Systems Ecological Perspectives on Sustainability
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A multicriteria and systems-based perspective to ecosystem services assessment

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Sustainability science by focusing on a biophysical perspective

Overexploitation and environmental footprint

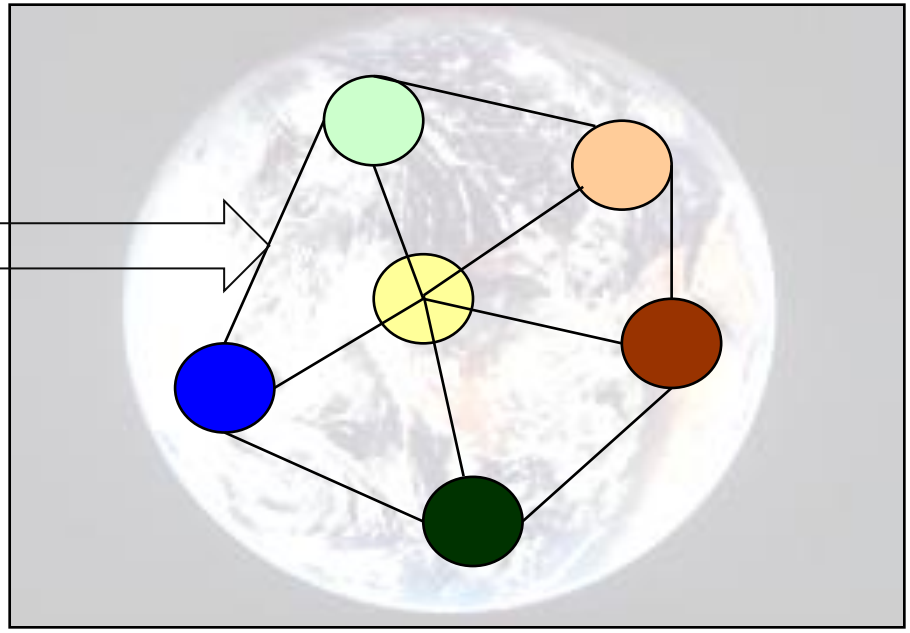
The ecological point of view

SYSTEMS THINKING

Added value is generated by interactions!

(von Bertalanffy, 1969; Odum, 1983, 1996)

Matter
Energy
Money
Information



The thermodynamics point of view

Open Systems

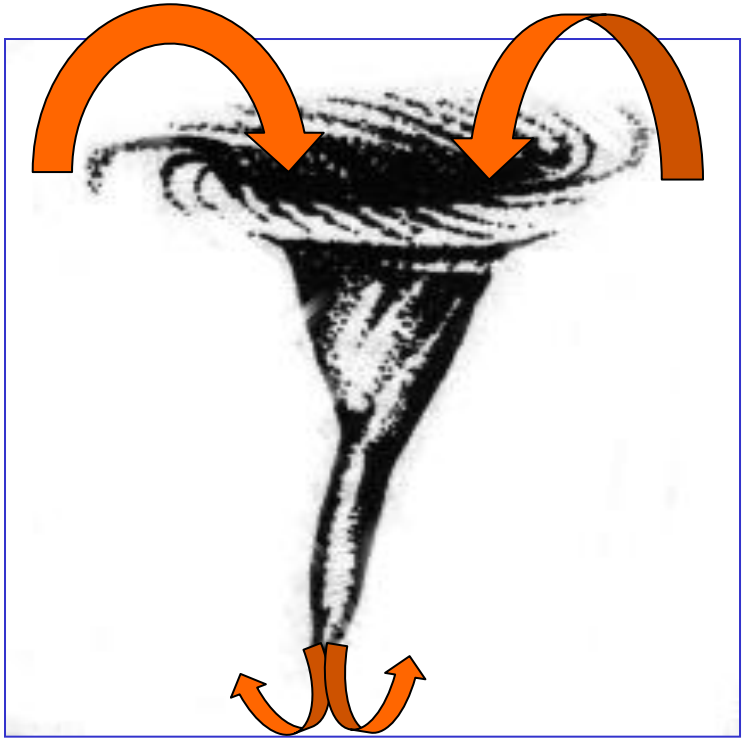
Dissipative Structures

(I. Prigogine, 1968)

1) NEGHENTROPIC

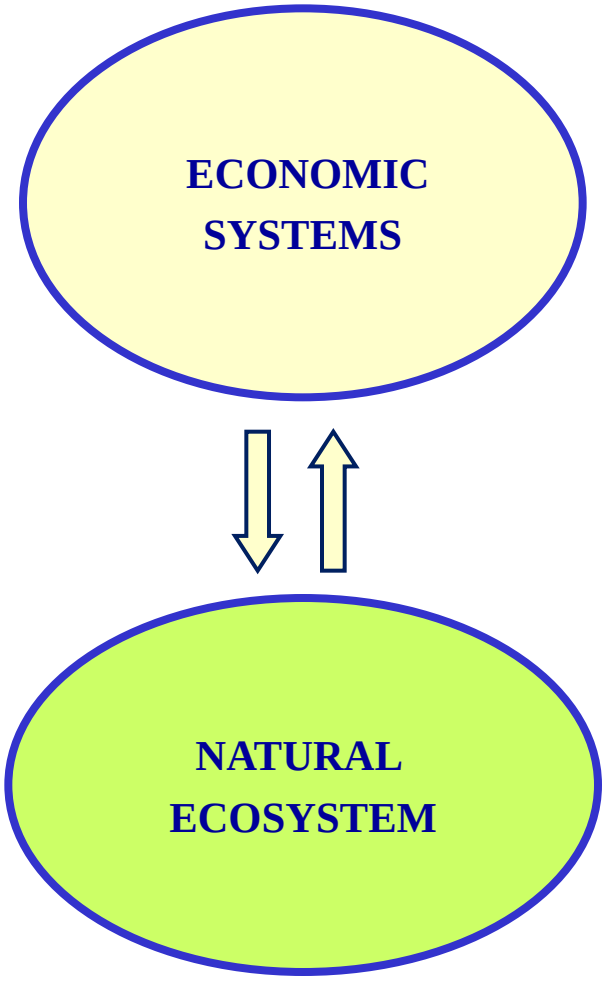
2) AUTOPOIETIC

3) COGNITIVE

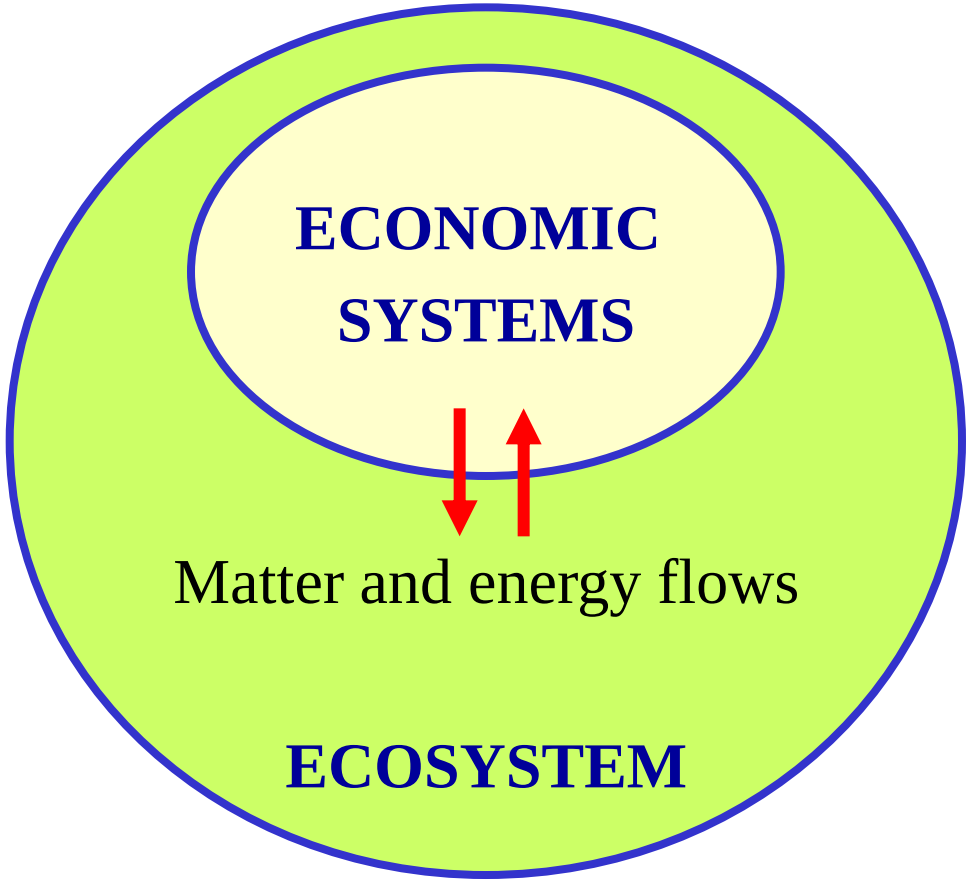


The economic point of view

Neoclassical Economics



Ecological Economics



The importance of accounting for matter and energy flows!

MAN-MADE ECOSYSTEMS

LIFE SUPPORT SYSTEM

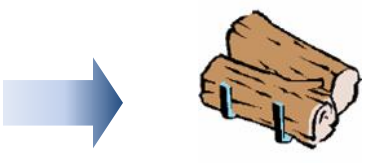
NATURAL ECOSYSTEMS

Biophysical constraints to human development

STORAGES OF
NATURAL CAPITAL

FLOWS OF ECOSYSTEM
GOODS & SERVICES

Accounting for resources: alternative notions of "value"



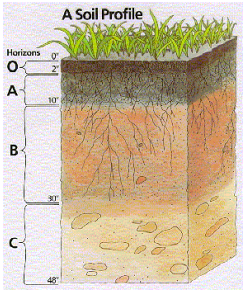
MONEY VALUE

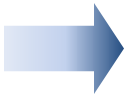
EXERGY VALUE

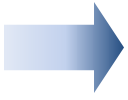
CONSERVATION VALUE

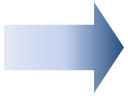
Accounting for resources:

alternative notions of "value"







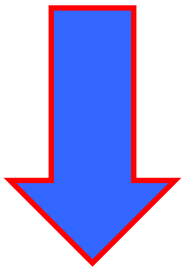


EMERGY VALUE

Accounting methods

a) Answers depend on questions

b) Results are method and boundary dependent



The best method/indicator in absolute terms does not exist!

Ecological Modelling 289 (2014) 124–132

Contents lists available at ScienceDirect

Ecological Modelling

journal homepage: www.elsevier.com/locate/ecolmodel

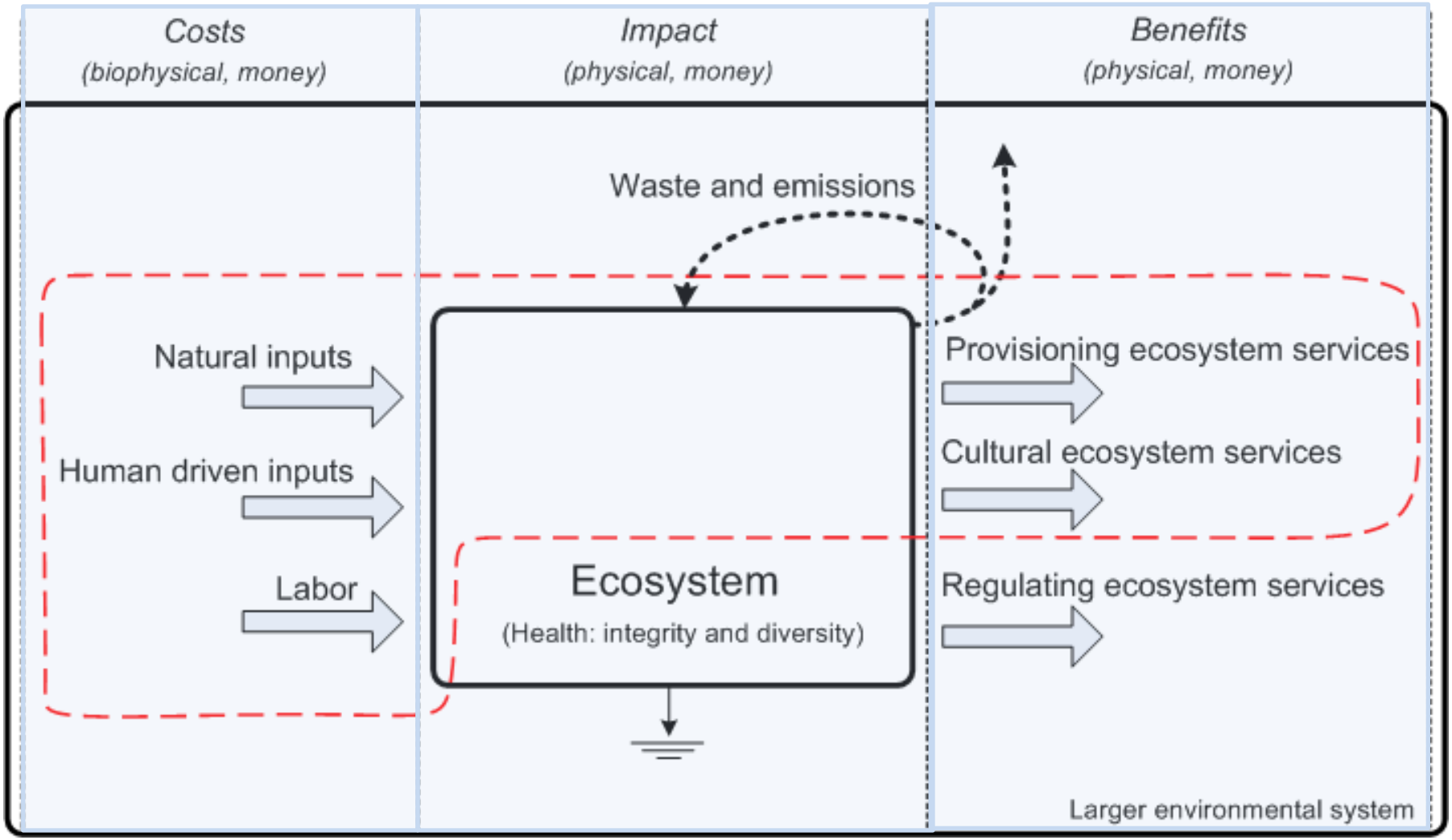
Review

Ecosystem services assessment: A review under an ecological-economic and systems perspective

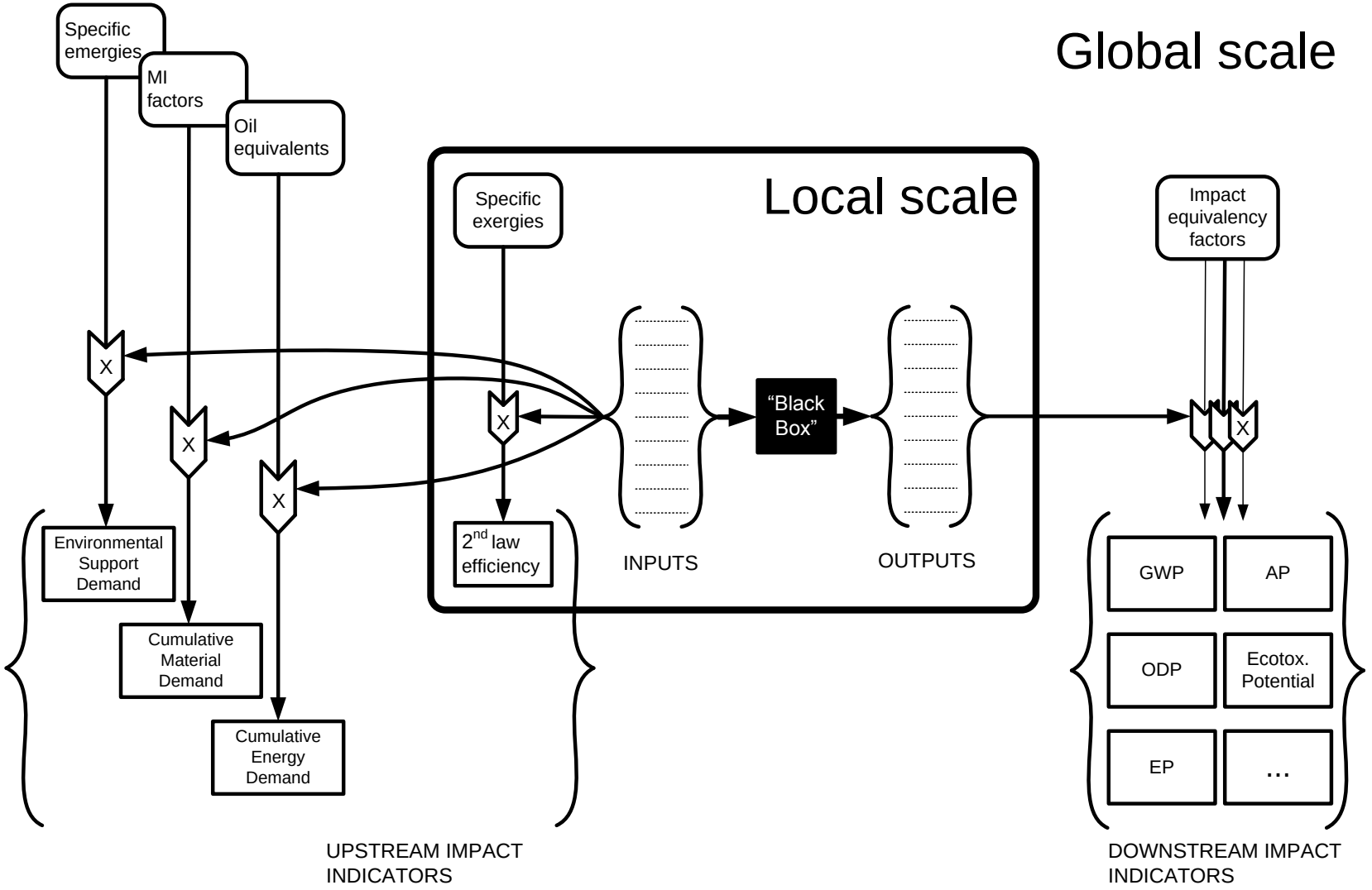
Tiina Häyhä [a,b,*], Pier Paolo Franzese [a,c,*]

How to integrate environmental accounting and ecosystem services assessment into a consistent theoretical and procedural framework?

Integrating environmental accounting and ecosystem services assessment



SUstainability **M**ultimethod **M**ultiscale **A**pproach



Concluding remarks

- Because of the complexity of socioecological systems it is hard to believe that a single method***/***indicator can be sufficient to provide comprehensive information regarding their system performance and sustainability.

- A major effort towards the design of integrated accounting and assessment frameworks is required to explore in depth the relationships between social and natural ecosystems.

Take-home message

Be as much as possible inclusive!

Cooperate with your colleagues from other disciplines…
…after all, also in social and academic systems,
the added value is generated by interaction!!!

THANK YOU

FOR YOUR ATTENTION!

…and welcome to Naples

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News

new publication!

In: news

Dr. Franzese co-authored a review article on Ecosystem

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- PhD students
- Research Labs