Bringing ecology into decision-making – a comparison of approaches

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First: a backstory to set the scene
Three approaches

- Scientific assessments (Cash et al. 2003)
- Adaptive co-management (Armitage et al. 2008)
- Keystone dialogues (Österblom et al. 2022)
1. Scientific assessments: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

• Assesses existing knowledge on biodiversity and ecosystem services – ca 15 000 sources
• Multi-year process involving several hundreds of scientists
• Report written for policy-makers in 140 member states
High-level messages of Global assessment (IPBES 2019)

• 1 million species threatened with extinction
• Drivers of loss include (1) changes in land and sea use; (2) direct exploitation of organisms; (3) climate change; (4) pollution and (5) invasive alien species.
• Three-quarters of the land-based environment and about 66% of the marine environment have been significantly altered by human actions – less severe in areas managed by Indigenous Peoples.
• Negative trends in nature will continue to 2050 and beyond in all of the policy scenarios explored in the Report, except those that include transformative change.
• Negative trends in ecosystems undermine progress towards 80% of the assessed targets of the Sustainable Development Goals, related to poverty, hunger, health, water, cities, climate, oceans and land.
How decision-makers responded (CBD 2022)

• Protect 30% and restore 30% by 2030, recognizing indigenous territories
• Prevent over-harvesting
• Reduce pollution (nutrients, pesticides, plastics)
• Require large and transnational companies and financial institutions to monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity through their operations, supply and value chains and portfolios
However, the track-record is questionable

• First IPCC Assessment Report published in 1990
• Paris agreement to limit warming to well below 2 degrees adopted in 2015
• Global emissions keep rising
This model is incomplete

Central policy-maker (e.g. Environmental ministry) -> Decision-making

Regional/Local authority -> Implementation and monitoring

Local natural resource user -> Behavioural response
2. Adaptive co-management: Kristianstads Vattenrike

- Combines local and scientific knowledge
- Flexible collaborations, connecting sectors and scales
- Shared vision: “Good for people and nature”

(Olsson et al. 2004, Folke et al. 2005, Schultz et al. 2015)
Sweden’s first UNESCO biosphere reserve in 2005

www.biosfarprogrammet.se
Curbing illegal fisheries in the Southern Ocean

Restoring cultural landscapes in Kristianstads Vattenrike

Rezoning the Great Barrier Reef

Schultz et al. 2015
Effectiveness and adaptive co-management (n=146 BR, 2008)
Effectiveness and adaptive co-management (n=146 BR, 2008)

Mean effectiveness rating (0-10)

Adaptive co-management scores (5.5-15)

Conserving biodiversity
Economic development
Social development

Schultz et al. 2011
World Development
But what about decision-makers who influence ecosystems from afar?
3. KEYSTONE DIALOGUES
Connecting science with industry leaders for biosphere stewardship

http://keystonedialogues.earth/
From keystone species to keystone actors

**Keystone actors**

Keystone actors are companies that, through their activities and businesses, shape global ecosystems.

**Keystone species**

A keystone species is an organism that helps define an entire ecosystem. It has a profound and disproportionate effect on communities and ecosystems.

Who are the SeaBOS keystone actors?

- 10 companies
- >500 species
- >95 countries
- >30 billion USD annual turnover
- >10% share of global catch
- >600 subsidiaries
- >100,000 employees
- ~18% of global seafood trade value

The keystone holds the system in place, making it stable.

Österblom et al. 2015

Image: SeaBOS Progress Report 2017-2022
KEYSTONE DIALOGUES
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http://keystonedialogues.earth/
Can this process be condensed?
- Launched in 2018
- Tailored to CEO & Chair persons of influential companies
- Three meet-ups, including a 3-day retreat
- Supports learning and collaboration to accelerate sustainability transformations

Johan Rockström
Welcome to the Anthropocene

Kate Raworth
Doughnut economics

Carl Folke
Resilience thinking

Line Gordon
Food futures

Per Olsson
Transformations

Beatrice Crona
Finance and the biosphere

Lisen Schultz
Program director
Addtech
Advania Group
Alecta
AMF Fastigheter
Apoteket
AP6
Atlas Copco
Axel Johnson
Axfood
Beijerstiftelsen
Blue Water Energy
Bona
Bravida
Clas Ohlson
Dagab
DNB Sverige
Dustin
Electrolux
Ernströmgruppen
Epiroc
Fagerhult
FAM
Gränges Group
Gullspång invest
H&M
Handelsbanken
Handelsbanken fonder
Hemköp
HMS
Husqvarna
IK Partners
Industrivärden
Investor
Interflora
IPCO
John Mattson Fastigheter
Kicks
Kinnevik
KPA Pension
Latour investment
Lindégruppen
Martin & Servera
Munters
NCC
Nefab
Nobel Prize Outreach
Nobia
NYK
OKQ8
Patricia industries
Postnord
Saab
Scania
SEB
Semcon
Sia Glass
Skanska
Slättö
Sonae Group
Stena Line
Stena Metall
Stena Recycling
Stora Enso
Swedbank
Systembolaget
Tempo
Volvo
Wärtsilä
XANO Industri

Executive Programme in Resilience Thinking

90+ CEOs and chair persons trained since 2018
Addressing barriers to climate action
“Human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related **losses and damages to nature and people**, beyond natural climate variability (high confidence).” IPCC, 2022

“157 of top 200 economic entities by revenue are **corporations** not countries”
Global Justice Now 2018
Addressing Doom: It is not too late, and we know what it takes

- From fossil fuels to renewable energy
- From a linear to a circular economy
- From exploitation to regeneration of nature and society
Bringing ecology to the centre

56% of human CO₂ emissions have been absorbed by the biosphere.
Planetary boundaries for a safe operating space

Rockström et al. 2009, Steffen et al. 2015, Richardson et al. 2023
A roadmap for rapid decarbonization, the “carbon law”

Rockström, Gaffney, Rogelj, Meinshausen, Nakicenovic, Schellnhuber. Science 24 March 2017
Addressing Dissonance: Solutions exist for the first halving
‘Iterative and collaborative processes involving diverse types of expertise, knowledge and actors to produce context-specific knowledge and pathways towards a sustainable future.’

Norström et al. 2020
Addressing Identity: Companies are stepping up to the challenge

Reported effects of SBT:

- Boosts profitability
- Increases investor confidence
- Drives innovation
- Reduces regulatory uncertainty
- Strengthens brand reputation

THE FIRST SCIENCE-BASED TARGETS FOR NATURE ARE HERE

May 24, 2023

DRIVING AMBITIOUS CORPORATE ACTION

4,264 companies

science-based targets

7,049 companies taking action

CDP
United Nations Global Compact
World Resources Institute
WWF
Next step: Executive programme for a just transition

34 presidents and secretaries engaged

All three central unions attending (LO, SACO, TCO)

Together, the participants represent 3.4 million swedes
Keys to success

• **Scientific assessments** need to be credible, salient and legitimate (Cash et al. 2003)

• **Adaptive co-management** succeeds through a shared vision, trust-building, engagement from knowledgeable and diverse actors, support from institutions and a bridging organisation (Armitage et al. 2008)

• **Keystone dialogues** are still in the experimental phase, but early results indicate that they have similar requirements as adaptive co-management – quality of both process and content is key (Österblom et al. 2022)
Summary

When seeking to inform decisions, it is important to consider
• whose decisions matter
• what information matters to those decisions
• how that information can be brought to decision-makers’ attention

Scientific assessments, adaptive co-management, and keystone dialogues can all facilitate decisions informed by ecological knowledge, and they each come with a set of challenges, opportunities, and keys to success.
Thank you!
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Exponential Roadmap Initiative 2023 www.exponentialroadmap.org
Fairtrans 2024 www.fairtrans.nu
Global Carbon Project 2023
Science-based targets initiative 2024. www.sciencebasedtargets.org
SeaBOS 2023. www.seabos.org
Swedish Biosphere Reserves Programme 2023. www.biosfarprogrammet.se