The quest for a common currency

SUE MoT

Metrics, Models and Toolkits for Whole Life Sustainable Urban Development

www.sue-mot.org

Aims and objectives

Investigate whether it is possible to assess the sustainability of urban development with a single metric
Expand promising metrics
Tailor promising metrics to form the integrator of the Integrated Sustainability Assessment Toolkit (ISAT)

Solar EmJoule
biophysical emergy

Indication of happiness
human preference

Biophysical models quantify resource consumption and subsequent effects on the environment through a natural science perspective

Monetary tools essentially capture human preference on different sustainability issues

Ecological footprint

Money
human preference

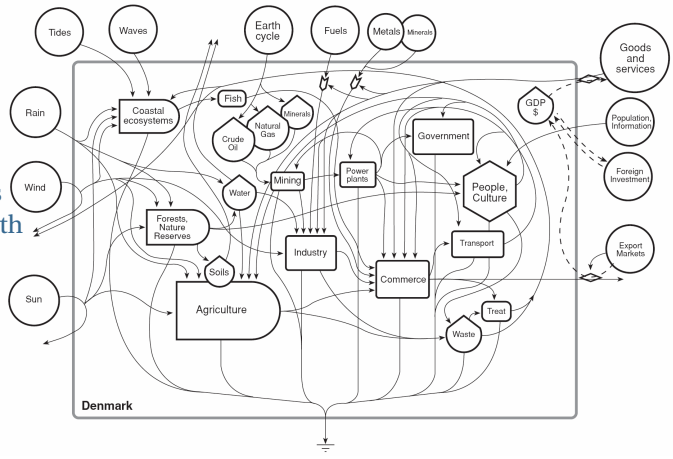
Composite sustainability indices are flexible tools that are aggregates of a set of sustainability indicators

Exergy - Joule
biophysical

Composite indices
Single number
dimensionless

Case study: The UK

UK's current trajectory is unsustainable
Low fraction of renewable emergy input
High input of imported emergy
Low Environmental Sustainability Index
Low exergy efficiencies in energy intensive sectors
Energy demand growth outstrips population growth



Challenges

None of the reviewed metrics can claim to capture sustainability in a holistic manner.
This stems from the fact that these metrics are based on reductionism and not on holism
Biophysical metrics cannot address social issues
Complexity of urban systems render the applicability of a single metric for sustainability assessment challenging

University of Dundee
Glasgow Caledonian University
Loughborough University
University of St Andrews
EPSRC Engineering and Physical Sciences Research Council