

## **The economic value and environmental impacts of food waste in Australia**

Topic: Waste Input-Output Analysis

Author: Christian John Reynolds

Co-Authors: Beatriz Reutter, John Boland, Julia Piantadosi, Steven Kenway

Waste is produced by all parts of the Australian economy, yet both the economic and environmental impact of waste are misrepresented, undervalued, and misunderstood by the media and the general public. This paper addresses this lack of understanding, giving a definitive economic valuation of Australia's food waste and the associated environmental impacts including embodied energy, water and greenhouse gas emissions.

### **Method**

We expanded Reynolds' Australian waste estimate for the 2008 time period, classifying 61 distinct food waste categories. We then used WRAP's metrics for avoidable, possibly avoidable and unavoidable wastage to calculate the relative economic value of Australia's food waste in 2008. From this valuation we then calculate embodied energy, water and greenhouse gas emissions from Australian food waste using the extended WIO-LCA methodology proposed by Nakamura and Kondo (2008) and the environmental extensions from the EORA MRIO database. We also use Lenzen and Reynolds (2013) WSUT framework to examine the economic impacts of the various food waste treatment methods.

### **Significance**

This is the first paper to use both physical and monetary national accounts to place a monetary valuation upon food waste at a national level (along with its associated environmental impacts).

**Keywords:** Waste Input Output, Life Cycle Assessment, Sustainability, Australia

\*\* In organized session, Waste Input-Output Analysis\*\*