Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Biosphere Forest for the Future

Governance methods – how?

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Governance methods – how?

Assessment

Adaptive capacity

Risk management

Organisation

UNESCO biosphere reserves as model regions for climate adaptation in forest landscapes

UNESCO biosphere reserves (BRs) are designated to be model regions for sustainable development, where new methods are tested and developed.

BRs are strategic arenas to learn from when implementing the 2030 Agenda.

UNESCO biosphere reserves as model regions for climate adaptation in forest landscapes

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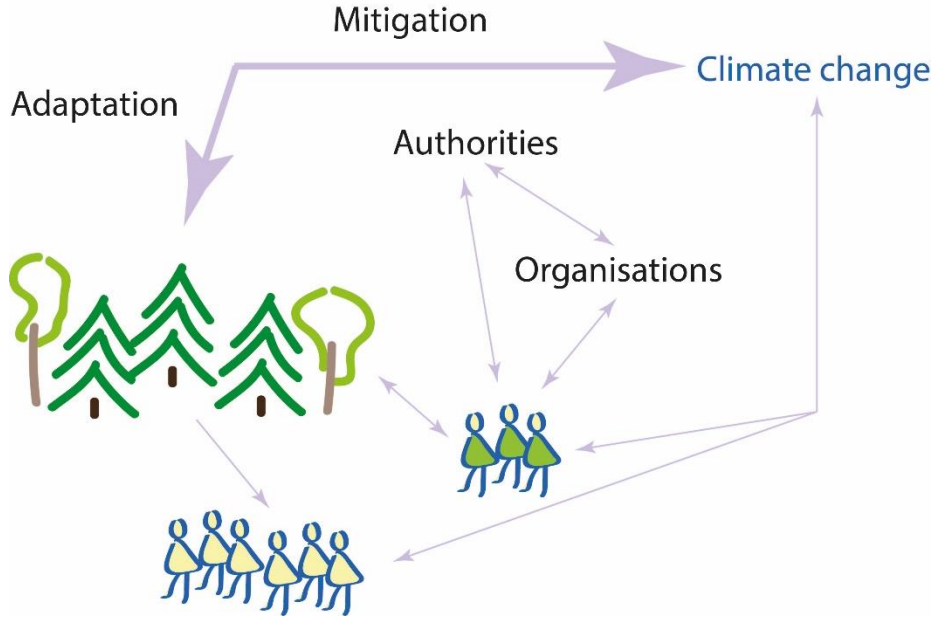
Focus research and monitoring efforts to few areas –

- provides a more complete picture in these areas
- puts high requirements on the representativeness of the areas selected
- unless the purpose e.g. is to provide a role model for the governance model applied

UNESCO biosphere reserves as model regions for climate adaptation in forest landscapes

UNESCO biosphere reserves (BRs) are designated to be model regions for sustainable development, where new methods are tested and developed.

Is it at all possible to be a good model region without taking climate change mitigation into consideration?



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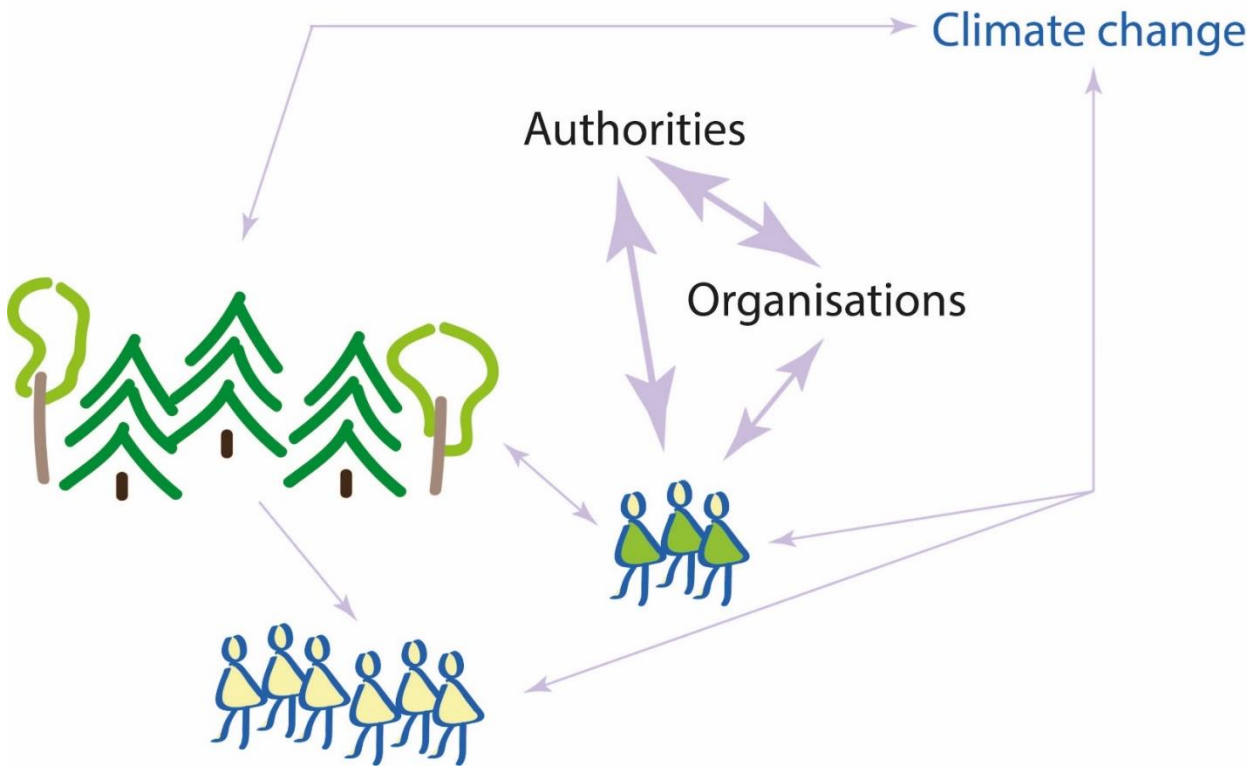



Wikimedia: Public domain

Did he take measures to adapt his forest management to climate change?

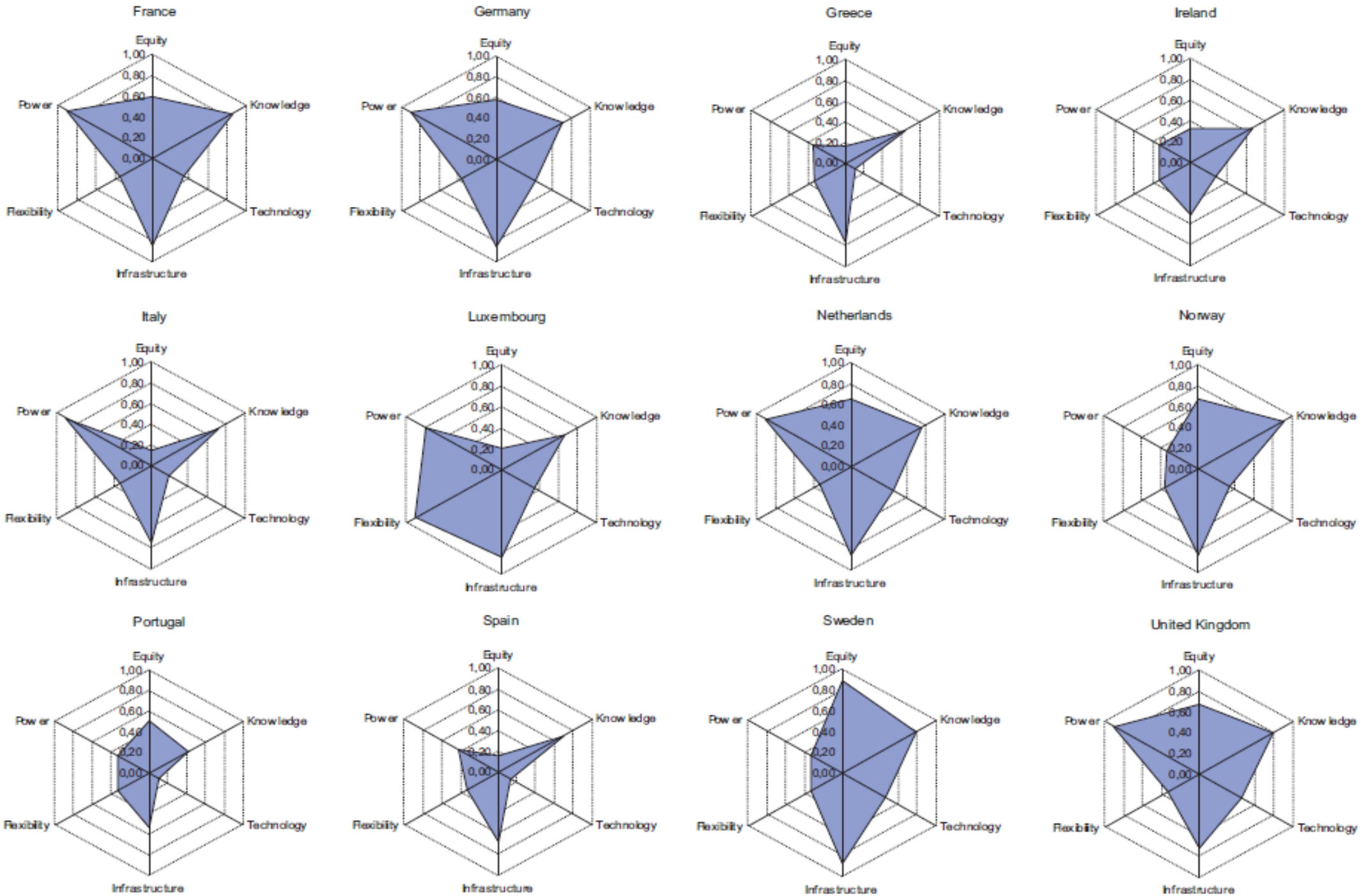
According to Lindner et al. (2010):

The adaptive capacity in the forest sector is

- relatively large in the Boreal and the Temperate Oceanic regions
- more constrained by socio-economic factors in the Temperate Continental, and
- most limited in the Mediterranean region where large forest areas are only extensively managed or unmanaged.

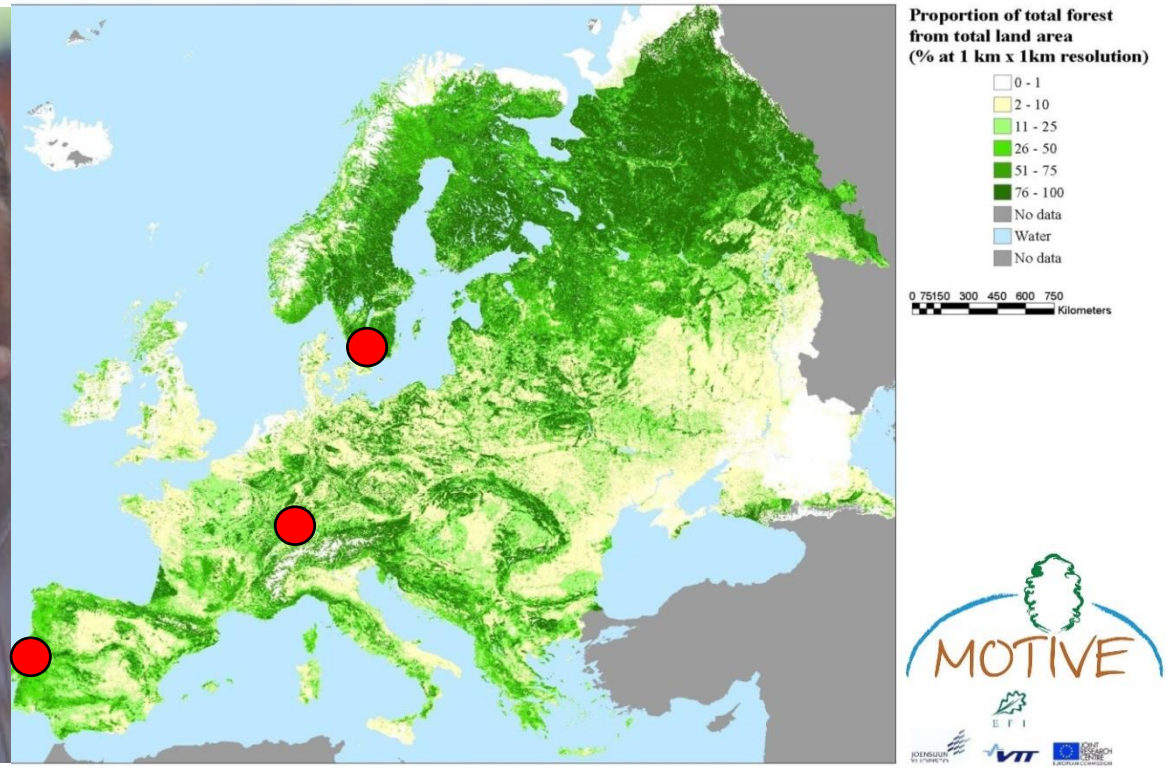
The adaptive capacity in this study is seen as the inherent adaptive capacity of trees and forest ecosystems and of socio-economic factors determining the capability to implement planned adaptation.

Lindner, M., Maroschek, M., Netherer, S., Kremer, A., Barbati, A., Garcia-Gonzalo, J., Seidl, R., Delzon, S., Corona, P., Kolström, M., Lexer, M.J., & Marchetti, M. (2010) Climate change impacts, adaptive capacity, and vulnerability of European forest ecosystems. Forest Ecology and Management ,259:698–709.

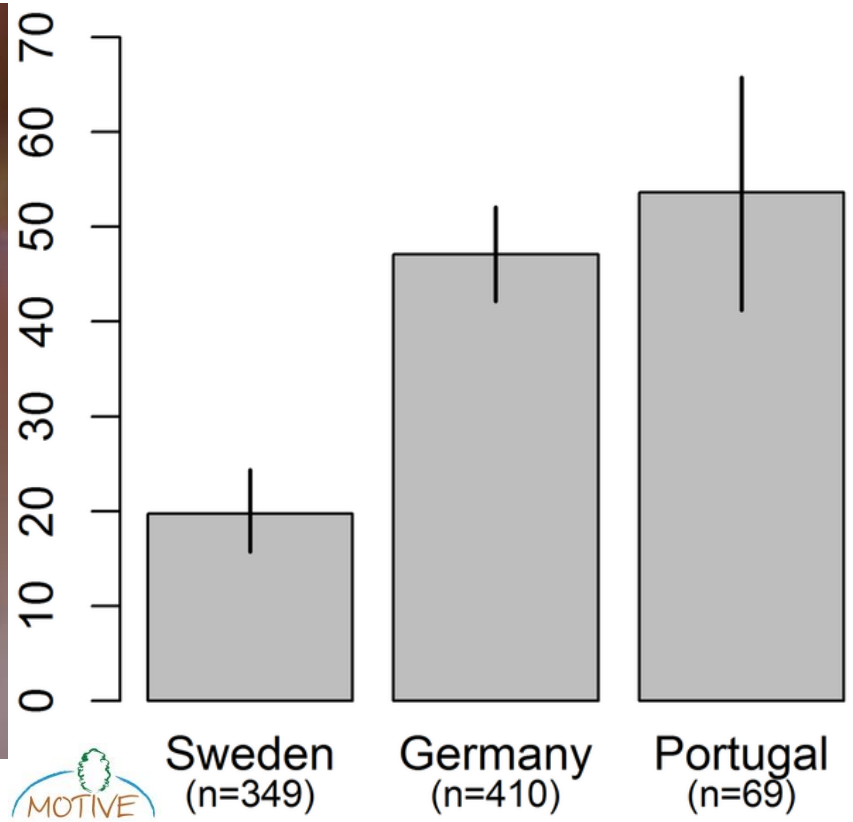


Acosta et al. (2013)A spatially explicit scenario-driven model of adaptive capacity to global change in Europe. Glob. Env. Change, 23:1211-1224.


Wikimedia: Public domain


Proportion of total forest
from total land area
(% at 1 km x 1km resolution)
0 - 1
2 - 10
11 - 25
26 - 50
51 - 75
76 - 100
No data
Water
No data
0 75150 300 450 600 750
Kilometers
MOTIVE

Percentage of respondents having adapted forest management to climate change



Blennow K, Persson J, Tomé M, Hanewinkel M (2012) Climate Change: Believing and Seeing Implies Adapting. PLoS ONE 7(11): e50182. doi:10.1371/journal.pone.0050182 http://www.plosone.org/article/info:doi/10.1371/journal.pone.0050182

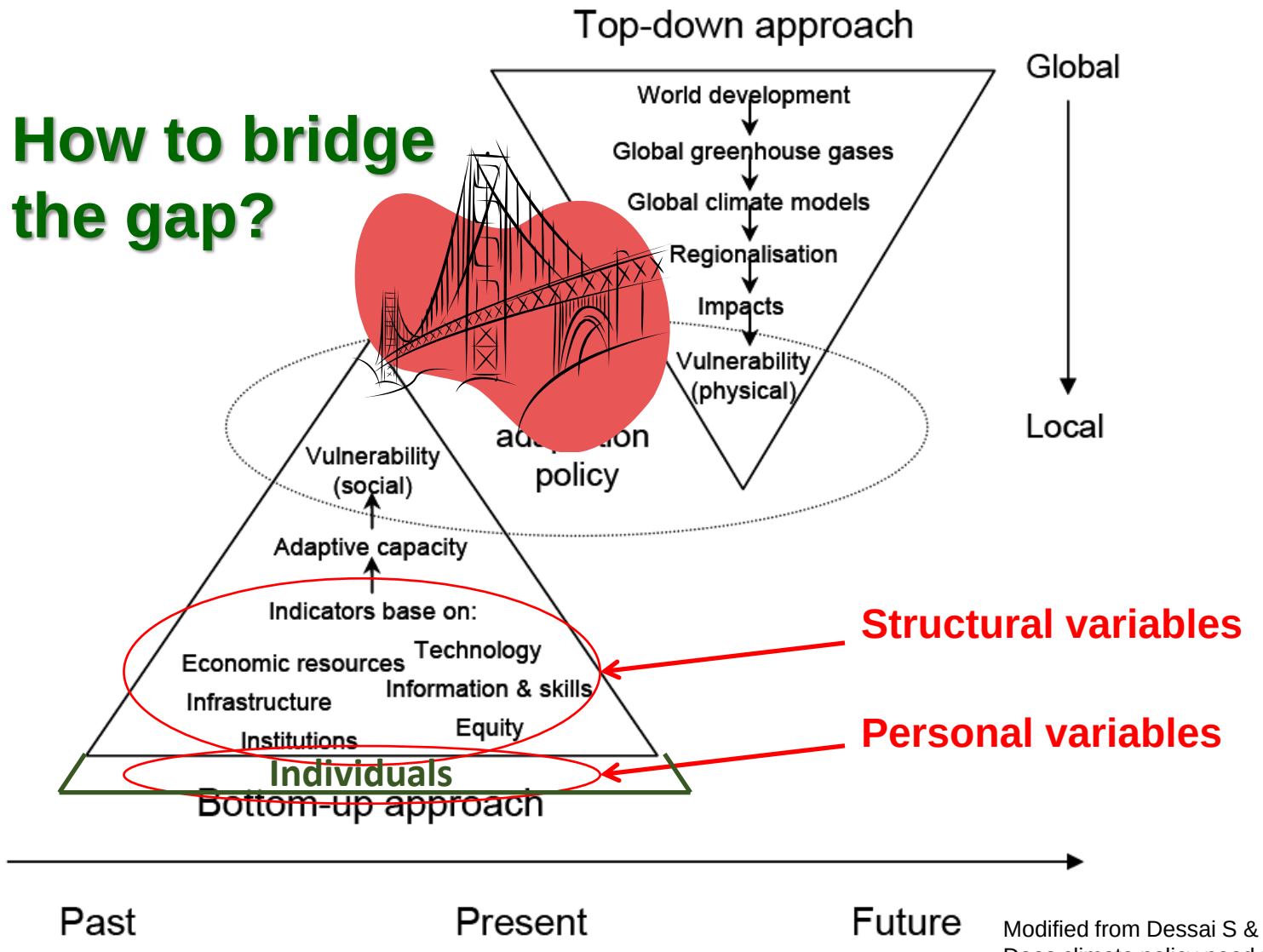
Risk perception

- Strength of belief in local effects of climate change?
- Strength of belief in having experienced the effects of climate change?

– Crucial for explaining and predicting climate change adaptation decisions!

Blennow K, Persson J, Tomé M, Hanewinkel M (2012) Climate Change: Believing and Seeing Implies Adapting. PLoS ONE 7(11): e50182. doi:10.1371/journal.pone.0050182 http://www.plosone.org/article/info:doi/10.1371/journal.pone.0050182

How to bridge the gap?



Modified from Dessai S & Hulme M, 2003
Does climate policy need probabilities?
Tyndall Centre Working Paper No. 34, UK

Adaptive capacity – personal motivation to take measure to adapt is often not taken into consideration

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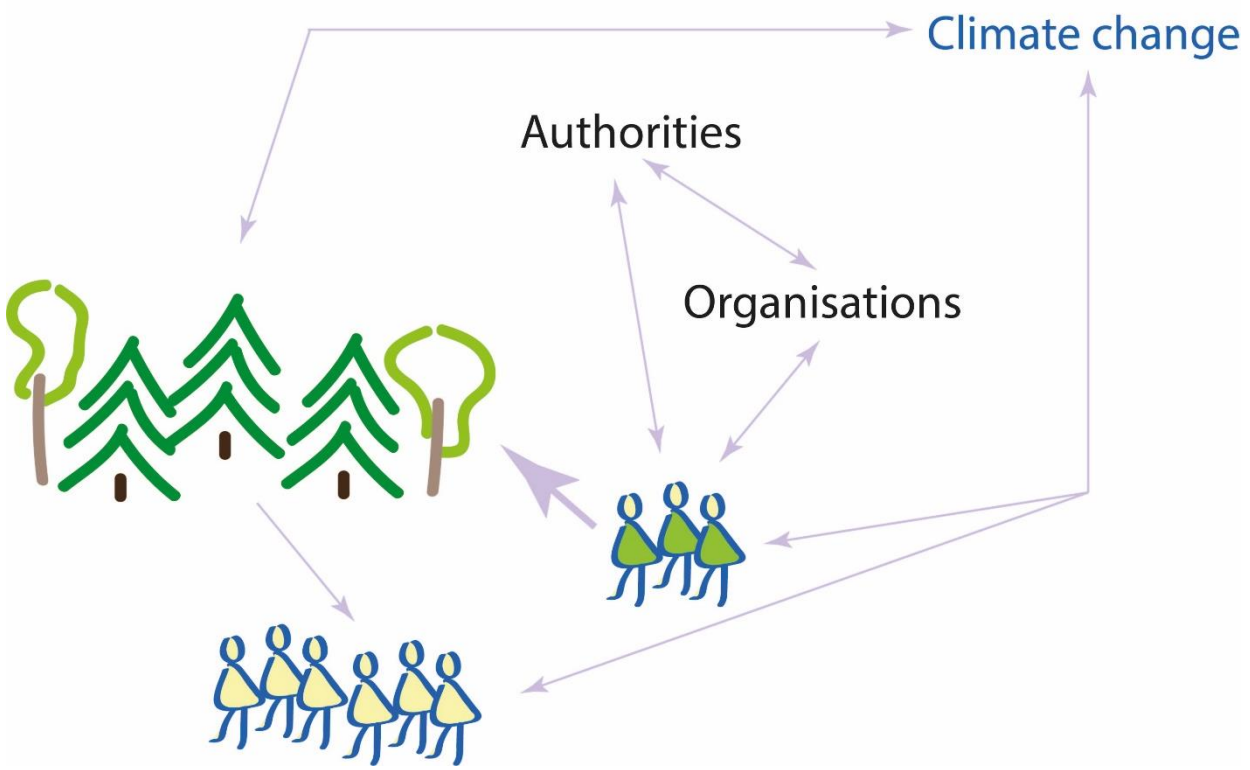

When forest owners believe in and see the effects of climate change they are more likely to take measures to adapt to climate change

Blennow K, Persson J, Tomé M, Hanewinkel M (2012) Climate Change: Believing and Seeing Implies Adapting. PLoS ONE 7(11): e50182. doi:10.1371/journal.pone.0050182 http://www.plosone.org/article/info:doi/10.1371/journal.pone.0050182

What governance model can contribute to meet the Sustainable Development Goals?

Underlying principle – **Democracy**

SD Goal 4: ”By 2030, ensure that all learners accuire the knowledge and skills needed to promote sustainable development, …”

How can we build capacity to take measure to adapt of the decision-making agents?


Wikimedia: Public domain

Adequate communications that can be comprehended and that meet the needs of the receiver

- Provide for flexible decision-making which is crucial for successful decision-making in a changing world
- Help to design effective climate change policies in addition to communications
- Contribute to sustainable and democratic development of the society

Blennow K, Persson J, Wallin A, Vareman N, Persson E (2014) Understanding risk in forest ecosystem services: implications for effective risk management, communication and planning. *Forestry*, 87:219-228

How can we help experts to communicate adequately?

Integrate knowledge on individuals' understanding and perception of the effects on and what works in the local environment AND evidence-based communications

Blennow K, Persson J, Tomé M, Hanewinkel M (2012) Climate Change: Believing and Seeing Implies Adapting. PLoS ONE 7(11): e50182. doi:10.1371/journal.pone.0050182 http://www.plosone.org/article/info:doi/10.1371/journal.pone.0050182

Science and proven experience

”Vetenskap och beprövad erfarenhet”

Important addition to evidence based communication

Persson J, Vareman N, Wallin A et al. (2017) Science and proven experience: a Swedish variety of evidence based medicine and a way to better risk analysis? *J Risk Res*: 1-11.

What about values?

When forest owners believe in and see the effects of climate change they are more likely to take measures to adapt to climate change

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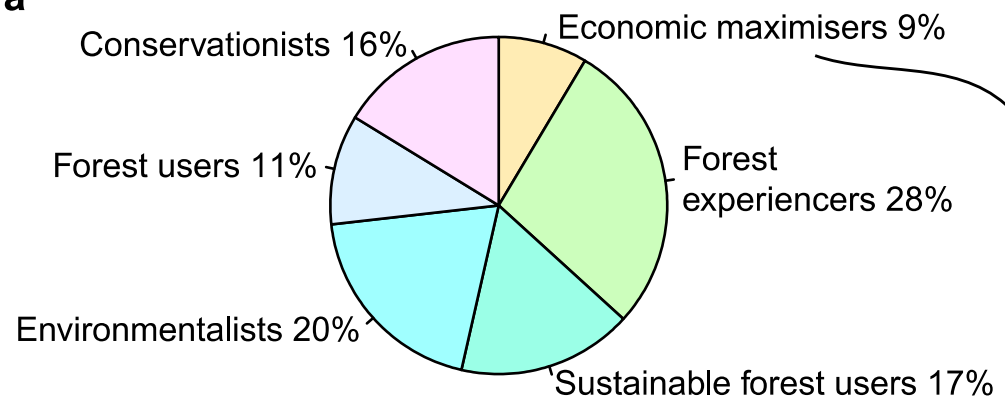
What about values?

Values uncorrelated to believing and seeing climate change!

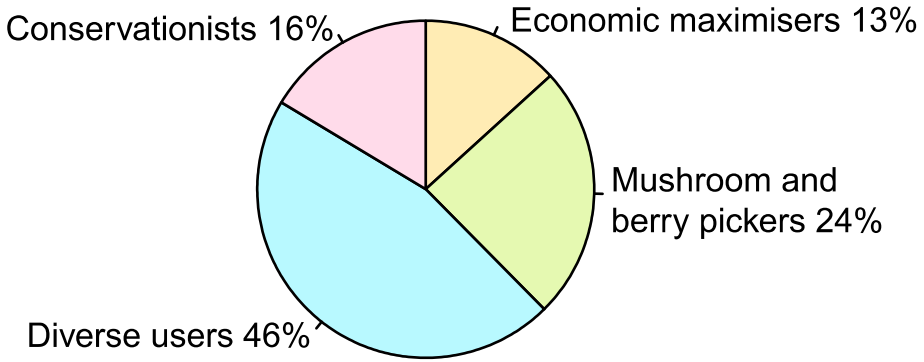
Swedish private forest owners

a

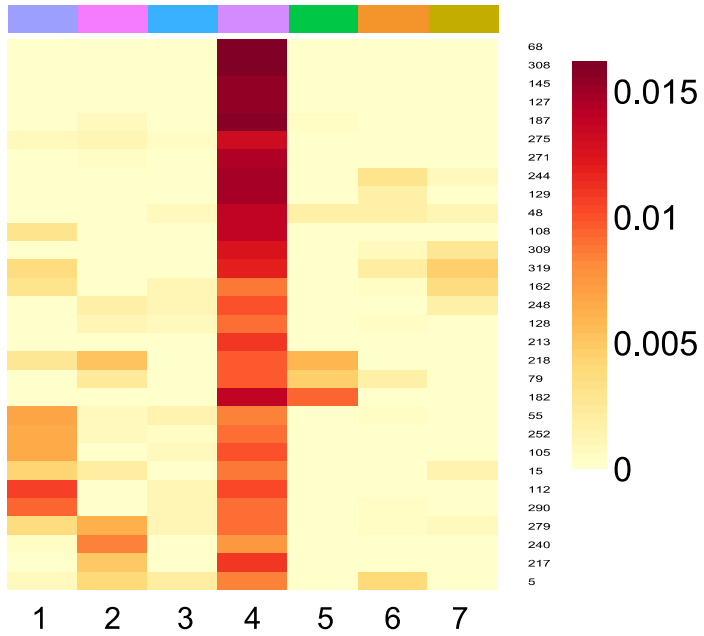


German private forest owners

b



Economic maximisers' value profile



Value cluster

- 1 Ecosystem servies
- 2 The life as forest owner
- 3 Mushrooms and berries
- 4 Economic gain
- 5 Self sufficiency
- 6 Forest walks
- 7 Conservation

Blennow K, Persson J, Persson E, Hanewinkel M (2016) Forest Owners' Response to Climate Change: University Education Trumps Value Profile. *PLOS ONE*, 11(5): e0155137. doi: http://dx.doi.org/10.1371/journal.pone.0155137

COST Action
Towards robust projections of European forests under climate change (PROFOUND)

Submitted paper by
Johannes Persson, Kristina Blennow, Luisa M.S. Gonçalves, Alexander Borys, Ioan Dutca, Jari Hynynen, Emilia Janeczko, Mariyana Lyubenova, Simon Martel, Jan Merganic, Katarina Merganicova, Mikko Peltoniemi, Michal Petr, Fernando Reboredo, Giorgio Vacchiano, Christopher P.O. Reyer

Positive and negative expected values and adaptation?

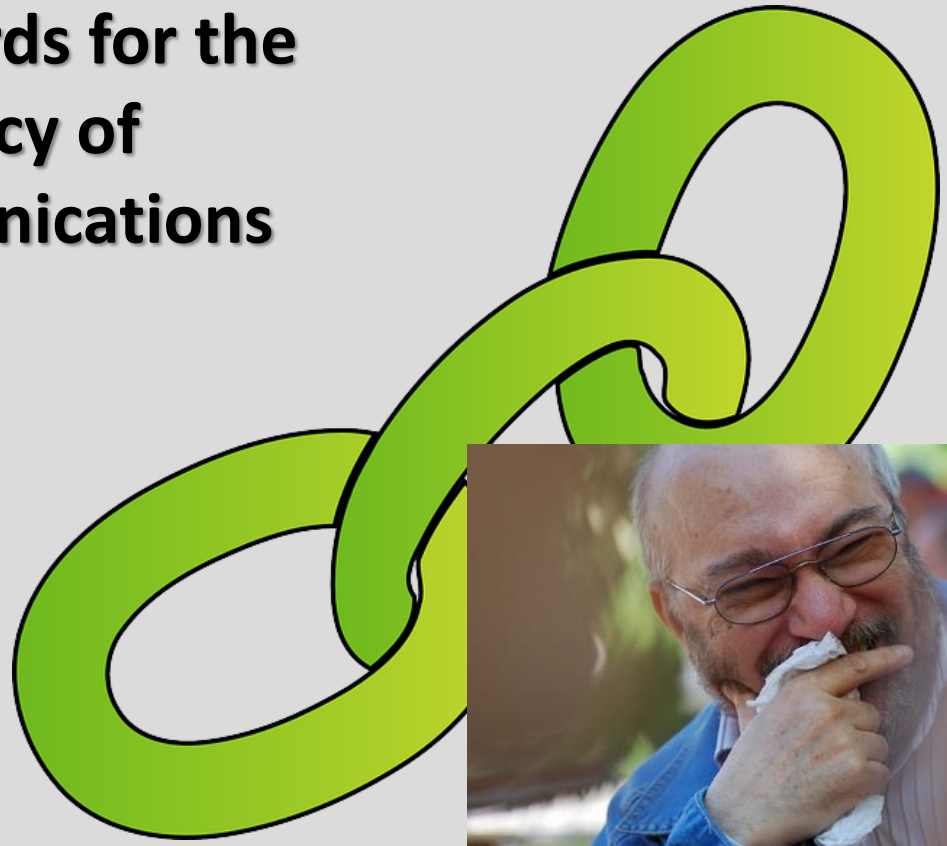
From Data to Decisions

Sensible Decisions in the Landscape

Standards for the adequacy of communications

Risk analysis

Data and Scientific findings



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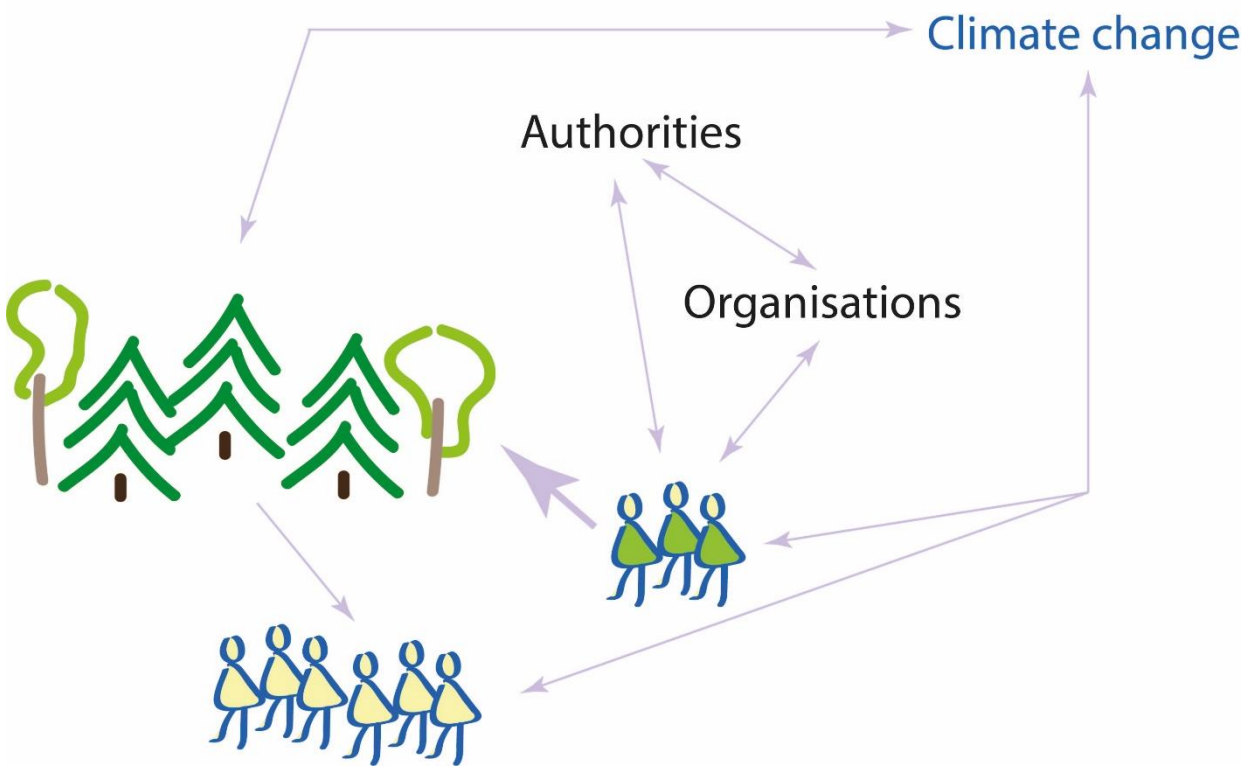
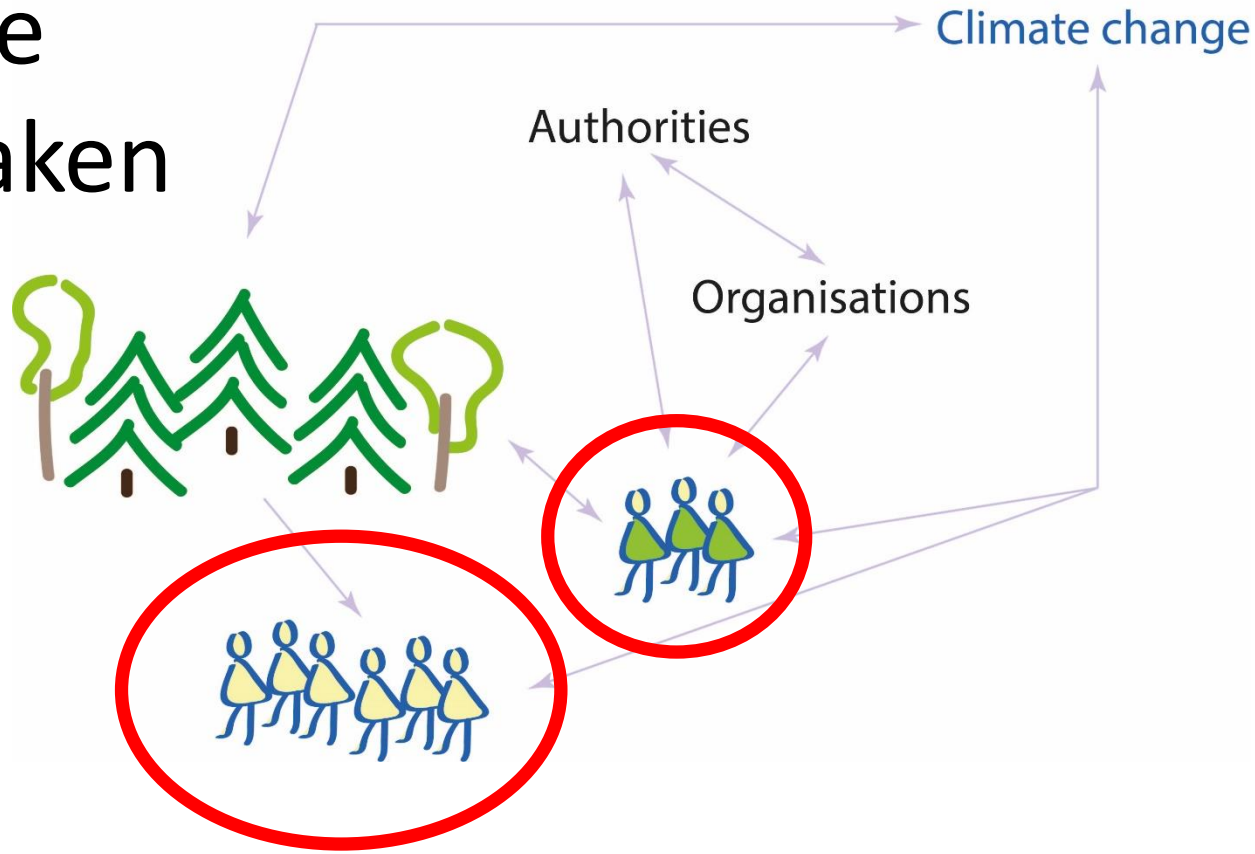


Landscape planning for sustainable management is dependent on the behavior of the forest owners

Also other persons, directly or indirectly linked to the landscape, need to be taken into consideration



50% of Europe's forests are privately owned

Pulla P, Schuck A, Verkerk PJ, Lasserre B, Marchetti M, Green T. Mapping the distribution of forest ownership in Europe. EFI technical report; 2013. p. 91.

Biospehere areas represented here in Umeå

	Italy	Czech Rep.	UK	Poland	Sweden BA	Sweden ÖVB	Sweden ND	Finland
Private individual owners	60% of forested area	<10% of forested area			>1 000	~93% of total area	64 % of total area	20% of total area
Public owners	5% of forested area	>90% of forested area					17% of total area	50% of total area
Collective owners	35% of forested area							
Companies							15% of total area	30% of total area
Associations, foundations and the church							2% of total land area	
Inhabitants				102 000				
Area	223 229 ha		231 600 ha	319 525 ha	35 000 ha			

How can we organise to make biophere areas into role models for democatic landscape planning and governance?

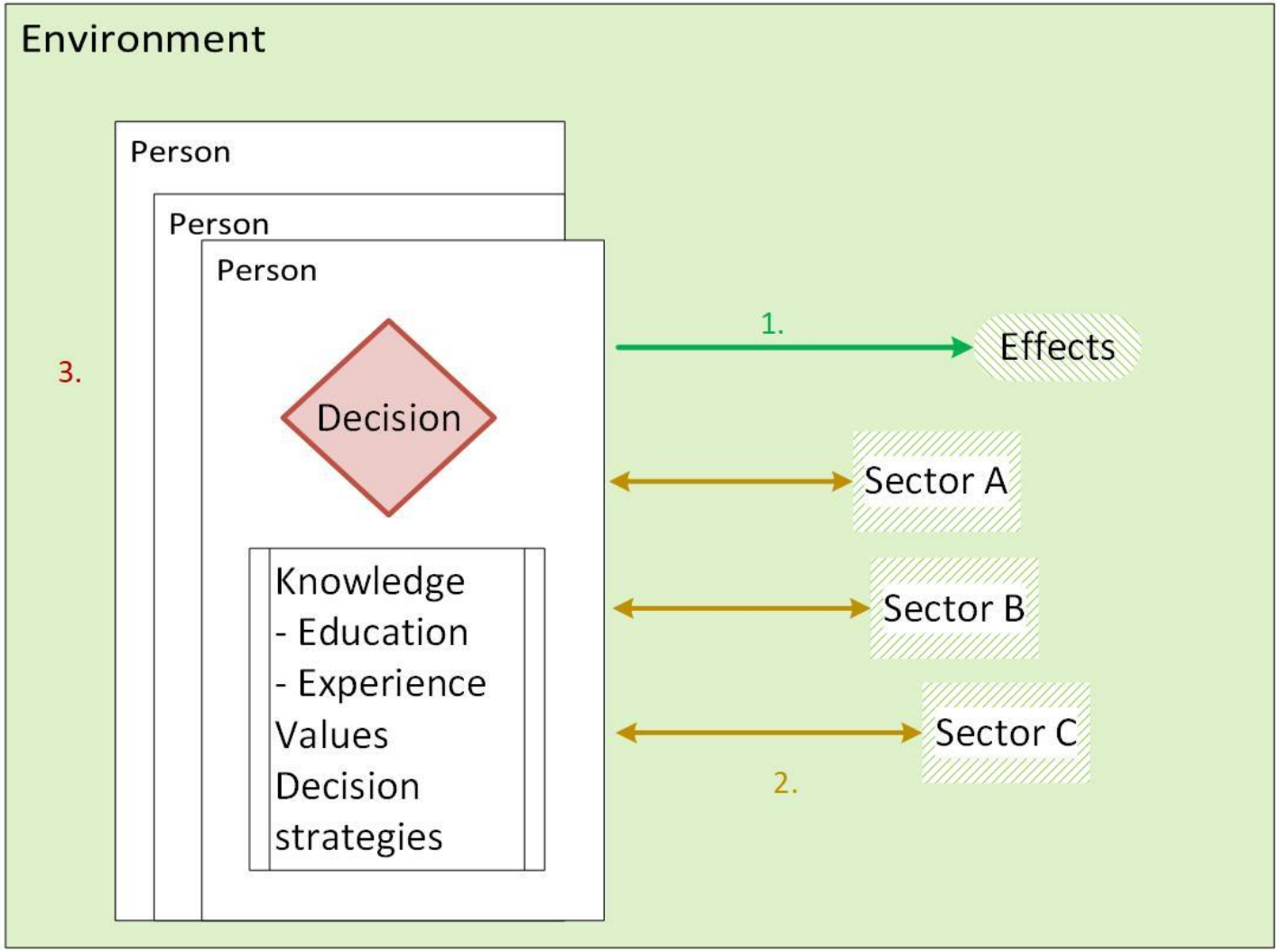

Wikimedia: Public domain

That

- build capacity to take adaptive measures of the decision-making agents,
- provide flexible effects on decision-making which is crucial for successful decision-making in a changing world,
- help to design effective climate change policies other than communications, and
- contribute to sustainable and democratic development of the society.

see Blennow K, Persson J, Wallin A, Vareman N, Persson E (2014) Understanding risk in forest ecosystem services: implications for effective risk management, communication and planning. *Forestry*, 87:219-228

LANDSCAPE APPROACH
- individuals' oriented approach
to sustainable land-use management and planning

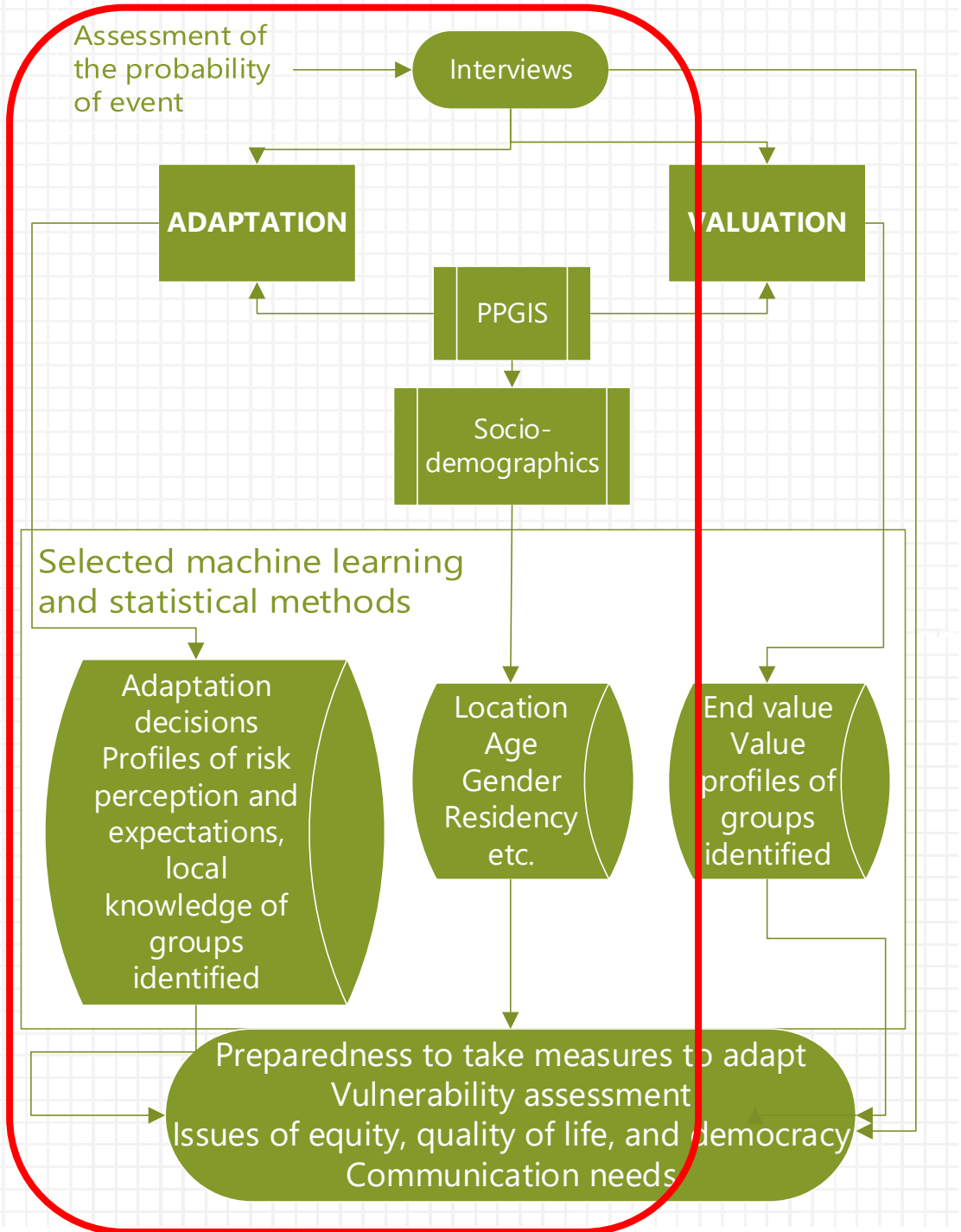


1. Classical environmental science

2. Natural resource science and technology

3. Democratic Landscape management and planning

Democratic Landscape Planning tool – DeveLoP



Blennow et al. In prep.

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Blennow K, Persson J, Wallin A, Vareman N, Persson E (2014) Understanding risk in forest ecosystem services: implications for effective risk management, communication and planning. *Forestry*, 87:219-228

New tool for valuation.

We have developed a new valuation tool together with value theorist Erik Persson.

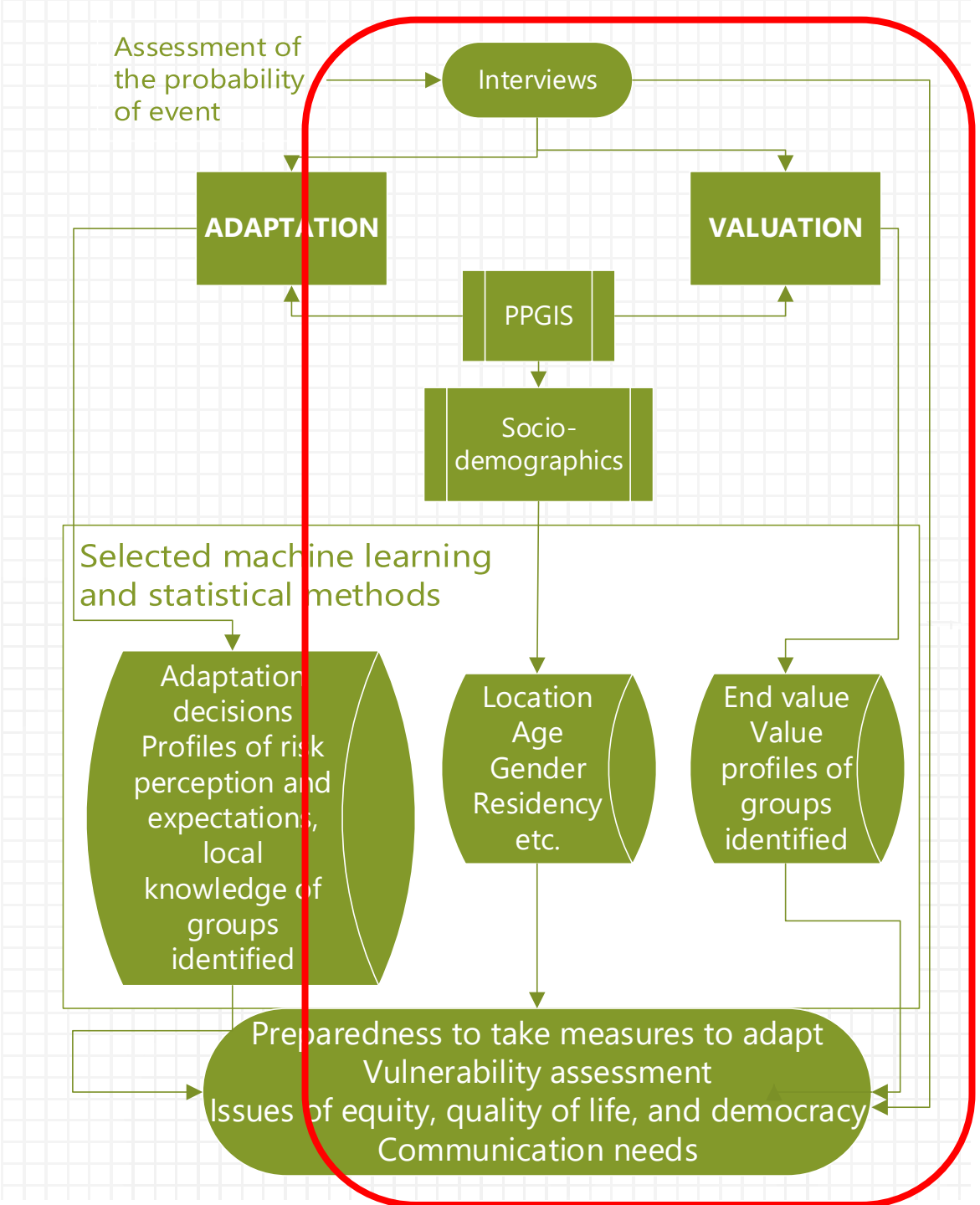
It s a component of the DeveLoP tool.

First valuation tool implemented according to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, United Nations (IPBES)

Blennow et al. submitted

Democratic Landscape Planning tool – DeveLoP

First valuation tool implemented according to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, United Nations (IPBES)



Blennow et al. In prep.

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Government model could be in common for all BA's

DeveLoP tool – Democratic Landscape Planning

Collaboration with research for implemntation and evaluation of its effectiveness

Thank you!