

Integrating ecosystem services and resilience into sustainability

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What solutions to the environmental crisis?



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What solutions to the environmental crisis?



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Ecosystem
services (ES)

Resilience

Sustainability

ES to highlight interrelationships between nature & society

ES = contributions of nature to human well-being



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Resilience to cope with changes and uncertainty

Resilience = capacity to face disturbances

Drivers of change



System



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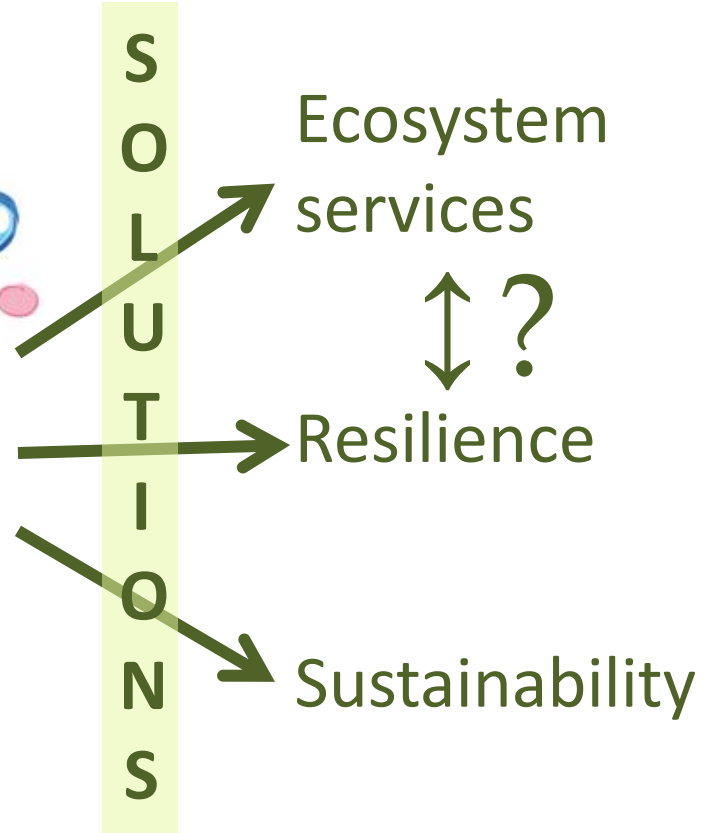
Responses



Little is known about the pairing of ES & resilience



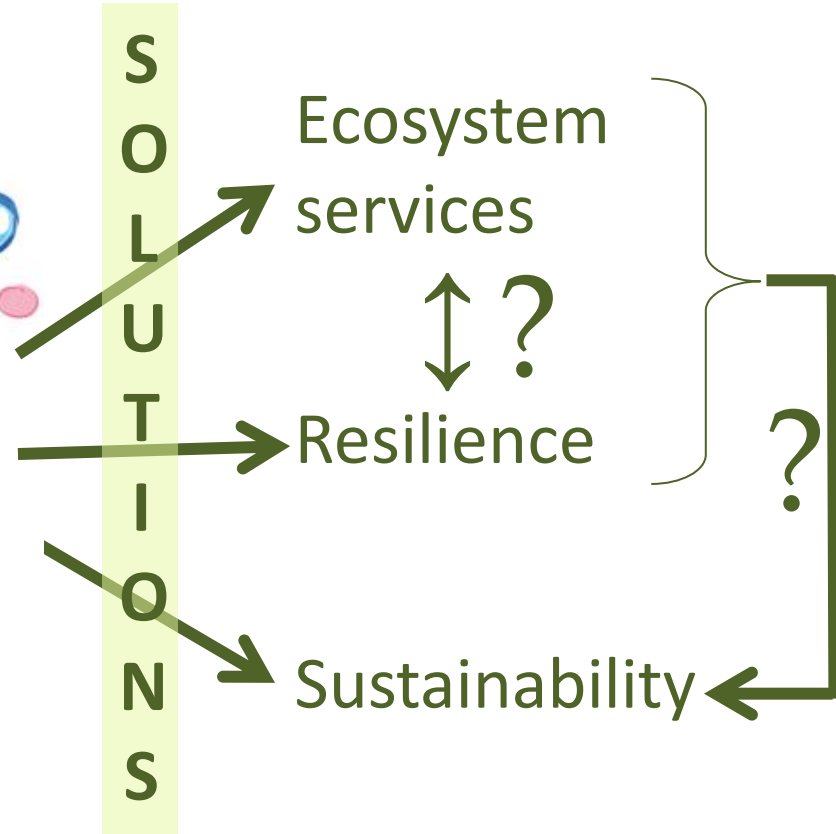
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Little is known about the pairing of ES & resilience

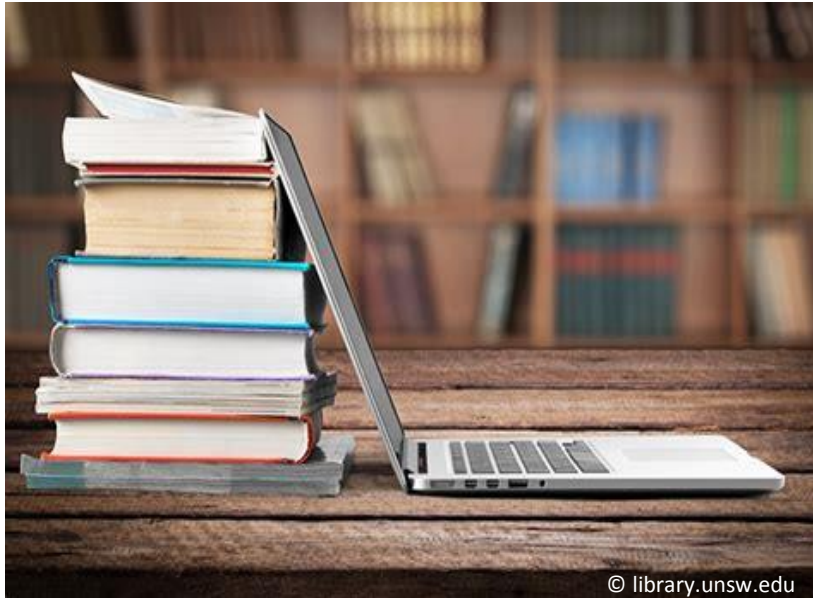


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Two complementary sources of information

Literature review



Scopus: resilien*, adapt*, resistan*,
ecosystem service and sustainab*

About 200 papers

Two complementary sources of information

Literature review



Scopus: resilien*, adapt*, resistan*,
ecosystem service and sustainab*

About 200 papers

Interviews with experts



35 experts in 34 institutions of 15
countries around the world

Two complementary sources of information

Sources of information

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SOCIOLOGY

Why resilience is unappealing to social science:

The Journal of Applied Ecology



Journal

Advance View ■■ doi: 10.3354/cr01437	CLIMATE RESEARCH Clim Res	Available online: February 7, 2017
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Contribu
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Contents lists available at ScienceDirect

Ecological Economics

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

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Two complementary sources of information

Sources of information → Answers

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SOCIOLOGY
Why resilience is unappealing to social science:
The **Journal of Applied Ecology**
Journal
Advance View ■■
doi: 10.3354/cr01437
CLIMATE RESEARCH
Clim Res
Available online:
February 7, 2017
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Contents lists available at ScienceDirect
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Answer 1

Answer 2

Answer 3

Answer 4

Answer 5

Answer 6

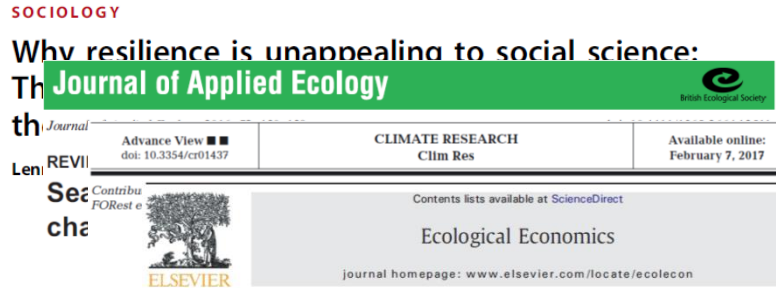
Answer 7

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Two complementary sources of information

Sources of information → Answers → Categories

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Answer 1

Answer 2

Answer 3

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Answer 5

Answer 6

Answer 7

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Categories

Answer 1

Answer 3

Answer 4

Answer 2

Answer 7

Answer 5

Answer 6

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Comparing resilience & ES

Resilience

ES



Two different concepts sharing commonalities



Two different concepts sharing commonalities



Two different concepts sharing commonalities

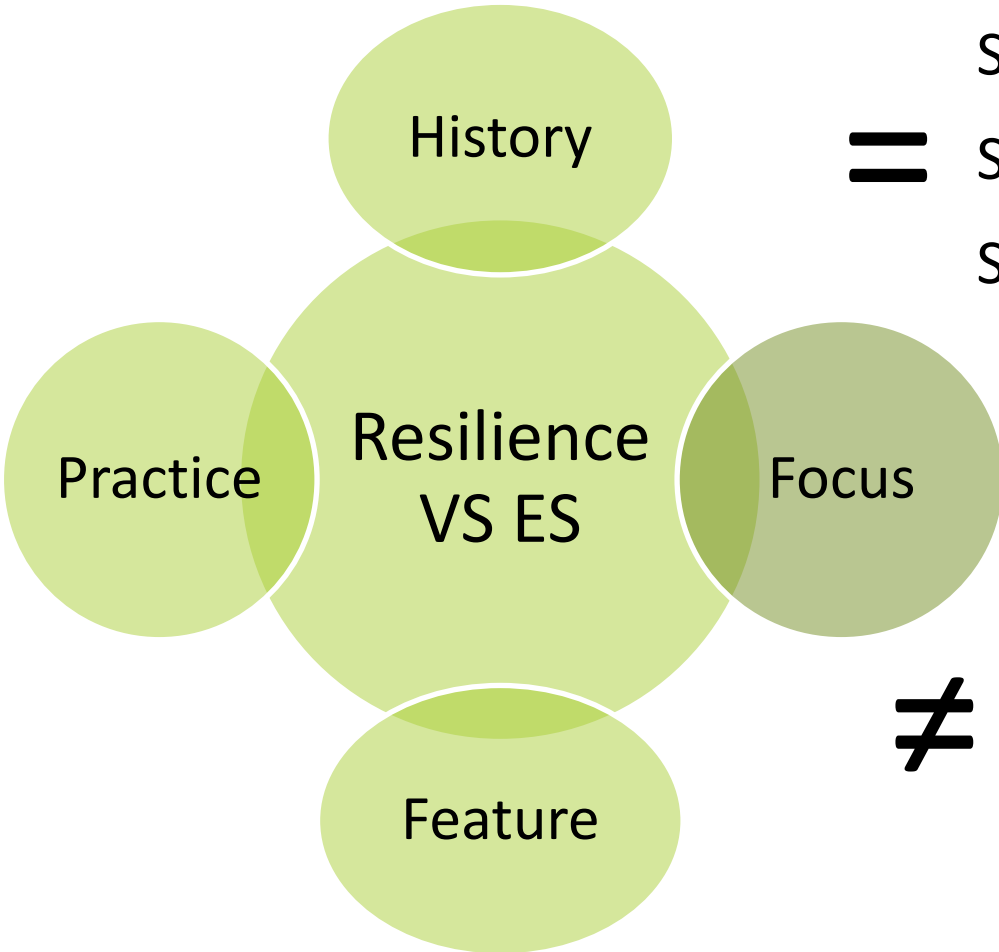


Sustainability; biodiversity

= Social-ecological system (SES)

System integrity

Two different concepts sharing commonalities



Sustainability; biodiversity

= Social-ecological system (SES)

System integrity

ES

Human-nature relationships

Outputs

SES

Resilience

Change

Functioning

Any system

≠

Two different concepts sharing commonalities



Two different concepts sharing commonalities



Pairing resilience & ES



Two different concepts closely interlinked



Two different concepts closely interlinked



- Integrated conceptual framework
- Integrated assessment framework
- Management of resilience & ES
- Decision-making on ES & resilience

Two different concepts closely interlinked



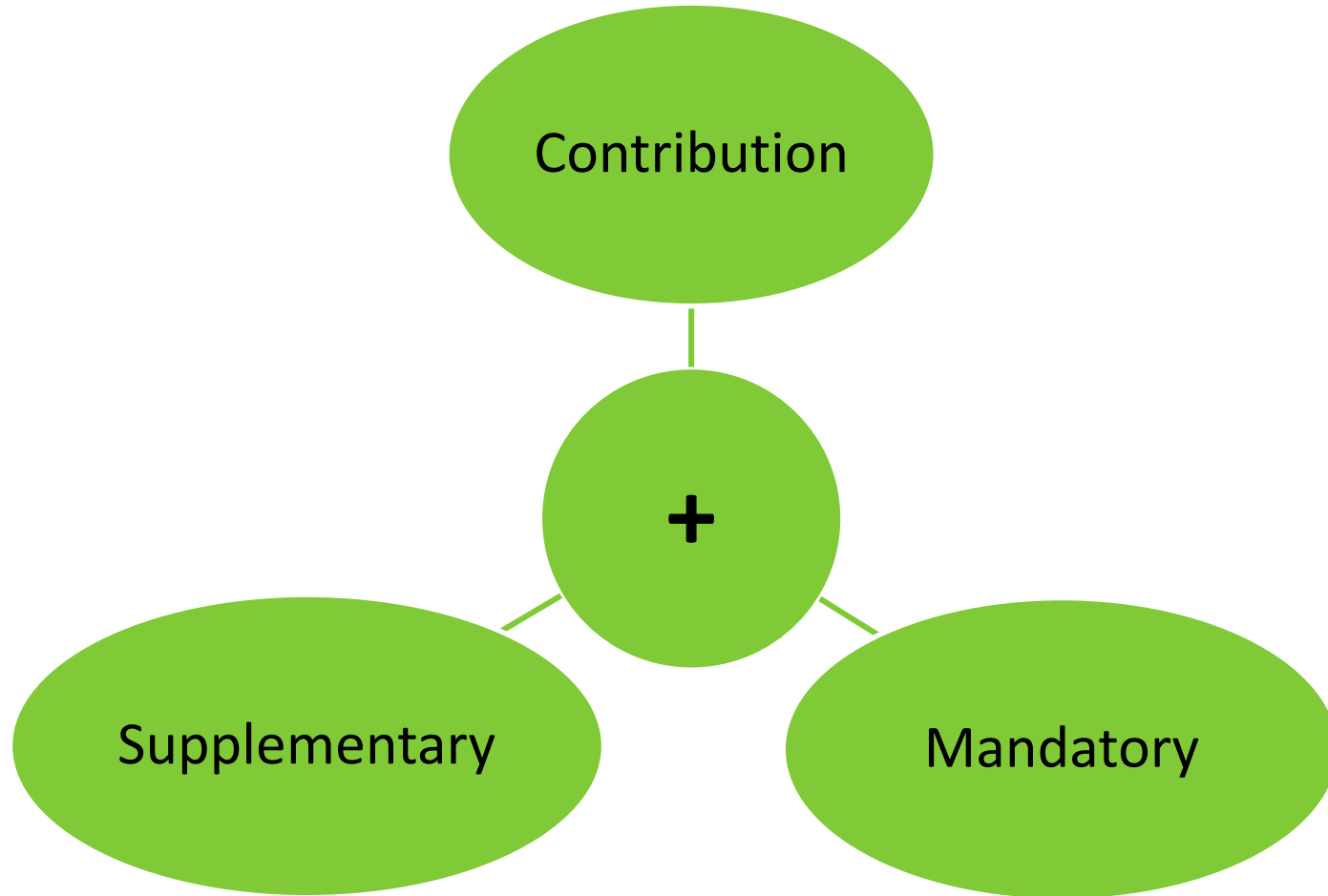
Two different concepts closely interlinked



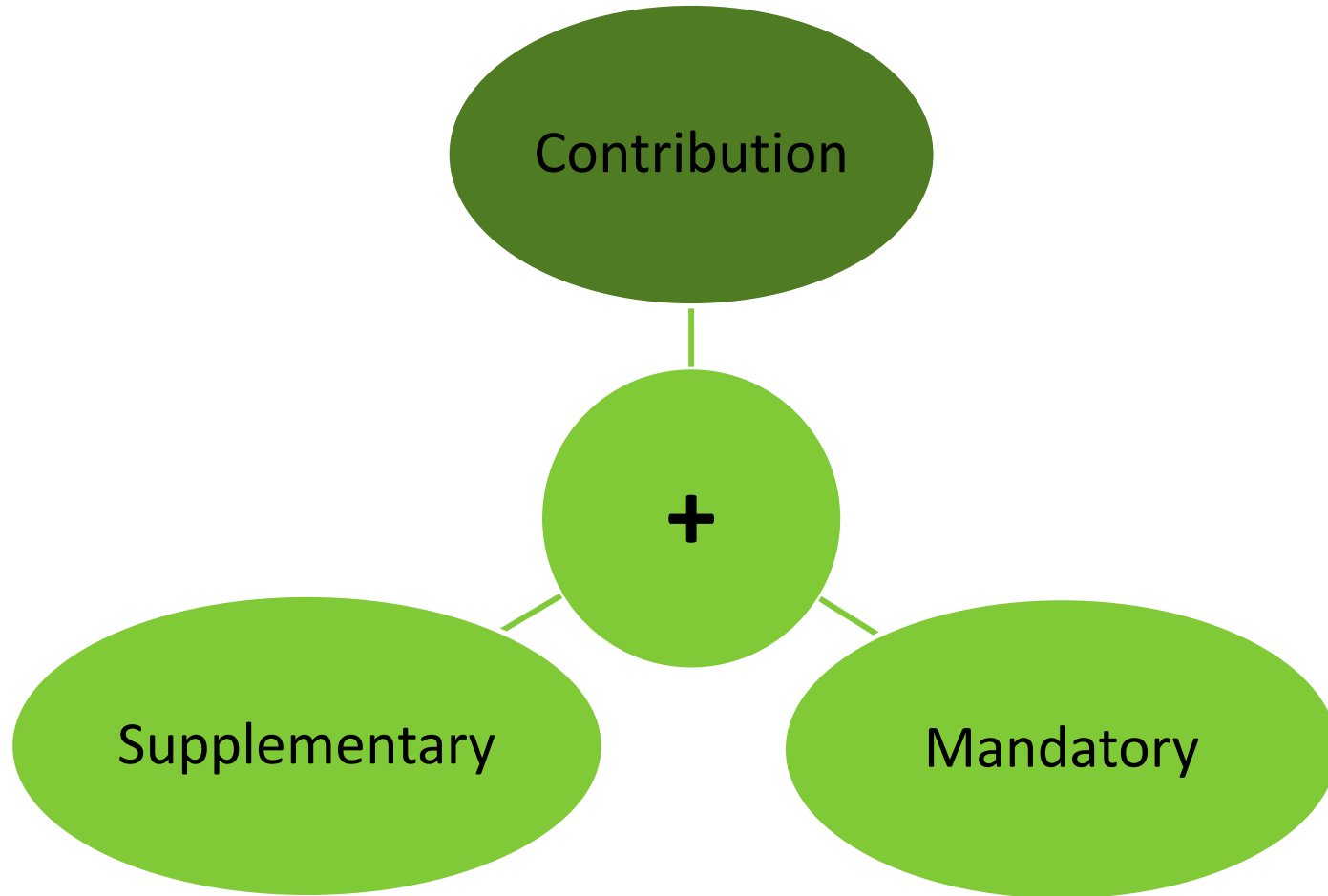
Two different concepts closely interlinked



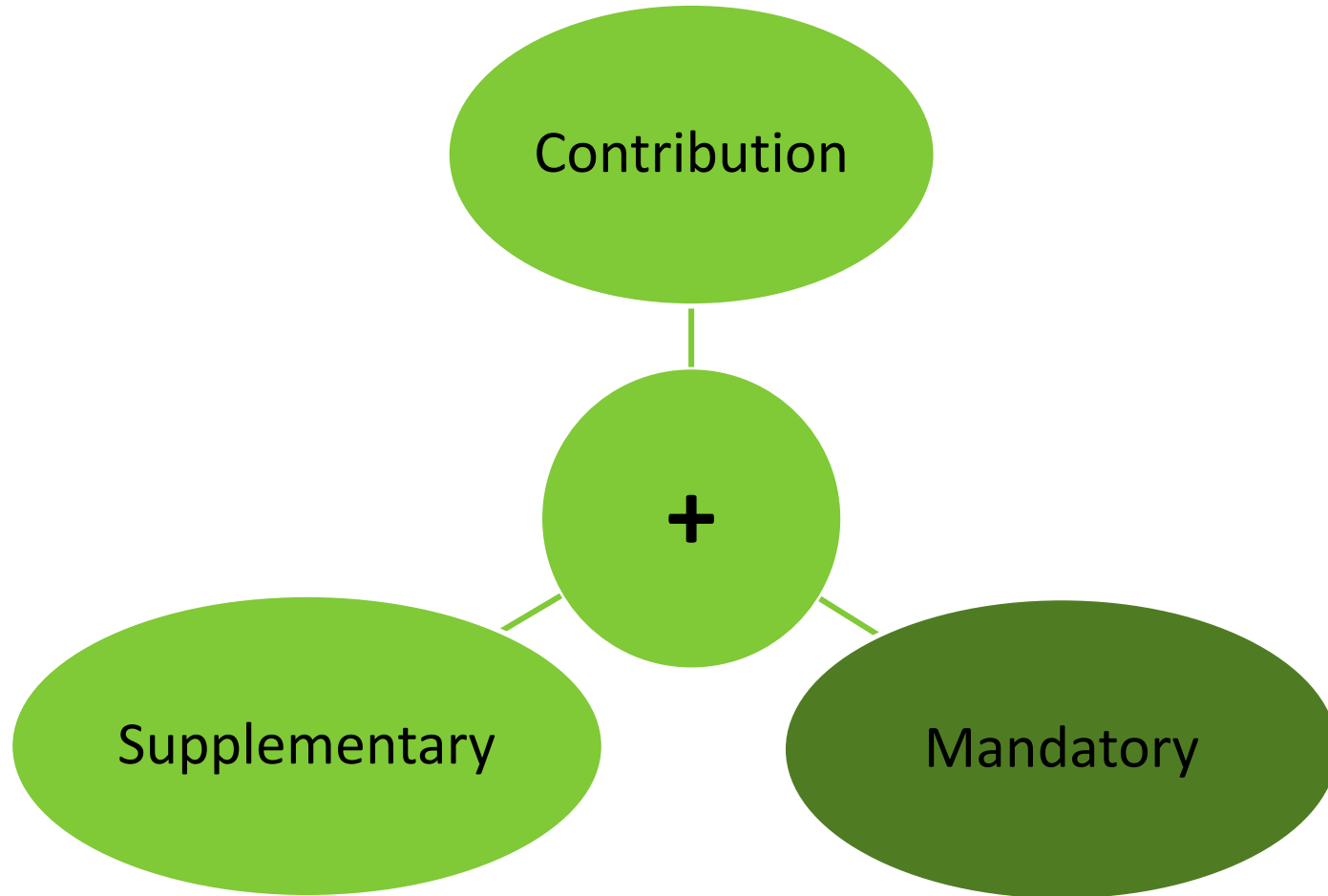
Beneficial to pair them but not always



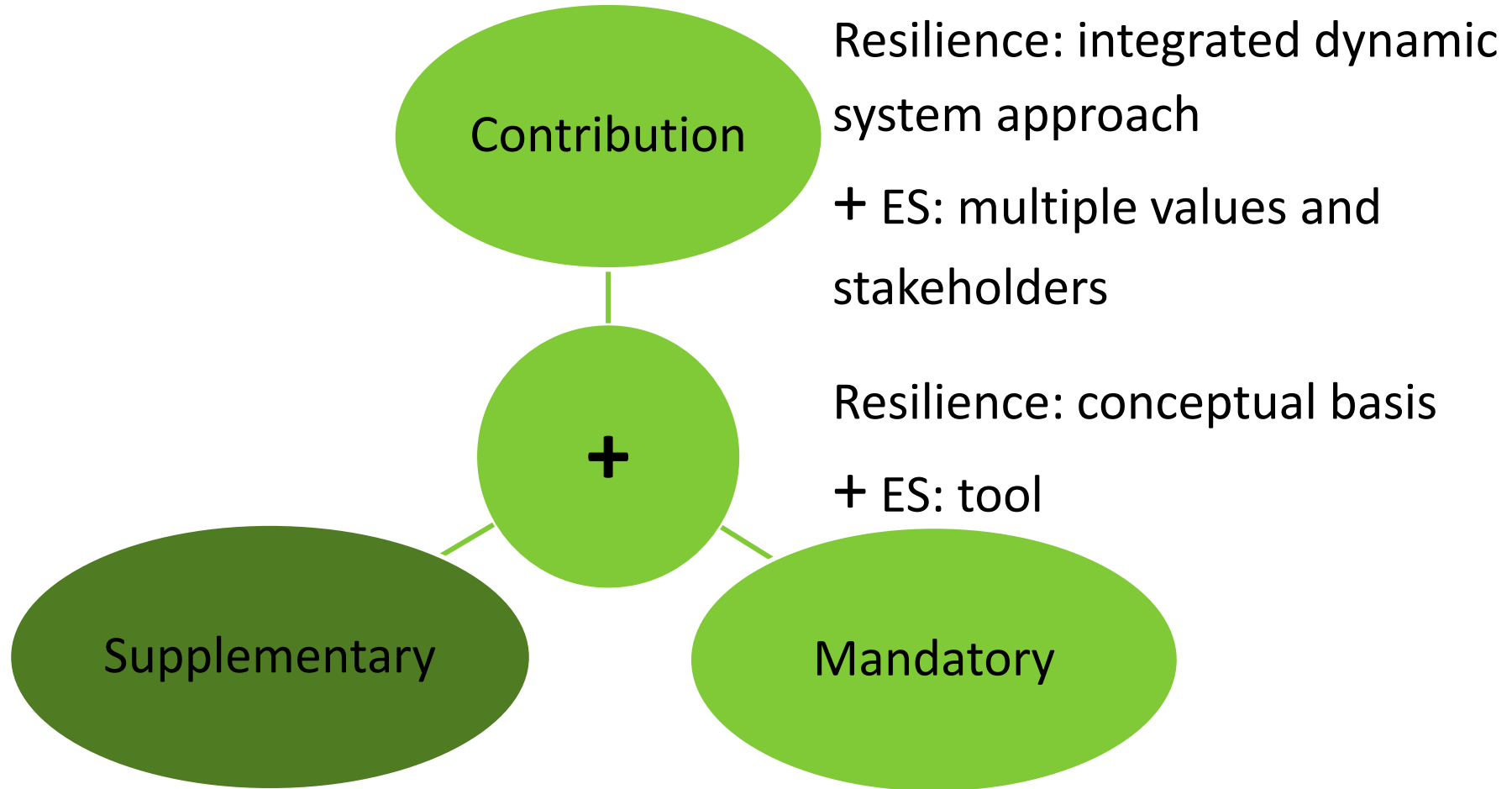
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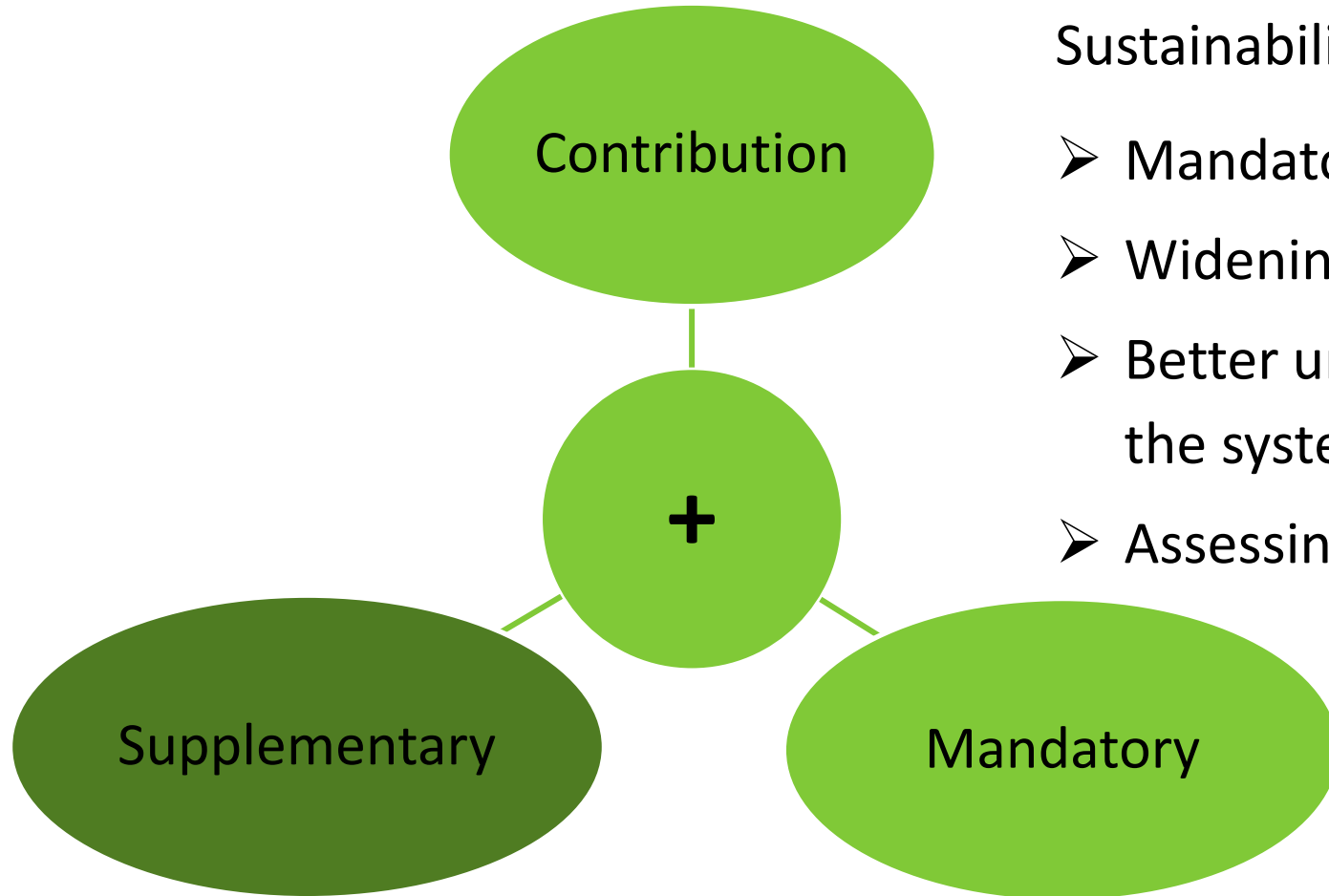
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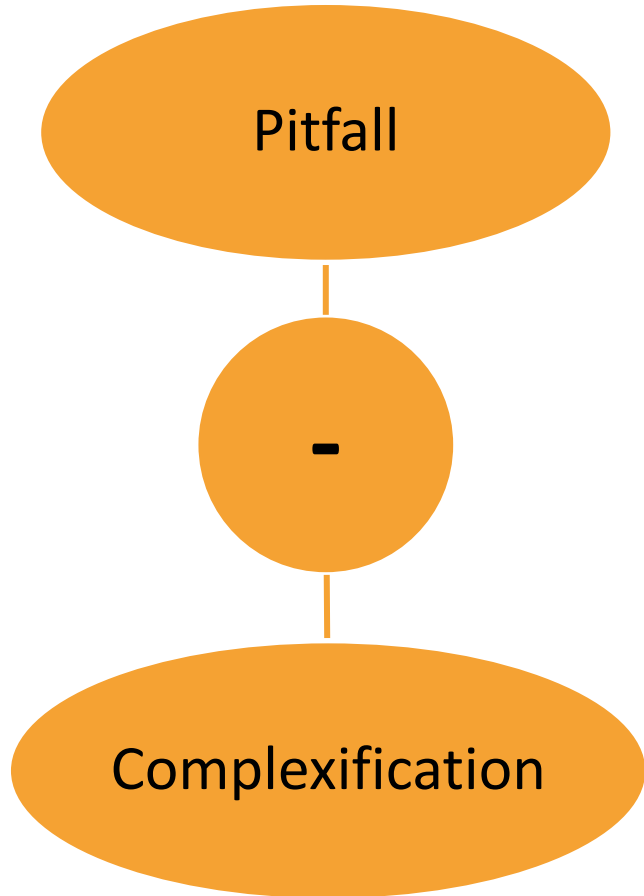
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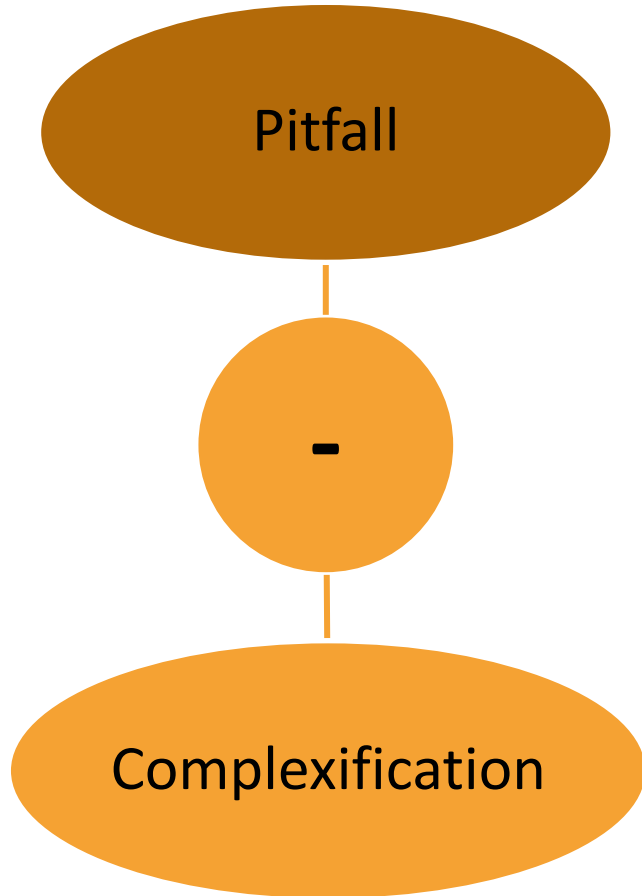
Sustainability:

- Mandatory
- Widening
- Better understanding the system
- Assessing

Beneficial to pair them but not always

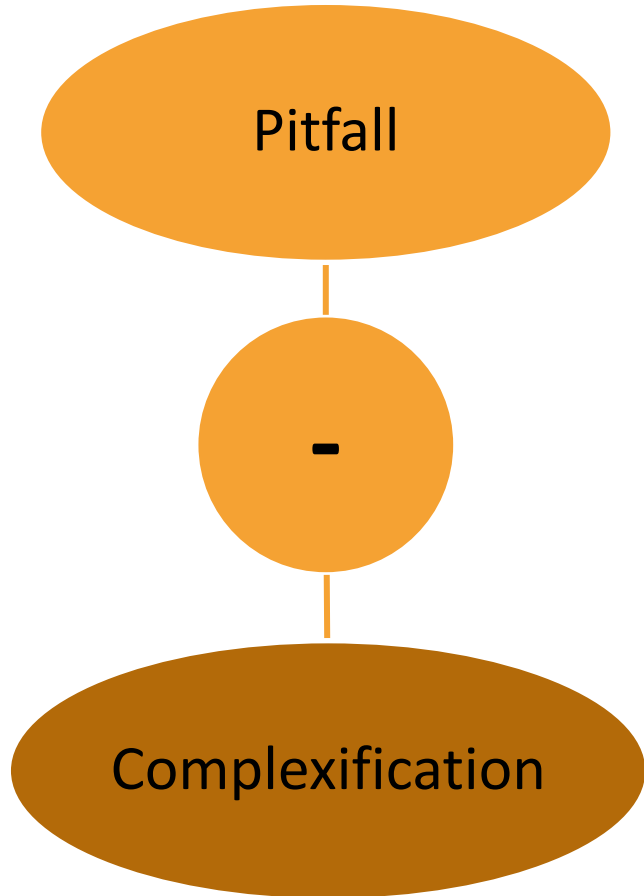


Beneficial to pair them but not always



- Resilience of ES: only one of many forms of resilience
- Normativity of ES
- Over-interpretation of ES
- Resilient system not providing desired ES
- Overconfidence in resilience

Beneficial to pair them but not always



ES & resilience two separate concepts with their own strengths and weaknesses



But ES & resilience are closely interlinked



Pairing ES & resilience is mainly beneficial



But pairing them is not always advisable



Pairing ES & resilience can promote sustainability



But their pairing should not overshadow other important aspects of sustainability

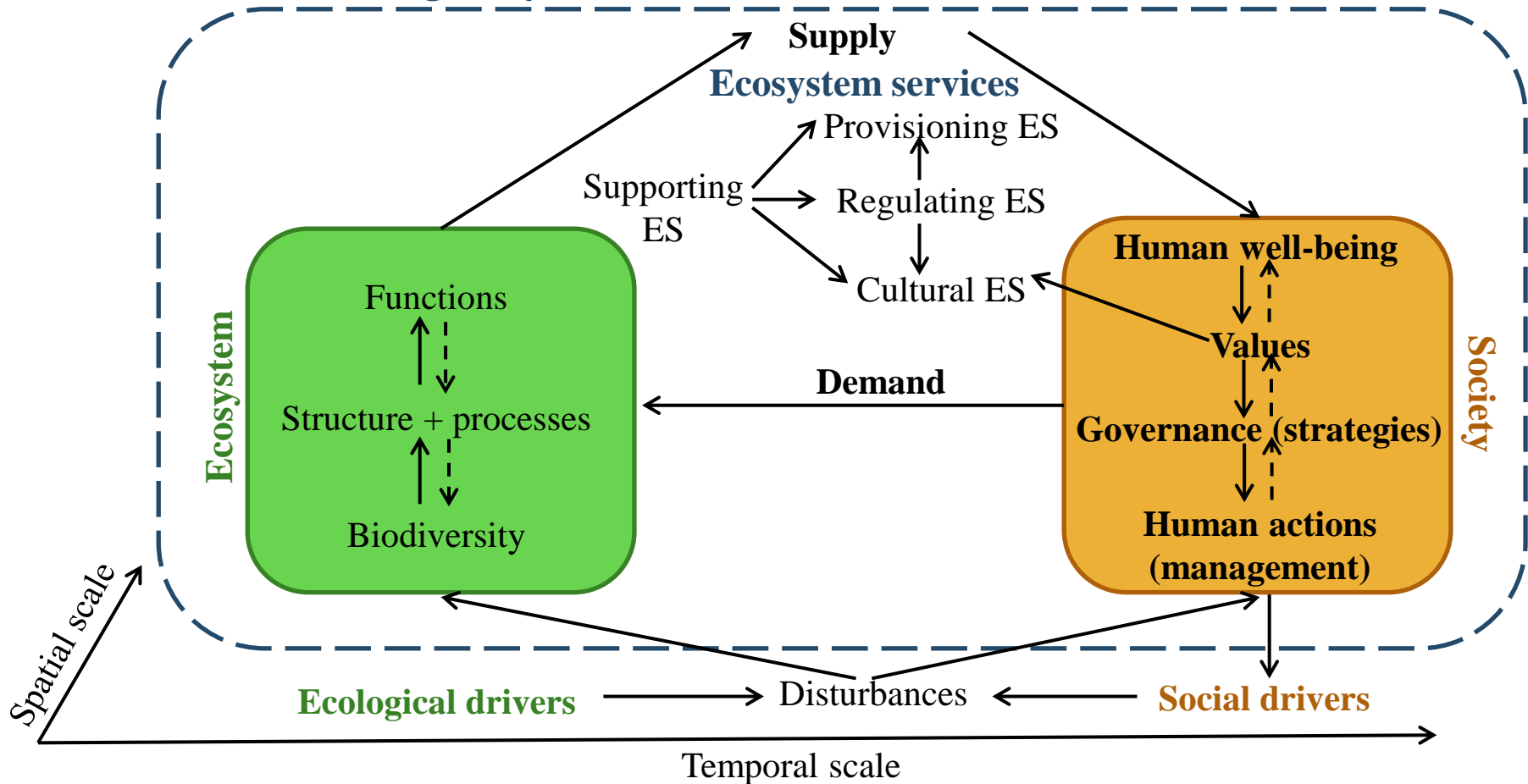


Thank you for
your attention

Any question?



Social-ecological system



—————> Influencing relationship

- - - - -> Feedback