



the ecological
sequestration trust

Citizens Science and Smart Cities Summit

Smart Citizens & Resilient Regional Development 'high quality growth'

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Executive Chairman The Ecological Sequestration Trust

Chairman Institute for Sustainability

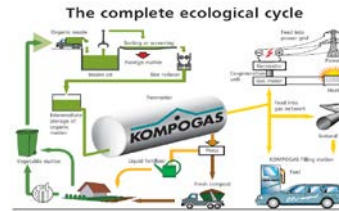
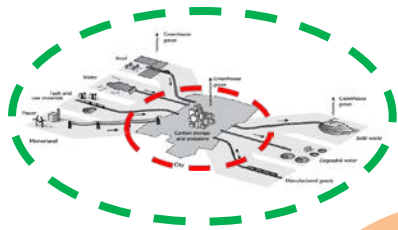
February 2014

Can we move towards a **sustainable**
way of living?

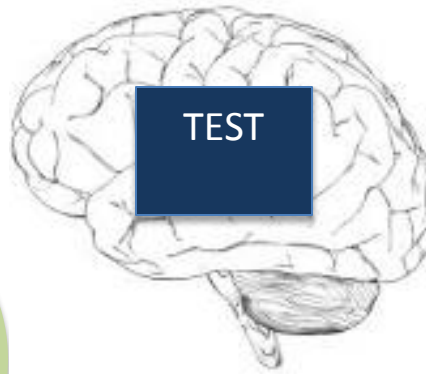
What **policies and investments** are needed
in low, middle and high income countries?

How might **urban development enable** a transition
to an Ecological Age?

Geographies



Sectors



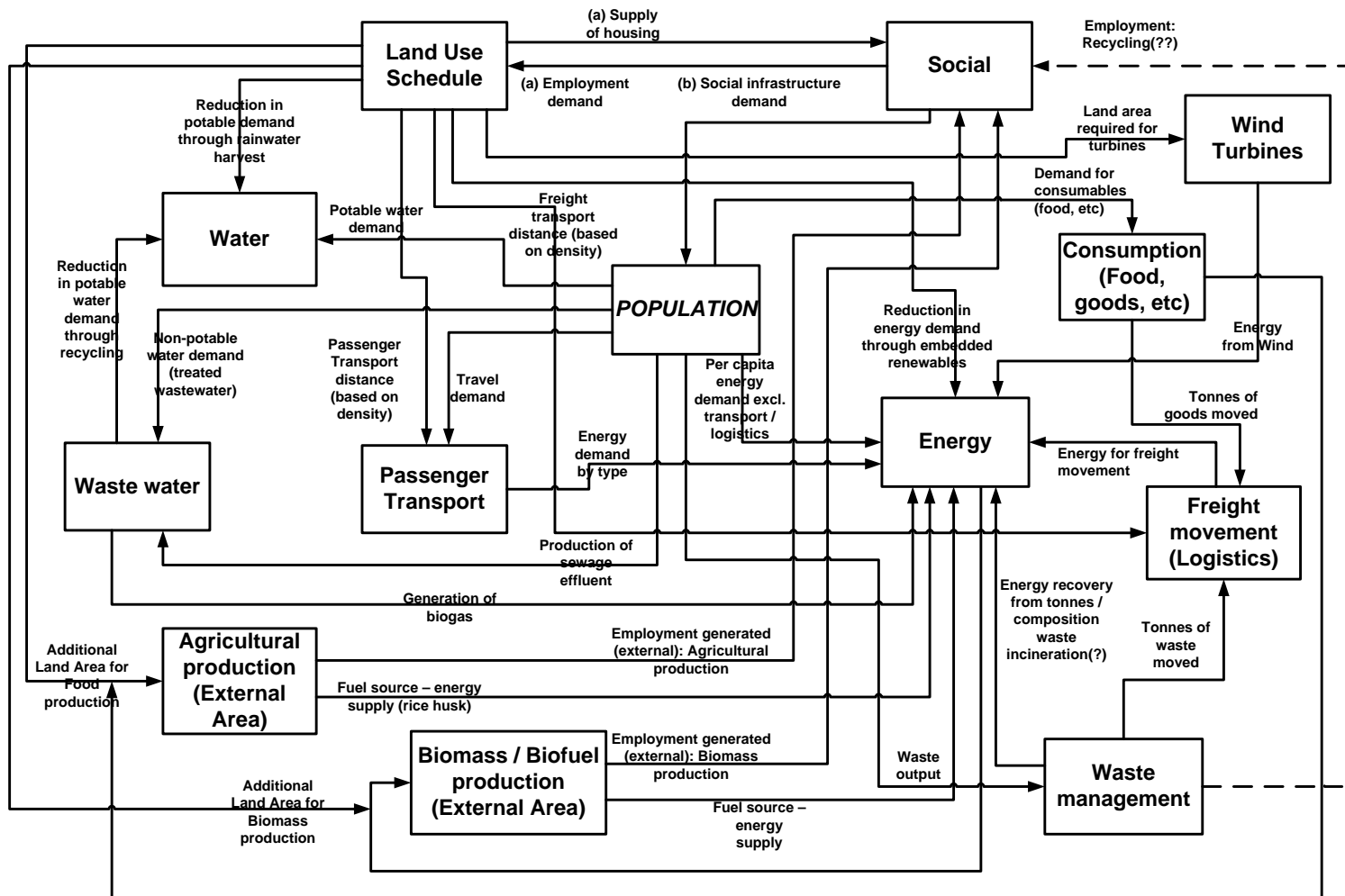
Specialisms

Specialisms

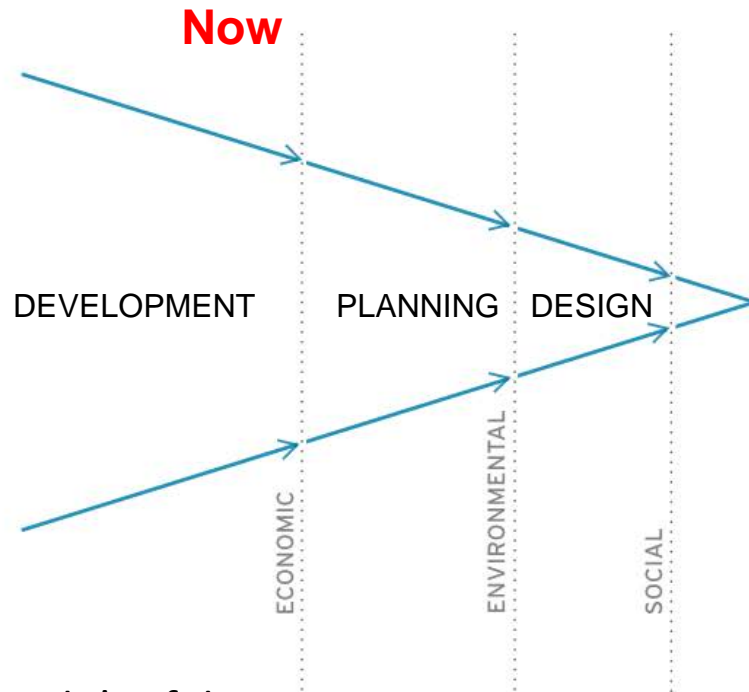


TEST stepped into the space between existing institutions to facilitate systems integration

The resource system of community life

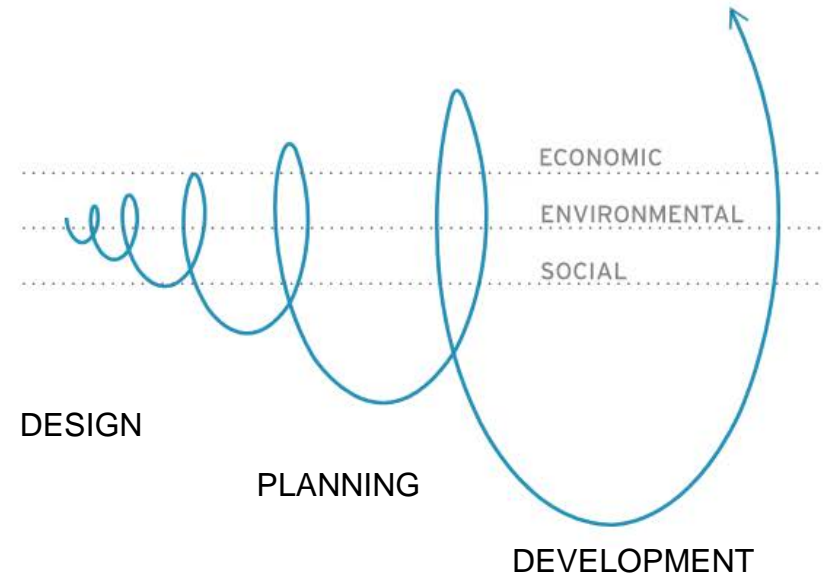


Integrated urban systems design/planning for sustainability and resilience



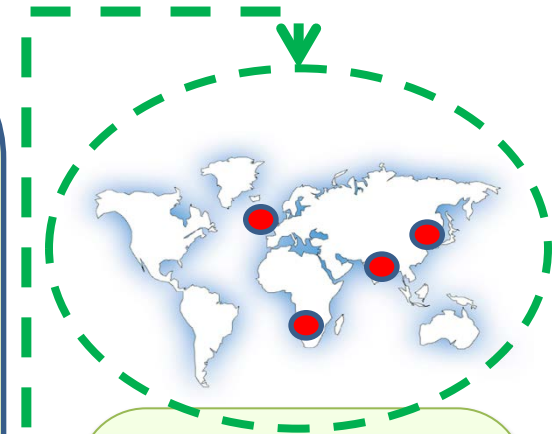
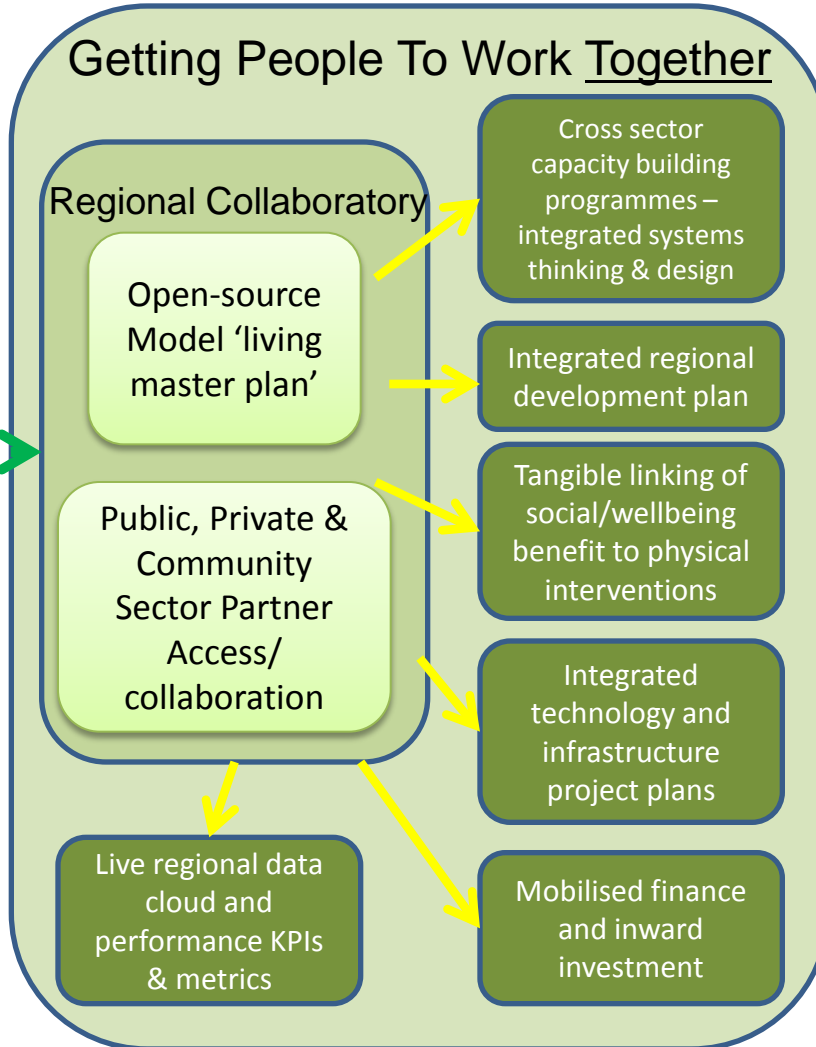
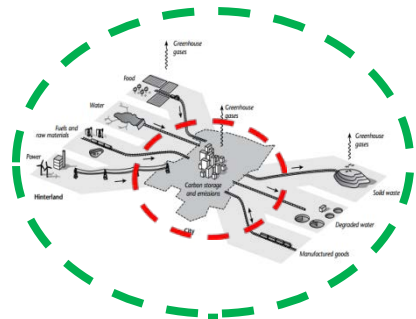
- Silo's of design-energy, water, waste, transport
- Lowest first cost not performance
- GDP ,not human well-being

Systems, urban-rural approach



- INTEGRATED DESIGN
- INTEGRATED PLANNING
- ACCELERATED DEVELOPMENT
- ECONOMICS RELATED TO WELL-BEING, HEALTH AND PRODUCTIVITY

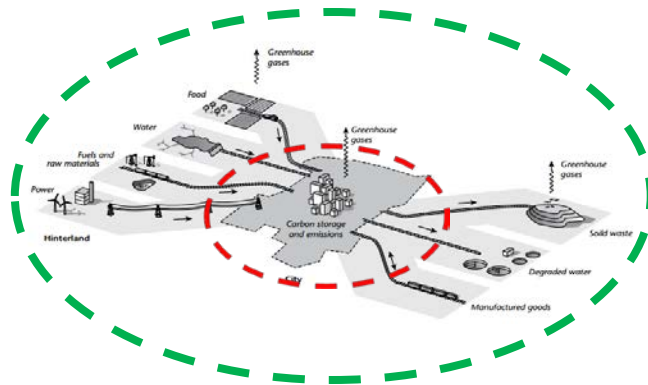
Regional/ Global Demonstration



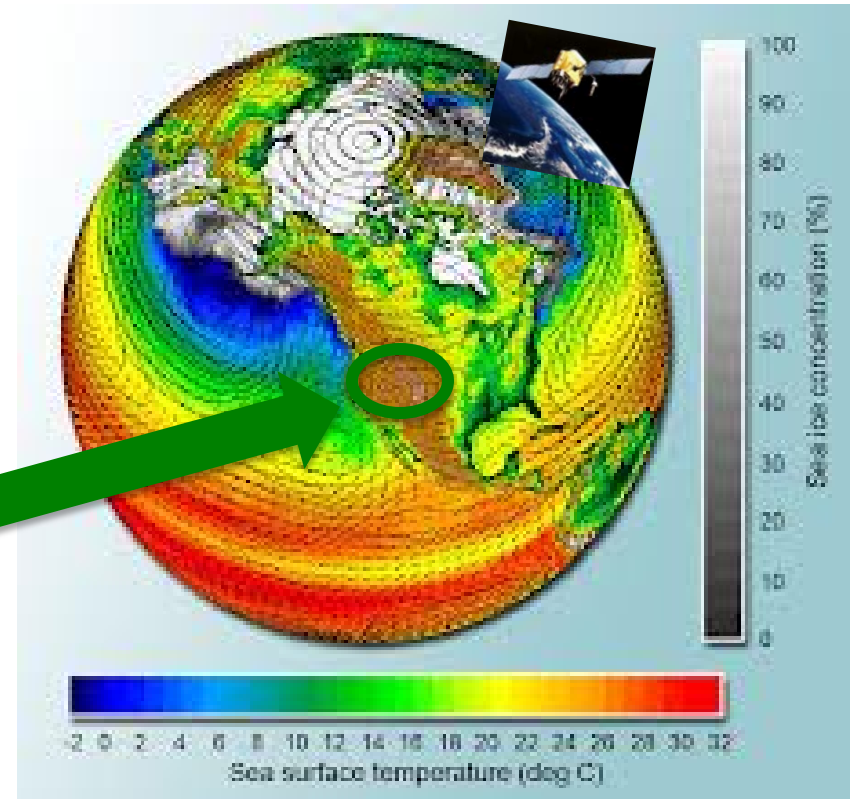
Demonstrate Approach through Parallel Action in a Network of Strategically Important Countries and Demo Regions (1-5m people)

Earth (in solar system) Simulator

Region Simulator



www.ecosequestrust.org

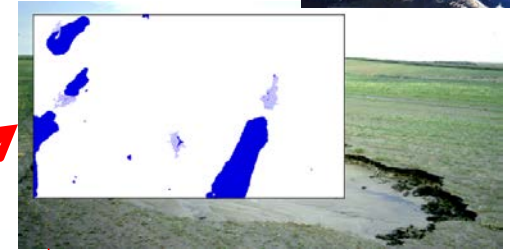


www.icesfoundation.org

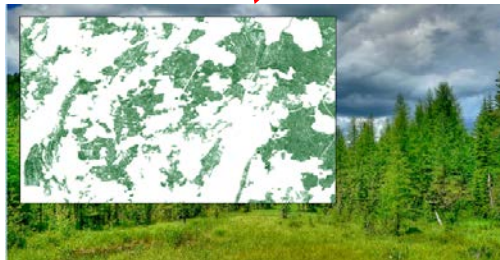
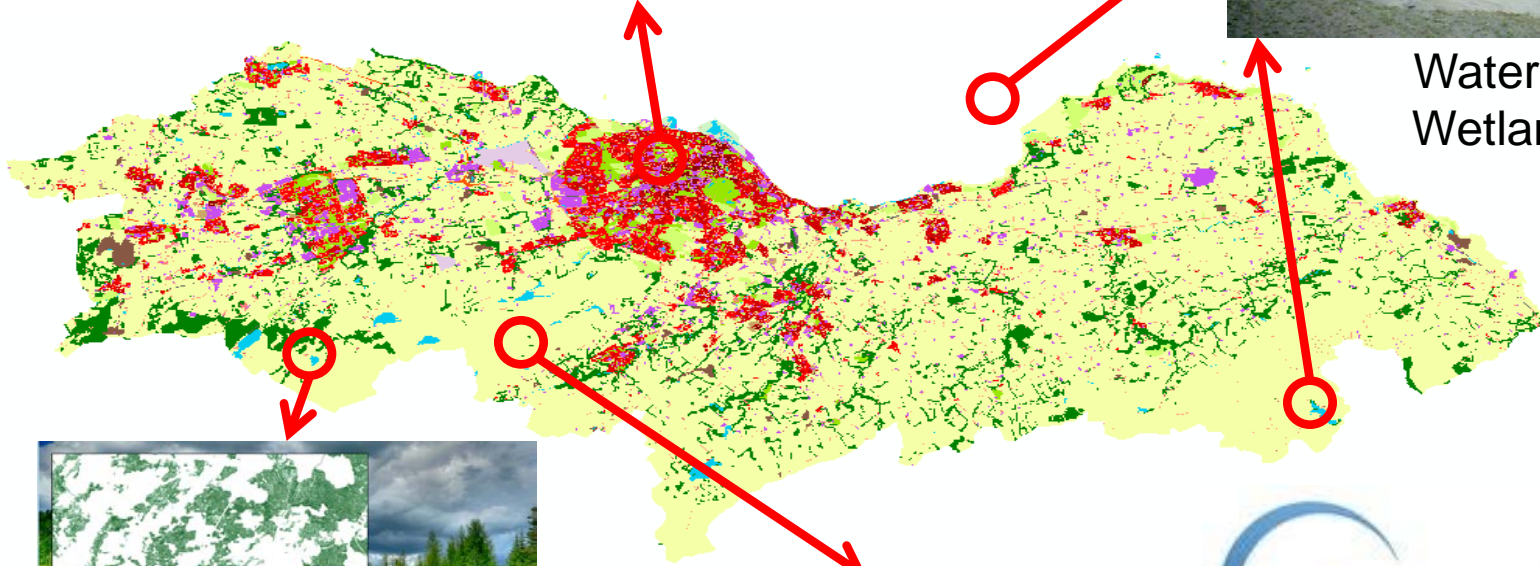
Opportunity-Satellite Remote Sensing



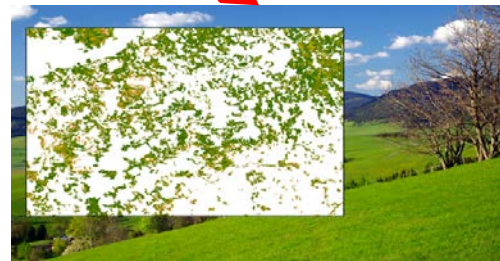
Built Environment
'imperviousness'



Water & Wetland



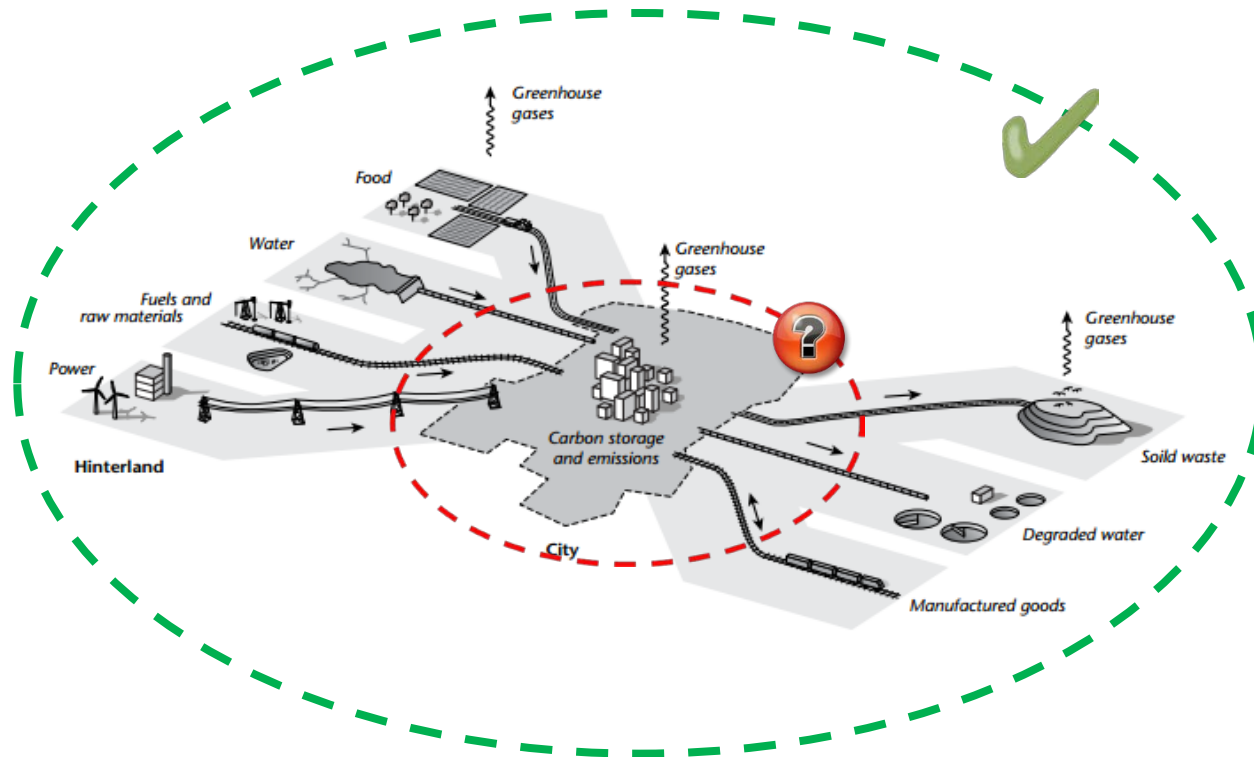
Forest Cover



Agriculture



Approach to Sustainable Regions

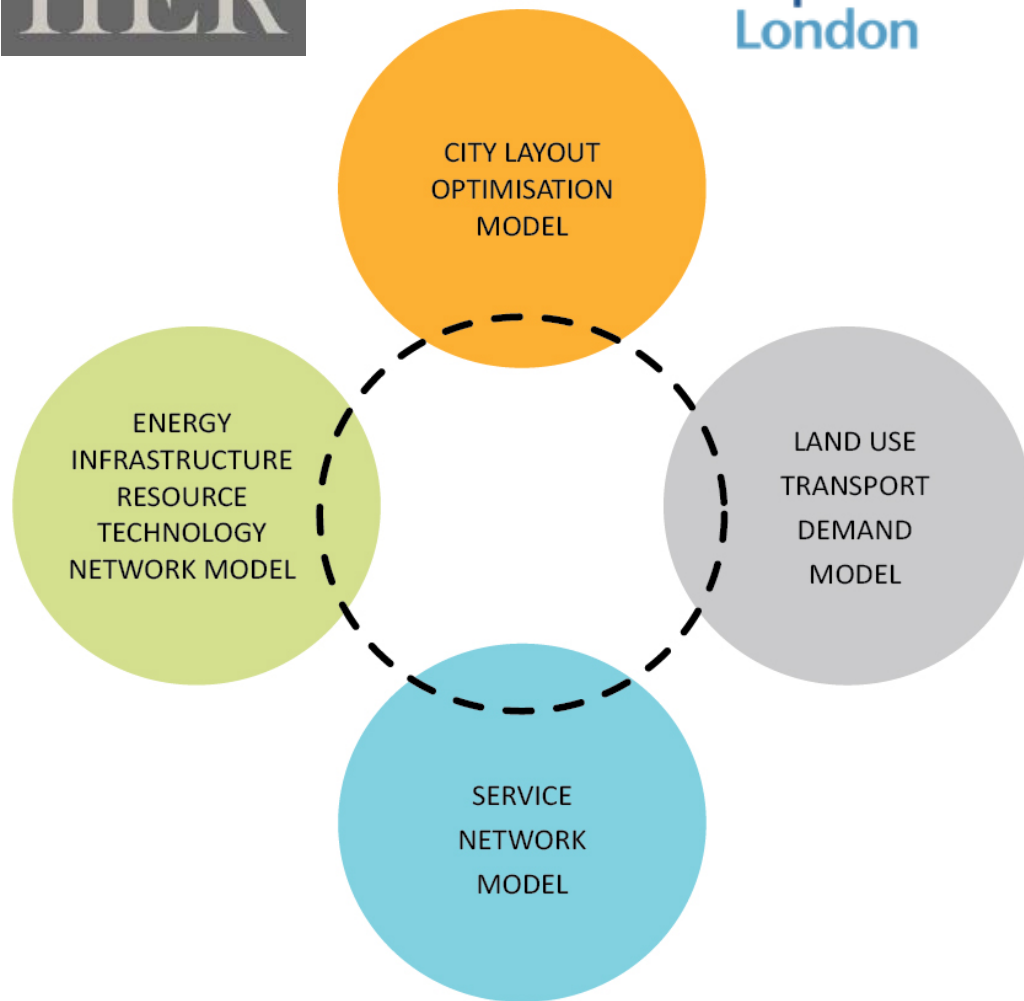


- Regional Platform for data and systems model including cultural history
- Shared platform for integrated planning, procurement and learning
- Scenario testing for future investment
- Investment vehicle for public private partnership projects

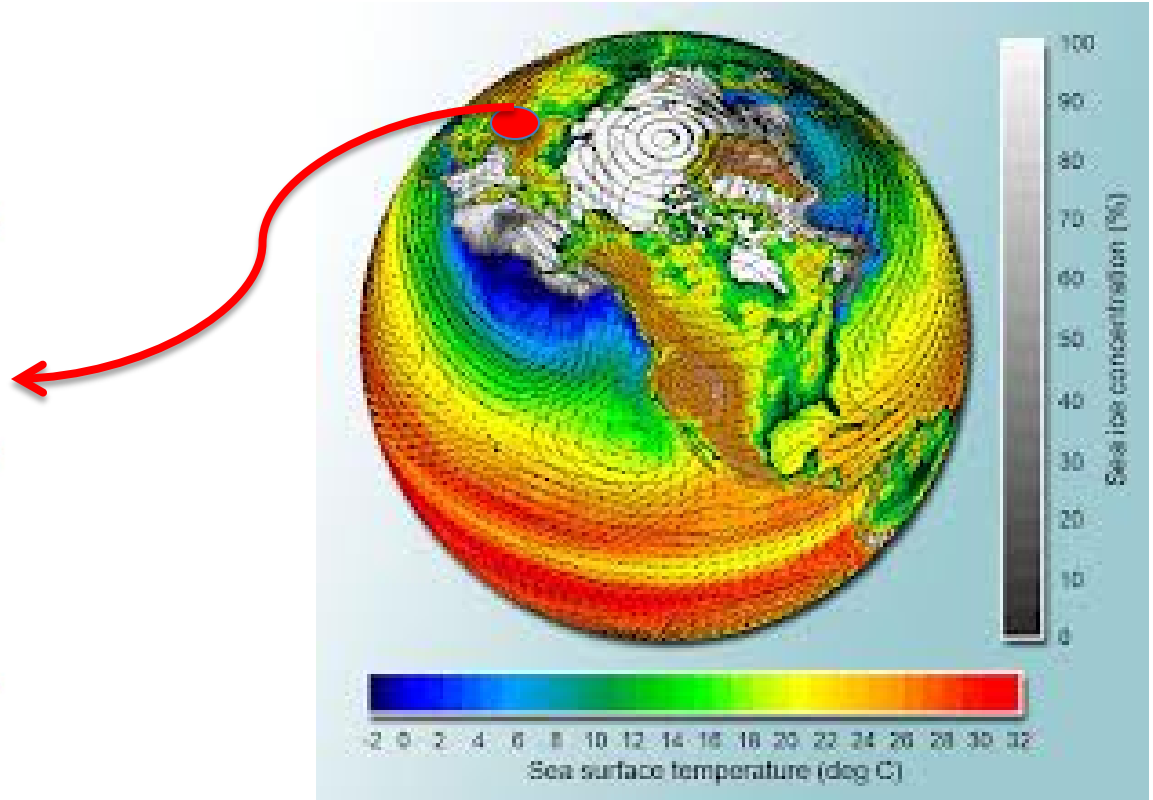
The Open-Source, Agent-based Urban-Rural Resource and Economics Systems Platform Model



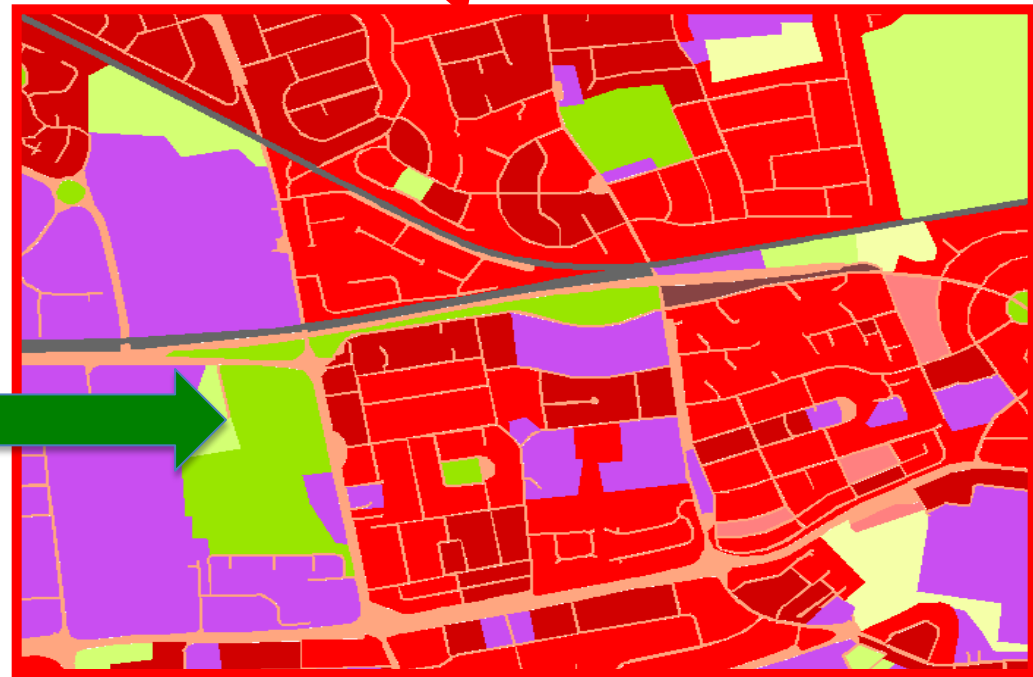
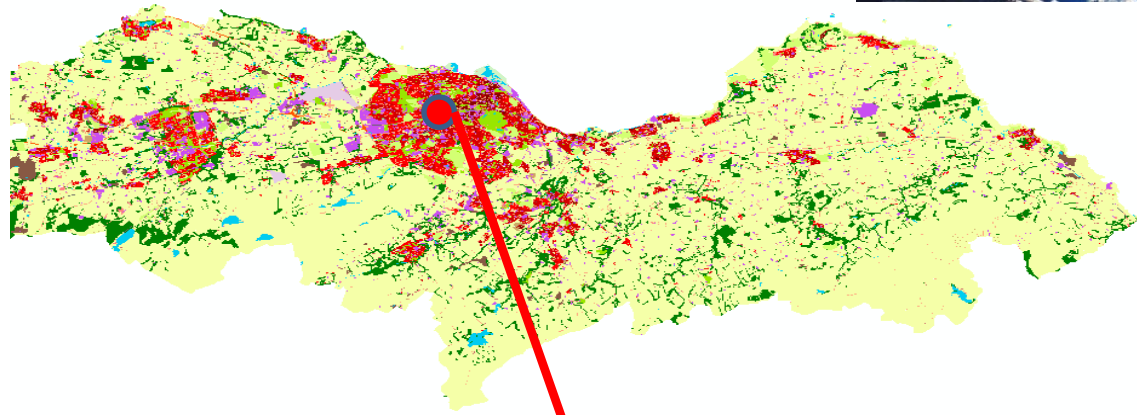
Imperial College
London



Climate model data

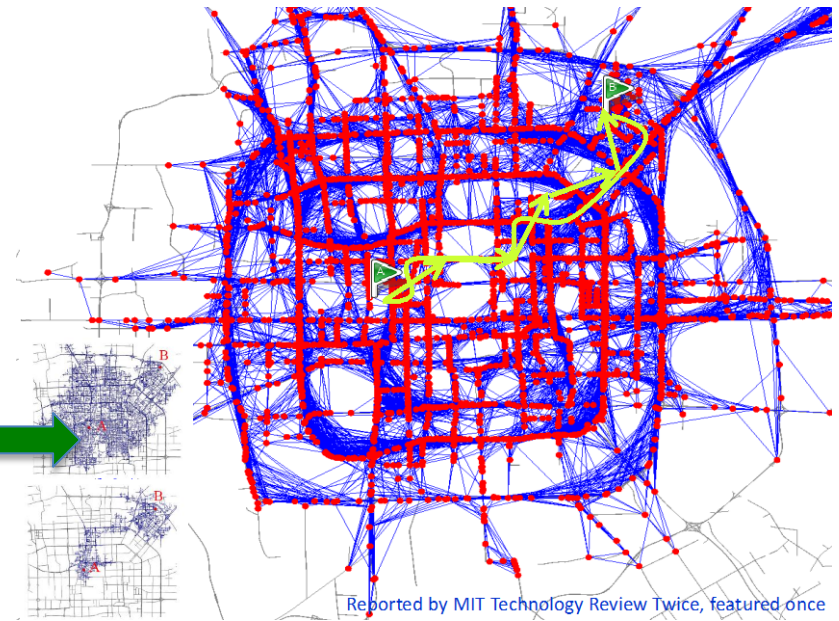
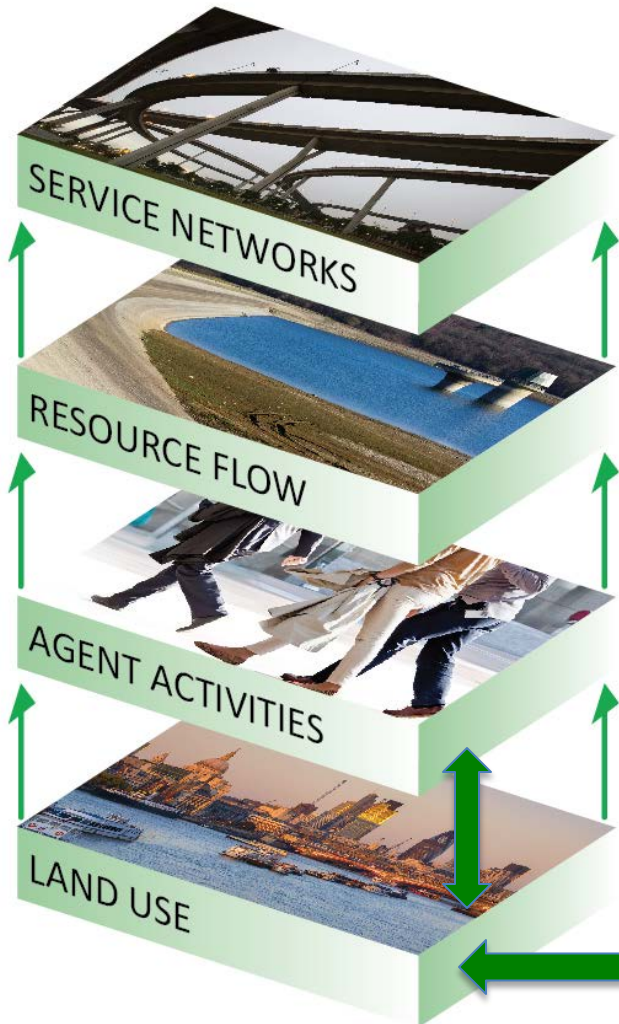


Earth observation data for land use

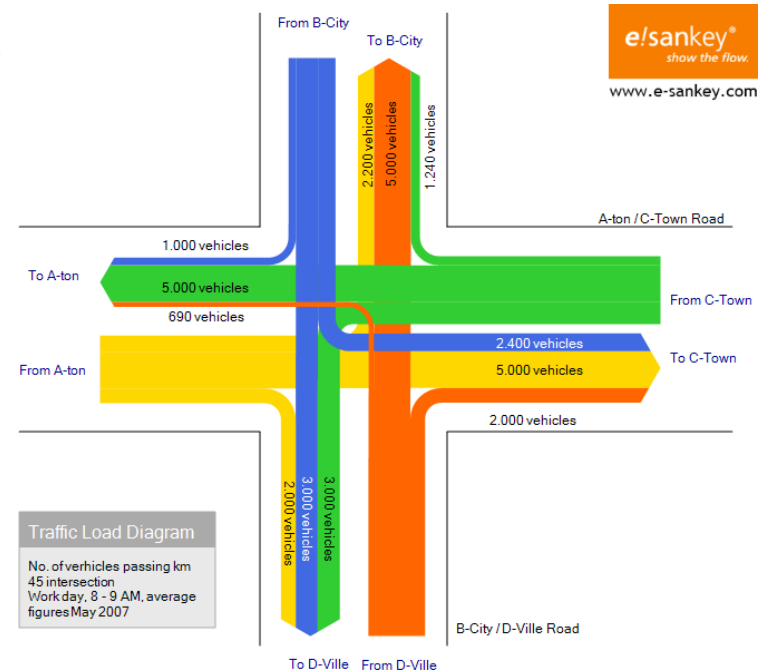
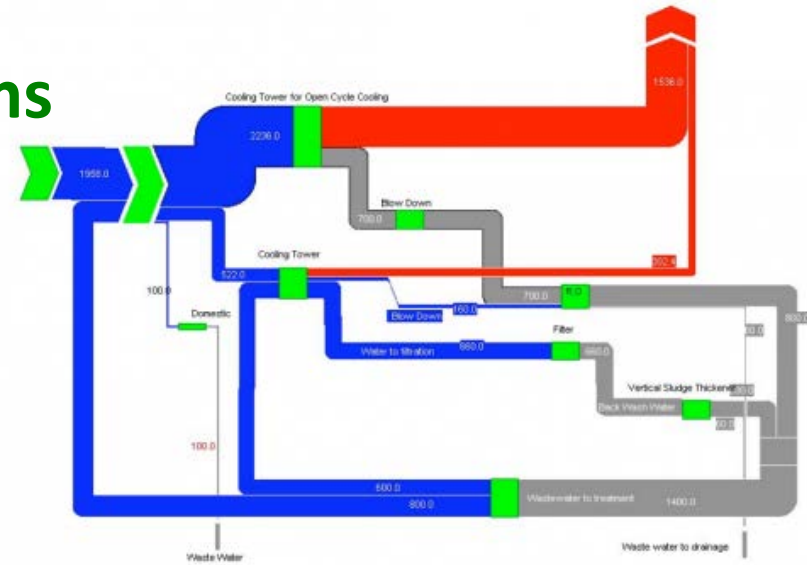


Crowd-sourced agent Data - human mobility - ecology

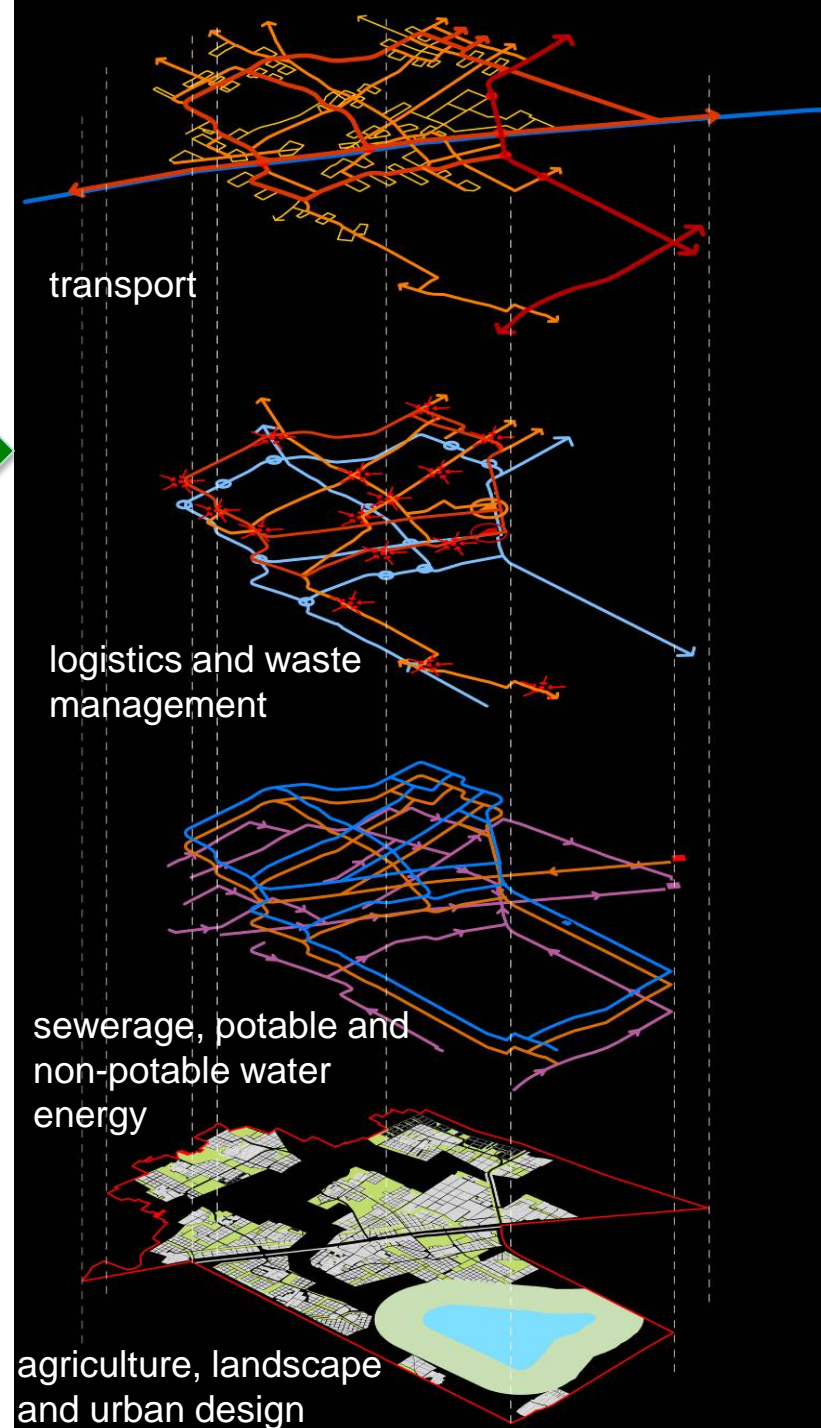
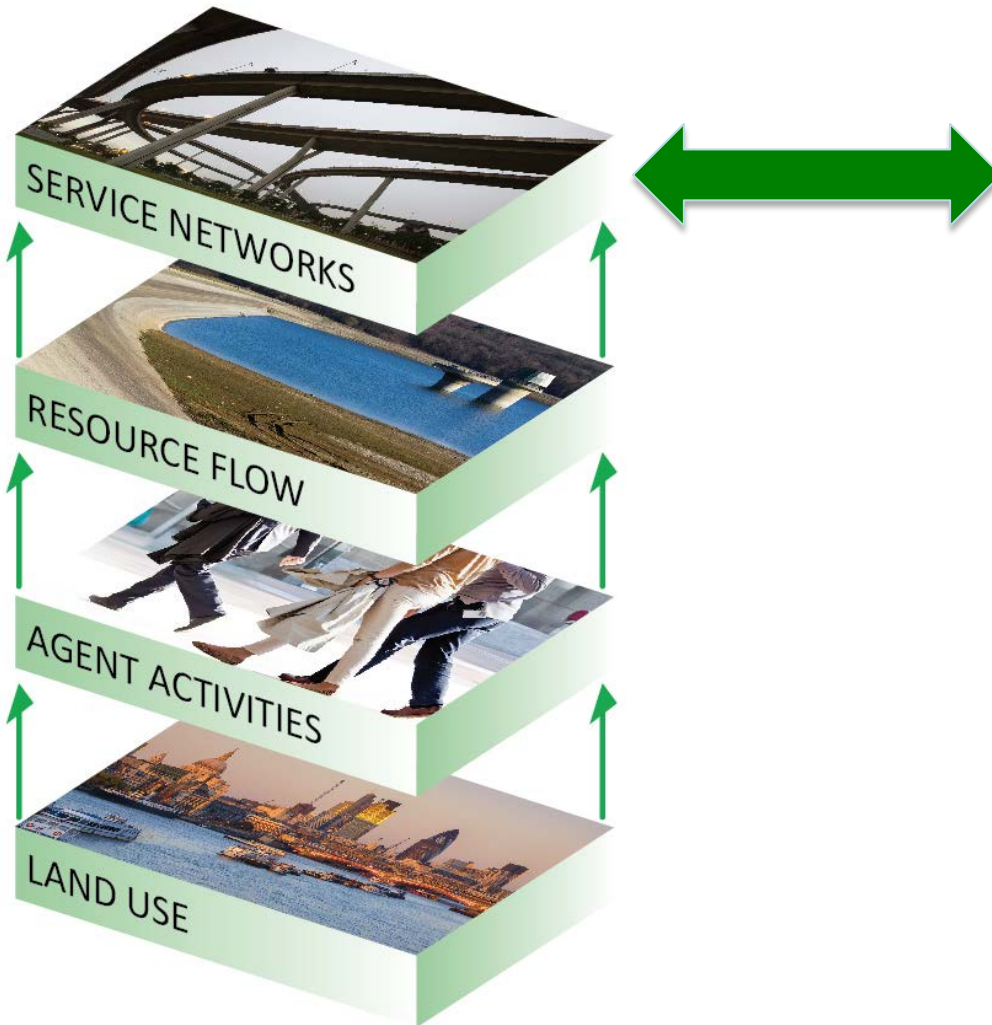
4G 5G 6G



Resource flows Sankey Diagrams



Integrated Sustainable Infrastructure





"Green, circular, Knowledge economy"

Economy



**High quality
Inclusive
resilient
growth**

Human agents



**Asset
Value**

Goods

Health- well-being, nutrition, life-span, healthcare costs

Labour- skill, job availability, salary, productivity

Training & Education- skill and knowledge through learning and education



Advanced Visualisation for Users

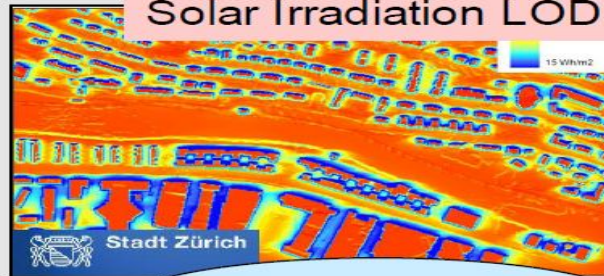
(example from – TU Berlin)

Energy Atlas: Information Fusion

Department of Geoinformation Science



Solar Irradiation LOD1



Utility Networks



Energy Atlas



CityGML

Heating Energy Requirements

Geschätzter Energieverbrauch [kwh/a]



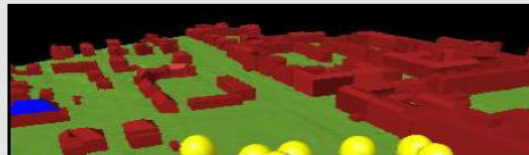
Solar Potential



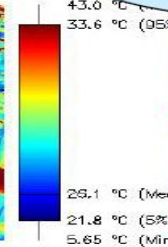
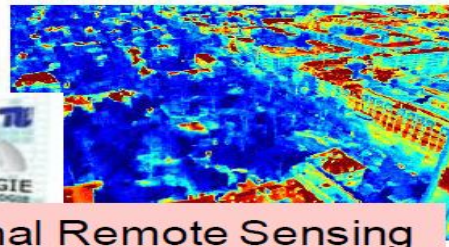
Heat Emission



Bild: Hoegner / Stilla, TU München



04.04.2009 12:00:35



Thermal Remote Sensing



Collaboratory

(Apps designed by user-groups & with data access protocols)



Industry

Urban Design

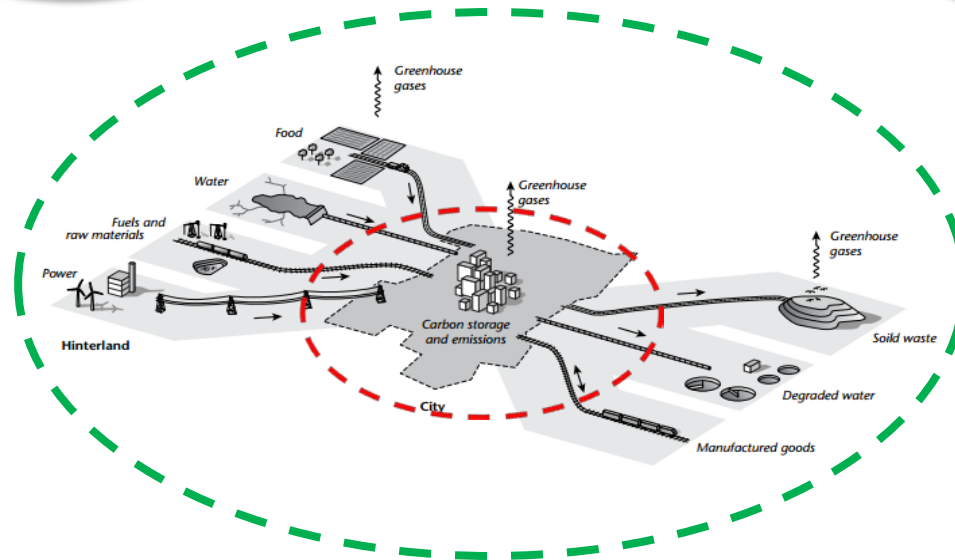
Communities

Policy

Health

Jobs and skills

Education



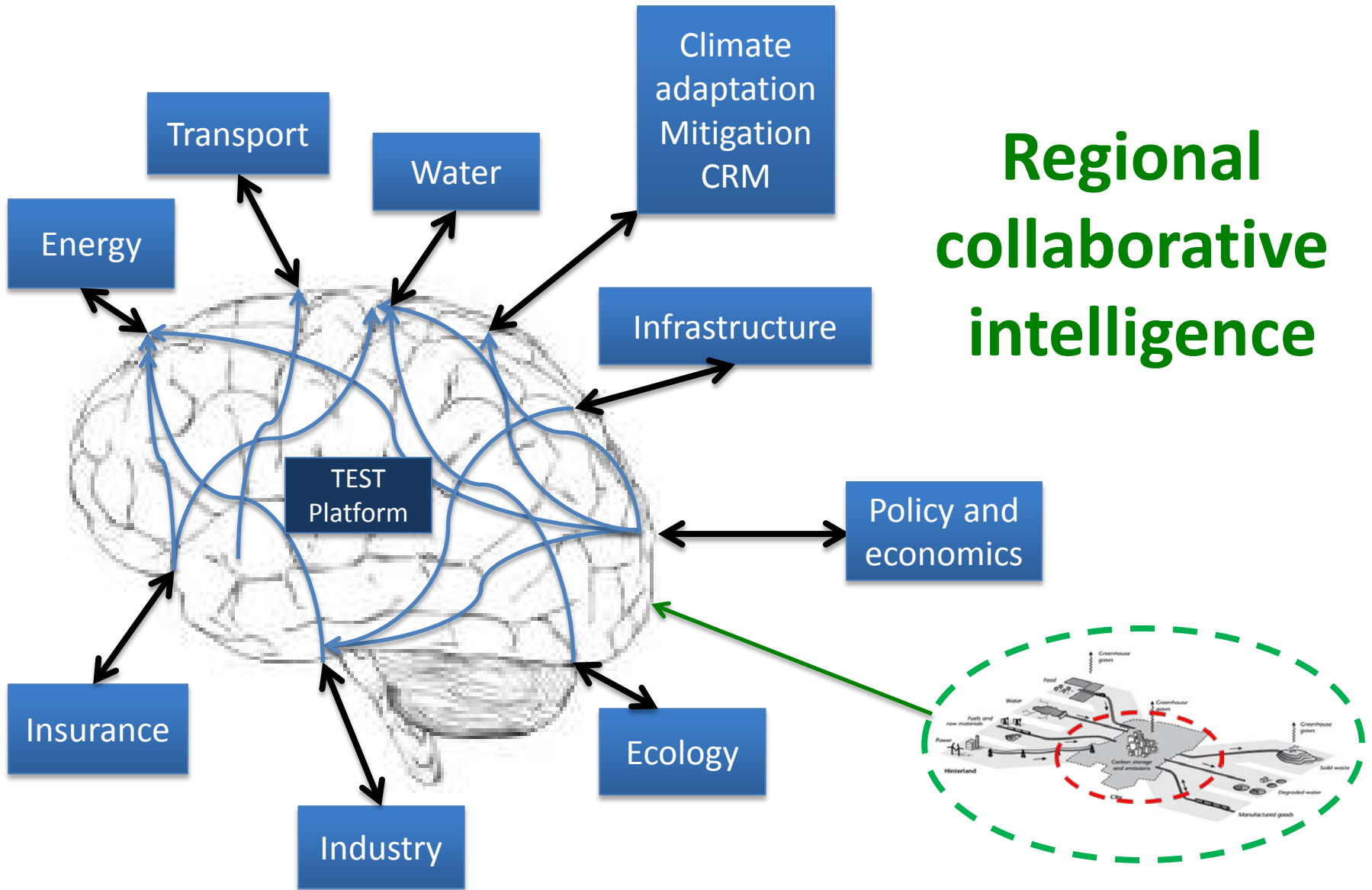
Forestry

Farming

Utilities

Property and land

Regional collaborative intelligence



Regional Financing

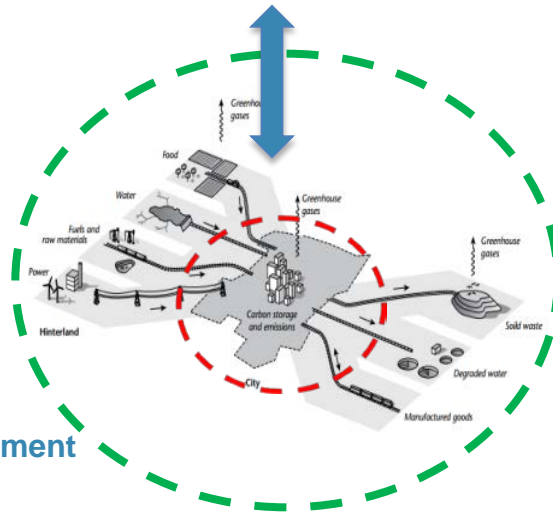
Evidence-based 'trusted' independent model



High quality inclusive resilient growth

Assurance

"Project portfolio"



Return

Investment

Regional Funding for Projects- 'Green Growth' 'Climate Adaptation' 'Social Impact Bonds'

Sources of capital-MNB's Pension Funds Sovereign Wealth Funds

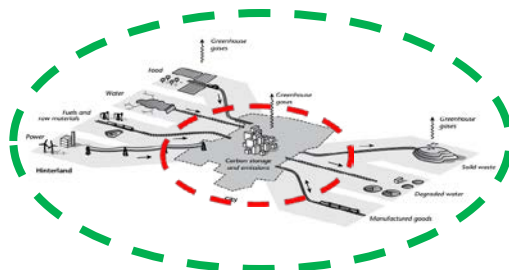
TEST “Accelerator Scale-Up Fund”



**Build open source platform
& set it up in demo regions
using seed funding**

\$

\$



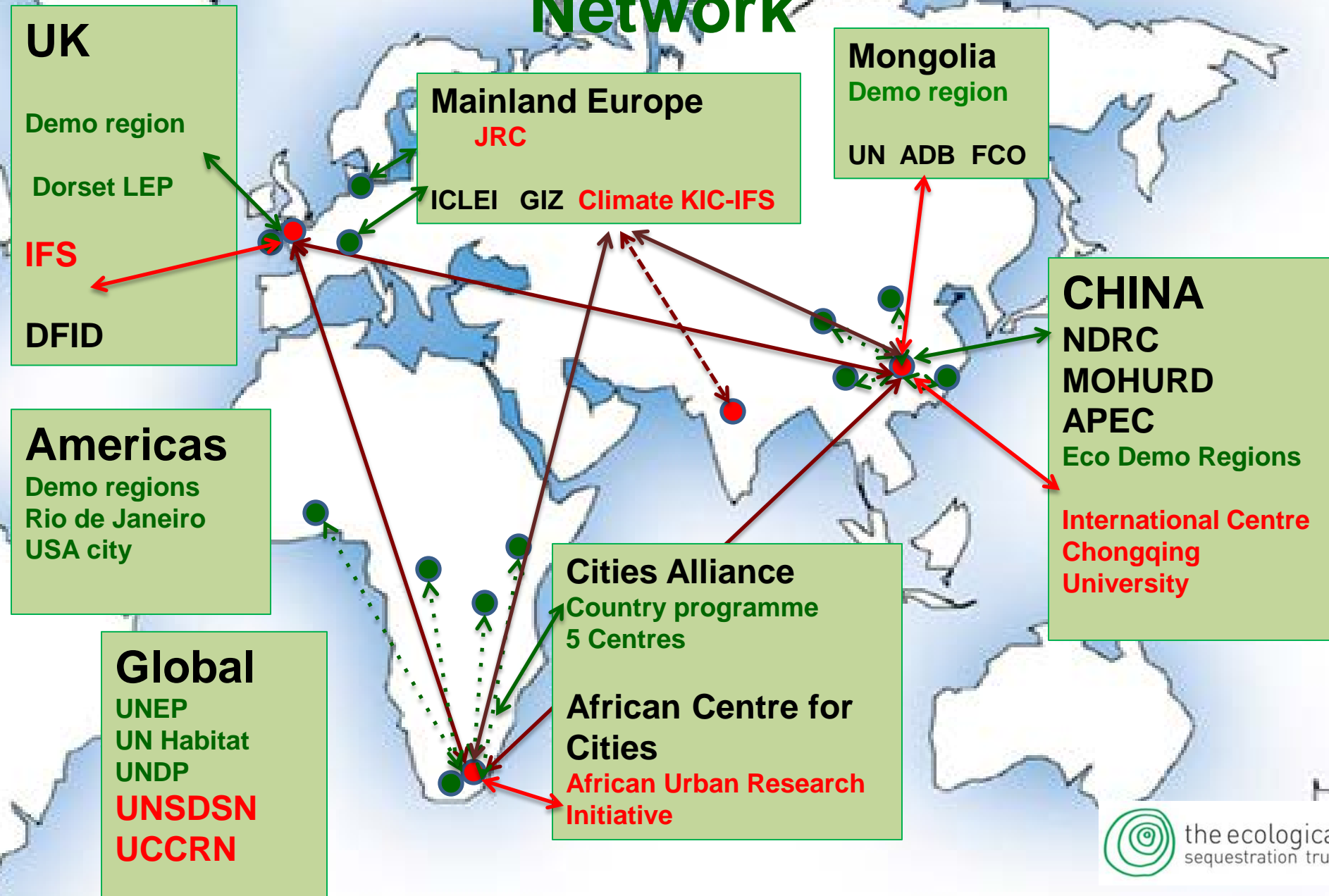
**Demonstration region investments enable
pay back of set-up costs plus interest &
attract funds for more regions**

Potential
Seed-funders
to get use of
platform for
initiatives

- Rockefeller Resilient Cities
 - ADB
- World Bank
- Climate KIC
- Cities Alliance members
- Insurance foundations

**Independent
Fund Manager**

Target Trust Demonstrator Network



Citizen science and smart cities

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