



The University of  
Nottingham

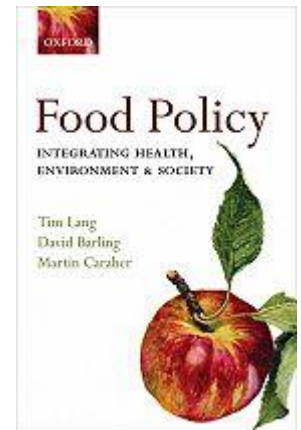


# Urban Agriculture, a SMART solution to complement sustainable intensification?

KEVIN FREDIANI

# Overview of talk

- Definition(s)
- The complexity of UA
  - health, environment and society.
- Overview of emerging UA themes in UK
- Evaluating and informing success...



# Definition

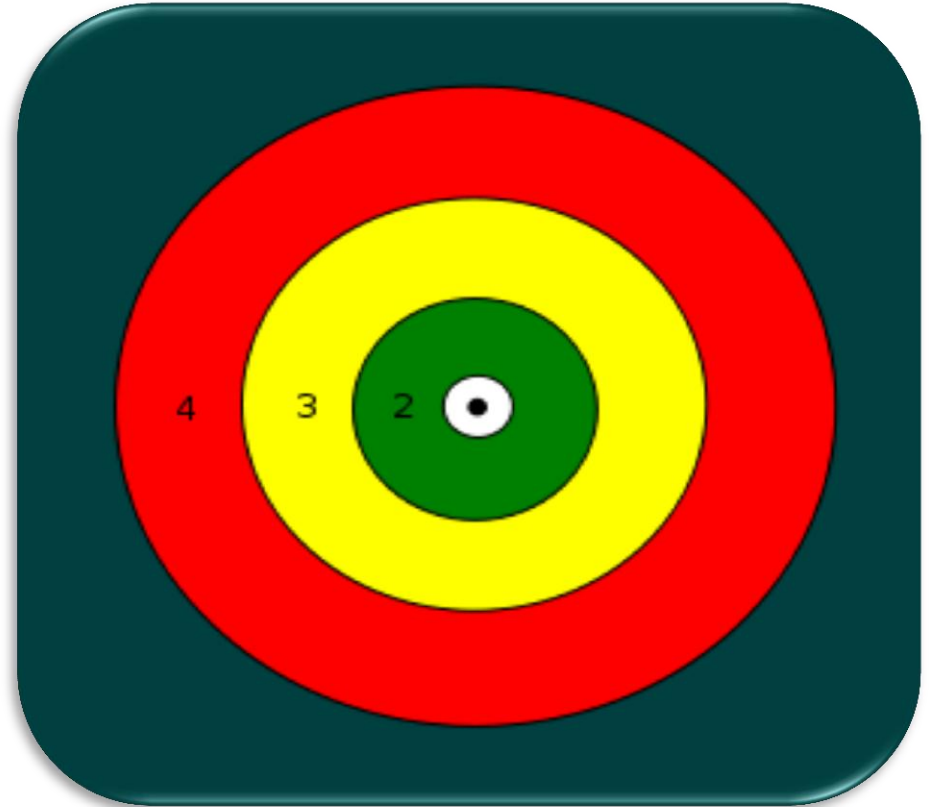
- Urban and peri-urban agriculture (UPA) occurs within and surrounding the boundaries of cities throughout the world and includes products from the urban and peri-urban area:
  - from crop and livestock agriculture,
  - fisheries and
  - forestry.
- It also includes non-wood forest products, as well as ecological services.

(FAO 1999)

- Recent studies use a 20 km zone for peri-urban (Thebo et. al. 2014)

# Johann Heinrich von Thünen circa 1826

## The Isolated State...



Thünen's model: the black dot represents a city;

1 (white) dairy and market gardening;

2 (green) forest for fuel;

3 (yellow) grains and field crops;

4 (red) ranching;

the outer, dark green area represents 'wilderness' where agriculture is not profitable

## Key facts about UPA (20 km)

Globally 60 and 35% of,  
respectively,  
all irrigated and rainfed  
croplands  
fall within this distance range.

*Thebo A.L. et. al. (2014) Environ. Res. Lett. 9 Global assessment of urban and peri-urban agriculture: irrigated and rainfed croplands*





- If we
- Then
- The t



ars

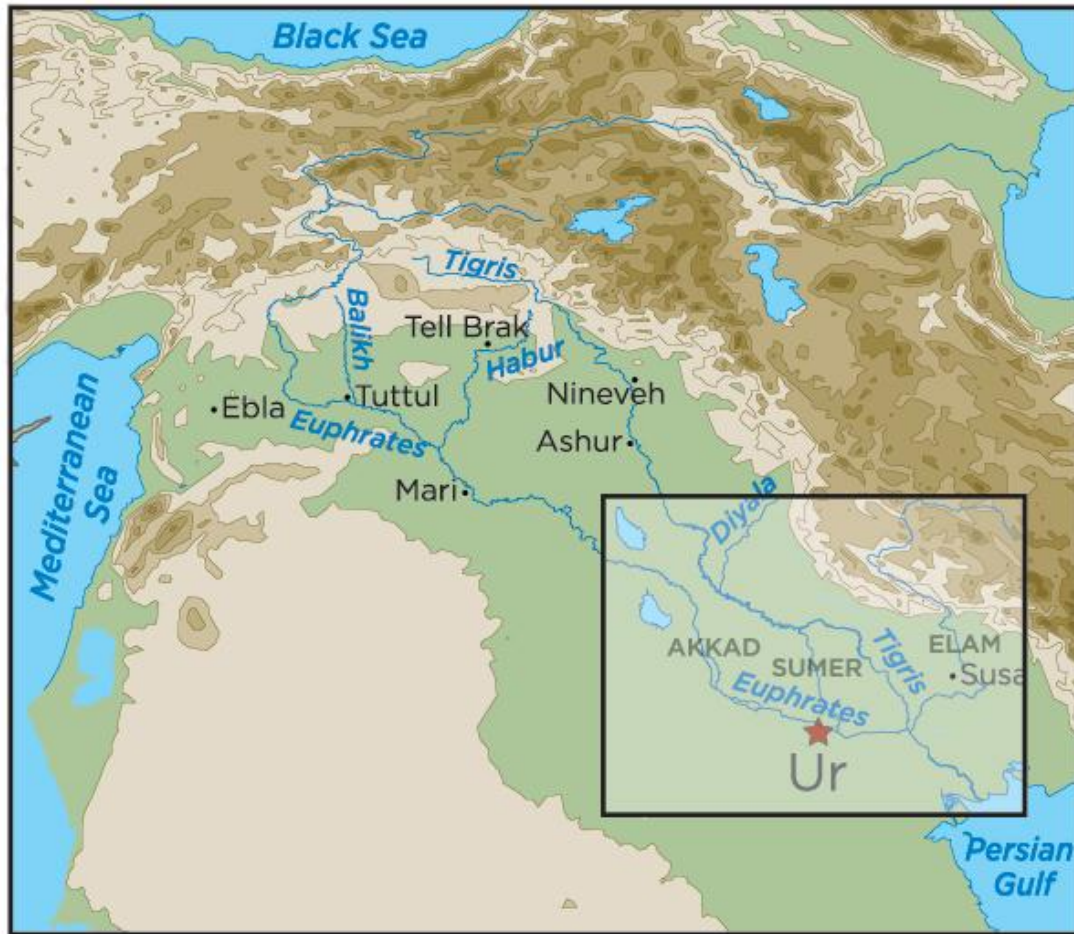
to today

100,000 – 10,000 Bp.



© Dr William Bird

# Mesopotamia – fertile crescent



10,000 – 3500Bp



160 Bp - today

© Dr William Bird



# Urban by default...



- In 2008, the world's urban population outnumbered its rural population
- By 2030, 60 percent of the world's population is expected to live in cities. Urbanization closely linked with urban poverty & food insecurity.
- Currently, approximately one-third of the world's population is living in slums and informal settlements.
- If prevailing trends continue... 2 billion by 2030.

Source: UN Committee on World Food Security (CFS)

# If civilisation reflects the values we share as a society...

“It is the erosion of an effective national minimum that has led to the existence of hunger and the rise of the food bank movement in its wake.”

“We believe that, as the system is built up, Feeding Britain will need to develop a network of towns, cities, counties and regions that match food needs and resources in each town, city, county and region, with the ultimate aim of eliminating hunger.”

8<sup>th</sup> December 2014

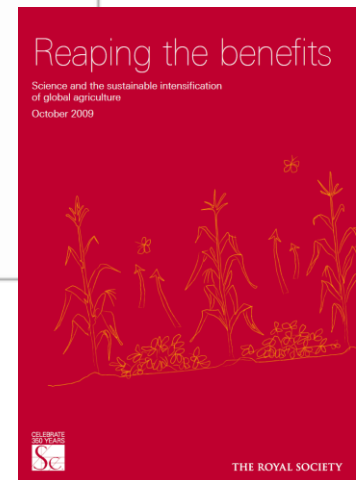
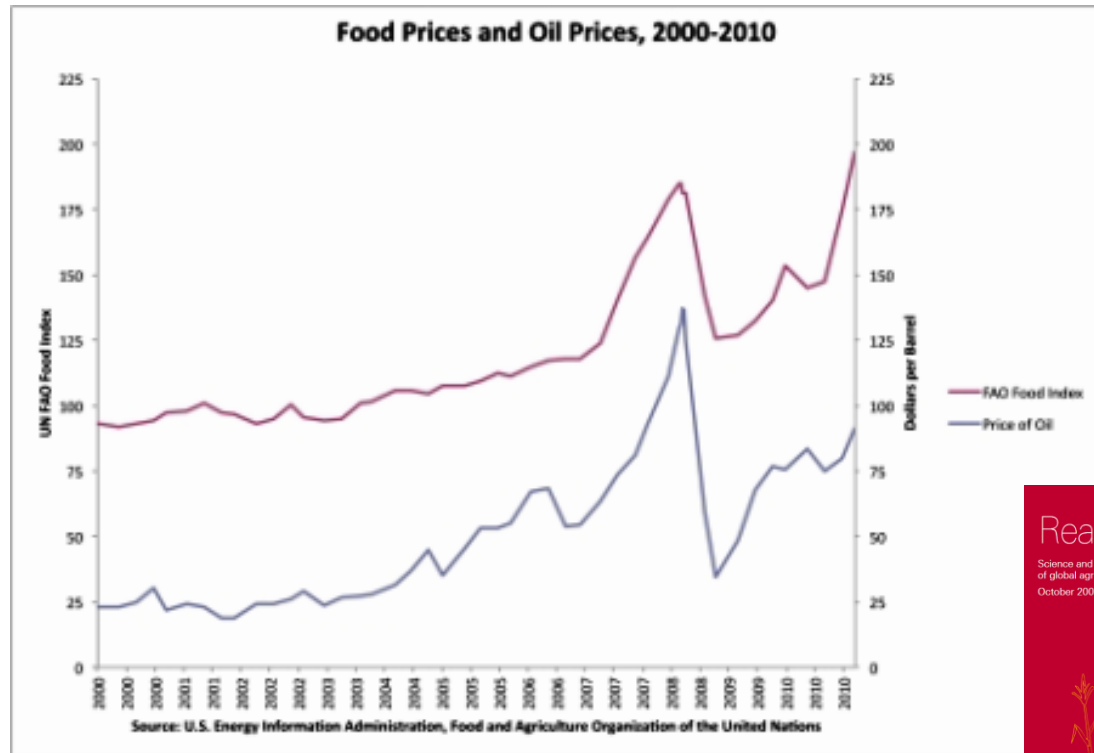
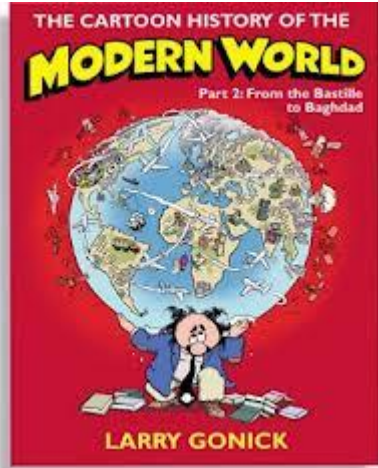
## Feeding Britain

**A strategy for zero hunger in England, Wales, Scotland and Northern Ireland**

The report of the All-Party Parliamentary Inquiry into Hunger in the United Kingdom

This is not an official publication of the House of Commons or the House of Lords. It has not been approved by either House or its Committees. All-Party Groups are informal groups of members of both Houses with a common interest in particular issues. Their views expressed in this Report are those of the Inquiry team established by the All-Party Parliamentary Group on Hunger and Food Poverty. This report was funded with generous support from the Archbishop of Canterbury's Charitable Trust.

# Cost of conventional food...

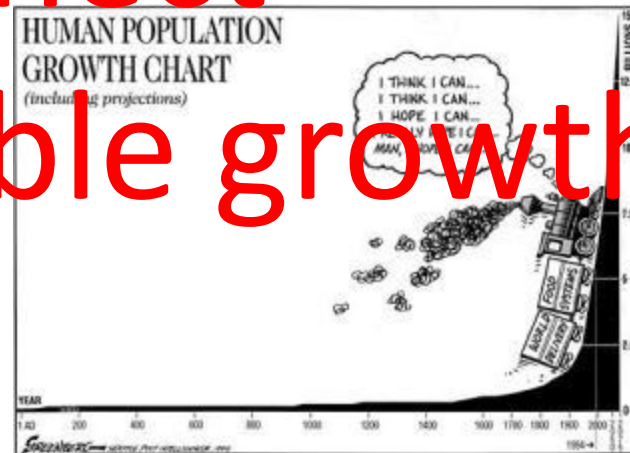


Energy and the food system. Woods et. al. (2010)  
Phil. Trans. R. Soc. B 365, 2991–3006

Tragedy of the commons: unsustainable harvest the worlds natural resources... to feed the hungry city!



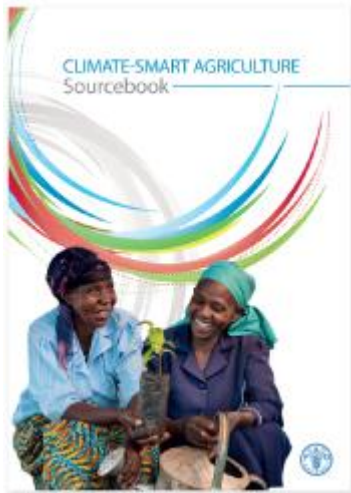
Disconnect =  
Unsustainable growth



<http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter8.pdf>



# FAO Climate Smart Agriculture –UA!



## EXAMPLES



# UPA dichotomy - Developing countries

Officially recognized by FAO in 1991,  
subsequently World Food Summit (2002) and  
UN High Level Task Force on the Global Food  
Crisis (2008):



Food and Agriculture Organization  
of the United Nations

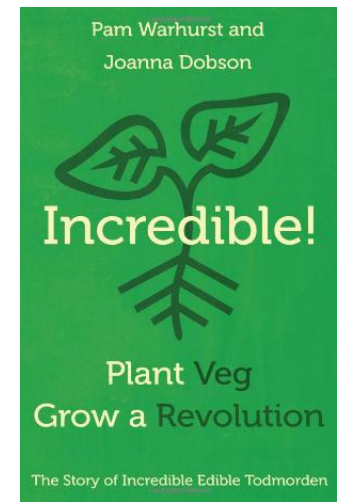


A strategy to alleviate urban food insecurity  
and build cities that are more resilient to crisis.

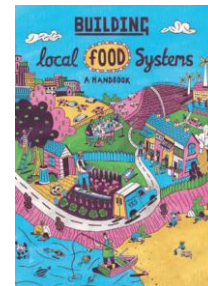
*Proposition 1: In developing countries UPA is seen as important*

# UA dichotomy- Developed Economies

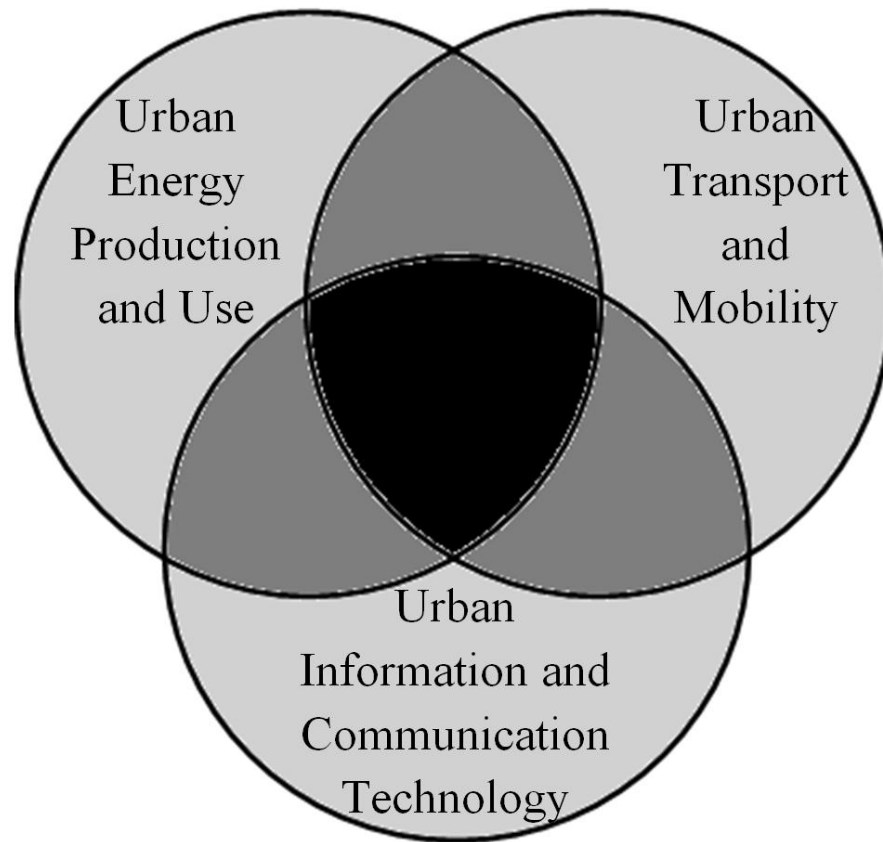
- In UK Urban Agriculture seen as a tool for social change.



£58 million  
2007-2014!



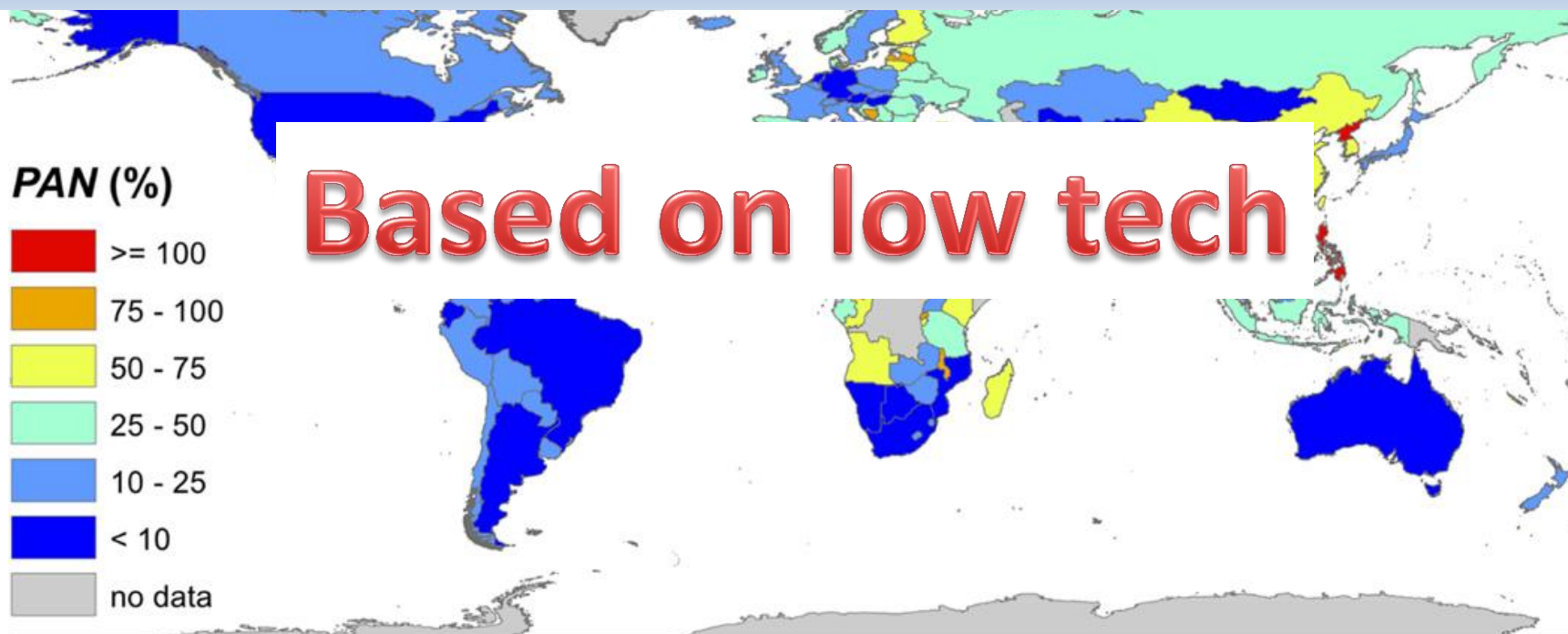
# EU plan Smart Cities – without food!





# UA cannot feed the city alone...

## 1/3<sup>rd</sup> total global urban area!



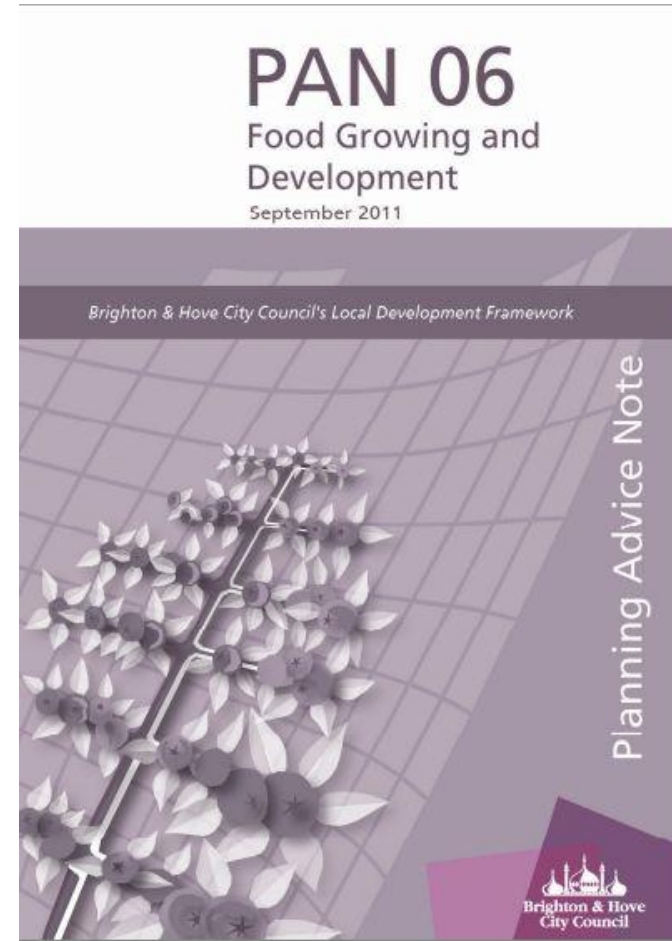
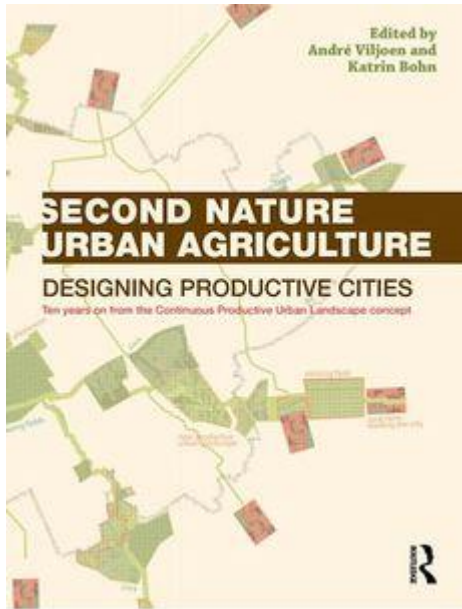
PAN (Percentage of urban Area Needed) to meet the actual consumption of vegetables by urban dwellers through UA (F Martellozzo et al 2014).

# Different areas of UA activity and assessment related to economic social and environmental development.



# Theory & practice are planning for UA success

Emerging 'sector' champions for UA:  
Architects, academics and authors put the idea  
onto the agenda of the planning professions.



Eds. André Viljoen and Katrin Bohn (2004 & 14)



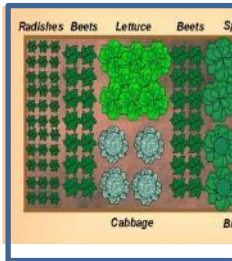
# The rise of urban allotments!



Low input – low output



# Opportunity evolve a commercial UA



Home gardening



Market gardens



Community gardens



Living walls and green roofs



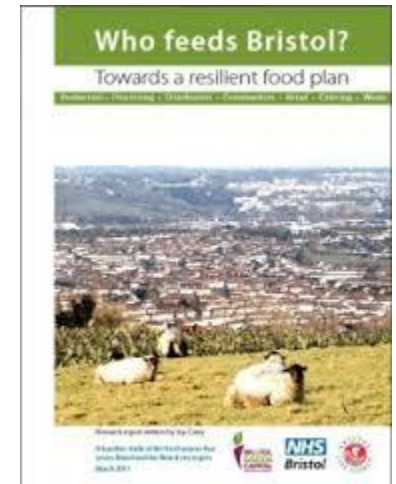
# Aligned to a sustainable rural agriculture\*

\* defined as "an integrated system of plant and animal production practices having a site-specific application that will last over the long term"  
Gordon McClymont.

- Satisfy human food and fiber needs (fuel?)
- Enhance environmental quality & natural resource base
- Optimal use of renewable resources on-farm
- Economic viability of all farm operations
- Enhance the quality of life for farmers and society as a whole



# Mapping where food comes from



Phase 1: Map & GAP analysis

# Step 2: a community of practice

- ‘food charter’: statement of aims which bring together businesses, practitioners and other bodies involved or interested in sustainable food systems

## Leicester Food & Drink Charter

The Leicester Food & Drink Charter seeks to promote and support safe, healthy, nutritious good food that is produced in a way that reduces the impact on the environment whilst at the same time supporting the local food economy in Leicester and the surrounding area. Signatories of the charter are committed to promoting and supporting a thriving local food economy.

### 10 Ambitions for Food & Drink in Leicester

- 1 Support food and drink production that conserves and enhances the natural habitat, maximises the use of resources and reduces the distance food travels whilst maintaining support for farmers products when they can be grown in the region.
- 2 Consider the genetic impacts of climate change on food production and consider ways to best adapt to a changing climate and develop resilience to potential future food security.
- 3 Work to reduce the amount of food waste created in both businesses and households in the city and encourage more redistribution of food, composting and recycling of reusable packaging.
- 4 Raise awareness and provide educational opportunities for children and adults around growing, cooking and eating safe, healthy, nutritious and affordable food - providing people with the skills, knowledge and opportunities to eat well.
- 5 Raise awareness of local and seasonal food and drink products and promote the local food growers and producers in and around the city.
- 6 Support the diverse range of food and drink being grown and produced in the city and enhance the cultural and international diversity of the foods available in the city.
- 7 Develop a vibrant local food and drink economy, supporting and encouraging food businesses in and around the city and develop a nationally renowned food offer.
- 8 Provide skills and training for those looking to enter the food industry and supporting the job opportunities the industry can provide.
- 9 Develop resilient communities who are able to share knowledge and experience around food growing, cooking and eating whilst helping to address issues of social deprivation and vulnerability in communities.
- 10 Maximise the use of food production space within the city, looking at opportunities for using greenhouses and brownfield sites for community growing projects.

Supports the Leicester Food & Drink Charter

For more information please email [environment@leicester.gov.uk](mailto:environment@leicester.gov.uk)



We believe a collaborative and integrated approach is essential to create a healthy and just food system for all.

We value...

#### LTH AND WELL-BEING

sets to a variety of healthy and viable food in all neighbourhoods and facilities.  
Local policies and practices to improve respiratory health.Importance of food for physical, mental and cultural wellbeing, community awareness of healthy, locally-sourced and pressed food.

#### ENVIRONMENTAL SUSTAINABILITY

- Rural and urban agriculture practices that protect biodiversity and improve the health of our land, soil, water, and air.
- Integrating agriculture and food into energy and climate change policies and strategies.
- Protection of agricultural lands and a streamlined regulatory framework.
- Reducing food and packaging waste among consumers, retailers, processors and producers.

#### ECONOMIC OPPORTUNITIES

Economic development plans that ensure robust and financially sustainable agriculture.  
Innovative food and related industries that unite producer, processor, distributor, health, tourism, education and hospitality sectors.  
Local business traditions

A GUIDING DOCUMENT FOR THE DEVELOPMENT OF COORDINATED FOOD-RELATED POLICIES AND PROGRAMS IN YORK REGION

#### EQUITY AND SOCIAL JUSTICE

- The basic right of all residents to safe, nutritious, culturally appropriate, accessible food.
- Equal access to food for all.
- Fair compensation and a safe and respectful work environment in the agriculture and food sectors.

#### EDUCATION AND SKILLS

- Food literacy and skills for all residents, with a focus on food growing, healthy cooking, and consuming.
- Education that supports opportunities in the agriculture and food sector.
- Understanding the connections between food, farming, health and the environment.



#### Oxford's Good Food Vision:

- Reducing green house gas emissions at all points in the food cycle, from field to fork
- Supporting practices that preserve and enhance ecosystems and promote higher animal welfare
- Committing to our packaging and food waste, and increase recycling and composting

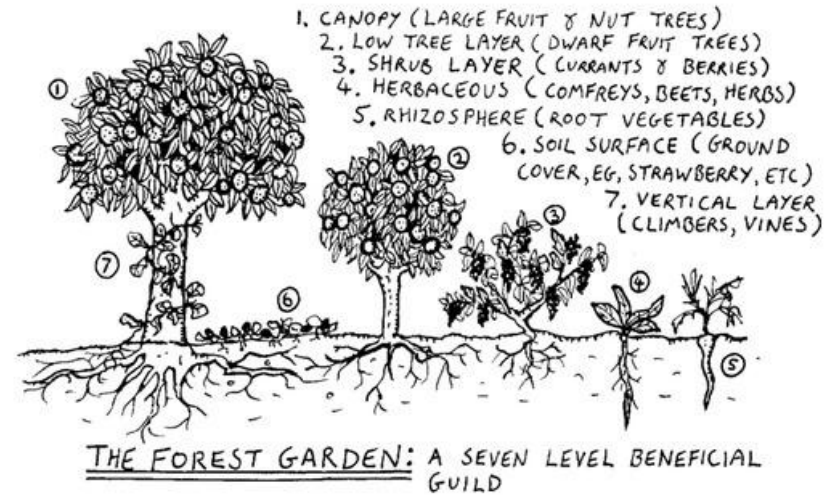
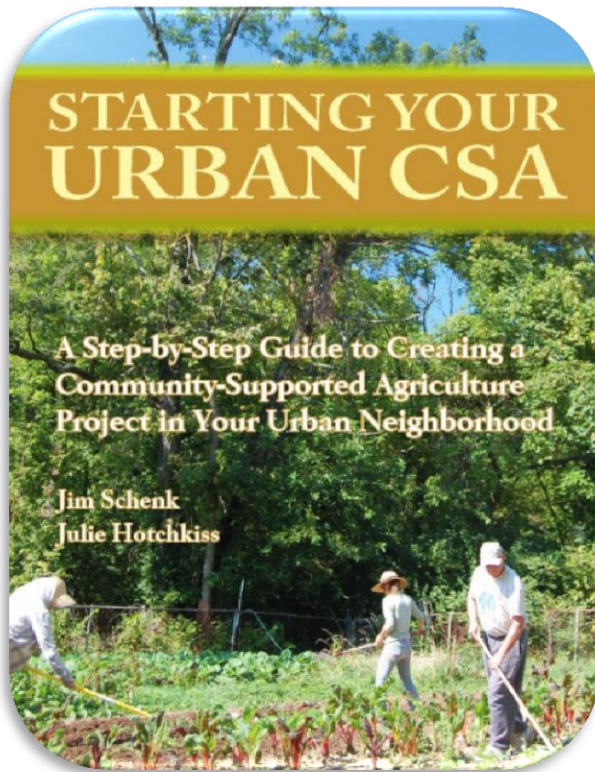


he Plymouth Food Charter  
click to download





# Opportunities for Community Supported Agriculture



Community support for a rural farmer or (rarely in UK) Urban Farm to provide fresh produce and sometimes meat and fish..

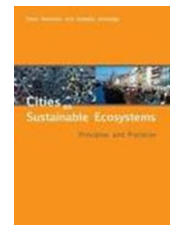
## Variable input : variable output



Food-Smart City

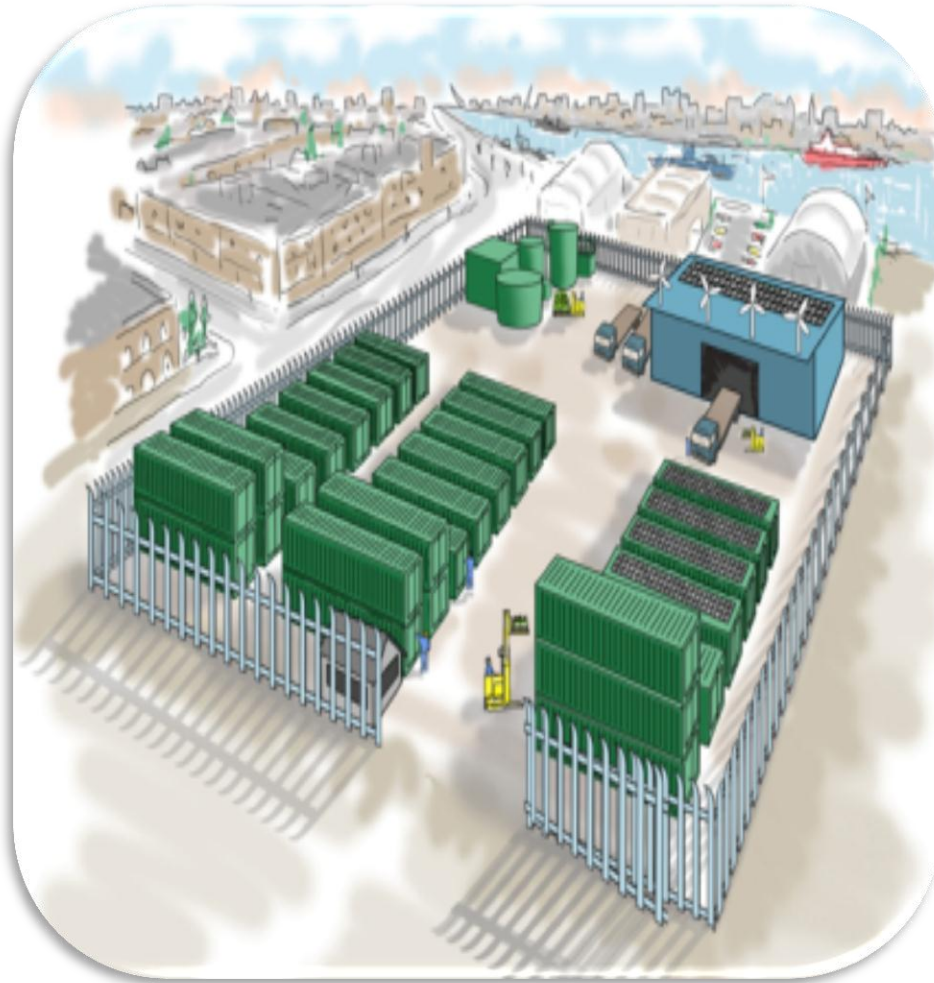
# Food-Smart Cities!

"a city or metropolitan area that harnesses its potential to maximise the social, economic and environmental benefits of its food system whilst also supporting its rural hinterland and contributing towards global food security and sustainability."



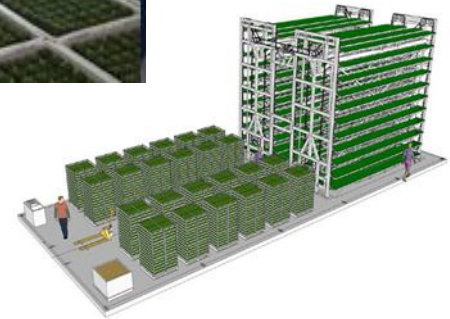
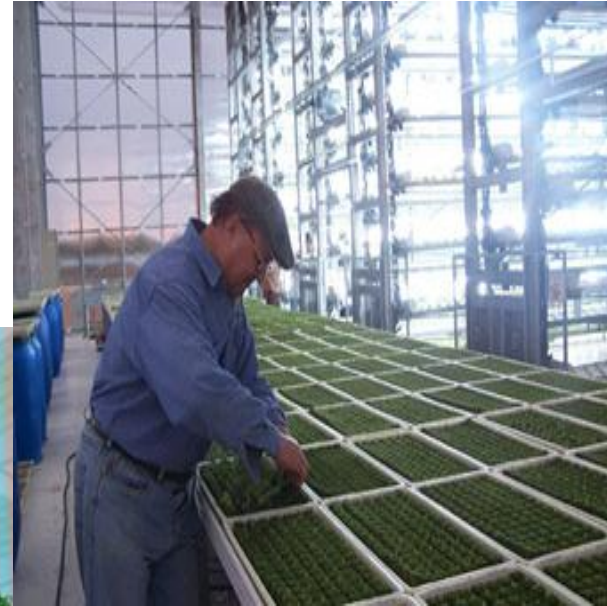
<http://www.universitieswm.co.uk/representatives>

# Thinking, Being, Doing different





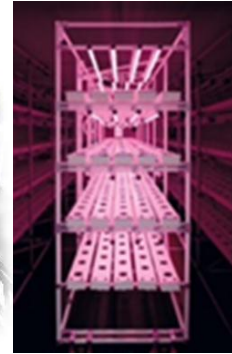
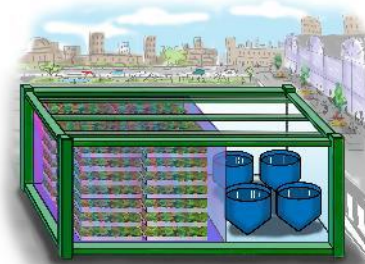
# UA Controlled Environment is currently..



High input : high output



# Novel solutions being tested..



# Conclusion on UPA

- This paper argues that we need different ways of thinking, being and doing if we are to live well, prosper and safeguard the future of our food system.
- Primarily we need to go beyond the straightjacket of consumer needs and a consumer approach, and also encompass social needs and a social approach. By doing so, we can drive a new era of creativity and growth.