



Zero waste sustainable food systems : Scenarios for the cities of the future -2035-

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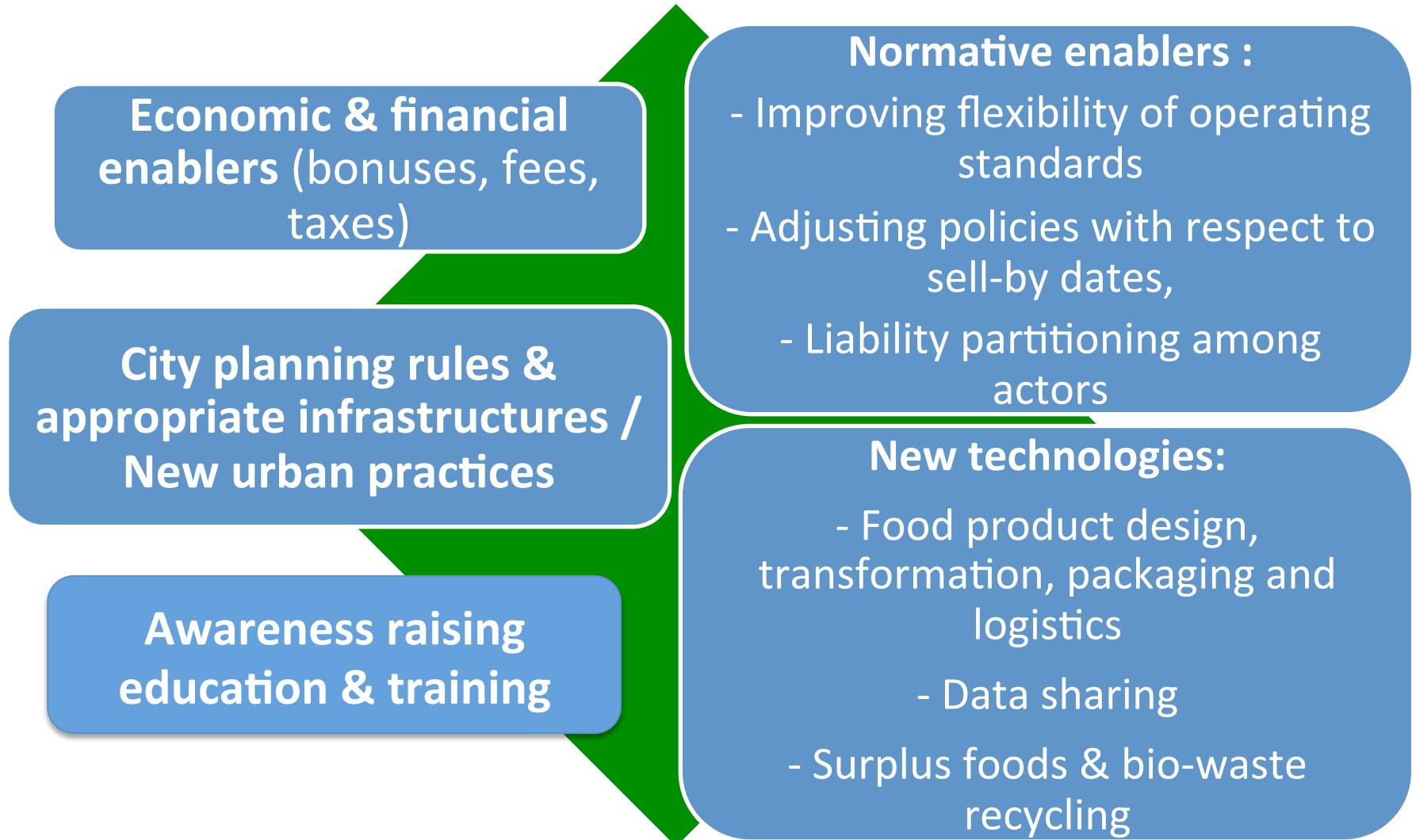
Barbara REDLINGSHÖFER (Inra)

a focus on the city...



- Food waste mainly takes place at the distribution and consumption stages
- Given urban concentration, this waste is produced primarily in cities
- Urban bio-waste is usually landfilled or incinerated;
- Cities are catalysts for social and technical innovation
- Urbanization is a global trend

9 reduction enablers for managing urban flows of foods and to reduce food waste*



* Worldwide review & inventory of enablers; categorizing according to relevance & universal character (international WG); selection based on effectiveness & consequences (international WG)

THE DISFIGURED EGGPLANT

SO CHEAP IT COULD BE EVEN MORE DISFIGURED.

Intermarché
Inglorios
fruits and
vegetables:
a glorious fight
against food waste.



THE RIDICULOUS POTATO

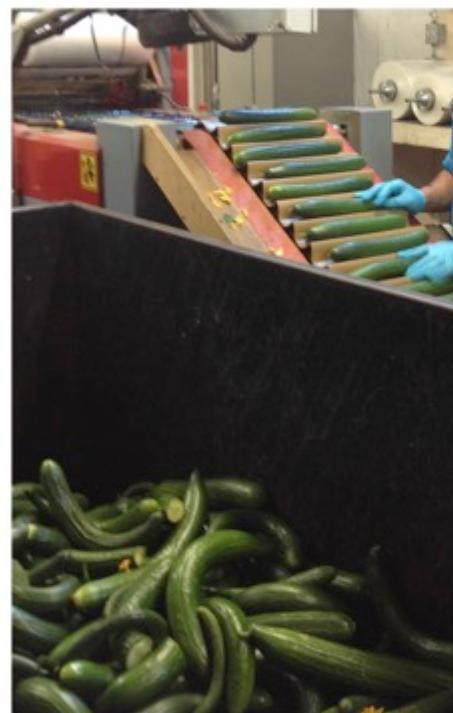
ELECTED MISS MASHED POTATO 2014.

Intermarché
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By Intermarché

Exemples of normative enabler: Improving flexibility of operating standards



INGLORIOS
fruits & vegetables

Exemples of city planning rules & appropriate infrastructures enablers



Exemples of new urban practices



iPod 11:48 supermarmite Carte

Par proximité Heure du repas

- Bento franco-américain "Bleu Blanc Rouge"
Par Emperor Norton
17 rue Tiquetonne, 75002 Paris, France
Demain 12:00 PM 5€ /part
- Epinards au citron confit et aux olives
Par zou
23, rue Greneta , 75002 Paris, France
Aujourd'hui 01:30 PM 5€ /part
- sardines farcies
Par zou
23, rue Greneta , 75002 Paris, France
Le 15/07 01:30 PM 7€ /part
- Pâtes au saumon
Par zou
23, rue Greneta , 75002 Paris, France
Le 16/07 01:30 PM 6€ /part
- Cake a
Par Ma
11 rue
Le 17/0
- Lasagi
Par An

Rechercher



“ Le 1er réseau social gourmand géolocalisé ”

CHECKfood
Je mange, je donne, je ne jette plus !

L'application qui lutte contre le gaspillage alimentaire

Télécharger dans l'App Store

5
EMEA GAUCHE

Examples of new tech. enabler: Food product design, transformation, packaging and logistics



UN TÉMOIN COLORÉ QUI PISTE LES BACTÉRIES

Collée sur les codes à barres, l'étiquette transparente Traceo renferme des microorganismes qui développent des bactéries sous l'effet d'une montée de la température. Ce qui produit une réaction colorée.



Avant rupture de la chaîne du froid

Coloration pastille : nulle

Lecture code à barres : possible

Qualité sanitaire du produit: propre à la consommation



Après rupture de la chaîne du froid

Coloration pastille : forte

Lecture code à barres : impossible

Qualité sanitaire du produit : impropre à la consommation

Exemples of Awareness raising education & training enablers



A third of the food we buy in the UK ends up being thrown away



Sad, isn't it?

Sadder still, most of it could be eaten. This wasted food is a waste of money and a major contributor to climate change. To help throw less food away, try making a pasta sauce with any leftover tomatoes.

For more ways to reduce your food waste, please visit lovefoodhatewaste.com

**LOVE FOOD
hate waste**

Birmingham City Council

MAKING BIRMINGHAM GREEN

PASTA LOVERS
hate waste

Whatever food you love, we can help you waste less and save up to £50 a month at lovefoodhatewaste.com



scenarios for future urban & social changes

scenarios for future urban change:

- Concentration in mega-cities.
- City networks
- Cities in decline

scenarios for future urban & social changes

scenarios for future food system change:

- Globalization
- Green growth
- Local, social & inclusive

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Scenario 1

**scenarios for future
urban change:**

- Concentration in mega-cities.

- City networks

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**scenarios for future food
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- Globalization

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scenarios for future urban & social changes

Scenario 2

**scenarios for future
urban change:**

- Concentration in mega-cities.

- City networks

- Cities in decline

**scenarios for future food
system change:**

- Globalization

- Green growth

- Local, social & inclusive

scenarios for future urban & social changes

Scenario 3

**scenarios for future
urban change:**

- Concentration in mega-cities.
- City networks
- Cities in decline

**scenarios for future food
system change:**

- Globalization
- Green growth
- Local, social & inclusive

Scenario 1: Large-scale management of unsold food items and food waste within a context of globalization and urban concentration.

Scenario :

- *Further development of a globalized agro-industrial system (effectiveness = economies of scale and specialization by domain)*
- *Mono-polar urban centers, Lifestyles become increasingly uniform and individual, with weakened social bonds*



How to make this « business as usual » scenario more sustainable?

Public policies are crucial :

- To support urban growth
- To foster accountability of globalized private actors
- To improve consumer awareness
- To regulate the biomass flows (food, bio-waste) and associated packaging?



Scenario 2: Localized food chains supporting food waste reduction in a context of city networks and green growth.

Scenario :

- *Fragmentation around activity poles or functions (residential, entertainment, agriculture, forestry & industry)*
- *Proximity between spaces (consummation et interstitials) → better efficiency of resource management by food chain ?*
- *Accompanied by increasing mobility of individuals, merchandise and information*



How to foster a circular food economy within the urban space?

- Controlling the accumulation of contaminants
- Changing the image of food "obtained from recycling"
- Financing (infrastructure, incentives, high-tech)
- New "value allocation" models between "symbiotic" actors



Scenario 3: Fighting food waste in the context of cities in decline and of the development of local, social and inclusive economies.

Scenario :

- *Major urban centers are less attractive → Secondary centers become more important*
- *Public institutions, heavily in debt, struggle to provide basic services*
- *Local, social and inclusive economies and informal systems emerge ...*



How to make this breaking scenario out with current lifestyles, safer?

- Securing informal systems
- Food safety and informal systems?
- Investment in awareness or community facilities to support new food practices?



The foresight approach allows to identify tensions

1. Enablers intended to **source reduction** of food waste must be consistent with **food safety requirements** (*risks linked to contaminant spread may act as a brake upon the use of bio-waste ?*)

2. Enablers encouraging **recycling of bio-waste** may work against the primary declared objective of current public policy: **food waste prevention** through source reduction ?



Conclusion (2):

The foresight approach is exploratory

1. Did not attempt to put forward a possible and desirable future among the scenarios (scenario 2 is probably more controllable and resilient but investment and infrastructure costs ?)
2. The only way not to think of a world shortage (or a world that lives above its capabilities) is to promote:
 - **Circular economy**
 - **Emergence of new solidarities**
 - **Optimization of material flow with the support of ICT, especially mobile applications..**



Thanks to the International Working group:

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To learn more:

<http://institut.inra.fr/en/Objectives/Informing-public-policy/Advanced-Studies/All-the-news/Study-on-food-losses-and-waste-in-urban-areas#>