packaging is discussed is the contents, or the relationship between pack and contents, never mentioned?

If the production of food represents the majority of the impact associated with the total system of production, distribution and consumption of food, wouldn't it make sense to optimise the utilisation of that food as a means of improving resource efficiency? Optimisation of food use does not appear to be on anyone's agenda.

HOW DO WE OPTIMISE FOOD?

Interestingly, food waste makes up a greater proportion of household waste than does packaging waste in most western economies, yet it is not targeted for reduction with EPR based policies and schemes. Given that it generates greater impact in landfill and is not easily reprocessed, this is surprising.

² Kooijman, J *Environmental Impact of Packaging Performance in the Food Supply System*, INCPEN, Nov 1995

³ Meyer W.S. CSIRO, *Water for Food, the Continuing Debate*, personal communication 1997.

A clue to optimising food utilisation comes from a comparison between the developed and developing world. Whilst developed countries are characterised by (and often chastised for) their high per capita usage of food related packaging there is little loss of food between farm and family. In developing countries, on the other hand, high rates of food loss (up to 50%) are reported. These countries are also low per capita users of food packaging⁴. There appears to be a clear linkage between low packaging use and food loss which suggests reducing the use of packaging increases the risk of increased food loss.

Food lost to the system need to be compensated for by increases in agricultural output with corresponding increases in environmental impact. This confirms that an unqualified packaging reduction objective does not make environmental sense.

A study⁵ conducted by The South Australian Centre for Economic Studies more closely examined the impact of taxes on packaging and confirmed the link between packaging and the optimisation of agricultural impact. It concluded that the economy and the environment were intimately linked and that the imposition of taxes on packaging – which artificially inflated the cost of packaging – would result in unforeseen consequences such as an increase in agricultural output or an increased use of transport or both as the system adjusts itself to the effects of higher packaging costs. The study also suggests that the imposition of other mechanisms that increase packaging costs, such as recycling targets, have a similar outcome. The study's conclusions were reached through economic modelling and the use of a materials balance approach.

The conclusion is clear. The use of packaging reduces food waste and wastage as well as overall system environmental impact. This suggests that imposition of additional costs on packaging through EPR based policies and legislation does not result in an increase in resource efficiency – it achieves the opposite. It taxes the packaging environmental benefit.

Apart from the general effects discussed above the use of packaging optimises the food production and distribution system in a number of ways. It allows the processing of foods close to the raw material source. Processing removes unwanted material that then does not need to be transported to market. Aggregated residues are easier and more economical to reprocess into other useful foods (e.g. jams, soups, pet food etc. made from by-products) or into fertiliser that can be returned to the soil. The total flow of materials – and hence waste at the household level - is therefore significantly reduced through the use of packaging.

⁴ Erlov, L. et al, *Packaging – a tool for the prevention of environmental impact*, Packforsk, June 2000

⁵ Hatch J. et al, *The Economics of Packaging and the Environment*, The SA Centre for Economic Studies, April 1993

An example is the production of orange juice. Although the 1 litre carton the juice comes in adds around 25g to the household waste stream it has taken out 48 times this quantity – 1.2Kg of peel, pip and pulp which is left behind at the processing plant to be converted into a range of useful by-products.

These packaging benefits can be enhanced by carefully matching pack size to usage situation. A range of pack sizes to suit each type of use – portion packs as single serves, larger packs for larger households, optimises food usage and reduces waste and wastage, although it increases the use of packaging. Again it is obvious that EPR based packaging taxes that aim to reduce packaging act counter to such resource optimisation – counter to resource efficiency.

THE IMPORTANCE OF PACKAGE FUNCTION

In order for packaging to deliver its environmental benefit, it must be able to perform its primary function, that of protecting its contents between the farm and the family. The EPR approach to packaging policy seems to be based on the notion that there is too much packaging and that there is some inherent virtue in reducing packaging. Whilst it is true that there is a reduction in resource use and environmental impact if packaging is reduced to an optimum level, forcing reduction beyond that optimum dramatically increases material loss and impact.

Reducing packaging saves only the resources associated with the production of packaging. This is typically a small proportion of the total quantity of material used to produce the package. Reducing packaging too much increases losses within the system as a greater proportion of packs fail in transit. When a pack fails not only is all of the packaging material lost to the system but also the contents and that of all other packs affected is also lost. The failure of one package can lead to the loss of a whole pallet.

It is clear that EPR based taxes that are intended to reduce packaging can have an adverse effect, one that does not end up being more resource efficient in total system terms. Any study therefore which aims to identify the quantity of packaging 'saved' by EPR policies must include an examination of system losses. OECD has not done this in its analysis of the German DSD approach.

The quantity of material used to produce a package is a careful balance between providing enough strength and robustness for the pack to survive the conditions to which it is subjected in transit and its material cost. The packaging sector has always recognised this and has, over the years embarked on programs of packaging improvement aimed at reducing cost and material use whilst maintaining package integrity. This has resulted in significant reductions in the quantity of material used for packaging as shown by the table below taken from the Packforsk study previously quoted. It shows that material reduction was achieved long before the introduction of EPR based policies and legislation. That the additional cost pressure applied through the EPR mechanism is not a

requirement for achieving reduction in the material used to manufacture packaging – i.e. the process is cost and technology driven, driven by the competitive nature of the packaging industry and does not require regulatory intervention.

PACKAGING REDUCTION TRENDS

Packaging	Material	1970	1990	Reduction
Wine bottle 0.75l	glass	450g	350g	-22%
Beer bottle 0.25l	glass	210g	130g	-32%
Metal drink can 0.25l	steel	69g	56g	-19%
Beverage can steel	steel	91g	17g	-81%
Yoghurt container	PS	6.5g	3.5g	-35%
PET bottles 1.5l	PET	66g	42g	-36%
Beverage carton Tetra brik 1l	Paper & PE	31g	25g	-18%

Packaging material reduction is an ongoing process based on improvements in old technologies and the use of new technologies. The above results show what has been achieved by the packaging industry using the cost of materials as the driver for innovation.

Costs imposed through EPR are additional to the material costs already driving this process. If packaging innovation has already produced results, i.e. already taken each pack to its technological limit – bearing in mind the need to maintain pack function – the additional costs imposed through EPR are simply a packaging tax unrelated to environmental outcome – one that lacks an environmental foundation as its stated purpose, that of packaging reduction, is already being achieved through the signals provided by raw material costs.

LIMITING INNOVATION

EPR based approaches to packaging are usually linked to recycling outcomes requiring the producer, or his agent, to recover and recycle a certain proportion of packaging placed on the market. All or part of the differential cost of recovery is transferred back to the producer.

These costs vary greatly between material types and tend to advantage traditional materials – glass, cardboard, metals – but disadvantage new package types, particularly laminates (or composites). This is because laminates use very little material to package a given quantity of product – so many more packs of this type need to be recovered to arrive at processable quantities – and they are more difficult to recycle as materials (although not as energy). This is easily illustrated using the pack weights from the table above.

Whilst only 2857 wine bottles need to be recovered to yield a tonne of material for recycling, 40,000 cartons are needed to reach one tonne, a considerably more difficult task as it requires 14 times the number of hand movements to produce the same quantity of material.

Now a carton is a very efficient form of packaging – 25g of material can hold a litre of liquid, a packaging to contents ratio of only 2.5%. Few realise that this is a far more efficient form of packaging than an egg which is popularly seen as a model of natural efficiency. Eggs come in at around 8% and then need the additional protection of man made packaging in transit.

The higher cost associated with the recovery these more efficient materials, when transferred back to the producer, literally becomes a tax on efficiency which disadvantages more efficient packaging in the marketplace. Not only does EPR then act against the stated prevention objective it also fails to encourage the more resource efficient outcome.

RECYCLING TWISTS AND TURNS

The environmental and economic impacts of EPR cannot be measured in isolation as they depend on how closely EPR based approaches are linked to recycling outcomes. In jurisdictions where these links are strongest, Germany is an example, the recycling related adverse effects attributable to EPR are greatest.

We have already seen that the transfer of recycling related costs to producers fails to transfer a cost signal that relates to the relative impact of the package type in question – the signal is linked to the recycling cost that bears little relationship to the life cycle impact of the pack in question.

Producers reacting to this signal would seek to reduce its impact and choose materials that are less costly to recycle. These are not necessarily the materials that optimise overall resource efficiency or overall system environmental impact. A producer could, for example, switch from pack A to pack B based on a lower total cost (cost of package plus EPR based recycling tax plus related costs) whilst a comparative LCA could show that decision to be contrary to improved overall resource or eco-efficiency. In this case EPR is unnecessarily distorting material choice and packaging markets and results in less than optimal outcomes.

The Danish government is taking a different approach. A new tax on packaging materials was introduced on January 1, 1999 with the intention again of reducing the amount of material used. The tax was only weight based and did not take into account the type of material used to produce the packaging. (We have already discussed the lack of a basis for such a tax in the context of the positive

benefits associated with packaging and the fact that material cost itself already provides a powerful reduction incentive)

The Danish EPA has recently released through its web site the outcome of an LCA study comparing life cycle impacts of different materials used to produce packaging. Results suggest that on a per kilo basis paper or cardboard based packaging has the lowest impact and aluminium the highest. It is suggested that the results could be used to fine-tune the packaging tax system to reflect relative impact to 'stimulate producers to select materials with less impact'.

Again, although this is better than an EPR tax based on recycling costs, no account is being taken of material costs which already provide differential cost signals which could be taking the environment into account through existing means of internalising environmental externalities such as provided by pollution licensing, energy taxes etc. These provide a more appropriate mechanism for internalisation of environmental externalities.

No case has been made, other than public perception, for singling out packaging for an additional 'environmental' tax which, as we have already seen, has an environmental downside.

Basing EPR taxes on recycling produces other unintended consequences. The act of shifting the cost of recycling from households, on whose behalf municipalities act, to producers hides recycling cost and means that recycling is seen by the community a cheaper solution to waste than other available options. Municipalities would not be exposed to the full cost of recycling and would tend to overuse it in the mix of alternatives available. This acts counter to the concept of integrated waste management where, at the local level, the mix of waste solutions employed should reflect optimisation of community cost and environmental benefit. Again the use of EPR based approaches results in a less than optimum outcome.

The distortions that result from reducing the apparent cost of recycling through EPR have been well documented. The emphasis on material recovery and the provision of recovered materials at less than established market prices distort existing recycling markets which tend to be based on materials recovered from commercial sources on commercial terms. Commercial sources provide the largest proportion of recovered materials.

The economic and environmental effects of these distortions have not been quantified by policy makers who see EPR as the solution to packaging waste. They are not addressed in the relevant OECD reports.

EPR AND THE ECONOMY

In a previous paper⁶ on EPR the author challenges the economic efficiency of EPR based packaging recovery schemes, pointing out that by artificially shifting the cost of recycling to the producer, the cost to the consumer and the community increases dramatically. This increase is unnecessary as the funding method provided through EPR is not essential to the achievement of recycling objectives.

The cost to consumers is inflated by the cost of collection of the EPR based tax, an exercise similar in complexity to the levying a VAT and by the cost of distribution of the proceeds. Because the tax is levied at the point of production it is further inflated by the margins and taxes in the distribution chain. The community also pays for the inefficiencies brought about at the local government level through the distortion of the factors affecting waste management decisions. The community also carries the costs associated with the less than optimum resource efficiency outcomes outlined in this paper.

The European experience with packaging related EPR shows consumers paying billions of Euros in packaging linked fees. To the extent that this cost exceeds the cost of a similar level of service provided and charged directly through local government, these payments represent a significant reduction in household purchasing power with resultant impact on employment and the wider economy. This paper does not attempt to quantify these effects – but neither have the relevant authorities.

IS THERE A BETTER WAY?

There is no argument against optimising the system of production and distribution of packaged goods or optimising the rate of their recovery and recycling. This paper also does not question the value of internalising *environmental* externalities. It merely suggests that recycling costs are not environmental externalities and that internalising these costs through EPR based mechanisms does not represent good regulatory practice. For internalisation to work the environmental costs need to be better identified and internalised at a more appropriate point in the chain – usually at the point closest to where the impact occurs. For household related waste this would appear to be at the household.

In the USA this reality is reflected in an increased use of household waste charges based on the volume of waste generated ('pay as you throw'). This captures both the waste impact of packaging and its waste reduction benefits.

In Australia the three levels of government and the packaging chain have signed a National Packaging Covenant which aims to manage the life cycle impacts of packaging and optimise household recycling. It states that recycling will be

⁶ van Rijswijk G. *Extended Producer Responsibility – Is this Concept Environmentally and Economically Sound?*, R'2000, Toronto, June 2000

managed by the municipality and paid for directly through municipal rates with waste charges to households reflecting waste volumes. The objective of the Covenant is to improve overall recycling and total system resource efficiency and ensure that recycling is market based. Companies who become Covenant signatories are asked to develop 'action plans' which outline their commitments to system improvement which can include reductions in packaging within the context of retained packaging function.

This approach clearly recognises the ongoing improvement in packaging and packaging technology that has occurred and will continue to evolve within a competitive packaging market. Companies can also commit to improving the way they manage their own operations through the adoption of cleaner production and other waste or impact reducing programs.

The Covenant is based on the concept of 'Shared Product Responsibility' which sees each actor in the value chain optimise impacts for the section of the chain under the actor's control. This is NOT, as is suggested by the OECD, a subset of EPR.

CONCLUSION

This paper has discussed EPR as applied to packaging in economic and resource efficiency terms and suggested that the application of EPR based policies and regulations do not result in optimum outcomes for either the economy or the environment.

There is obviously not enough space here to analyse these issues in depth but a number of pointers to the shortcomings of EPR have been given. What is surprising, given the resources devoted to EPR implementation, is that the necessary detailed analysis does not appear to have been done anywhere.

It is clear that the principal cause of the inability of EPR to produce overall system efficiency gains is its use of solid waste and recycling outcomes as the basis for the cost signal to transmit back into the system of production and distribution of packaged goods. Not only does this signal have no direct link to total packaging or total system impact, its use demonstrates a failure to recognise the system's complexity and the nature of the interactions between the various elements and stages within it.

Total system resource efficiency cannot be optimised unless the function and role of packaging – including its waste and impact reduction capacity - is recognised. Once this happens it becomes clear that imposition of taxes on packaging, EPR based or not, does not make environmental sense.

EPR based approaches to packaging waste policy and regulation asks the solid waste tail to wag the total system dog – clearly this does not work.

FOOTNOTE

It should be noted that the deficiencies identified in this paper are not little EPR 'wrinkles' that can be 'ironed out', leaving EPR based policy approaches intact. They are fundamental flaws linked directly to the way EPR is defined and applied. Also an examination of how EPR based policies affect other targeted products and systems would show similar difficulties with the EPR approach based on similar causes and resulting in less than optimum environmental and economic outcomes.

Unfortunately the OECD seems to regard EPR as a 'done deal' taking little notice of adverse comment or criticism. It has failed as an economic agency to undertake the necessary analysis and research into EPR based approaches to quantify its impacts or to approach the study of EPR with the degree of intellectual rigour one would expect from a lead agency.

Debating these issues is important because society deserves to be regulated with a degree of regulatory efficiency that results in the achievement of the desired outcome at optimal community cost. EPR does not deliver against that measure of regulatory efficiency.

This reality suggests that there is a need for the packaged goods sector to mount an international campaign to challenge the EPR approach to the regulation of packaging. - Such an initiative is not going to come from the bureaucrat or politician. Failure to address EPR as an issue will result in the imposition of unnecessary and unproductive additional costs on the sector impacting on markets and sector profitability. As we have already seen, the economy and the environment will thank you.