



# Extended Producer Responsibility (EPR) of Treated Timber Waste in New Zealand

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- Scion internal project
- Goals:
  - ▶ Assess options for timber industry
  - ▶ Make recommendations
  - ▶ Hold workshops with industry
- Outputs:
  - ▶ White paper
  - ▶ Workshops

- 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 the product’s life cycle”*
- Product stewardship is similar but less focused (includes consumers, government, importers etc.)

- Bring into line with steel & concrete industries which have mature recycling industries
- **MfE Waste Strategy:** *“By December 2008, there will have been a reduction of construction and demolition wastes to landfill of 50 percent of December 2005 levels measured by weight”*

- Waste Minimisation (Solids) Bill
- Wood takes up significant amount of space in landfills
- Wood waste to energy provides renewable fuel
- Treated wood legislation appearing internationally

- End-of-life stage of timber waste
  - ▶ Sorting
  - ▶ Processing
  - ▶ Recycling
  - ▶ Reuse
- Why? – continuing waste stream
- Focus on CCA-treated timber

- Total sawn timber production in 2006:  
**4,215,000 m<sup>3</sup>**
- Treated timber: **840,000 m<sup>3</sup>** (estimate)
  - ▶ 575,000 m<sup>3</sup> of CCA-treated timber
  - ▶ 175,000 m<sup>3</sup> of Boron-treated timber
  - ▶ 90,000 m<sup>3</sup> of other treated timber

- Last National Waste Data Report: 1997
- Total waste in 1995: 3,180,000 tonnes
- MfE estimates that around 20% of waste in landfills is construction & demolition waste
- 38% of C&D waste is timber & wood fibre
- So rough estimated figure in 1995:  
**242,000 tonnes**

- Solid Waste Analysis Protocol (SWAP)
- Four indicator sites around NZ
- Acquire generic landfill data
  - ▶ use as a baseline figure for NZ waste
- 1996-2004: 8-13% of waste in NZ landfills was wood waste
  - ▶ Even 8% of 1995 total waste would result in a larger figure than on previous page

- Collection of waste
- Separation of treated & untreated timber (sorting processes)
- Treated timber chemical concerns
- CO<sub>2</sub> and CH<sub>4</sub> emissions from decomposition (long term?)

- Reduce volume of waste in landfills
- Energy from significant waste stream
- Bring NZ up to world standards
- Could be Kyoto opportunities (replace burning of fossil fuels?)
- Zero waste strategies

- Reduced costs
  - ▶ Wood waste (e.g. offcuts) as fuel
  - ▶ Avoidance of landfill charges
- Growth of market share (timber seen as an environmentally friendly product)
- Create better uses for waste wood
- Improved product design

- Imposed regulation
  - ▶ Increased costs
- May require heavy investment (recycling facilities as well as production changes)

- Reworks NZ (Canterbury)
  - ▶ Processes untreated wood
  - ▶ Products
    - Boiler fuel (90%)
    - Landscaping Mulch (10%)
  - ▶ Timber all sorted by hand
- All other current wood recycling is market-driven

- Only real EPR for treated timber is in Finland
  - ▶ Instigated in 1996
  - ▶ Creosote- and CCA-treated timber
  - ▶ Currently timber is being shredded and stockpiled while furnace is constructed
  - ▶ Will be used for energy and heat recovery
  - ▶ Costs are covered by fee at time of purchase, and disposal charges for large amounts

- UK: Particleboard is being made from recycled wood
- Australia: Some mulch production and power plant usage (~20,000 tonnes per year)
- USA: Market-driven recycling only
- Germany – incineration

- **Untreated timber:**
- Reuse
- Mulch
- Fibreboard
- Chipboard
- Animal Bedding
- Compost
- Energy Recovery
- Cement Kilns

- Recycling
  - ▶ Chipboard/particleboard/OSB
  - ▶ Wood-cement composites
    - Long term?
  - ▶ Wood-plastic composites
    - Long term?

- Pre-Processing/Chemical Removal
  - ▶ Chemical extraction
  - ▶ Steam explosion
  - ▶ Electrodialytic treatment
  - ▶ Biobleaching

- Thermal Treatment
  - ▶ Incineration
  - ▶ Cement kilns (untreated)
  - ▶ Pyrolysis (formation of liquid for fuel)
  - ▶ Gasification (formation of gas for fuel)
  - ▶ Chartherm<sup>TM</sup>

- COST:European **C**ooperation in the field of **S**cientific and **T**echnical Research
- Action E31: Management of Recovered Wood
- Final conference was on May 2-3 2007 in Klagenfurt, Austria

- Examples of research:
  - ▶ Norway<sup>1</sup> – combustion of CCA-treated wood with municipal waste.
    - Very low amounts of metals in flue gas
    - Higher amounts in ash (but acceptable)
  - ▶ All of Europe<sup>2</sup>:
    - Recovered wood quantities per capita
    - Quantities per amount of sawn wood consumed
    - Uses of recovered wood

1: Borgnes D., Rikheim B.; “Co-Incineration of CCA-Treated Wood and Municipal Solid Waste”

2: Merl A. et al.; “Amounts of Recovered Wood in COST E31 Countries and Europe”

- This research is a great tool for examining future NZ options
- Areas discussed include:
  - ▶ Flows of RW
  - ▶ Management, reuse and recycling of RW
  - ▶ Sorting techniques
  - ▶ Remediation of treated wood
  - ▶ Thermal utilisation of RW
  - ▶ RW to transport fuels

- Best option: Depends on priorities
- LC thinking: Gasification/pyrolysis (chartherm)
  - ▶ Energy generation and waste minimisation
  - ▶ Metal recycling, charcoal use
  - ▶ Potential for liquid fuels
- Carbon sequestration: Landfill/storage
- Energy Recovery: Incineration