The Role of Recycling Depots in the Circular Economy
Paul van der Werf
SWANA Northern Lights- Measuring Success
Winnipeg, 15 May 2015

“The circular economy is Europe's next big thing, with a potential to bring major growth, leading industrialists predict.”
https://euobserver.com/economic/127844

Transition to Circular Economy

An industrial economy that is intentionally restorative.

Biological nutrients are designed to re-enter the biosphere safely.

Technical nutrients are designed to circulate at high quality without entering the biosphere.

Adapted from “Dutch government policy on resources and waste” Ministry of Infrastructure & the Environment, September 2014.
Circular Economy- Key Components

1) Conservation of natural capital and sustainable sourcing of raw materials
2) More sustainable products on the market
3) Sustainable consumption
4) Re-use, remanufacturing, recycling, etc.

Adapted from "Dutch government policy on resources and waste" Ministry of Infrastructure & the Environment, September 2014

Plenty of examples: ... small waste recycling depots for high-rise residents...

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Circular Economy- Recycling Depots

Depots are the last “port of call” between “residual waste” and “sustainable use”
Recycling Depots

- In the European context recycling depots have become an integral piece of infrastructure
- More forethought than afterthought
- Move towards well designed and purpose built facilities
- Integrated depots for drop off that also provides re-use opportunities

Overview of Capture Rates

Key Factors Affecting Recycling Rates
- Range of Materials
- Split Level Architecture
- Signage
- Formal Re-use Systems
- Number of On site Staff
- Site Staff Incentives
- Public Awareness Raising Measures
- Other factors
- Proximity
- Wait times
- Attractiveness

WRAP Household Waste Recycling Centre (NWRC) Guide, October 2012 (UK)
Household Waste Recycling Guide
Key Layout Best Practices
• Split Level Architecture
• Review/Improve Traffic Flow
• One way system for public traffic
• Keep public and service traffic separate

Netherlands
Regulations
• As of January 1, 2013 regulation requires recycling depots to be capable of receiving 18 streams of source separated household waste
• The philosophy behind this regulation is that source separated streams result in the most recyclable wastes
• The operators of the recycling depot must operate the depot so as to maximize source separation and minimize wastes ending up in the garbage stream
• Integrated depots are an important tool for meeting goals

Netherlands Examples
• In the Netherlands (and other European Countries) the use of split level recycling depots is growing
• One technology example is Modulo-Béton
• Technology originated in France

Netherlands- Zaandam

With: Rijkswaterstaat - Ministerie van Infrastructuur en Milieu

Netherlands- Lelystad

Modulo-Béton Recycling Depots

Key Operational Features

- Traffic directed to a raised driving deck and wastes dropped by generator into bins
- Essentially using roof of building
- Essentially provides a building that can be used for various functions:
  - Storage
  - MHSW
  - WEEE
  - Re-use centre
Netherlands
Operation

Recycling Depot Facts and Figures- 2014
25 year life cycle costs

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<thead>
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<th>Life cycle costs</th>
<th>Traditional</th>
<th>Forward</th>
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<tbody>
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<td>Cost for Scale</td>
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<td>800 $</td>
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<tr>
<td>Staff costs</td>
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<td>Cost of additional space</td>
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<td>Refurbishment cost</td>
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<tr>
<td>Total</td>
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Mini Business Case- Canada

- Town of 10,000
- 15,000 tonnes/year waste
- 12,500 tonnes to landfill at $160/tonne
- 1,500 tonnes to depot at $60/tonne
- $750,000 investment adds $26,000-$40,000 in new annual costs (30-60 years amortization)
- Moving an additional 5% of waste stream to depot can save up to $75,000/year
- Less to collect, more diversion

Circular economy could bring 70 percent cut in carbon emissions by 2030

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