# PAM

## Parliamentary Assembly of the Mediterranean

Meeting

Pavia,11th of June 2015

*Wraping up speech*

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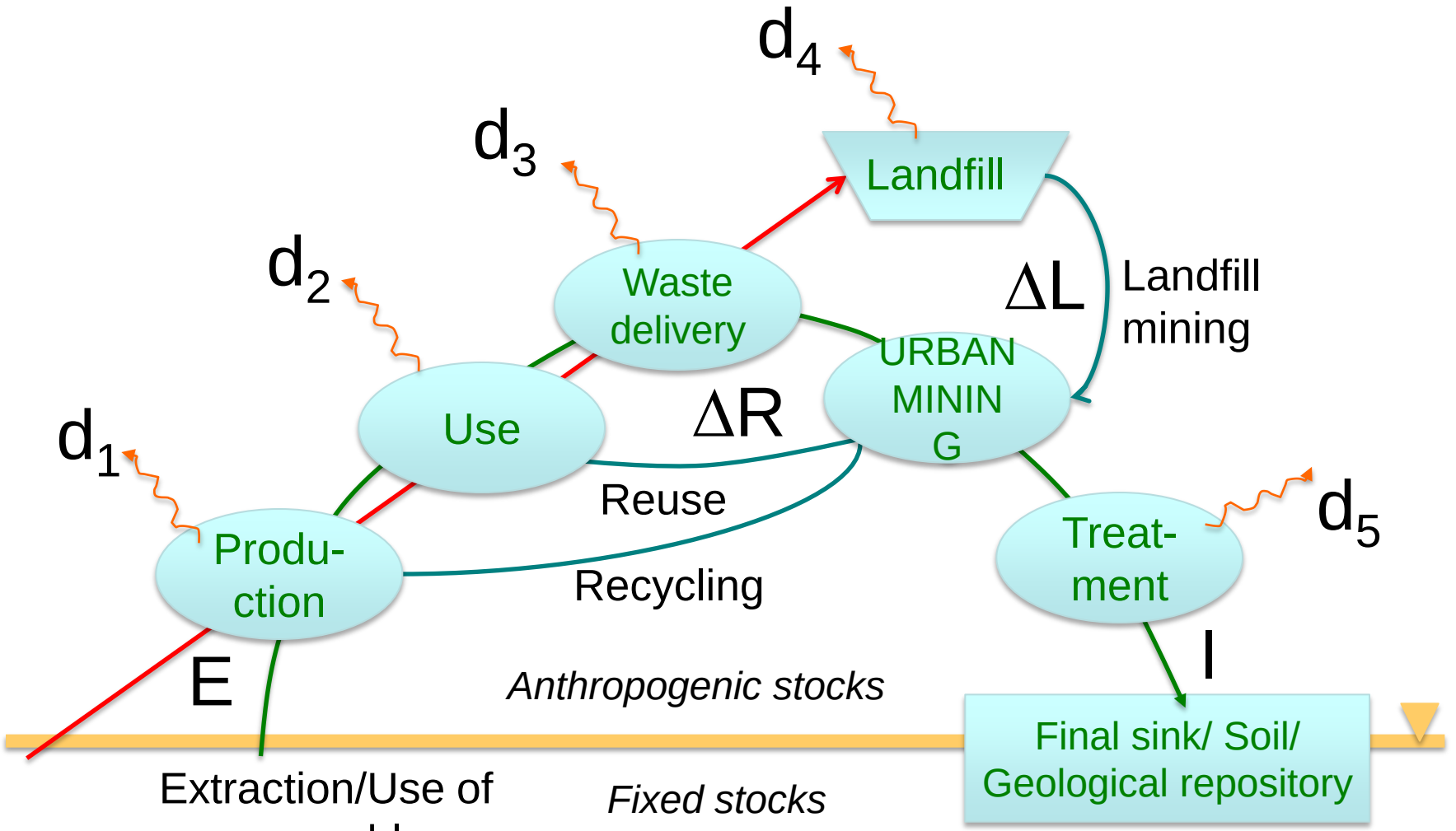
# Materials life cycle: Lavoisier law




**Soil is not renewable!**

# The mass balance in material life cycle

A mass balance can be written:

$$E = \Delta R + \Delta L + \Sigma d_i + I$$

where:

E: extracted raw material/No-renewable resources (soil)

ΔR: recycled and reused material (secondary raw materials);

ΔL: recovered material from landfill mining (secondary raw materials);

$d_i$: diffuse mass emissions/loss associated to the specific steps and processes;

I: immobilized material to send back to the final sink.

# Control of diffuse pollution in WM

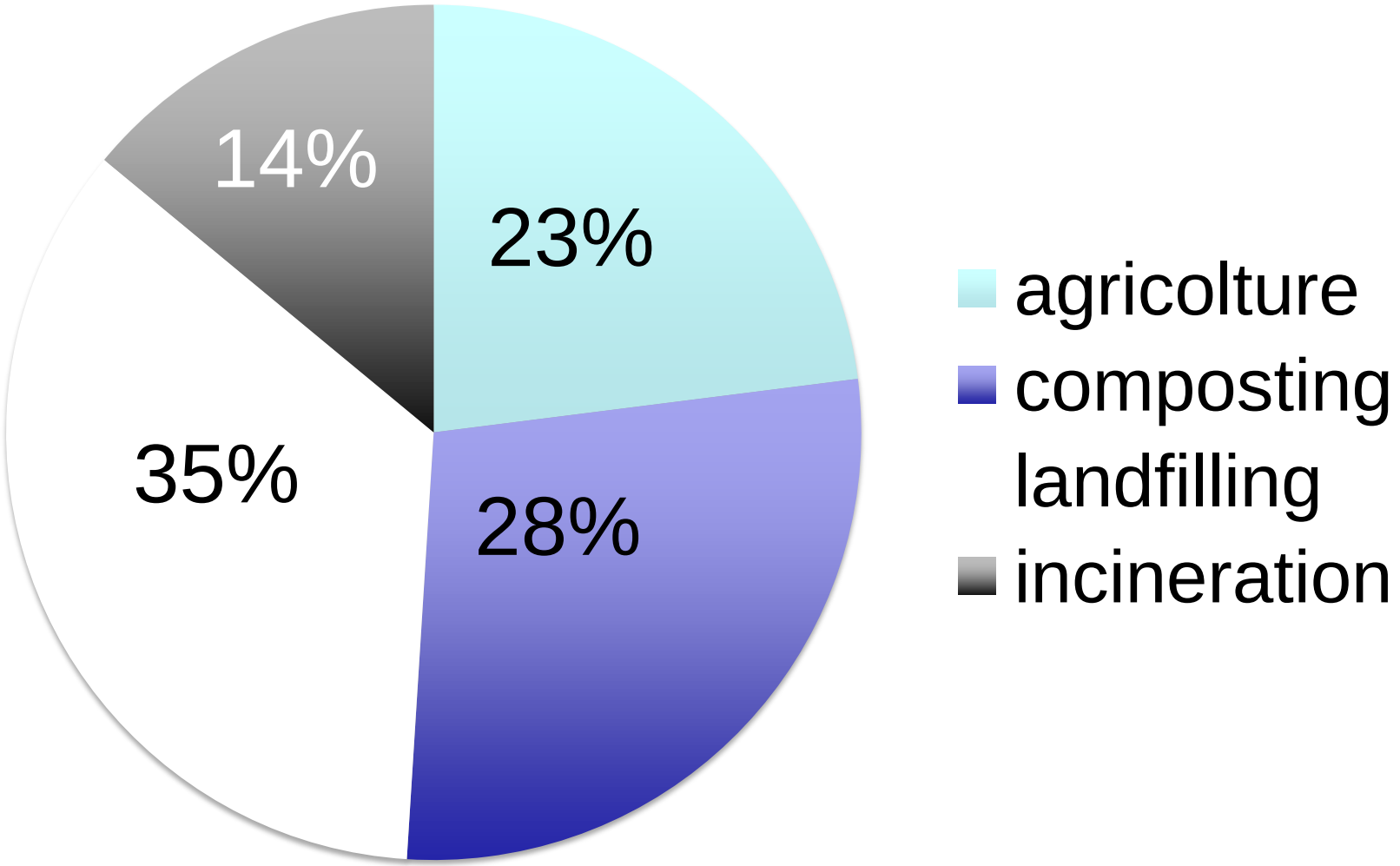
$$\Sigma d_i = E - \Delta R - \Delta L - I$$

In order to control emissions, it is thus clear that it is necessary to minimise raw material extraction and indiscriminate use of soil and to maximize recovery, recycling and reuse of secondary raw materials through urban mining processes and mining of old landfills and to increase the immobilisation of materials in final sinks/soil sink /geological repositories

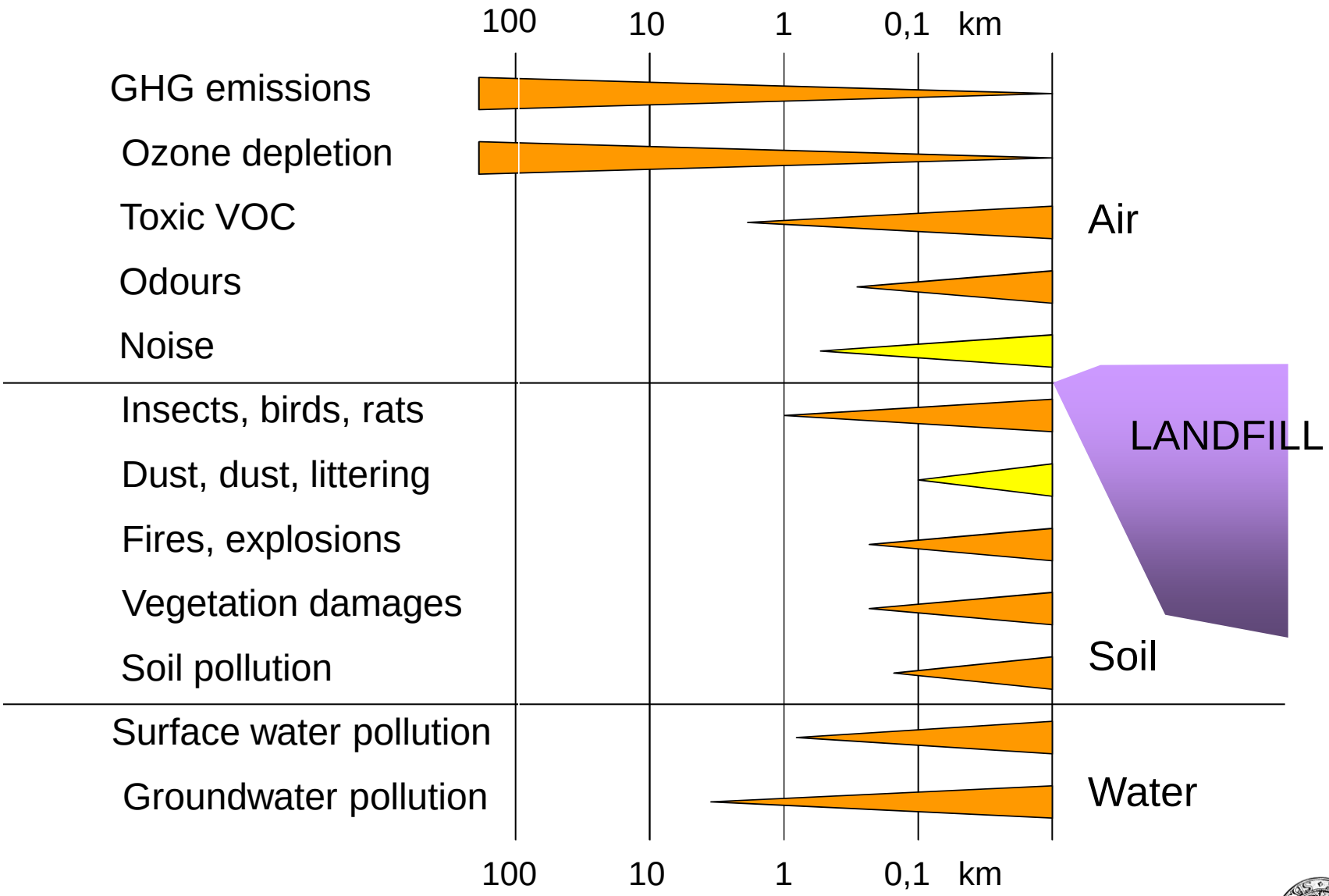
- ✓ Soil Organic Matter (SOM) is the key factor for maintaing soil fertility
- ✓ If SOM decreases, productivity decreases, use of mineral fertilisers increases
- ✓ Fertilisers are worth the 25% of the total food production costs
- ✓ SOM plays a mayor role in controlling global climate change

# Organic waste has been always a big problem in Waste management and one of the major environmental hazards

# Sewage sludge management



# Impacts of landfilling



- ✓ Nowdays Organic waste ( can be part of the solution
- ✓ Sewage sludge will be the future source for Phosphorous
- ✓ Recycling of nutrients to soil
- ✓ Carbon and element final sink
- ✓ Control of global climate changes
- ✓ Energy production

Merci
Thank you
Grazie

Shukaran
Hvala
Eukaristò