

# **The Terra Recovery Project**

## **Space meets Waste: Profiling landfills with remote sensing**

EISC 2014 Plenary Conference  
20/10/2014  
Yuuki Peters

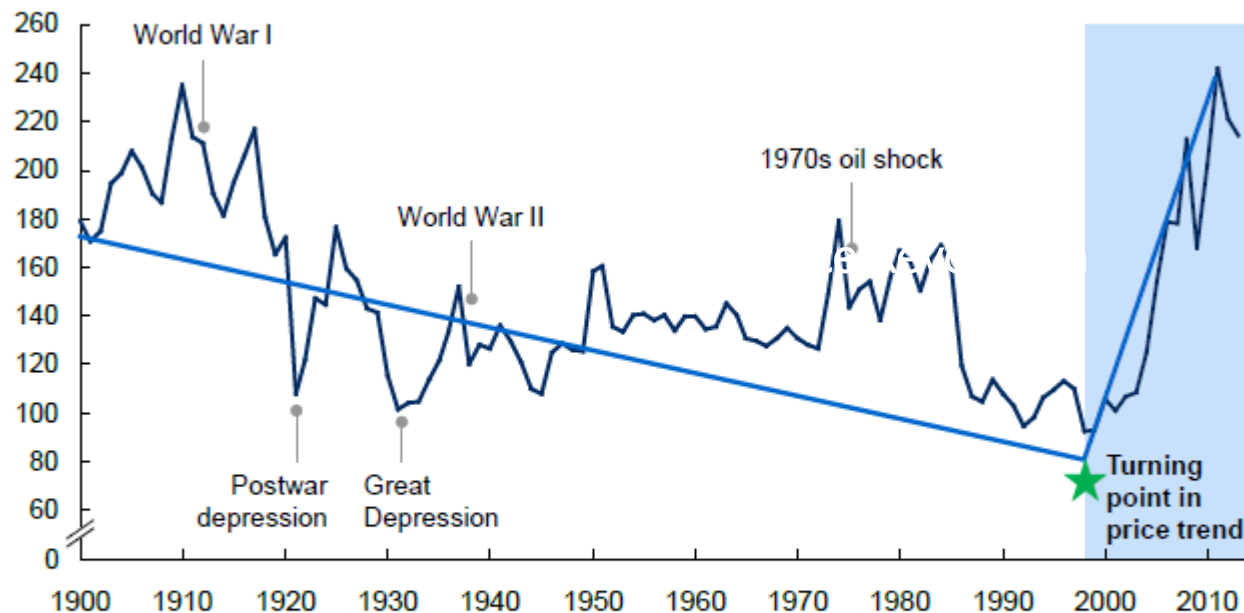






**147%** increase in real commodity prices since the turn of the century

**McKinsey Commodity Price Index<sup>1</sup>**  
Real price index: 100 = years 1999–2001<sup>2</sup>



<sup>1</sup> Based on arithmetic average of four commodity sub-indexes: food, non-food agricultural raw materials, metals, and energy.

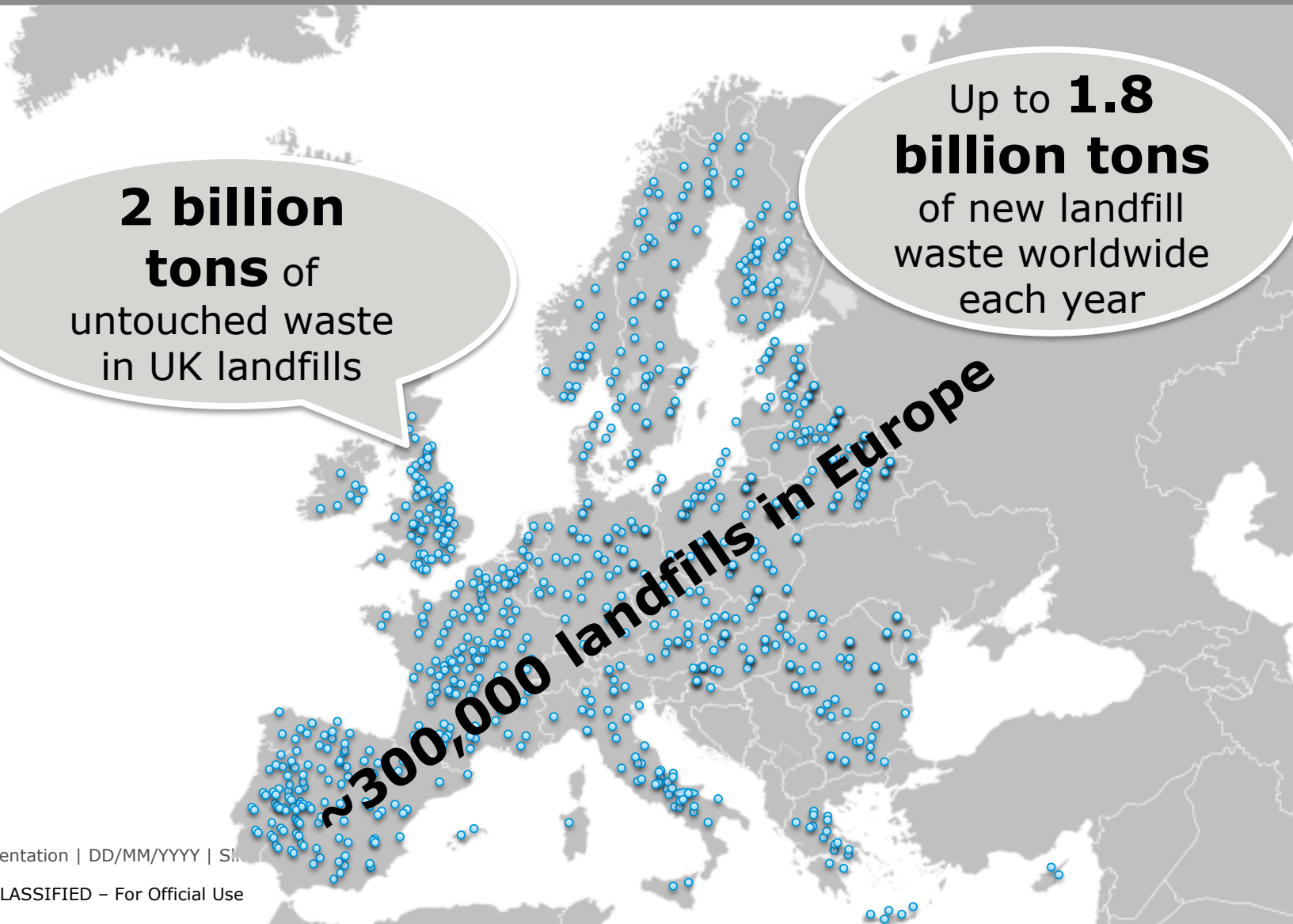
<sup>2</sup> Data for 2013 are calculated based on average of the first three months of 2013.

SOURCE: Grilli and Yang; Pfaffenzeller; World Bank; International Monetary Fund; Organisation for Economic Co-operation and Development statistics; Food and Agriculture Organization of the United Nations; UN Comtrade; McKinsey Global Institute analysis









**2 billion  
tons** of  
untouched waste  
in UK landfills

Up to **1.8  
billion tons**  
of new landfill  
waste worldwide  
each year

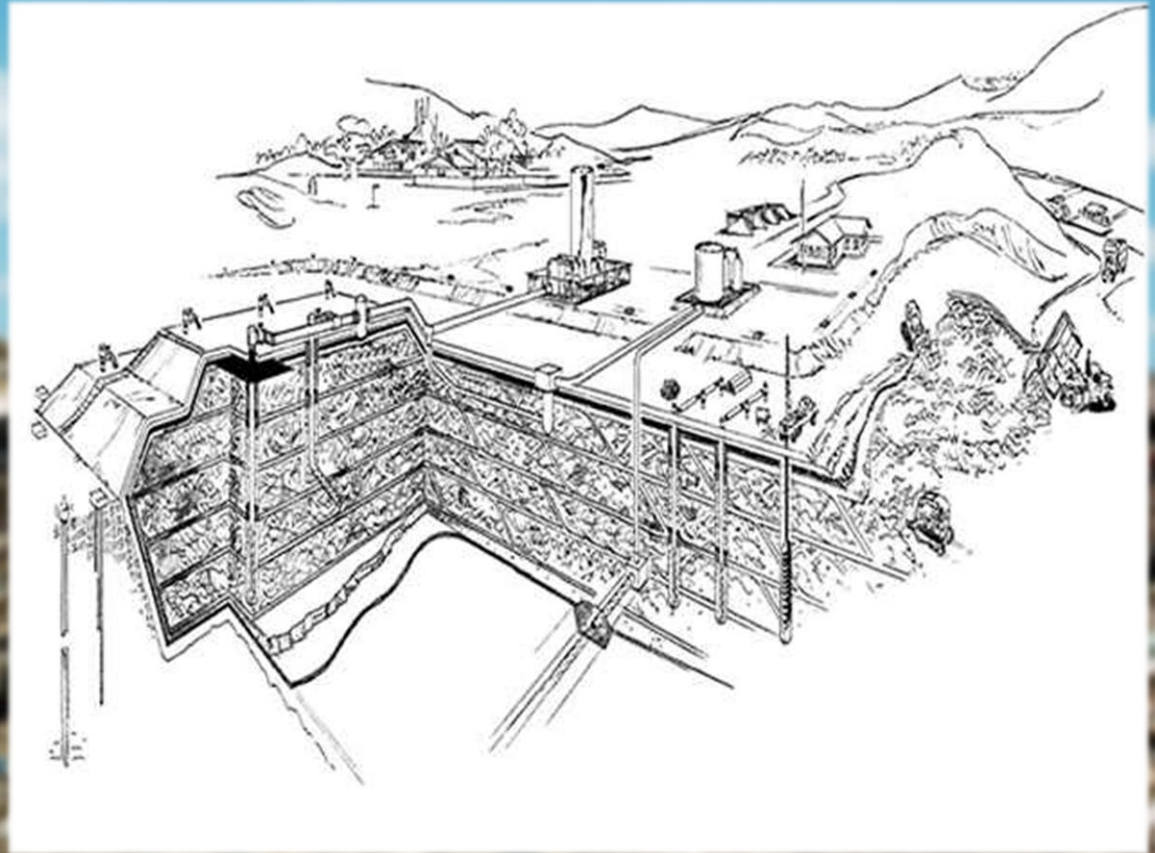
**~300,000 landfills in Europe**

COMPLEXITY

VARIABILITY

LACK OF DATA

R.O.I.

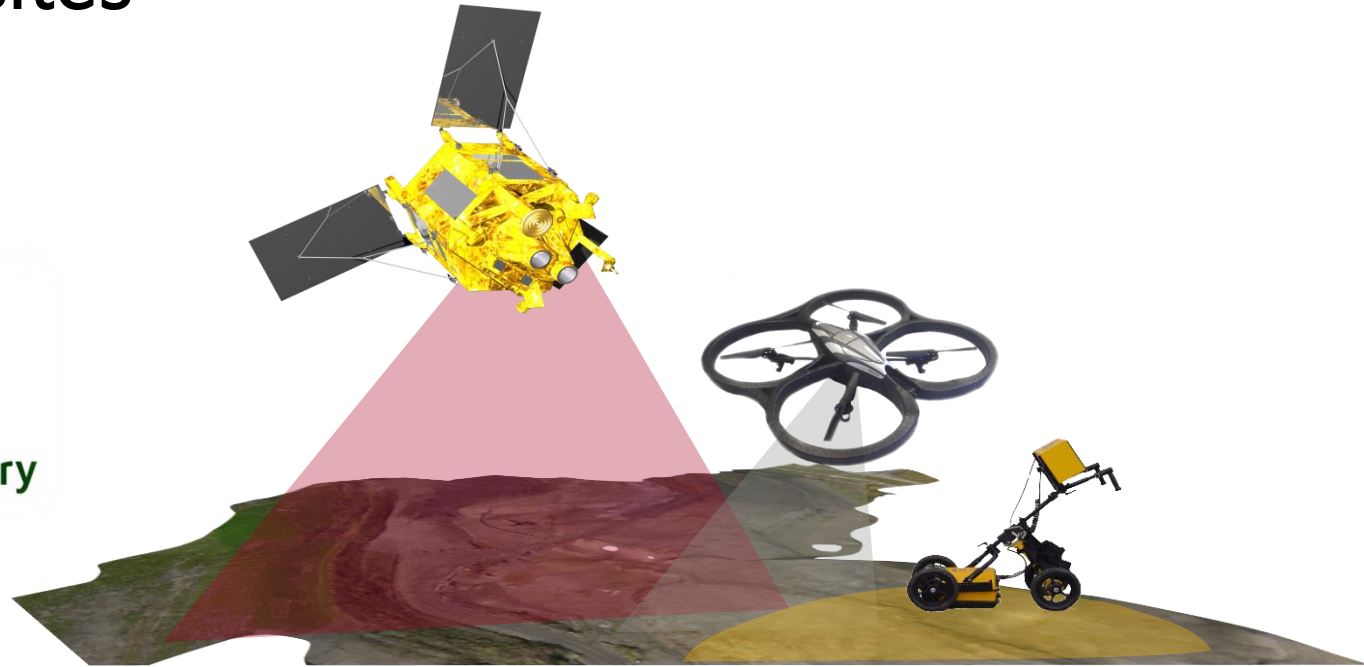


25,000 sites



Terra Recovery

25 sites







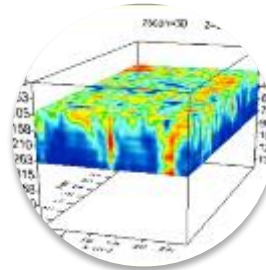
## Surface Measurements

- Satellite images
- Vis, SAR & IR
- 0.3-5 m Resolution



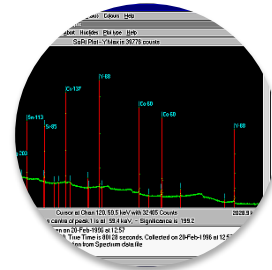
## Contextual Data Analysis

- Geological mapping
- Boundary detection
- Topography
- Volume



## Subsurface Measurements

- Geophysical sensors
- Depth 1-10 m
- UAV or ground equipment



## Correlation Analysis

- Comparison with historical data
- Calibration and algorithm development





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