



# Sustainable Place-making: towards new spatial imaginations for agri-food and urban-rural relations

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1. The nature of sustainability science
2. Understanding space as a constituent of economies, ecologies and communities
3. Sustainability planning incorporating new spatial imagination
4. The nature of contested and contingent agri-food transitions
5. Some 'place-making' expressions of the bio and eco-economy

## Welsh Assembly Government's vision of a sustainable Wales

Enhancing the long-term wellbeing of people and communities is central to our approach to sustainable development. To promote this we are committed to a sustainable future for Wales where we:

- **live within our environmental limits**, using only our fair share of the earth's resources, for example by radically reducing our use of carbon-based energy and greenhouse gas emissions, moving towards becoming a zero-waste nation;
- **support healthy, biologically diverse and productive ecosystems**, by actively recognising and supporting our environmental assets including land, water and biodiversity;
- **build a resilient and sustainable economy**, including by fostering local economies and suppliers, supporting innovation, achieving the transition to a low carbon, low waste economy, and ensuring that Wales is the best location for business to locate, start up, grow and prosper;
- **enjoy communities which are safe, sustainable, and attractive**, where people enjoy good health, by having a much stronger connection with our local environment, economies and each other;
- **are a fair, just and bilingual nation** in which citizens determine their own lives, shape their communities and achieve their full potential, by ensuring equality for all is a core value to all our work.

## Sustainability science as:

1. Covering a range of spatial scales between diverse phenomena: flows of water, energy, foods and people; and fixities of built form, infrastructure
2. Accounting for temporal inertia and the urgency of adaptations
3. Dealing with functional (and dysfunctional) complexity resulting from multiple stresses, and
4. Combining scientific, expertise and public knowledges so as to make sustainable adaptations
5. Overcome 'the problem-solving rifts posed by the current system of academic specialisation' (Ness et al, 2010)

‘Human ecology is founded on principles of integrated co-action. In essence there is a continual interchange between ecological, economic, other social and cultural components of human eco-systems... In principle, humans are totally dependent on the underlying set of ecological systems and processes that operate in their own bodies, in human eco-systems and in the bio-sphere. (Lawrence, 2005).

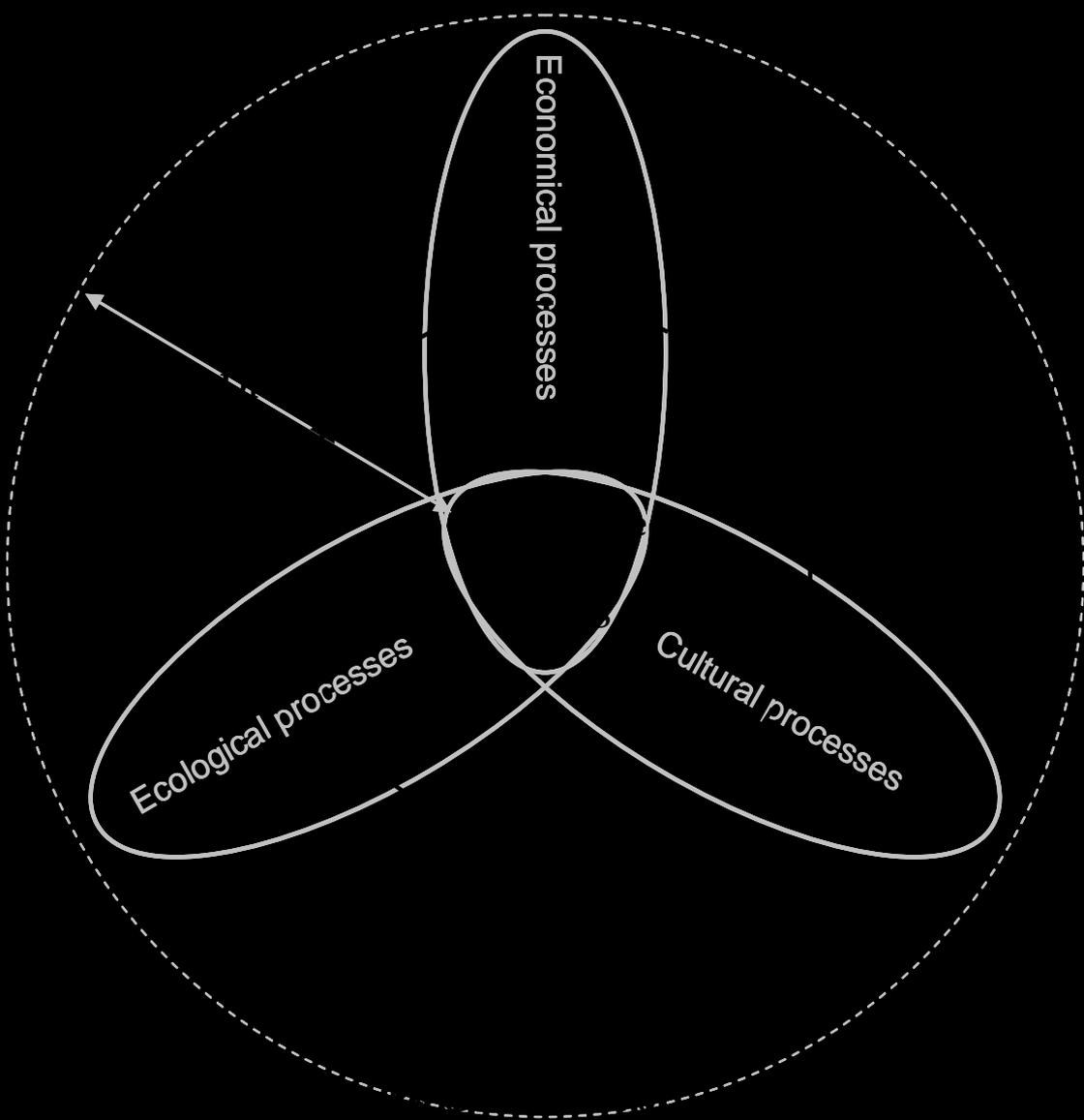
‘Place-shaping’ as : ‘selfconscious collective efforts to re-imagine the city, urban region or wider territory, and to translate the result in priorities for area investment, conservation, strategic infrastructure investments and principles of land-use regulation’ (Healey, 2004).

‘ The purpose of any planning action should not, therefore, be the simple ordering of (ecological) spaces, but rather should comprise the nurturing of new assemblages in ways which allow orders and disorders to co-exist...we are no longer dealing with closed, concentrated spaces, but rather with ‘flowing basins, as multiple rivers. This new spatial imagination will thus need to acknowledge the flowing and multiple character of topological space’. (Murdoch, 2006).

## Sustainability transitions (Geels, 2010)

Sustainability as a normative goal and collective good (with associated prisoner dilemmas and free-rider problems). More distinctive than in earlier periods the 'transition' is characterised by highly complex and multiple niche-innovations which are nested in space and time (such as in the current transport, energy and agri-food domains). How do we assess the differential costs, benefits trade-offs and negative side effects of these niches, and upon what types of scientific and heuristic criteria?

Space and place as a dynamic and contingent 'meeting place' for ecologies, economies and communities, incorporating both fixities and flows of resources, people, goods and services.



The ecological economy as:

‘the effective management and reproduction of resources (as combinations of natural, social, economic and territorial capital) in ways designed to mesh with and enhance the local and regional eco-system rather than disrupting and destroying it’

‘ The eco-economy thus consists of cumulative and nested webs of viable businesses and economic activities that utilise the different types of environmental resources in urban and rural areas in sustainable ways. This does not lead to the net depletion of resources, but rather an increase in economic, ecological and community resources’.

# Major Challenges

1. Reducing 'footprints' and vulnerabilities;  
'meeting our targets'
2. developing new business models with lower  
levels of public sector support
3. Convincing communities to embrace  
sustainability in hard times

How can we meet these challenges?

1. Reorganising 'flows' : energy, waste, food, commuters and tourists
2. Activating new supply chains in eco-goods and services
3. Creative and adaptive 'place-making'

# The contingent and contested nature of agri-food transitions

- Vulnerabilities of the global food system
- A multi-level perspective on the carbon-dependent global agri-food regime: beyond the 'post-productivist' compromise
- Chatham House and BRASS programme: Participatory scenarios and key interviews
- Reading the scenarios from a system transition perspective
- Analysing the scenarios: the role of reflexive governance
- 'No-order', first-order and second-order modes of social learning
- The political and spatial uneven development of transitions
- Caveat: British/European lens on the global food crisis

# Vulnerabilities of the global food system as exposed by the food crisis

- Commodity markets vulnerable to vagaries of financial markets
- Interlinkages with the energy system – peak oil, biofuels
- perception that the carbon-based agro-food system is facing both short-term and long term resource shortfalls
- need to adapt to climate change and to contribute to its mitigation
- shifting agriculture policy paradigms; the strains on the hybrid model of private-public food regulation
- less state support for and private investment in agriculture research and development
- unusual weather events linked to anthropogenic climate change

# Multi-level perspective on system transitions

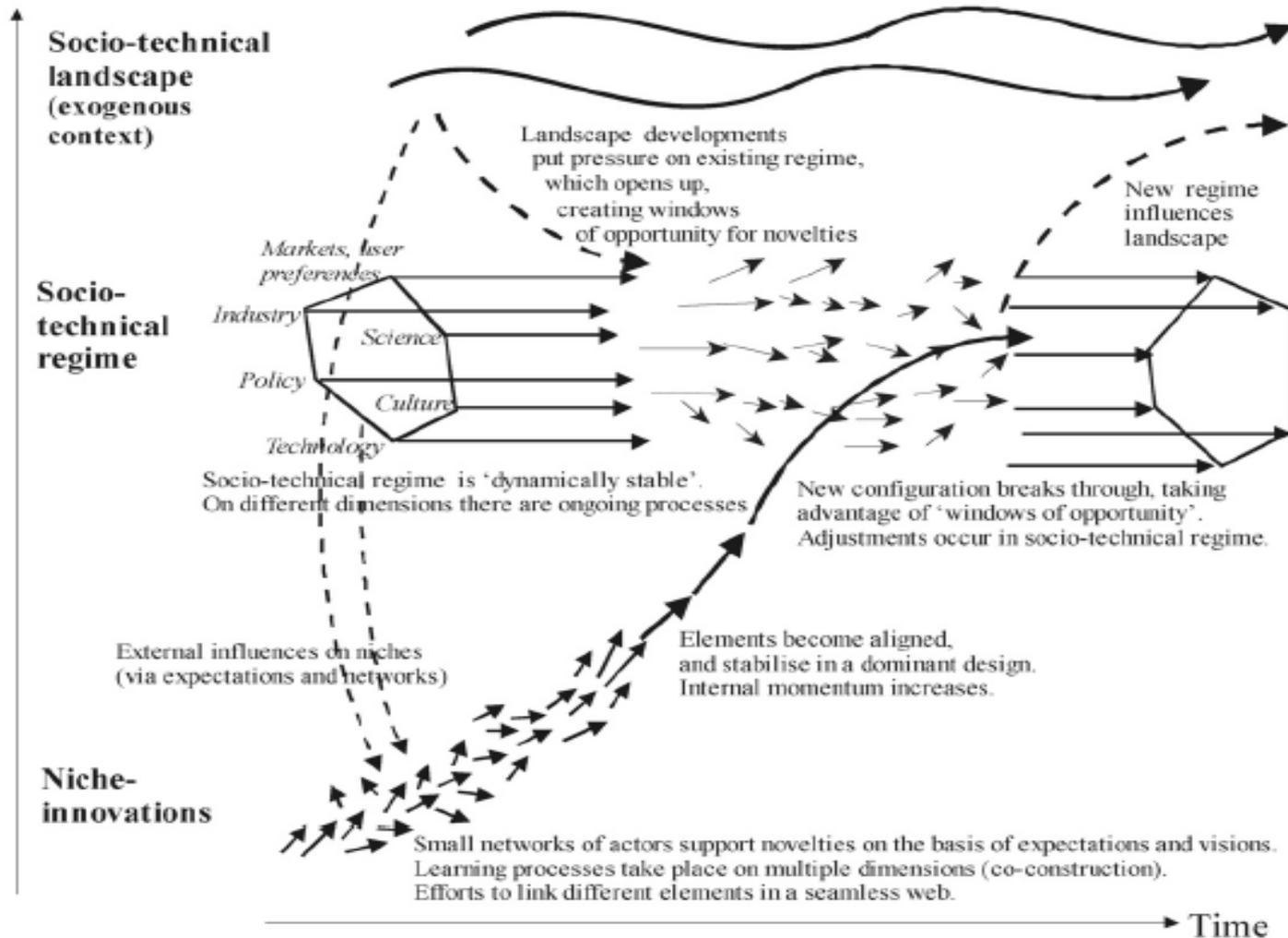


Fig. 1. Multi-level perspective on transitions (adapted from Geels, 2002, p. 1263).

# Global elements of the carbon based agro-food regime

- Commodity markets
- Product sourcing and distribution
- Dominance of high input primary production with various hydrocarbon inputs (fertilisers, fuel-based machinery etc.)
- High level of energy inputs for food processing, in particular for chilled, frozen and convenience food
- Highly intensive land-use for growing ('sustainable intensification')
- Vertical integration along the product chain
- Globally harmonised trade, sanitary and phytosanitary regulation (WTO, SPSS, Codex Alimentarius)
- quality and safety standards through retailer-led public-private regulation;
- patterns of marketing to middle classes
- Nested markets: Numerous embedded product-related regimes
- Niche proliferation, e.g., products of designated regional origin, particular production methods like organic farming, or local production

# Articulation of sustainability problems as landscape pressure?

<b>Sustainability problem</b>	<b>Articulation mechanism</b>	<b>Articulation coherence</b>
Peak oil	Price for hydro-carbon products	Volatile
Water shortage	Scarcity prices; authoritative allocation	Often politically determined low prices
Competition for land	Land prices, subsidies	Steadily rising
Biodiversity	Reports, regulation	Incoherent
Loss of soil	Reports, regulation	Incoherent
Climate change	Reports, carbon markets	Incoherent
Nutrition transition	Demand	Steady
Food waste	Reports	Incoherent
Temporal elasticity of food supply	future markets; human rights	Incoherent

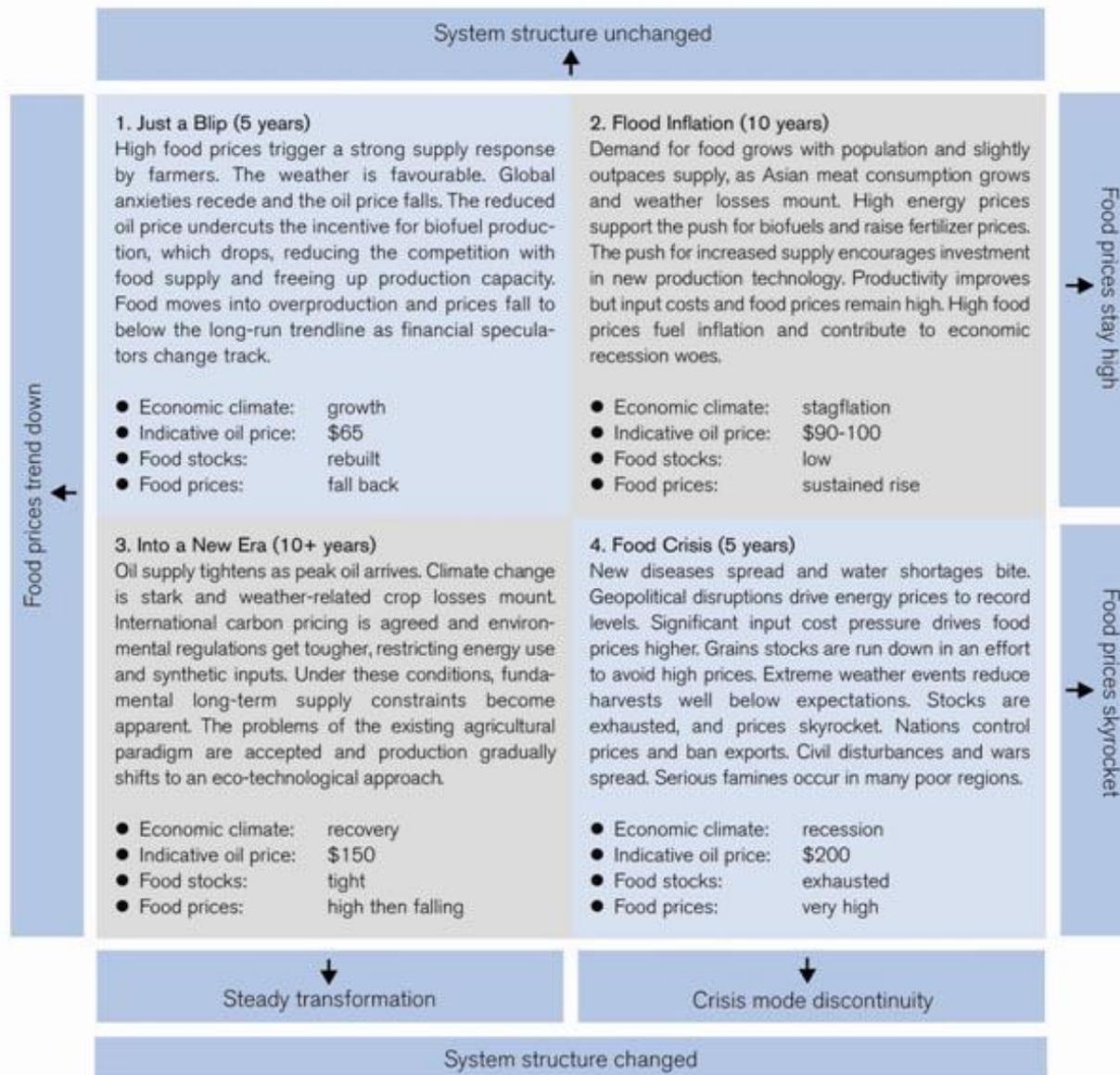
# Towards real food sustainability?

- Environment-economy integration: integrated spatial and social planning: food as a basis of sustainable 'place-making'
- Futurity (Jacobs, 1995): explicit concern on the impact of current activity on future generations
- Responsible 'carrying-capacity' of the bio-sphere and more integrated bio-sensitivity
- Equity: meeting basic needs
- Redefining the metrics of quality of life and well being
- Participation in the agri-food arena

# Reflexive Governance perspective

- Evolutionary economics and politics (Luhmann, Wilke, Offe, and Dedeurwarddere): reflexive governance leading to new innovations in knowledge and collective preferences
- Identify structural barriers to social learning
- First-Order learning: adaptation to external stimuli (e.g prices) without reflection on cognitive (e.g facts) or evaluative framework (e.g norms and values)
- Second-order learning: awareness of and change to interpretive framework (paradigm shift, re-framing...)
- Link to power: 'Power is the ability not to learn' (K.L Deutsch)
- Does second –order learning take place? Are there power structures that allow for 'non-learning'? The role of regimes and niches in creating social learning?

# The Chatham House scenarios



# Reading the scenarios from a system transition perspective

- Different assumptions about landscape change
- Very different assumptions about articulation of landscape pressure, e.g.,
  - Environmental legislation
  - Carbon markets
  - Green consumption
- Different assumptions about coordinative capacity of regime and external actors
- Different assumptions about maturity of niche alternatives
- Are these scenarios co-evolving in different spaces and at different speeds?

# Just a blip

## Internal transformation of the agro-food regime

- Regime actors respond incrementally to social and environmental criticism
- Regime continues to develop generic solutions in developing 'green' production
- Little reconfiguration, but more emphasis on new 'strategic partnerships'
- Little re-alignment but more emphasis on absorption of alternatives and their constructed marginalisation
- Technological advances geared to containing externalities

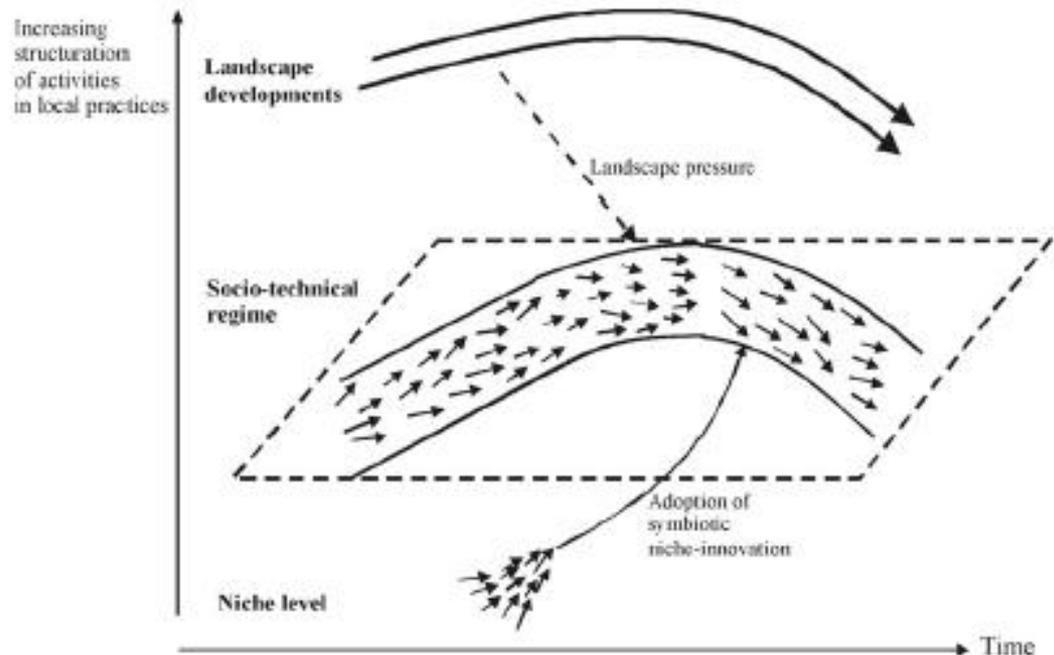


Fig. 5. Transformation pathway.

# Food inflation

## Reconfiguration of the agro-food system under crisis

- Further concentration along all stages of the value chain
- Some re-alignment in producer versus retailer power: Negotiating strength migrates to those who control scarce resources
- Deeper divisions in market structures global vs. local
- Energy firms, finance companies and hedge funds enter the regime
- Adoption of GM
- Push for biofuels
- Fertilizer substitution
- Some 'choice editing'
- Government and firms locked into existing paradigms

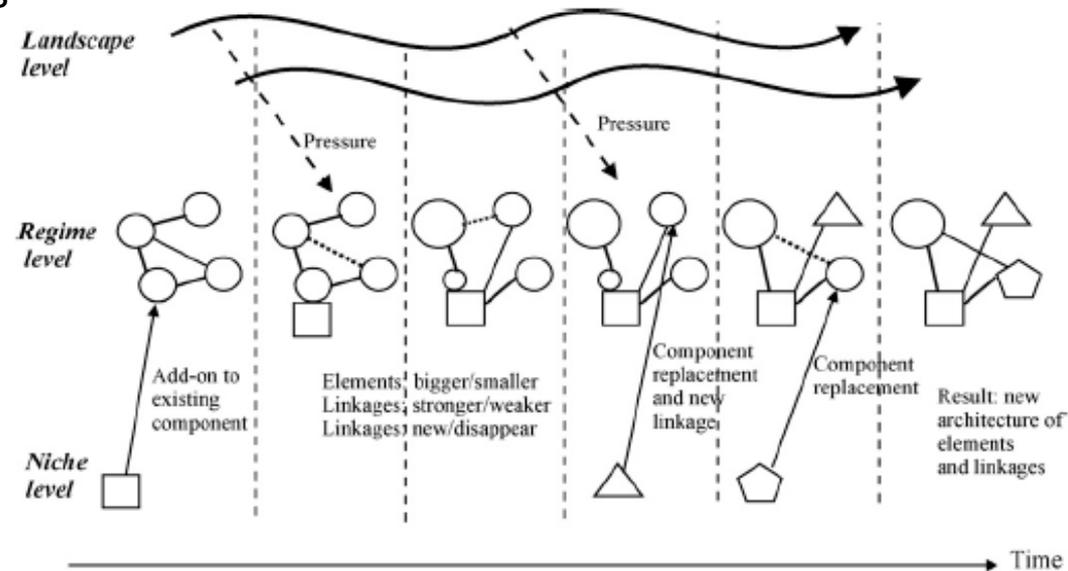


Fig. 10. Reconfiguration pathway.

- Food poverty returns as political issue
- Growing opposition to corporate sector

# Into a new era

## Green state, civic environmentalism and ecological economy

- Effective climate change policies - costs and markets begin to reflect former externalities
- CSR etc.; further integration of local and regional food into value chain
- Energy efficiency technologies; eco-technology; water and waste minimisation; low-carbon food logistics
- The growth of the ecological economy; cities and towns become anchors; proactive government procurement and R&D
- Carbon traders, renewable suppliers enter the regime; new logistics operators run 'food hubs'
- Emergent new 'webs' and paradigm of sustainable food and rural development; successful up-scaling

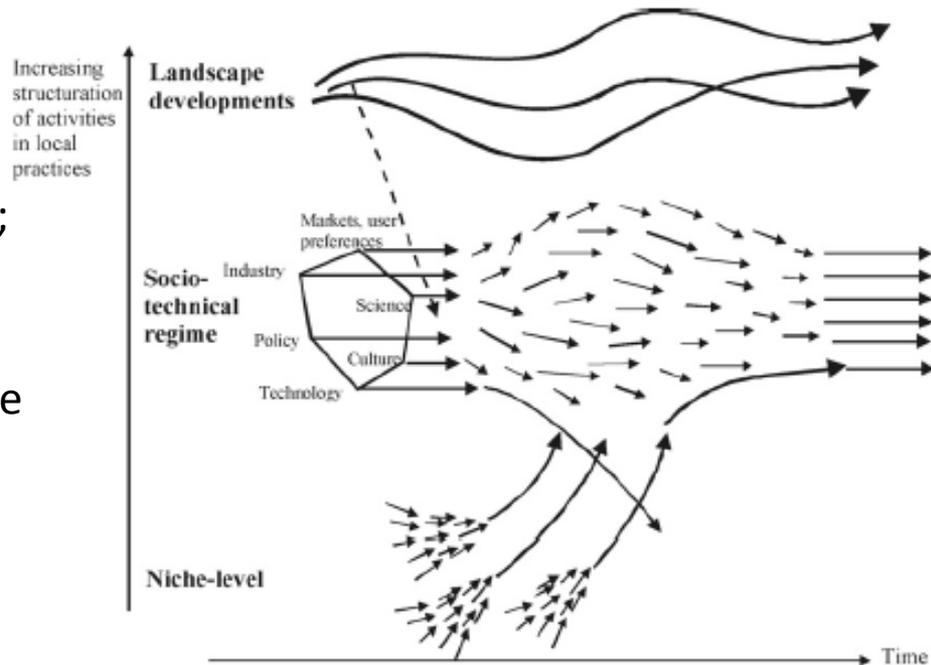


Fig. 6. De-alignment and re-alignment pathway.

# Food in crisis

## An authoritarian reconfiguration

- Regime attempts to control, contain and provide but fails
- More criminalised activity
- Government intervention and food controls
- Distinct urban-rural divide
- Adoption of GM
- Energy efficiency technologies
- Disease control
- Water control
- Expanding EU role in crisis management?

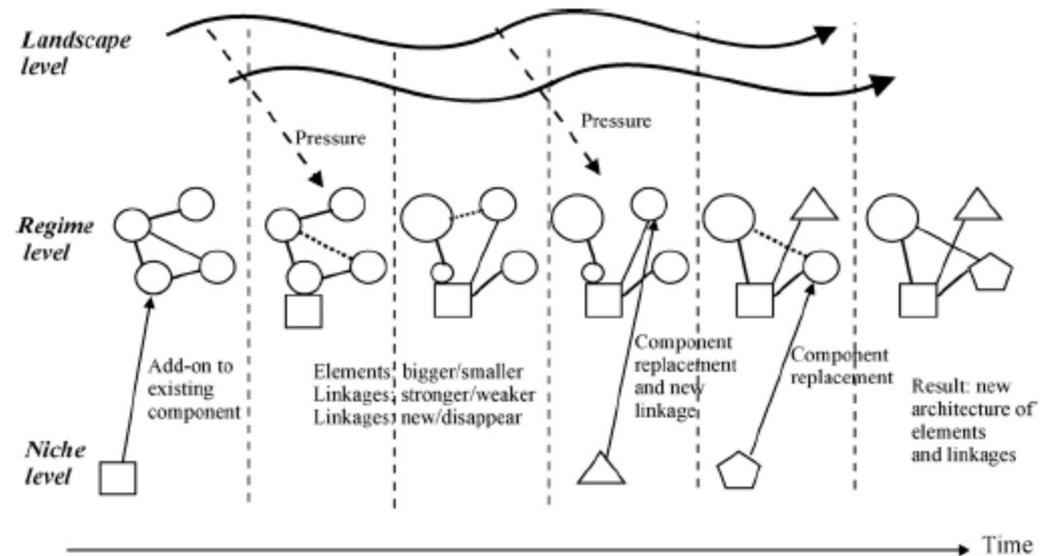


Fig. 10. Reconfiguration pathway.

# Competing paradigms in agri-food and rural development

Strategy	Bio-economy	Eco-economy
<b>Agri-food</b>	Ecological Modernization (Weak) Technical Innovation Industrial Ecology Closed-loop systems Global reach Corporate control Supply chain logistics	Ecological Modernization (Strong) Sustainable agriculture Production-consumption networks on the regional scale Value capture at local and regional level
<b>Regional development</b>	Technological innovation Global biotech and energy / environment / green clusters Industrial ecology / eco- industrial parks	Resilience Bio-regionalism Transition New networks

# Key parameters

Dimension	Bio-economy	Eco-economy
Ecological modernization	Weak	Strong
Geographical scale	Global, national and regional, increase of scale and miniaturizing as expressions of the de-coupling from local conditions	Regional and local, embedded in local environmental conditions
Economic model	Economic growth	Steady-state, small-scale economy
Time-scale	Short term, speeding up life cycles	Long term
Power	Corporate control	Citizens and consumer networks
Value-adding	Supply chain logistics	Value capture at local and regional level New networks
Science	Reductionism, biological engineering Aimed at interchangeable, composable parts for industrial production	Holistic approach, use of whole products.
Driving forces of regional development	Competition, clustering and socio-technical systems	Multi-functionality, networks and resilience
Environmental goal	Closed loops of energy, waste and minerals and eco-efficiency	Based on ecological conditions and natural processes
Social	No or limited connections with local communities	Embedded in local, social networks
Rural-urban linkages	Connected to metropolitan industries	Connected to rural-urban landscapes and consumer networks
Landscape	Eco-industrial sites, agroparks	Rural, agricultural services and leisure landscapes
Innovation	Knowledge spillovers between firms, technological innovation	Open innovation and ecology based
State influence	Hygienic-bureaucratic control	Facilitate bottom-up developments
Regional policies	Trade freeness, facilitate knowledge exchange & technical innovation, redistribution and congestion.	Multi-functional land-use, facilitate new interfaces, networks and rural-urban linkages

# The reflexive food system 1

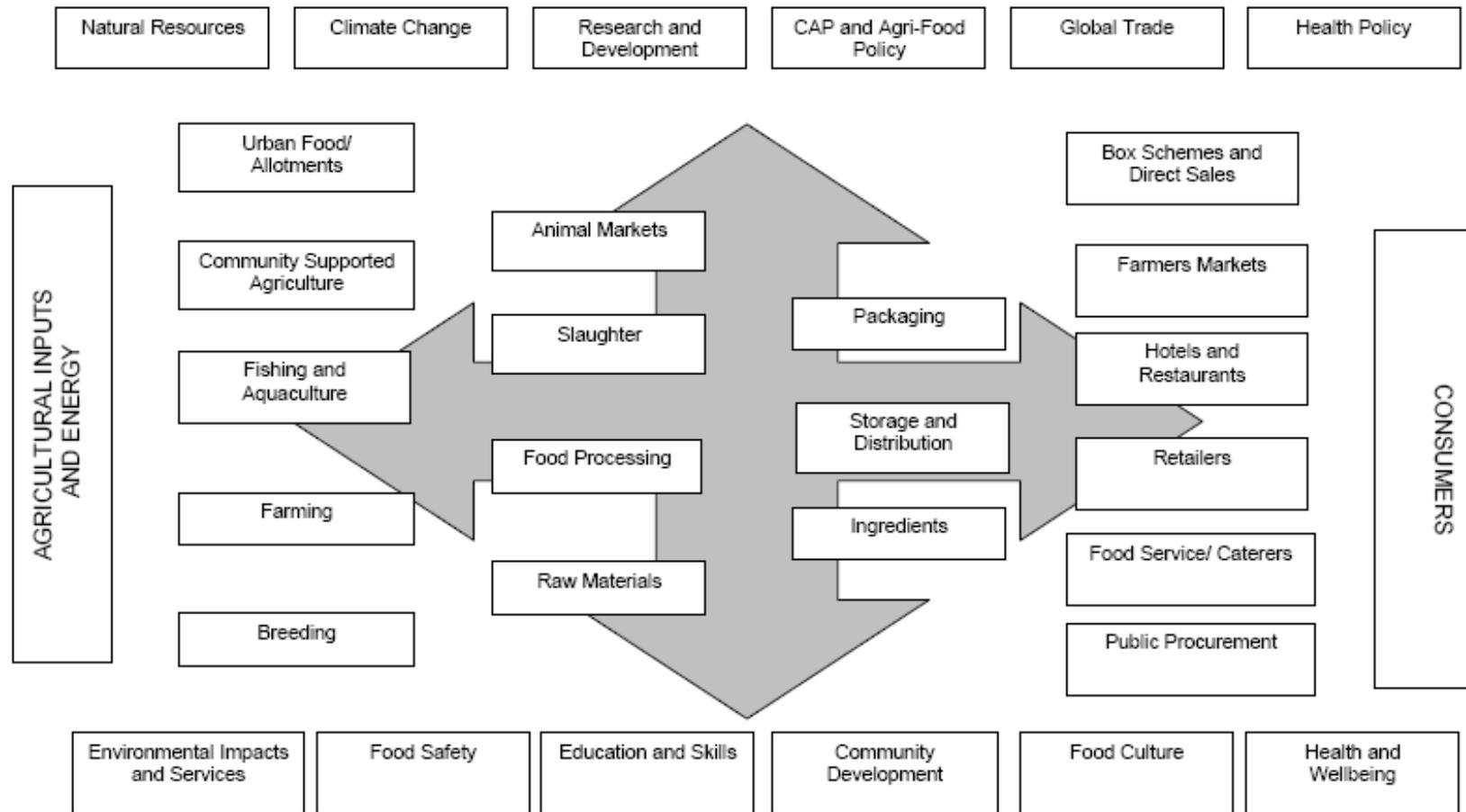


Figure 2: THE FOOD SYSTEM: COMPONENTS, INFLUENCES AND IMPACTS

# The reflexive food system 2

The five key drivers are:

- ***Market Development***
- ***Food Culture***
- ***Sustainability***
- ***Supply Chain Efficiency***
- ***Integration***



# Conclusions (1)

## Methodological and practical

- Participatory scenarios can help explore the nature of the food crisis
- Transition theory helpful in teasing out critical and contested factors in such scenarios
- Iterative use of scenarios for practical engagement and as policy learning device:
  - derive regime responses to different sets of landscape pressure
  - take back to actors, device learning settings
- Impact of scenarios: Welsh Assembly Government, Whitehall environmental committee, UK Food 2020 report

# Conclusions (2)

## Governance

- Governance as a basis for the articulation and mediation of landscape pressure
- Articulation of landscape pressure
- ... is key difference in transition scenarios
- ... is key to the kind and direction of future transitions.
  - Internalisation of externalities, e.g. carbon pricing
  - Pressure groups
  - Loss of markets
- The scenarios create different sets of politics
- Critical role of the state in the scenarios/contingent transitions

# Conclusions (3)

## Reflexive and strategic

- Socio-technological regimes in the agro-food system are no longer coherent. The dominant hybrid private-public sector model is vulnerable
- The food crisis exposes severe internal tensions of the 'post-productivist' compromise
- Transition pathways are not coherent
- More emphasis on the political nature of transitions needed
  - combinations of endogeneous and exogenous factors
- New vocabulary needed
- Moves towards reflexive (and reactive) governance frameworks. (e.g UK and devolved regions). New regionalisation?

# Conclusions 4

- Food strategies as forms of reflexive governance.
- Ways of inserting second order framings into first order thinking (from 'just a blip' to 'into a new era')
- Ways of fusing existing fragmented niches and tackling paradigm 'lock-in', and constructed marginality
- Spectre of first-order 'back-lash'
- New urban-rural coalition- building around the ecological (as opposed to the bio-economy)
- Need to spatialise as well as temporalise multi-level transitions theory

# Expressions of the bio-economy

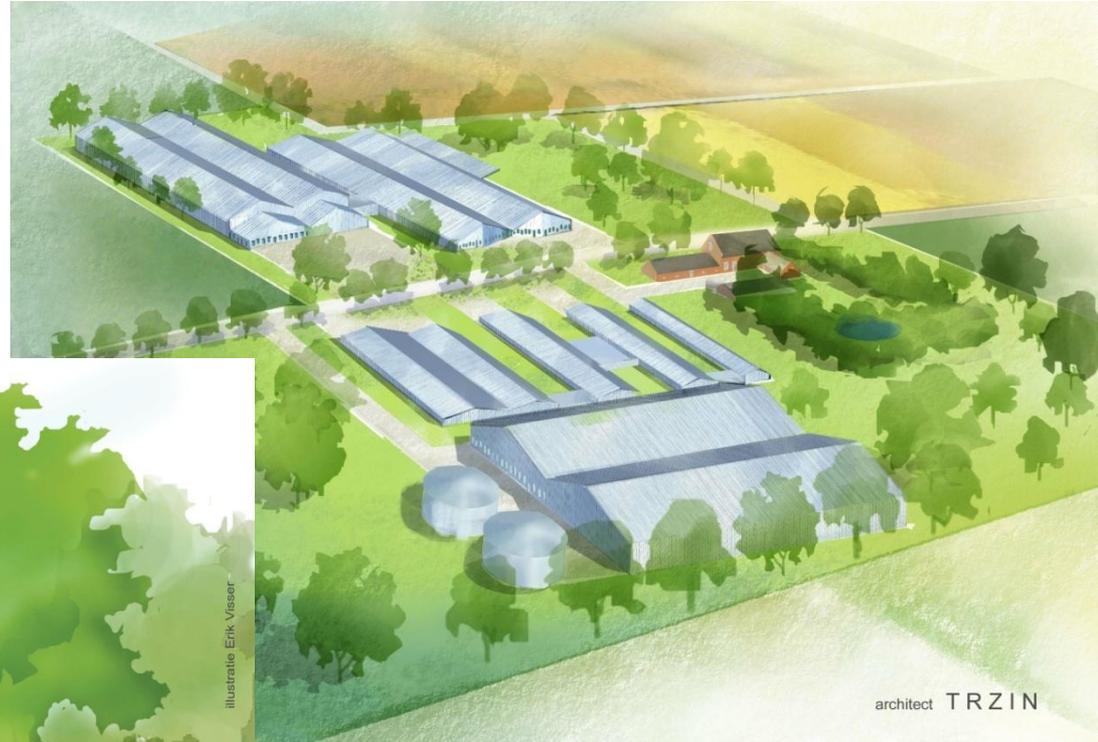


- Principles: eco-efficiency; industrial ecology, innovation, competitiveness and decoupling
- Competing land-use: bio-based products and biofuels
- Biological engineering (GM, synthetic biology, nanotechnology, stem cells)
- Regional clustering in agroparks

# Agropark in Sjanghai (Smeets, 2007)



# The New Mixed Business in the Netherlands



architect TRZIN



illustratie Erik Visser

architect TRZIN

Clustering of 1,3 million  
chickens, 35.000 pigs and  
a bio-energy installation

# Eco-economical strategies in regional development

(Overview 62 projects, ETUDE)

1. (niche-) Innovation
2. New interfaces
3. Re-orientation on rural resources
4. Integral regional development



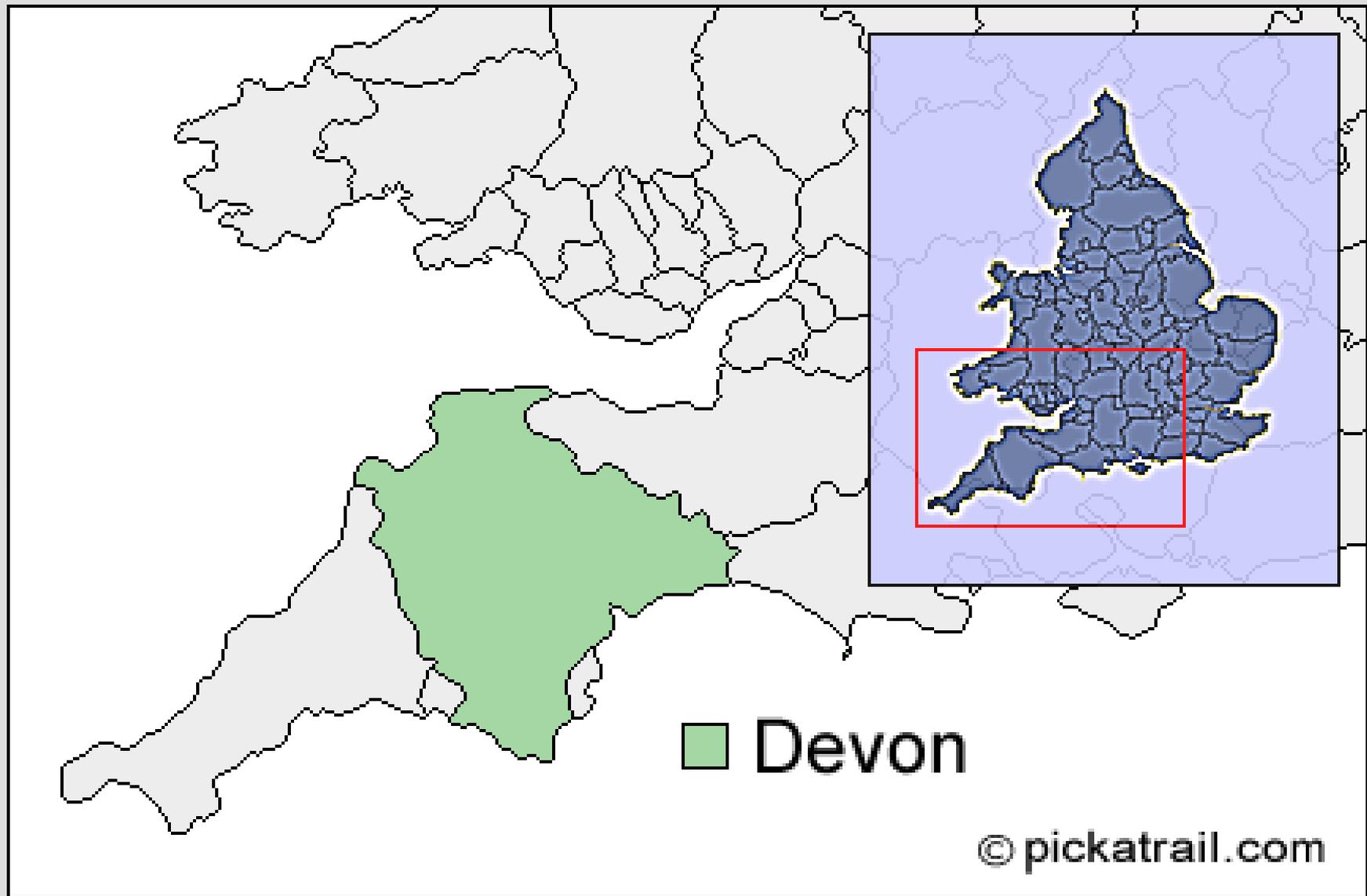
Region	Type of area	Strategy
Devon, UK	New rural area	Multifunctional agriculture, responding to societal demands
Shetland, UK	From marginal/peripheral area to segmented area	Export-oriented oil-production, re-orienting to new urban niche-markets
Lunigiana, Italy	From marginal area to new rural area	Short-food chains and rural-tourist system
High Tiber Valley, Italy	From specialised area to segmented area	International consumer and tourism markets
Giessenland, Germany	Metropolitan countryside	Development of non-agricultural sectors and 'quality of life'
Oberland, Germany	From segmented to new rural area	Development of experience oriented tourism and biomass
Kittila, Finland	Peripheral area	Development of mining and (long-distance and international) tourism
Tyrnävä, Finland	Specialised agricultural area	Specialised export-oriented potato production
Abava Valley, Latvia	Segmented area	Regional tourism and multifunctional agriculture
Smiltene, Latvia	New rural area	Development of sport and culture
Rivierenland, Netherlands	Segmented area	Food production (fruit, dairy) and landscape management
Laag Holland, The Netherlands	From marginal area to new rural area	Strengthening rural-urban relations by multifunctional agriculture

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■ Devon

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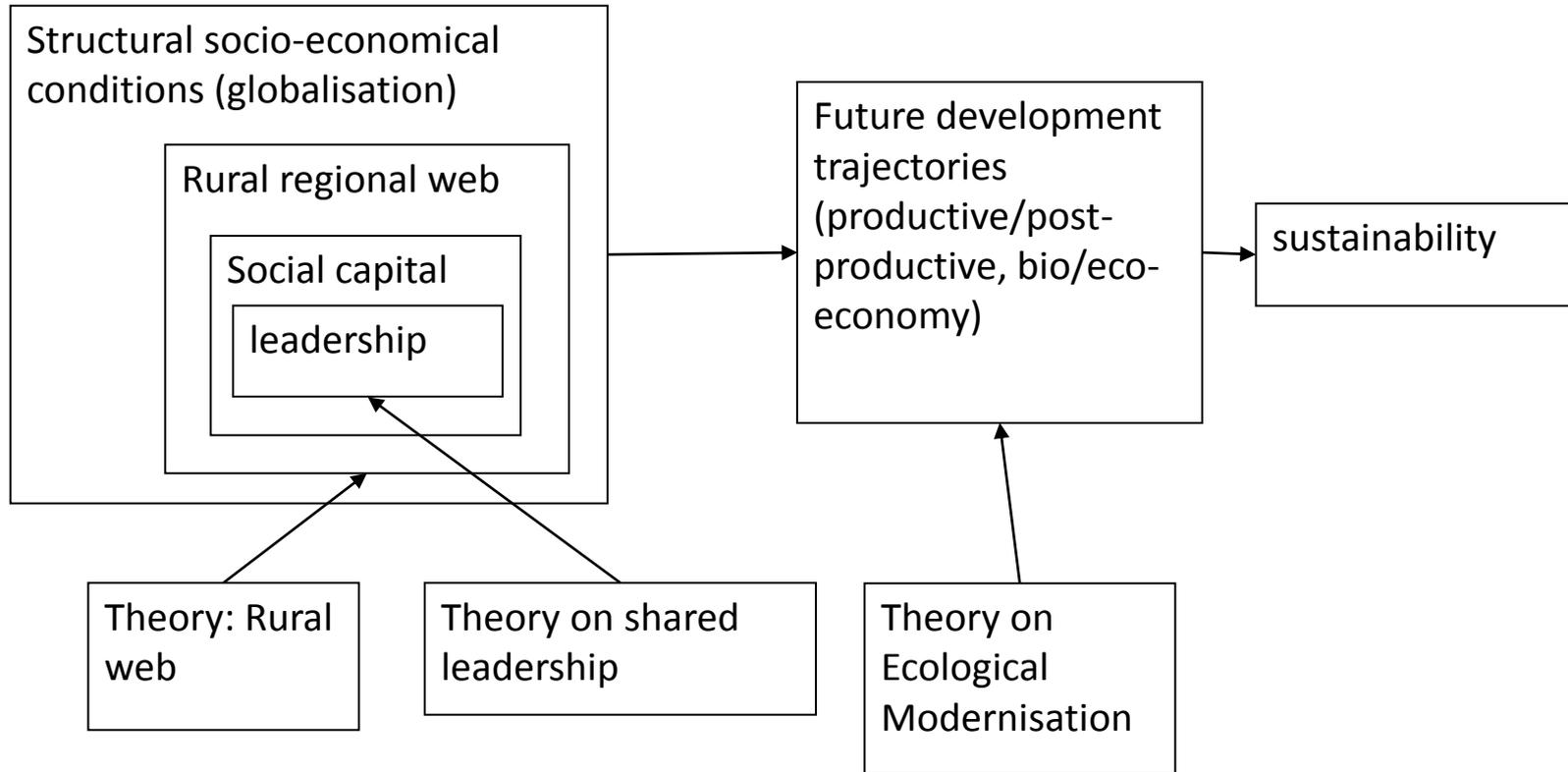
North Devon



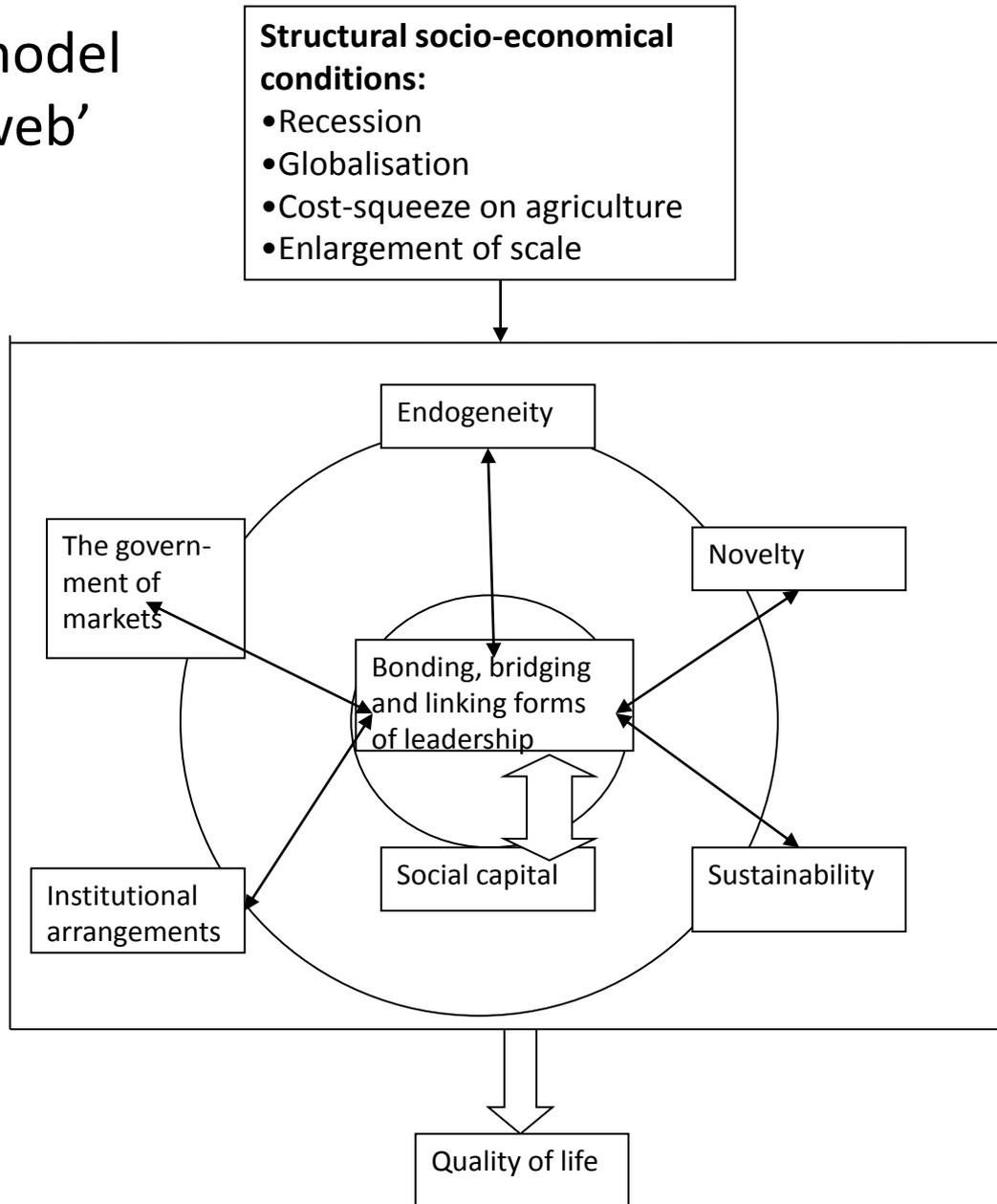
Devonshire banks in south Devon



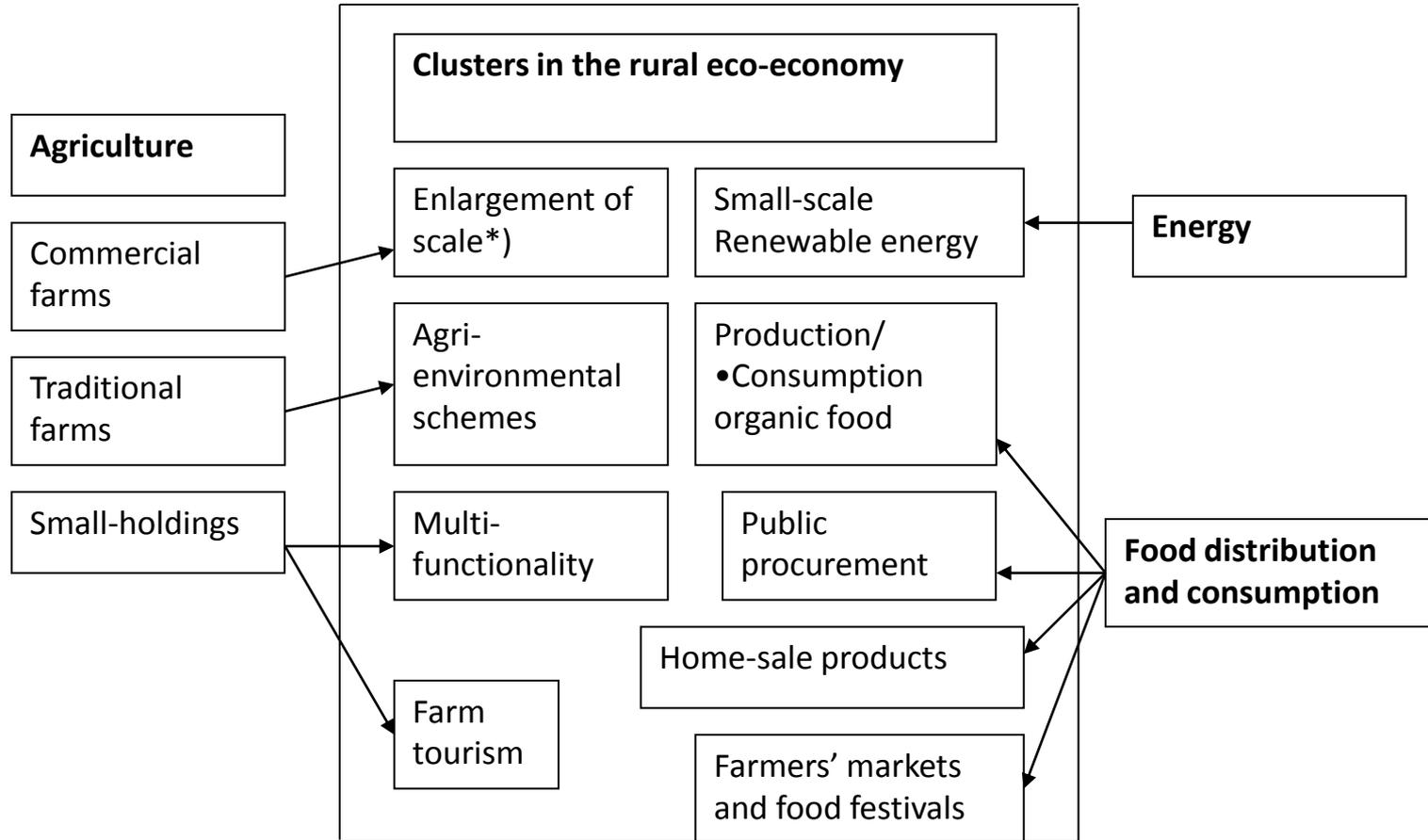
# Analytical framework



# An adapted model of 'the rural web'



# Emerging eco-economical clusters in Devon



# Devon landscape policy areas



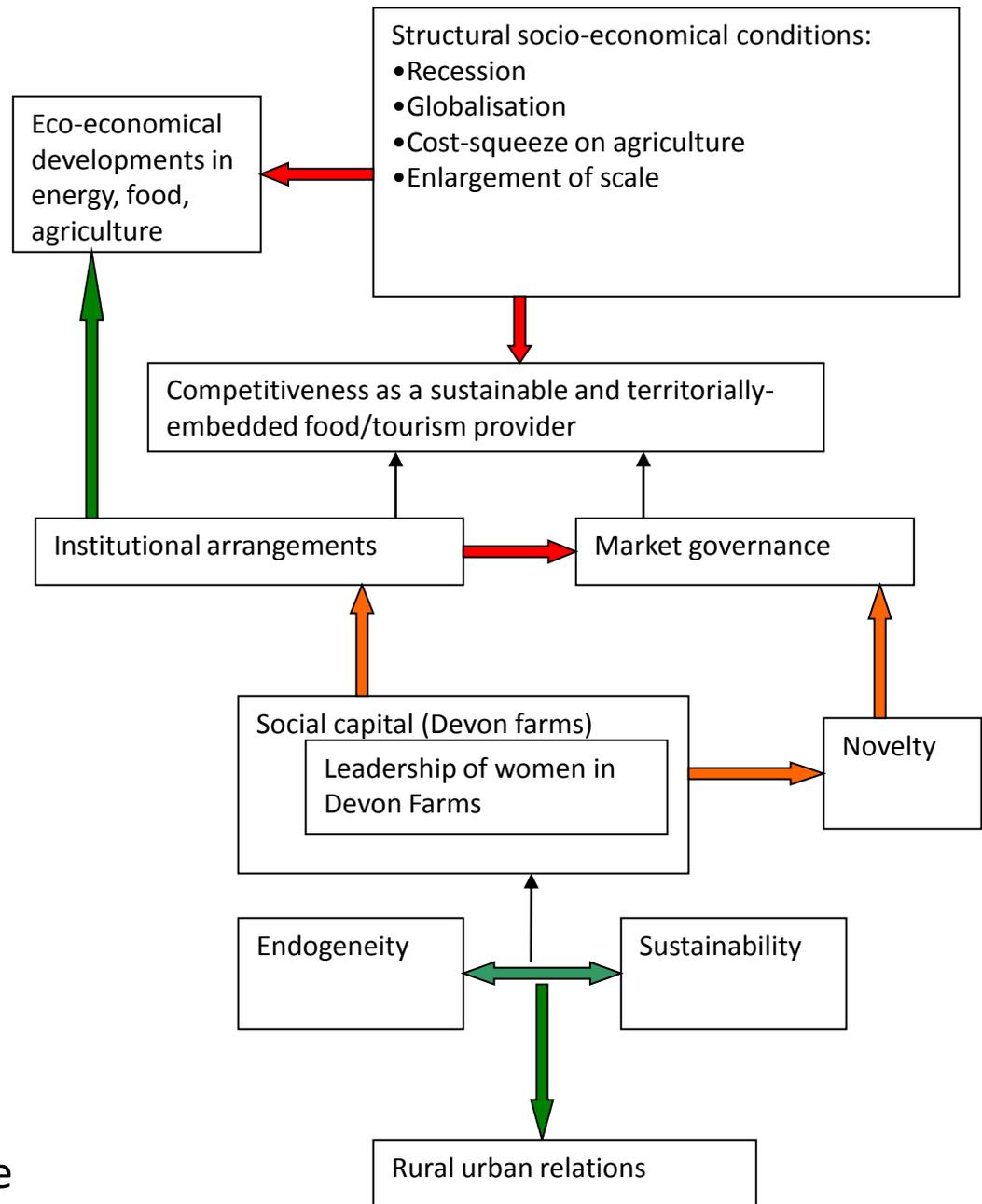
# Logos used by a Devon Farm B&B



## Suggestions for new product-market combinations

<b>Markets</b>	<b>Rural qualities</b>	<b>Theme</b>
Food & craftsmanship	Home-made products & traditional cooking (wool, jam, bread, cream, nuts, etc.)	ROOTS OF DEVON
Outdoor living & gardening	Skills in farming & gardening and maintenance of the landscape	OUTDOOR DEVON
Culture	Locations of novels Stories about historical	LITERARY DEVON

# Devon Farms: the adapted rural web



**Red** = weakened relations

**Green** = strengthened relations

**Orange** = challenges for the future





0 10 miles  
0 10 kilometres



Vehicle ferries:  
Summer only / All year

Passenger only ferries:

Tourist Information Centre  
Open all year

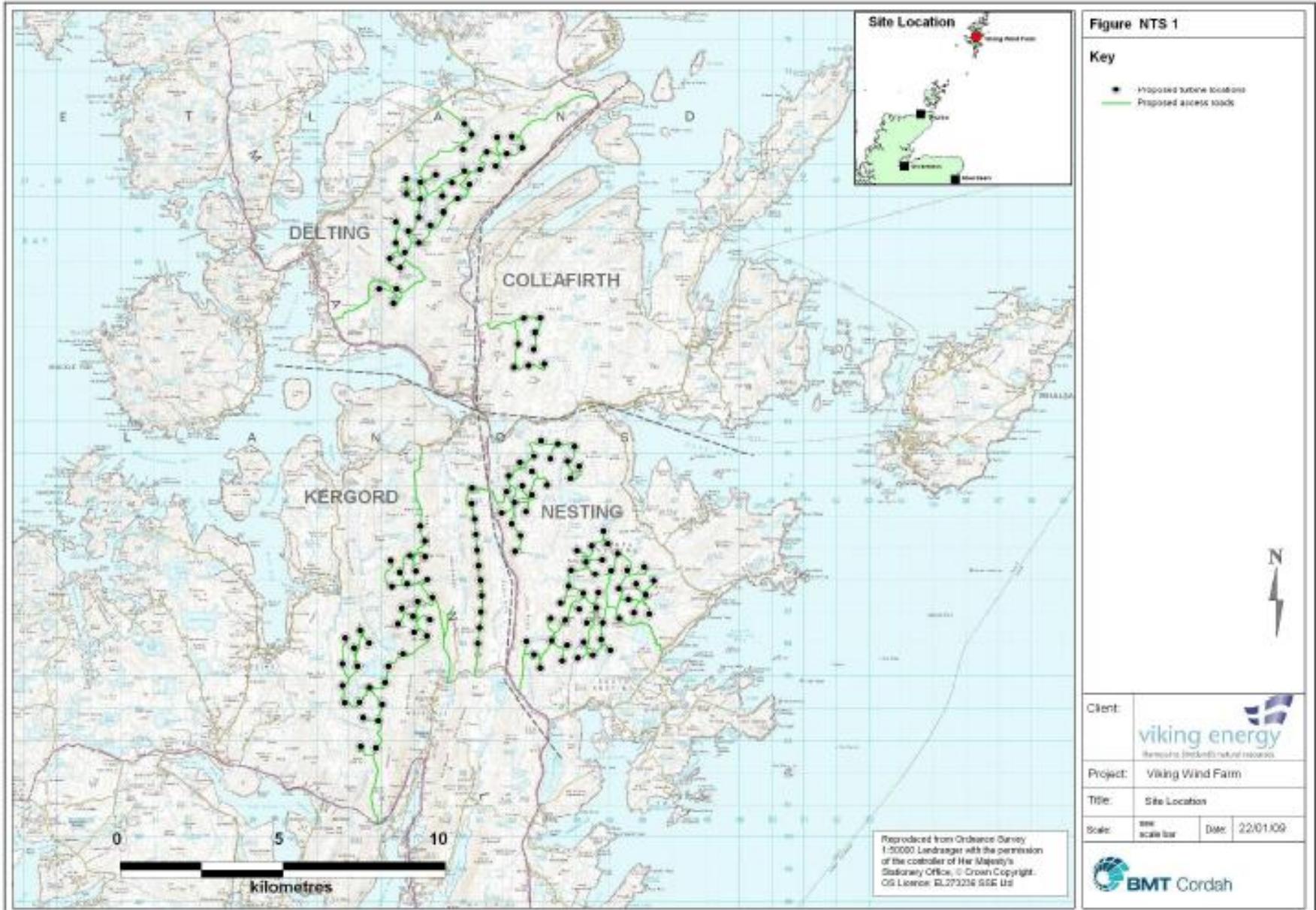
Puffin making a nest



Coastline of Shetland



# Proposed Wind Farm Site Location

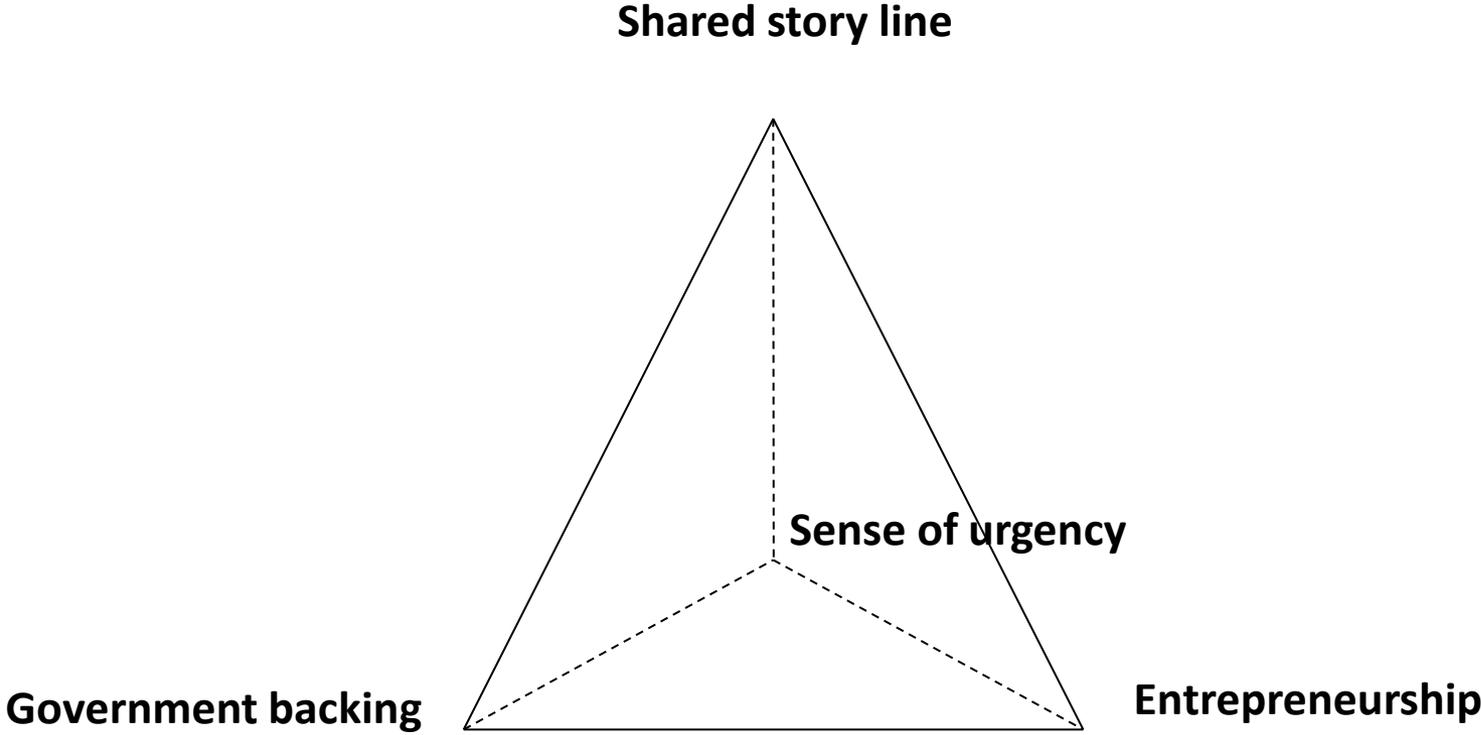


# Opposing discourses on the wind farm project

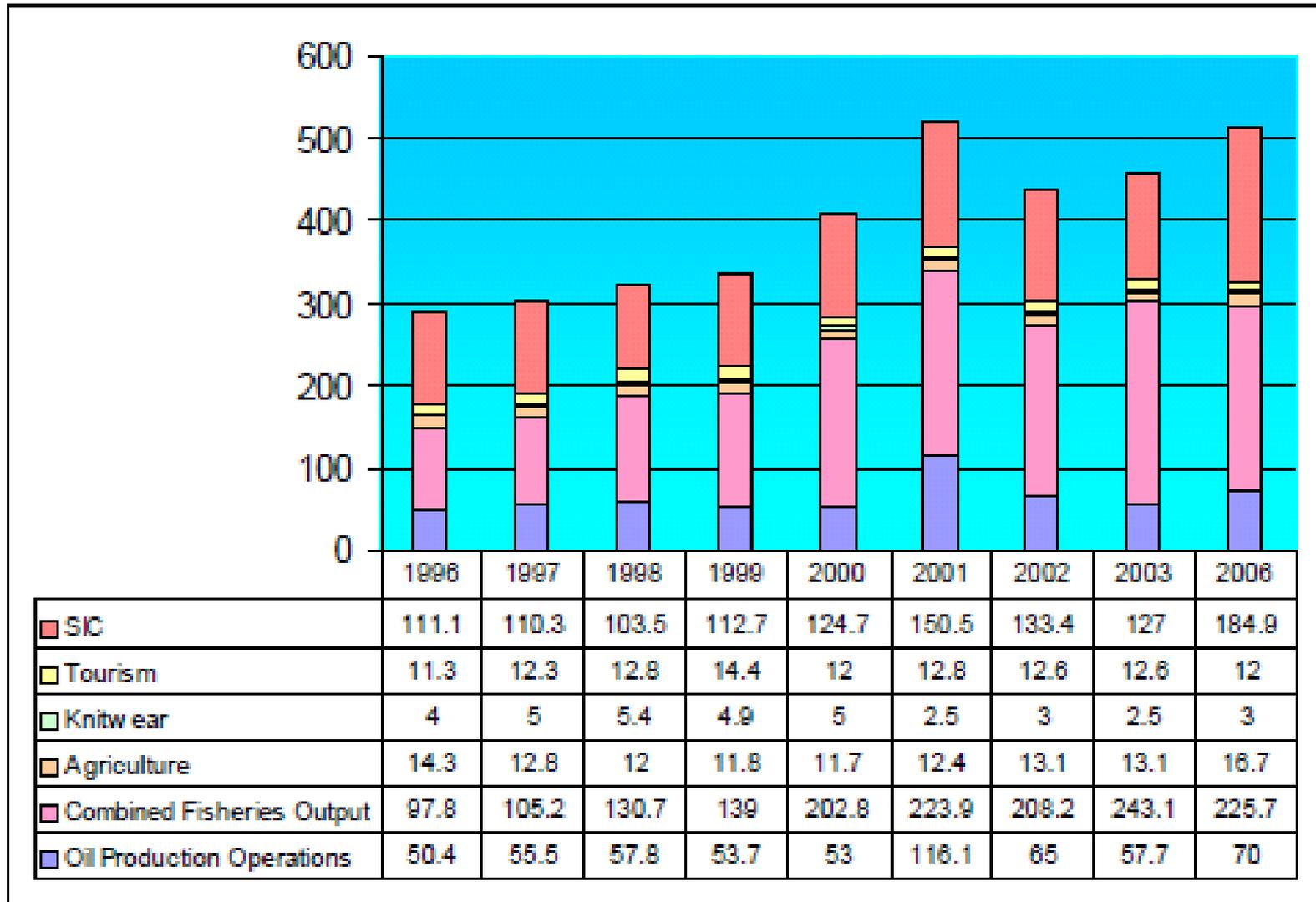
	Bio-economical or eco-economical?	Economic implications	Environmental implications	Social and ethical implications
<b>Viking Energy and supporters</b>	Wind farm serves as a strategic interface between bio-economical and eco-economical principles and practices	<ul style="list-style-type: none"> <li>▪ Total cost estimate of £800m;</li> <li>▪ £37million/year income (£23m return to SCT, £1.6m Community Benefit Payments);</li> <li>▪ Employment (50 maintenance/service, 26 management, and 350 spin-off jobs);</li> <li>▪ Possibly cheaper fuel for communities?</li> </ul>	<ul style="list-style-type: none"> <li>▪ 540 megawatt capacity</li> <li>▪ Production of 2 billion units of green energy;</li> <li>▪ Offset over 1m tonnes of CO2 per year</li> <li>▪ Supply 20% 's domestic electricity needs</li> <li>▪ Carbon payback in 3.2 year (best case scenario), 5.2 years (intermediate) and 21 years (worst).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Local control secured by 45% SCT ownership;</li> <li>▪ Turbines as a symbol of a sustainable community;</li> </ul>
<b>Sustainable Shetland and critics</b>	Wind farm, of proposed scale and structure, is a bio-economical enterprise hindering eco-economical development.	<ul style="list-style-type: none"> <li>▪ Current total cost estimate of £800m is a speculated figure and could be higher in reality;</li> <li>▪ SCT's proposed initial stake (20%) is £72m, but down payment can be larger;</li> <li>▪ Cost of transmission (key cost element) can be changed by national government. VE is lobbying for transmission charge subsidy, but on current charging mechanisms the project is not profitable.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Carbon payback can take considerably longer, as long as 67.7 years (based on 200m hydrology impact rather than 100m) while turbines have a lifespan of 25 years;</li> <li>▪ No incentive for smaller community-based renewable energy schemes;</li> <li>▪ Peat bog disturbance;</li> <li>▪ Destruction of bird habitat</li> <li>▪ Visual impact;</li> <li>▪ Loss of public space;</li> <li>▪ Noise impact;</li> <li>▪ Light impact, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Wind farm "forced" upon local communities;</li> <li>▪ Disempowerment of the community and crofters;</li> <li>▪ Lack of transparency;</li> <li>▪ Uncritical continuation and endorsement of the status quo – a fossil oil based lifestyle and socio-economic disparity within local communities.</li> </ul>



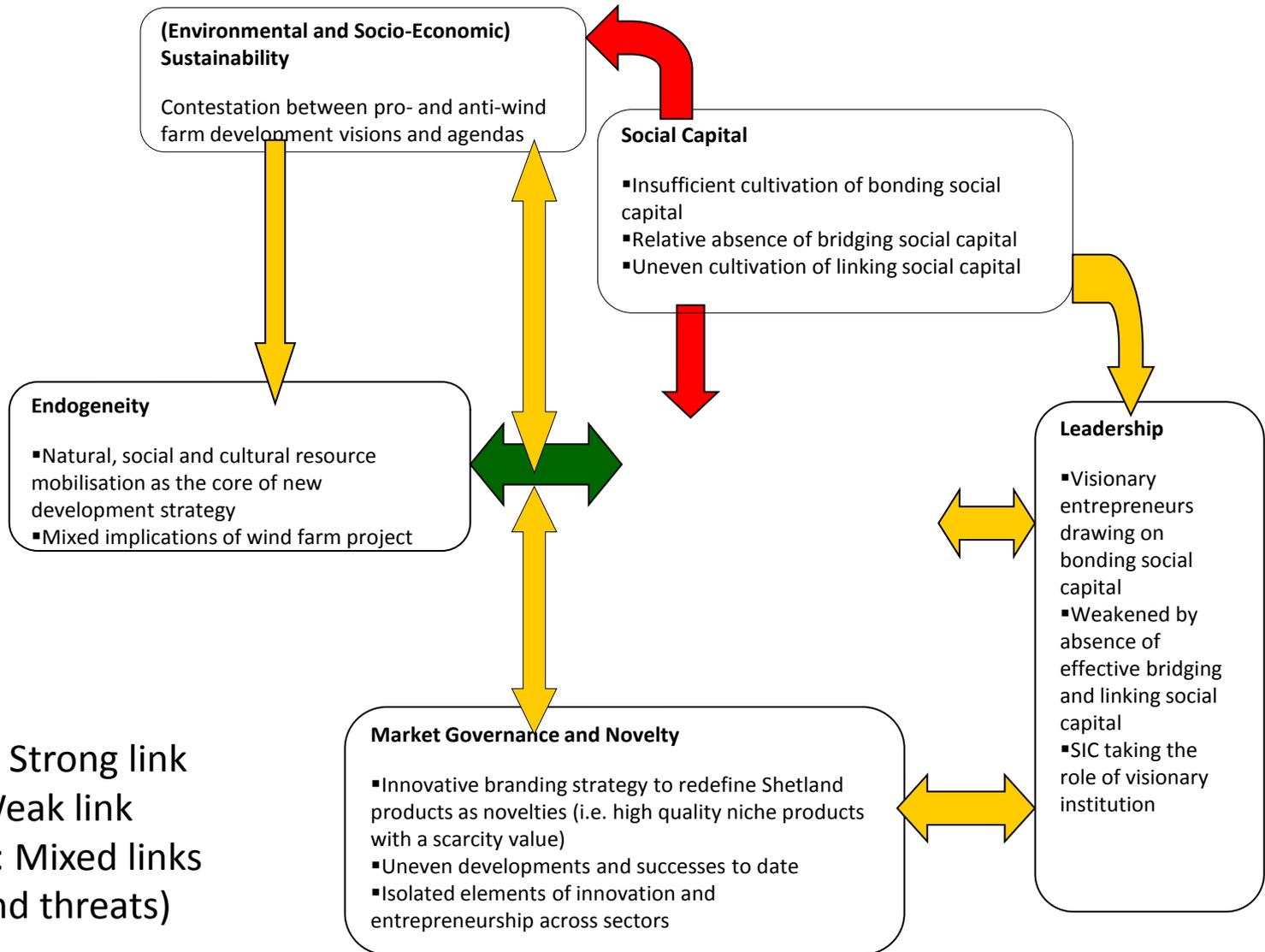
# Conditions for vital coalitions



# Value of key sectors of the Shetland Economy (£m), 1996-2006



# Current State of Shetland's Rural Web



# Governance in Shetland and Devon

	<b>Shetland</b>	<b>Devon</b>
<i>Development strategy</i>	Bio- and eco-economical tendencies	Focus on Eco-economic development
<i>Role</i>	Investments, facilitation (subsidies), establish organisations.	Leading projects, building networks/arrangements, facilitation (LEADER)
<i>Leadership</i>	Public-sector	Public and private sector
<i>Governance style</i>	(Financial) hierarchical and facilitative	Networking: public-private arrangements (under pressure)
<i>Branding</i>	Linked with identities. Destination brand and promotion strategy to attract more tourists. Weak connections with food. Not connected with producers. International orientation.	Weak link with identities. Communication strategy. Destiny and food brand but not well integrated. Connections with food producers. National orientation.
<i>Short/long-term orientation</i>	Long-term: energy-production Short-term: marketing products and events	Long-term: rural (agricultural) strategy Short-term: projects
<i>Governance of markets</i>	Sector-orientated focusing on novelties and niche-products	Region-oriented focusing on sustainability
<i>Rural-urban governance</i>	Rural	Increasing rural-urban divide in administration
<i>Public administration</i>	Strong local administration	Transfer of tasks to local level
<i>Challenge</i>	Contesting discourses	Coordination
<i>Evaluation governance</i>	Social capital under pressure Hampers entrepreneurship (Too) tight connection with energy companies SIC can focus more on market governance and sustainability in integrated food marketing	Public-private governance under pressure Role towards liveability in communities is decreasing DCC can focus more on enabling novelties

# The location of Anji



# Social and Economic Development Objectives

Index	2005	Target for 2010	Annual rate of increase
Local GDP (price of 2005) (100 million)	89.29	175	14%
GDP per capita (price of 2005) (100 million)	19823	40000	14%
Tertiary industry in GDP (%)	38.4	45	1.32
Non-agricultural labour (%)	62	70	1.6
Total financial income(100 million)	7.81	15.7	15%
Local financial income (100 million)	4.7	9.3	15%
Urbanisation (%)	54	63	1
R & D expense in GDP (%)	0.41	0.48	0.014
Income of urban residents (Yuan)	14700	21600	8%
Income of rural residents (Yuan)	7034	10335	8%
No. of doctor per 1000 residents	1.58	1.83	0.05 person
Coverage rate of rural cooperative health care (%)	90.5	95	0.9

## Public Service Provision in Central Villages

Items	%
Solid waste treatment	93.78
Eco-sewage treatment	56
Self raising fund + subsidies	90
Self raising fund	10
Bus service to central villages	100
Tap water supply	60.45
Clinic	114
Kindergarten	88
Primary school	46
High school	8
Free school bus service	10

# Core towns in South Anji

Core town	Population Within catchment	Functions of core town	Samples of village within catchment	Residents (person)	Average income per capita in 2007 (Yuan)	Major economic activities (income resources)	Public services	Distance to core town
	Approximately 60,000	Tourism, Agri-food processing	Zhangchun village	3400	About 9200	Tea and bamboo processing	Clinics, small super market	--
			Zhangli village	2241	7000-8000	White tea and bamboo processing, working in large cities	Kindergartens primary school, secondary school, clinic.	10 minutes
			Zhangtan village	1830	11000	Bamboo processing industries, green tea, eco-tourism, small hydropower stations	Primary school	10 minutes
			Maoshan village	2396	7000	working in large cities		10-15minutes
	Approximately 20,000	Tourism, agri-food processing, hydro-power station, bamboo initial processing , other industries	Town centre	More than 3000	--	--	Small supermarket, local open market	--
			Hongjiachun village	1803	More than 10000	Bamboo, economic forest, tea, hydropower station, fruit forest, food processing, bamboo processing, working in large cities, shoe enterprises	--	--
Tianhuangpin town	Approximately 50,000	National hydropower station, tourism, bamboo and timber processing industries	Yuchun village	About 1000	10000	43 different types of enterprises, eco-tourism	--	5 minutes
			Gaojiatanchun village	835	12300	working in large cities , business, eco-tourism, agriculture	--	--

Freshly harvested bamboo to be used for chopsticks



# The Anji Eco-development Model- the eco-ecological web

