

Polysemous aspect of ecosystem function and redefining “sustainability”

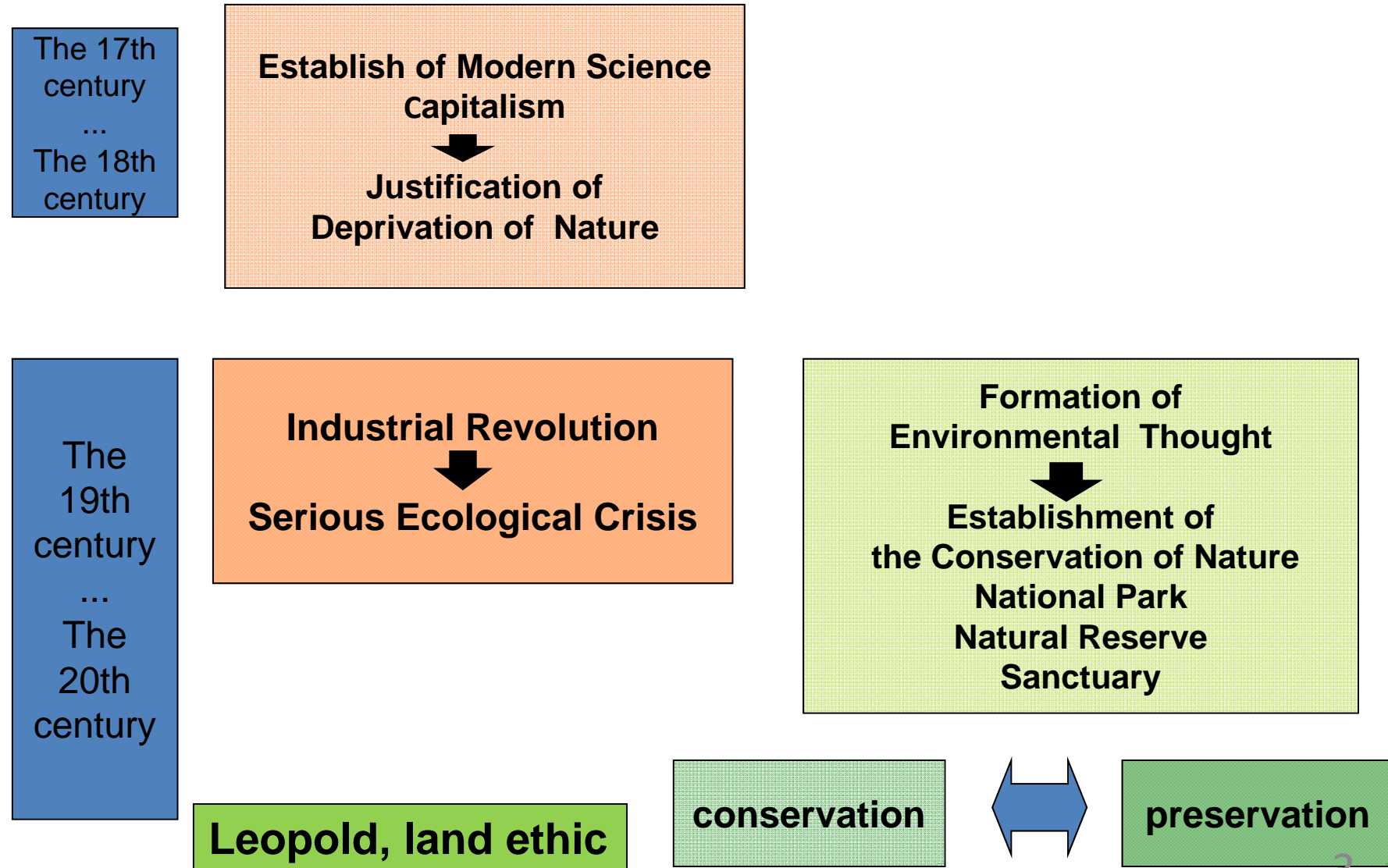
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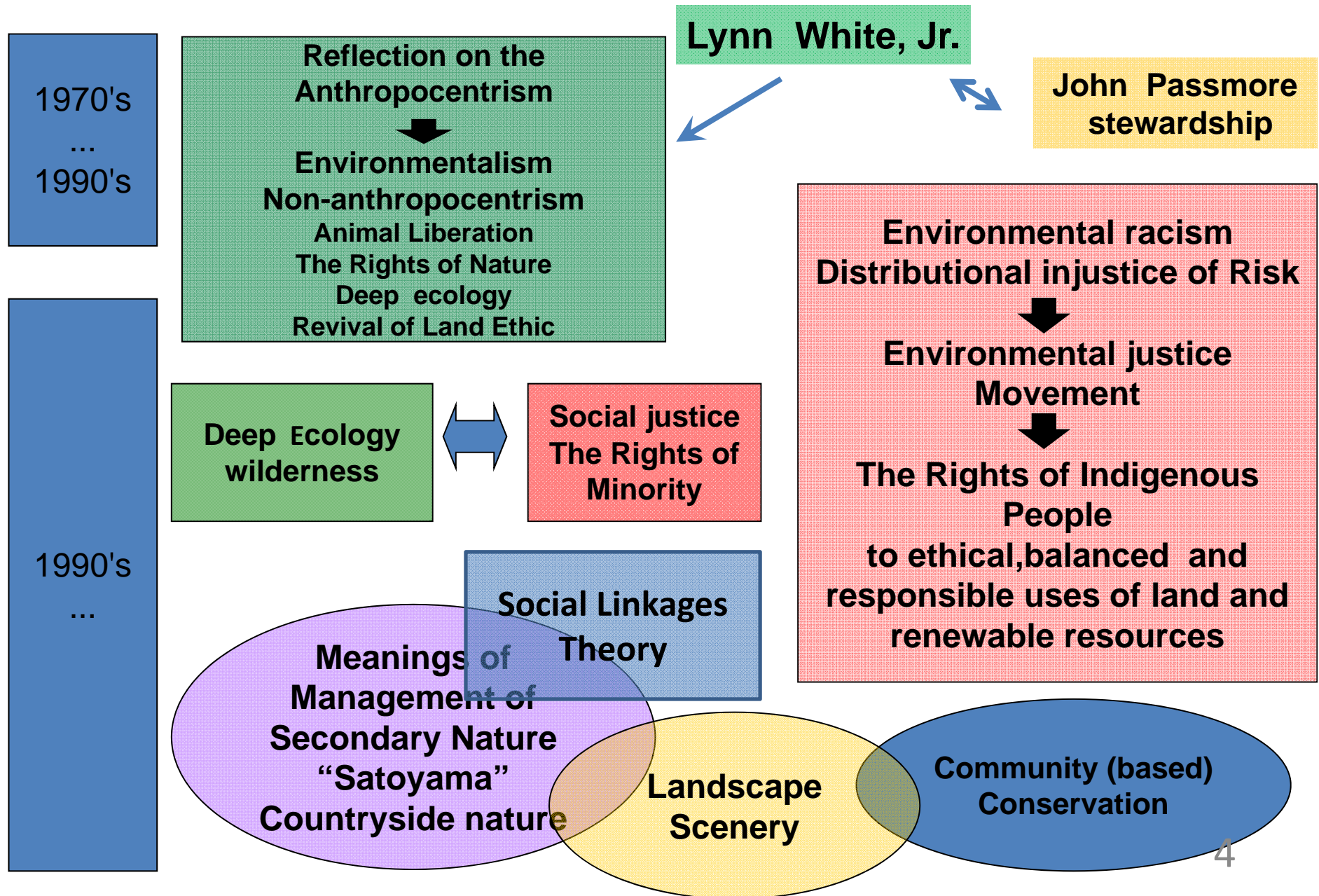
dichotomy and trade-offs in environmental issues

- development (exploration) vs nature conservation
- economy vs environment
- artificial vs natural
- human vs nature
- anthropocentrism vs non-anthropocentrism
- homo-centric vs bio-centric, eco-centric
- ⇒ environmental ethics as non-anthropocentrism
???

History of environmental thought



History of environmental thought



Two paradigm shift of modern environmental ethical thoughts

- **1970's — Environmentism Paradigm**
=non-anthropocentrism
 - **Conquest against the anthropocentrism**
- **1990's — Environmental Justice Paradigm**
 - **Social justice for risk and natural resource**
 - **distributive justice, procedural justice , process justice**

Two paradigm shift of modern environmental ethical thoughts : 1

- **Environmentalism paradigm**
 - **Conquest of the anthropocentrism**
 - **Formation of environmentalism**
- **Animal liberation, animals rights bio-centric**
- **Deep ecology**
- **Revival of “land ethic” eco-centric**
- **Environmental ethics
as “the expansion of natural rights“**
- **1989-90s Global Environment Problem**
 - **Environmentalism (would) become global standards**

Two paradigm shift of modern environmental ethical thoughts : 2

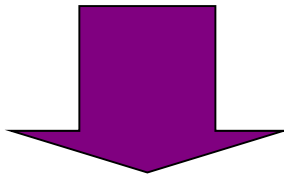
- **Environmental Justice Paradigm**
 - **social fairness, social equity, social justice**
 - **Social justice for risk and natural resource**
 - **distributive justice, procedural justice , process justice**
 - **1990's (after 1992 Earth Summit)**
 - ① **The North-South problem of Environmental Problems**
 - ② **The Rights of Indigenous people**
 - ③ **The Legitimacy for conservation of natural reserve**
 - ④ **Meaning of management of secondary nature**
 - ⑤ **Regionalism in the biodiversity conservation**
 - ⑥ **Notice to subsistence in environmental conservation**

The dichotomy of anthropocentrism and non-anthropocentrism is fruitful?

- human vs nature, artificial vs natural
 - utilization (conservation) vs preservation (protection)
 - environmental justice thoughts is anthropocentrism? No! but...
 - subsistence activities is required to be examined
- wilderness (untouched nature, primeval nature) vs secondary nature
 - wilderness is a symbol of American mind, especially link to patriotism
 - Wilderness area in U.S.A. and the native people
 - Wilderness as the area to cultivate in reclamation age
 - After frontier lost, wilderness as the area to conserve
 - “Satoyama” as biocultural landscape

breakaway from static and genuine nature from conservation to ecosystem management

- *ecosystem as static organism*
- *nature conservation as exclusion of artifact*
- *wilderness = genuine nature*
- *secondary nature = faking nature*



**ecosystem as heterogeneous and dynamic system
with natural and artificial disturbances**

ecosystem management

secondary nature = biocultural nature, Satoyama





堆肥



おはは
落ち葉掃き



さつま芋の苗床



九里四里うまい
十三里半
（東より）
（江戸、川越の非難）

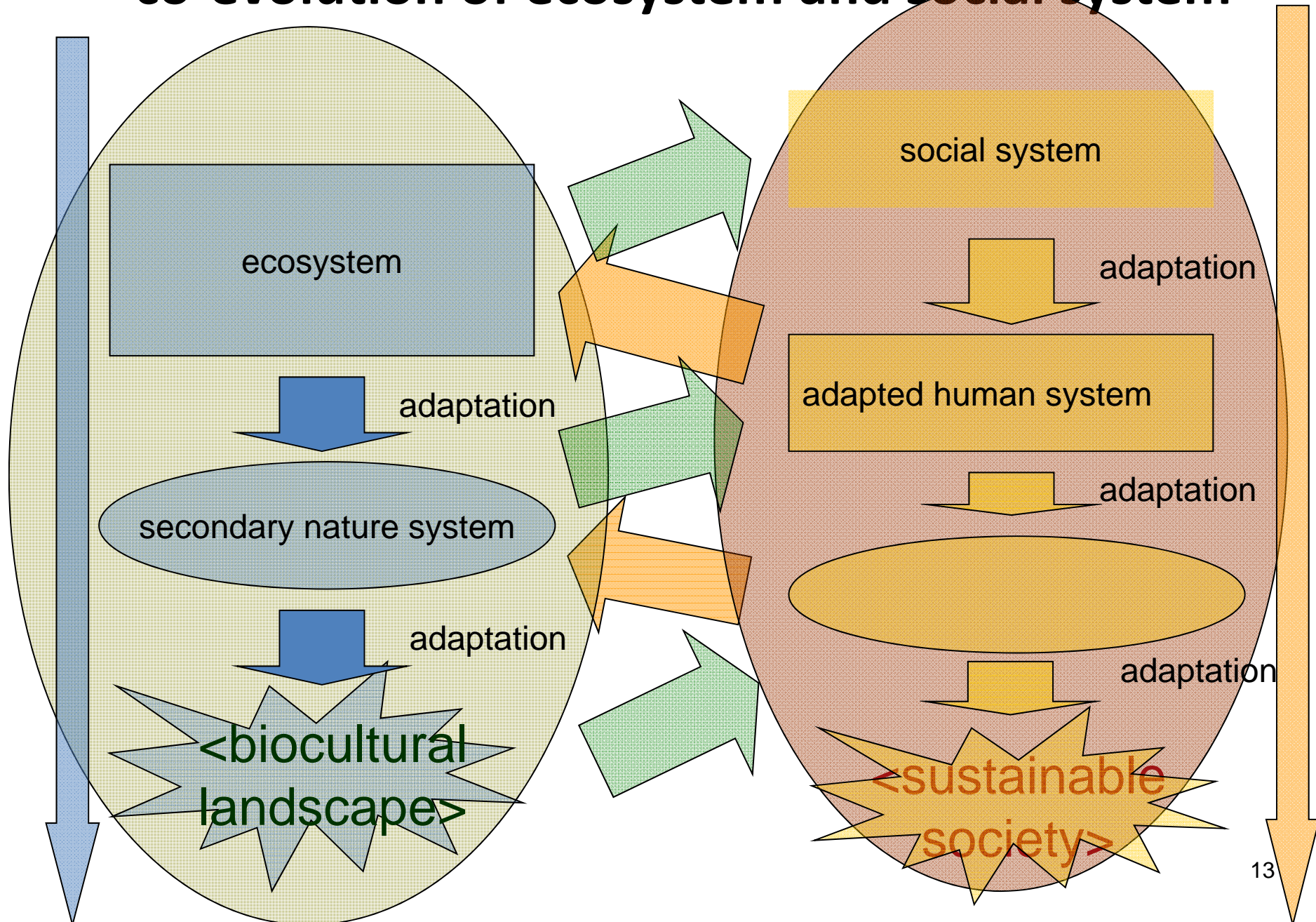


なえどこ
サツマイモの苗床

Satoyama ecosystem as a model of sustainable society

- 1. utilization: sustainable use of ecosystem
not anthropocentrism, and not non-anthrocentrism**
- 2. human-nature relationship: biocultural landscape**
- 3. co-evolution of ecosystem and social system**
- 4. biodiversity: stable human disturbance**
- 5. adaptive management: uncertainty**
- 6. spiritual relationship with nature: cultural services
minor subsistence and child play**
- 7. everyday life, living as wholeness: not universal values**
- 8. unique model of sustainable society**
- 9. natural sustainability, spiritual (relationship)
sustainability,
social (fairness) sustainability**

co-evolution of ecosystem and social system



"Ecosystem services" in "United Nations The Millennium Ecosystem Assessment"

Provisioning

produced or
provided by
ecosystems

- food
- fresh water
- fuel wood
- genetic resources

Regulating

obtained from
regulation of
ecosystem
processes

- climate regulation
- disease regulation
- flood regulation

Cultural

Non-material
benefits from
ecosystems

- spiritual ▪ recreational
- aesthetic ▪ inspirational
- educational

Supporting

Services necessary for production of other ecosystem services

- Soil formation ▪ Nutrient cycling ▪ Primary production

United Nations The Millennium Ecosystem Assessment
(<http://www.millenniumassessment.org/en/about.slideshow.aspx>)

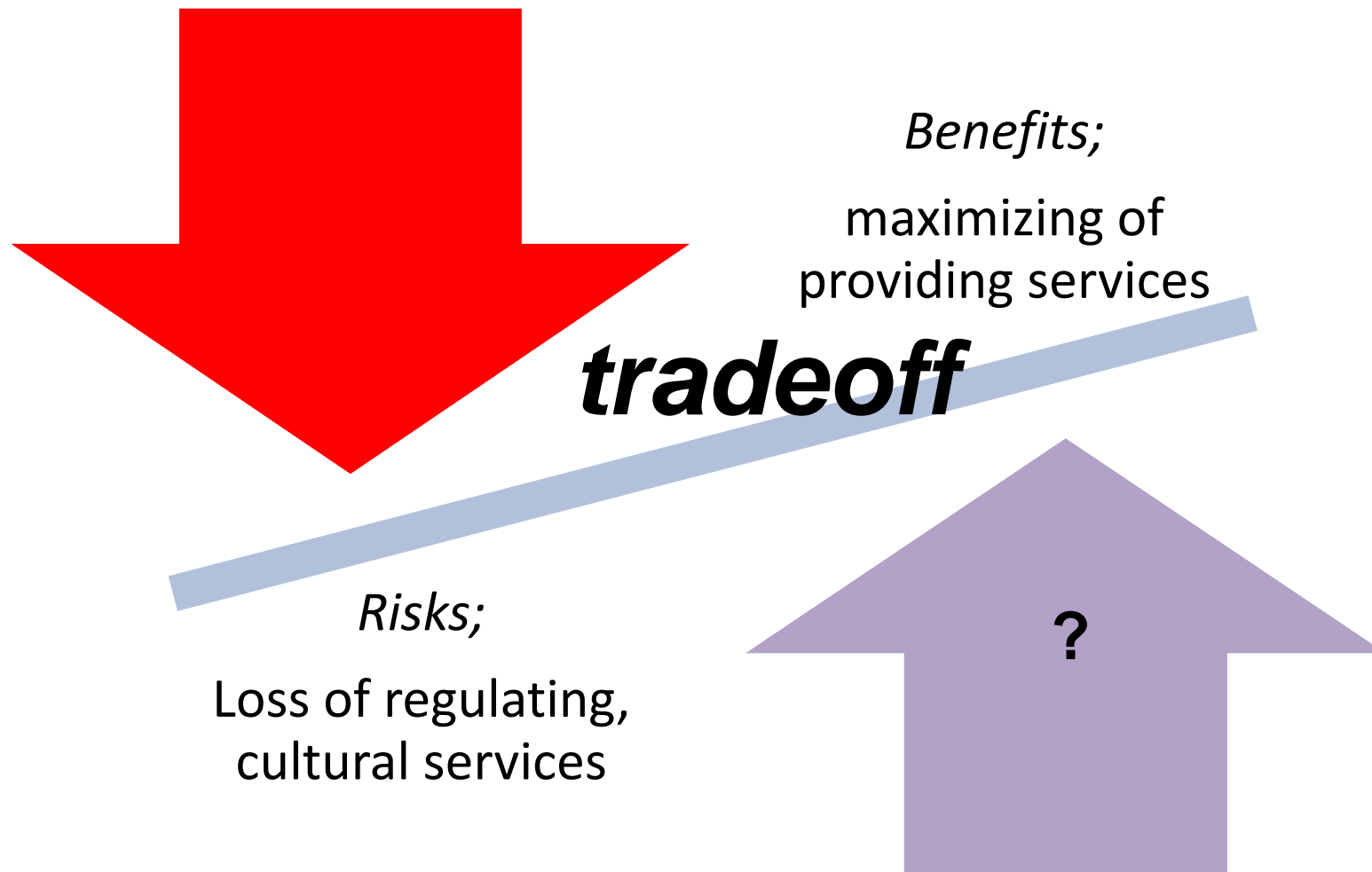
ecosystem services and environmental ethics

- **“services” is economic term,
but expand beyond narrow economic
concepts**
- **“services” = benefit, but not narrow benefit-
centrism**
 - **provisioning services:
economic, quantifi-ability**
 - **cultural services:
mental (spiritual), non quantifi-ability**
 - **regulating and supporting services:
long range security**

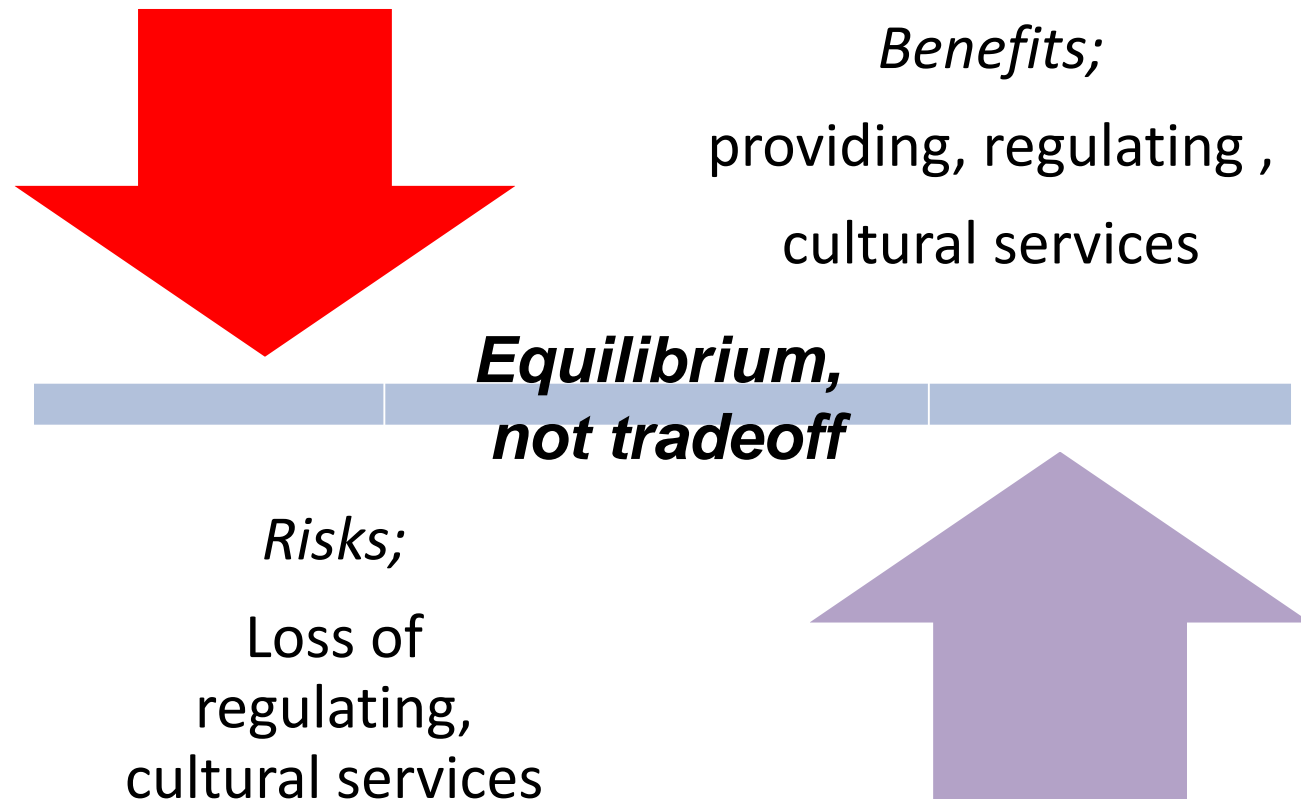
“ecosystem services” concept recombining the dichotomy of benefits/disaster risks

- **disaster risks floods, landslides are not totally disaster risks**
 - **provisioning services: loss in short-term, benefits in longer-term**
 - **cultural services, regulating services: both faces**
- **benefits/disaster risks is not tradeoff in ecosystem services**
- **it is required to accept certain amount of risks to take the benefits**

Tradeoff in ecosystem management maximizing of particular ecosystem service



polysemous framework of ecosystem management



Three elements of environmental ethics

**Environmental
sustainability**

Natural environment

**Social fairness
or social justice**

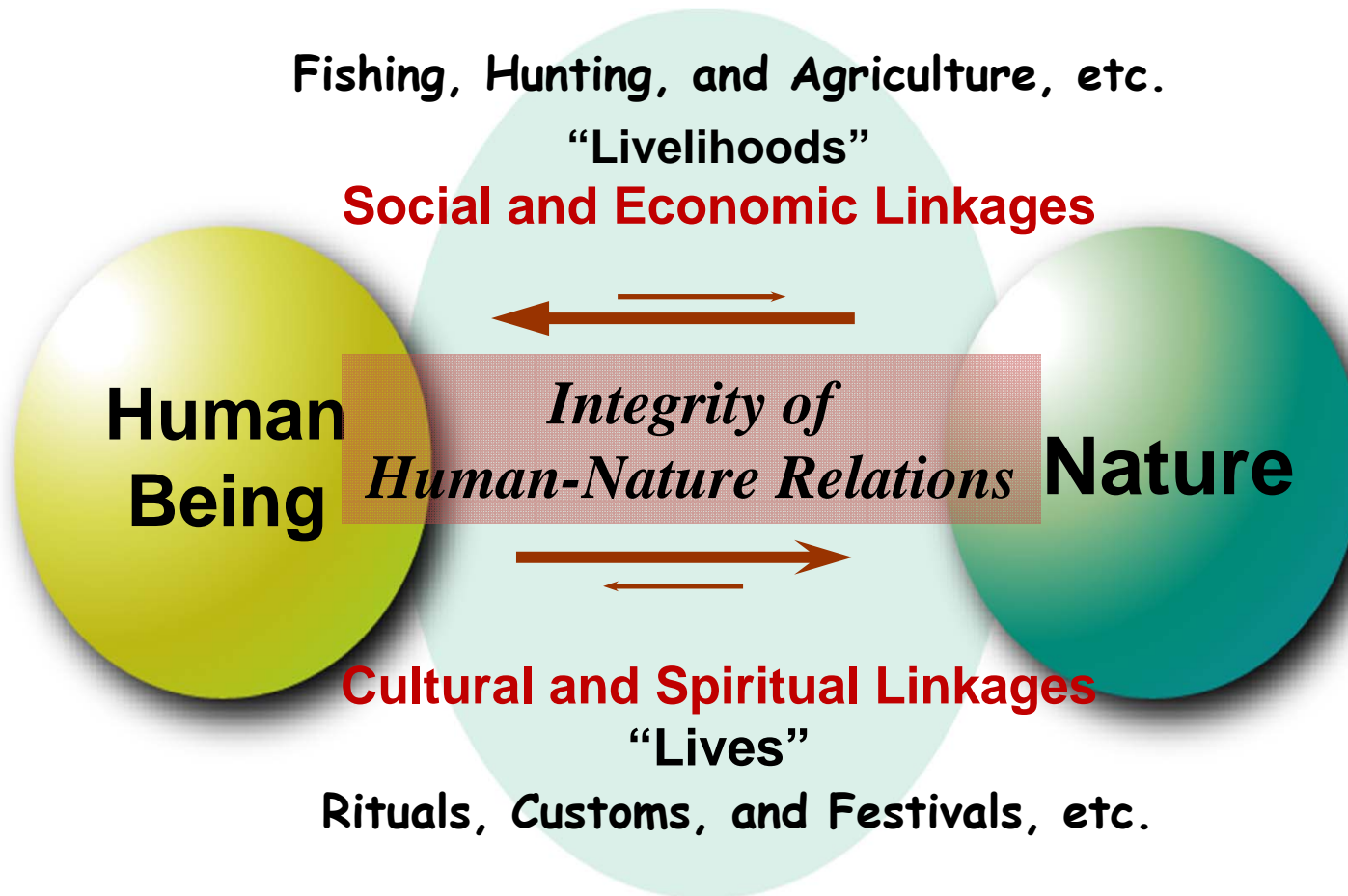
Social environment

**Ontological
richness**

Mental environment

Social Linkages Theory

Nature as the social and cultural



Rituals in Forestry and Hunting

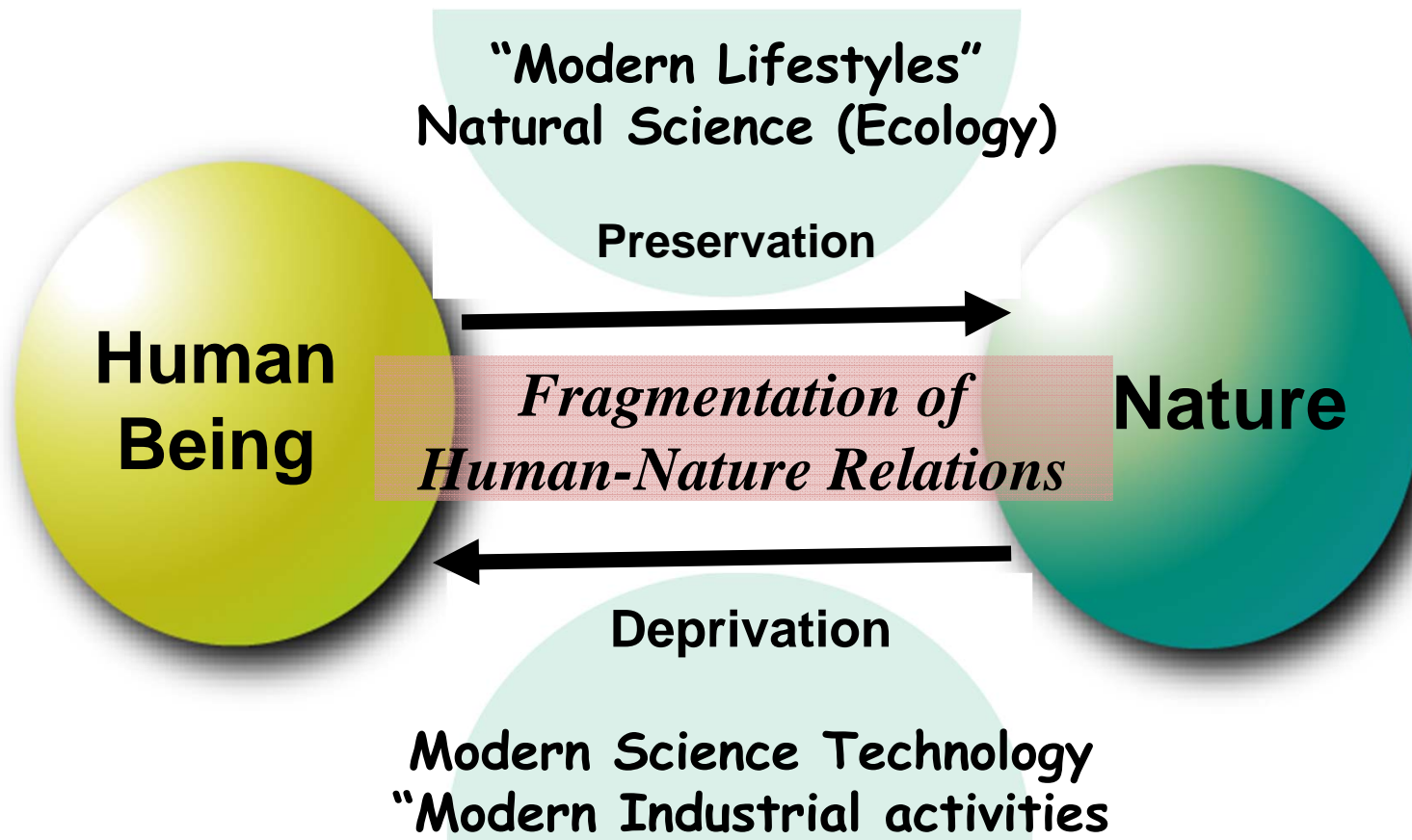


Kabusai-no-zu
Ritual on the stub



Social Linkages Theory

Nature as the social and cultural



Social Linkages Theory

Nature as the social and cultural



Social Linkages Theory

Nature as the social and cultural

- **Two type of linkages: integrity or fragmentation**
 - **spiritual-cultural linkages**
 - **economic-social linkages**
 - **Economic relations should be accompanied by spiritual relations**
- **To keep “the Integrity of Human-Nature Relations”**
- **However, in varying degree, it has been fragmented already → The need for rebuilding it**
- **To recognize that “the Integrity of human-nature relations” is not a static but dynamic process of co-evolution of nature and human society**

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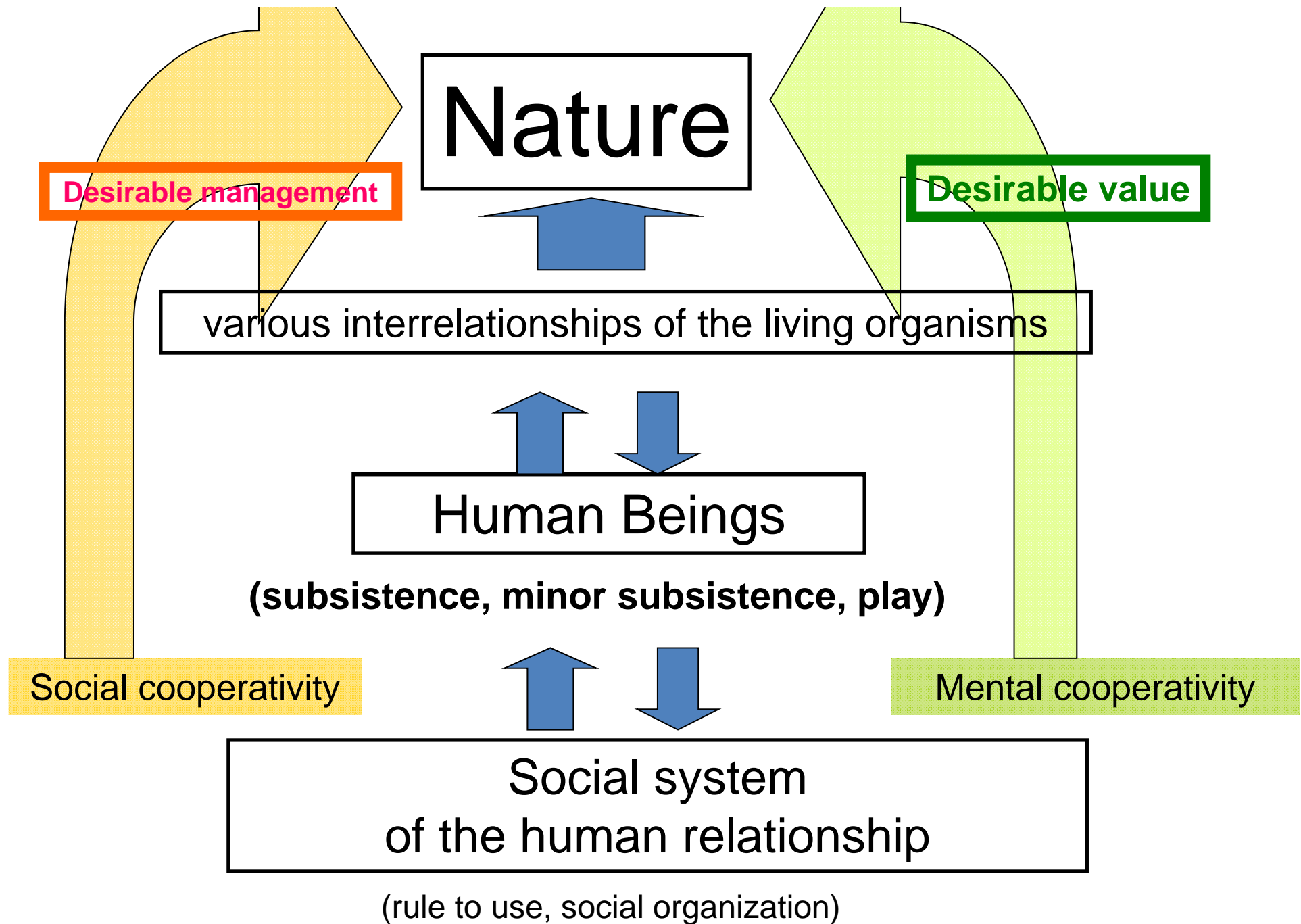


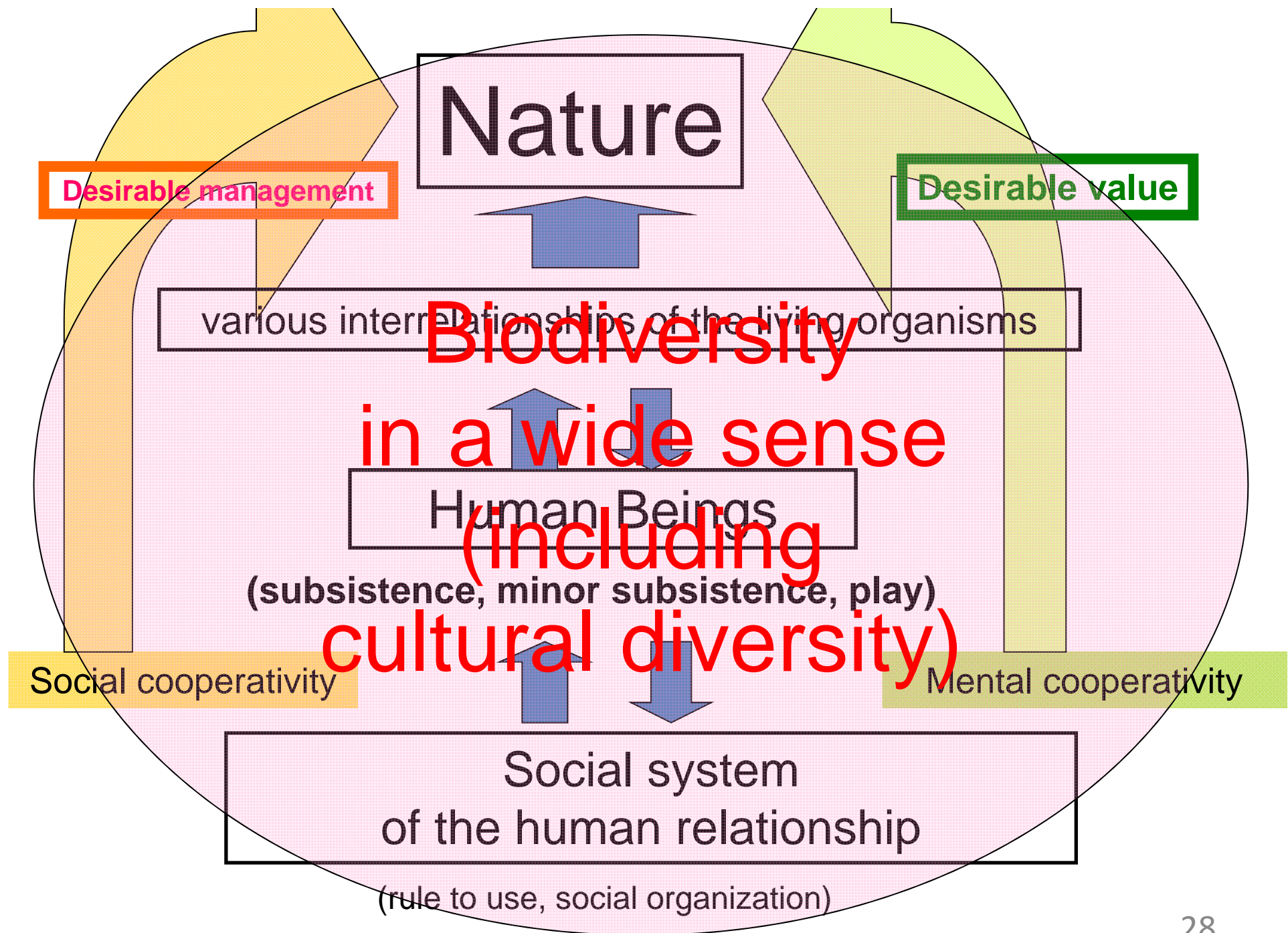
The diagram features a large light green oval background. Inside, the text 'Nature Biodiversity' is enclosed in a black rectangular box. Below this box is a blue downward-pointing arrow. Under the arrow, the text 'in a narrow sense' is written in green. At the bottom, a black rectangular box contains the text 'various interrelationships of the living organisms'.

Nature Biodiversity

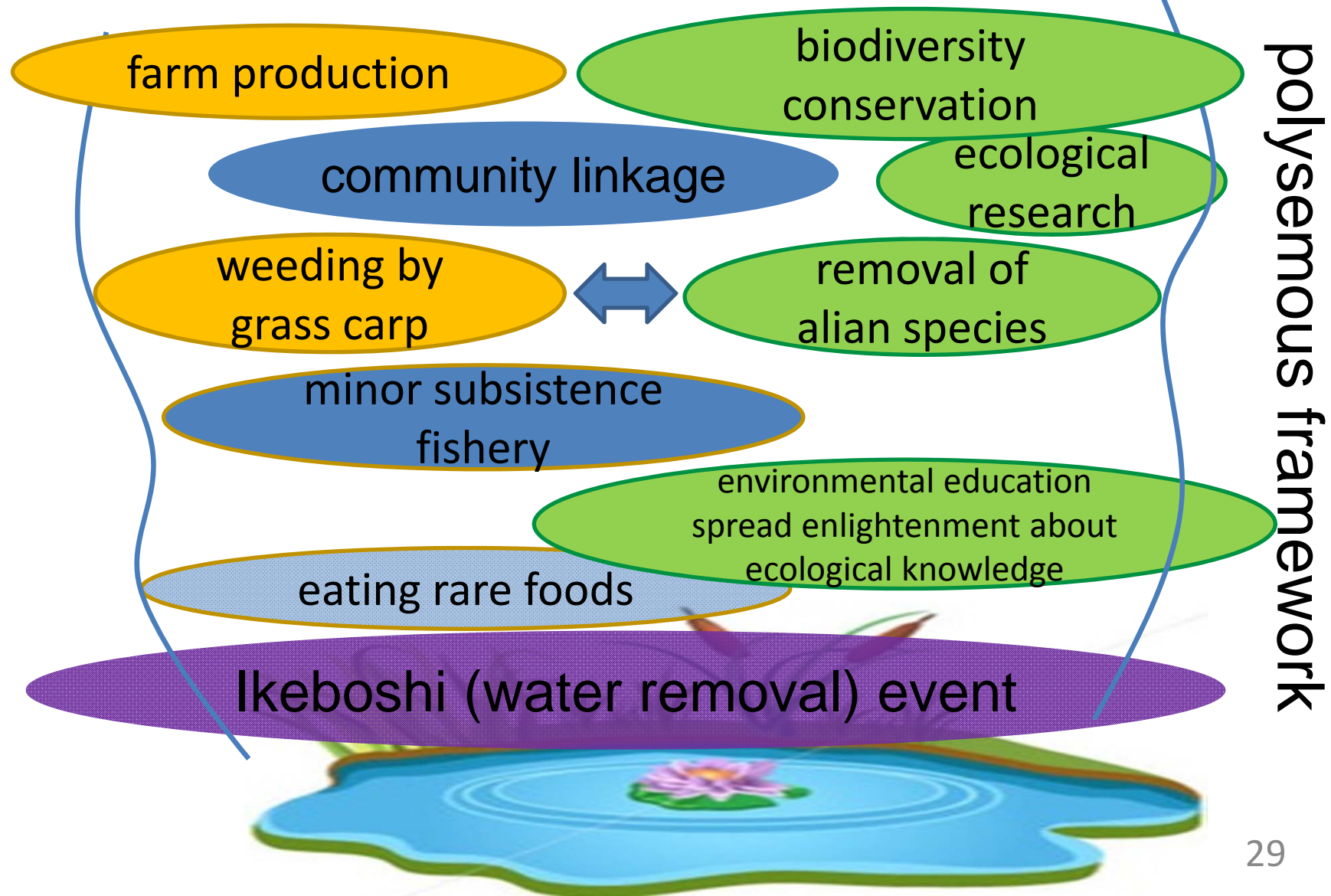
in a narrow sense

various interrelationships of the living organisms





biodiversity conservation framework of Tameike (irrigation reservoir) ecosystem



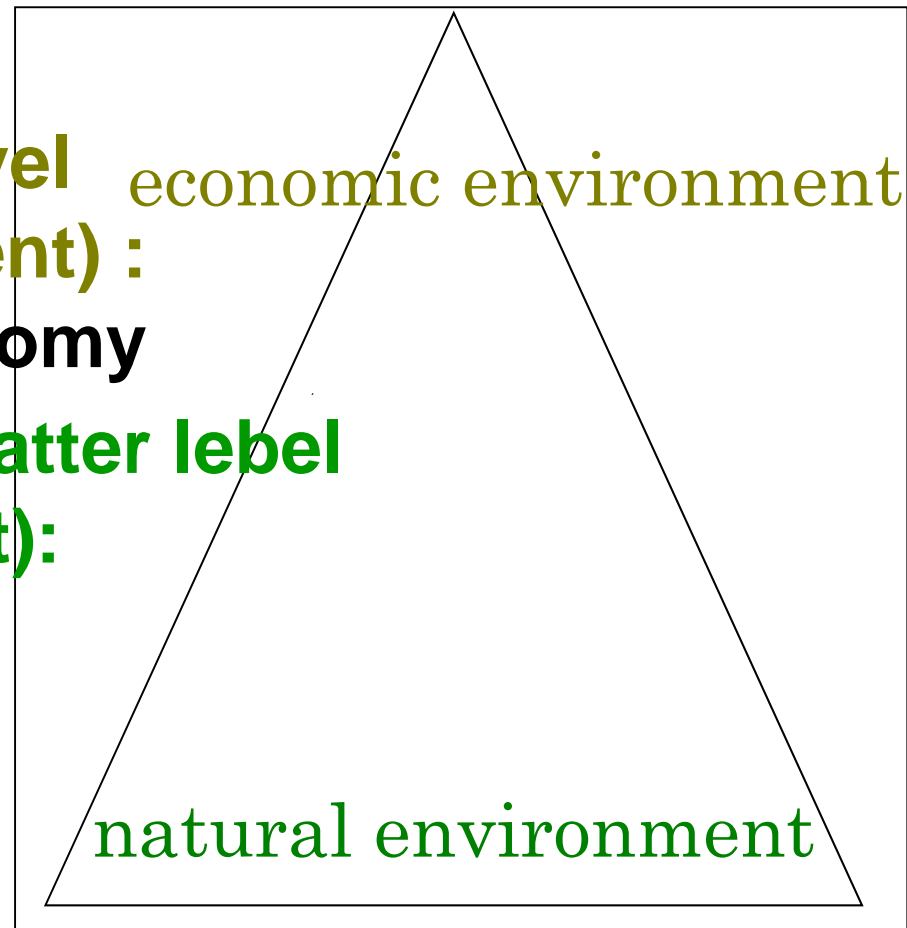


What is sustainability?

generally.....

- **political economic level** (economic environment) :
recycling based economy
- **material and living matter level** (natural environment):
material cycle

but.....



Three elements of environmental ethics

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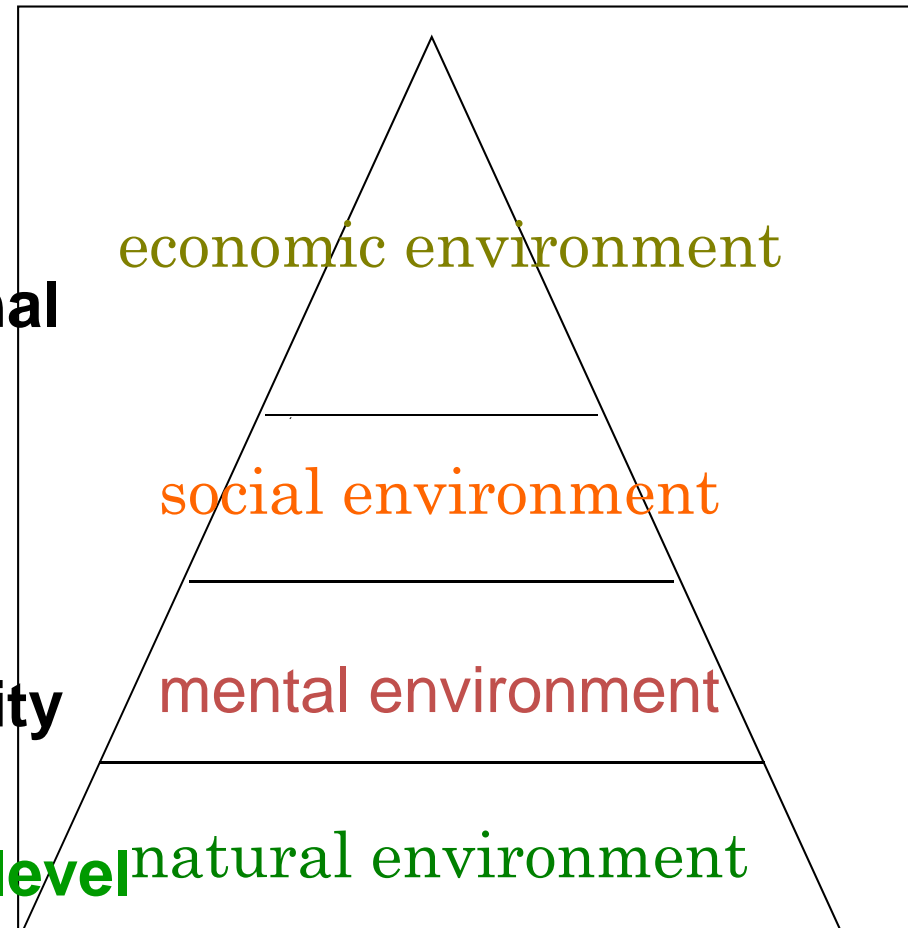
three levels in sustainability

- **human relationship level (social environment):**
reconstruction of communal relationship
- **human nature spiritual relationship level (mental environment):**
reconstruction of spirituality with nature
- **material and living matter level (natural environment):**
nature restoration
- **economy:**
recycling-based economy
- **society:**
social fairness
social justice
- **environment**
(natural environment)
zero emission

requirement of re-definition of sustainability

four levels in sustainability

- **political economic level**
(economic environment) :
recycling based economy
- **human relationship level**
(social environment):
reconstruction of communal
relationship
- **human nature spiritual**
relationship level
(mental environment):
reconstruction of spirituality
with nature
- **material and living matter level**
(natural environment):
nature restoration



A photograph of a forest during autumn. The ground is covered in a thick layer of fallen leaves in shades of orange, yellow, and brown. Numerous thin, dark tree trunks stand vertically, some slightly leaning. The foliage on the trees is sparse, with some leaves showing yellow and orange hues. The background is slightly blurred, showing more trees and foliage.

Thank you for your attention!