Bærekraftig utvikling – hva er det?

Inger Elisabeth Måren

Associate Professor in Applied Ecology, Department of Biological Sciences, University of Bergen

UNESCO Chair on Sustainable Heritage and Environmental Management – Nature and Culture

United Nations
Educational, Scientific and
Cultural Organization

UNESCO Chair on
Sustainable Heritage and
Environmental Management-Nature
and Culture, University of Bergen

There is much talk about saving the earth, but the earth does not need saving.

It has been around for 4.6 billion years, has sustained life for 3.8 billion years, and has survived massive changes in environmental conditions.

In other words, we need to save ourselves.

There is no Planet B!

The human age

Momentum is building to establish a new geological epoch that recognizes humanity's impact on the planet. But there is fierce debate behind the scenes.

BY RICHARD MONASTERSKY

ILLUSTRATION BY JESSICA FORTNER

Almost all the dinosaurs have vanished from the National Museum of Natural History in Washington DC. The fossil hall is now mostly empty and painted in deep shadows as palaeobiologist Scott Wing wanders through the cavernous room.

Wing is part of a team carrying out a radical, US$45-million redesign of the exhibition space, which is part of the Smithsonian Institution. And when it opens again in 2019, the hall will do more than revisit Earth's distant past. Alongside the typical displays of *Tyrannosaurus rex* and *Triceratops*, there will be a new section that forces visitors to consider the species that is currently dominating the planet.

"We want to help people imagine their role in the world, which is maybe more important than many of them realize," says Wing.

This provocative exhibit will focus on the Anthropocene — the slice of Earth's history during which people have become a major geological force. Through mining activities alone, humans move more sediment than all the world's rivers combined. *Homo sapiens* has also warmed the planet, raised sea levels, eroded the ozone layer and acidified the oceans.

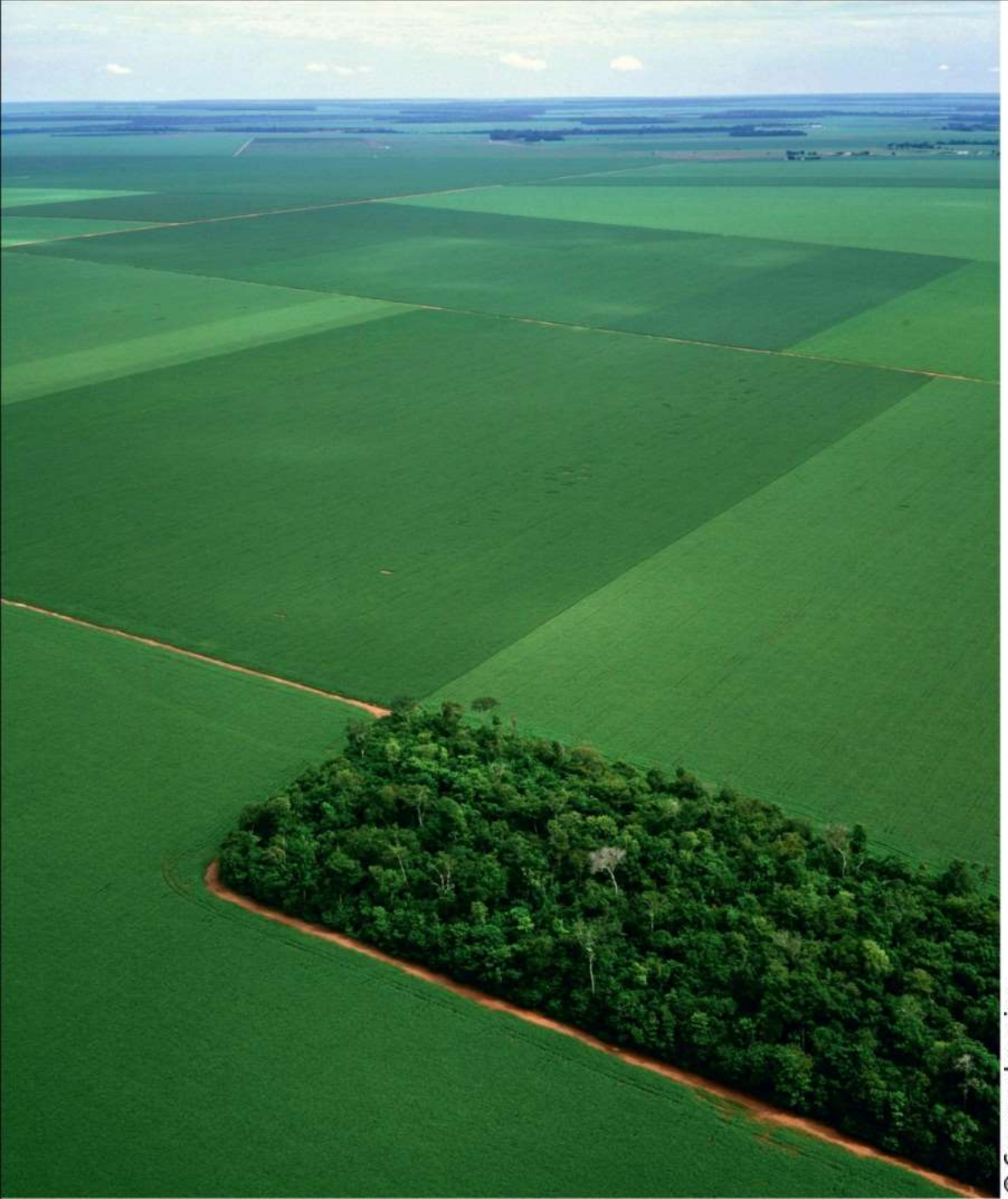
Given the magnitude of these changes, many researchers propose that the Anthropocene represents a new division of geological time. The concept has gained traction, especially in the past few years — and not just among geoscientists. The word has been invoked by archaeologists, historians and even gender-studies researchers; several museums

The human impact:

The Anthropocene

- Extinction crisis
- Habitat loss
- Fragmentation
- Over-exploitation
- Invading species
- Global climate change
- Over-use of fresh water

Article in *Nature,* 2015, 519: 144-147



Natural Capital Degradation

Altering Nature to Meet Our Needs

Reducing biodiversity

Increasing use of net primary productivity

Increasing genetic resistance in pest species and disease-causing bacteria

Eliminating many natural predators

Introducing harmful species into natural communities

Using some renewable resources faster than they can be replenished

Disrupting natural chemical cycling and energy flow

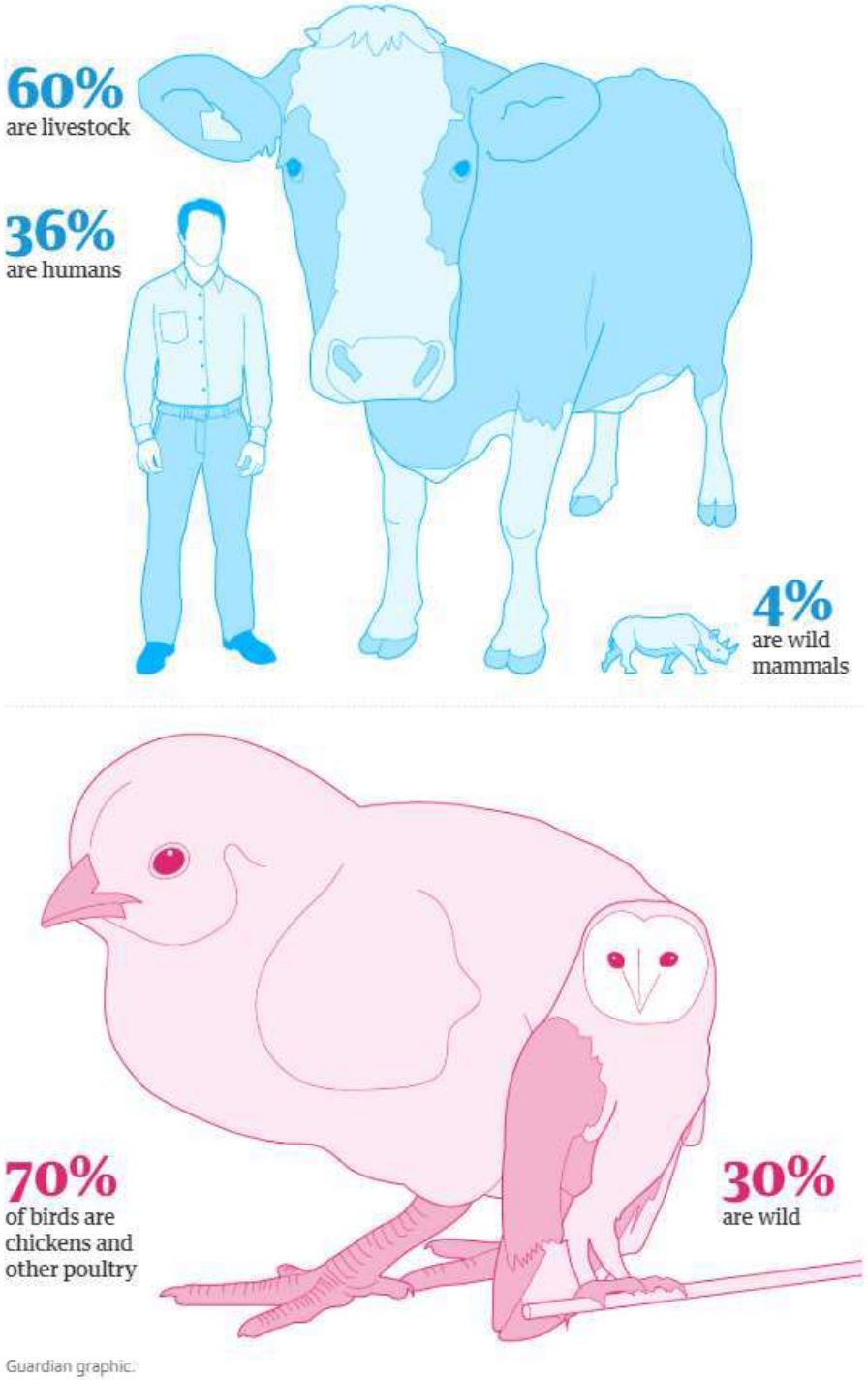
Relying mostly on polluting and climate-changing fossil fuels

RAGAMUFFIN EARTH

"There is no garden of Eden pristine ecosystem. That view is just going to get us nowhere"

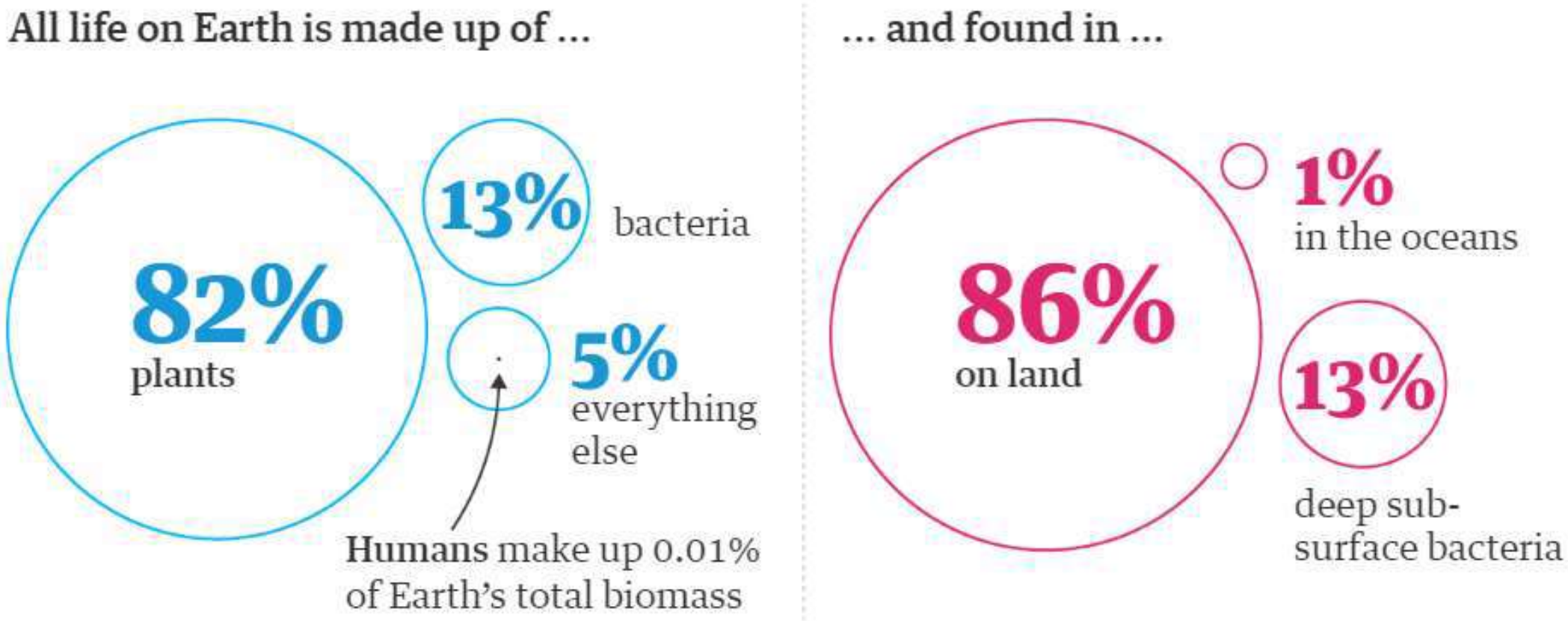
"Anytime we have the hubris to think we can separate ourselves from nature, we are prone to some profound foolishness"

Peter Kareiva,
Chief Scientist of the
Nature Conservancy



(Bar-on et al. 2018)

The total biomass of the human race accounts for just 0.01% of the life on Earth



Guardian graphic.

We only constitute 0,01% of this, but we completely dominate many global scale processes and trends in biodiversity.

We are, in other words, utterly dominant and simultaneously insignificant for life on Earth.

(Bar-on et al. 2018)

Nature vs culture

«The earth and its inhabitants stand in the closest reciprocal relations, and one cannot be truly presented … without the other. Hence history and geography must always remain inseparable. Land affects the inhabitants and the inhabitants the land»

(A. von Humboldt, 1769-1859)

What is sustainable development?

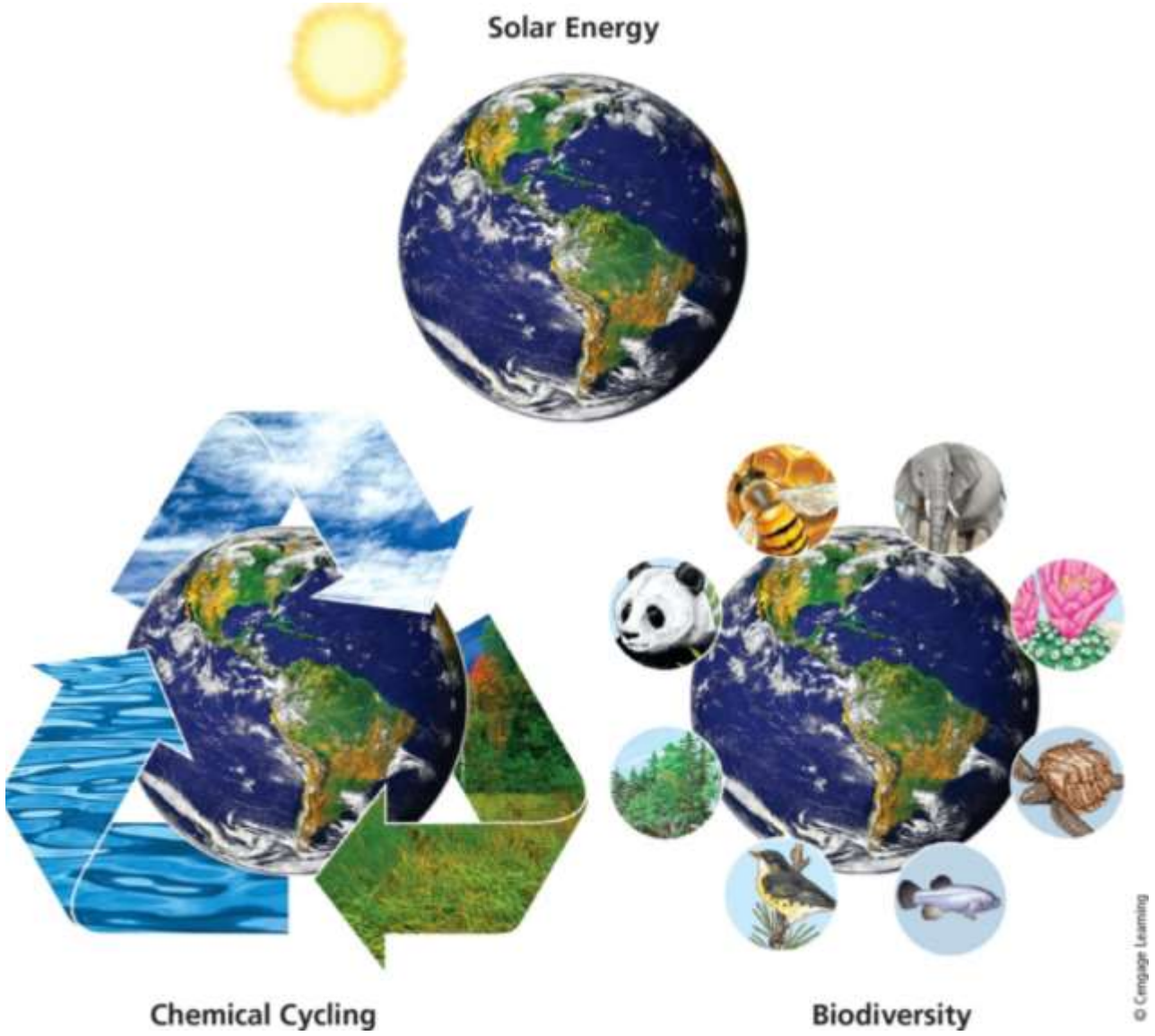
- Hva betyr egentlig det? Det er en innebygd selvmotsigelse i selve begrepet.

- Introdusert av Brundtland Kommisjonens ***Vår felles framtid*** i 1987;

"*Utvikling som imøtekommer dagens behov uten å ødelegge mulighetene for at kommende generasjoner skal få dekket sine behov*."

"D*evelopment that meets the needs of the present without compromising the ability of future generations to meet their own needs."*

Learning from the Earth: Three Scientific Principles of Sustainability



- Dependence on solar energy

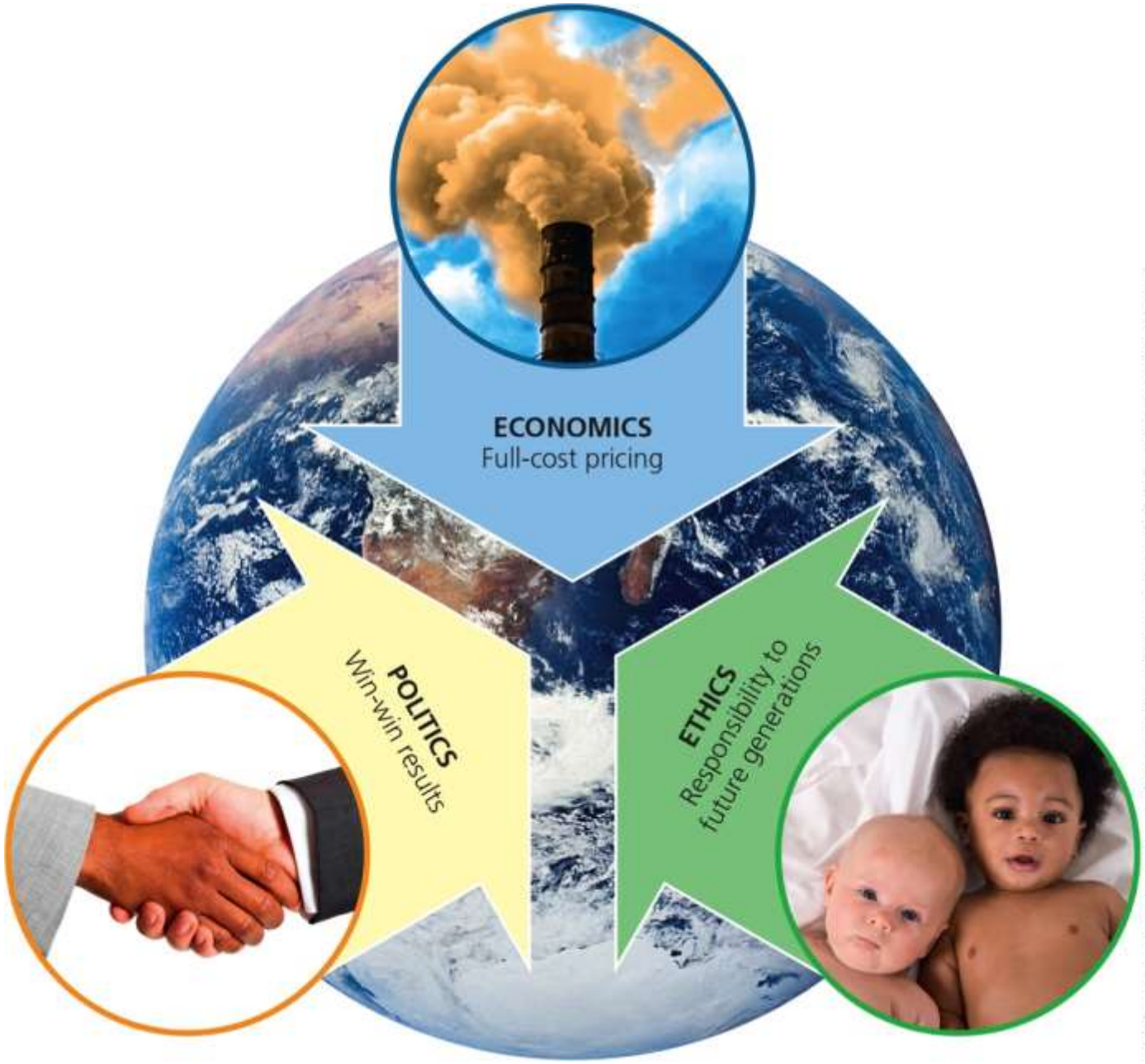
The sun provides warmth and provides energy plants use to produce nutrients

- Biodiversity

Astounding variety and adaptability of natural systems and species

- Chemical (nutrient) cycling

Circulation from the environment to organisms and then back to the environment



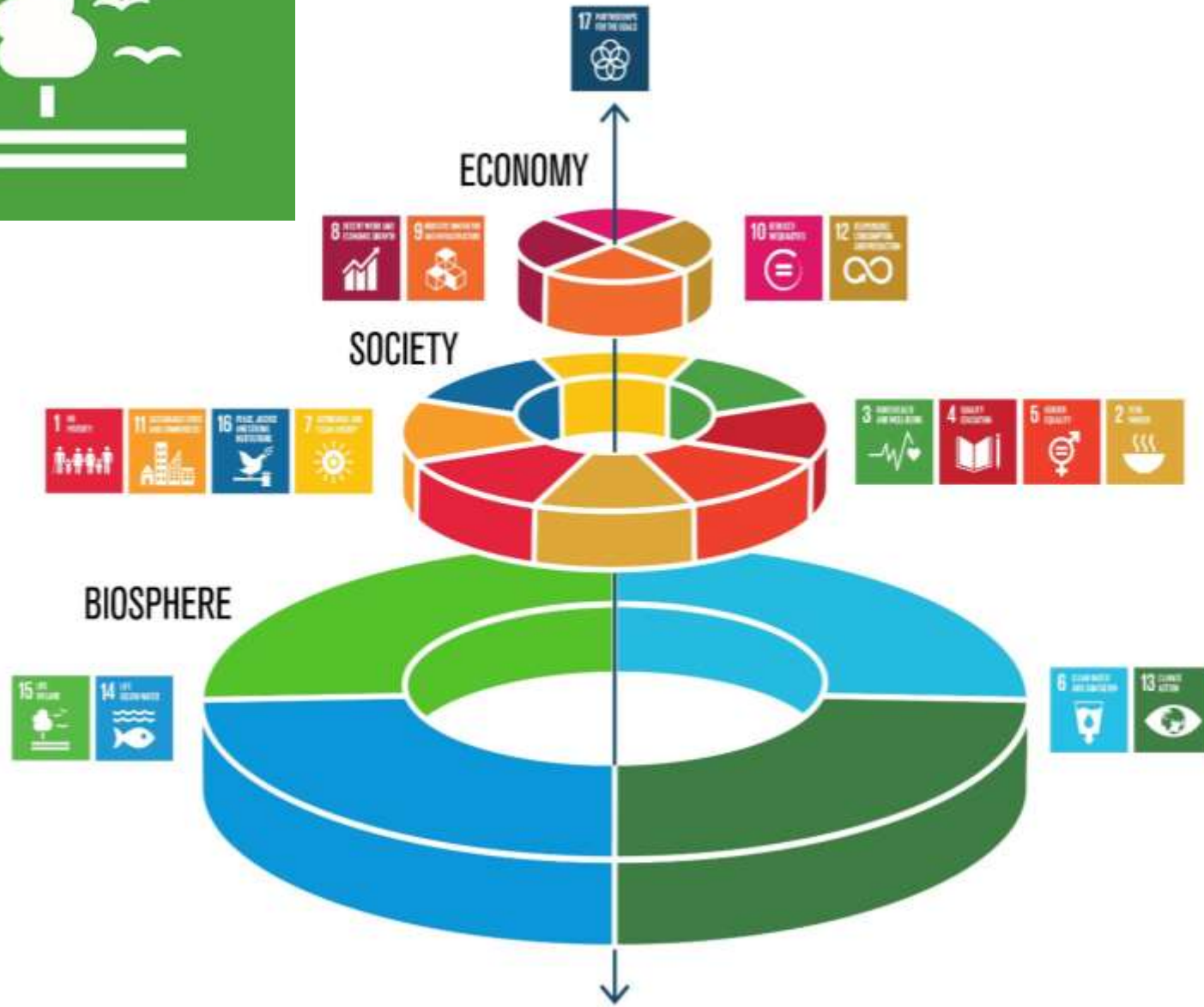
Left: Minerva Studio/Shutterstock.com. Center: mikeledray/Shutterstock.com. Right: iStockphoto.com/ Kali Nine LLC

Principles for sustainability:

- Full-cost pricing: Include harmful environmental and health costs in market prices of goods and services
- Win-win solutions: Solutions that will benefit people and the environment
- A responsibility to future generations: Leave planet's life-support system in same or better condition than it is now

- **SDG 15…**

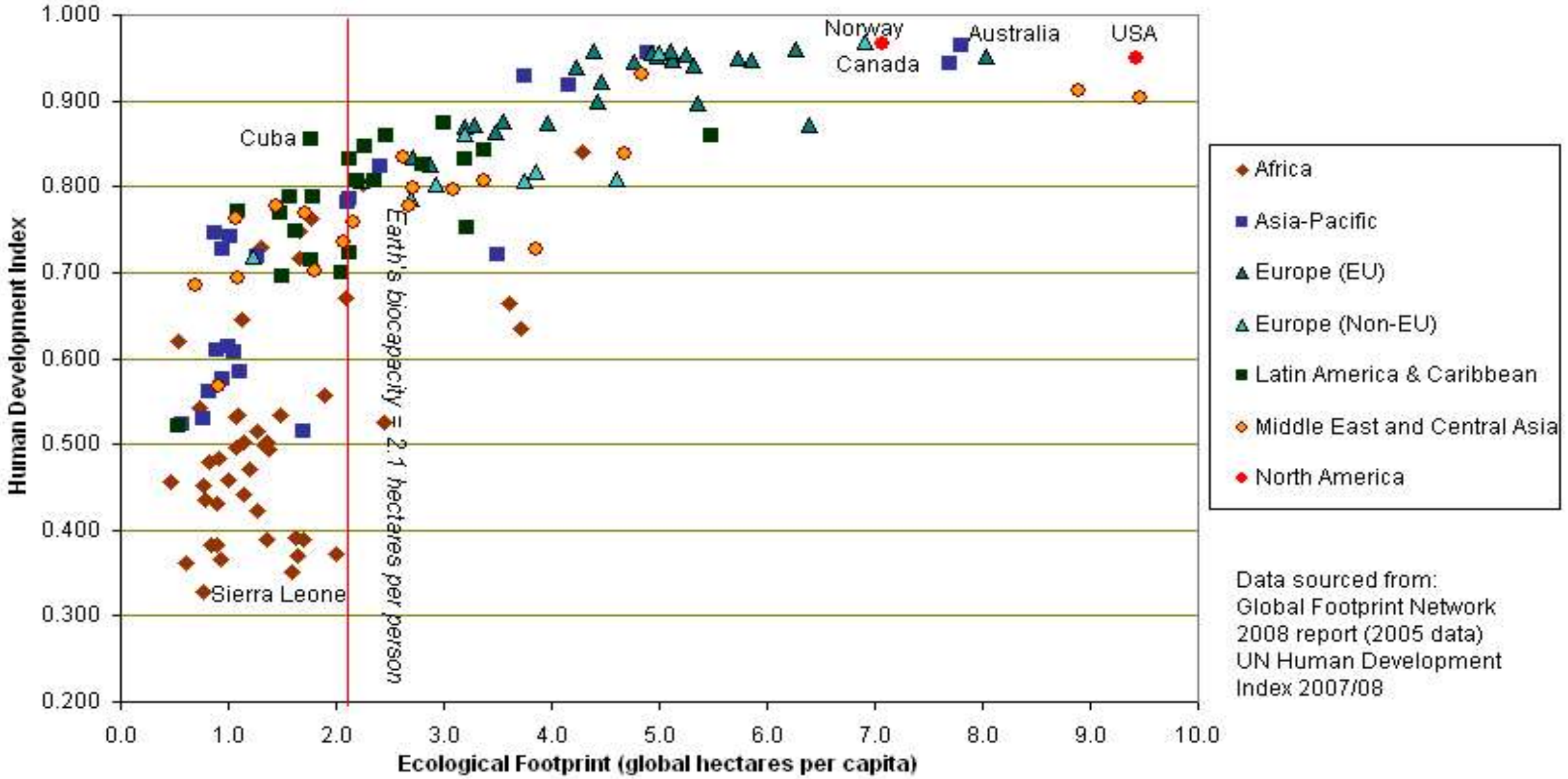
…is fundamental and connects to most of the other SDGs, in particular SDG 2, 3, 6, 12, 13 and 14, because it represents the very fabric of most life on the planet.



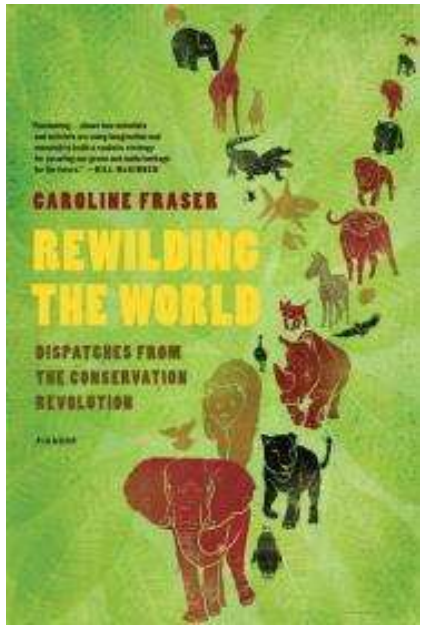
Ecological footprint

“A measure of human demand on the Earth's ecosystems”

Human Welfare and Ecological Footprints compared



Data sourced from:
Global Footprint Network
2008 report (2005 data)
UN Human Development
Index 2007/08



Alternatives?

- Rewilding
- Nuclear power
- Assisted migration
- Agricultural intensification
- Accelerated urbanization
- Restoration
- Aquaculture
- Desalination

Move It?

A Framework and Ranking System for ASSISTED COLONIZATION

World Heritage Sites - Norway

I Europa er trusselbildet for utmarksressursane ofte nedbygging og intensiv drift

I Noreg er det heller det motsette – mangel på bruk

Store verdiar og høg status i verdsarvområda –men vanskeleg å finne økonomiske og miljømessige berekraftige bruksmodellar for utmarksressursane

Fokus på landbrukspolitikk, turisme, transport:

- Nærøyfjorden og Geiranger –frå volum til nisje, interessefellesskap mellom opplevingsbasert landbruksnæring og nisjeproduksjon og den «regjerandetransport, overnattings- og serveringsfokuserte reiselivsnæringa»
- Alternativ landbrukspolitikk for verdsarvområda (utmarksområde)
- Restriksjonar på trafikk

Det institusjonelle grunnlaget for berekraftig vern og bruk:

- Nedanfrå og opp-utvikling eller toppstyrt?
- Sjølorganiserte system eller hierarkisk styring eller noko i mellom?

Driftssystem for utnytting av utmarksressursane

- **Vestnorsk fjordlandskap** vart i 2005 innskrive på UNESCOs verdsarvliste.
- Heilskapleg analyse og vurdering av ulike alternative driftssystem
- Livsløpsanalyse
- Økosystemanalyse
- Juridiske og sosiale hindringar og konsekvensar både i bruk av inn- og utmark
- Potensialet for lokal foredling og omsetting av mjølk- og kjøttprodukt
- Finst det nye måtar/modellar å skjøtte kulturlandskapet på?

UNESCO’s Man and the Biosphere Programme

United Nations

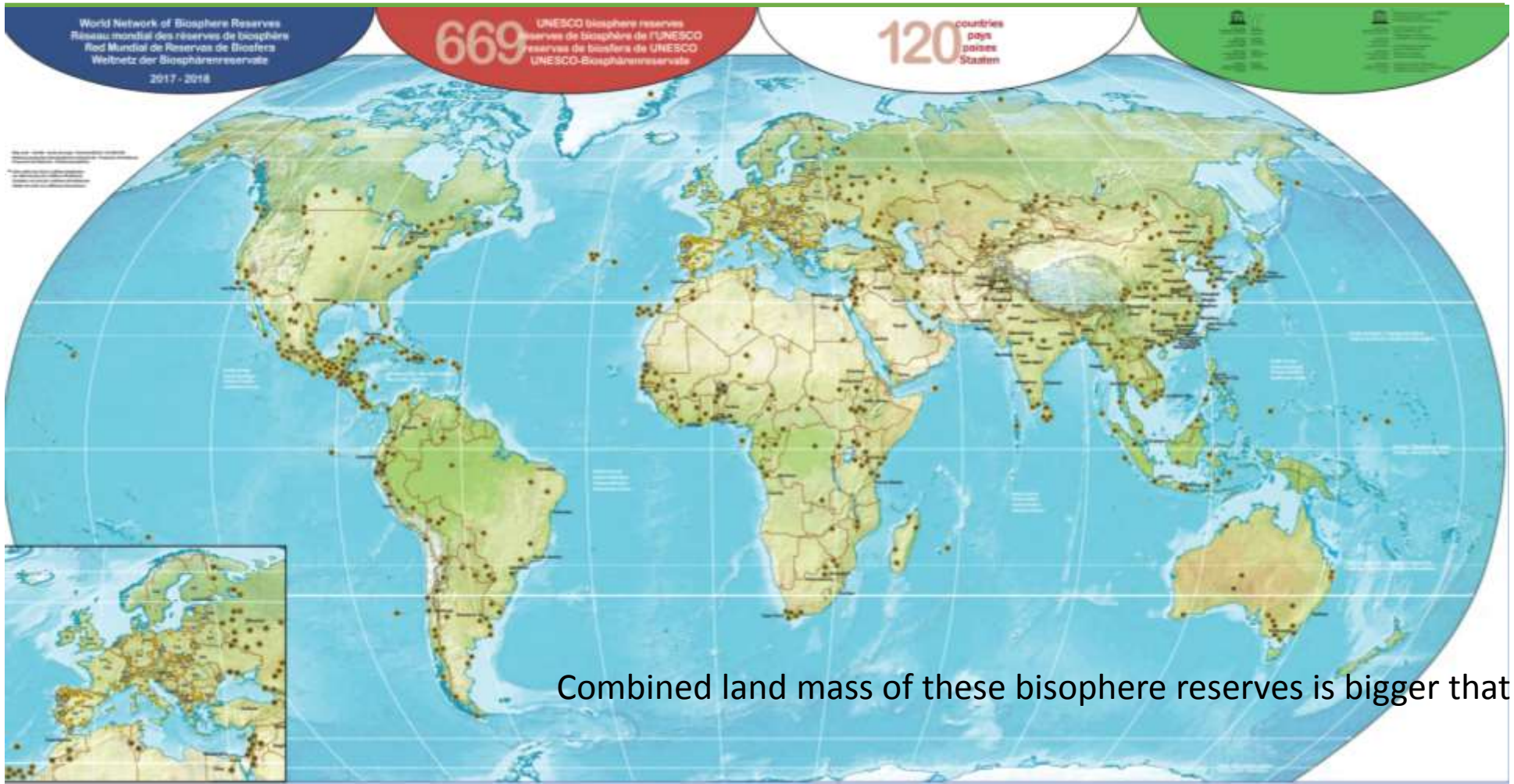
United Nations Educational, Scientific and Cultural Organization

Man and the Biosphere Programme

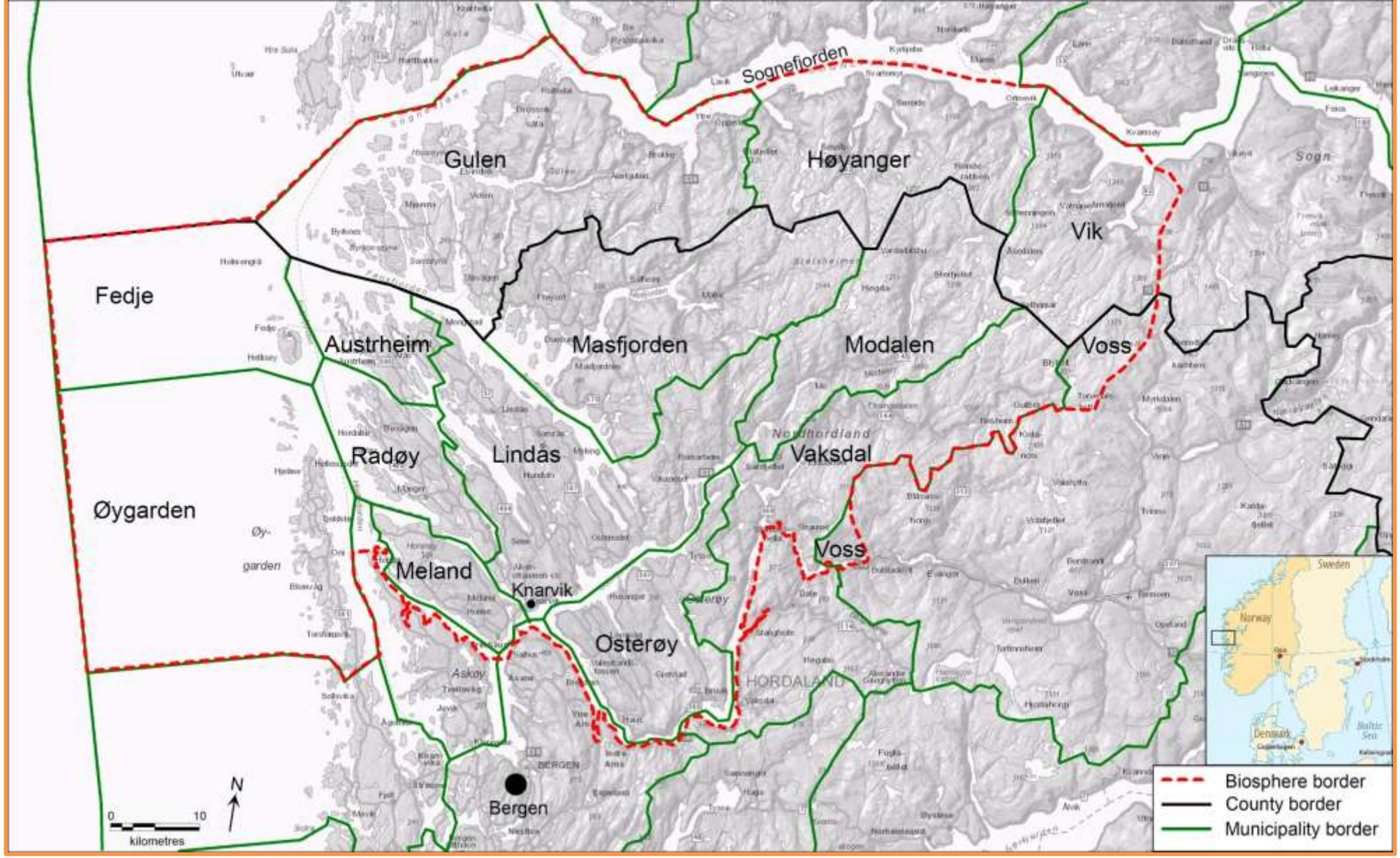
UNESCO's Man and the Biosphere programme:

- Established in 1971
- Europe: 241 in 34 countries
- Sweden: 5 (+2)
- Finland: 2 (+1)
- Denmark: 1

An intergovernmental science programme



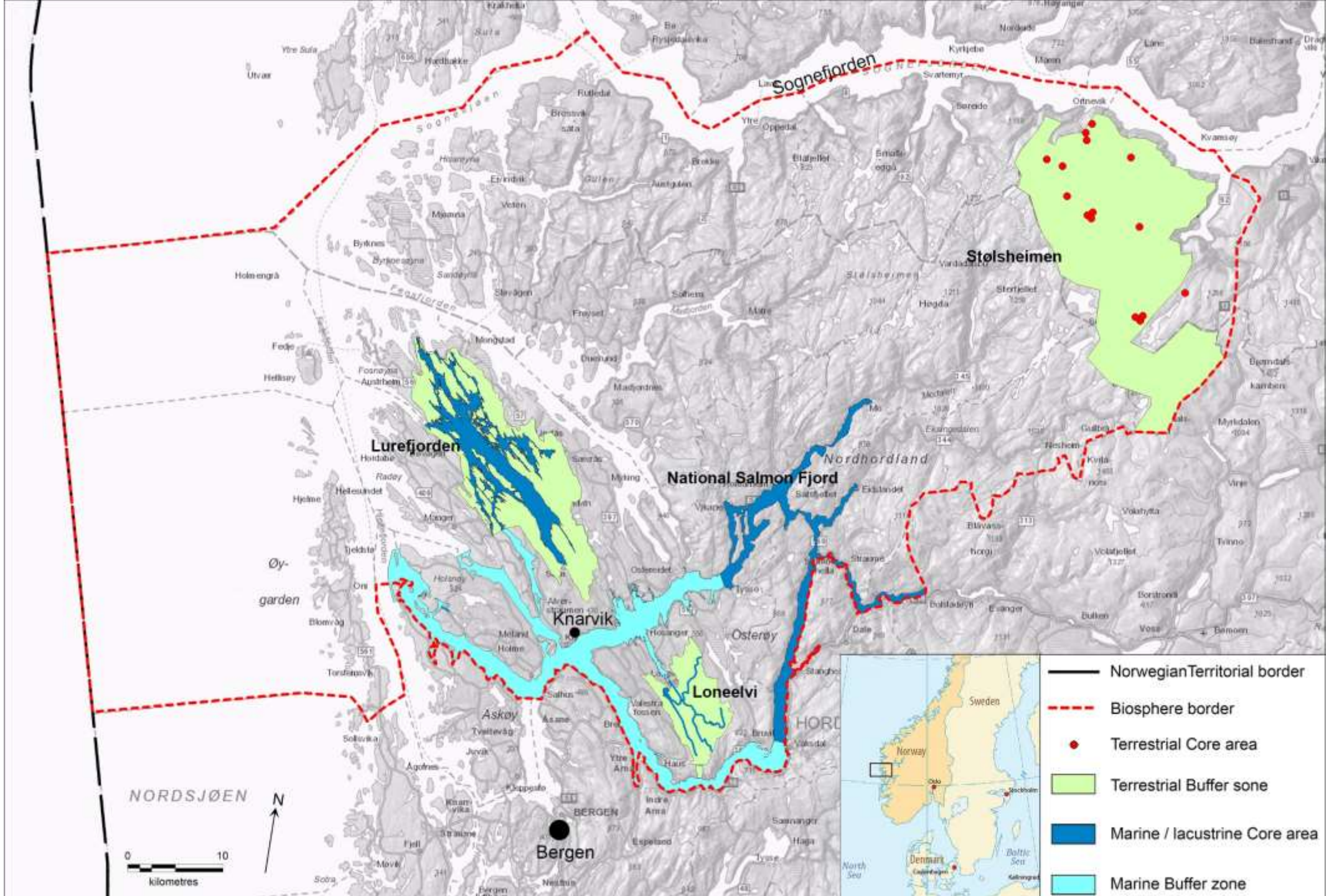
Combined land mass of these bisophere reserves is bigger that that of China!



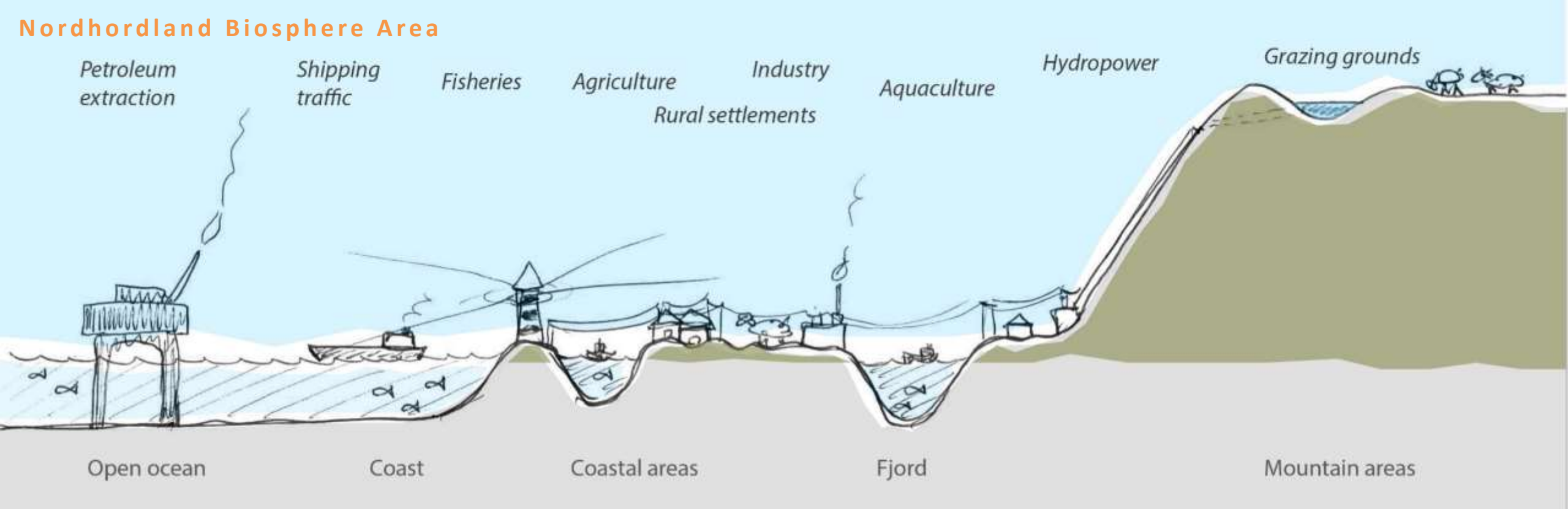
REGION NORDHORDLAND

Nordhordland Biosfæreområde

VESTNORSK KYSTLANDSKAP
- OG MENNESKA SOM BUR HER


Sognefjorden
Stølsheimen
Lurefjorden
National Salmon Fjord
Nordhordland
Knarvik
Loneelvi
Bergen
NORDSJØEN
Øy-
garden
Osterøy
Askøy
BERGEN
N
0
10
kilometres
Norway
Sweden
Denmark
North Sea
Baltic Sea
NorwegianTerritorial border
Biosphere border
Terrestrial Core area
Terrestrial Buffer sone
Marine / lacustrine Core area
Marine Buffer zone

Nordhordland Biosphere Area



- **Nature**: A diverse landscape, stretching from the outer coast through fjords to high mountains, marked by sharp climatic and ecological gradients
- **Water**: The west-coast recieves lots of percipitation, and Norway is the 6th largest producer of hydropower in the world, and the largest in Europe
- **Aquaculture & fisheries**: Large-scale aquaculture and also resources of pelargic fish stocks. Norway is the largest ocean farming actor in Europe
- **Petroleum**: Petoleum and petroleum-related industries shape modern Norway, and Mongstad is situated in the middle of the biosphere area
- **Tourism:** Bergen and surrounding areas see an increasing influx of tourists

REGION NORDHORDLAND

United Nations Educational, Scientific and Cultural Organization

Man and the Biosphere Programme

Sustainable Development Goals

- Why do we have biosphere areas?
  - Model areas for sustainable development
- Why in Norway?
  - We need enhanced focus on Agenda 2030, also here at home
- Why in Nordhordland?
  - The region is representative for Western Norway in particular, and also the country
- How can we achieve Agenda 2030 by using biosphere areas?
  - "Using biosphere areas to achieve the SDGs is key to the mission of the MAB Programme":
  - Identify and assess the changes in the biosphere resulting from human and natural activities and the effects of these changes on humans and the environment
  - Study and compare the dynamic interrelationships between natural/near-natural ecosystems and socio-economic processes
  - Ensure basic human welfare and a livable environment in the context of rapid urbanization and energy consumption as drivers of environmental change
  - Promote the exchange and transfer of knowledge on environmental problems and solutions, and to foster environmental education for sustainable development


Thank you for your attention!
22 MAY 2015
INTERNATIONAL DAY
FOR BIOLOGICAL DIVERSITY
BIODIVERSITY FOR SUSTAINABLE
DEVELOPMENT
CITES
22 MAY 2015
INTERNATIONAL DAY
FOR BIOLOGICAL DIVERSITY
BIODIVERSITY FOR SUSTAINABLE
DEVELOPMENT

- Verden er i endring, hva så?
- Økolog
- Naturlige prosesser
- Hvordan mennesket påvirker dette
- Suksesjon – kulturlandskap – vi manipulerer
- Vi påvirker evolusjon

Bærekraftig utvikling – hva er det? v/ Inger Elisabeth Måren, førsteamanuensis ved Institutt for Biovitenskap, UiB, og UNESCO Chair for Bærekraftig Arv og Miljøforvaltning – Natur og Kultur.

Bærekraftig utvikling – angår det oss i Norge? I så fall hvordan? Det er mange menneskeskapte endringer som har store konsekvenser for miljøet vi bor i, der menneskeskapte klimaendringer er en av dem. Arealbruksendringer er også viktige. Hvilke konsekvenser vil disse endringene ha for norske kulturlandskap generelt og verdensarvområdene og biosfæreområder spesielt?

- **Kulturminnevernet i et endret klima**.
- ***Verdensarven som fyrtårn for bærekraft***
- *Bevaring av kulturminner er ansett som viktig i en bærekraftig utvikling. Men hva innebærer egentlig 'bærekraftig utvikling' i en verden som i akselererende fart påvirkes av klimaendringer? Hva bør vi forberede oss på med hensyn til kulturminneforvaltningen, og kan vi se til verdensarven som bærekraftige fyrtårn?*