

Resilience challenges

- thematic variation across the globe

Assoc. Professor Erik Andersson
Stockholm Resilience Centre
Stockholm University, Sweden

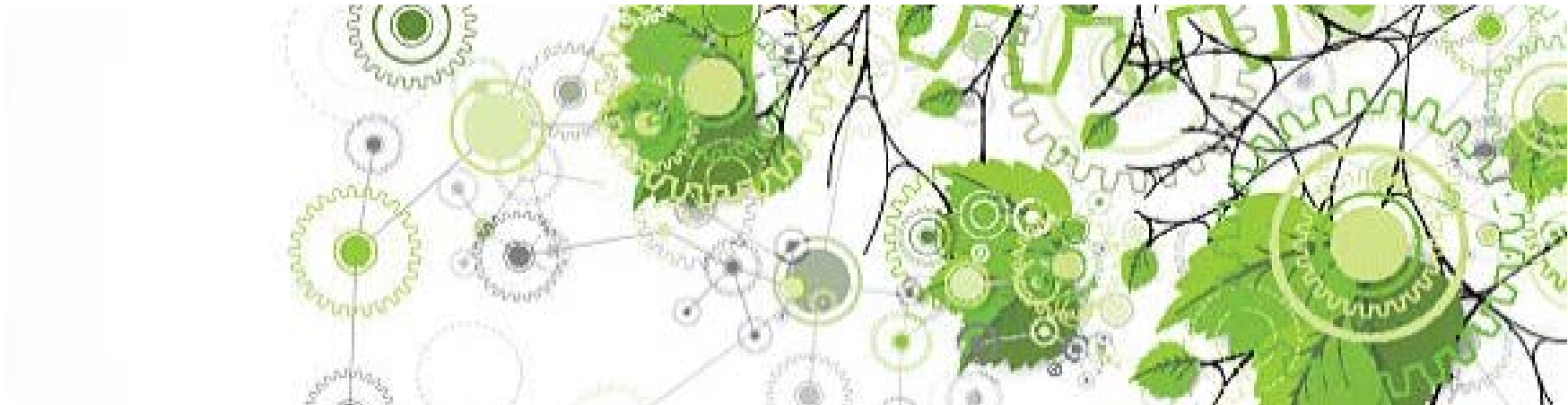


Fundamental challenges

- Retaining multifunctionality and option space
- Democratic buy-in in sustainability
- Dealing with compounded changes
 - Demography/population
 - Climate
 - Life style and expectations
- Reforging urban-rural linkages
- Relational values and ecological literacy

Cities as systems

- Complex systems
- Cross scale and boundary dynamics
- Feedback
- Resilience
 - General
 - Specified
- Social-ecological-technical systems (SETS)



SETS and its dimensions

- Social: Institutions, governance, perceptions, use
- Ecological: Processes, functions, biodiversity
- Technical: Built infrastructure, equipment, tools, information technology

Roots of resilience

Principles for building resilience:

- Build redundancy and diversity
- Manage connectivity
- Be aware of temporal dynamics, feedback and non-linearity
- Strive for inclusivity and broad actor involvement
- Experiment and make sure you learn from it
- Find polycentric governance forms

Made redundant? Good!

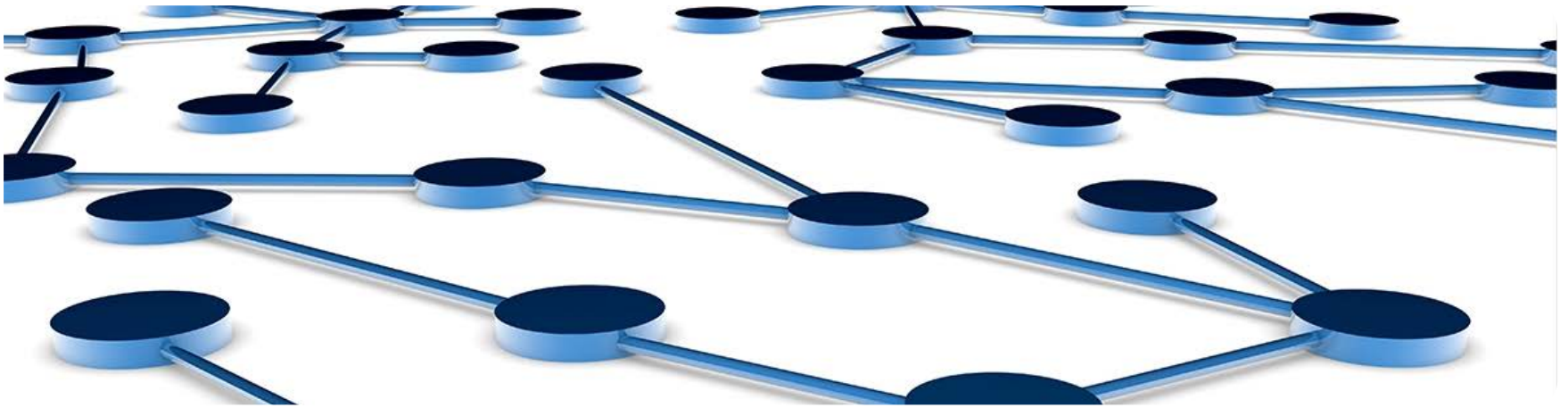
- Multiple options leading to the same outcome make it more likely some of them will work
- Biodiversity fundamental
- Knowledge and experiences
- Multifunctionality





Challenges

- Conflicts between increasingly diverse interests
- Risk of inequalities
- Compartmentalisation
 - Clubification, privatisation, segregation
- Are cities becoming increasingly similar?
 - Scale of disturbance



Connectivity

- ...is relevant when a function is dependent or at least influenced by exchange and flows between units
- ...involves both structural and functional connections between green spaces, in order to create added value from an interlinked system
- ...matches aims and strategies to different spatial scales – regional, city and local – and ideally is integrated across them.



Challenges

- Aging infrastructure
- Safe to fail? Shifting scales of vulnerability
- Globalisation
 - Cascading disturbances
 - Power systems, the internet, trade, finance...



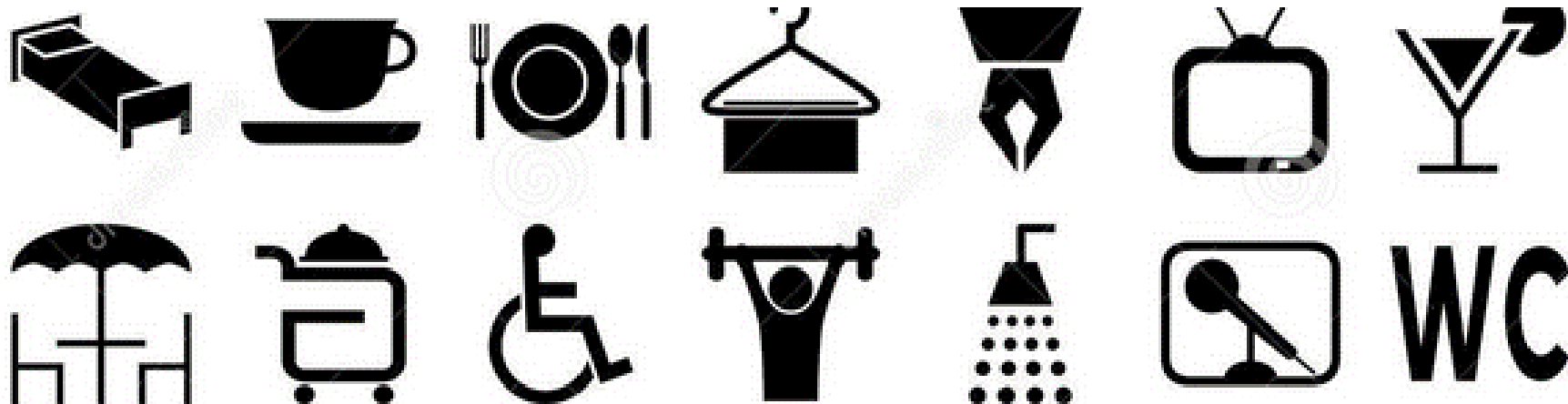
Worldviews and mind-set

- ...relate to personal circumstances and culturally embedded values
- ...inform the public support for a given structure or function
- ...define some of the boundaries of design flexibility
- ...inform how we approach problems



Challenges

- Too complex? Disenfranchised? Denialism.
- Think or act
 - Sectors and compartmentalisation do serve a purpose
- What meaning can we today find in what we will need tomorrow?

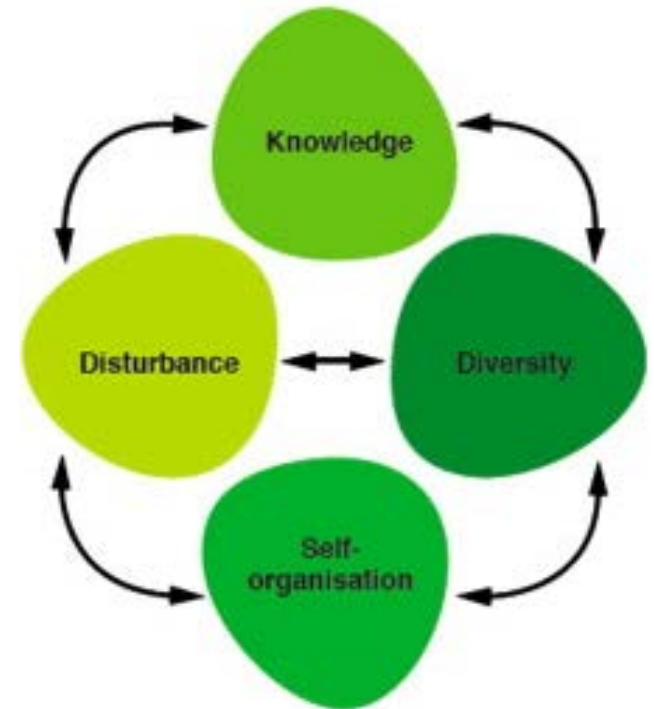


Challenges, continued

- Trade-offs and thresholds
 - Tyranny of small steps
- Disconnect and failure to address causes
- Awareness of scales
 - Bottom-up initiatives
 - Self-organisation

Participation

- Temporal variation
 - Function
 - Beneficiaries
- Learning
- Sense of place
- Willingness to experiment
- Buy-in and support



From Colding and Barthel 2013



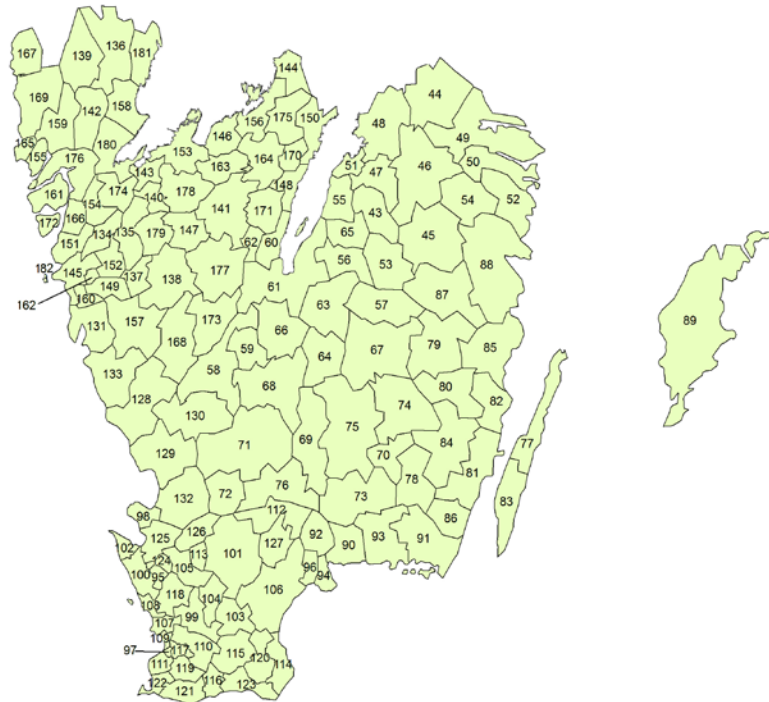
From Q-book 4

Challenges

- Persistent power and resource issues
 - Unwanted resilience
- Broad suite of capacities needed
- Opinions and expertise
- Long production and decision chains
- ‘Everybody’ undergoing change

Polycentric governance

- Creates a degree of modularity
- Devolution and bringing decisions closer
- Multiple sources of knowledge generation





Challenges

- Coordinating diverse assemblages
 - Semi-decentralised drainage systems
 - Municipal independence
- Redundancy or diversity?
- Hierarchical structures and hidden vulnerability
 - Who owns the companies?

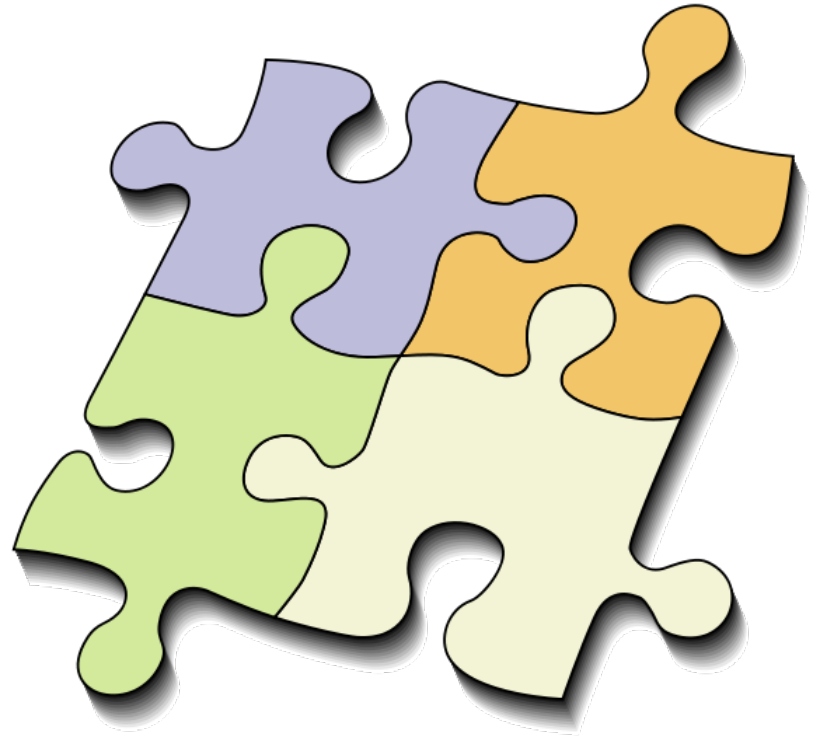


OK, so
what does
this mean?

- Three dimensions and seven principles
– ONE strategy
- Trade-offs and synergies
- Design of elements and exploration of different ways of connecting them
- Locally specific strategies

Summing up

- More flexibility
- Alternative options
- New balance
 - Scales
 - Groups
 - Urban-rural
- Context and situation sensitive



Whence urban?

- Transformation and resilience
- Positive global drivers
- Scaling densification
- Cities as actors – do the principles make sense?