

THE CIRCULAR ECONOMY: A SOURCE OF INNOVATION FOR URBAN FARMERS

GUILLAUME MOREL-CHEVILLET / URBAN FARMING PROJECT MANAGER

Guillaume.morel@astredhor.fr

June 24th 2021 – Lyon - France





SUMMARY

- ✔ Introduction : Circular economy and urban agriculture
- ✔ 1/ Techn'AU research program: How urban waste can be useful for urban farmers ?
- ✔ 2/ Interreg NWE GROOF : Synergies between buildings and greenhouses

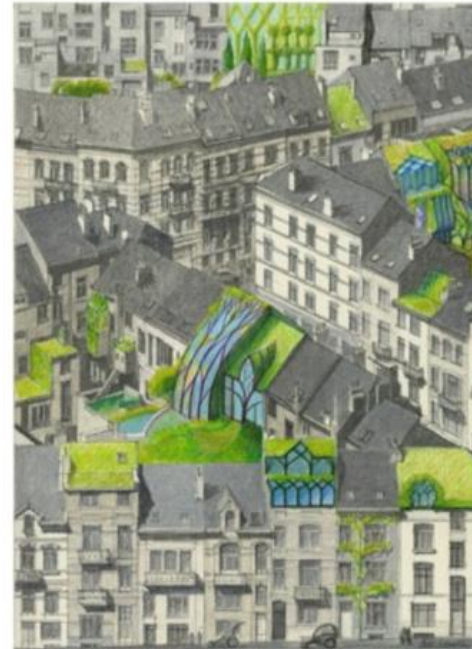
Introduction



INTRODUCTION

FOR GREENER CITIES

Crédit: Luc Schuiten – Cité végétale



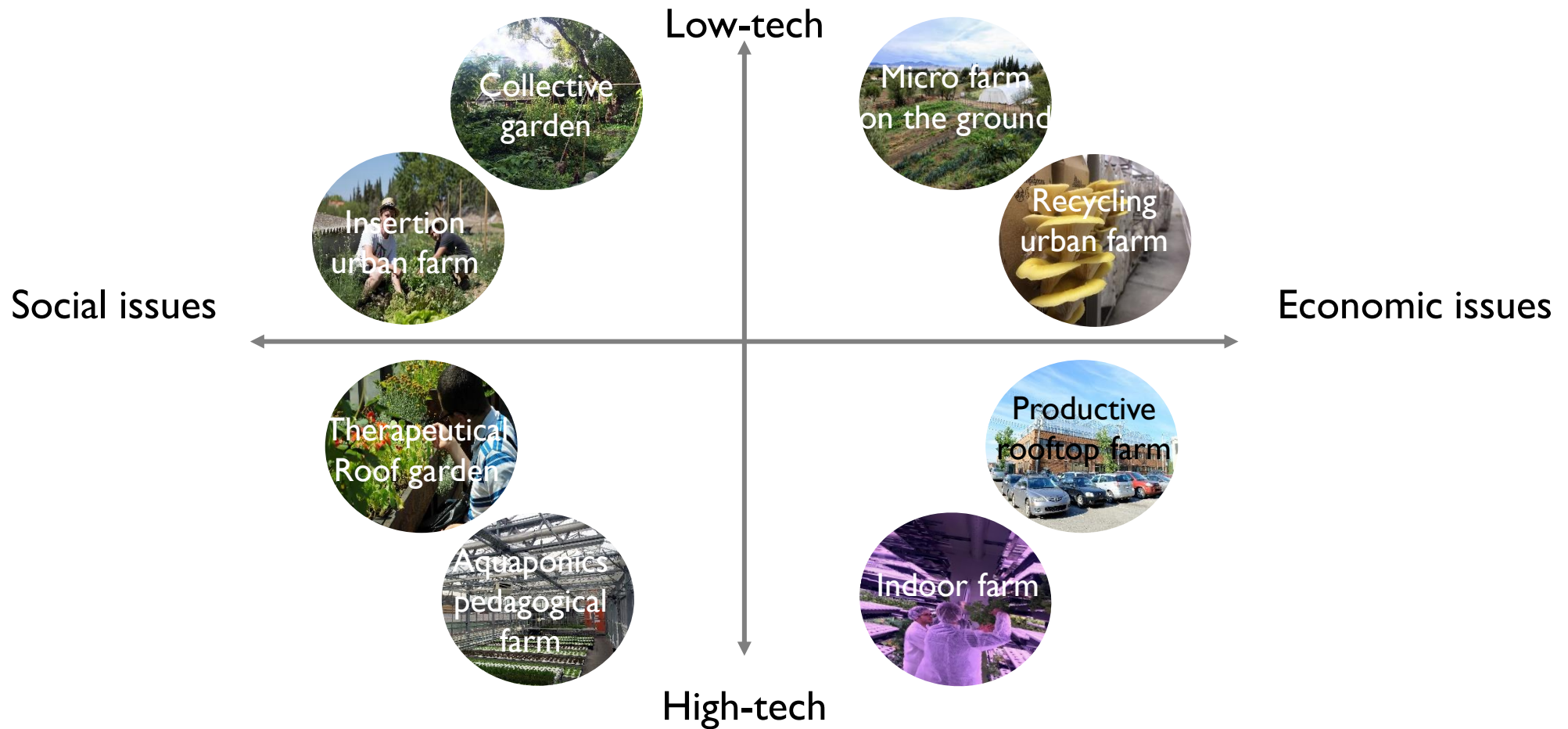
BEFORE

... THE FUTUR!



INTRODUCTION

URBAN AGRICULTURE : WHAT IS IT ?



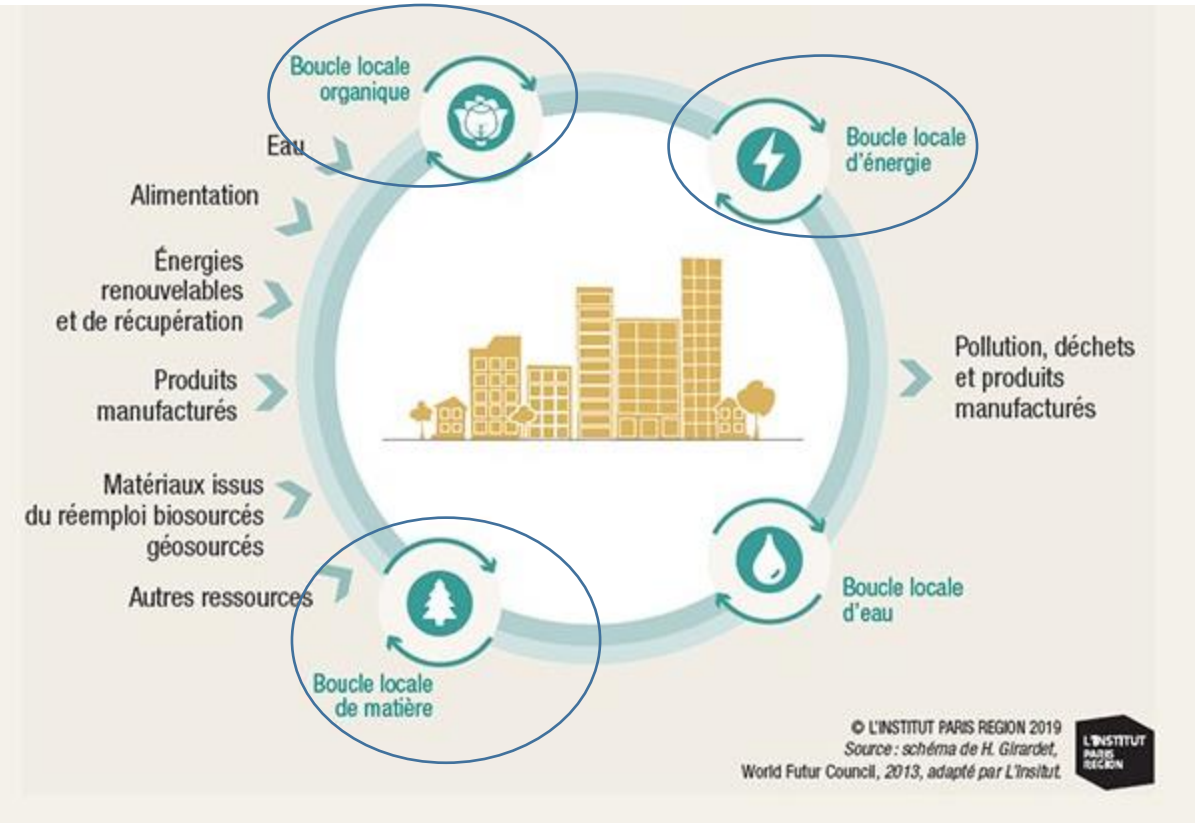


INTRODUCTION

CIRCULAR ECONOMY AND URBAN AGRICULTURE

From a linear urban metabolism...

... to a circular urban metabolism



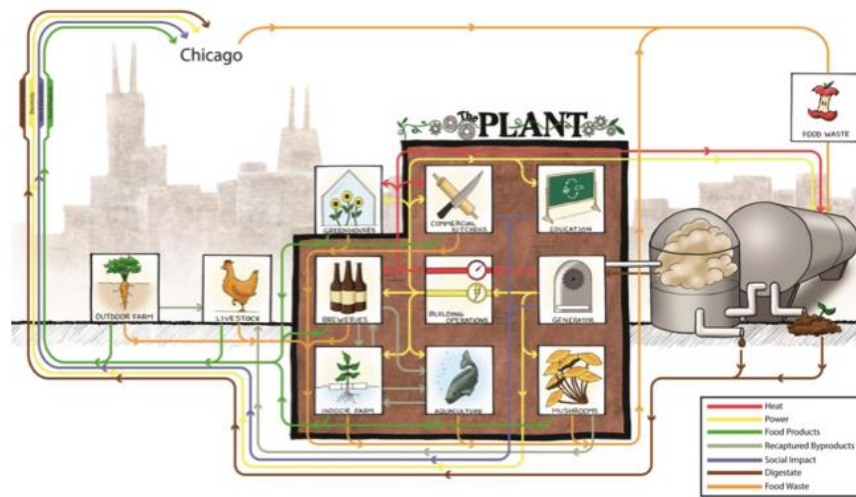
© L'INSTITUT PARIS REGION 2019
Source : schéma de H. Girardet,
World Futur Council, 2013, adapté par L'Institut



1/ Techn'AU research program: How urban waste can be useful for urban farmers ?

1/ TECHN'AU RESEARCH PROGRAM: HOW URBAN WASTE CAN BE USEFUL FOR URBAN FARMERS ?

EXISTING URBAN FARMING PROJECTS: A SOURCE OF QUESTIONS FOR RESEARCH



The Plant // Chicago



Cité maraîchère de Romainville (93)

1/ TECHN'AU RESEARCH PROGRAM: HOW URBAN WASTE CAN BE USEFUL FOR URBAN FARMERS ?

RESULTS FROM INNOVATIVE SUBSTRATES



Composts :

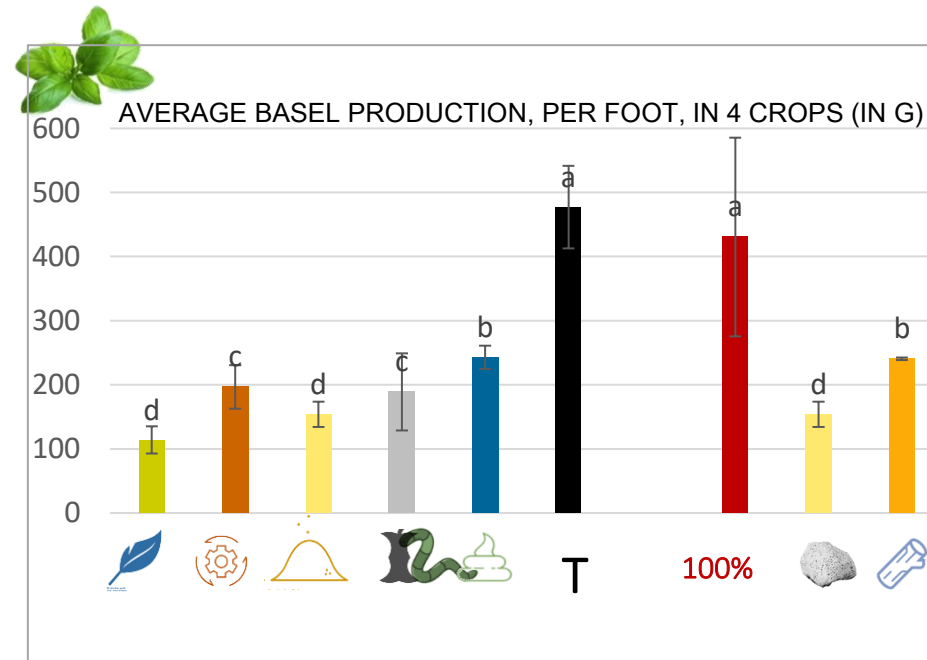
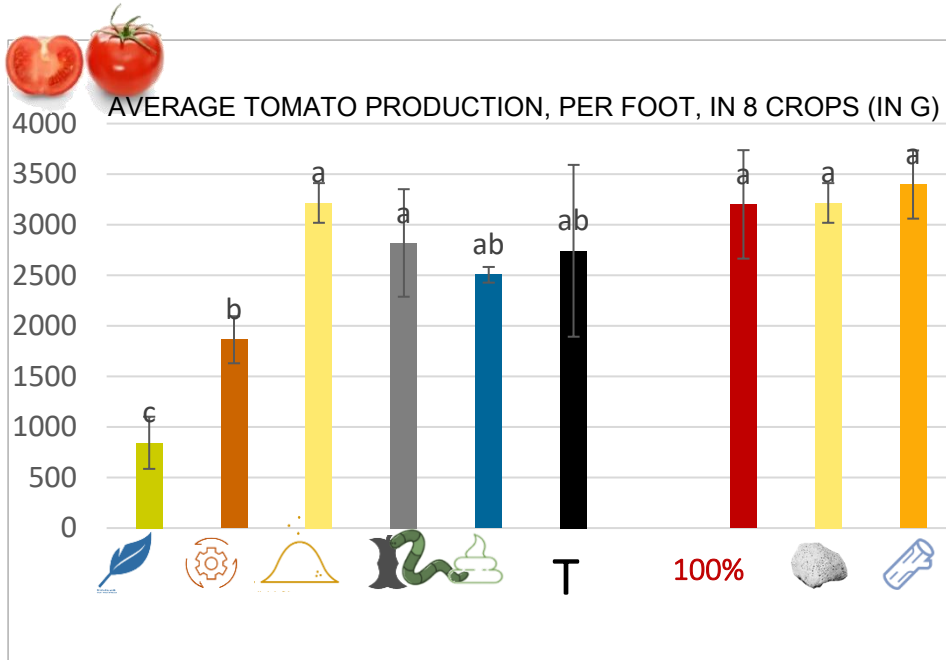
 GreenW+Coffee
  GreenW/eclec
  GreenW / windrow

Vermicomposts :

 plants
  animal

Structures :

100%
 100 % orga
  Concrete
  wood
 T
 Control substrate



1/ TECHN'AU RESEARCH PROGRAM: HOW URBAN WASTE CAN BE USEFUL FOR URBAN FARMERS ?

AEROPONICS TESTS WITH ORGANIC FERTILIZERS



Urban biowastes
(compost juice)



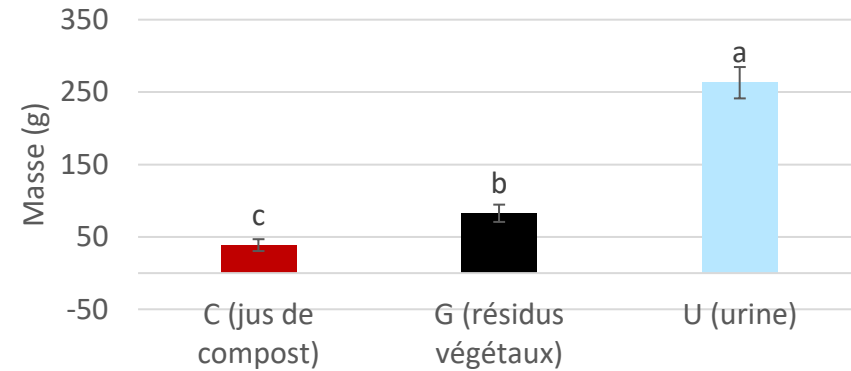
Plan residues



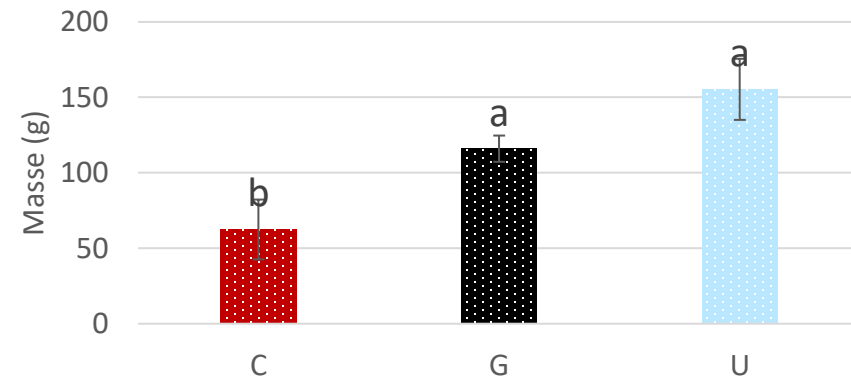
Human urine



Production per tomatoes foot (g)



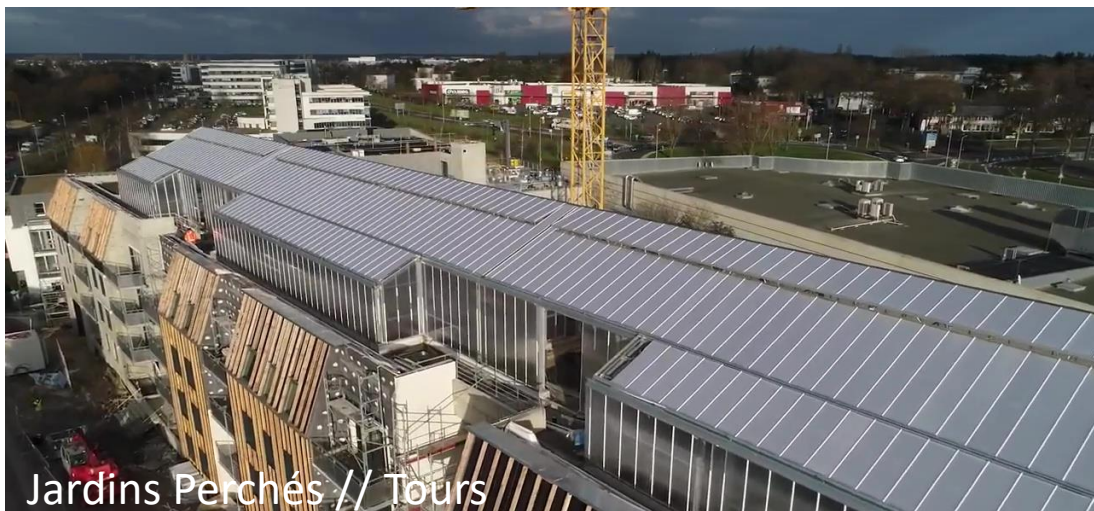
Fresh mass of basil produced per plant, on 3 harvests (g)



2/ Interreg NWE GROOF : Synergies between buildings and greenhouses

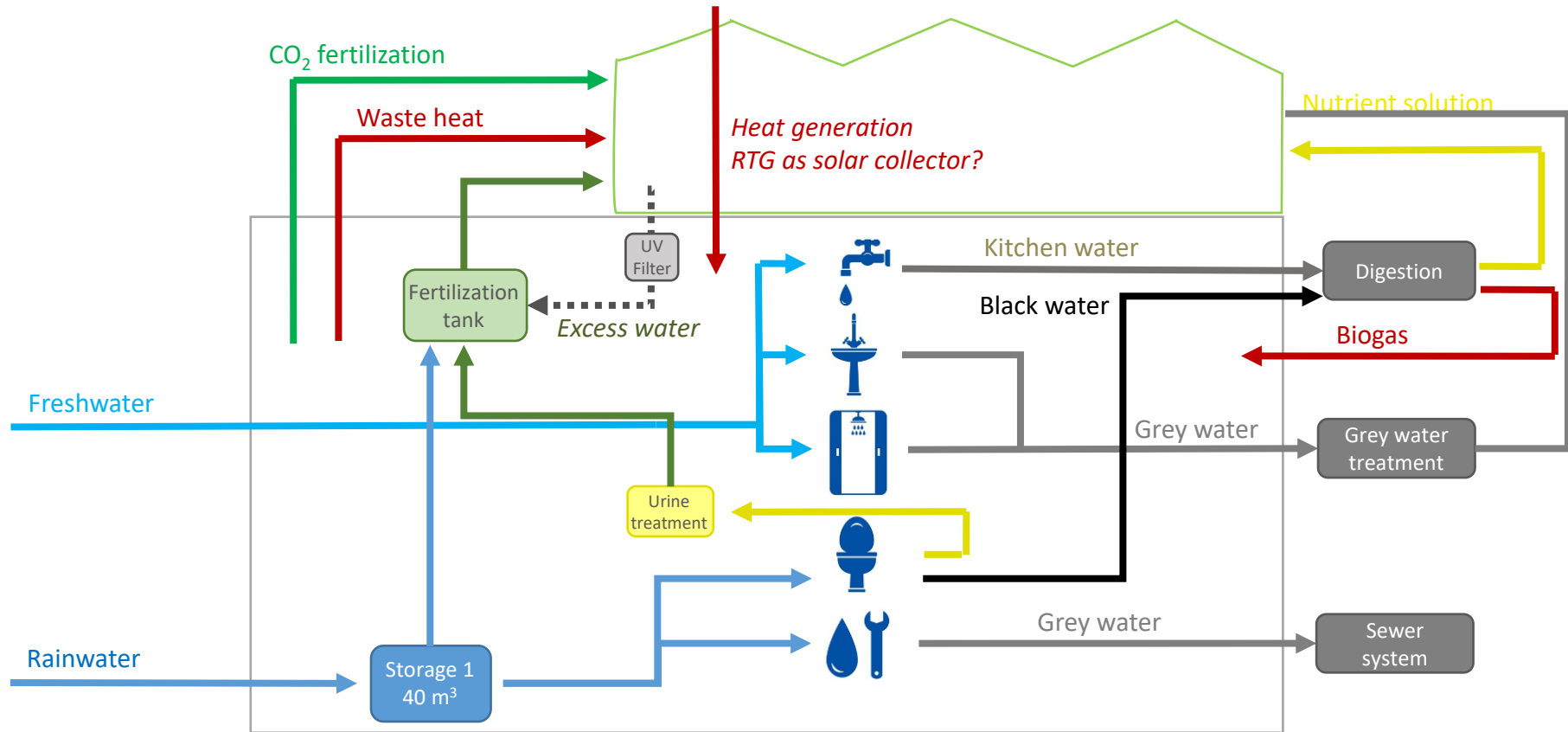
2/ INTERREG NWE GROOF : SYNERGIES BETWEEN BUILDINGS AND GREENHOUSES

EXISTING PROJECTS



2/ INTERREG NWE GROOF : SYNERGIES BETWEEN BUILDINGS AND GREENHOUSES

THE CIRCULAR SYSTEM



Freshwater
 Excess water RTG
 Nutrient solution and distilled water
 Grey water
 Energy
 Rainwater
 Yellow water
 Black water
 CO₂ fertilization

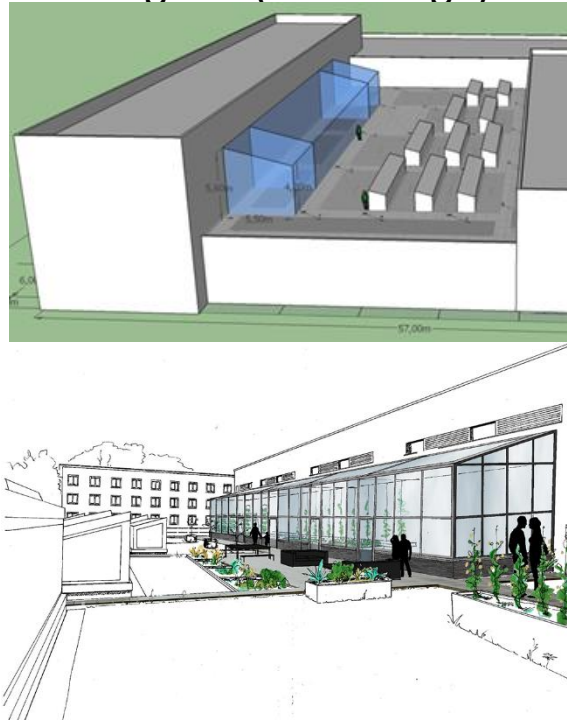
2/ INTERREG NWE GROOF : SYNERGIES BETWEEN BUILDINGS AND GREENHOUSES

PILOTS UNDER CONSTRUCTION

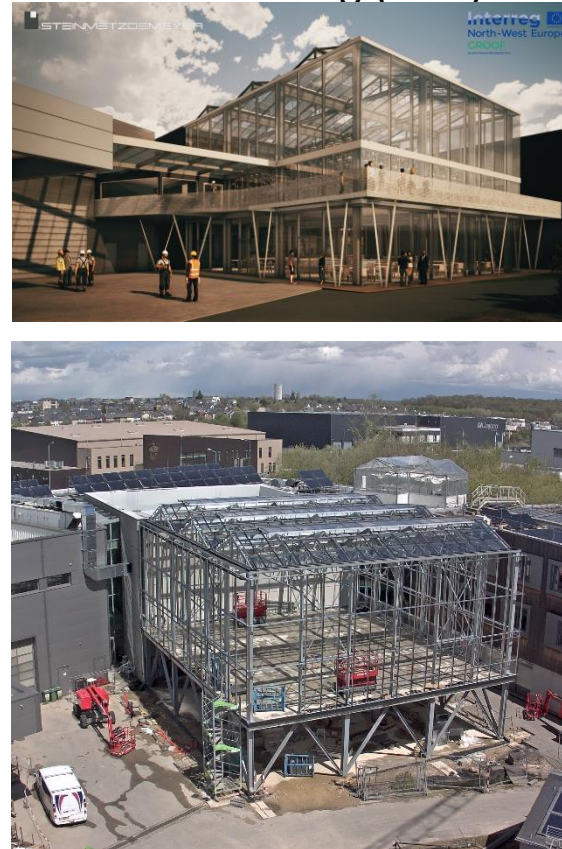
Germany (EBF)



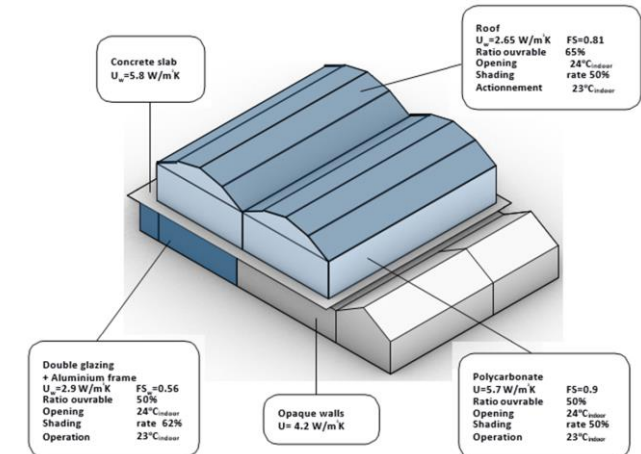
Belgium (Univ. Liège)



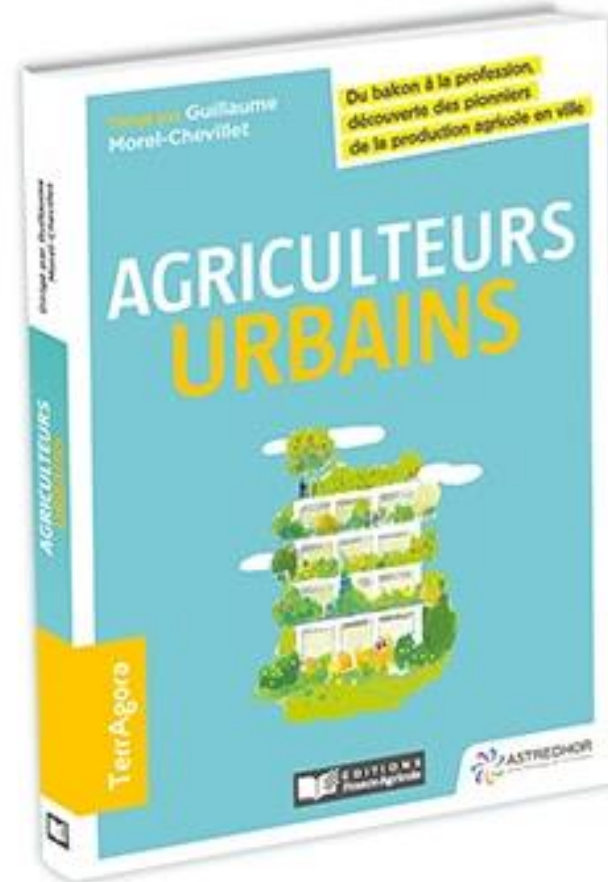
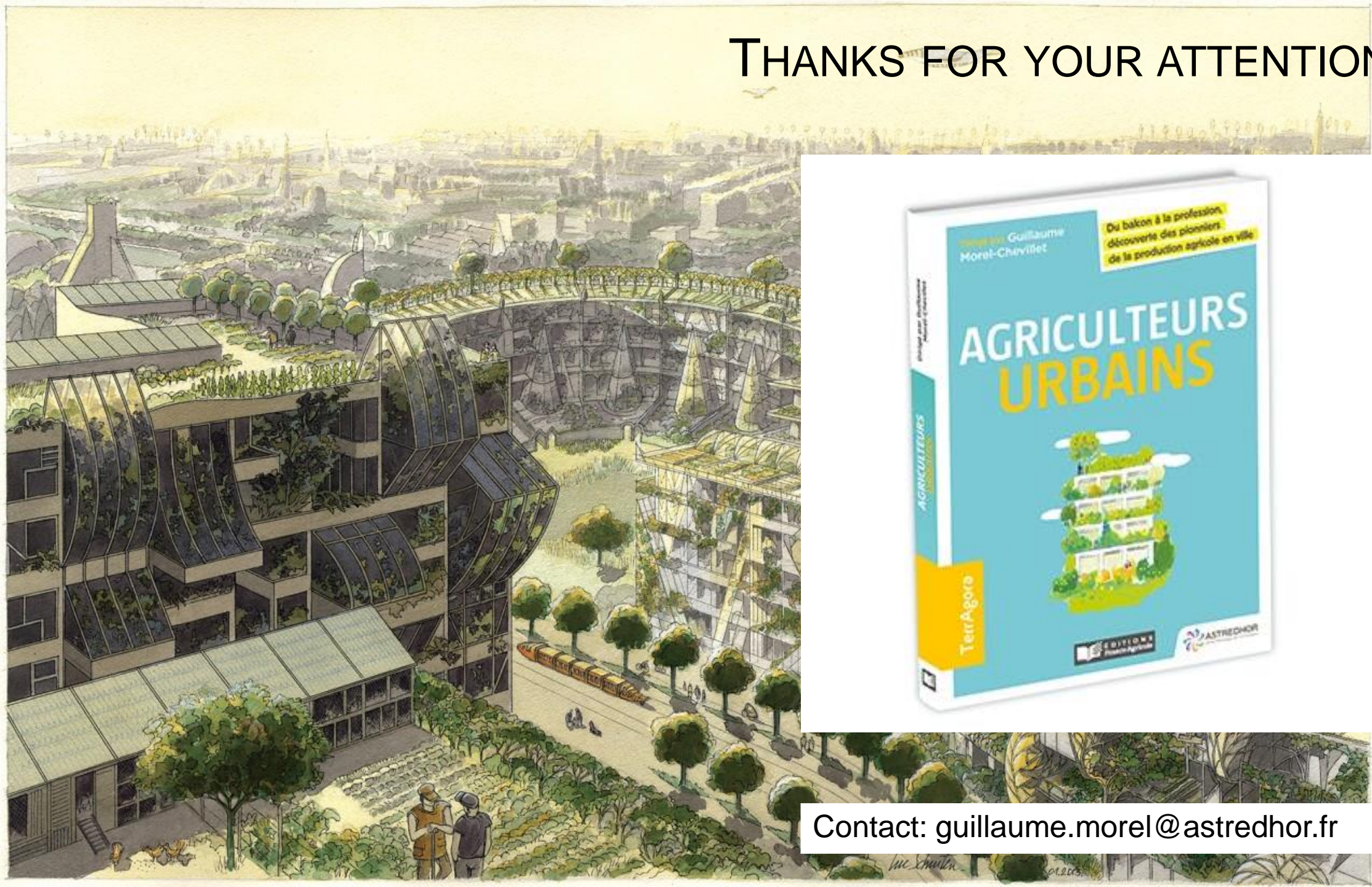
Luxembourg (IFSB)



France (Gally)



THANKS FOR YOUR ATTENTION



Contact: guillaume.morel@astredhor.fr