

Interlinking ecosystem services and Ostrom's framework through orientation in sustainability research

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Outline

- Social-ecological systems
- ES cascade & diagnostic SES Framework
- SES research in sustainability science
- Interlinking ES and SESF

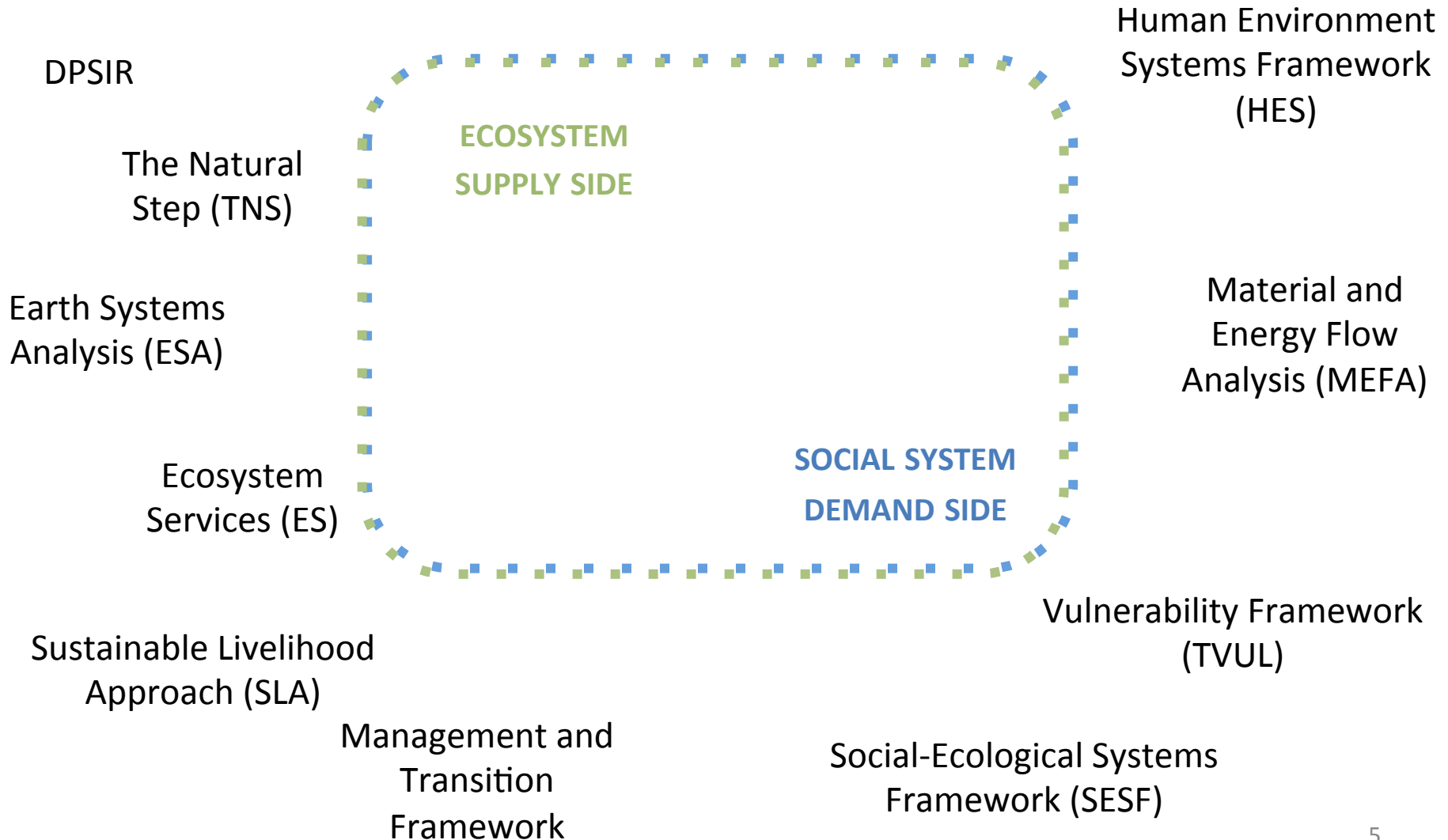
Social – ecological system thinking



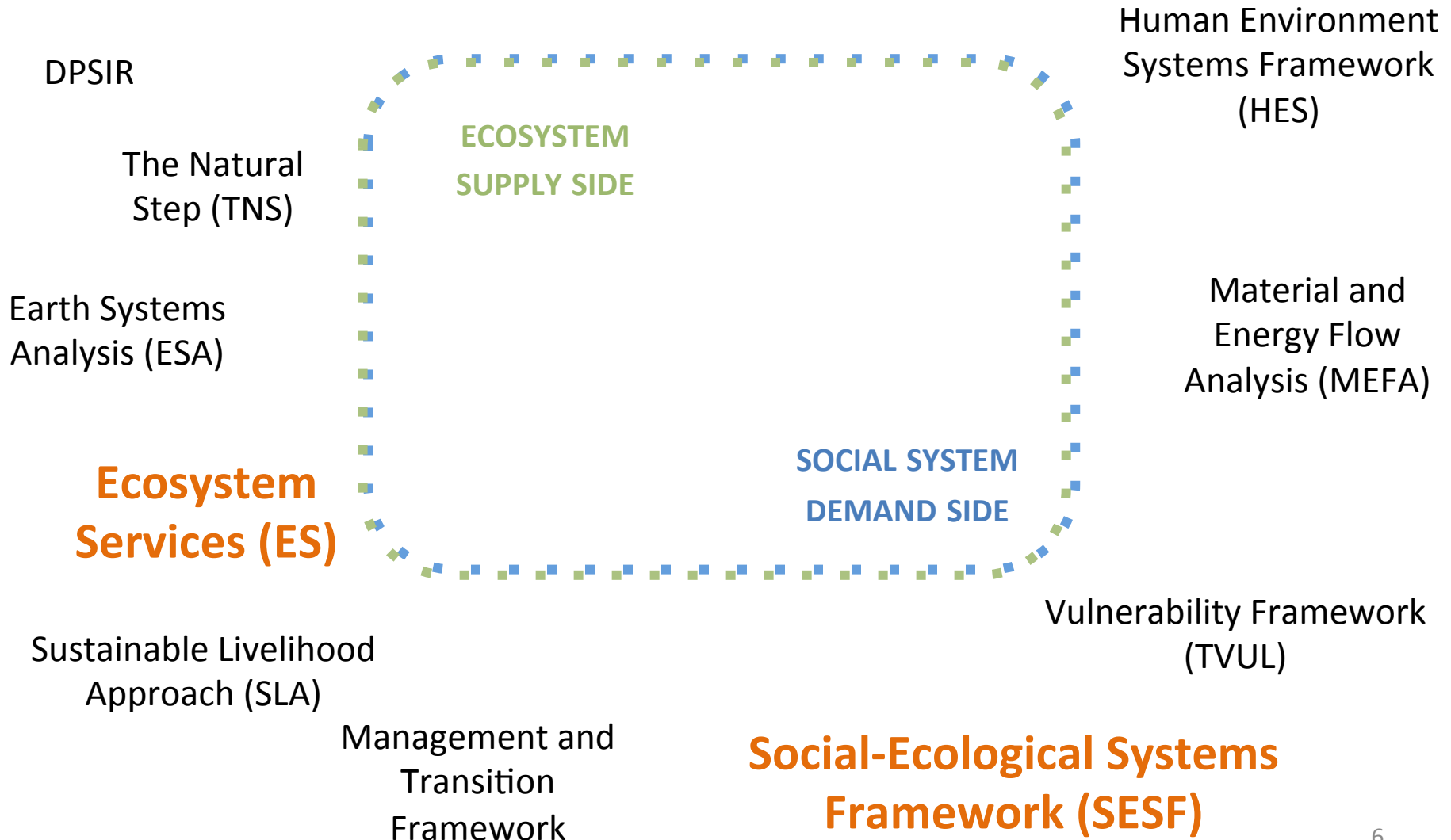
Social – ecological system thinking



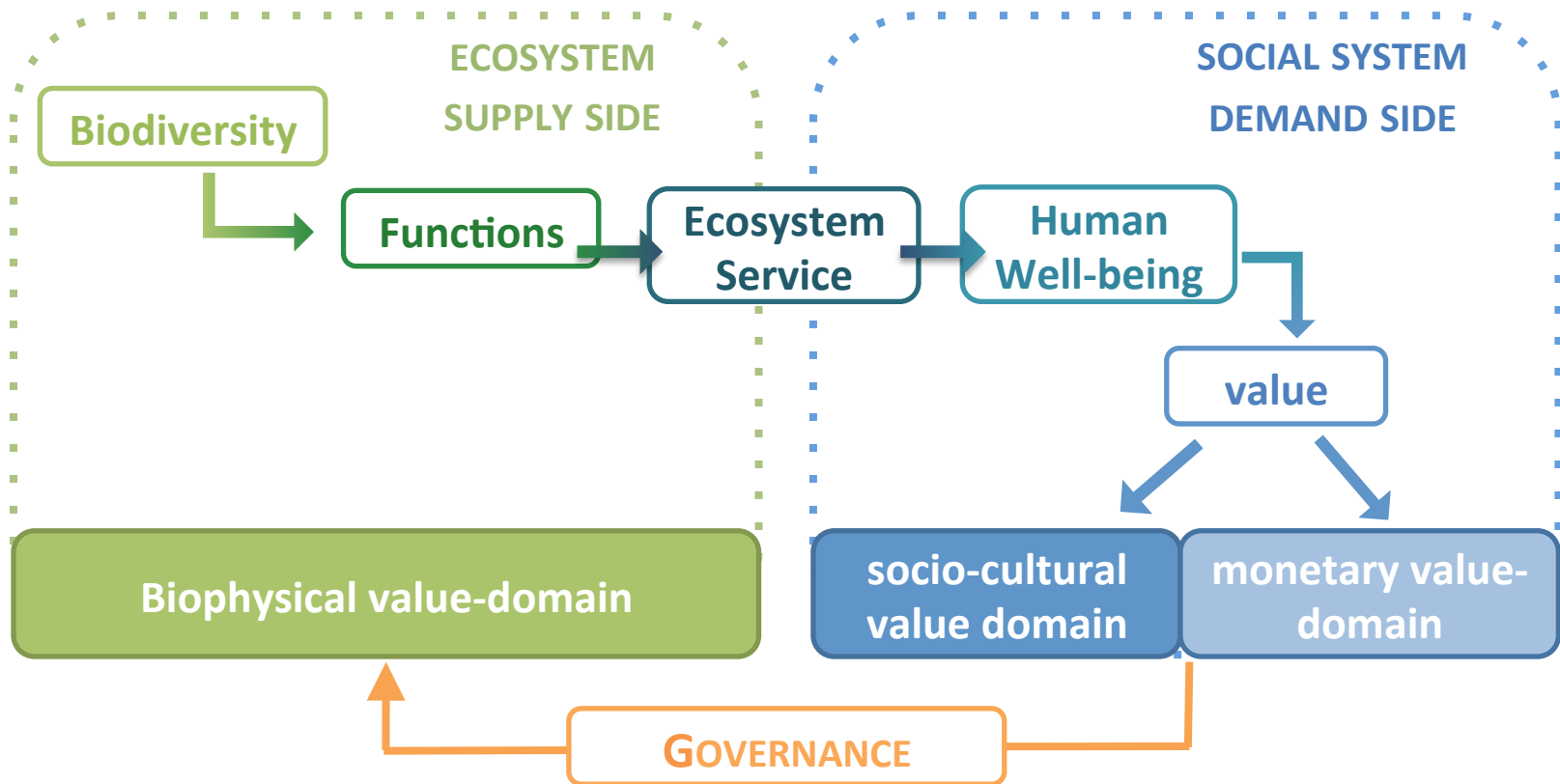
Social – ecological system thinking



Social – ecological system thinking



ES cascade



adapted from Martín-López et al. 2014

ES cascade

- Biodiversity
- Function
- ES
- Value
- Governance

regional
climate
regulation

aesthetic

woodland
habitat

identity

crop
production

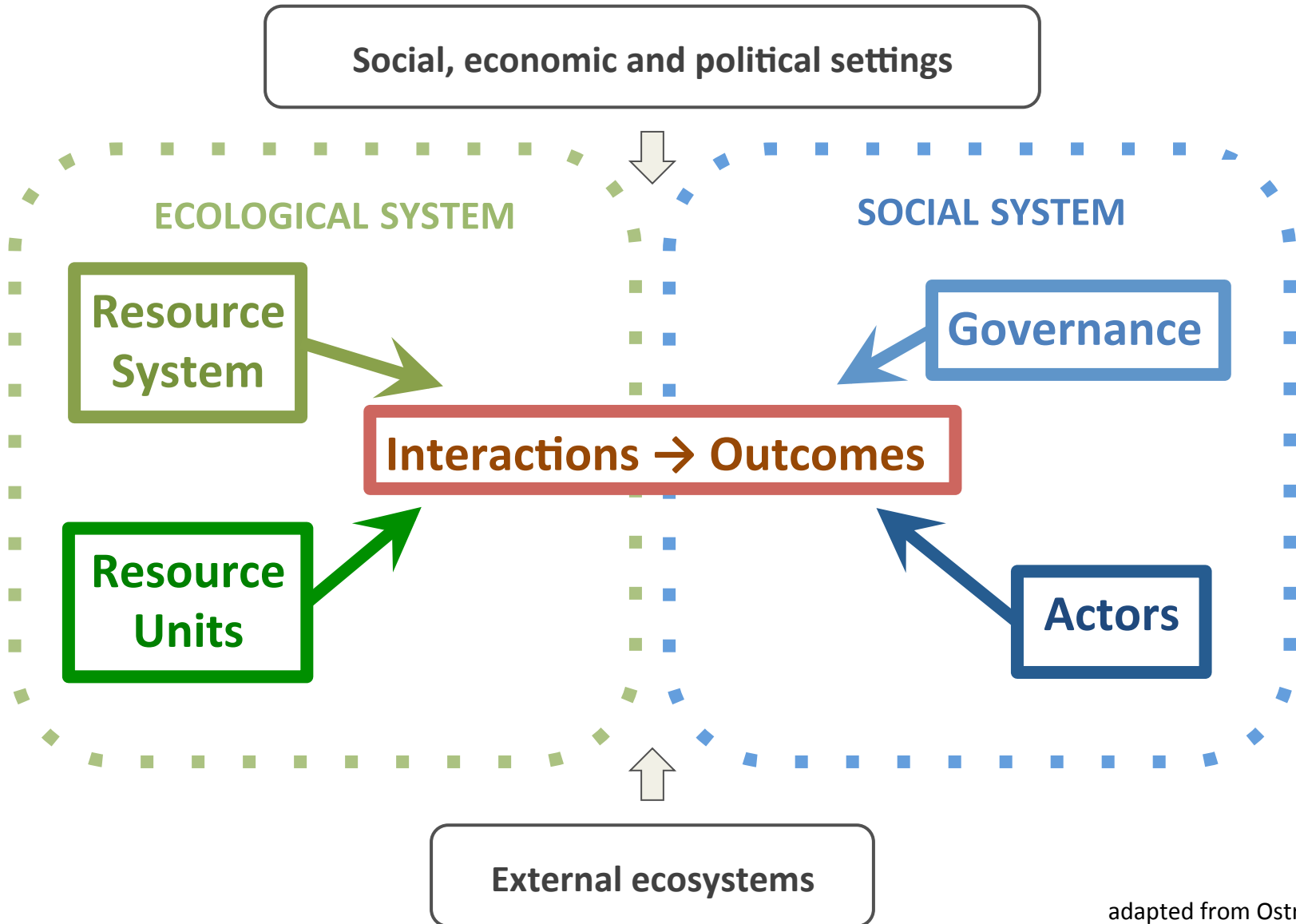
decision-
making

water
retention

ecological
integrity

timber
price

Diagnostic SES Framework (SESF)



Diagnostic SES Framework (SESF)

Second-level variables
 under core
 subsystems for
 analyzing social-
 ecological systems
 (Ostrom, 2007)



SES Framework

- Resource System
- Resource Units
- Actors
- Governance
- Action Situation

Conflicts

economic
value: price

Sector:
forest,
agriculture

Number
of users

Harvesting
levels

Governance
organizations

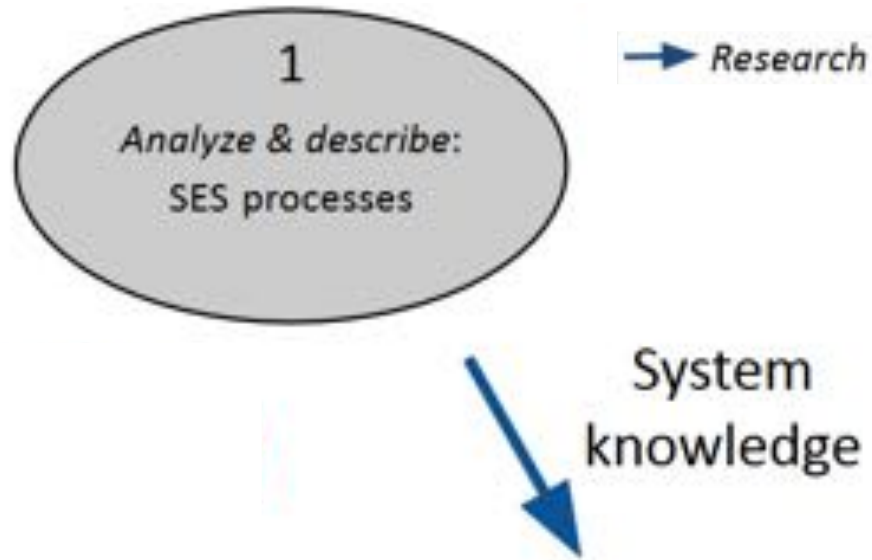
Property
right
system

growth rate

SES research in sustainability science



SES research in sustainability science



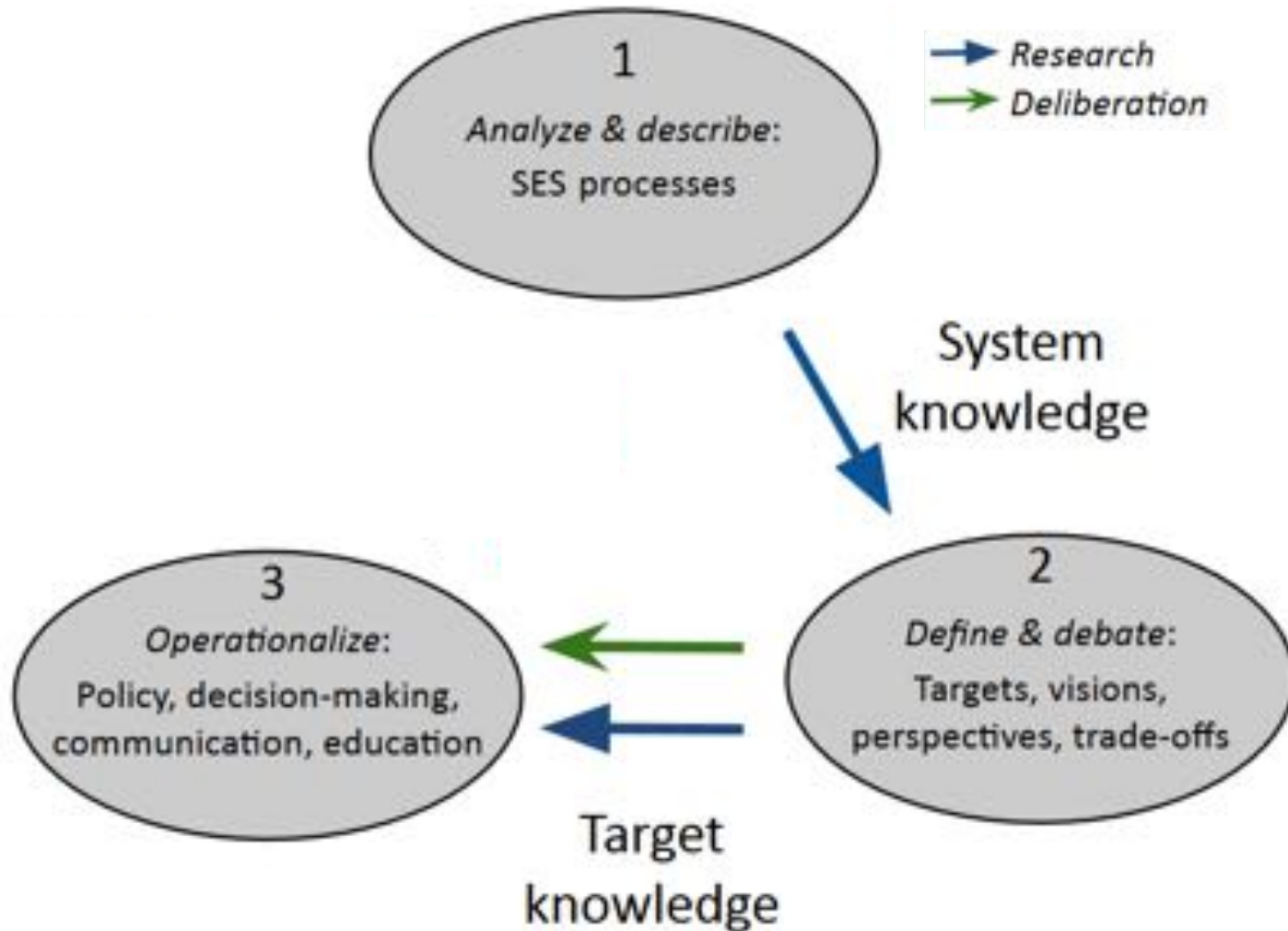
SES research in sustainability science



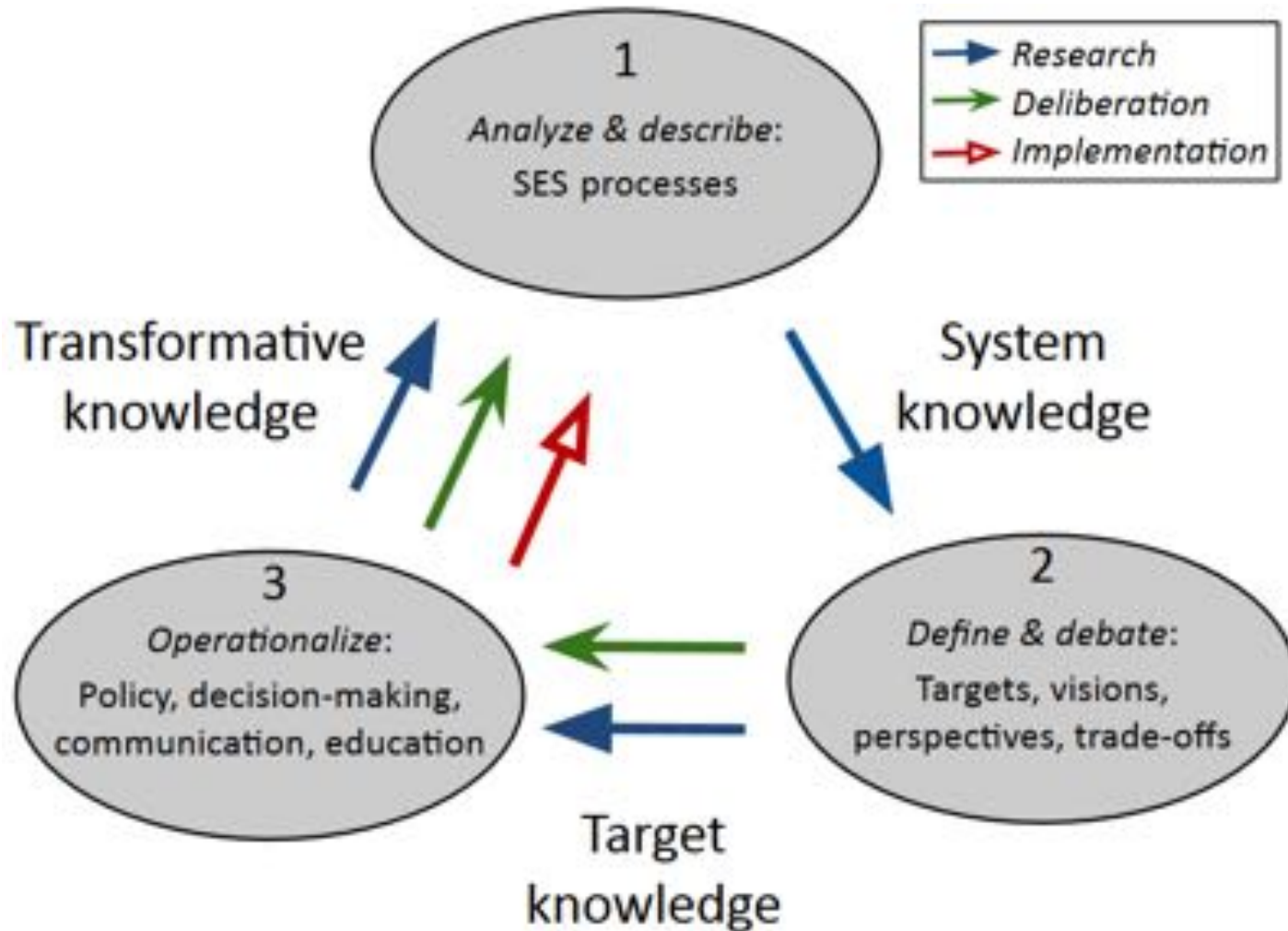
SES research in sustainability science



SES research in sustainability science

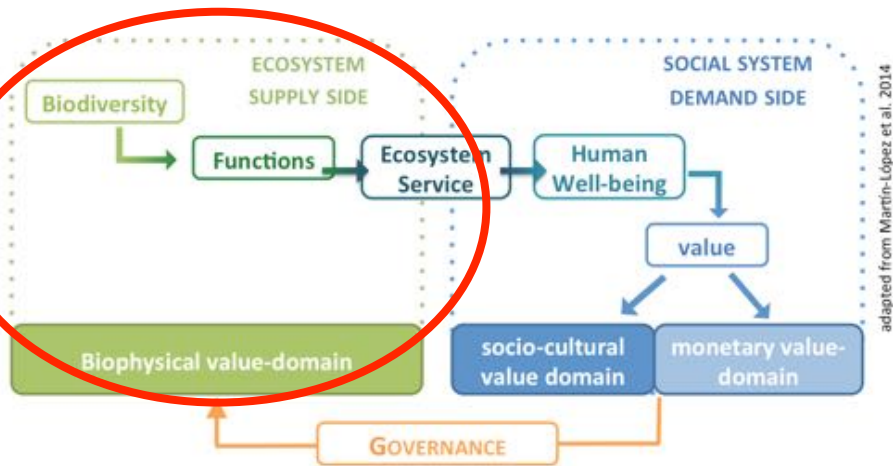


SES research in sustainability science



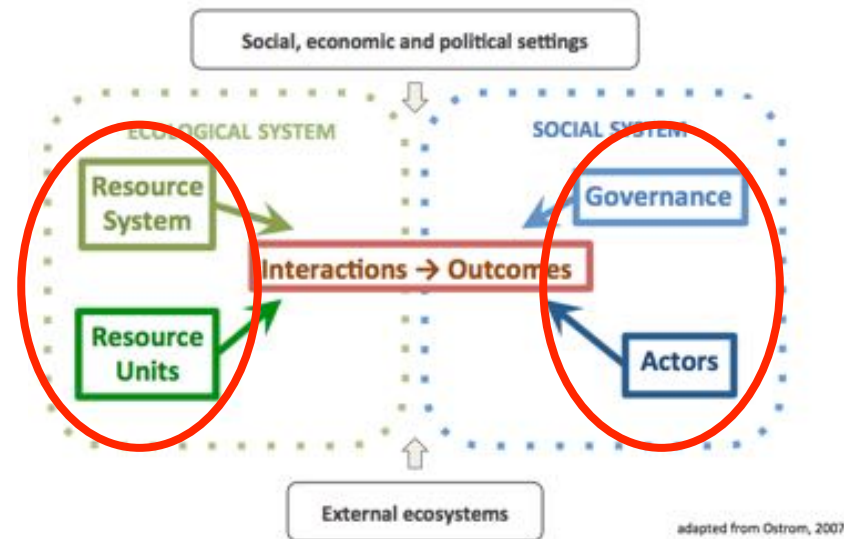
System knowledge

Ecosystem Services



- Understanding of ecosystem/ supply side
- Assessment of ecosystem services (based on ES classification, e.g. CICES)

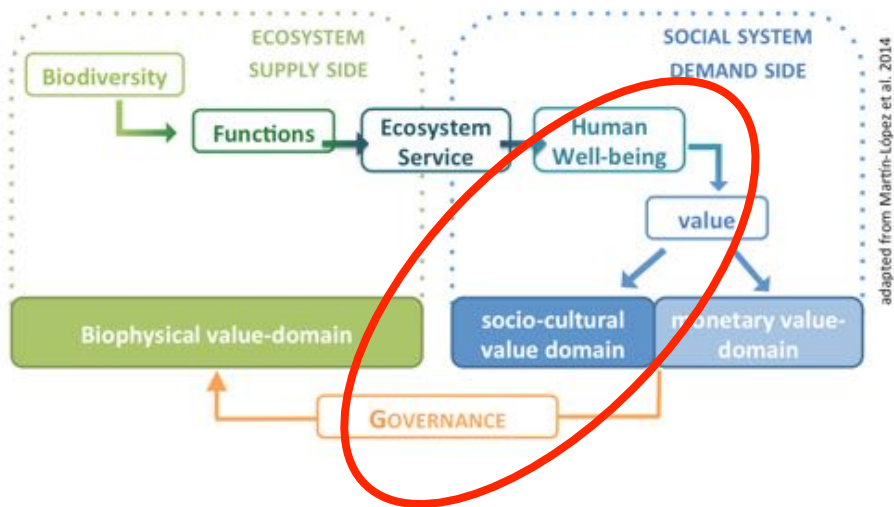
Diagnostic SES Framework



- Description of:
- Resource system
 - Resource units
 - Governance
 - Actors

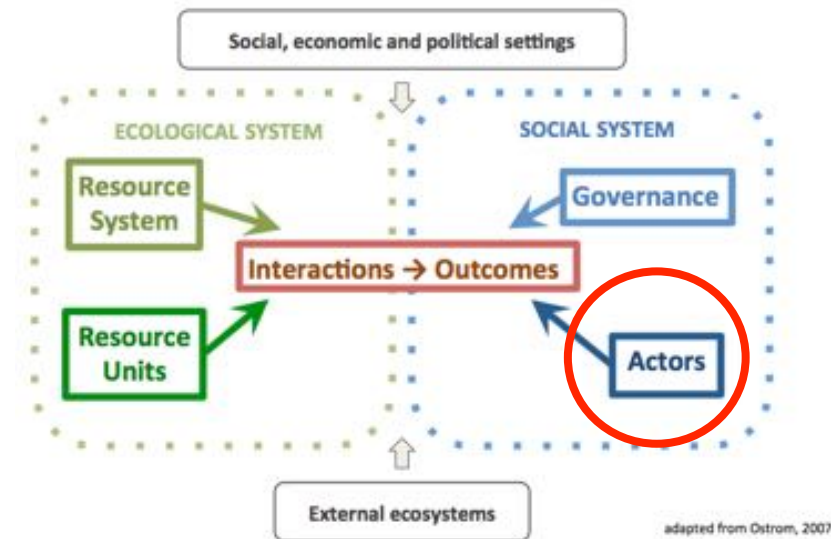
Target knowledge

Ecosystem Services



- identification of perceived ES benefits
- adaptation of governance process through stakeholders' perspectives

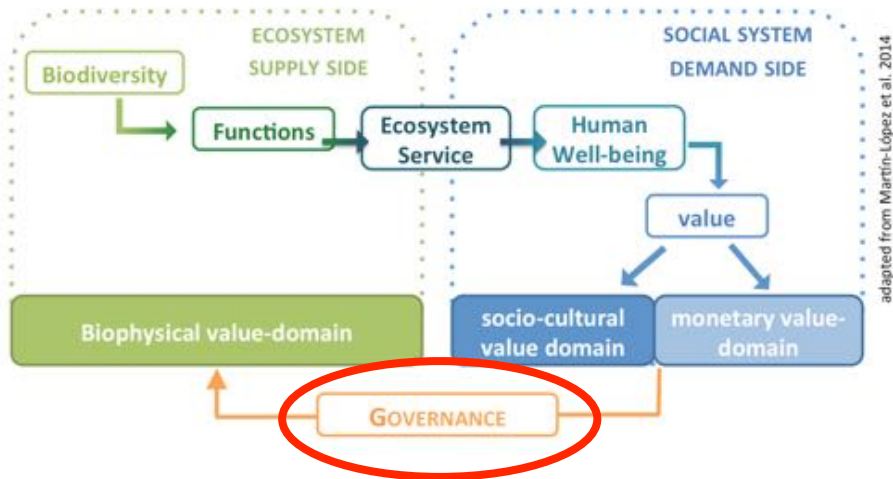
Diagnostic SES Framework



Actors' perspectives, goals & values

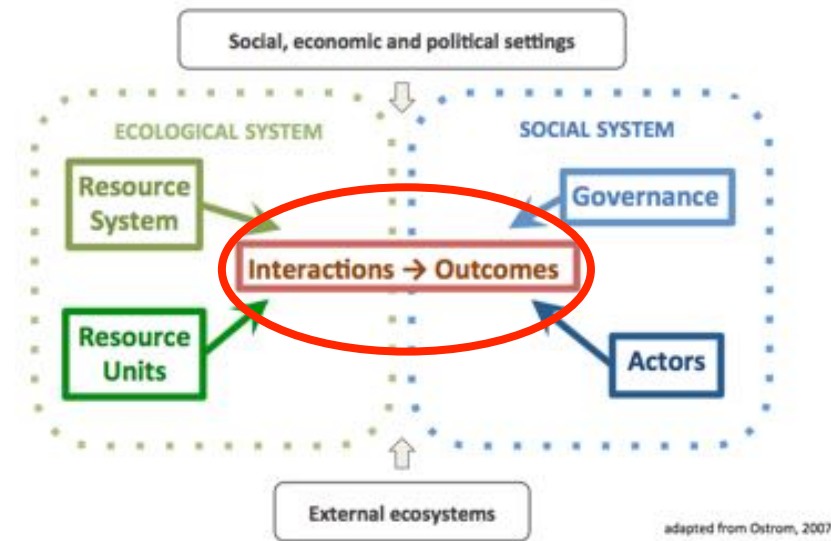
Transformative knowledge

Ecosystem Services



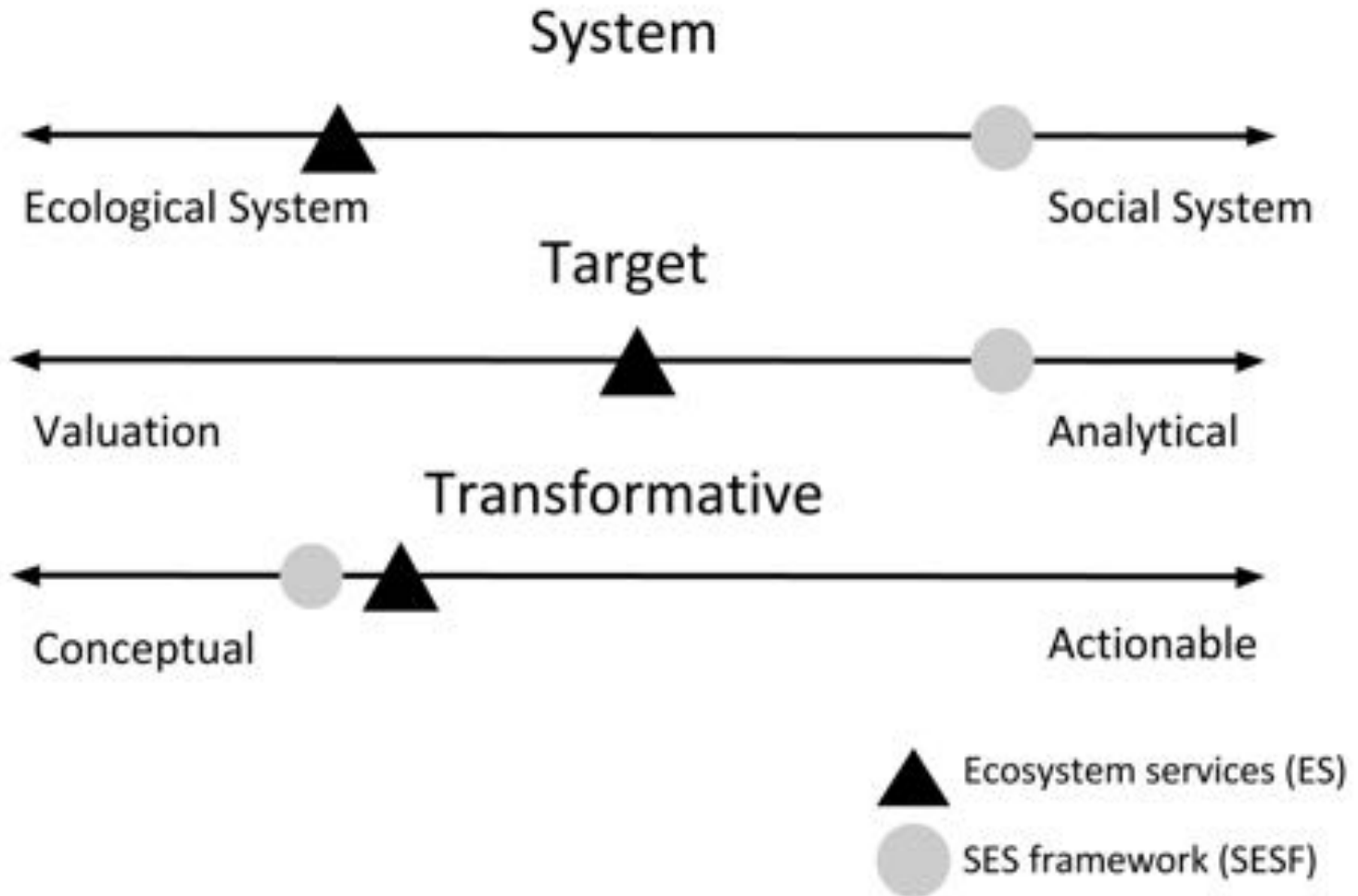
policy pathways, communication paths
between actors

Diagnostic SES Framework



- reconciling trade-offs between different goals & values
- identification of governance pathways
- education

SES knowledge



Compatibility of ES and SESF

What ES can learn from SESF

- incorporate standardized approach to social system
- specify social system & governance stage
 - services-to-ecosystems

What SESF can learn from ES

- expand on ecosystem functioning as fundamental basis for SES
- broaden value domains: not only economic, but also biophysical & socio-cultural

What ES & SESF both can improve

engage more with transformative knowledge application

THANK YOU FOR YOUR ATTENTION!

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<http://www.ecologyandsociety.org/vol21/iss3/art27/>

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References

- Binder, C.R., Hinkel, J., Bots, P.W.G., Pahl-Wostl, C., 2013. Comparison of frameworks for analyzing social-ecological systems. *Ecol. Soc.* 18. doi:10.5751/ES-05551-180426
- Martín-López, B., Gómez-Baggethun, E., García-Llorente, M., Montes, C., 2014. Trade-offs across value-domains in ecosystem services assessment. *Ecol. Indic.* 37, 220–228. doi:10.1016/j.ecolind.2013.03.003
- Ostrom, E., 2007. A diagnostic approach for going beyond panaceas. *Proc. Natl. Acad. Sci. U. S. A.* 104, 15181–15187. doi:10.1073/pnas.0702288104