



NATURAL CAPITAL

&

Ecosystem Services

E.C.A.

E.E.A

N.C.A.

S.N.A.

E.S.A

N.C.I

?

E.C.I.

E.A.

N.C.C.

N.E.A.

N.C.A. =
Natural Capital
Account (ing)

E.C.A. =
Ecosystem
Capital Account
(ing)

E.E.A =
Experimental
Ecosystem
Accounts

S.N.A. =
System of Natural
Accounts

N.C.I. =
Natural Capital
Index

E.S.A. =
Ecosystem
Service
Assessment

E.C.I. =
Ecological
Capital Index

E.A. =
Ecosystem
Assessment

N.C.C. =
Natural Capital
Committee

?????

N.E.A. =
National Ecosystem
Assessment



Ecosystem Services

“Ecosystem”
from Ecology

“Services”
from Economics



Natural Capital

“Natural”
from Ecology

“Capital”
from Economics



NATURAL CAPITAL


At the EU scale



NATURAL CAPITAL



BAD & GOOD DEFINITIONS



The Sierra Range

Glacier Bay, Alaska

What is Natural Capital?

The concept of Natural Capital refers to the source or supply of resources and services that are derived from nature. Economists estimate these resources and services are of more value than the gross world product. Our forests and wildlife are examples of abundant resources. Examples of the economic benefits offered by nature include storm surge protection and air purification.



BAD

Natural capitalism is a system of four interlinking principles, where business and environmental interests overlap, and in which businesses can better satisfy their customers' needs, increase profits and help solve environmental problems all at the same time.

Other Capitals
Financial, Manufactured, Human,
Intellectual, Social

Economy & Society

Business
Dependencies e.g. Raw material provision of a stable operational environment, etc.
Impacts e.g. through pollution, overexploitation, or better through conservation activities

Impact on corporate value
• Changing asset values/ share price
• Impact on intangible assets
• Going concern issues

Interactions

Dependencies

Impacts

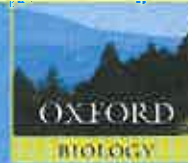
NOT A GOOD IDEA



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Mapping Ecosystem Services

Edited by Peter Kareiva, Heather Tallis, Taylor H. Ricketts,
Gretchen C. Daily, and Stephen Polasky

CONFUSING

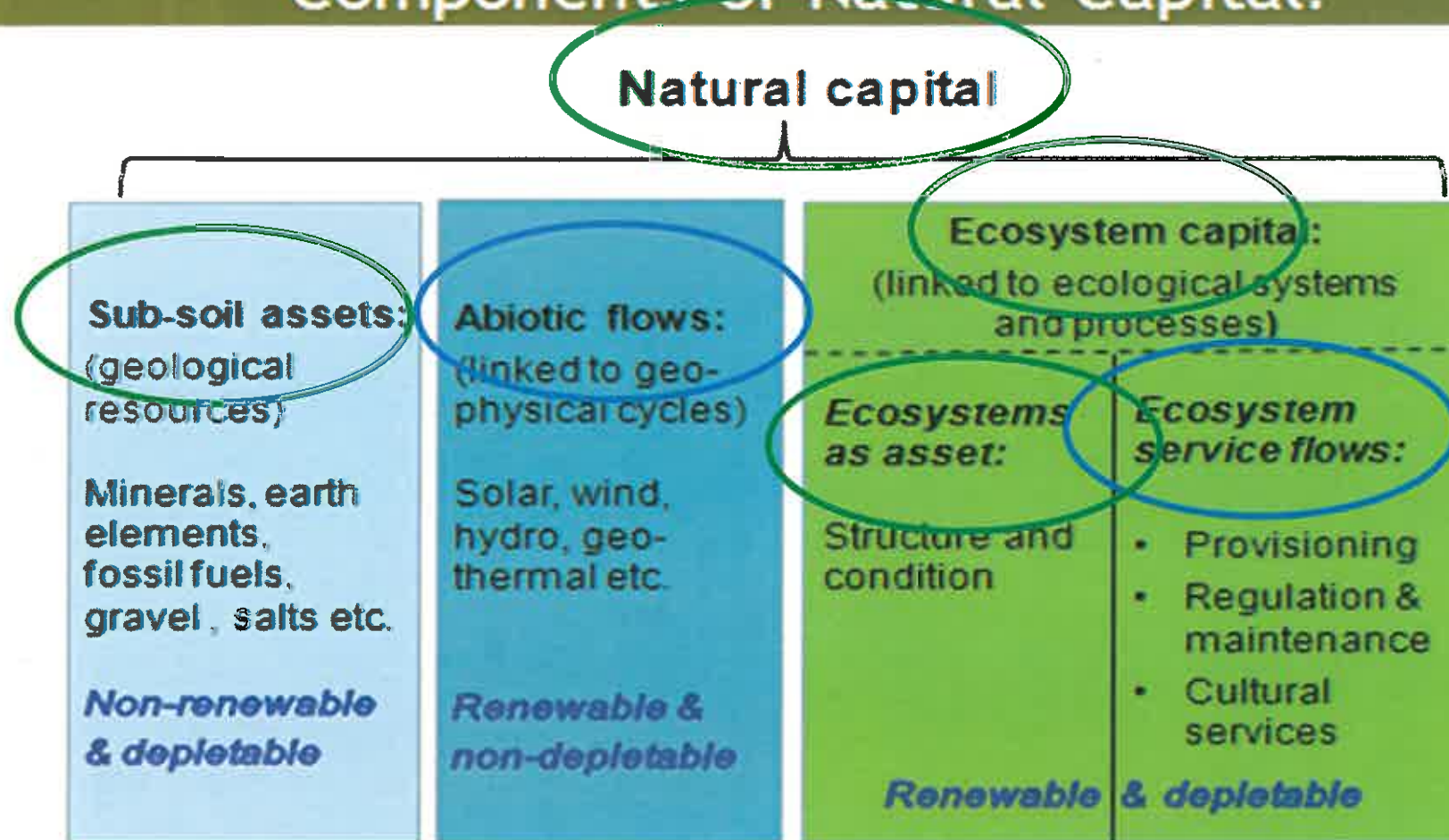
NATURAL CAPITAL

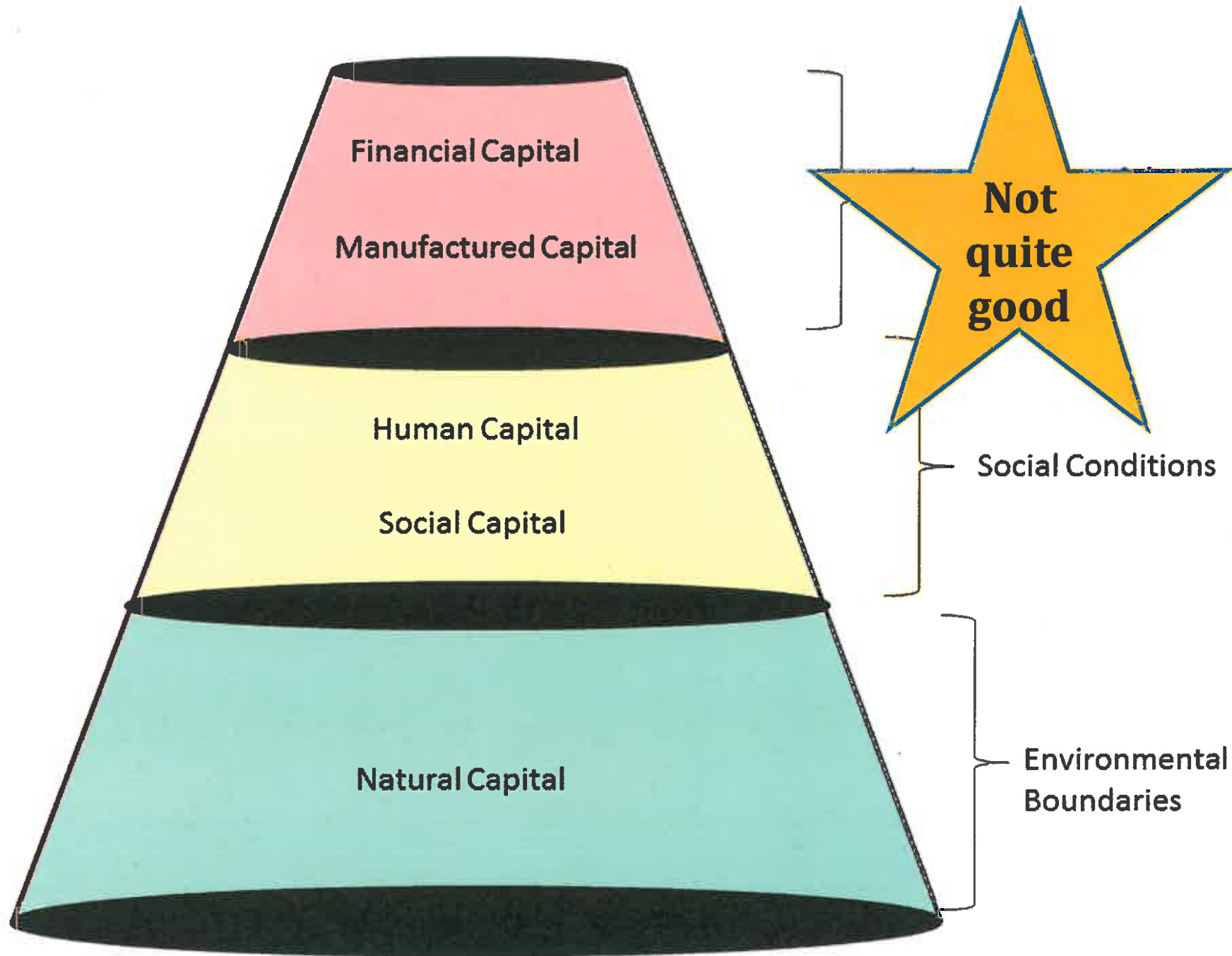
Theory and Practice of Mapping Ecosystem Services

Edited by Peter Kareiva, Heather Tallis, Taylor H. Ricketts,
Gretchen C. Daily, and Stephen Polasky



Components of Natural Capital:





Not quite good



natural capital



human capital



physical capital

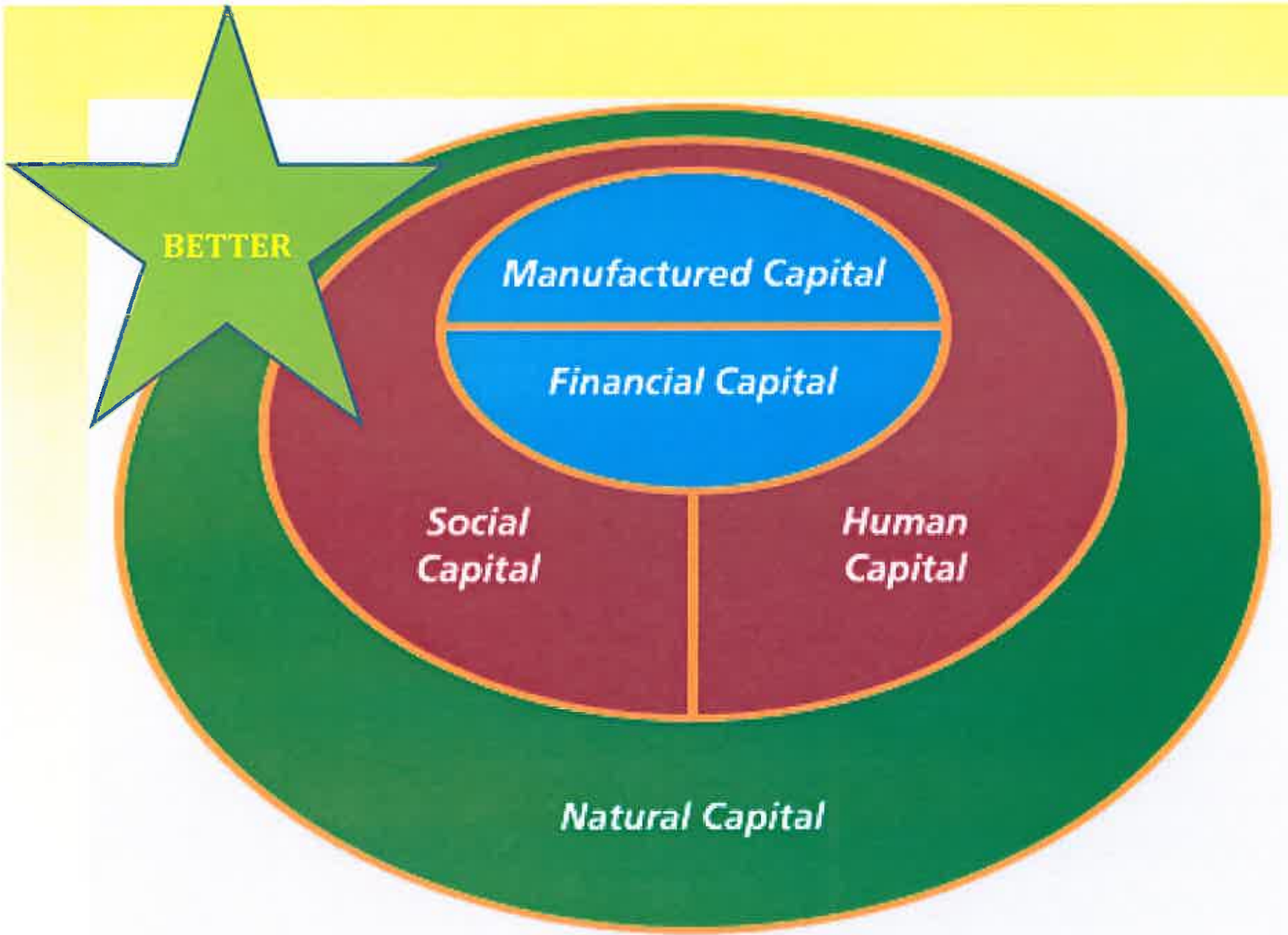


social capital



financial capital

The Livelihoods Pentagon

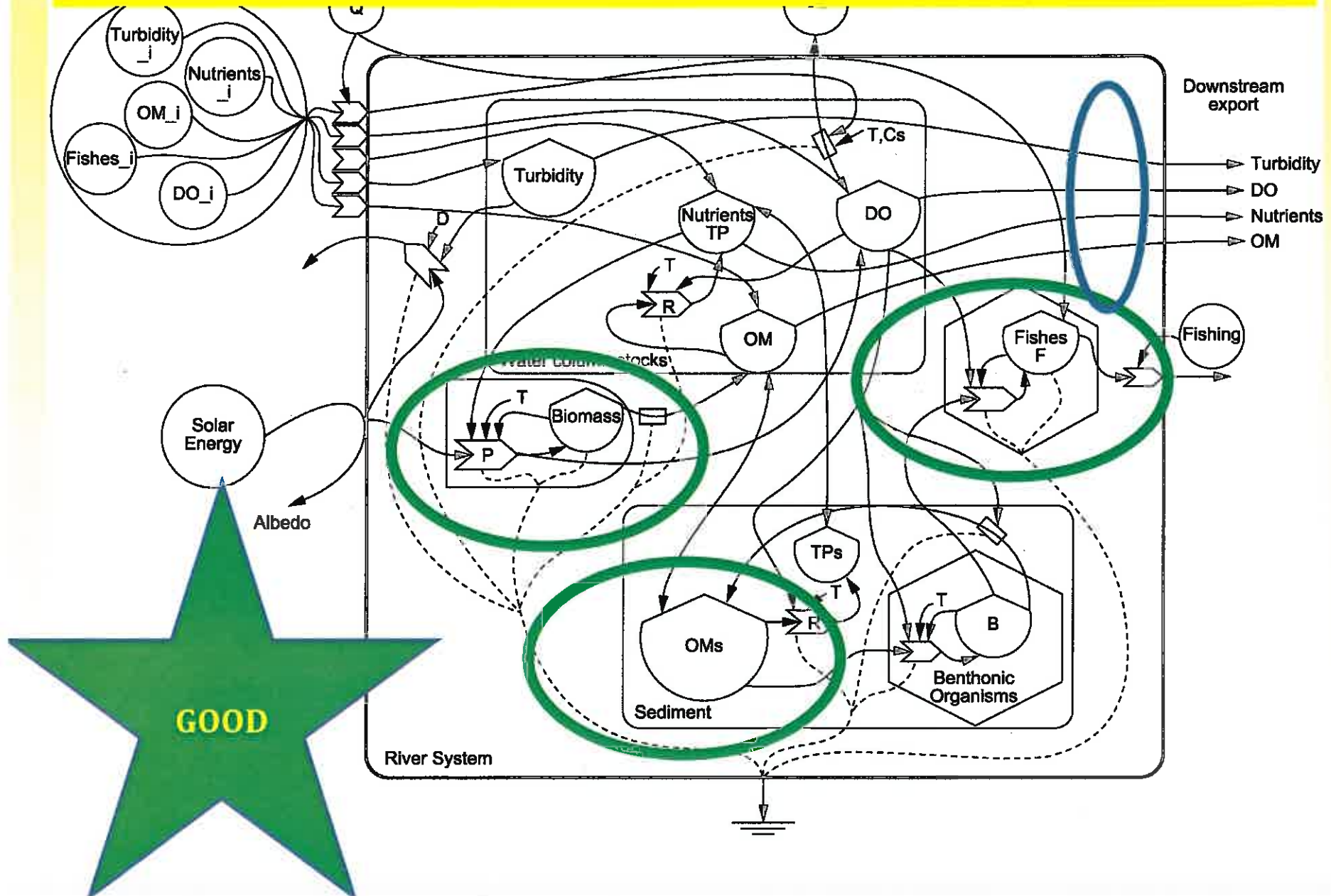




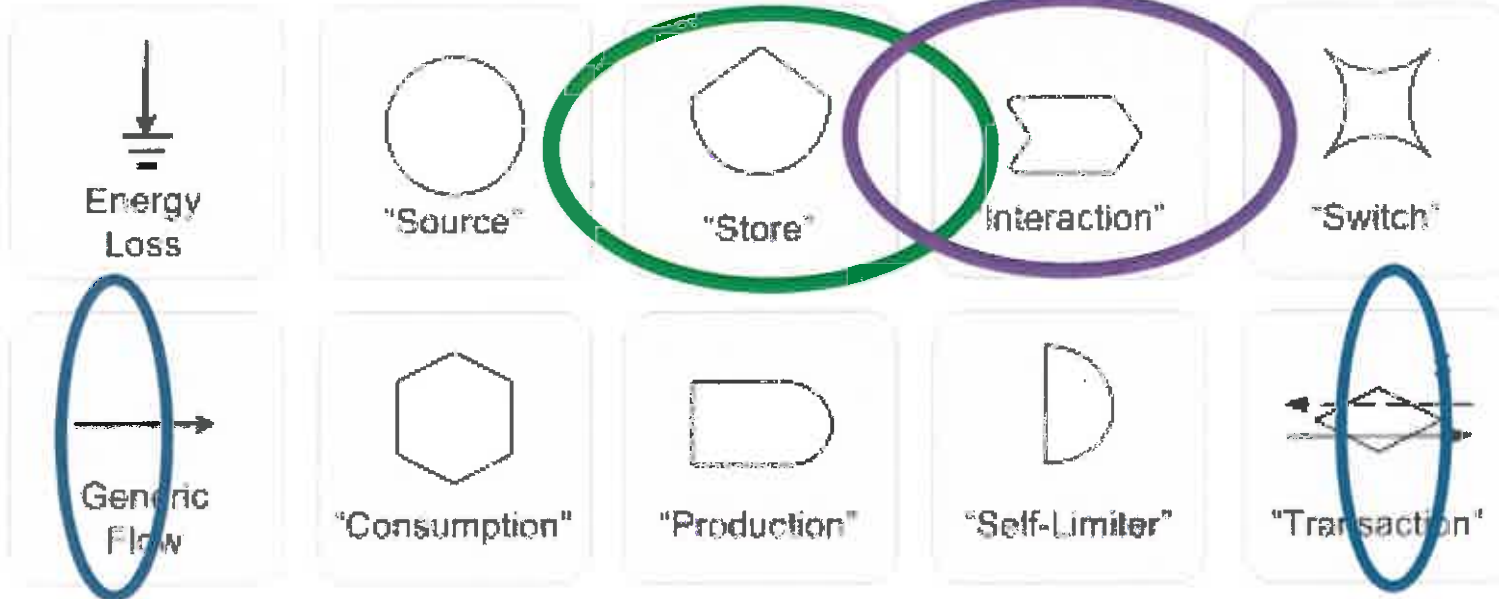
MUCH
BETTER

Patrick's Diagram

And why do i think this is good ?



"Energese"



Produced by Sholto Maut using Microsoft VISIO™.
Symbols available from author as VISIO™ .vss (store)


H.T.Odum's System of Generic Symbols (Energy Circuit/Systems Language Symbols)



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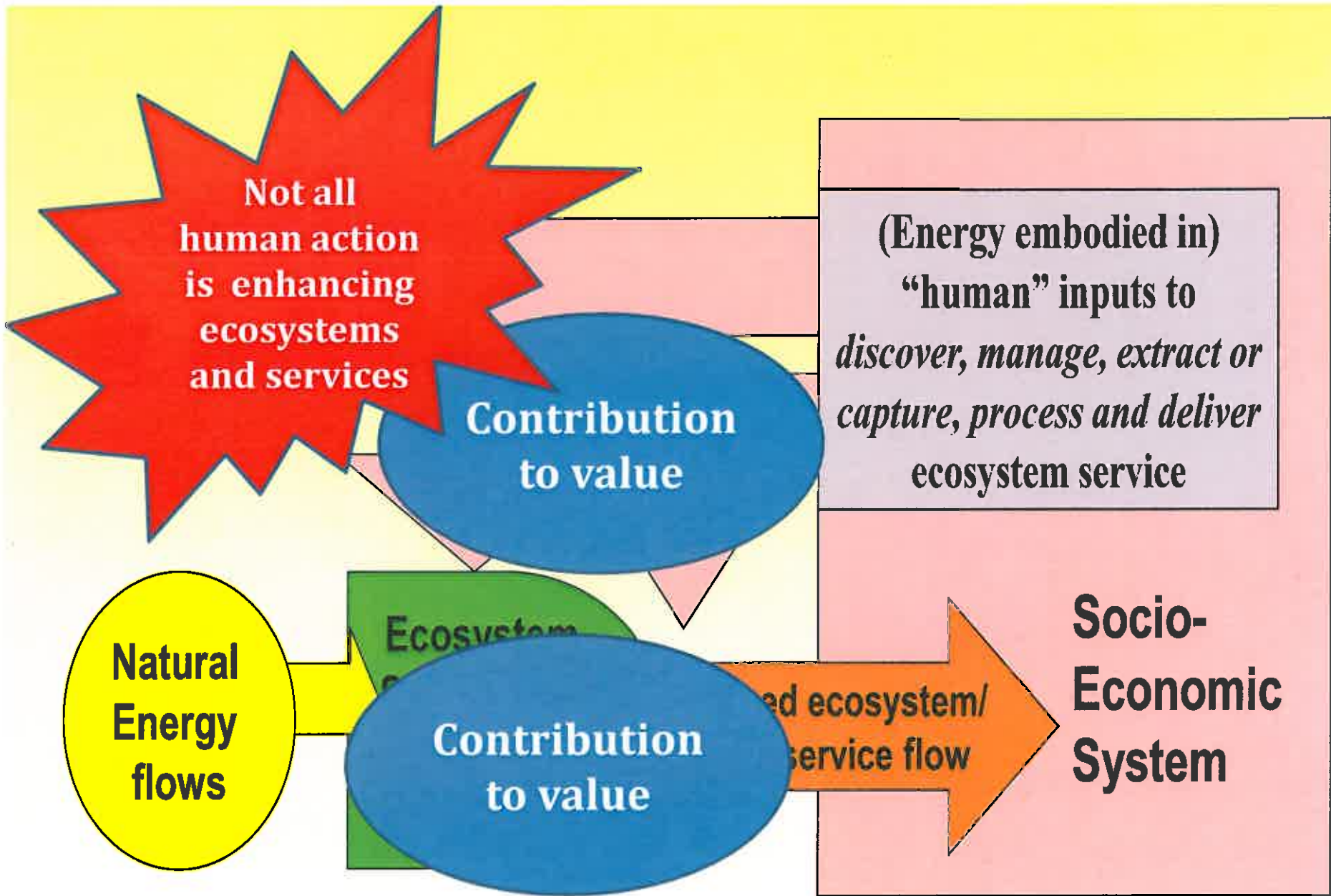
& Ecosystem Services



The Sierra Range



Glacier Bay, Alaska



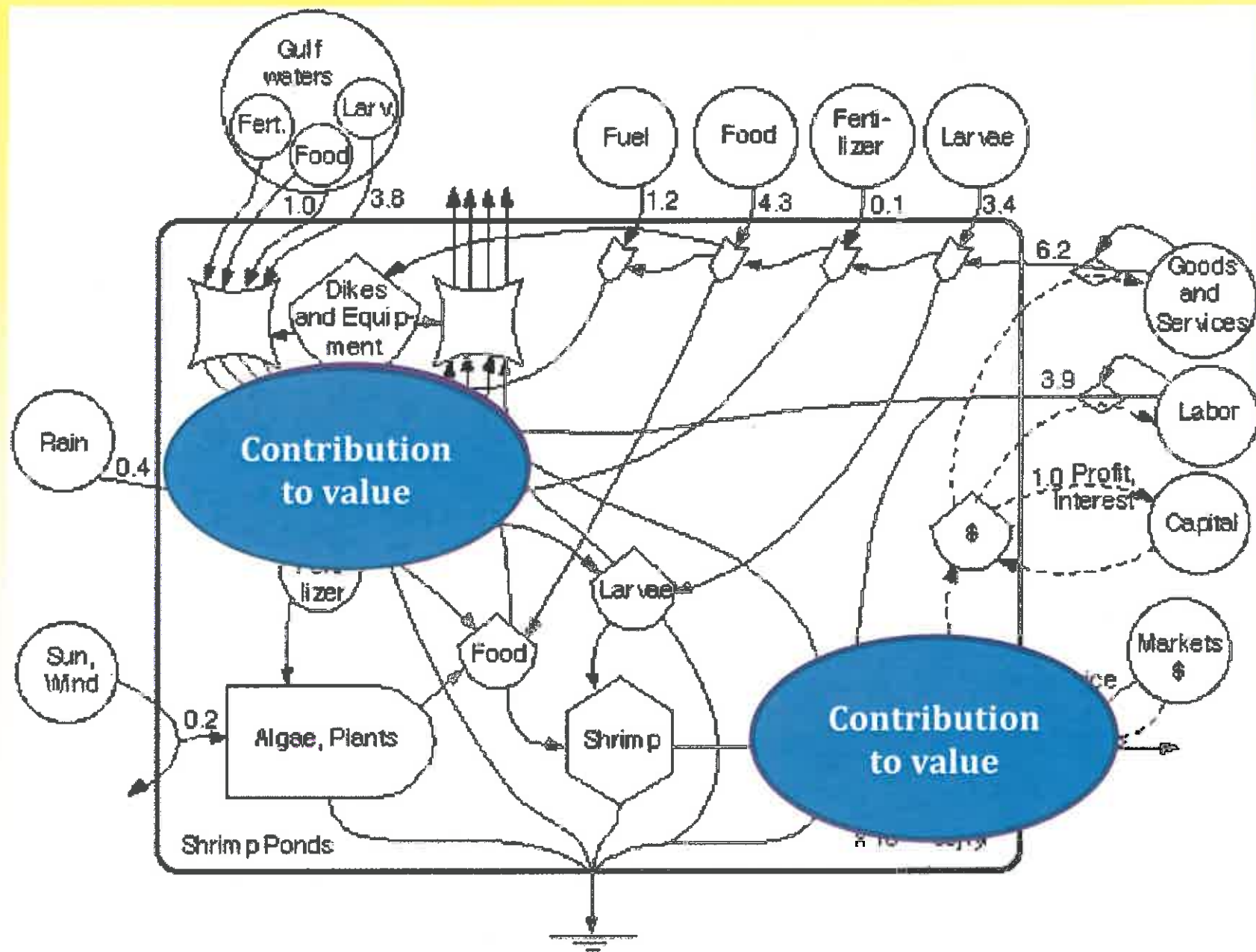
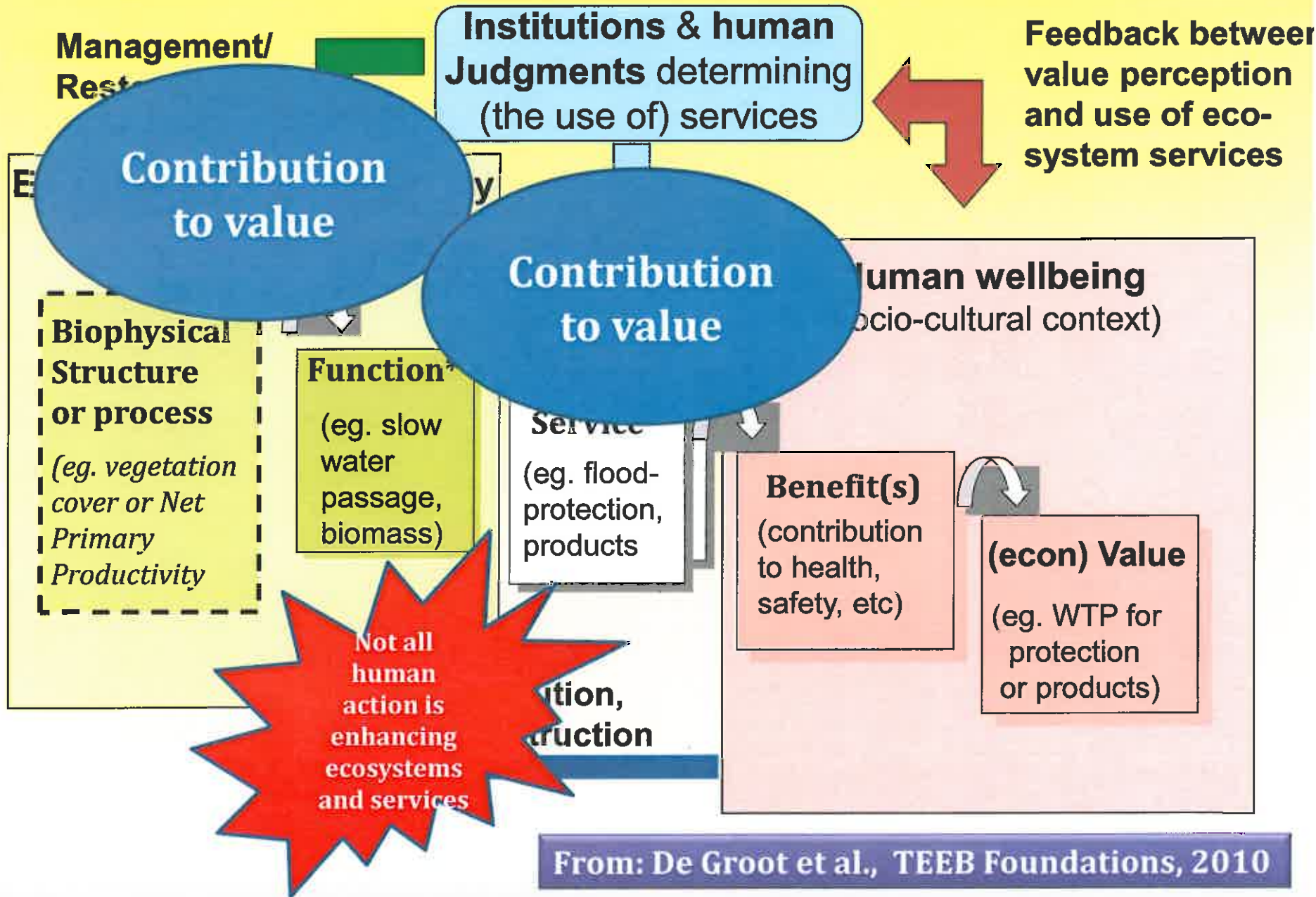


Figure 1. Energy systems diagram of shrimp mariculture in ponds of coastal Ecuador

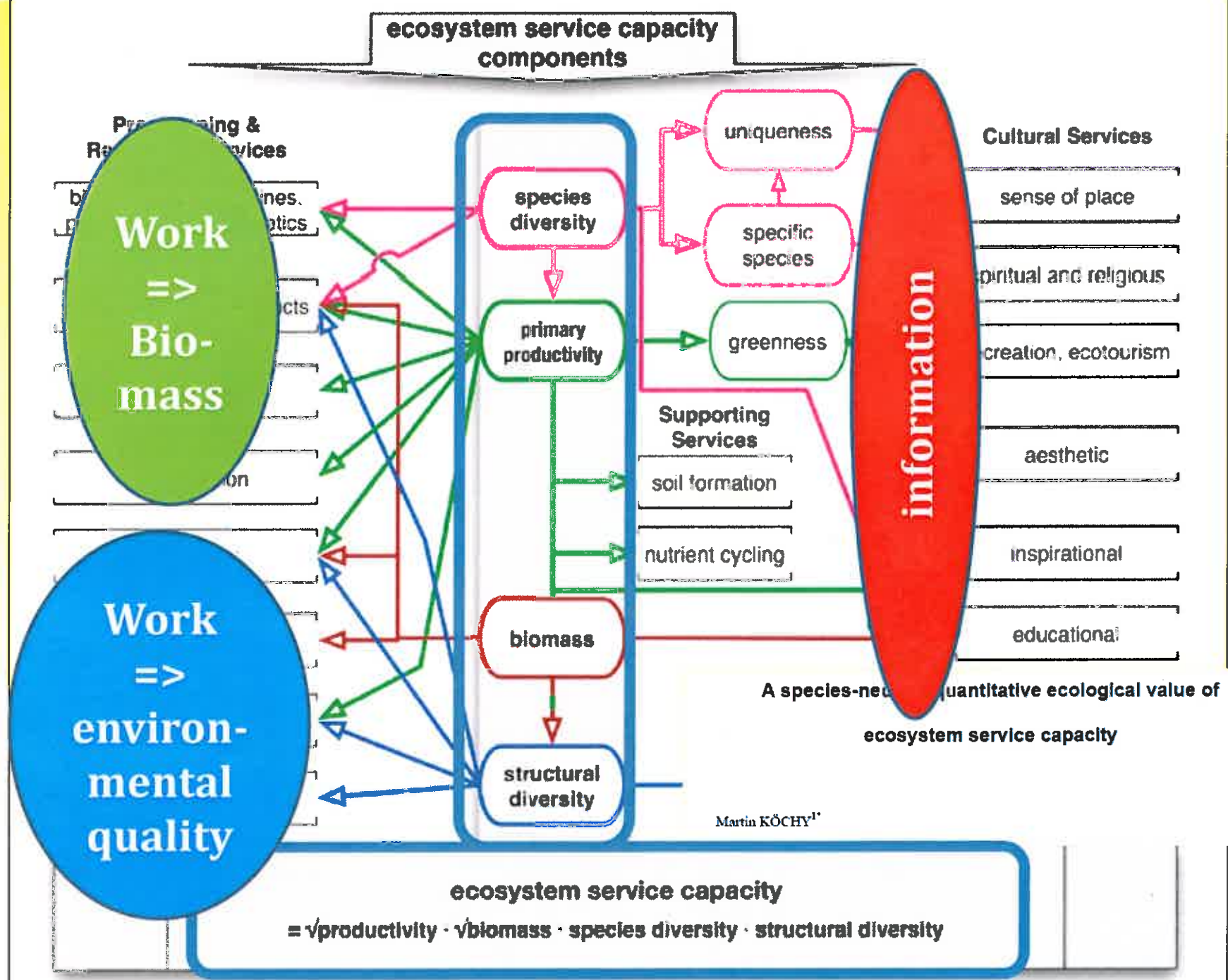




NATURAL CAPITAL,

Biodiversity, and Ecosystem Services

The Sierra Range





NATURAL CAPITAL



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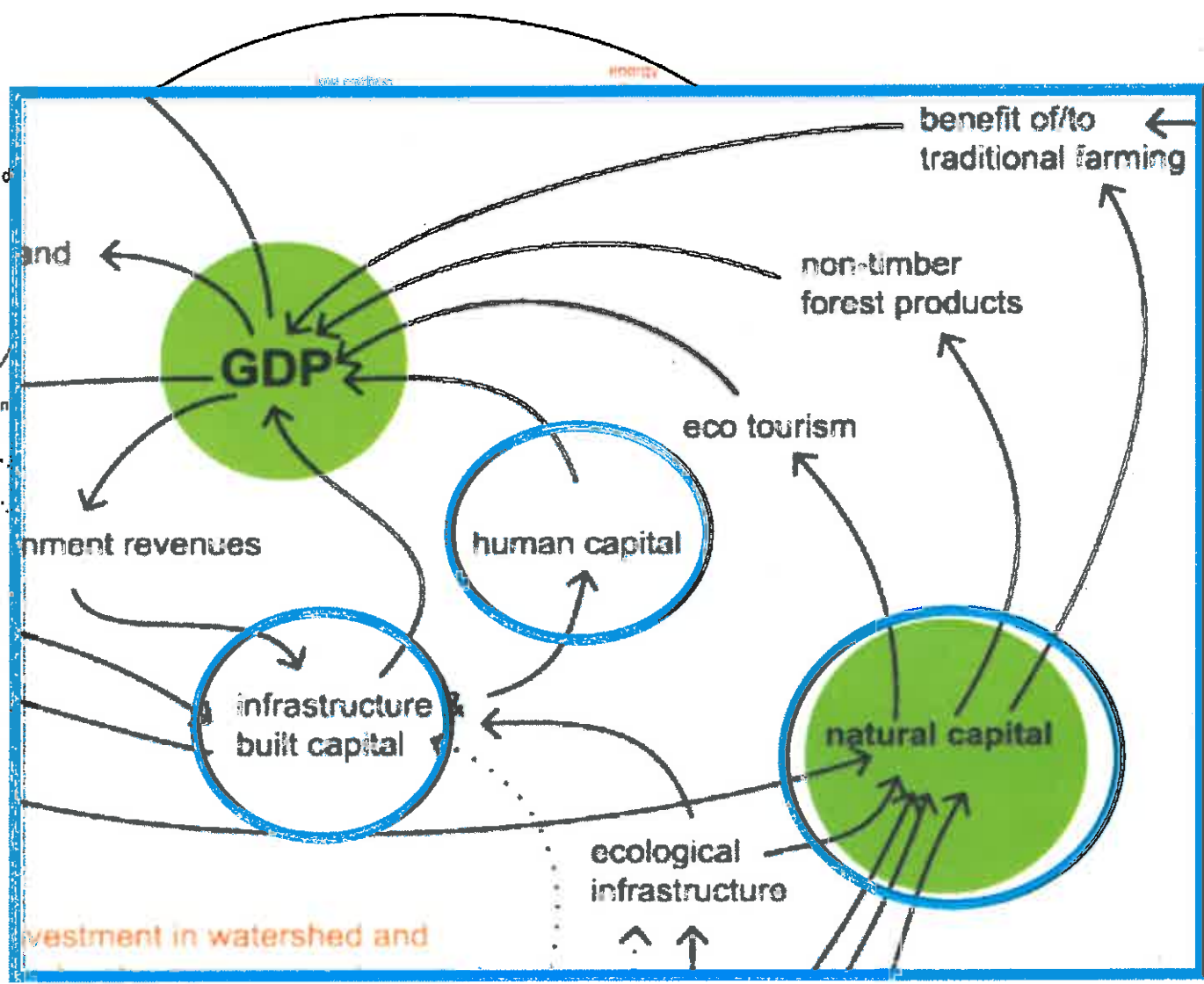
The Sierra Range

&
The ECONOMY

The ECONOMY

The Sierra Range

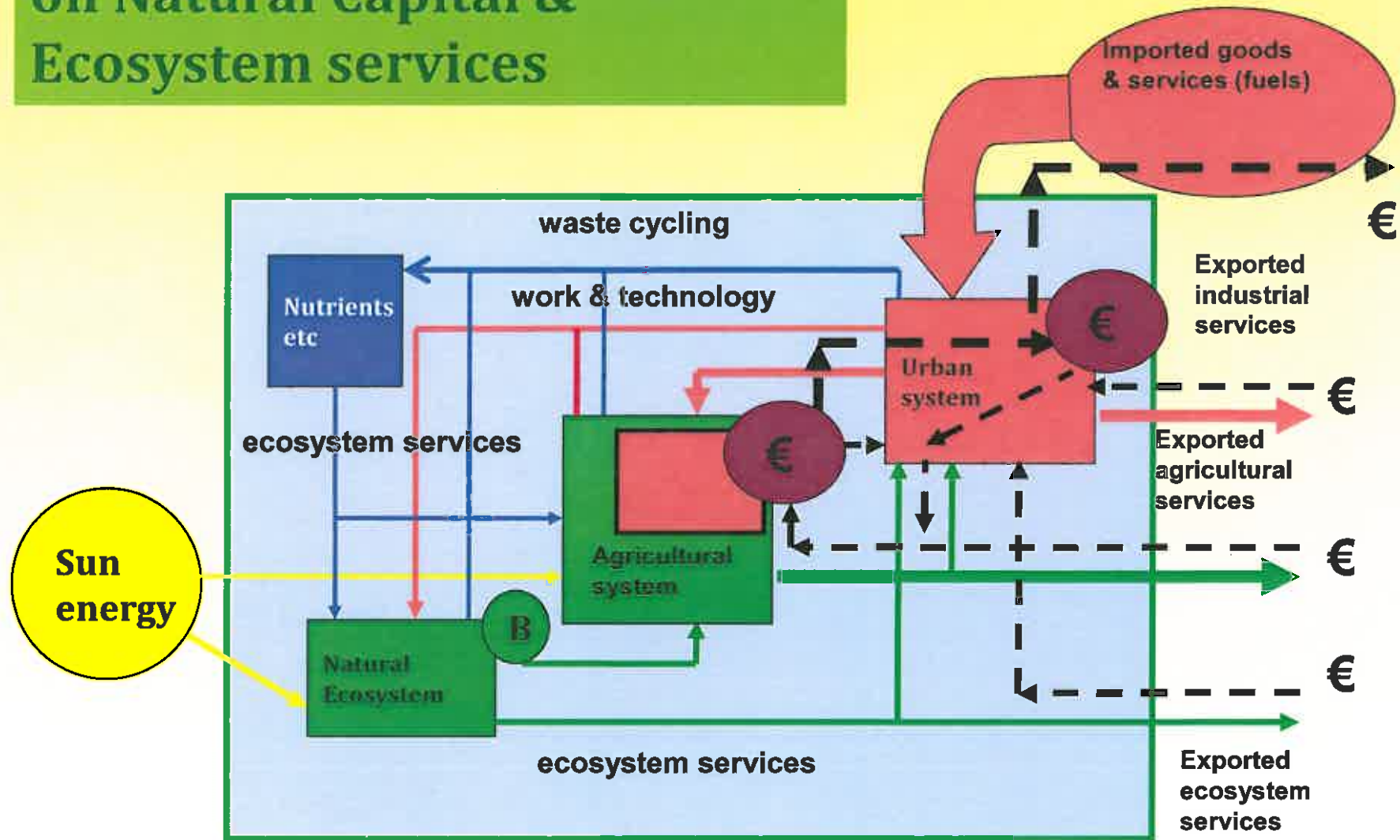
Consistent spatial planning



investment in watershed and

value chain development

A Regional Economy based on Natural Capital & Ecosystem services



So, lessons I learned.....

Keep strict separation between

- 1. stocks / assets / capital (e.g. tons/ha; \$/ha)**
- 2. flows / services (tons/ha/year; \$/ha/year)**

Model / Account for

- 1. (changes in) Stocks (e.g. t0 -> t1)**
- 2. Flows → Inputs & Outputs to Stocks**
- 3. Production functions & relative contributions**

$$\rightarrow A = y * B + z * C$$

→ Food = 90% fossil fuel /man based, 10% ecosystem based

→ Timber = 10% fossil fuel/man based , 90% ecosystem based

So,

On the road to

C.I.C.N.C

Common International Classification of Natural Capital



Illustration by [unreadable] for Sierra Range
at Glacier House, Fairbanks, Alaska
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Alaska

Thank you

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