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Wednesday, 8 February 2006

Inquiry into Waste Generation and Resource Efficiency
Productivity Commission
Locked Bag 2, Collins St East
MELBOURNE VIC 8003

Your Ref:
Our Ref: NSMHI06/NS6MAR

Dear Sir/Madam,

Re: Submission to the Inquiry

Hyder Consulting (now incorporating Nolan-ITU) welcomes the opportunity to comment as part of the Productivity Commission's enquiry into Waste and Resource Efficiency.

Hyder Consulting has been providing specialist advice in waste management for over 10 years. The senior staff team includes a number of people with more than 15 years experience in the industry. Over the last decade, the consulting team has provided key reports in the provision of policy and technical advice in waste and environmental management. Senior staff have leading expertise in emerging fields such as Alternative Waste Technologies, Life Cycle Assessment and Materials Accounting and Sustainability. The Authors of this report consider the Productivity Commission Inquiry is timely and that there is significant scope for improved resource efficiency through optimisation of waste and materials management. This submission presents key concepts in summary form.

Resources
are defined to include not only the inputs to processes but also the assets of clean air and clean water and the biophysical processes that maintain living systems.

Resource Efficiency
gives regard to either the net environmental impact of the system under study or to the physical loads or *pressures*[1] resulting from the system that have the potential to cause impacts.

Measuring resource efficiency
therefore requires that systems that deliver a substitutable good, service or policy options, are quantitatively measured in a common metric and benchmarked for their net resource efficiency. Any method employed for such a task must be transparent and deliver results that are reproducible. The methods available for such a task are based on materials accounting techniques such that the net resource input and output of substances is quantitatively recorded. In this way, the material throughput associated with the above mentioned options can be benchmarked and the resource optimal activity identified.

Product, service and technology assessment,
in the opinion of the authors, is best performed using the method of Life Cycle Assessment (Inventory Analysis). While similar methods (such as Materials Intensity per unit Service (MIPS) and Ecological Footprint) are comparable in approach, the method of LCA has for the past decade been the subject of intense international debate and considerable research associated with the

[1] OECD Pressure State Response Modelling, SOE 1998, Working Group Report, Brussels, Belgium

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AS/NZS 4801 Lic OHS20101 SAI Global
ISO 9001 Lic QEC20863 SAI Global

development of the International Standard Organisation's series for LCA (ISO 14040). This standard was developed under pressure and has been acknowledged to have the potential to prepare industry for the erection of possible environmental trade barriers should the WTO weaken its stance on *production processes* in *Country of Origin*[2].

For decision regarding policy options,
the assessment tools of Substance Flow Analysis, Life Cycle Assessment and National Materials Accounting are useful and vary in their applicability. Further, these tools provide for structured scientific debate as the basis for policy development and target setting.

The resource optimal position,
the point of intersection between the marginal net cost curve and marginal private benefit curve, in the view of the Authors, is best determined when the net materiality, or the material throughput, of each option under study is aggregated into a single unit of measure. This may be achieved by using "distance to regulatory target" to normalise data or by monetisation using the emerging techniques in Environmental Economic Valuation. Both techniques have been used in waste management in Australia and are commonly employed throughout the OECD. Monetisation has the added value that the results are more meaningful to more people. Interpretation of the complex scientific assessment that accompanies the full environmental assessment of options using monetisation has proved popular in Australia and internationally. The inclusion of this monetisation stage in assessment of options is external to the ISO standard but it alone has encouraged far greater policy uptake of materials based assessment of policy options because of the usefulness of results.

***New, more scientific and robust measures of resource effici*ency and environment performance assessment**
are required to guide human activity towards greater economic and environmental sustainability. This can only be achieved if the material throughput of the economy is reduced and as such, if the material throughput of goods, services and policy options is known and factored into decision making and performance reporting. Less sophisticated measures of environmental performance such as quantity of waste to landfill or recycled are potentially misleading with respect to resource optimisation and consumption. Although in most circumstances the waste minimisation hierarchy provides sound guidance in respect to management of materials and wastes, at some point in the cost curve, for some substances or for some geographical or other variable, it is more resource optimal to landfill rather than recycle.

A transparent and useful means to measure the resource optimal position
is by adoption of full cost pricing in the modelling of scenarios in order to inform policy. Full Cost Pricing of products, services and most policy decisions is best achieved using the combination of Life Cycle Assessment (Inventory Analysis) and Environmental Economic Valuation. Both approaches are available for use in decision making in Australia, however, both are at formative stages. There is little doubt that ultimately, well informed decision making will require them. Although policy making in Europe differs from Australia, Cost Benefit Assessment using input/output analysis, combined with economic valuation of environmental impacts and benefits, has emerged as the dominant approach to policy decision evaluation.[3]

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[2] Martin.P. 1999. Submission to Cabinet for an Institute for Materials Accountability and Sustainability (IMAS). Background Briefing Paper.

[3] Examples are: United Nations (1992): Agenda 21 Report.
Australian Federal Industry Commission (1995): Packaging and Labelling Report.
European Commission (2003), External Costs, EUR20198 Project.

Waste management policy
is well positioned to drive resource efficiency throughout the entire economy. Not only are the outputs of processes subject to waste regulation but also, the ability to retain materials and substances within the economy, and reduce the overall materials throughput of economy, is achievable by waste management policy. Strategies that foster recovery, repair, redesign and renovation etc, deliver not only material efficiency gains but also macroeconomic benefits[4]. These are achieved because when secondary resources are utilised, the previous value adding that has transformed raw materials is captured and recovered, hence the depreciation of assets is delayed. Some sectors of private industry have benefited from improved resource efficiency through a greater understanding of the flow of materials through their processes and the supply chain in general. There remains however, considerable scope for resource efficiency gains at both the product and policy level.

Yours sincerely

Leanne Philpott, Hannes Partl, Euston Ling
Principal Consultants
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[4] Rodrigues, T. (2005) Constraints on Dematerialisation and Allocation of Natural Capital along a Sustainable Growth Path. Internation Journal of Ecological Economics. Volume 54.