2.3. UA for resource efficiency and waste management

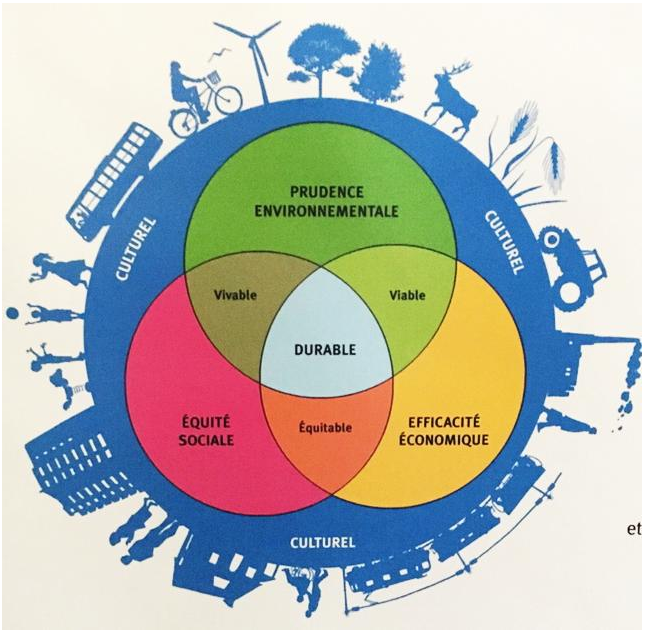
2.3.2 Waste-to-resources: the potential uses of bio-waste

Laure Vidal-Beaudet
Agrocampus Ouest / Agreenium

2.3.5 Waste-to-resources: The potential uses of biowaste

Plan

- Urban system
- Type of urban wastes
- Ways of recycling
- Potential uses of bio-waste for plant production



Potential uses of bio-waste

Regulations

The uses of compost must follow state regulations.
In France regulations for organic amendment (NF U 44-051) and for growing media (NF U 44-551). A european rule in on the way (2019).
The products must be conform to a compulsory standard

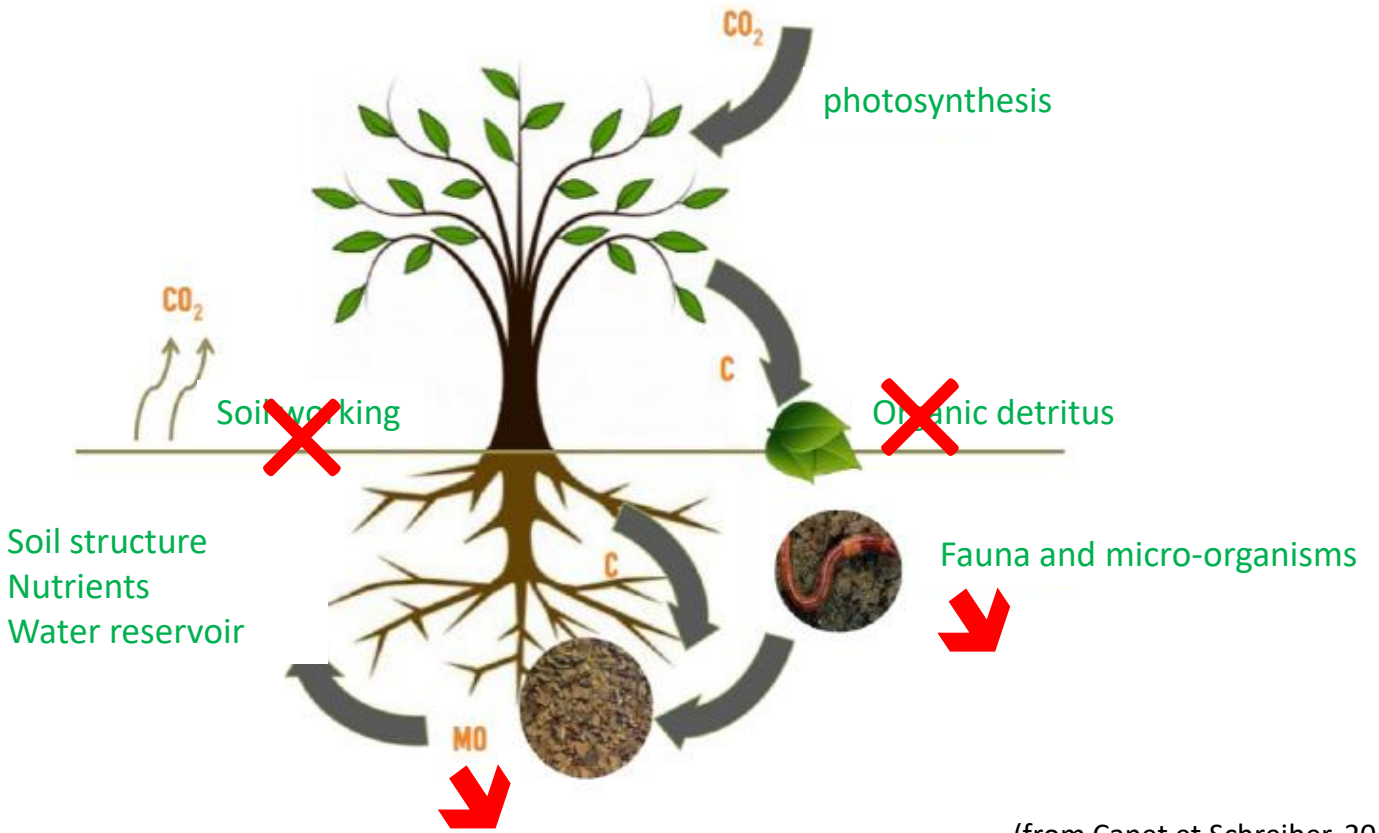
- Raw materials allowed,
- Thresholds for
  - heavy metals (Cd, Cr, Cu, HG, Ni, Pb, Zn),
  - micro-organims (Escherichia coli, Helminths eggs, …)
  - Pathogens (salmonella and listeria monocytogenes)

- Labelling requirement as pH and electrycal conductivity

European regulations ⟹ Population sanitary protection

Potential uses of bio-waste

Urban soil characteristics

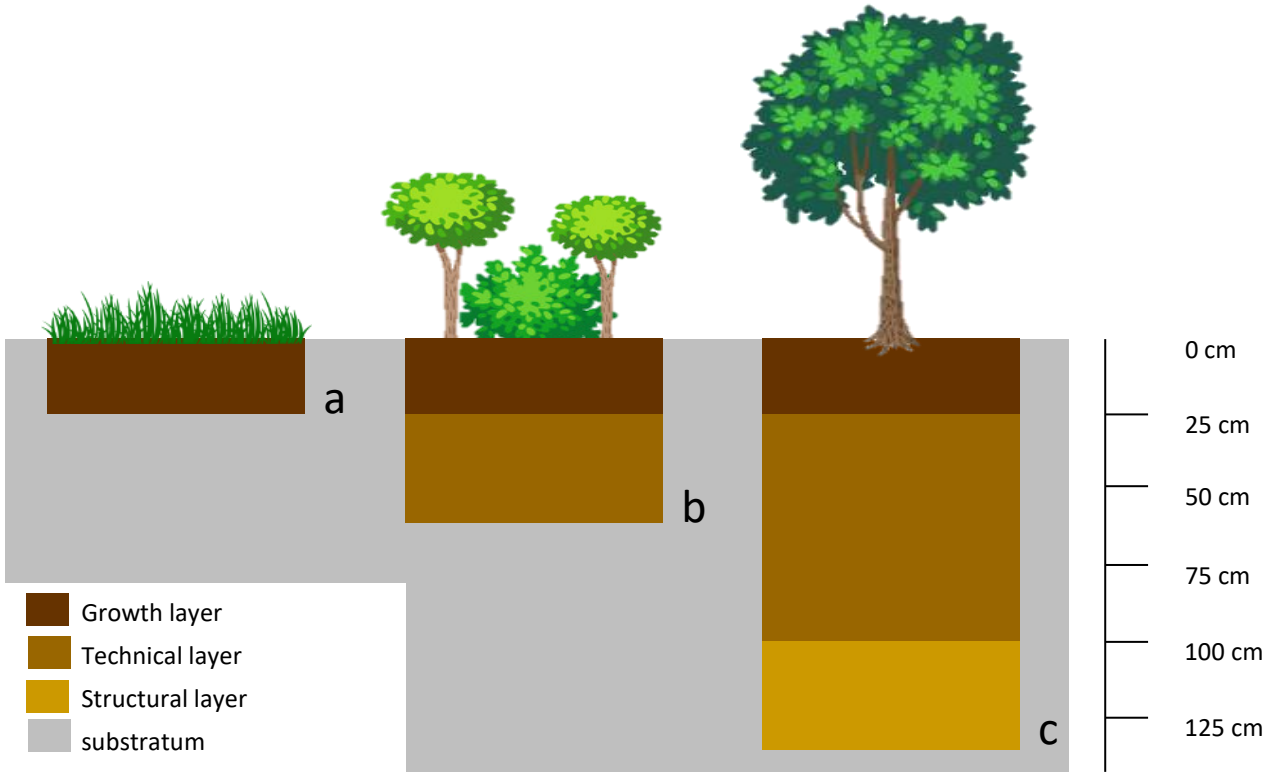


(from Canet et Schreiber, 2015)

Low fertility of soil ⟹ High mortality of urban vegetation

Potential uses of bio-waste

Support for plant development as function of land uses



Support of traffic lanes
Tramway
Extensive green roofs

Squares and parks
Support of public building
Intensive green roofs
Common gardens
Industrial sites

Street trees

Unep 2010

Potential uses of biowaste

Constructed soil with great quantity of composts

Soil of tramway

Extensive green roof

Potential uses of biowaste

Constructed soil with great quantity of composts for squares and parks

Fondation Louis Vuitton Paris 2014

Cité Internationale Lyon 1998

2012

Potential uses of biowaste

Constructed soil with great quantity of bio-waste for intensive green roof

Roof of AgroParisTech Paris

Montréal

Potential uses of biowaste

Soil with great quantity of composts for <u>common gardens</u>

60% of soils modified and with technogenic materials

Potential uses of biowaste

Soil with great quantity of composts for <u>private gardens</u>

60% of soils modified and with technogenic materials

Bad control of organic matter inputs

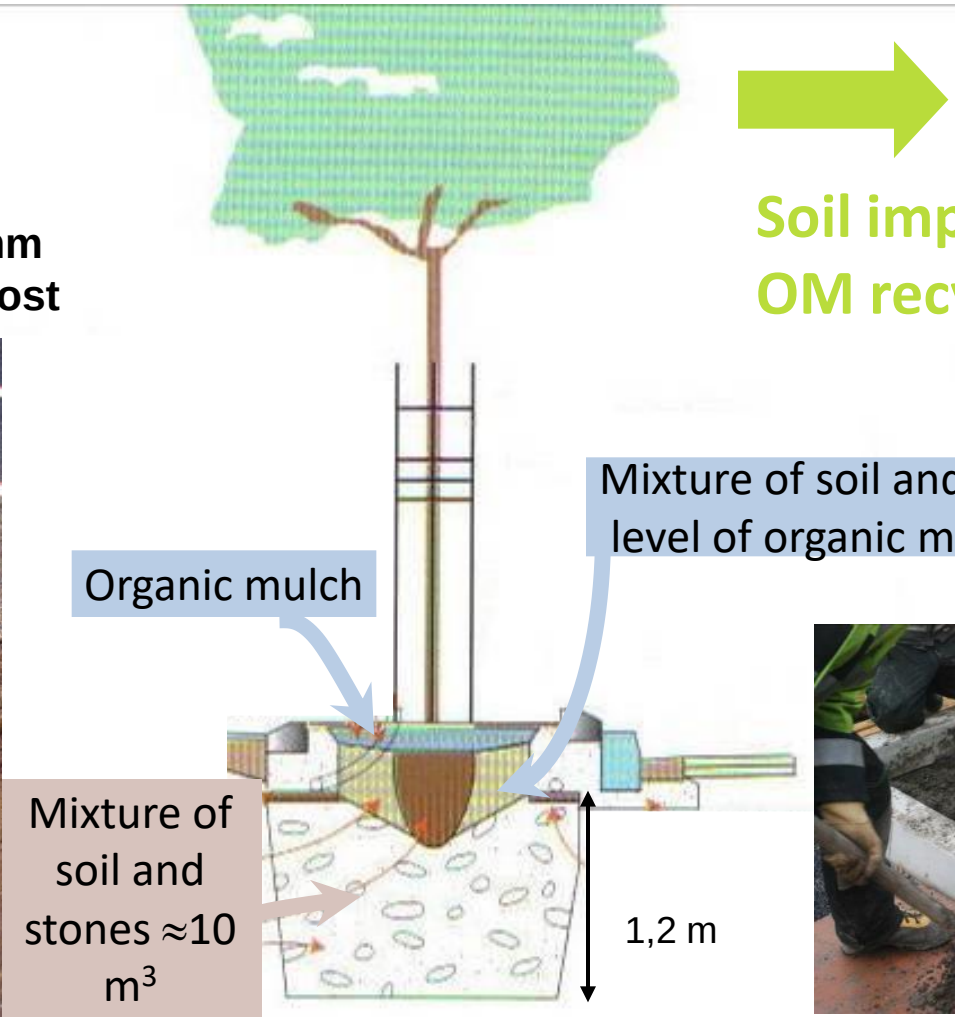
⇨ soil contamination and salinisation

Potential uses of biowaste

Constructed soil with great quantity of composts for street trees

Since 2000 in France

Mixture stone-soil =
65% v/v stones 40-90mm
35% v/v soil and compost



Soil improvement
OM recycling

Soil reconstitution for tree planting (Daunay, 1999)

Potential uses of biowaste

Constructed soil with biowaste and mineral waste

SITERRE program is funded by the French Environmental Agency (ADEME) and aims at developing an alternative approach **by constructing fertile soils with urban wastes and by product dedicated to landscaping.**

Potential uses of biowaste

The city as a sustainable ecosystem