Metropolitan Food Clusters

A sustainable way for food (security)

Wageningen UR

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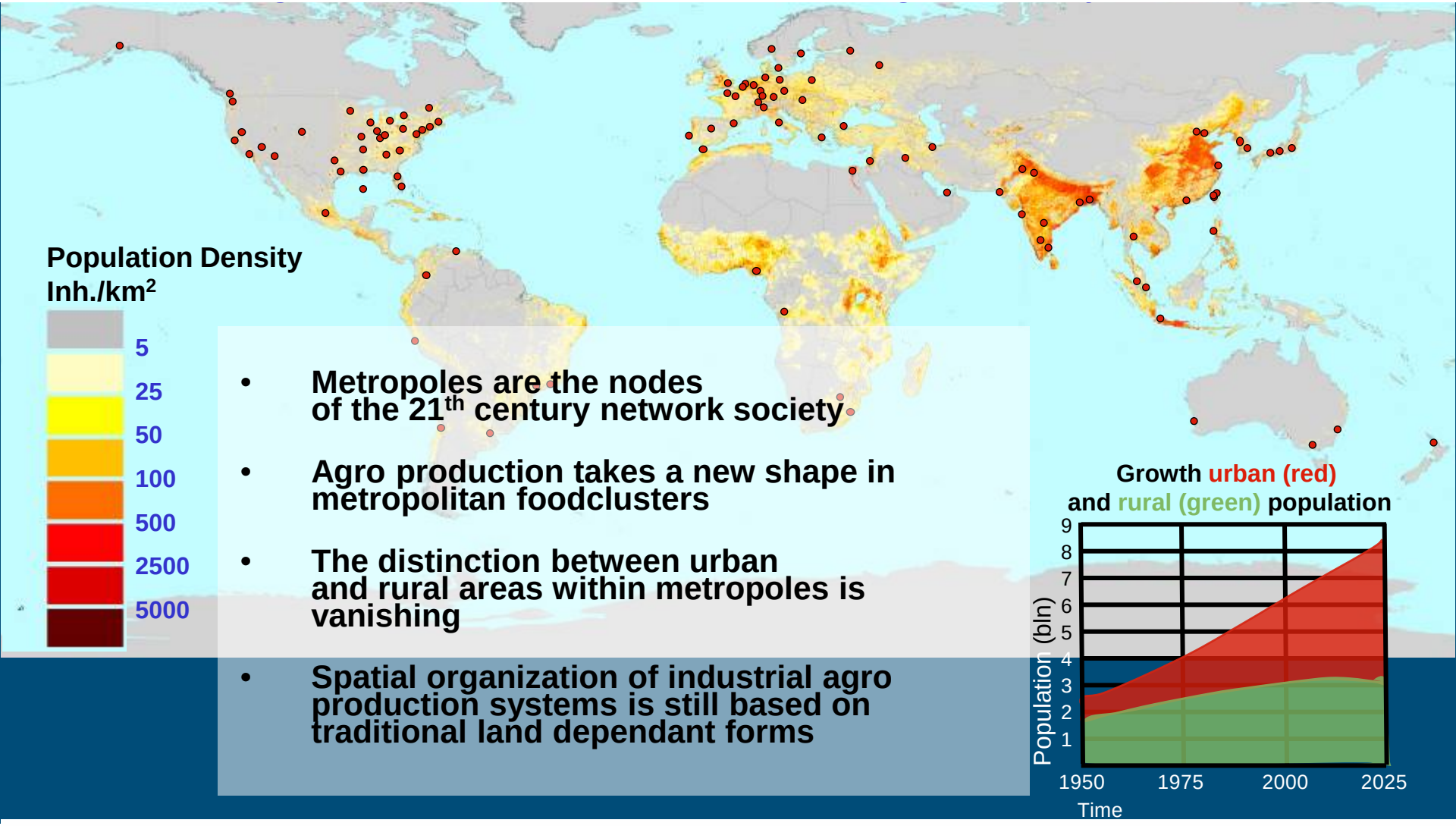
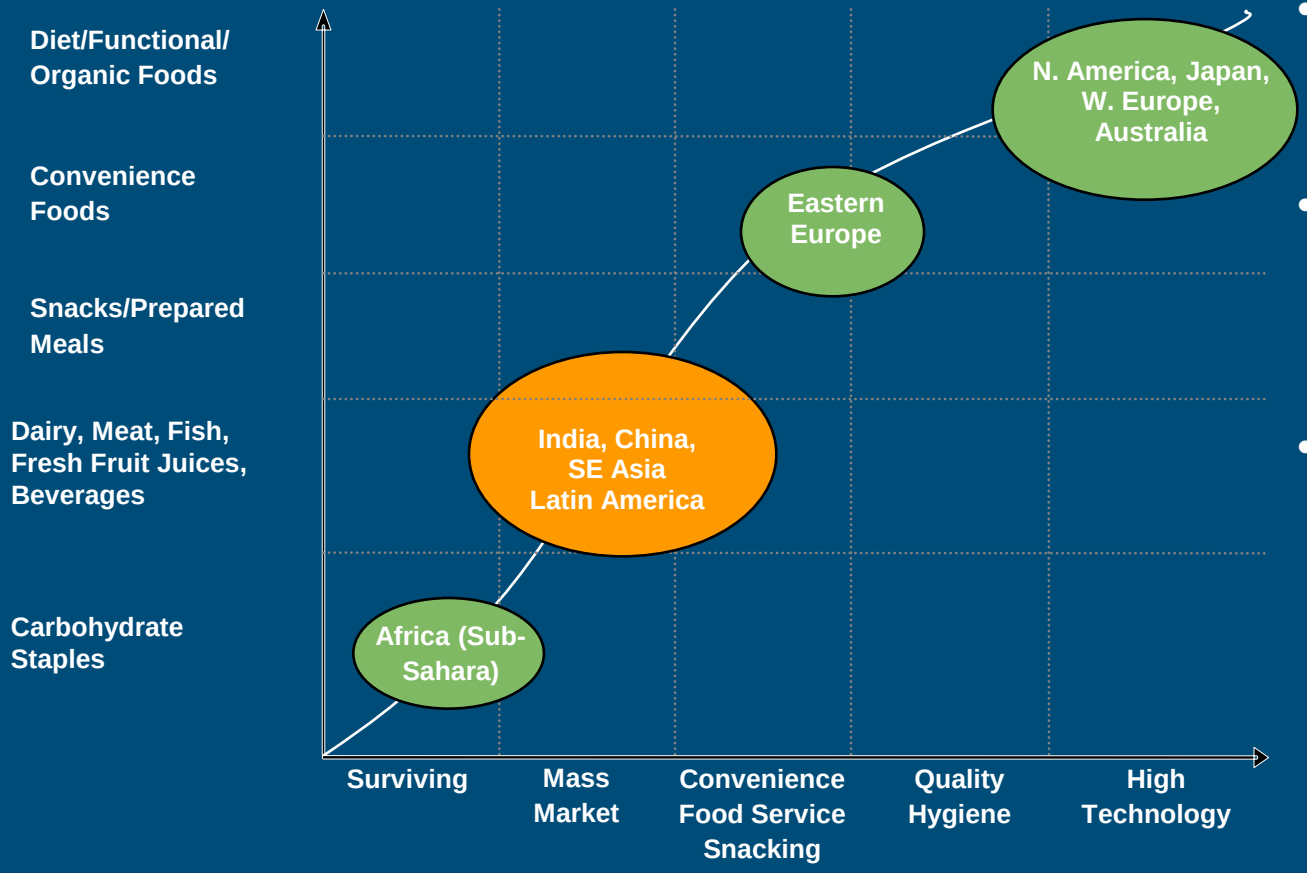
WAGENINGEN UR
For quality of life

The world is urbanising



- Metropoles are the nodes of the 21th century network society
- Agro production takes a new shape in metropolitan foodclusters
- The distinction between urban and rural areas within metropoles is vanishing
- Spatial organization of industrial agro production systems is still based on traditional land dependant forms

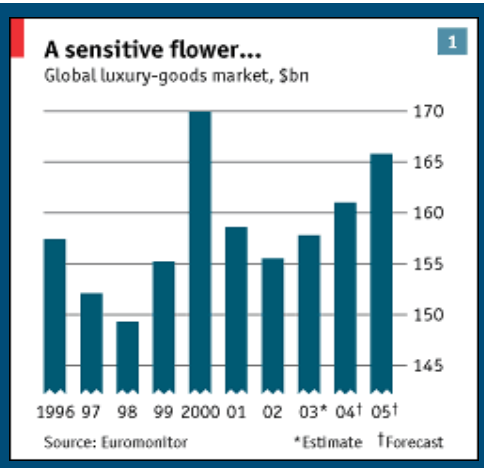
Urban people have more purchasing power: Shift in consumption basket



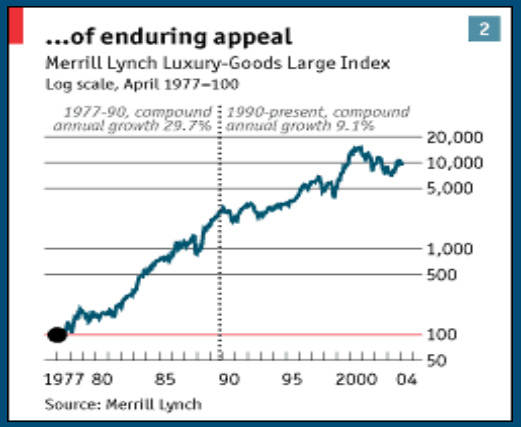
- Increasing consumption of processed food.
- Increasing consumer discern towards safe, healthy and quality food
- Transparency in food chain “from farm gate to food plate”

Diversification of demand in Metropoles: From food to fashion to pharmaceuticals

- Energy and building
  - Fuel
  - Fibers
- Food
  - Fodder
  - Food Crops
  - Vegetables
  - Fruits
- Fashion
  - Flowers
  - Flavours
  - Flagrances
- Pharmaceuticals
  - Functional Foods
  - Pharmaceuticals



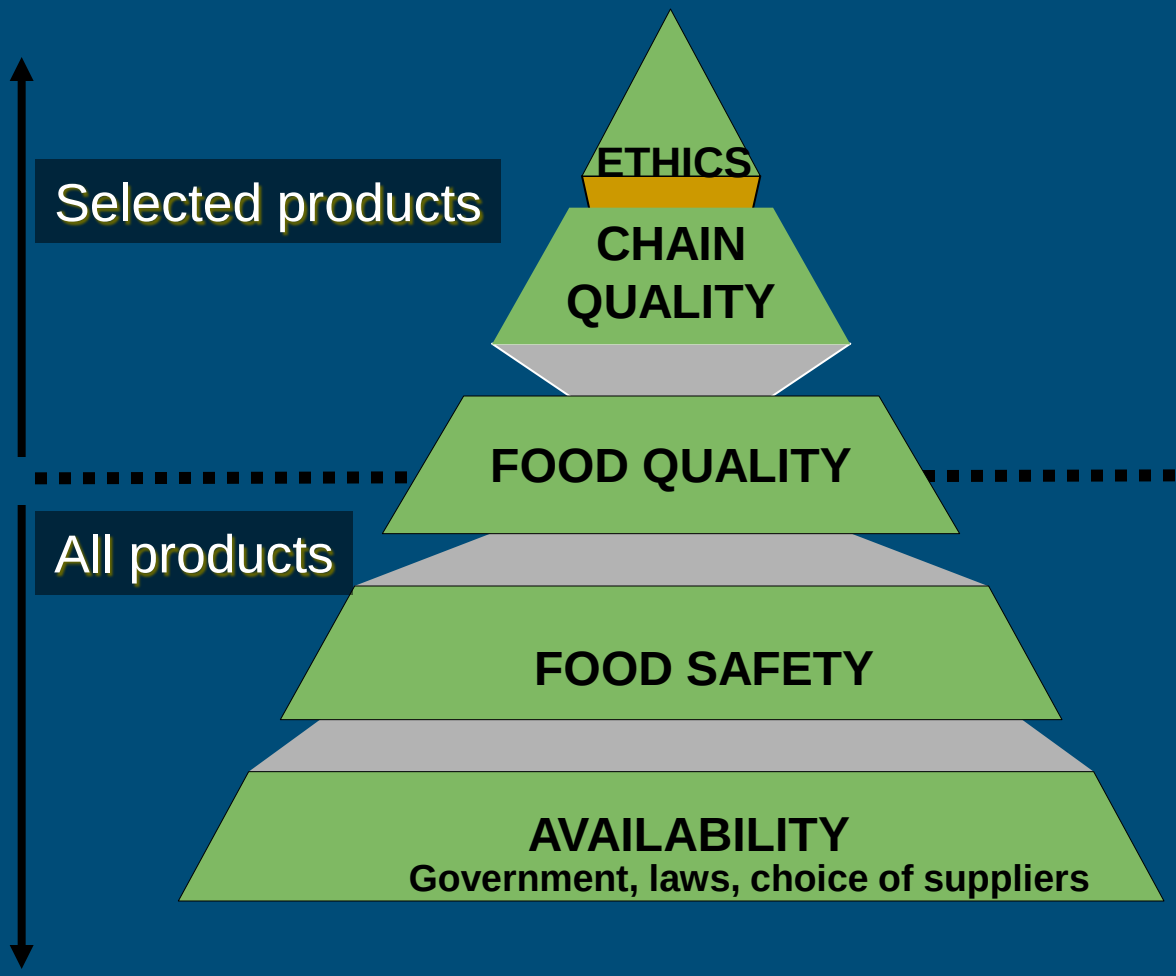
World spending on luxury goods in 2005: $165 bln



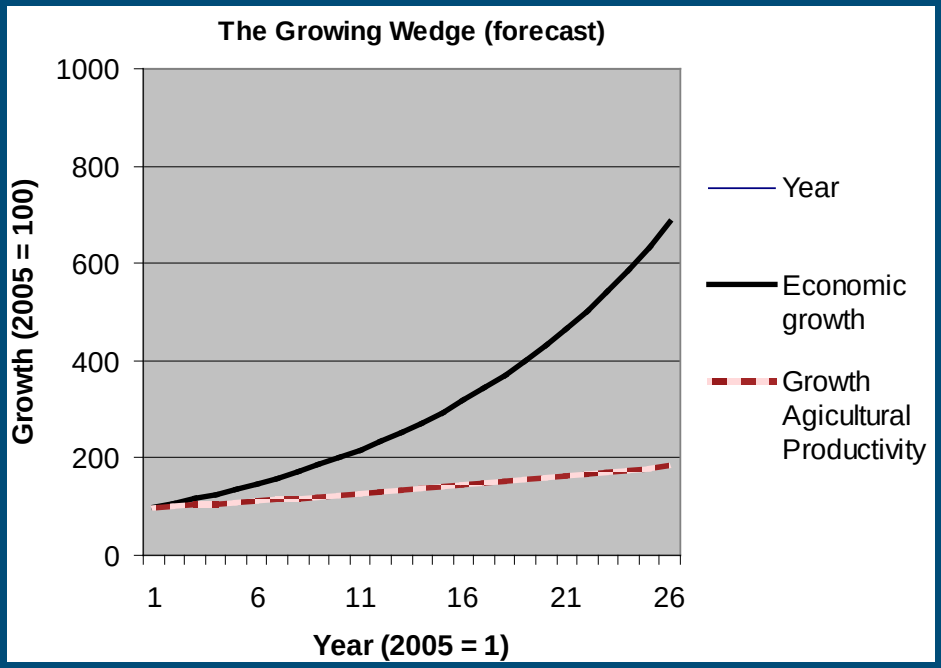
Which is a 100-fold increase between 1977 and 2005

Consumers demand sustainable development

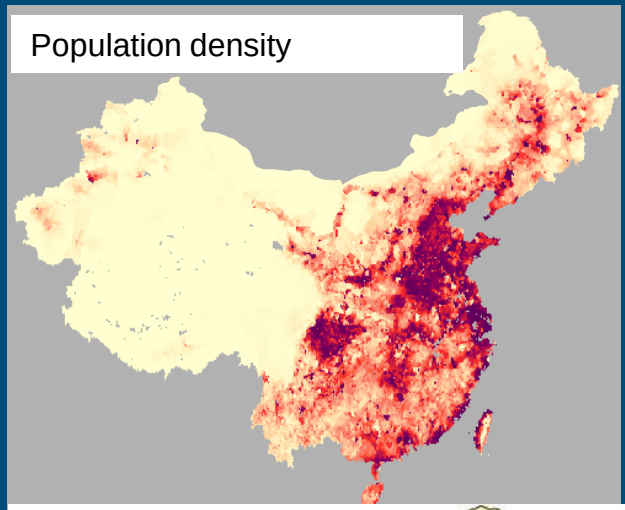
- From licence to produce towards licence to deliver based on triple P criteria
- From retail backwards quality management is forced upon every single link in the chain.
- Autonomous control i



Example of the growing wedge:
China's agricultural growth lags behind on economic growth
Many emerging economies show the same wedge



Jump in agricultural productivity is necessary to meet growing demand of middle class.
Still there will be growing import of agricultural products



Suitability for agricultural production

0 – 10
10 – 20
20 – 30

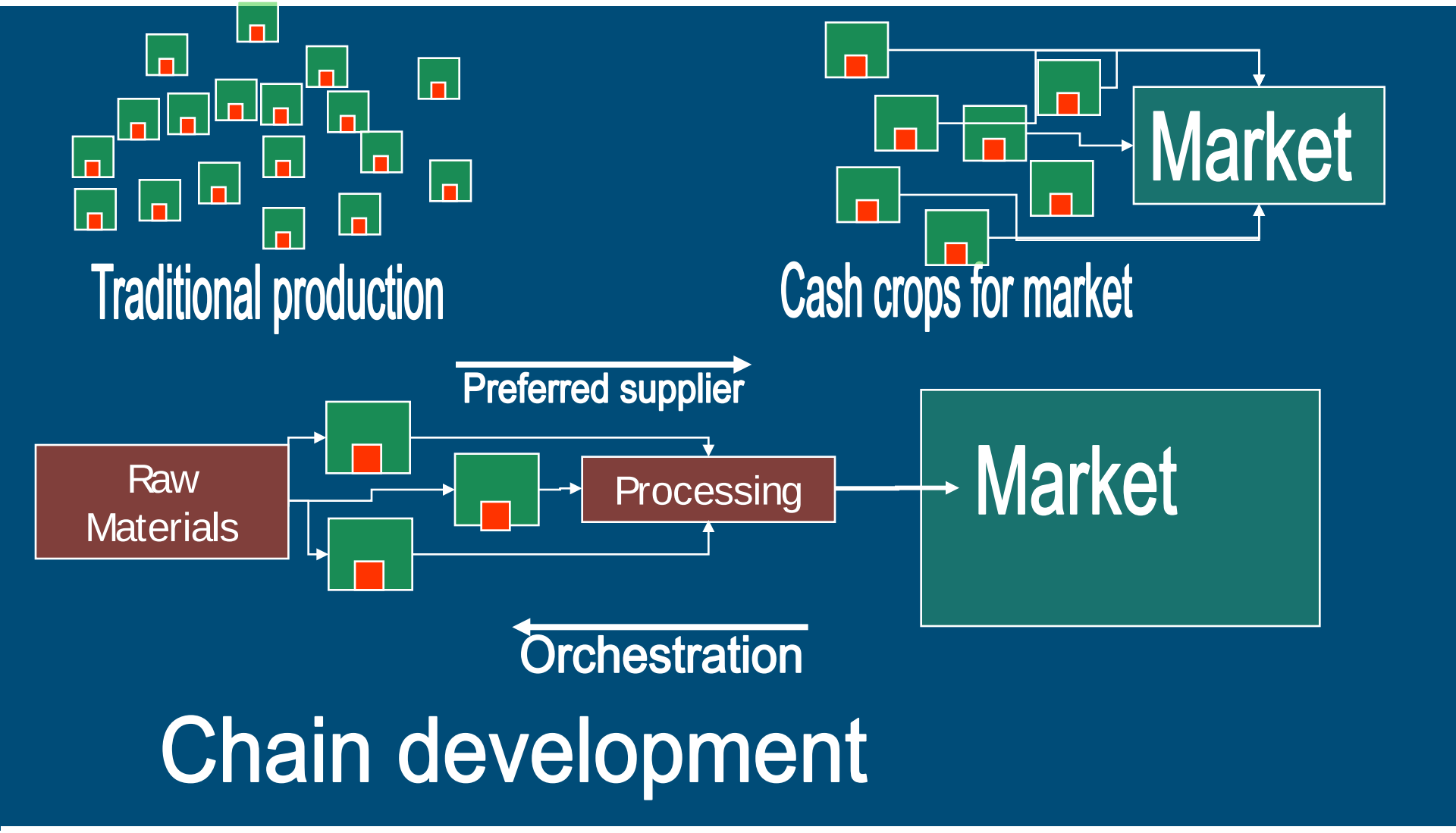
Total area suitable for agricultural production: 11%

Agriculture in the 21th century is getting organised in the form of

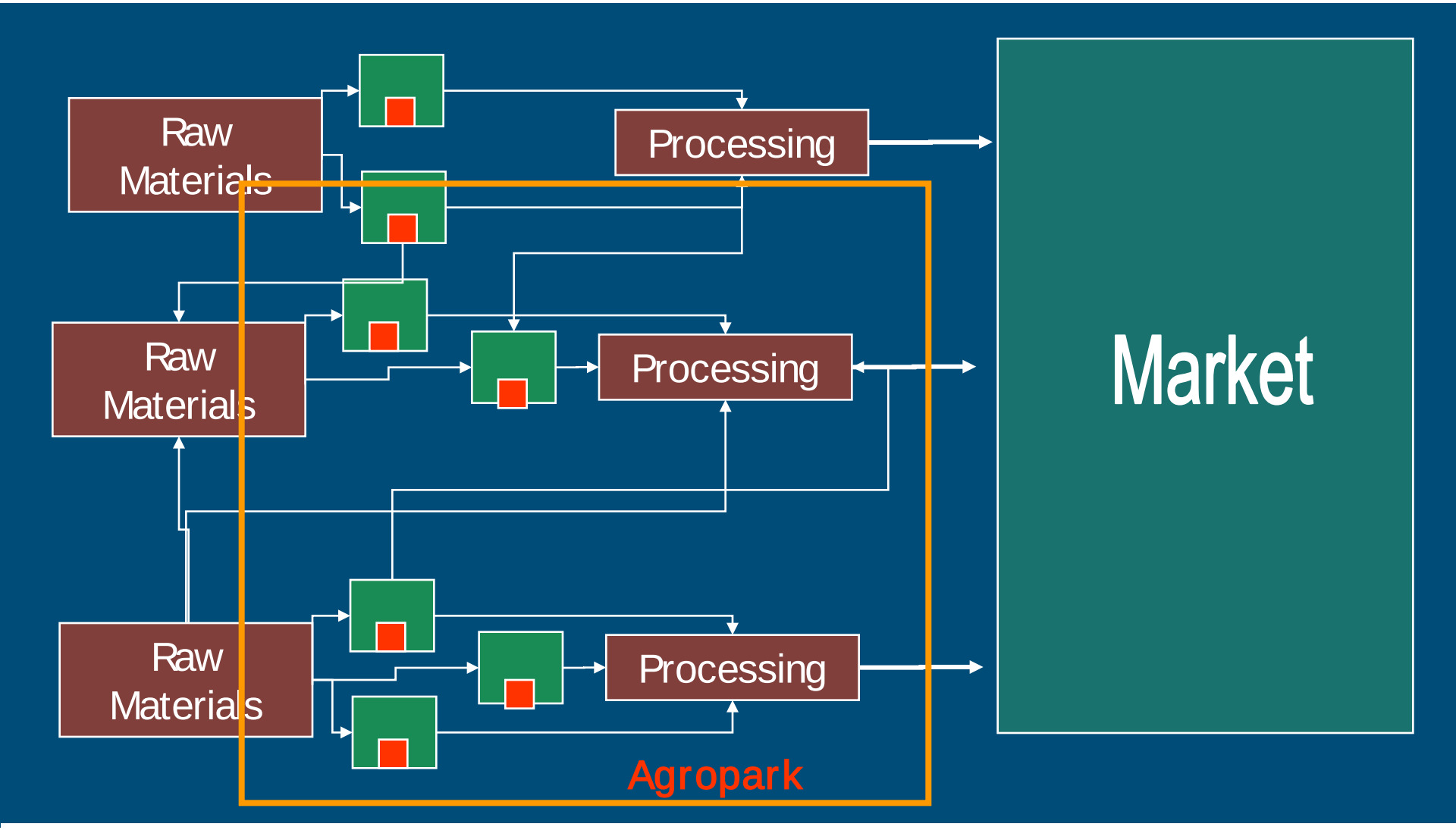
metropolitan foodclusters

These are intelligent agrologistic networks with consolidation centres, agroparks and rural transformation centres surrounding a metropole.

Agriculture: from traditional production towards chain production



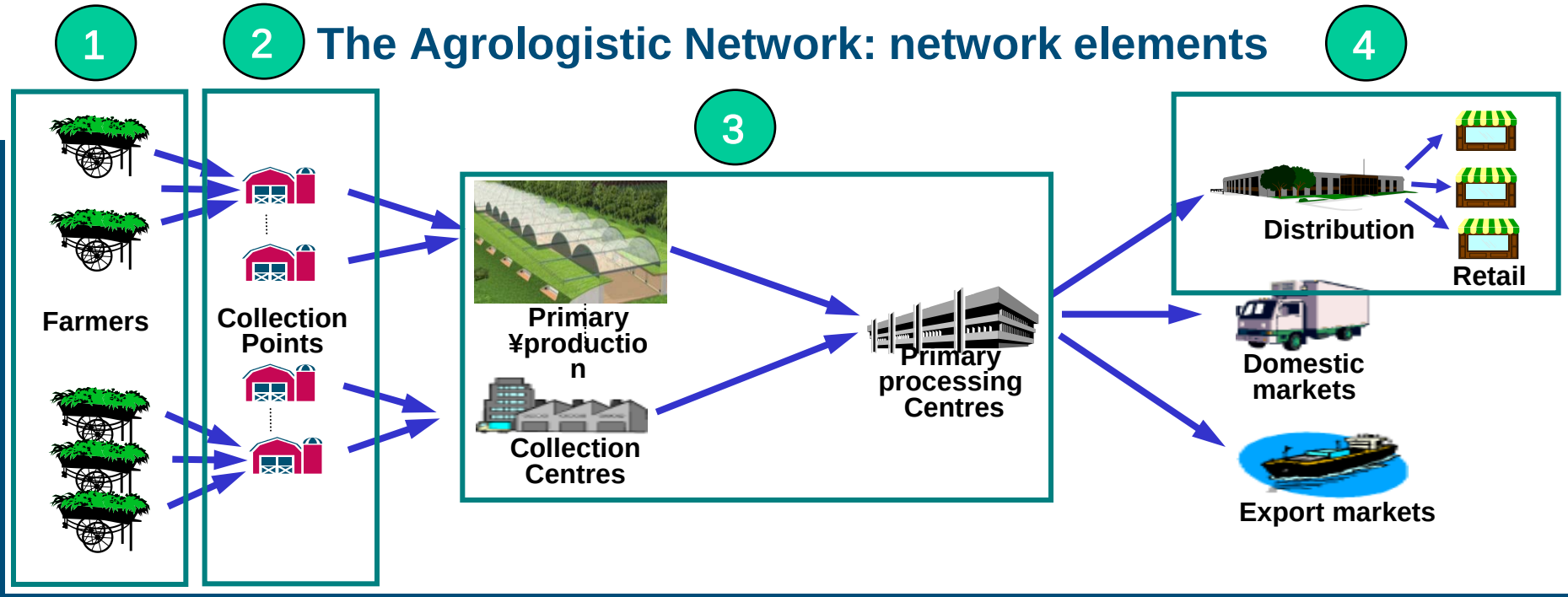
Future Agriculture: from chain production towards Agropark



Essential in Foodclusters

- Spatial clustering of different agro-production chains
- Spatial combination of agro-processing and non-agro functions (buildings, industrial waste)
- Increase of scale in production enables further industrial processing
- Application of principles of industrial ecology, i.e. re-use of waste and by-products
- Reduction of transport
- Reduction of veterinary risks
- CRUX: clustering provides context for sustainable innovations

The Agrologistic Network: network elements



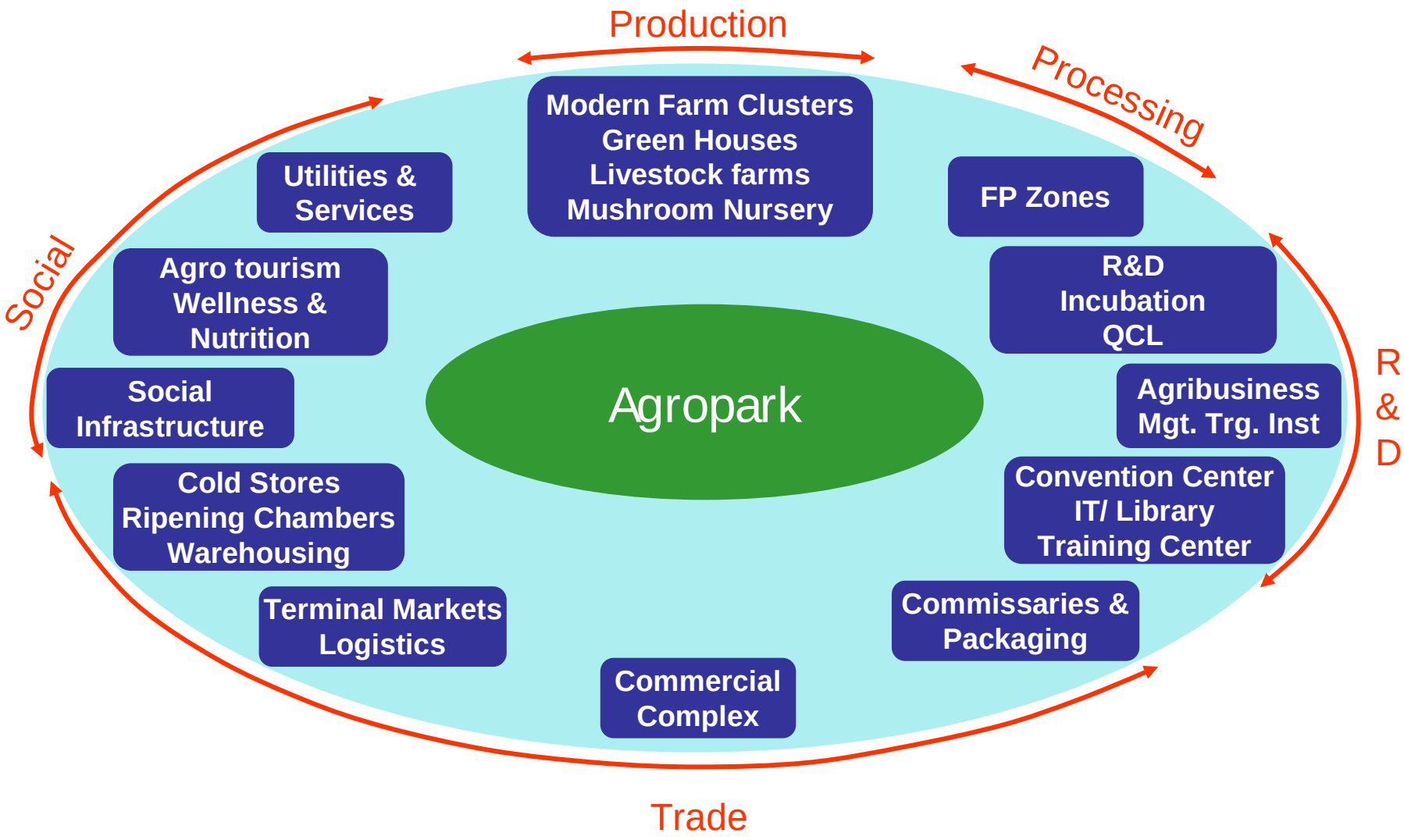
1 **Farmers**

2 **Rural Transformation Centre (RTC)**
Combining collection and storage of farmers' products with rural development services

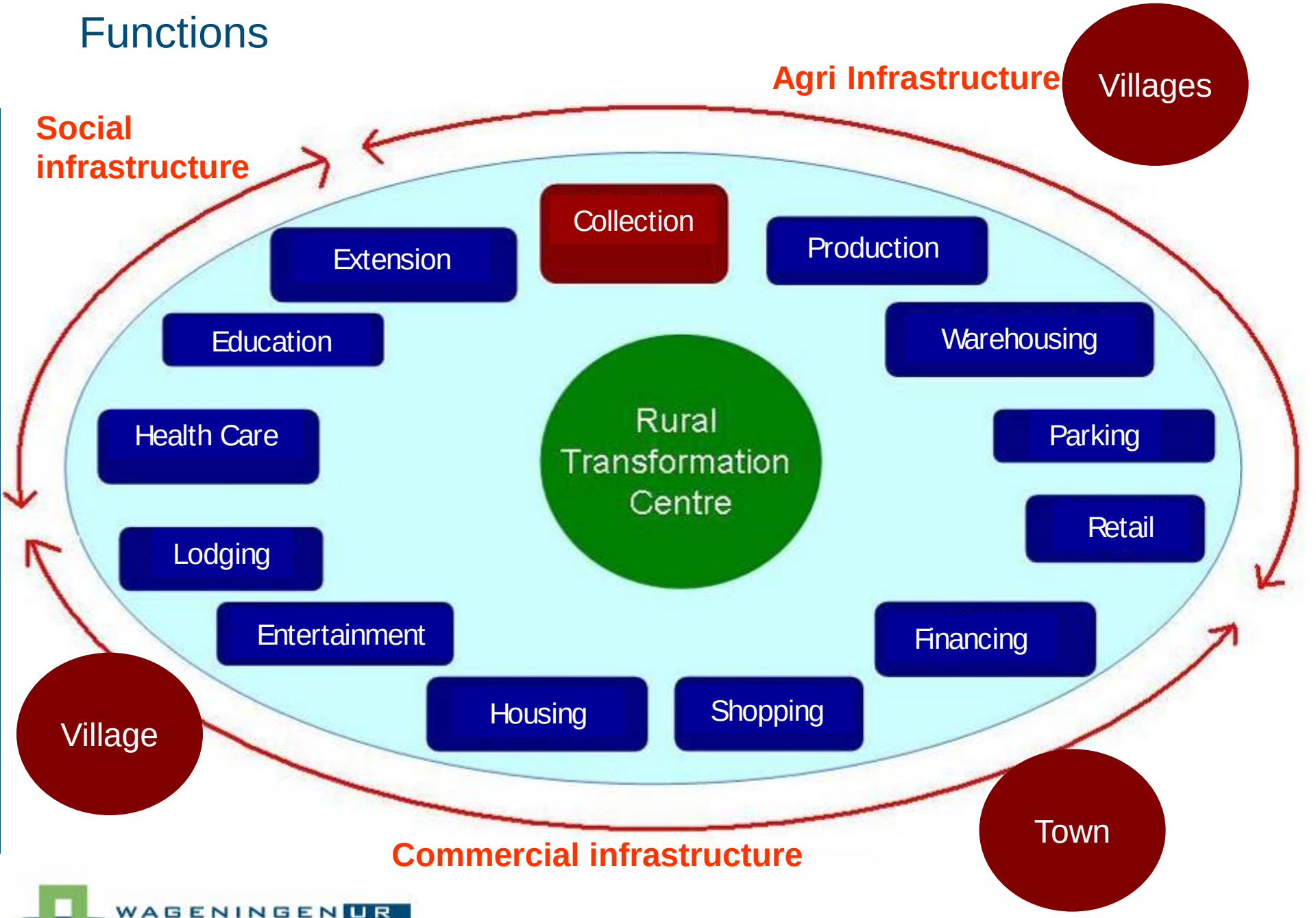
3 **Foodcluster**
Combining production, processing, R&D, education, training and showcase functions

4 **Distribution & Consolidation Centre**
Serves a metropilotan market througout the whole year. Seasonal products not available from local producers are being supplied from storage or by trade

Foodcluster: Combining production and processing integrated through industrial ecology with R&D, Trade and Social Functions



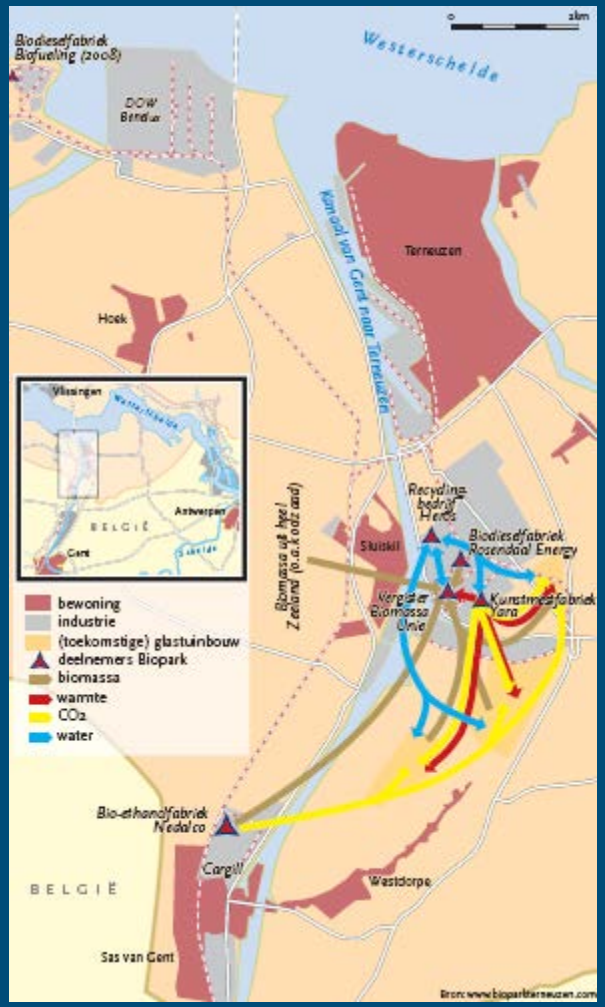
Functions

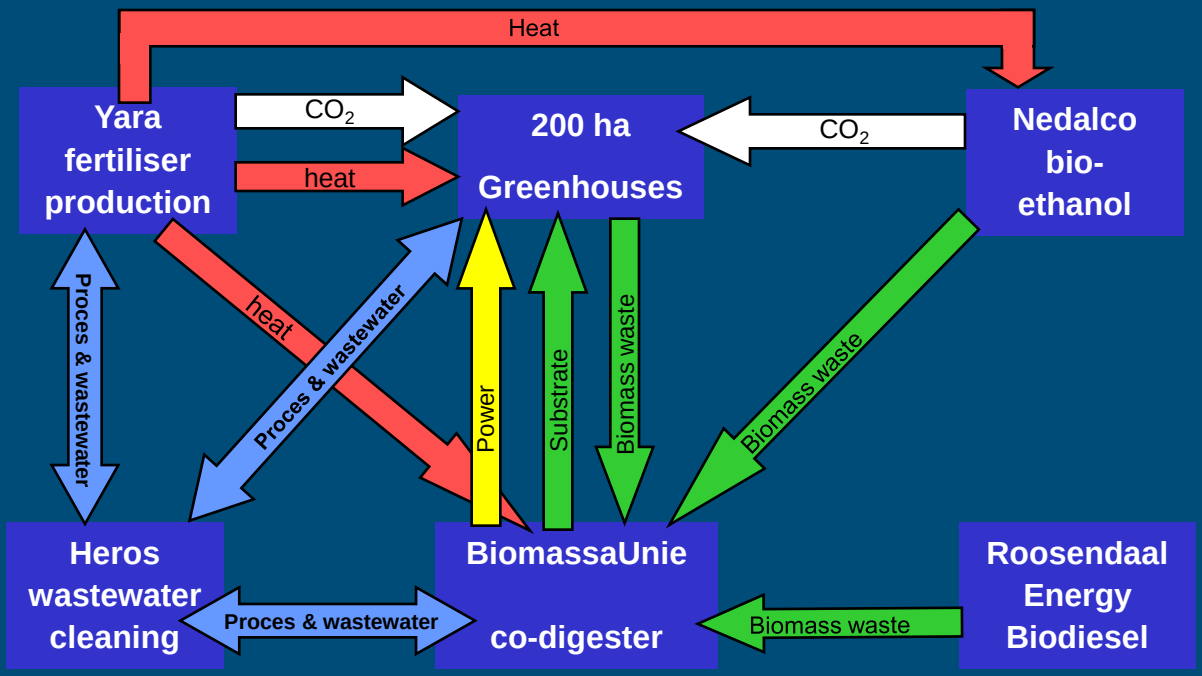

Agri Infrastructure
Villages
Social infrastructure
Collection
Extension
Production
Education
Warehousing
Health Care
Rural Transformation Centre
Parking
Retail
Lodging
Entertainment
Financing
Housing
Shopping
Village
Town
Commercial infrastructure

Implemented cases of metropolitan foodclusters

- Most implemented and operational cases of metropolitan foodclusters so far can be found in Northwestern Europe.
- These cases have developed out of existing agriculture during the last century. They have only partially been designed. Therefore their spatial organisation is sometimes suboptimal.
- We use the experience and knowledge that has been generated out of these practice cases, to design agroparks and foodclusters from scratch.
- But also in our design examples in China and other countries we have to take existing space use into account, resulting in concessions to optimal solutions.
- In China two designs in which Wageningen UR has been involved are being developed low key and are partly operational.

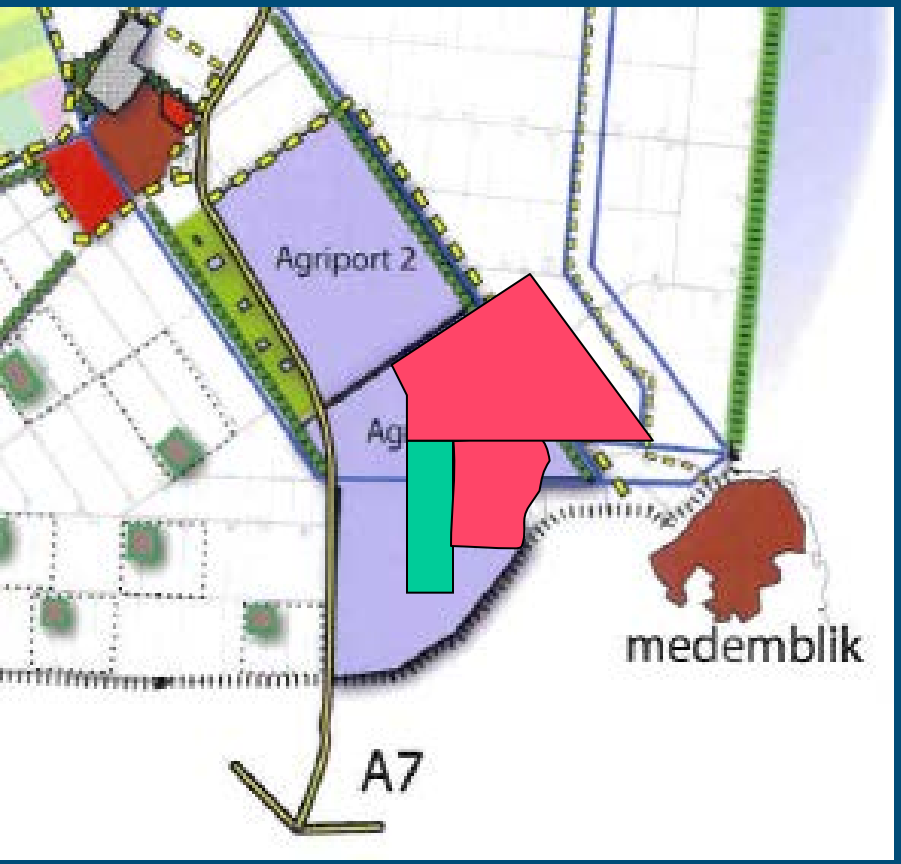
Merging between agro-industry and greenhouses: Foodcluster Biopark Terneuzen (operational)





- Agropark in sea harbour
- Primary agricultural production through industrial ecology connected to agro-industry
- Focus on sustainable development of bio-energy production
- In operation
- http://www.bioparkterneuzen.com/cms/publish/content/downloaddocument.asp?document_id=420

Emerging from Greenhouse Cluster: Foodcluster Agriport A7



- http://www.agriporta7.nl/
- Centre for growing vegetables, agribusiness industry and logistics, 30 minutes from Amsterdam
- Primary production:
  - Large scale glasshouses : 300 ha growing to 1.000 ha
  - Field crops : 40.000 ha
- Vegetables industry, logistics and services
  - Business park: 70 ha
- To be added
  - closed fish production and processing
  - ICT-server centre

Area Agriport A7 august 2008

Fresh Park Venlo: Distribution & consolidation

- Storage, distribution, processing, trade and services,
- Serves a metropolitan market, 7 mln consumers in German Ruhr Area
- In a consumer responsive way
- Throughout the whole year
- Seasonal products not available from local producers are being supplied from storage or by world wide trade

Agropark design: IFFCO's Kisan SEZ *at Nellore*

To empower the Indian farmer
by developing a
Farmer owned – Farmer managed
Multi Product *SEZ*

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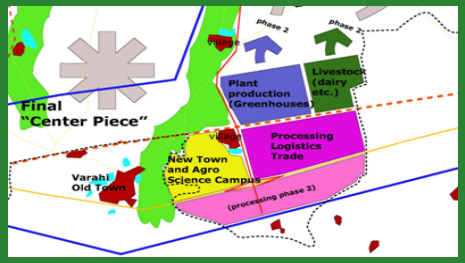
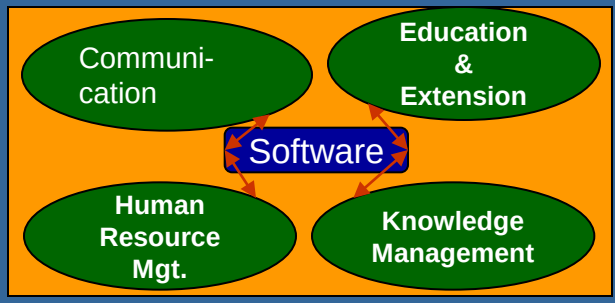
IFFCO Greenport Nellore – Campus (artist impression)

- Residential: 10,000 workers when fully operational
- Education: Multilevel education and R&D institutions
- Commercial Area
- Agro tourism area near the lake





Integrated design needed of:

Hardware

Contextual relationships
Infrastructures
Demonstration facilities
Trade facilities
Production facilities
Processing facilities
Industrial Ecology facilities
Energy management
Landscape and nature
Recreation and leisure
Routing

What you can hold

Orgware

Implementation & operation
Acquisition of entrepreneurs
Businessplanning
Investments in infrastructure
Consortium building
Stakeholder network
External relations
Development policy
Procedures and protocols
Licences and permits
Park management
Risk management

What you can organise

Software

Knowledge management
Team development
Management of emotions
Communication
Marketing
Quality management (ISO)
HRM
Education and Capacity building
Events

What you feel & think

Our contribution, according to the Wageningen approach

- Develop solutions that work, based on sound science, tailor made to the local solutions:
  - Co-design, together with assigner, of systems-innovation
    + the regional development
    + the IAN and Agropark hardware
    + the orgware and software
  - Orchestrating public private processes between government, entrepreneurs, knowledge institutes, NGO's & citizens
  - Matchmaking/ attracting companies/ investors

Our contribution, according to the Wageningen approach

- Trained experienced teams
  - + train the trainers
  - + learning to learn
  - + set up systems of quality control, monitoring and evaluation
- Build global partnerships
  - – with knowledge institutes
  - – Private sector
  - – Governments

Metropolitan FoodClusters:
Key stone for a sustainable development

Thank you

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