Biodegradable wastes in France: Definitions, laws and treatments

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Rémy Guyoneaud, Eléonore Attard, Franck Vandenbulcke

(remy.guyoneaud@univ-pau.fr)

EVIRONMENTAL SAFETY OF BIOSOLIDS IN THE CIRCULAR ECONOMY

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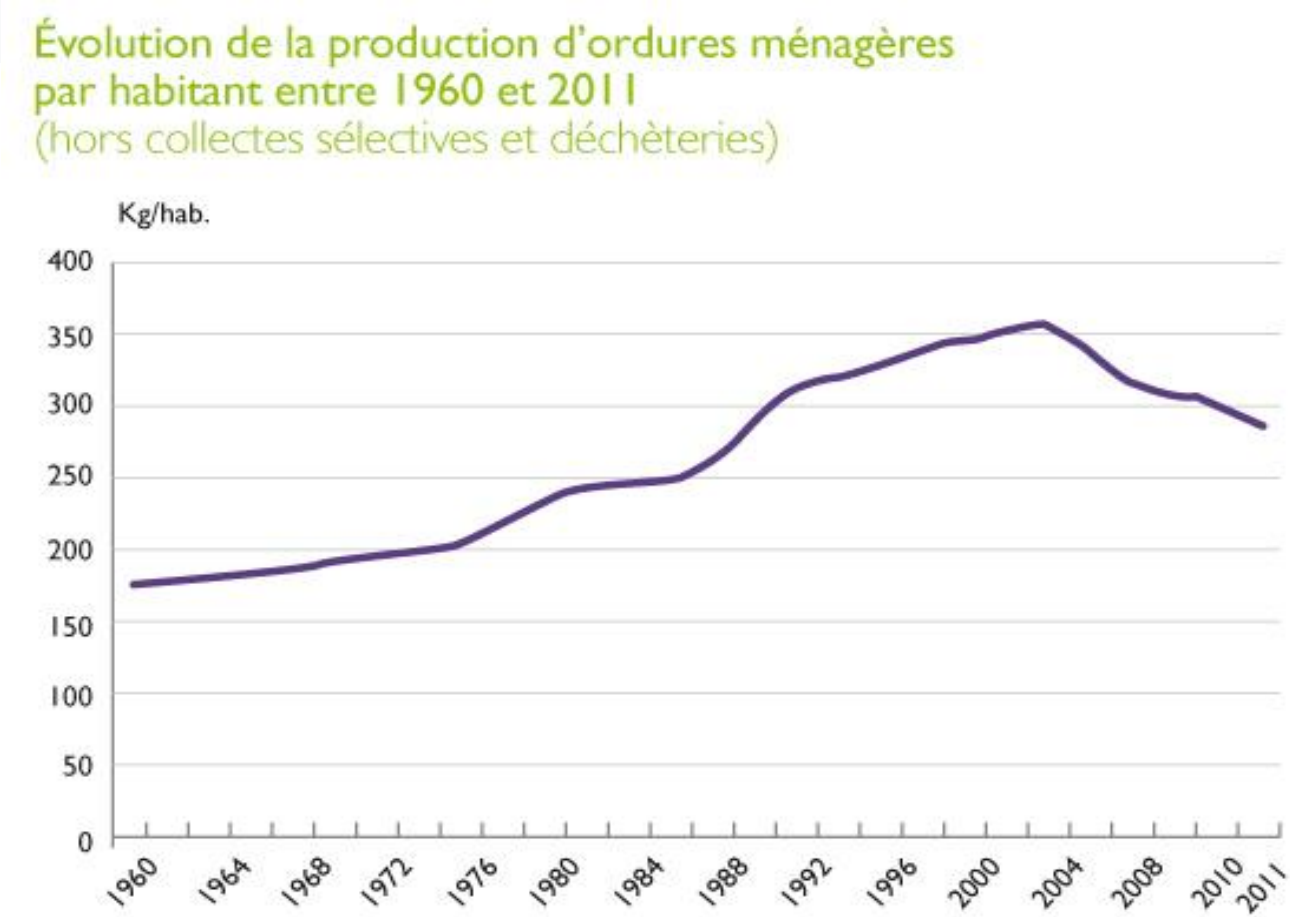
Definition of Biowastes

Bio-waste consists of food waste and other biodegradable “natural” waste.

Part of this wastes can be **avoided** (i.e., fight against food waste), the rest of this waste **can and must** be valorized

Biowastes

Bio-waste must be valorized …. Or reduced.



Source: ADEME - « Chiffres clés Déchets - Édition 2012 »

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It is a waste to dispose of them by incineration or landfill, while they are a significant **resource in terms of materials and energy** and income

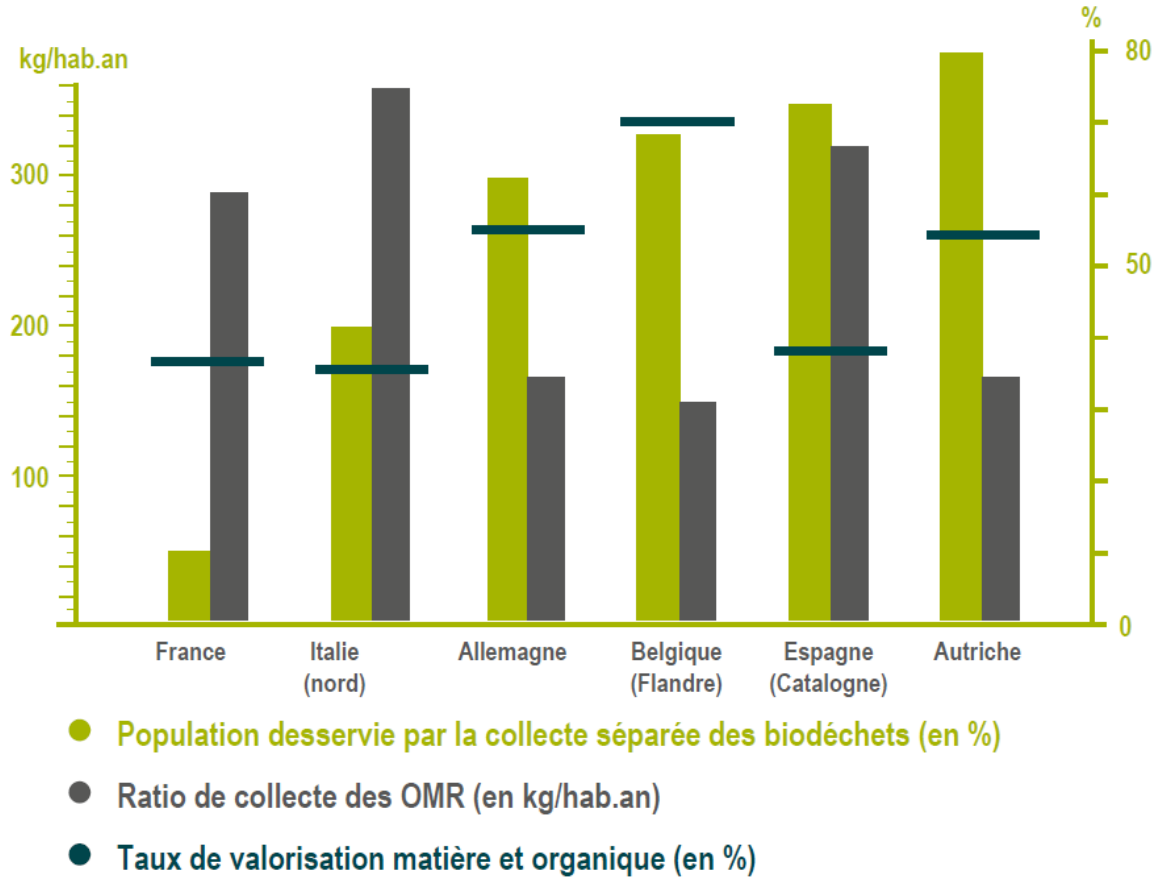
Biowaste represents one third of the residual bins in France ; must now be diverted from disposal for **a circular economy of organic matter**.

The law provides that all individuals will have a practical solution for **sorting their biowaste at source before 2025**.

In many European countries, organic recovery has developed from biowaste collected selectively over the past ten years.

Biowastes

Situation in 2011



Biowastes

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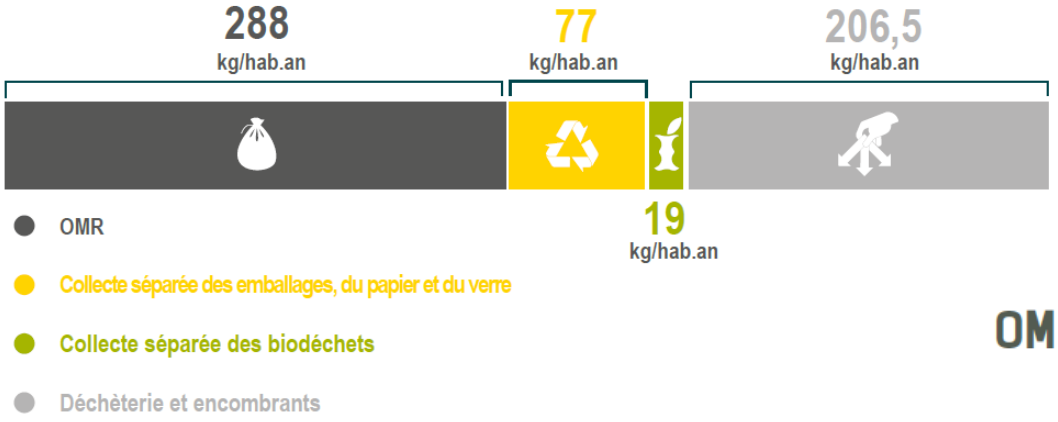
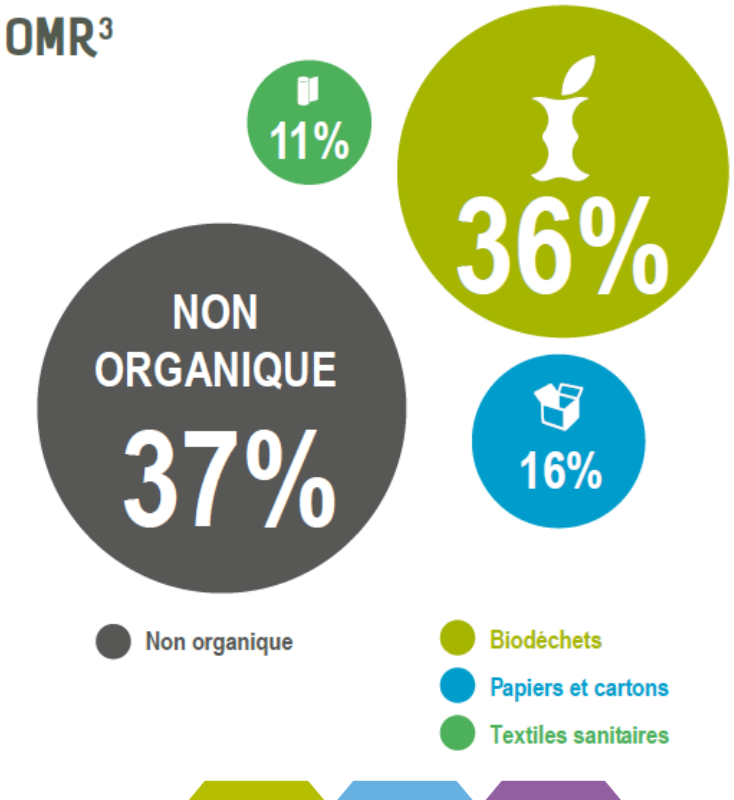


Actual (2011).

Potential



Why Valorize Biowastes ?

Organic recovery via **composting, spreading or methanisation** makes it possible to return to the soil or to transform raw organic matter into a valuable material, compost or digestate, adapted to the **agronomic needs**

In the current context of soil depletion of organic matter, there is a need for **natural organic amendments** that organic waste can partially fill.

The manufacture of synthetic fertilizers is based in particular on non-renewable mineral resources not available in France (P and K).

The synthesis of nitrogen fertilizers is very energy-consuming (Weighs considerably on the overall energy balance)

How recycling Biowastes ?

The generalization **of sorting at source** is planned by 2025 for all waste producers in France.

The energy transition law for green growth, published on August 17, 2015 has significantly strengthened the objectives related to bio-waste

"[...] the development of sorting at the source of organic waste, until its generalization for all the producers of waste before 2025.
So every citizen has at his disposal a solution allowing him not to throw his bio-waste in the residual garbage, so that these are **not eliminated any more, but valorized.**

Local composting or separate collection of biowaste territory.

Sorting at the source of biowaste, by directing this waste towards value-added material recycling channels,

How recycling Biowastes ?

Once sorted at the source, biowaste can be fully valorized, notably via composting to allow organic matter to return to the soil:

- at the professional scale, they can be transformed into an agricultural **compost** that can be use by professionals if it meets certain standards.

- Their recovery can also be done through **anaerobic digestion**, to Recover the biogas (methane) generated by biowaste and to use it as a so of energy with a return to the soil of the digestate

- at the domestic or local scale, they can be transformed into potting soil or usable fertilizer for gardening via a **garden composter** or a **vermicomposter**. The compost from these biowaste can be used in home garden for a local use or pleasure garden.

How recycling home Biowastes ?

Home composting can take many forms and adapt to different environments, in both rural and urban areas:

vermicomposter (individual composter based on the digestion of food waste by earthworms) in apartment;

home garden composter in a single house, especially in a rural area;

collective composter of proximity, or shared composting, for example a "composting cottage" at the foot of the building.

Big producers of Biowastes ?

Since January 1, 2012, people who produce or hold a significant amount of bio-waste have the **obligation to sort these bio-waste** and have it valorized in adapted sectors (such as composting or anaerobic digestion).

This mainly concerns **green space companies, supermarkets, agro-food industries, canteens and restaurants, and markets**.

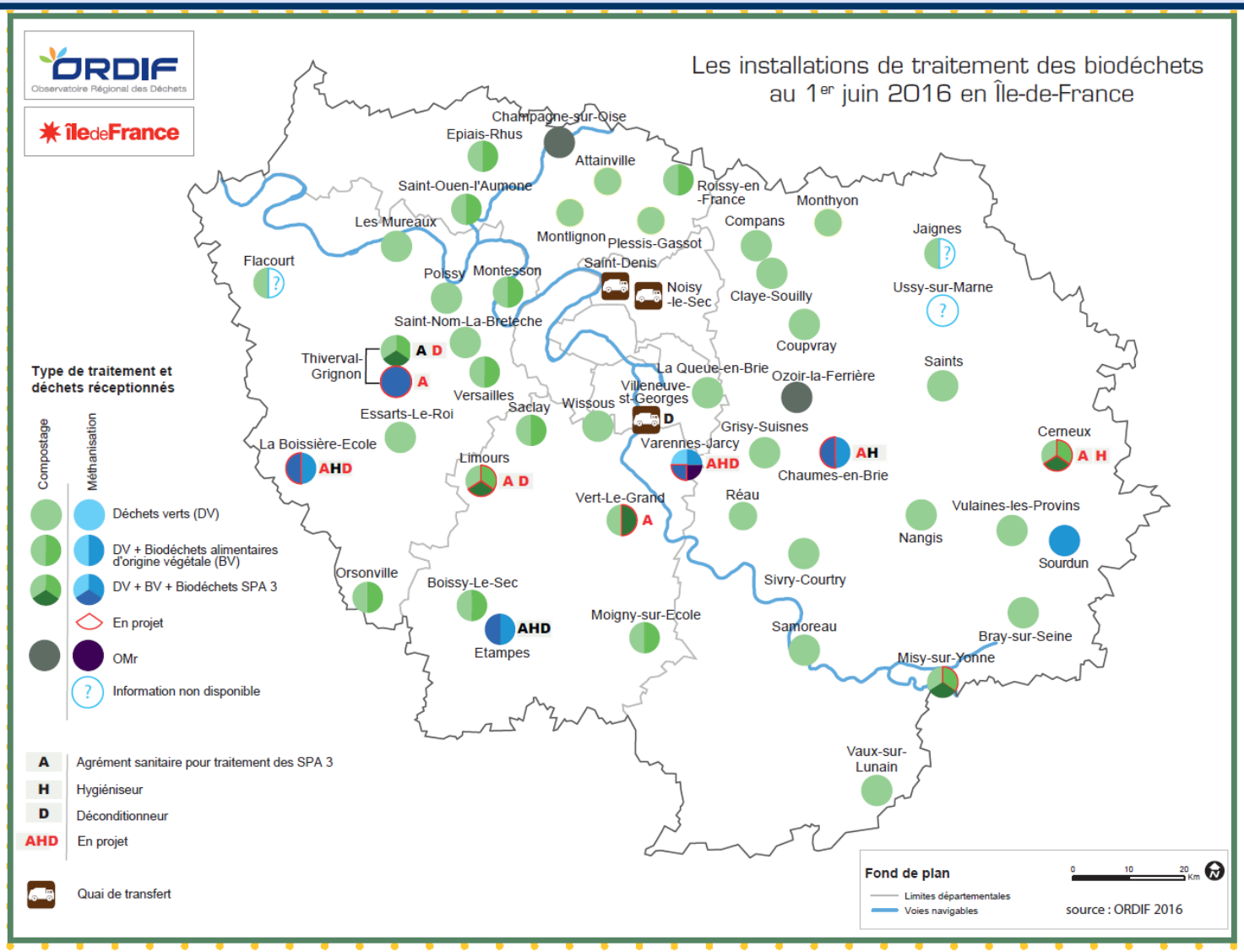
<u>The thresholds were gradually lowered:</u>

- in 2012, the obligation concerned professionals producing per year more than 120 tonnes of biowaste or more than 1500 liters of used cooking oils.

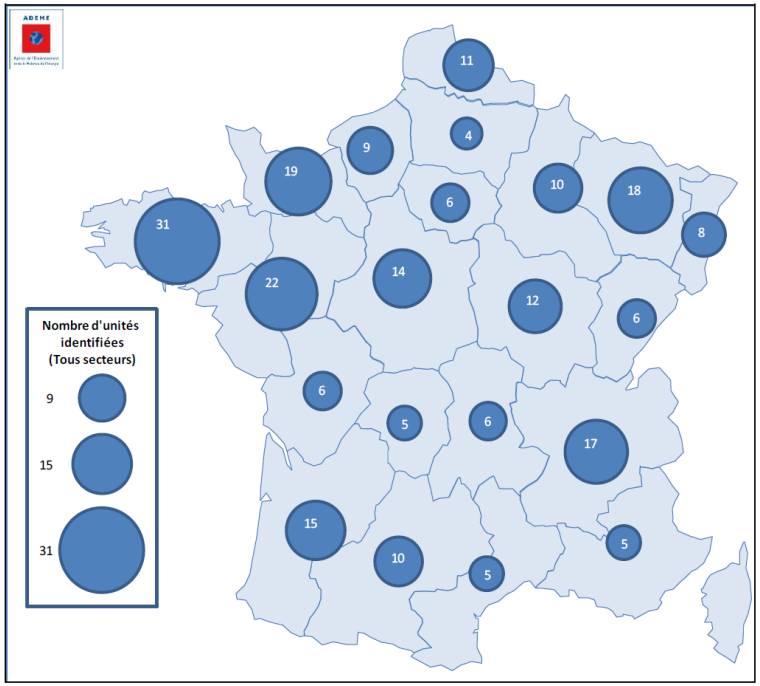
- Since January, 1st, 2016, professionals producing per year more than 10 tonnes of biowaste, and 60 liters for oils, are concerned.

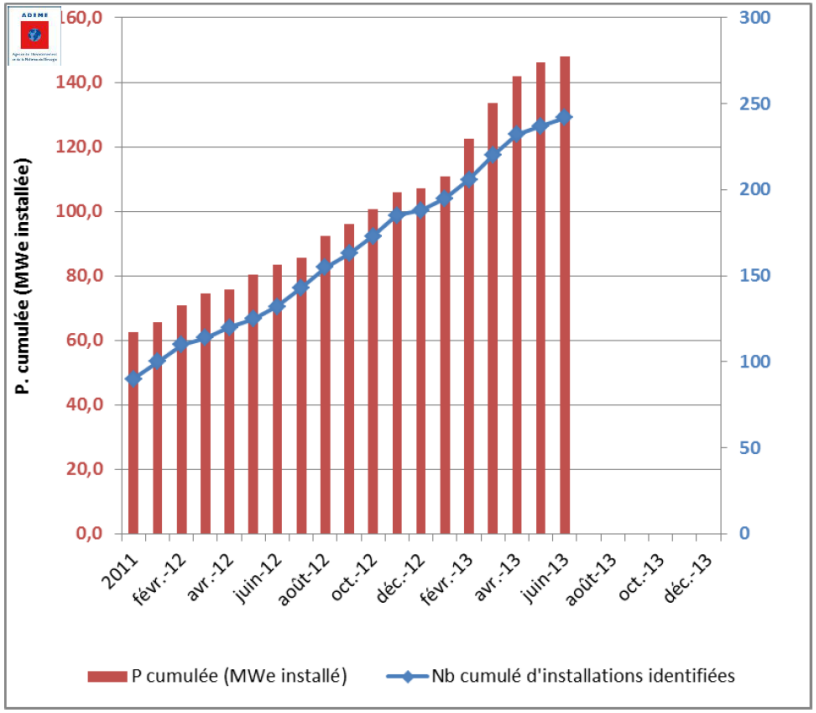
Thus, this obligation already affects a large number of economic actors who have organized themselves accordingly.

Anaerobic digestion

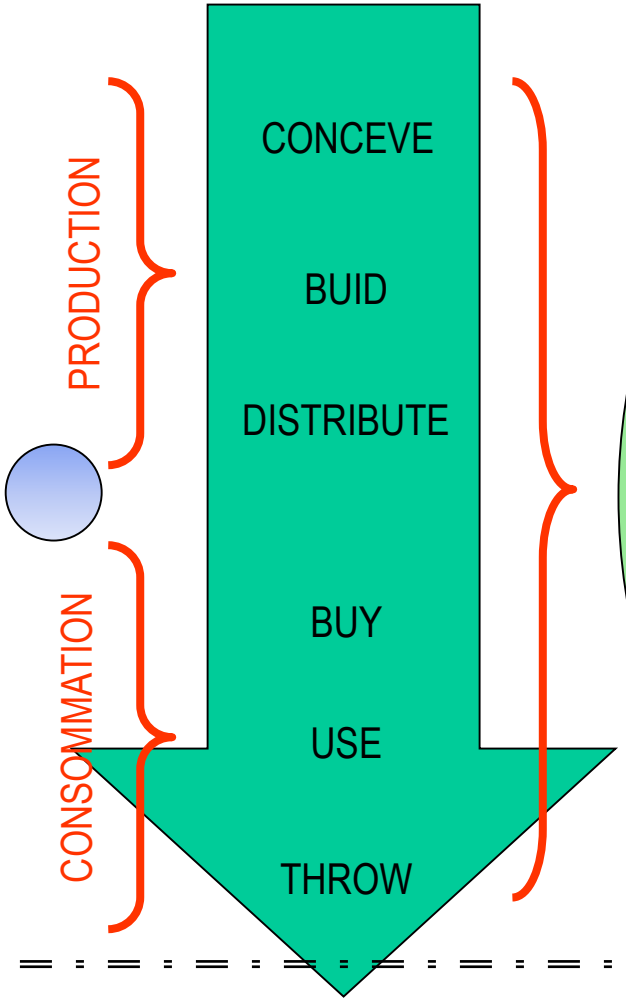


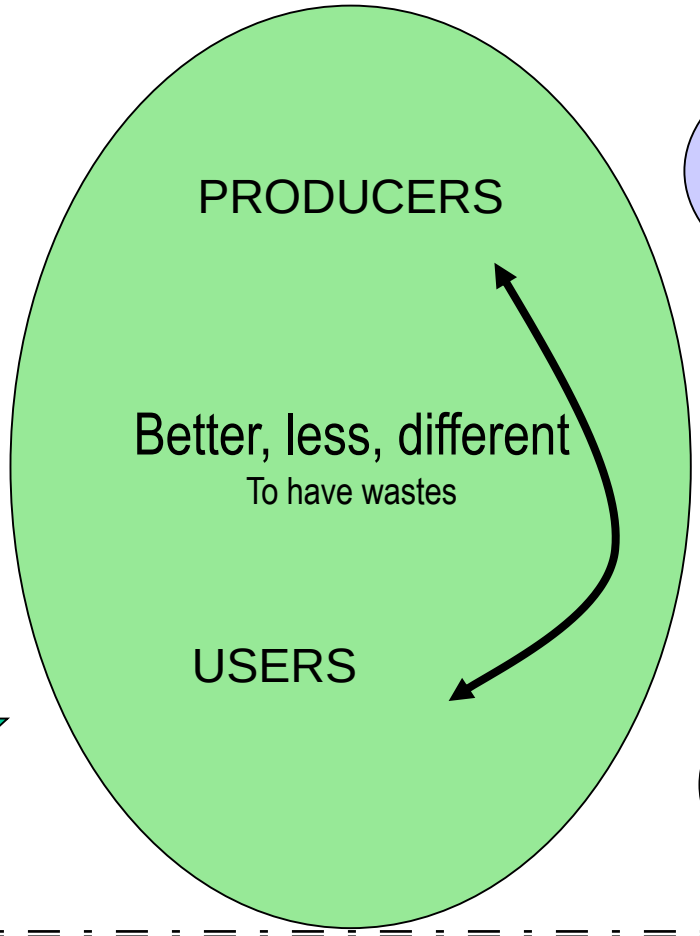
Anaerobic digestion





Biowastes biodegradable wastes ?





Source reduction

Buy … or not ?

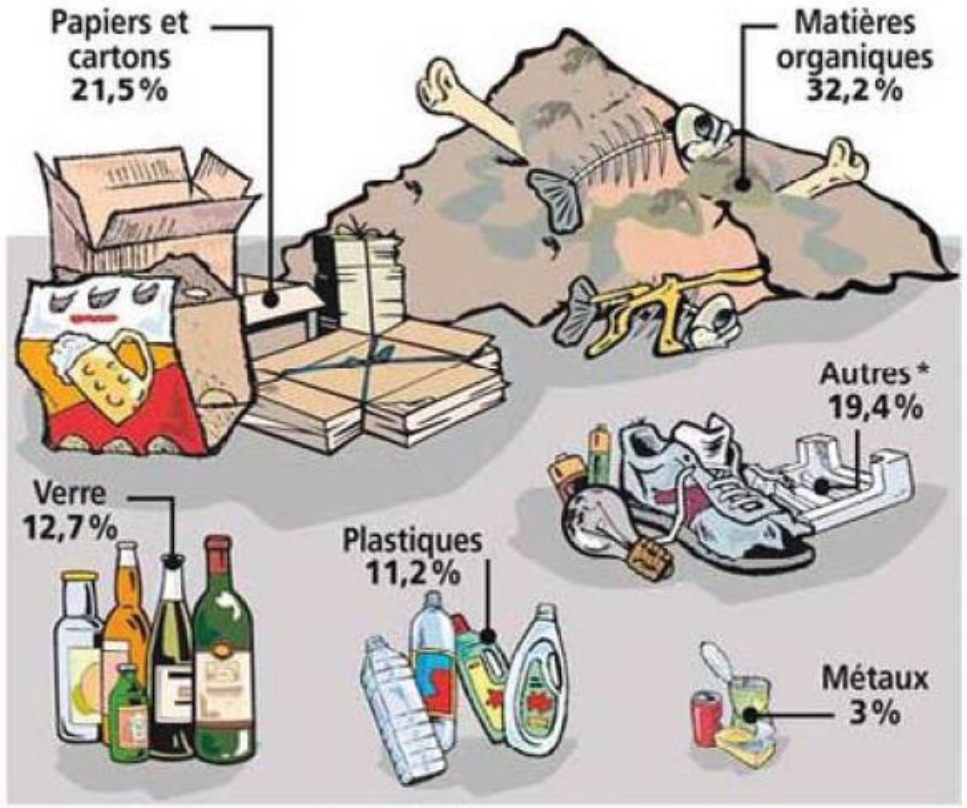
Recycling instead of throwing

The waste

Sorting

Biowastes

Municipal wastes



Déchets des ménages : composition de la poubelle
Source : MODECOM 2007-2008

Biowastes

The hidden face of 1 kg of waste …

Thanks