Introduction

Tech Partner Australia is an independent Australian consultancy firm and makes this submission to this inquiry as an independent organisation. The views presented are those of Tech Partners Australia and should not be construed as views of any industry group.

This inquiry seeks to examine ways in which and make recommendations on how resource efficiencies can be optimised to improve economic environmental and social outcomes. This includes an assessment of opportunities throughout the product life cycle to prevent and/or minimise waste generated by promoting resource recovery and resource efficiency.

In this submission we have limited our comments to waste resource recovery from the construction & demolition. More specifically we make comments on the wood waste from this source. Our recommendations are summarised as follows:

Summary of Recommendations

- **Wood waste can be relatively easily incorporated into Particleboard.**
- **There is limited occurrence of recycling of wood due to lack of financial incentives. (Externality)**
- **Financial barrier need to be overcome to promote the recycling of wood.**
- **Given the financial disincentives further analysis and data is required to ensure that the most appropriate product lifecycle choices are made.**
- **If there are social benefits associated with recycling of wood appropriate financial incentives need to be developed to promote this activity.**
- **There is a general lack of information about construction & demolition waste composition. This would need to be improved and appropriate infrastructure developed to ensure a viable industry.**

1. Opportunities to use wood waste in Particleboard

The composite wood panels industry offers a significant opportunity for recovery of wood waste. The industry in Australia consists primarily of Plywood, Particleboard and MDF. The later two manufactured products offer the most noteworthy opportunity for the utilisation of wood wastes from construction and demolition (C&D Waste).

The wood preparation that is required for MDF relies on processing of wet wood. Wood waste is primarily dry and therefore adds complexity to the opportunities for use in MDF. The option should not be precluded but does pose more issues.

Particleboard appears to offers the most suitable avenue for waste use as it has the least number of technical issues because it utilises wood flakes that can be processed dry. In fact internationally there are a number of wood composite manufacturers who utilise wood waste to manufacture Particleboard.

There are a number of considerations that need to be made when utilising waste wood, as the only wood input for Particleboard manufacture and a decision to utilise waste is not a trivial one. Some of the issues include:

- The effect on product quality
- There are significant cost in establishing a suitable material sorting and handling systems, which are additional to "normal" process requirements.
- Contamination

There can be significant quality problem due to the variability of the material source. Currently manufacturers rely primarily on a single species from plantation forests, this significantly reduces the number of variables that need to be controlled. It should also be noted that the current materials are considered to be from a waste stream from forestry. They consist of forest thinnings, saw mill residues, and other post industrial wood waste.

There are also extra logistical and process issues associated with the use of recycled materials most of which are discussed in later parts of this submission.

Contamination from non-wood materials and hazardous chemicals such as preservatives also pose problems in recycling. It is unlikely that waste wood could be directly received into the recycled stream without prior sorting and isolation of contamination.

2. Lack of use due to lack of financial incentives

Given the opportunity identified above one may ask why isn't wood waste from construction and demolition being used. The primary reason is economic/cost. Most manufacturers of Particleboard have been established close to their traditional source of raw materials, the forest. Coincidently the forests are generally in regional areas whereas construction and demolition waste is located in the major capital cities of Australia. This creates a major logistical problem and contributes to the financial disincentive for the use of construction and demolition wood waste in Particleboard.

EcoRecycle Victoria reported[1] that the cost of raw virgin wood in 1997 was $33 and the likely cost for the transport of wood waste to Benalla (the closest particleboard mill to Melbourne) was $45-50. This renders proposal such as these unlikely given other likely issues mentioned in Section 1 of this submission.

The current financial comparisons for this type of operation are unknown but there has been some introduction of C&D wood waste into Particleboard. Anecdotally the financials are currently marginal.

3. Financial Barriers need to be overcome.

Given the financial issues associated with the cost of recycling wood from C& D waste, incentives need to be developed to encourage this activity. As the Commission rightly points out there is also a need to establish the costs and benefits both financially and socially. We believe that this is not

[1] Meinhardt/ WM Waste Management for EcoRecycle Victoria, Clean Pine Wood Waste Recycling, 1997

clear at the moment and it would be illogical and irresponsible to promote and utilise C&D waste in Particleboard if the additional financial and social costs outweighed the benefits.

If incentives were not acceptable one possible solution to the financial barriers would be to establish a manufacturing facility in the vicinity of a major capital city. However the financial and technical feasibility of such a concept would need to be fully explored.

4. Further analysis is required

The key driver for such recycling efforts are normally the social benefits that can be derived from more sustainable manufacture. Given some of the extra energy requirements involved in transporting wood waste to regional areas it is unclear at this stage whether it is friendlier to the environment to recycle C&D waste into Particleboard or to recycle it in some other way. A life-cycle approach is needed so that these issues can be fully quantified.

5. Lack of Knowledge about C&D Waste.

There appears to be a general lack of knowledge about the volume and composition of C&D waste. For viable, commercial manufacture of Particleboard from C&D or other wood waste to become a reality complete understanding of volumes, composition and costs need to be established.

Any manufacturing operation relies on control of the quality of its raw materials and Particleboard is no exception. Supply of material to a Particleboard plant would need to be strictly controlled. The issues that would need to be addressed are contamination from hazardous chemicals, sorting different wood species or the provision of a consistent species mix.

One possible scenario to overcome the quality issues would be for manufacturers to use smaller proportions of waste wood in their process. If this was the case a central facility would need to be established which had the capacity to sort and classify materials suitable for use directly by manufacturers. Given the limited number of location for particleboard manufacture it is unlikely that this would be viable. However if an integrated use approach was used where material was centrally collected, classified and sent to a variety of uses a possibly viable industrial use of wood waste could be established.

6. Conclusion.

We hope that this submission has provided some insight into the issues associated with recycling C&D waste wood into Particleboard, which on the surface may seem a trivial issue but is complex due to economic, social and technical issues.

Finally we would like to thank the Commission for the opportunity to make this submission.