

Adaptive

MAnagement of vulnerability and

RISk at

COnservation
sites



MARISCO

Prof. Dr. Pierre L. Ibisch
Anja Krause

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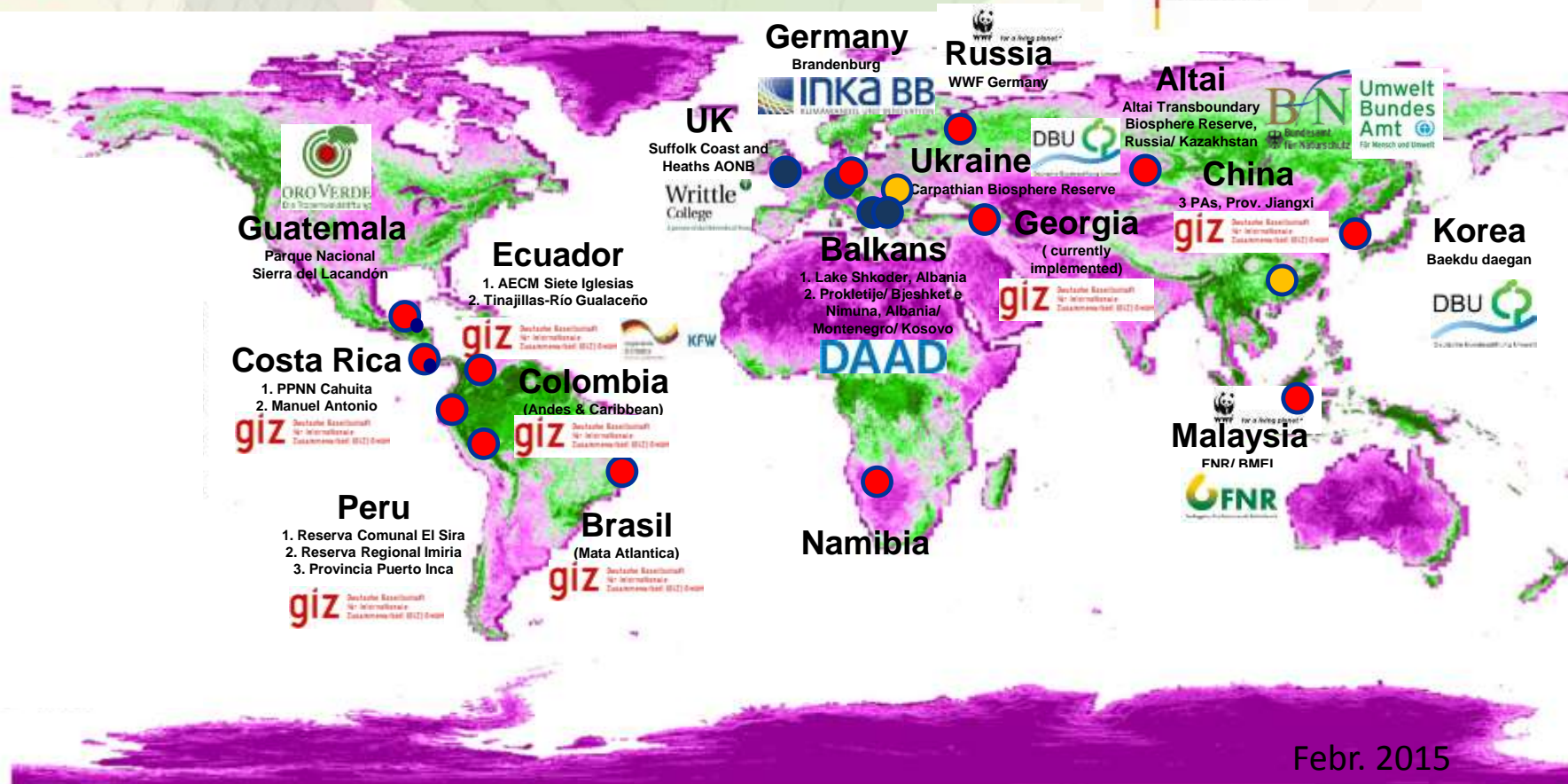
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**An ecosystem-based approach for
risk-robust and adaptive
conservation of biodiversity**



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Ecosystem Management

MARISCO: adaptive **MA**nagement of vulnerability and **RISK** at **CO**nservervation sites



A complexly unfolding crisis ...

- Climate change is perceived almost everywhere
- It is 'coming on top' and exacerbates existing threats



Namibia, March 2015



Georgia, December 2014

Industrialized land-use driving vulnerability ...



Peruvian Amazon



North-eastern Germany

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Vulnerability management ...



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... risk management ...



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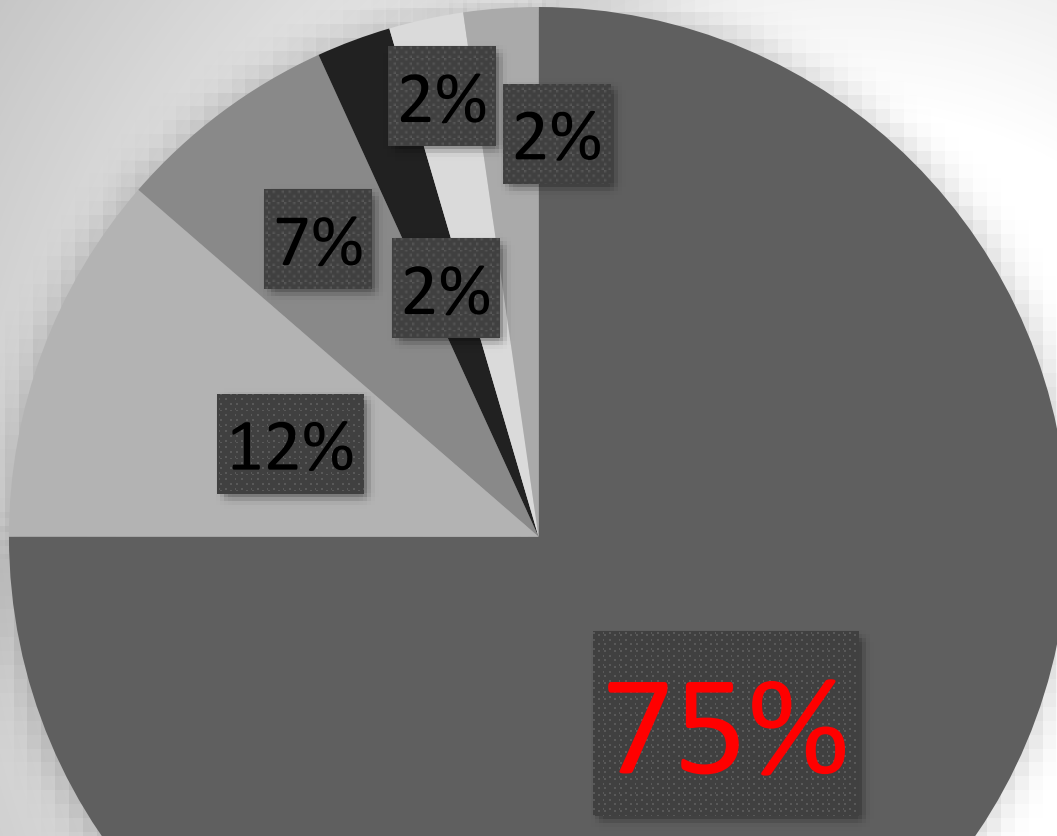
... risk of not seeing the risk ...

Ahhhh ... great place! And still safe from bears ...



Modified after
<https://www.jantoo.com/cartoon/35031218>

... risk is perceived!



- **Climate change and severe weather**
- Biological resource use
- Invasive and other problematic species and genes
- Natural system modifications
- Pollution
- Transportation and service corridors

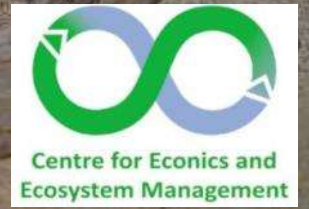
41 most critical threats according to categories of the unified IUCN-CMP classification, ranked during 22 MARISCO assessments in 13 countries with ca. 550 participants (Schick et al. in prep.)



... adapting to
climate
change?

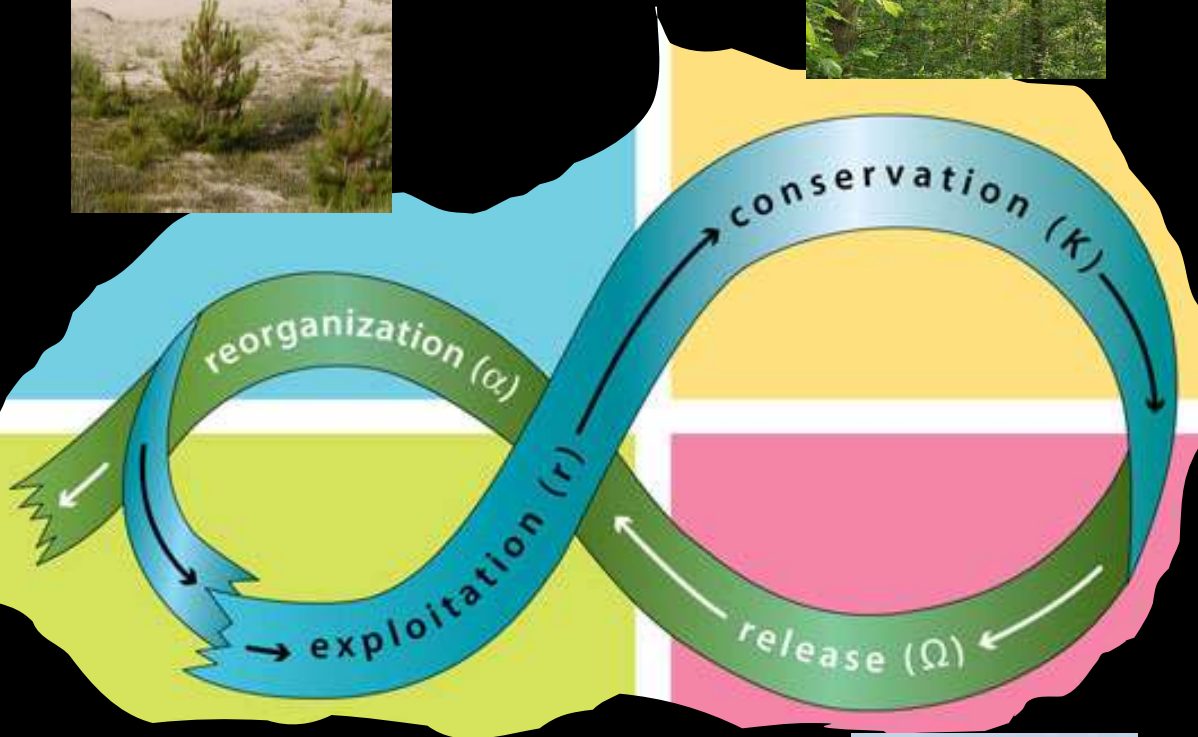


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Adaptive resilience of complex eco-systems



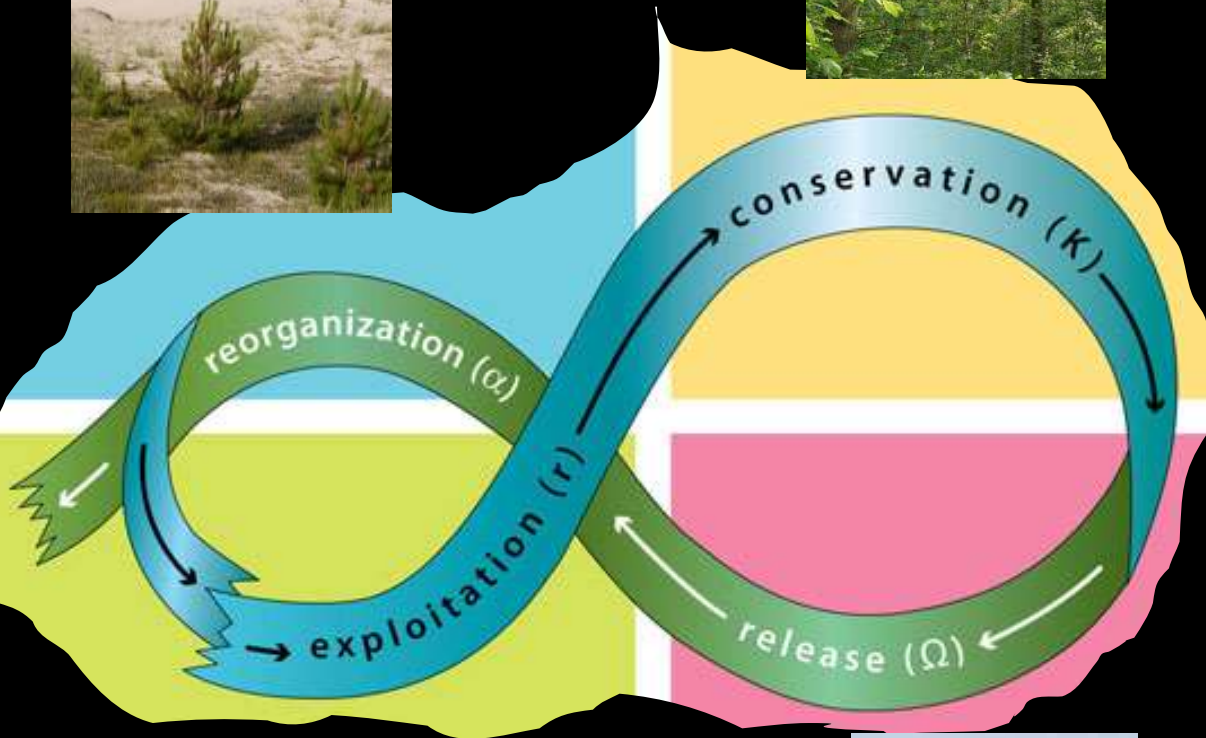
Natural systems

- Dynamic
- Changing
- Can collapse
- Unexpected re-organization
- Working towards higher complexity, efficiency and resilience

(Adaptive cycle adapted from Gunderson and Holling 2002)



Adaptive resilience of complex eco-systems

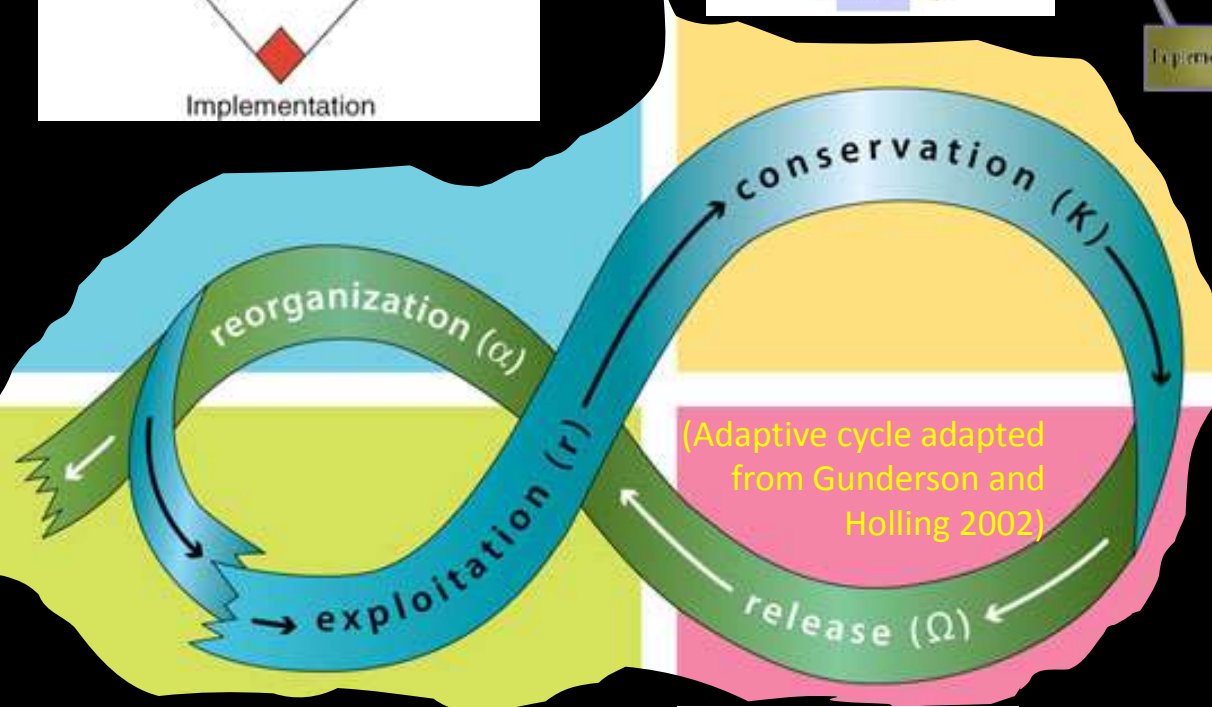
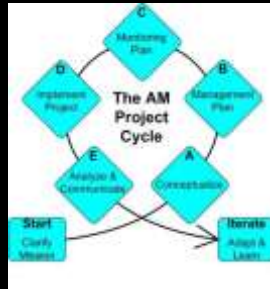
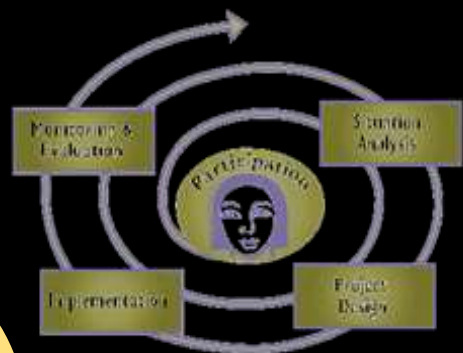
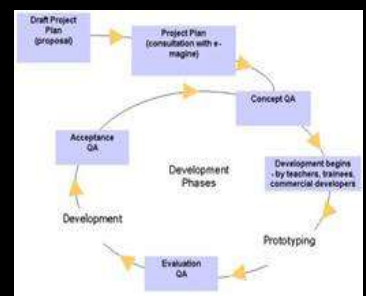
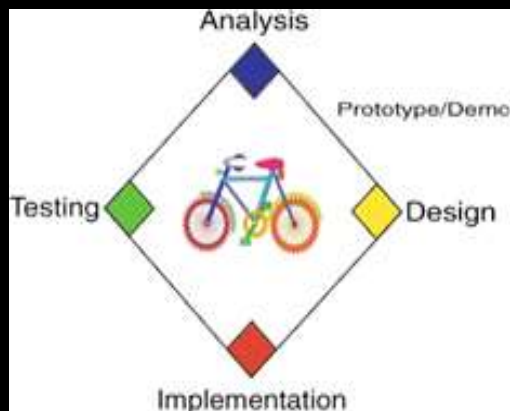


Open-ended
'muddling'
through multiple
disturbances

**DIVERSE
COMPLEX
NESTED SYSTEMS**

(Adaptive cycle adapted from Gunderson and Holling 2002)

Adaptive resilience through adaptive management



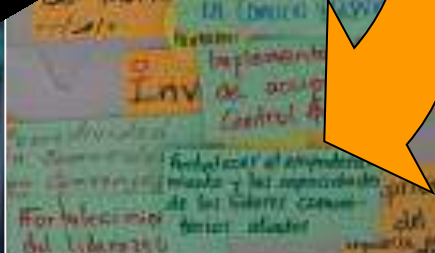
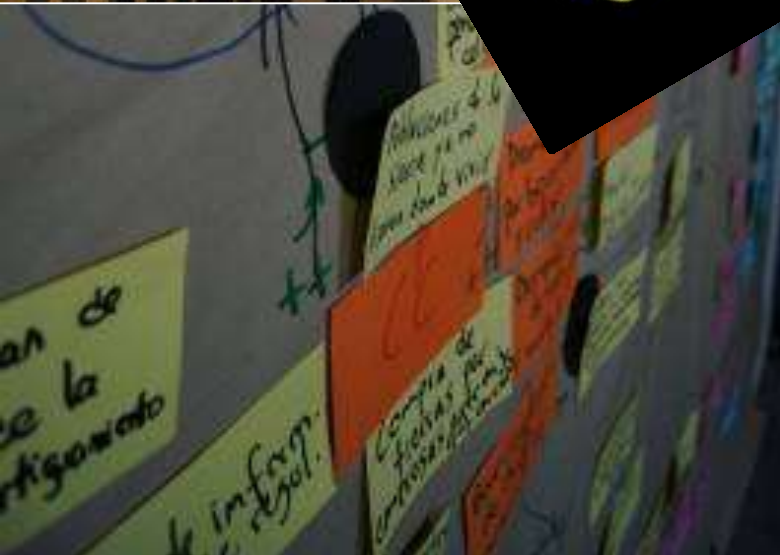
Open Standards for the Practice of Conservation

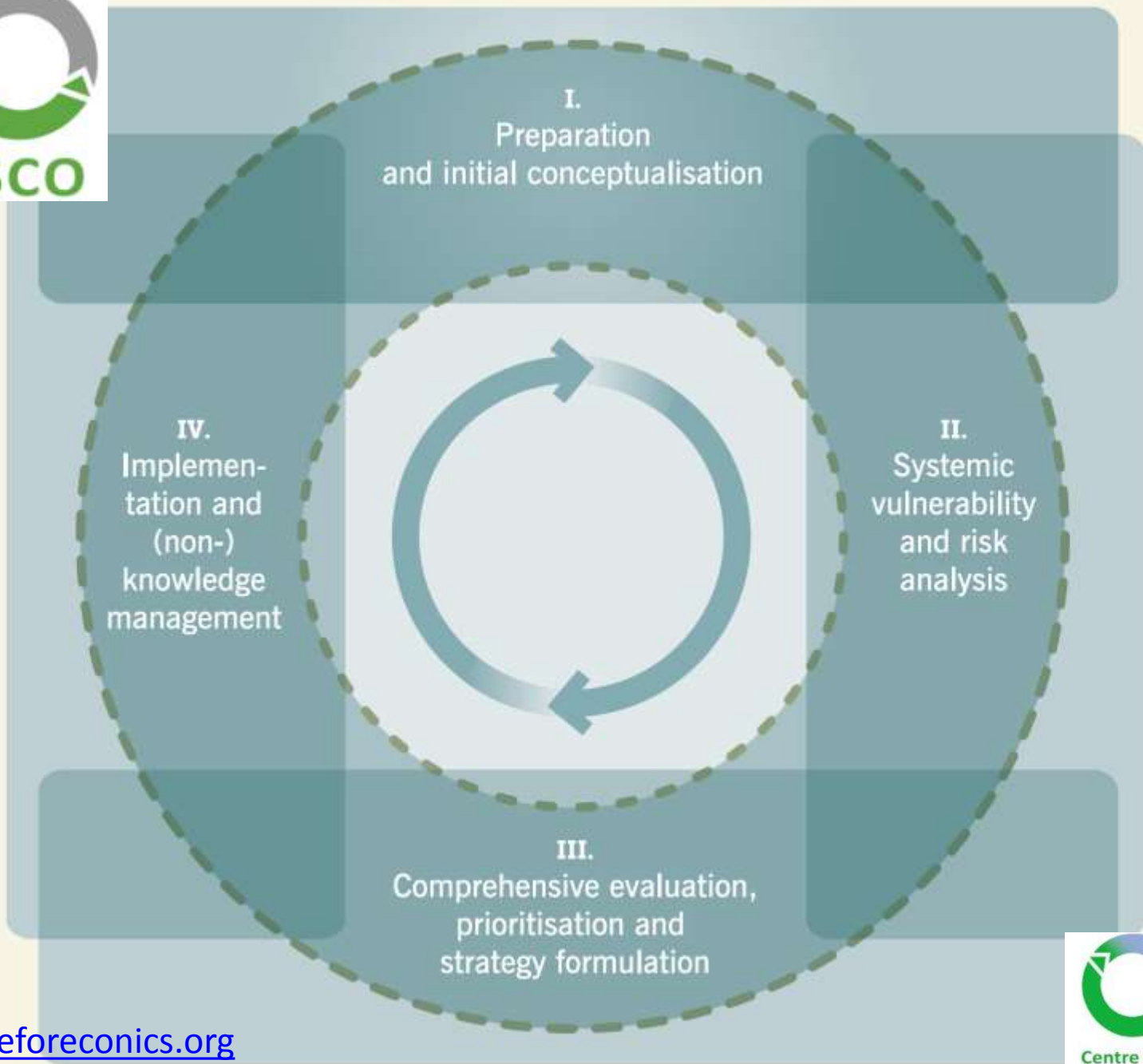
Version 3.0 / April 2013



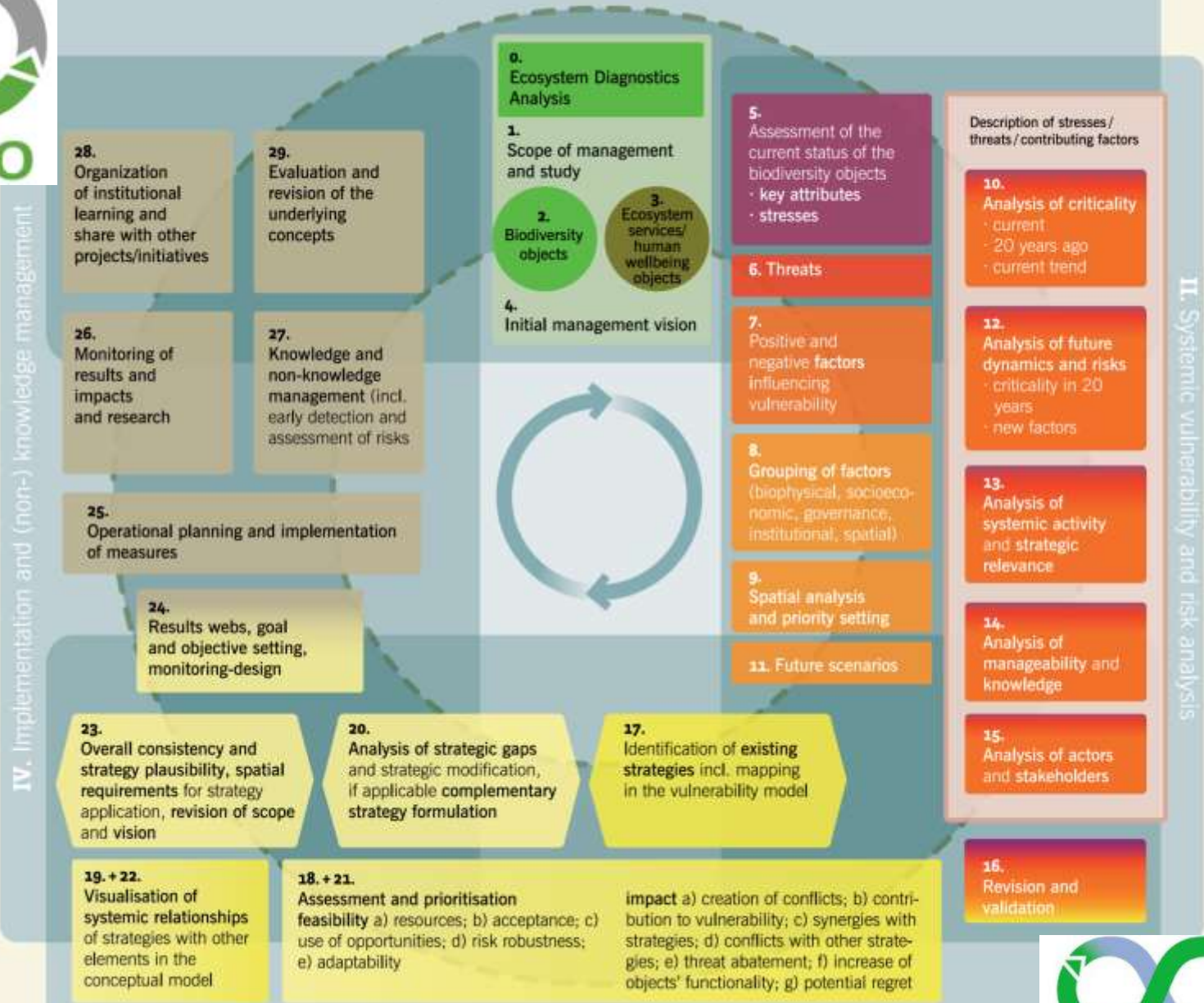


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I. Preparation and initial conceptualisation



China



Russia



Guatemala



People-centred ...

Albania



Peru

England



Costa Rica



Namibia



Ecosystem-based ...



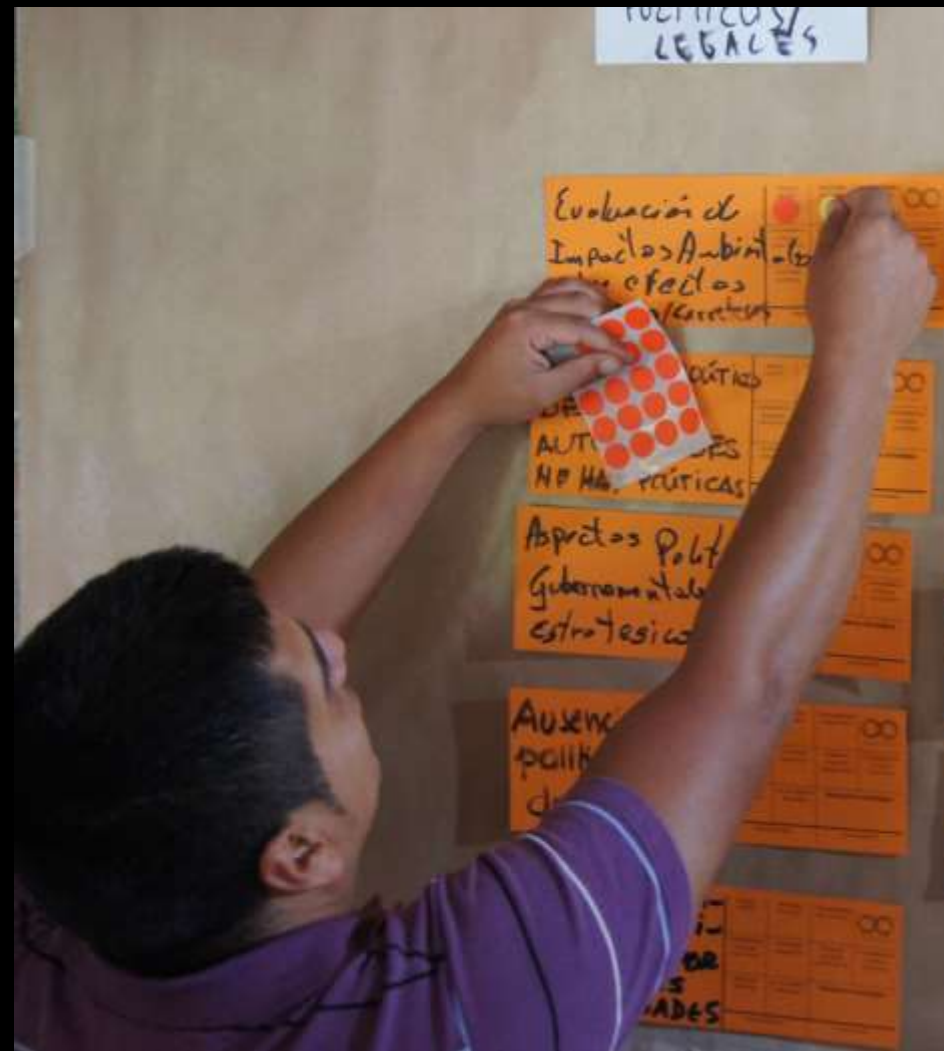
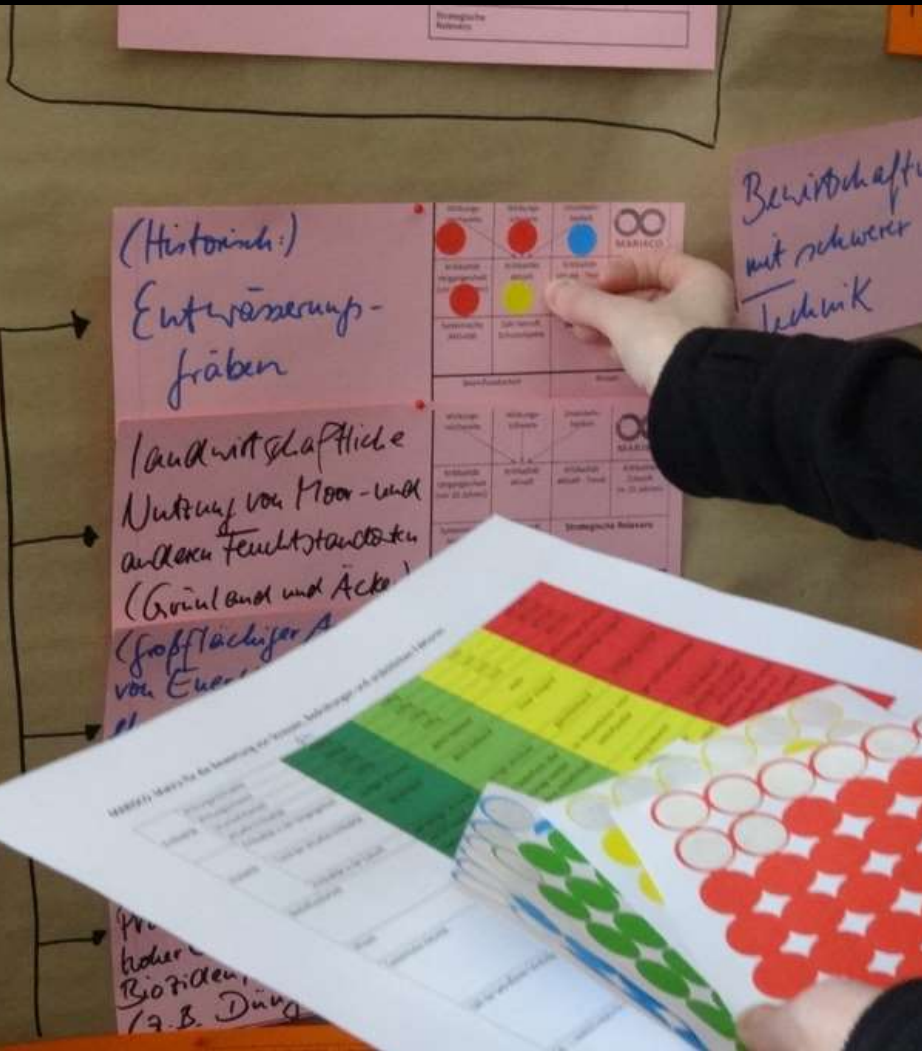
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Dealing with complexity and [non] knowledge ...



Downloading and visualizing knowledge ...



Participatory and inclusive ... giving local knowledge a voice ...



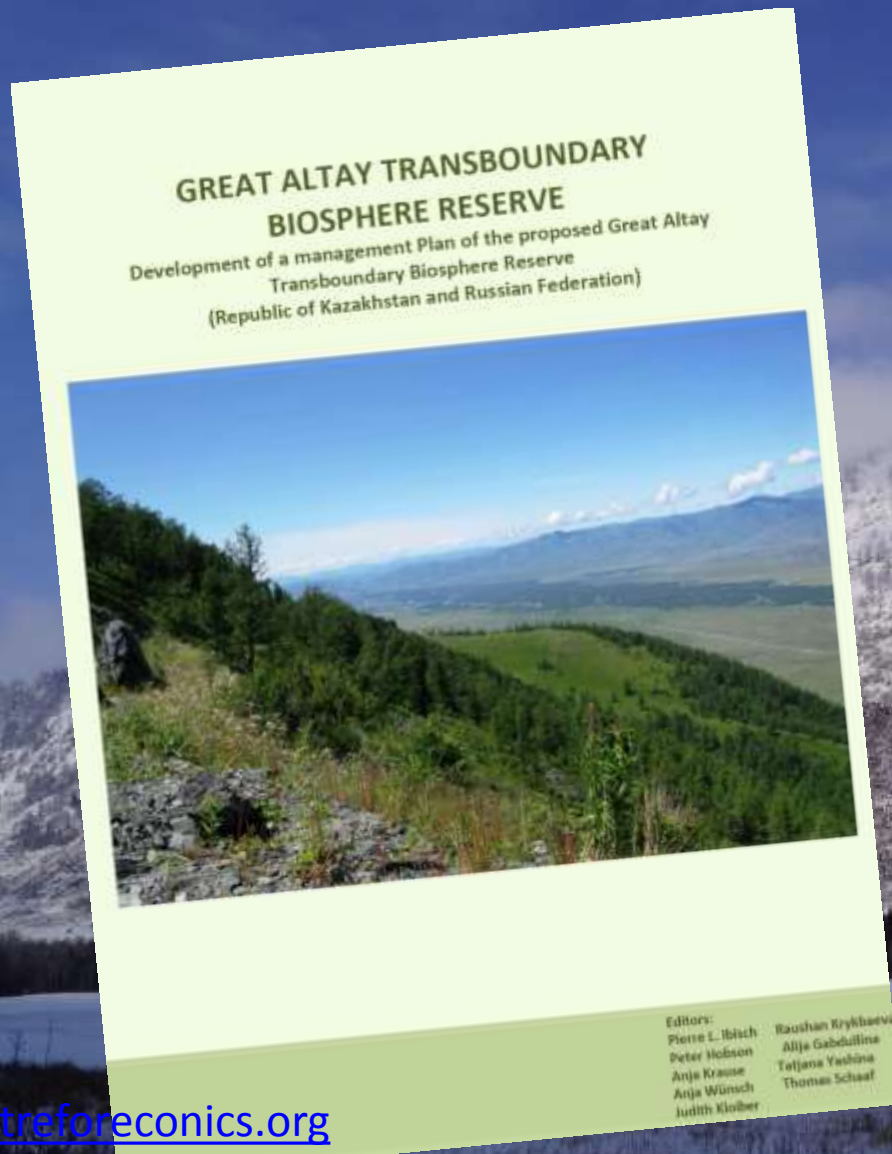
Step-by-step group experience ... building platforms for joint decisions and shared learning ...



From understanding vulnerability to strategies ...



From strategic analysis to management planning ...



Towards a Great Altay Transboundary Biosphere Reserve – Kazakhstan/Russia

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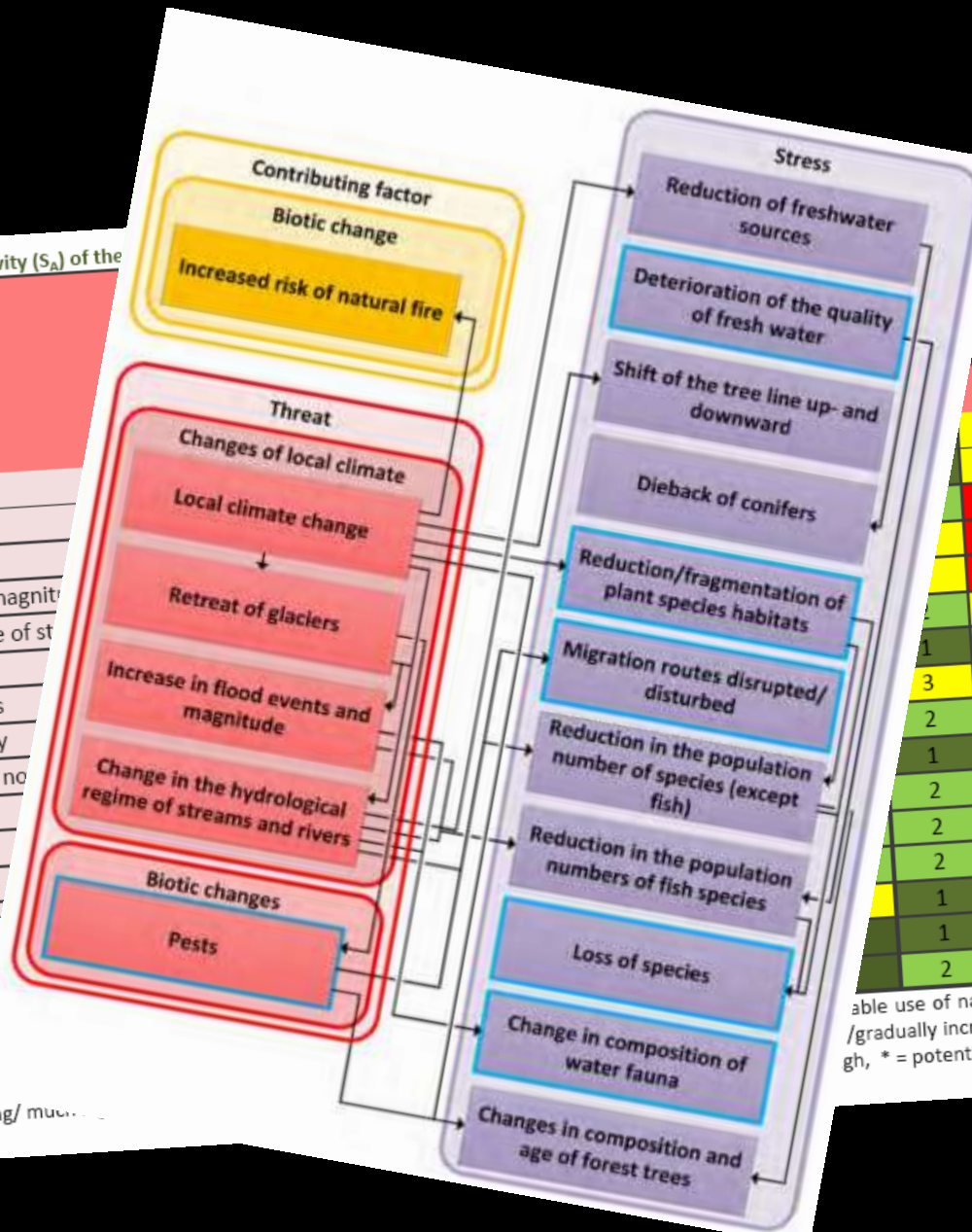
Proposed Great Altay Transboundary BR



Table 9: Criticality (C) and systemic activity (S_A) of the

Threat
1. Local climate change
2. Retreat of glaciers
3. Overgrazing
4. Increase in flood events and magnitude
5. Change in hydrological regime of streams and rivers
6. Air pollution
7. Exploitation of timber species
8. Linear barriers in the territory
9. Overexploitation of wild raw natural resources
10. Litter pollution
11. Fires
12. Pests*
13. Overexploitation of wild animals
14. Degradation of habitats along the border
15. Introduction of fish species
16. Water pollution

Key: ACE = Anthropogenic change; current/low/decreasing/ lower than current/very high/rapidly increasing/ much higher than current



Russian part of the TBR			
Criticality (C)	Overall systemic activity (S _A)		
	Current	Current trend	In 20 years
3	4	3	4
3	3	3	3
4	3	3	3
4	3	3	2
3	2	4	2
1	2	3	4
3	3	3	4
2	2	3	4
1	2	4	3
2	3	3	3
2	3	3	4
2	3	3	2
1	2	4	3
1	3	3	3
2	2	1	2

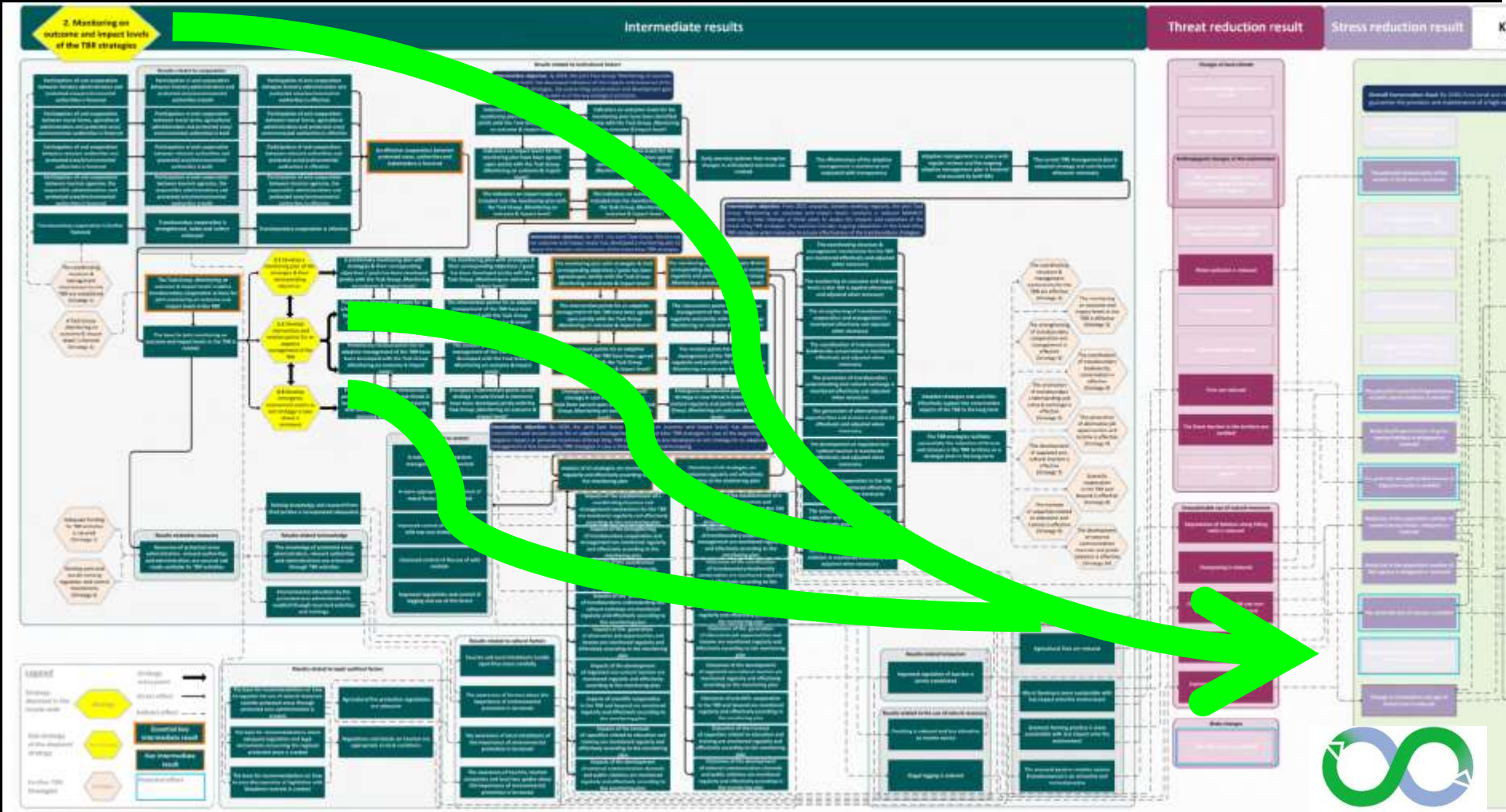
able use of natural resources; Criticality ratings: 1 = lower than /gradually increasing/ higher than current, 4 = much higher than gh, * = potential threat (currently not yet observed)



Proposed Great Altay Transboundary BR



Strategies and theory of change across results webs



Conclusions

- Climate change: **not to be treated in isolation**, no quick fix
- Often managers shy away from uncertainty and **complexity**, (have to) prioritize short-term business
- **New approaches to complex situations:** inclusive and participatory knowledge-mapping & step-by-step methods can help handling complexity
- ***Risk-robust, proactive*** adaptive management requires ongoing knowledge-management
- **Adaptive management:** relevance seen, but hardly put into practice
 - **A working culture and a strategic action in its own right**
 - Embracing uncertainty, mistake-friendly
 - Systematic and shared learning based on standardized procedures



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Adaptive Management of vulnerability and RISK at COnservation sites

The world is going VUCA - it is ever more *Volatile, Uncertain, Complex, and Ambiguous*. Conservation and development planning and action must help humans navigating through an ever changing and surprising landscape of threats and risks, which is difficult to interpret. MARISCO represents a toolbox and an approach to adaptive ecosystem-based management. It facilitates the integration of a dynamic risk and vulnerability perspective into the management of conservation projects and sites.

Explore this website that provides opportunities for learning and training in adaptive Management of vulnerability and RISK at COnservation sites. MARISCO is applied worldwide - check out the latest [news](#).

› *What is MARISCO?*

MARISCO was developed by



**Centre for Ecnics and
Ecosystem Management**

representing a cooperation of



What is MARISCO?



Case studies



Manual

