

# Circular smart economy

Case Lahti, Finland

UBC General Conference, Gdynia  
Building Smart Cities

Mayor Jyrki Myllyvirta  
City of Lahti

LAHTI

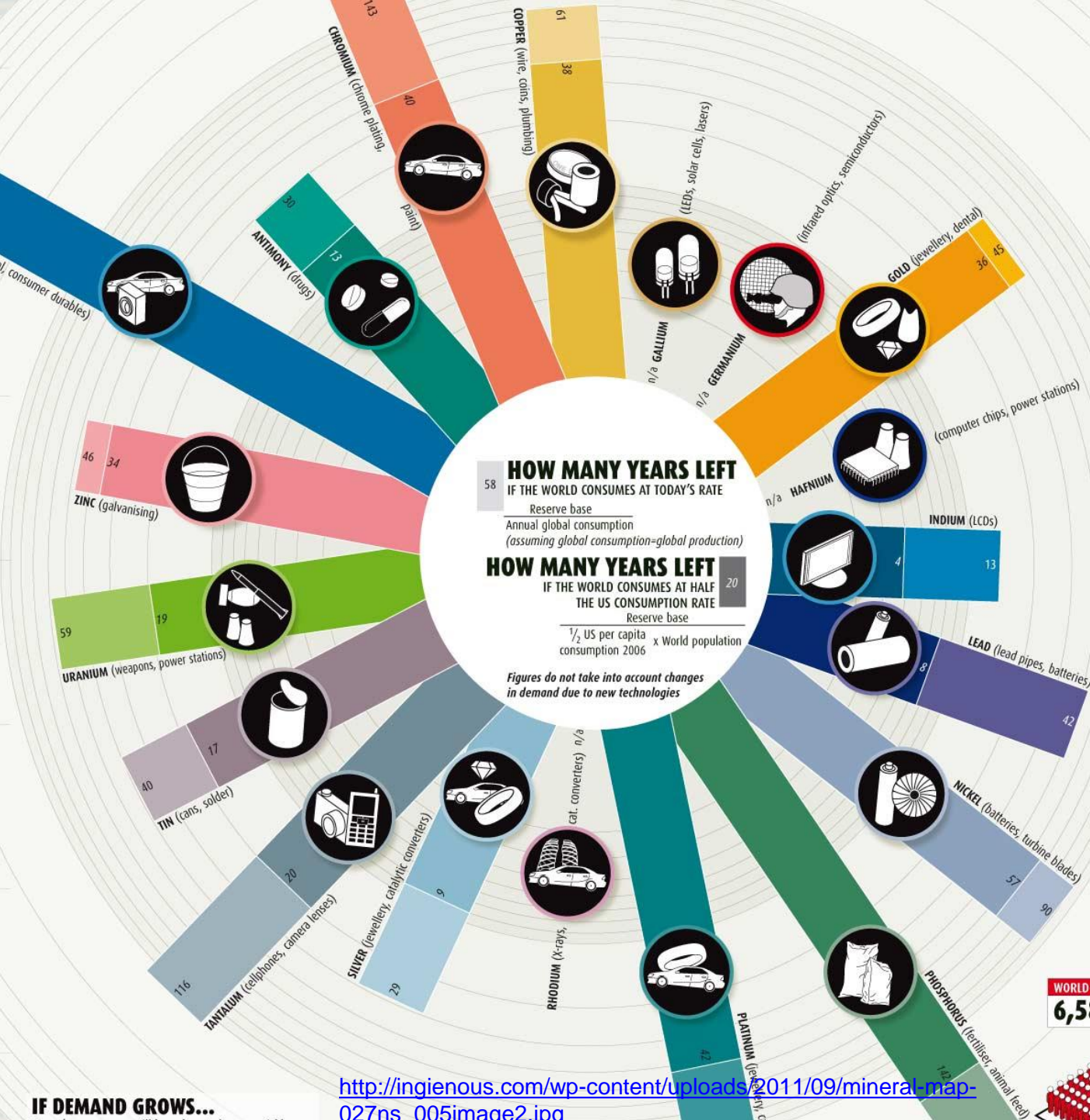
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[www.lahti.fi](http://www.lahti.fi) – [www.nastola.fi](http://www.nastola.fi) – [www.salpauskunta.fi](http://www.salpauskunta.fi)

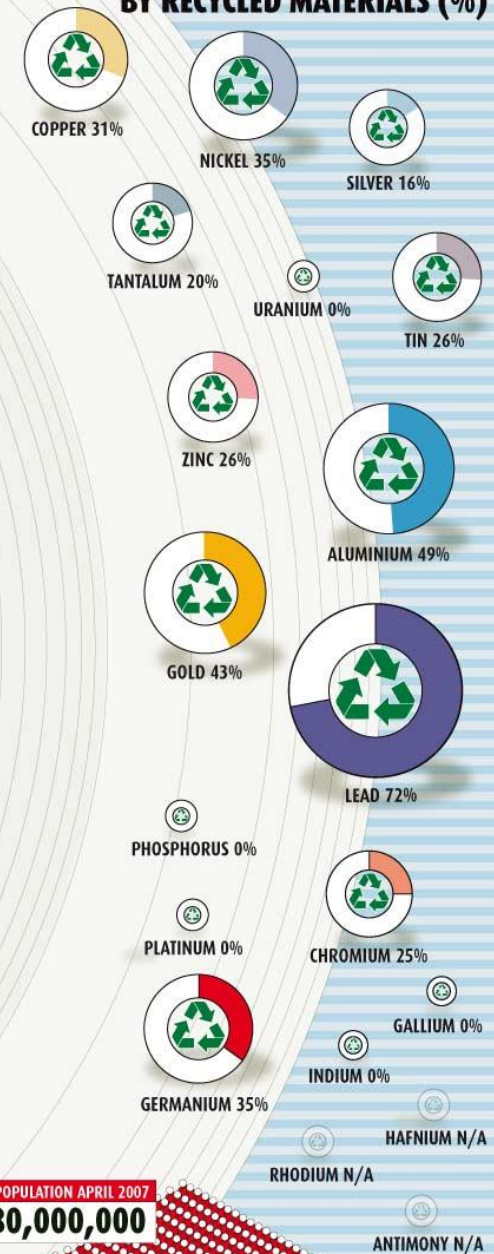
# City of Lahti







## PROPORTION OF CONSUMPTION MET BY RECYCLED MATERIALS (%)

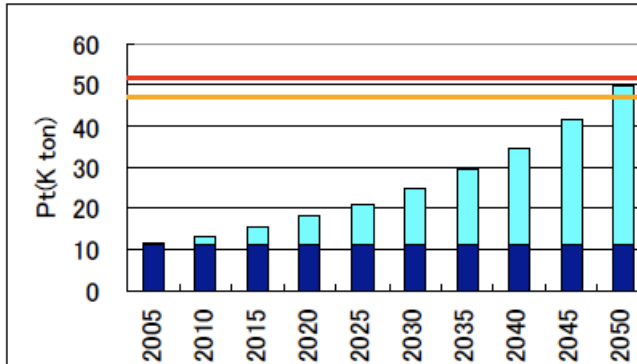
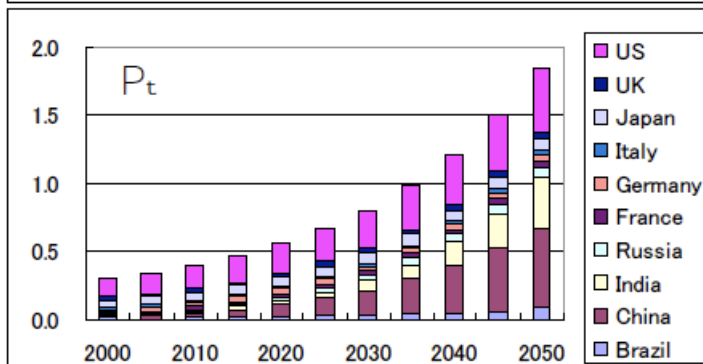
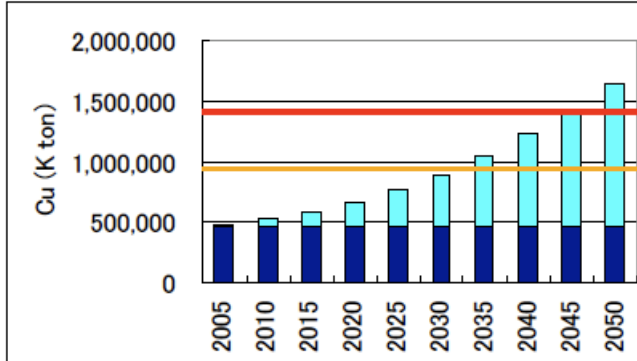
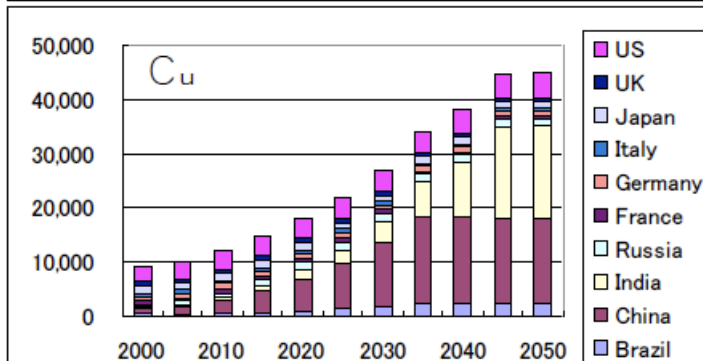
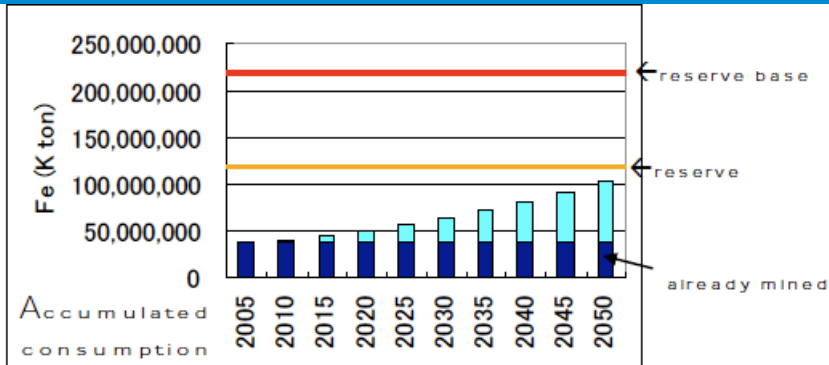
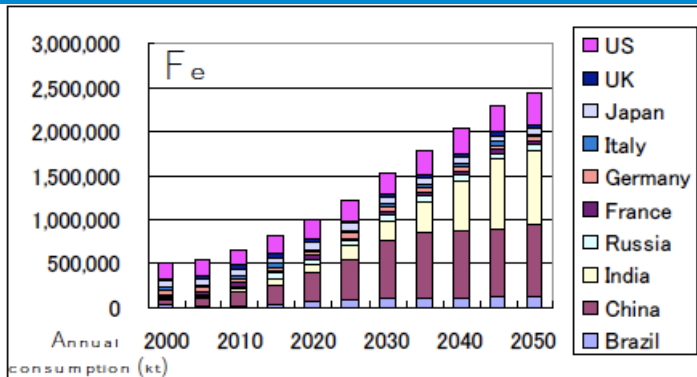


WORLD POPULATION APRIL 2007  
**6,580,000,000**

IF DEMAND GROWS...

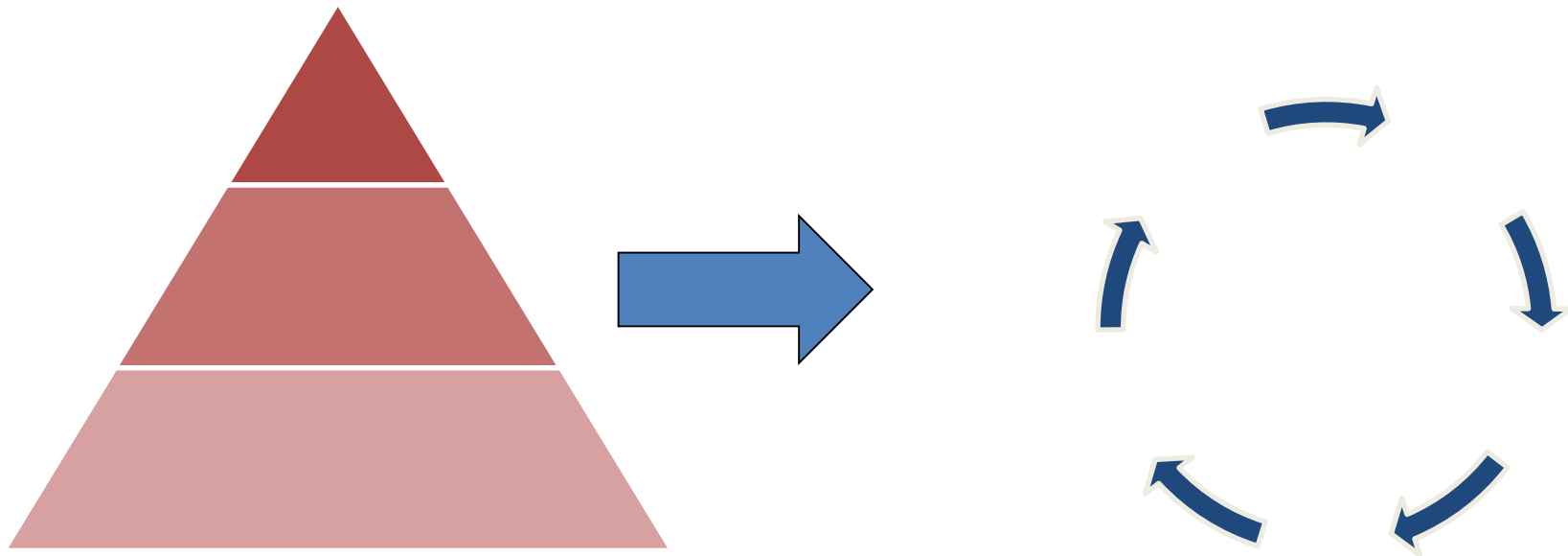
[http://ingenious.com/wp-content/uploads/2011/09/mineral-map-0027ns\\_005image2.jpg](http://ingenious.com/wp-content/uploads/2011/09/mineral-map-0027ns_005image2.jpg)

# Global consumption of metals



Ref: K. Halada,  
National Institute of  
Material Science,  
Japan

# Transition to circular economy



# Why?

A transition towards the circular economy can bring about **the lasting benefits of a more innovative, resilient and productive economy**. Modelling conducted in this study suggests that it could lead, in Denmark, to 0.8–1.4% additional GDP growth, the creation of 7,000–13,000 job equivalents, 3–7% reduction in carbon footprint, and 5–50% reduction in virgin resource consumption for selected materials.

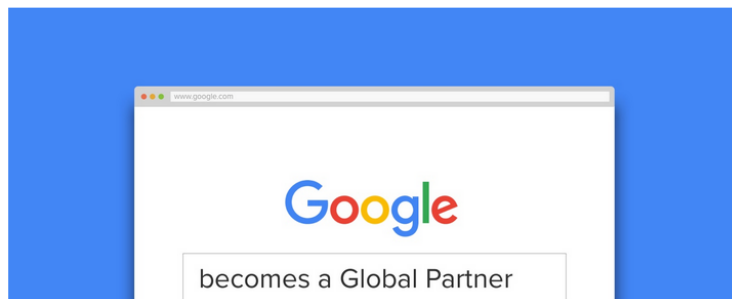
[http://www.ellenmacarthurfoundation.org/assets/downloads/publications/EllenMacArthurFoundation\\_PolicymakerToolkit.pdf](http://www.ellenmacarthurfoundation.org/assets/downloads/publications/EllenMacArthurFoundation_PolicymakerToolkit.pdf)

Shifting to a circular economy—everything from cutting out food waste to upcycling materials to eliminating wasted resources like cars or offices that often sit **empty—could save over \$2 trillion in Europe alone, the foundation estimates**. It's something that the European Union is pushing for: The EU plans to release a strategy late this year for transforming to a circular economy.

LATEST

## THE ELLEN MACARTHUR FOUNDATION ANNOUNCES GOOGLE AS A GLOBAL PARTNER

SEPTEMBER 29, 2015



## Tiilikainen: "Kiertotalous ei ole hallitusohjelmassa hivin vuoksi"

26.08.2015 11:30 Suomenmaa

AA



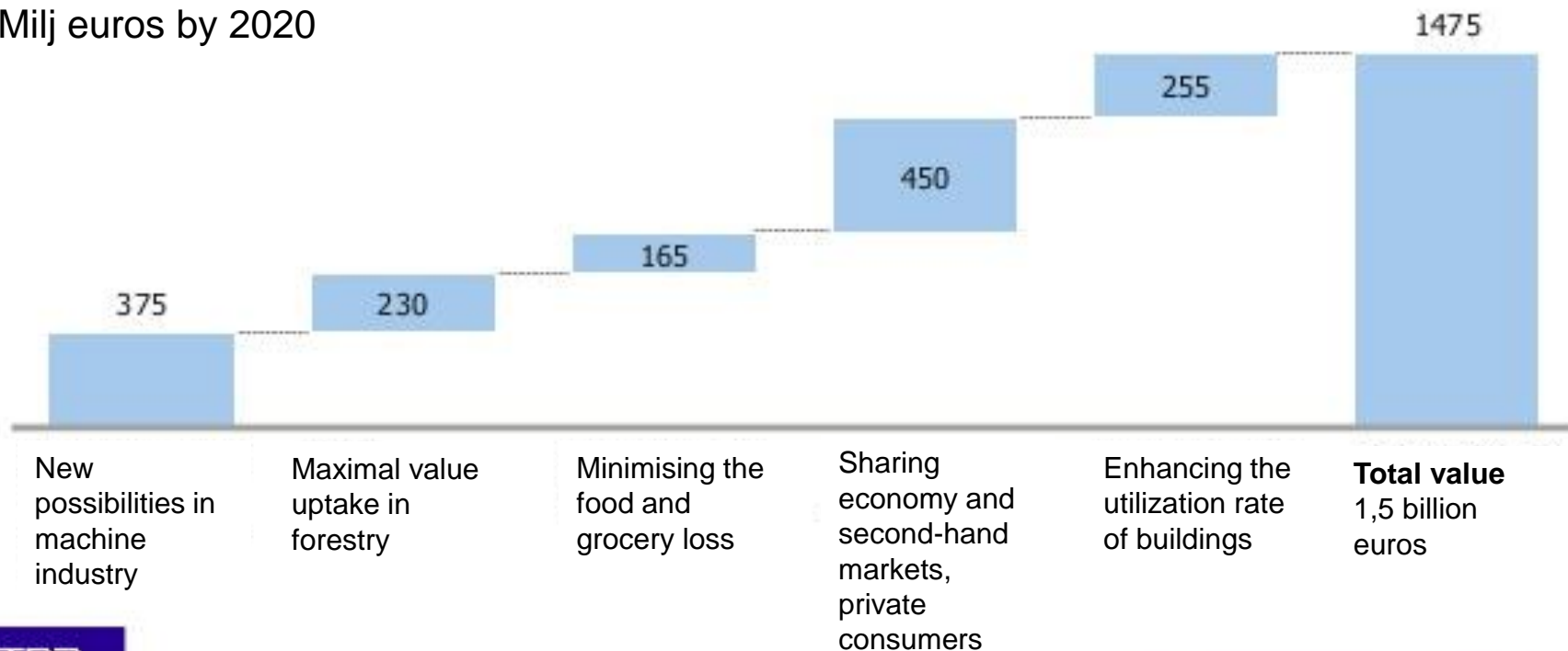


# Most potential growth areas of circular economy in Finland

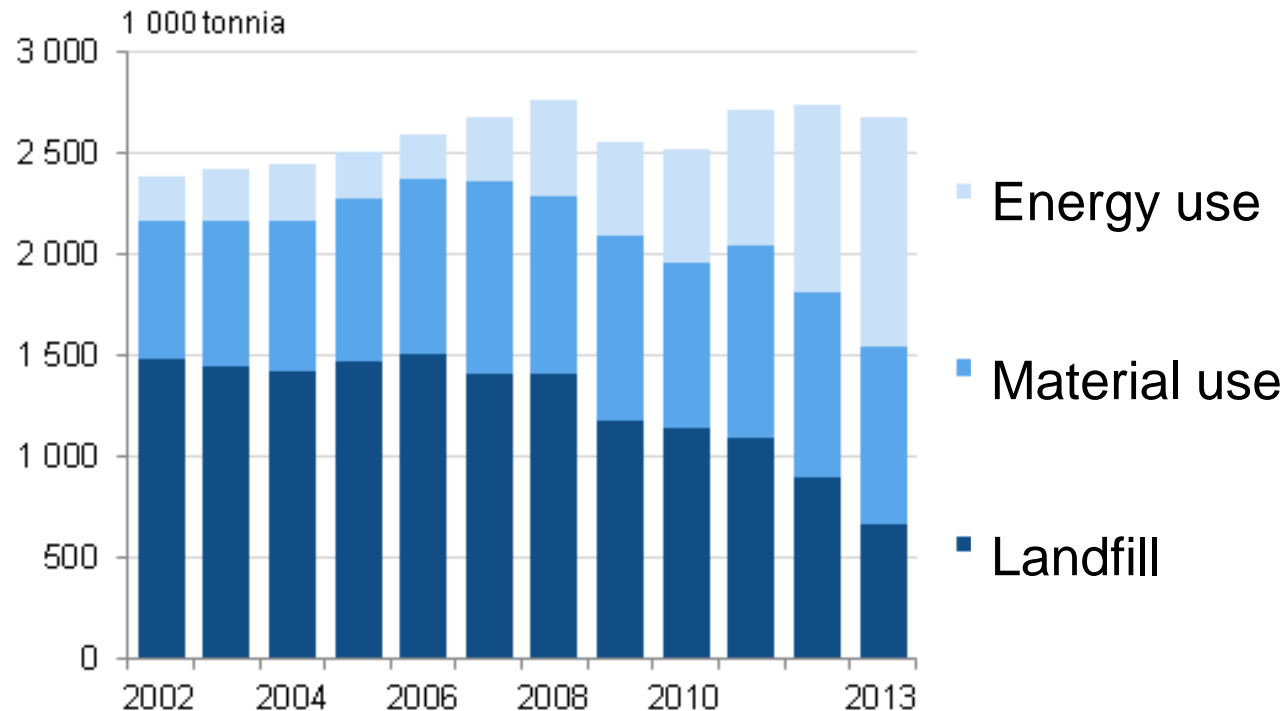
Lähde: McKinsey

## Potential annual value

Milj euros by 2020



# Waste statistics of Finland challenge the circular economy!



[http://www.stat.fi/til/jate/2013/jate\\_2013\\_2014-11-27\\_tie\\_001\\_fi.html](http://www.stat.fi/til/jate/2013/jate_2013_2014-11-27_tie_001_fi.html)



# Local circular economy, where are we standing now in Lahti?

# From waste management to material use of waste



## Separate collection of different waste segments

- From 1997
- Energy waste



## Energy solutions

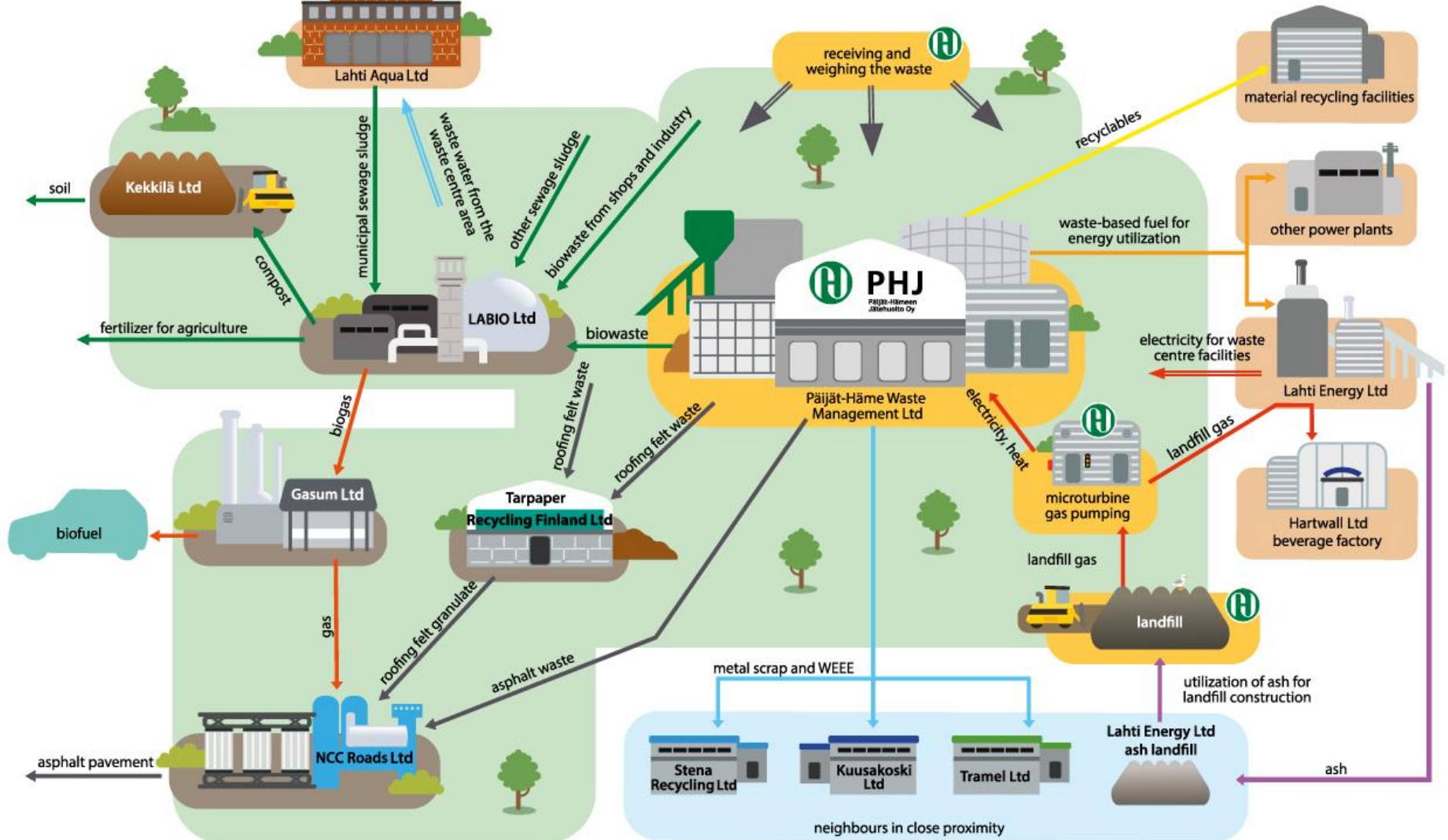
- CHP, Kymijärvi II
- ST1 Ethanolix-bioethanol
- Gas from landfill
- Biogas production Labio Oy



## Resource & material efficiency

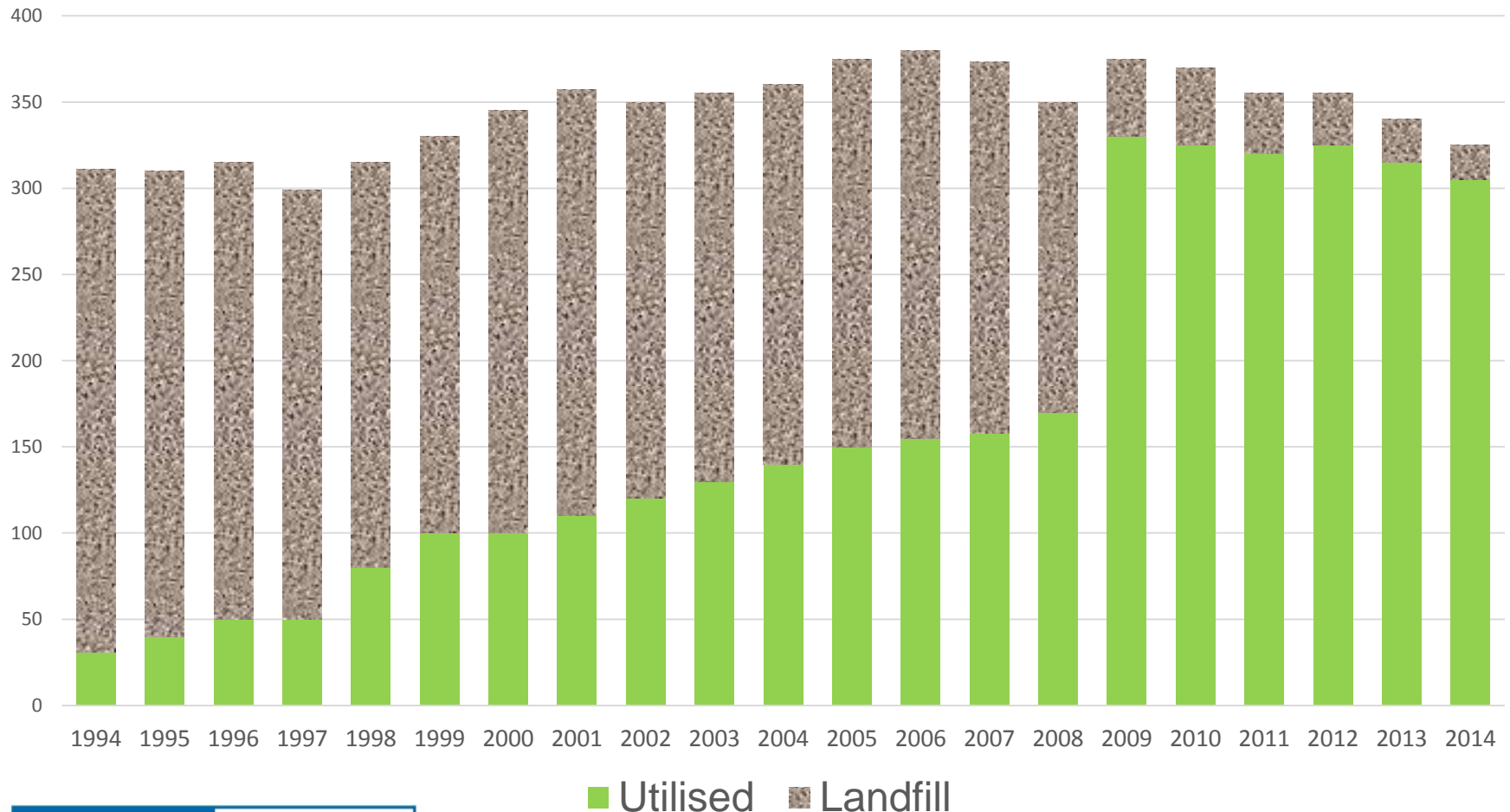
- Value creation in waste-to-energy chain
- Industrial symbioses
- Material efficiency, e.g. Tarpaper Ltd case

## Kujala Waste Centre – Industrial Symbiosis Lahti, Finland



# End of landfills

The utilisation rate of municipal waste in Lahti region 1994-2014





# From roof to road

Case: Tarpaper Recycling & NCC Roads

*"The refining process of Tarpaper Recycling extracts the Bitumen in the roofing felt to a raw material, that can be used as fixing agent in the production of new asphalt. The extracted bitumen-mix, after been through a process of reduction and cleaning, is ready to be used in the asphalt production. This product is highly appreciated, as it is cost reducing and has an environmental positive element."*

Tarpaper Finland  
Kati Tuominen  
puh. +358400 494 080  
kt@tarpaper.fi



# Largest biogas plant of Finland

## Labio Oy

*A major step forward was taken in the Finnish bioenergy sector as an integrated biogas production and upgrading facility was opened as a joint project of LABIO and Gasum in Kujala, Lahti, on Thursday March 5, 2015.*

*The facility is a prime example of the promotion of circular economy as it will produce 50 GWh of upgraded biogas from 44,000 tonnes of waste per year.*

LABIO Oy  
CEO Ari Savolainen  
+35850 324 7415  
[Ari.savolainen@labio.fi](mailto:Ari.savolainen@labio.fi)

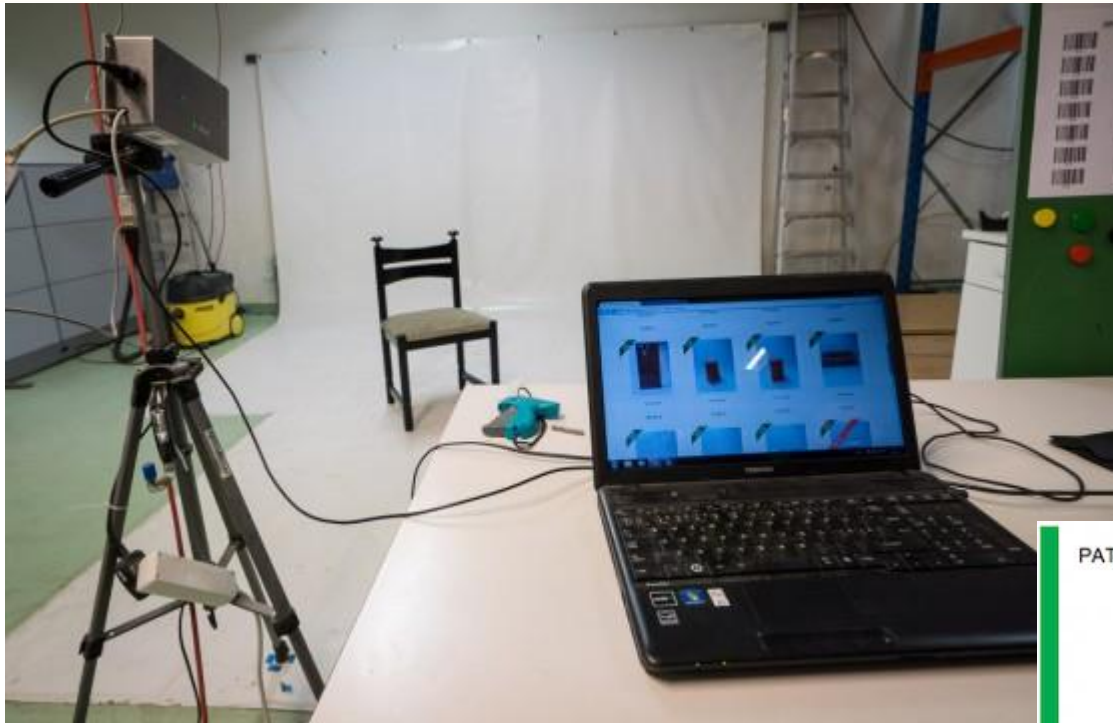


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# New models for recycling

Real-time data of recycled products & dynamic pricing



PATINA - kierrättää kestävästi

## Viikon 22 tarjoukset:



Tuotteet merkitty muoviliuskoilla

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# New consumer services in trial

City of Lahti, Demos Helsinki, K-Citymarket Paavola



Smart retro-project  
2014-2015 together  
with Stockholm &  
Oslo

<http://smartretro.de>  
[moshelsinki.fi/](http://moshelsinki.fi/)



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# New campaign for citizens: One-tonn less

## Tonni lähti

TULE MUKAAN ■ TUTKIMUSTIETOA ■ TARINOITA ■ 10 TEKOA ■ YHTEYSTIEDOT



Soon to be launched

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# Why circular economy is regionally smart?

Scarcity of natural resources affects global economy - need to forecast and adapt to its local impacts

Creation of new jobs, incl. Industrial

Consumer behaviour change towards services

Viable, interesting city and testbeds



Thank you!