

Relevance of Mainstreaming Biodiversity in Planning and Implementation of Development Projects



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Biodiversity : Iconic term for nature and environment

Foundation of human well-being

Valuable resource base for economic development

One of the pillars of sustainable development



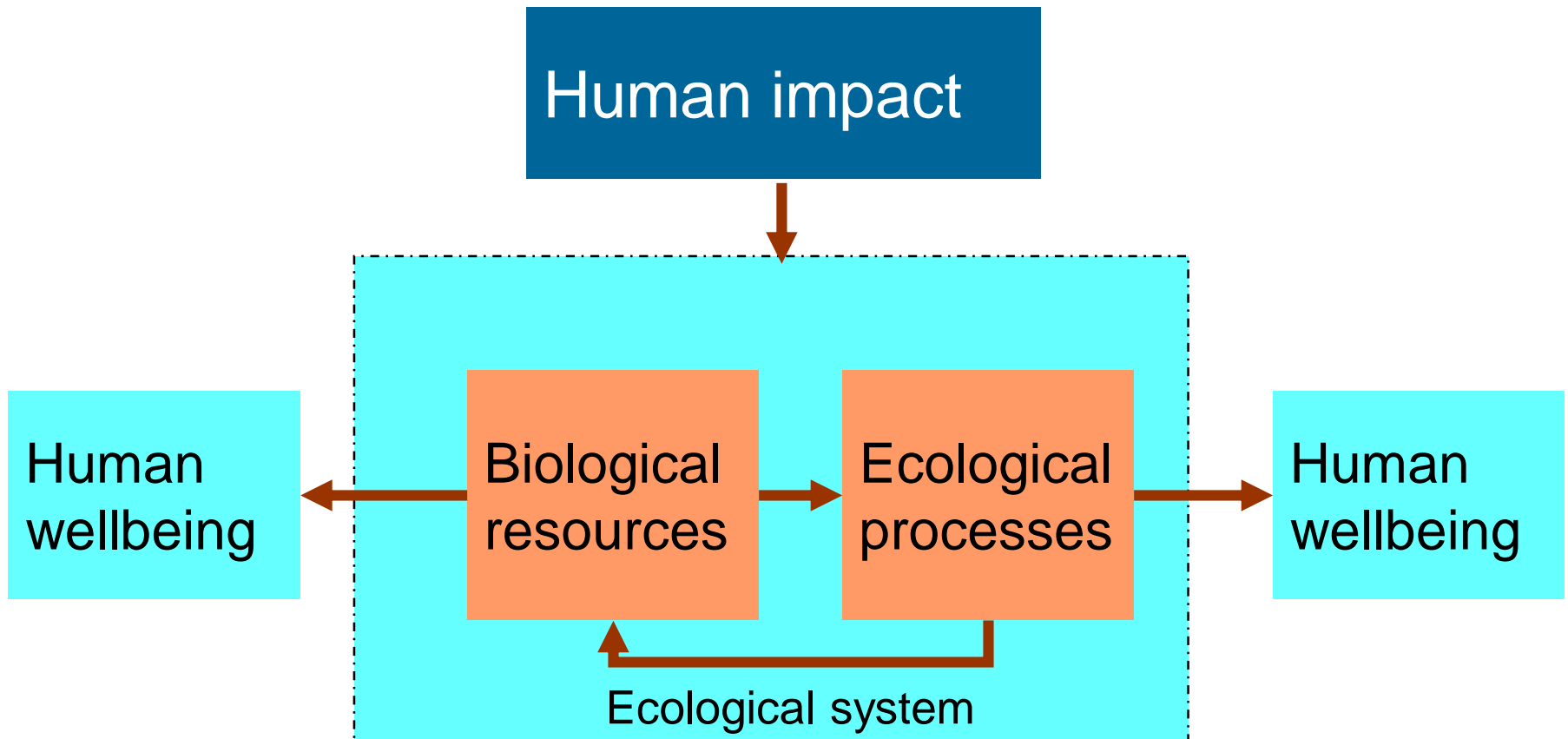
“Biodiversity mainstreaming” is the process of embedding biodiversity considerations into policies, strategies and practices of key public and private actors that impact or rely on biodiversity, so that biodiversity is conserved, and sustainably used, both locally and globally.



**Biodiversity is central in the web
of life**

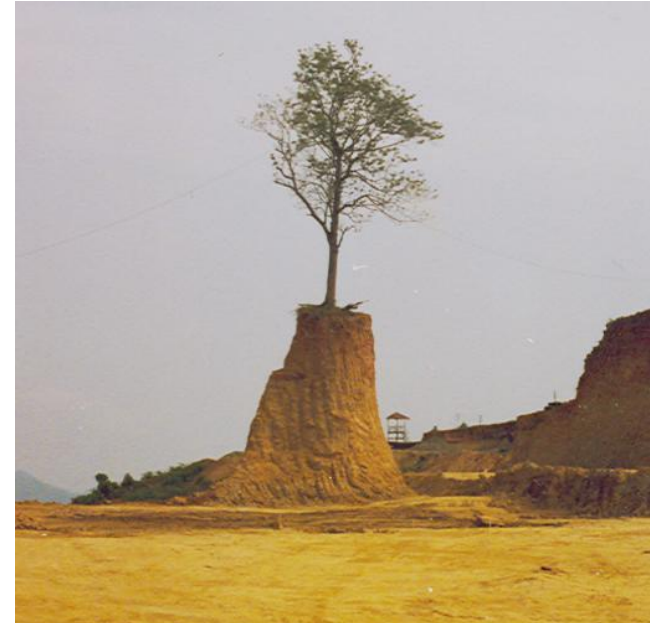


Human- biodiversity interrelationships



Supporting services

- Nutrient cycling
- Soil formation
- Primary production



Provisioning services

- Food
 - Micro-organisms, plant and animal products
 - Genetic material and medicines
- Fuels/energy
 - Fiber
 - Non-living materials
 - Fresh Water



Regulating services

- Purification of air and water
- Mitigation of floods and droughts
- Detoxification and decomposition of wastes
- Generation of renewal of soil and soil fertility
- Pollination of crops and natural vegetation
- Biological control of pests and disease vectors
- Stabilization of climate



Cultural

- Spiritual and cultural links of people to land and water
- Aesthetic values
- Social relations and values
- Education and scientific value





food production



slope stability



fire prevention



water storage



timber production



biodiversity



fodder production



flood protection



recreation



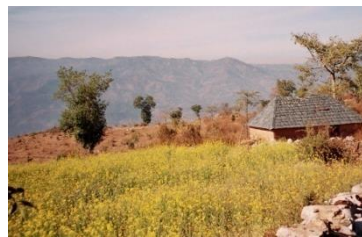
stabilising micro-climate



wildlife reserve



shelter



pollination



carbon sequestration



tourist attraction



beauty

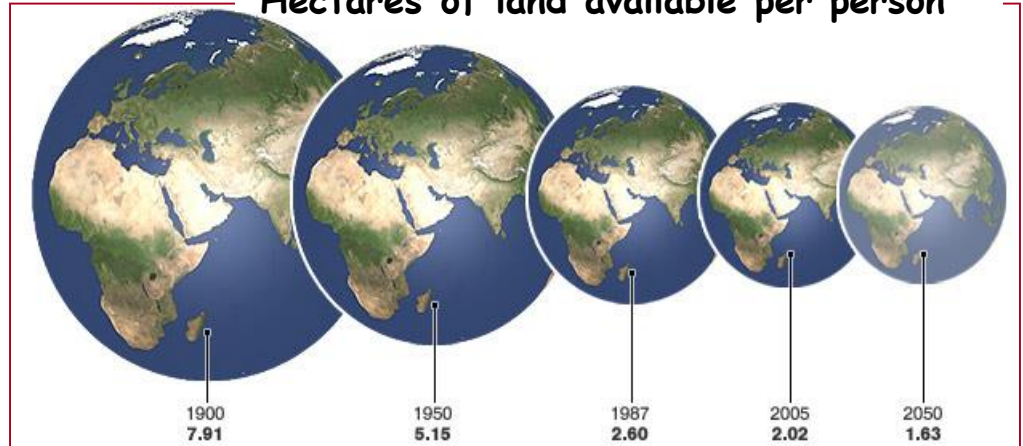
We are inextricably and wholly dependent on biodiversity of living things for survival

Threat to biodiversity

Rising population

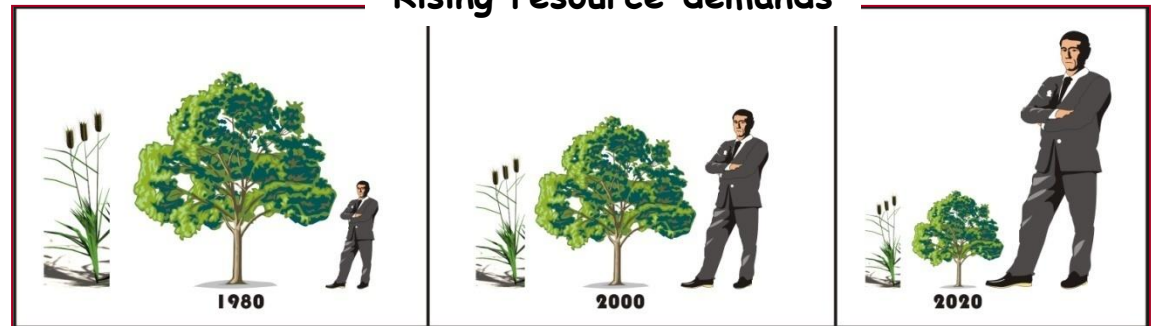


Hectares of land available per person



newsimg.bbc.co.uk/media/images/44191000/jpg/_

Rising resource demands



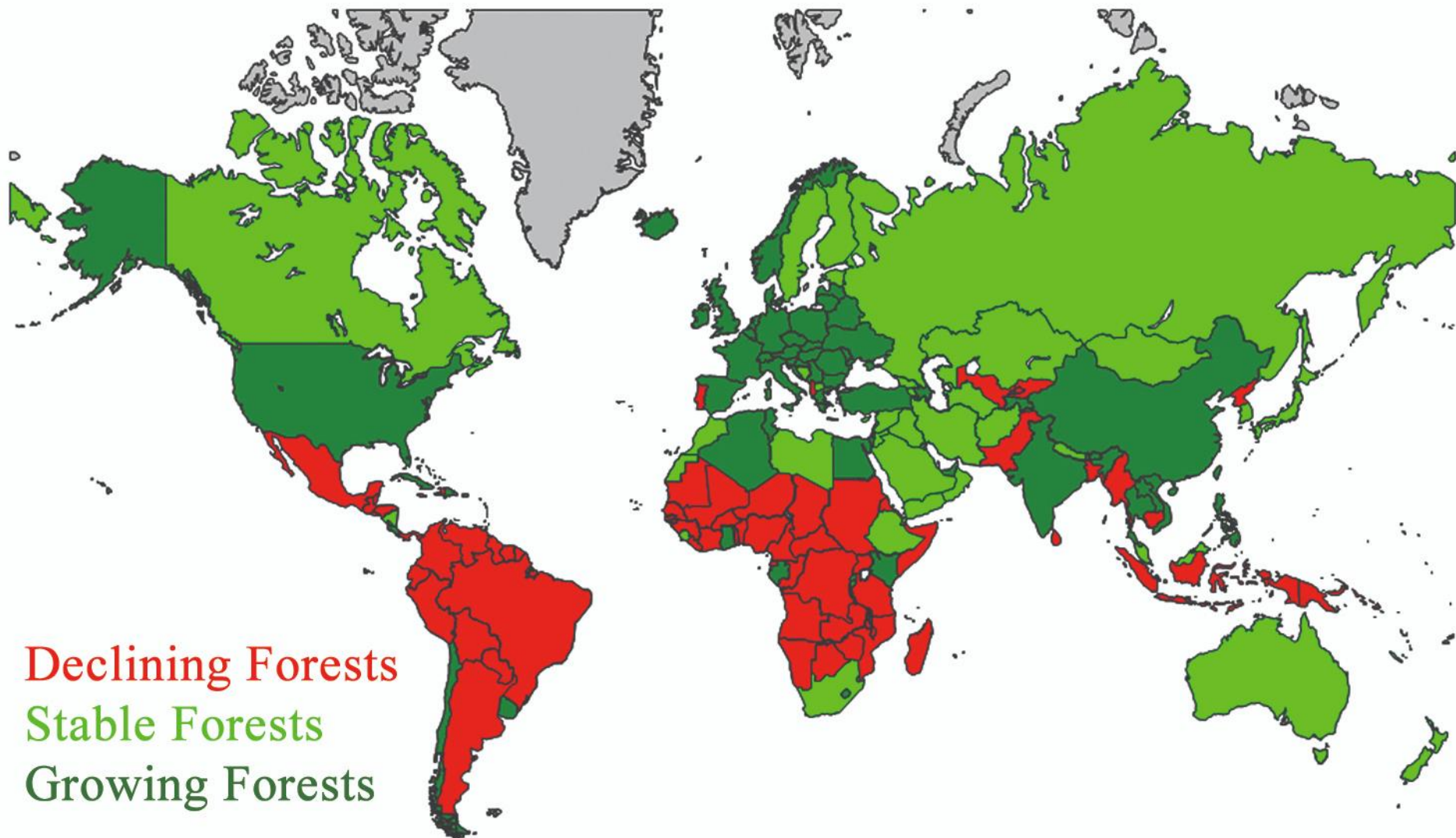
(Source: Anon, 2000)



**...and we changed the extent
of global forest area**



World Forest Status 2013



UN FAO (2016)











DEFORESTATION PRESSURE

Primary cause of forest loss and/or severe degradation

Important secondary cause of forest loss and/or severe degradation

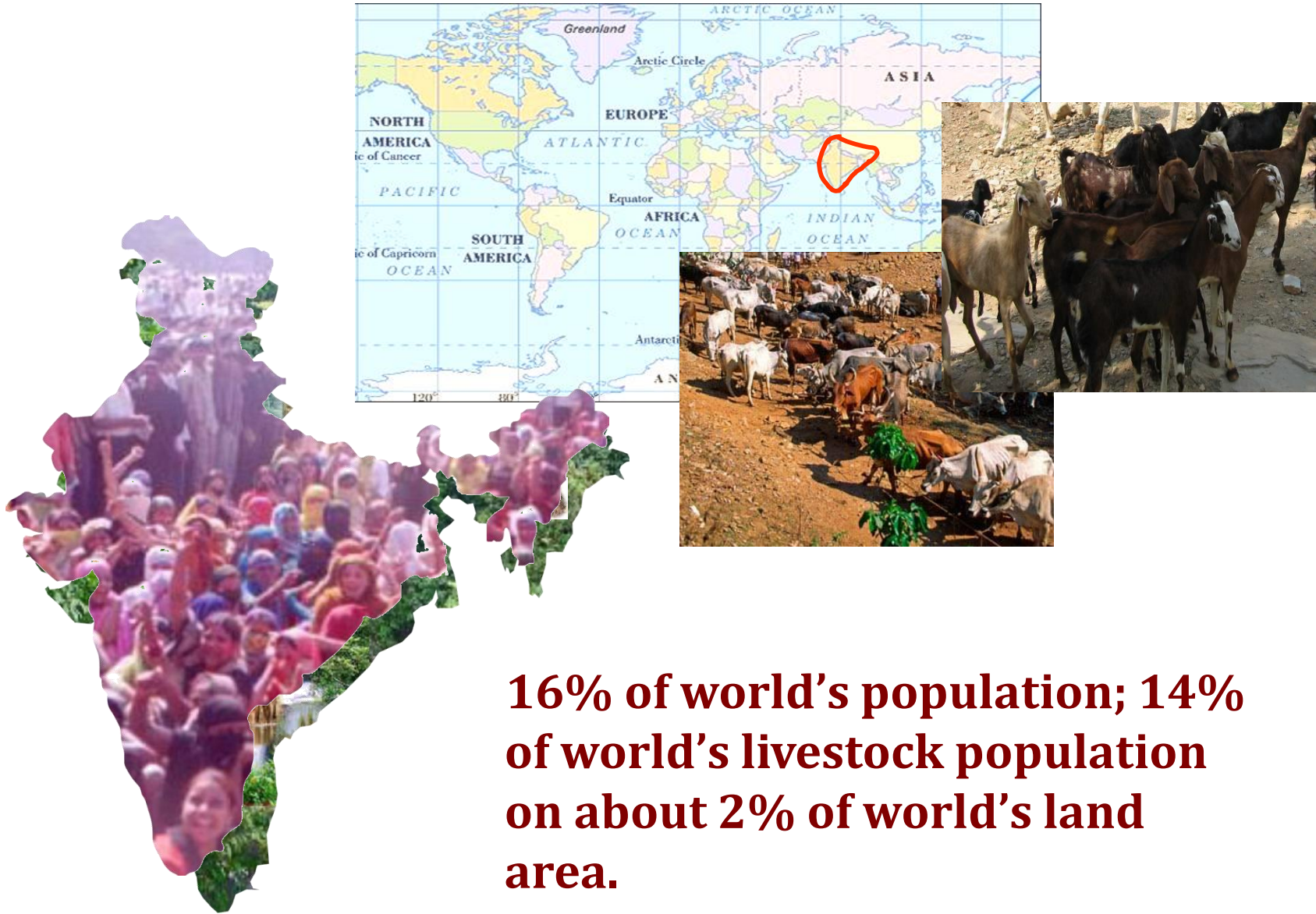
Less important cause of forest loss and/or severe degradation

Not a cause of forest loss and/or severe degradation


	 Livestock	 Large-scale agriculture	 Small-scale agriculture & colonization	 Unsustainable logging	 Pulp plantations	 Fires	 Charcoal and fuelwood	 Mining	 Infrastructure	 Hydroelectric power
Amazon	Primary	Primary	Primary	Less important		Important secondary		Important secondary	Primary	Primary
Atlantic Forest/Gran Chaco	Primary	Primary		Important secondary	Important secondary	Important secondary	Important secondary	Important secondary	Primary	Less important
Borneo		Primary	Important secondary	Important secondary	Important secondary	Important secondary		Important secondary	Less important	Important secondary
Cerrado	Primary	Primary					Less important	Less important	Important secondary	Less important
Chocó-Darién	Primary	Primary	Primary	Important secondary				Primary	Primary	
Congo Basin	Less important	Important secondary	Primary	Important secondary			Primary	Important secondary	Important secondary	
East Africa	Primary	Less important	Primary	Important secondary		Primary	Primary	Important secondary	Important secondary	
Eastern Australia	Primary		Less important	Important secondary				Less important		
Greater Mekong		Primary	Important secondary	Important secondary	Important secondary		Less important		Less important	Less important
New Guinea		Primary	Important secondary	Important secondary	Less important	Less important				
Sumatra		Less important	Primary	Important secondary	Important secondary	Important secondary			Primary	

Mongabay News. Deforestation Fronts Revealed


Major challenges for conservation



16% of world's population; 14% of world's livestock population on about 2% of world's land area.

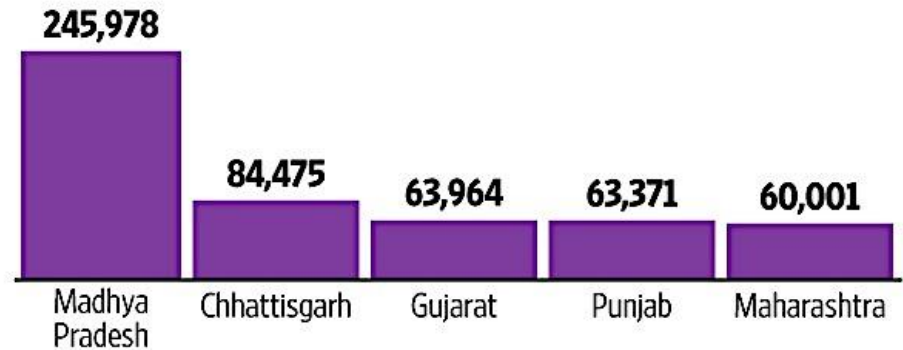


**1.3 million
hectare forest
land diverted
(1980- 2016).**



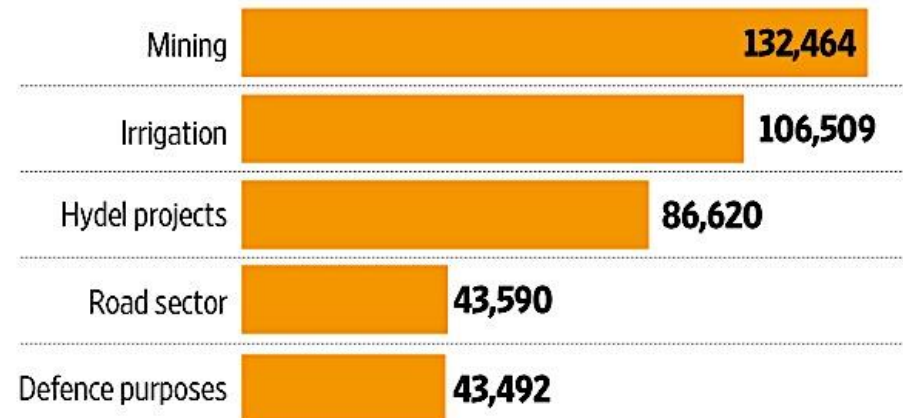
TOP FIVE STATES

(in hectares)




TOP FIVE CATEGORIES

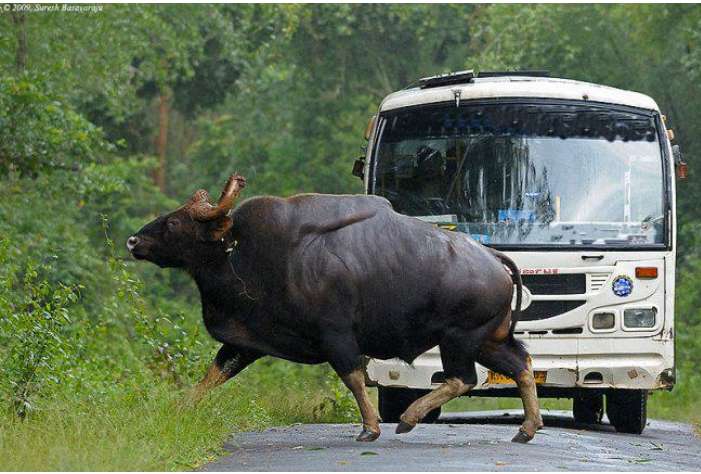
(in hectares)



Source: Mint



Linear infrastructure development



Land degradation and mining



<https://www.bbc.com/news/energy/2008/coal-cost/>

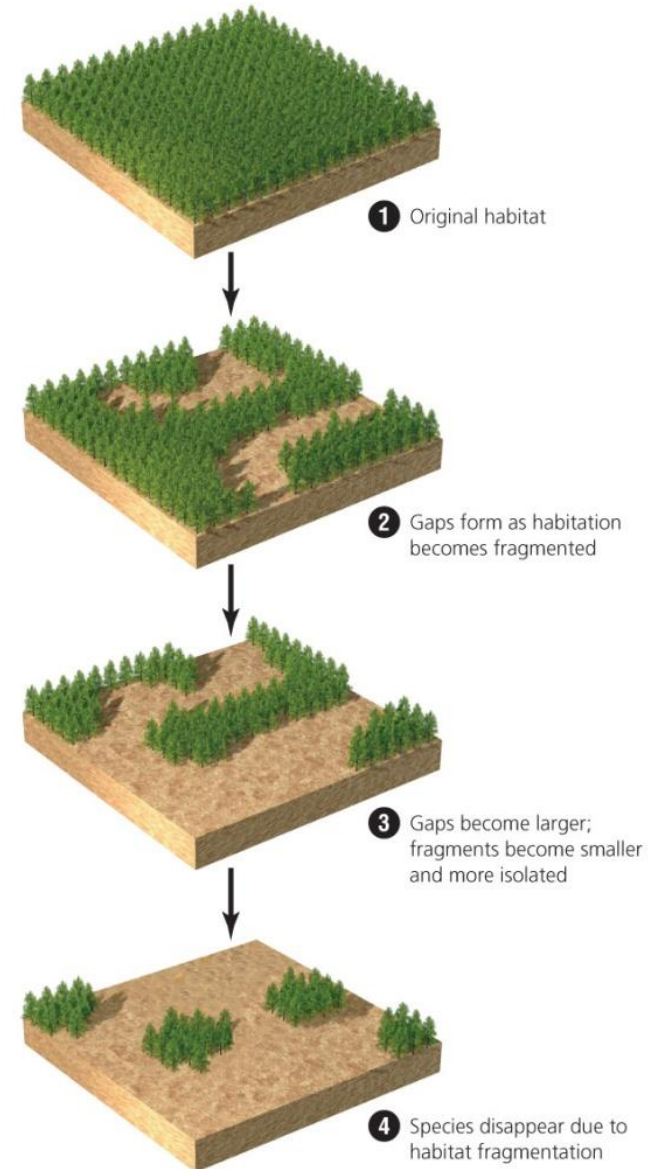
Hydropower

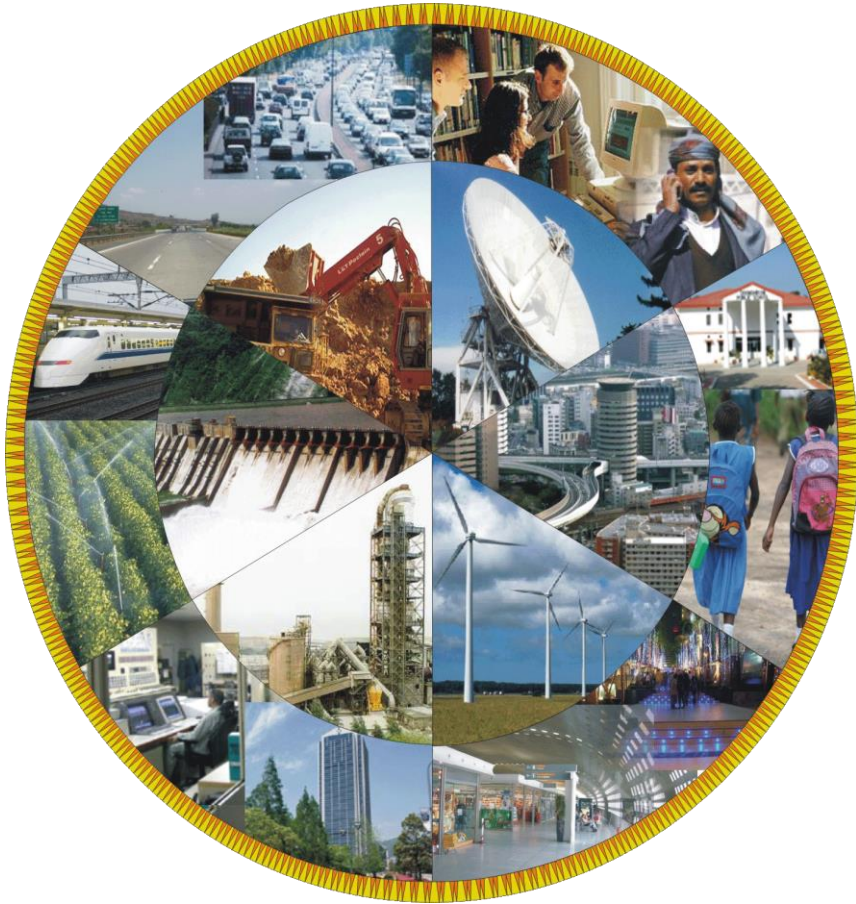
Endangerment of habitat
of many threatened
species



Habitat fragmentation: biggest threat

*Smaller fragments
hold fewer species*





DEVELOPMENT

OR

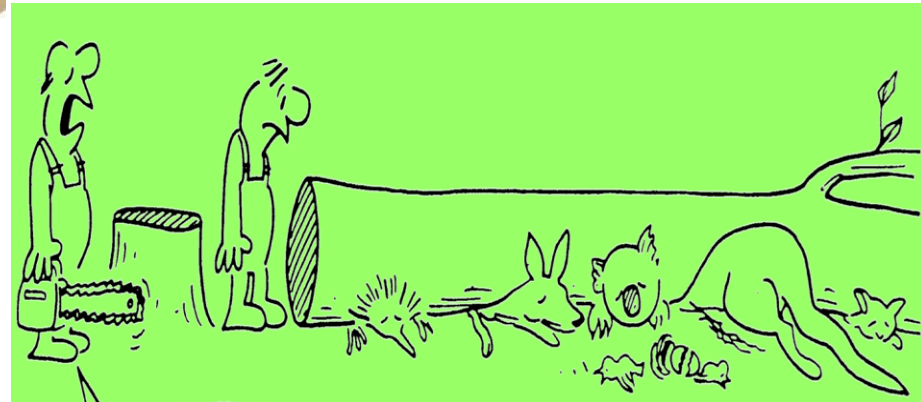


CONSERVATION



QUOTEHD.COM

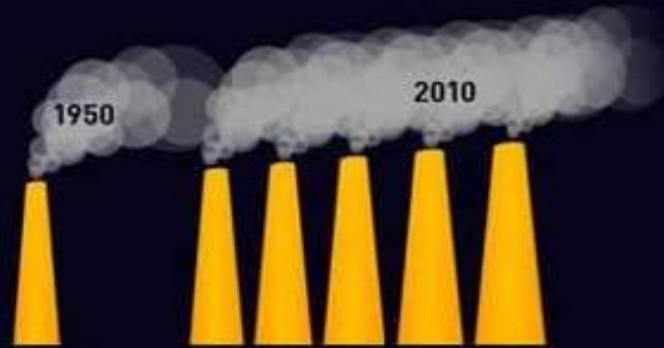
Conservation and development are both necessary for an emerging economy



Our lives and lifestyles impact the rates of consumption, production, resource use and re-use



The world's forests have shrunk from 11.4 to 7.3 square kilometers per 1,000 people since 1970. The loss is concentrated in developing countries, mostly to meet the demand for wood and paper by the industrialized world.



The burning of fossil fuels has almost quintupled since 1950



Human action has transformed between one-third and one-half of the entire land surface of the earth.



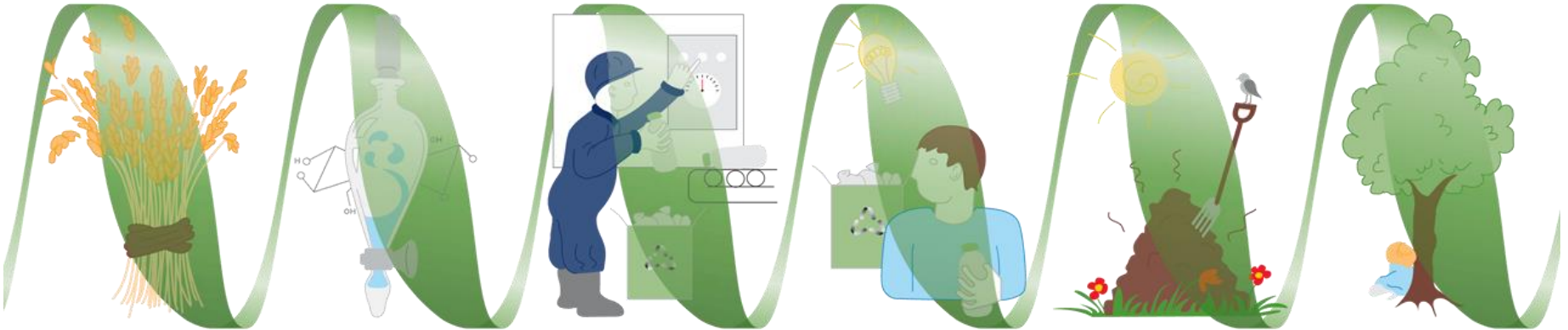
We have lost more than one-quarter of the planet's birds.



Two-thirds of the major marine fisheries are fully exploited, over-exploited or depleted.

This affects planetary boundaries

The Helix of Sustainability



Plants grow, making sugars, starches, oils, cellulose and other complex molecules from simple raw materials, mostly water, CO₂ and sunshine.

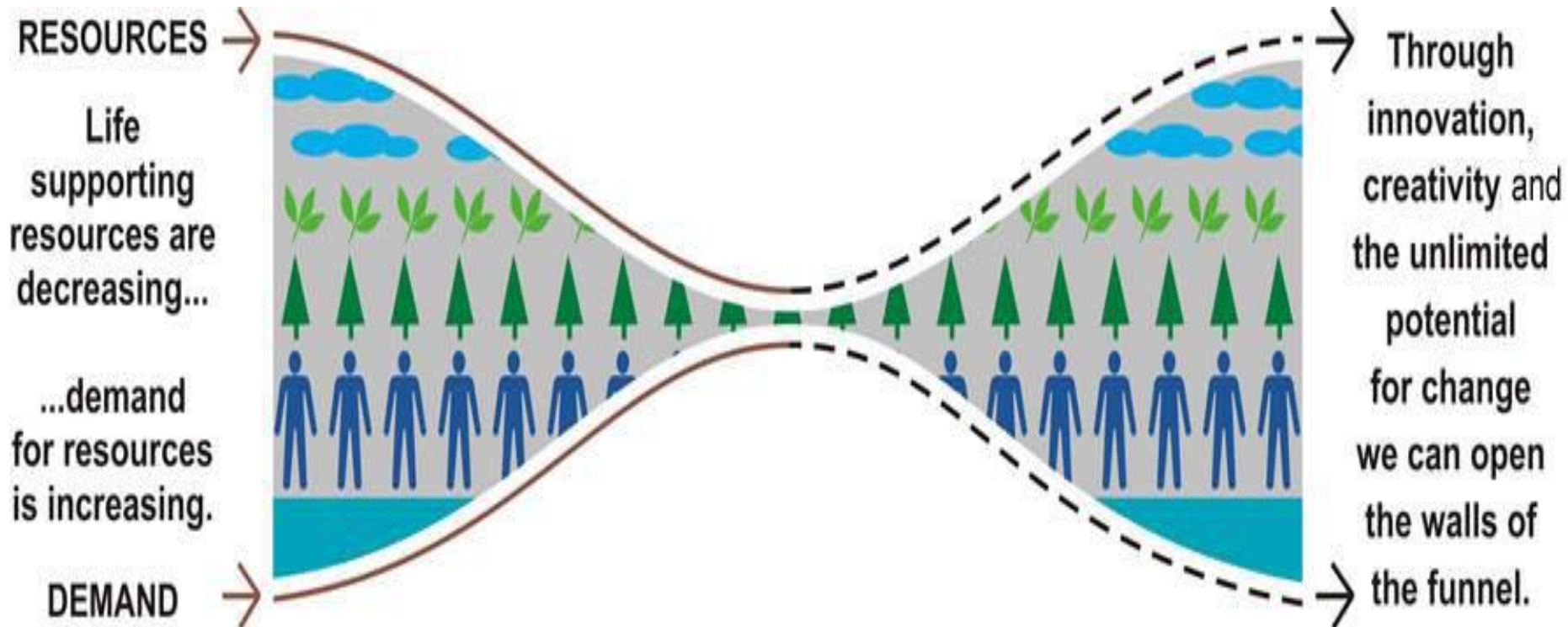
In addition to harvesting food, people extract fuel and base materials for industry and commerce.

Manufacturers make wares, measuring profitability in environmental and social terms as well as financial.

The end-user reuses and repairs, only recycling after as long a useful life as possible.

At the end of its life the article decays, reducing large complex molecules to simple raw materials by the action of bacteria and fungi - composting

Plants grow, making sugars, starches, oils, cellulose and other complex molecules from simple raw materials, mostly water, CO₂ and sunshine.

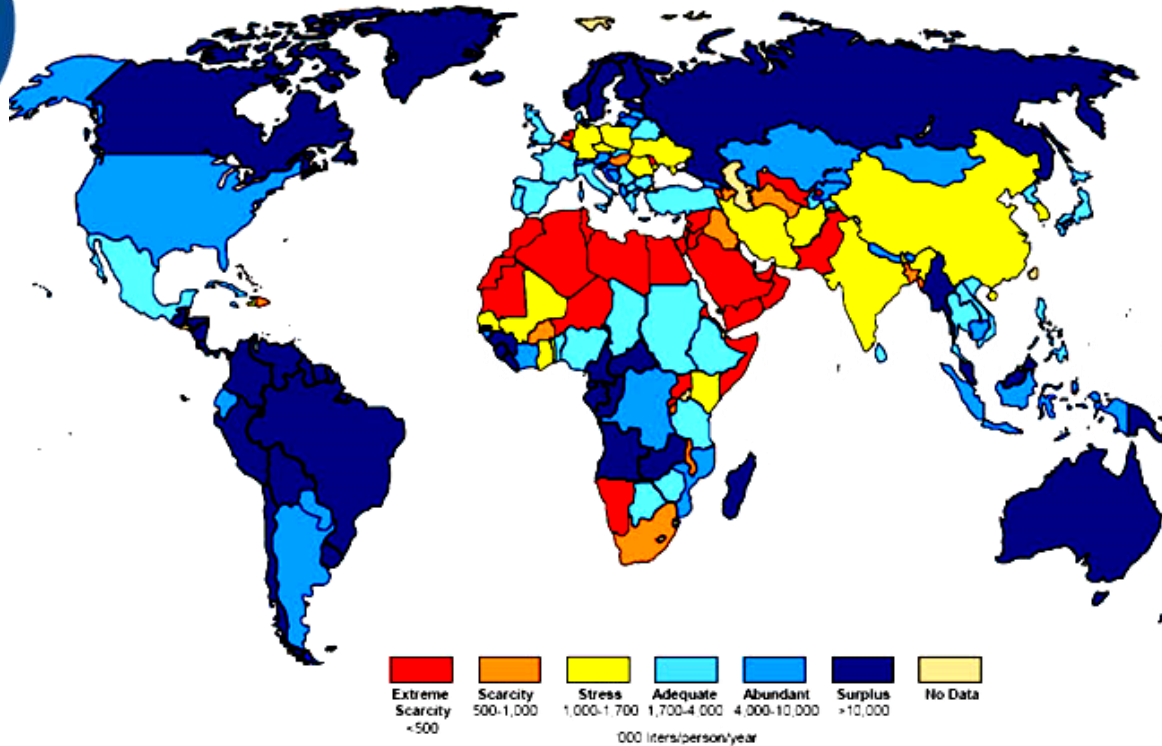
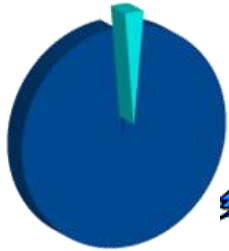


GLOBAL WATER AVAILABILITY

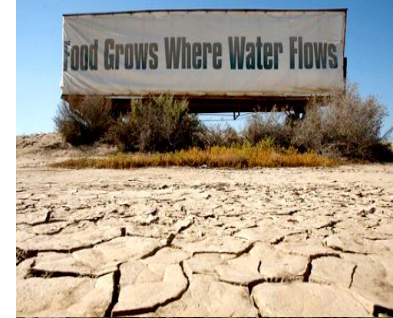
Our Planet Has

■ 2.5% Fresh Water

■ 97.5% Salt Water



Source: 'Global Water Initiative' (June 2005), GEF International Waters Conference, The Coca-Cola Company

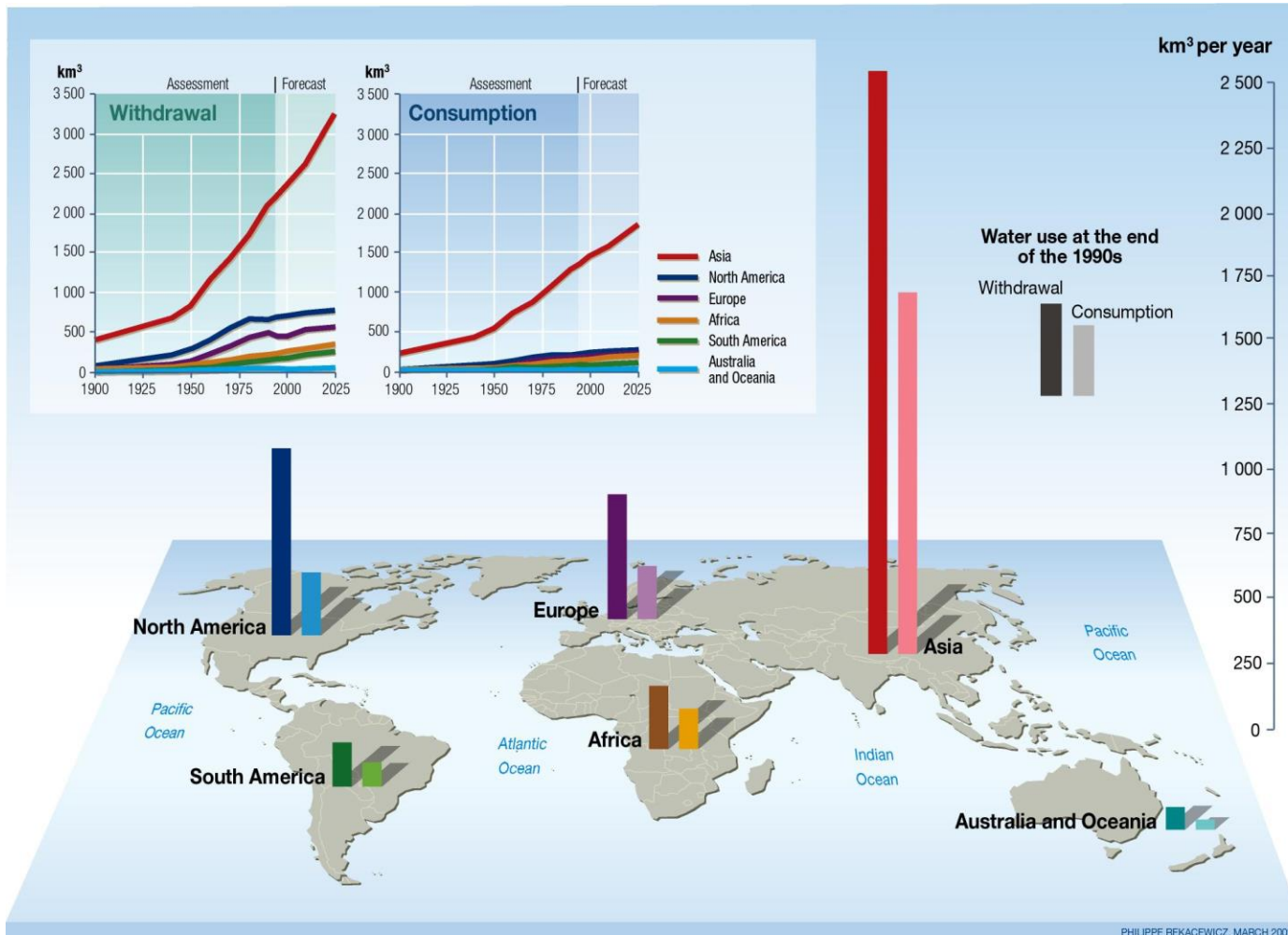


Amit
Dave/Reuters)

Global trends of water withdrawal and consumption



ARIF ALI / AEP/GETTY IMAGES

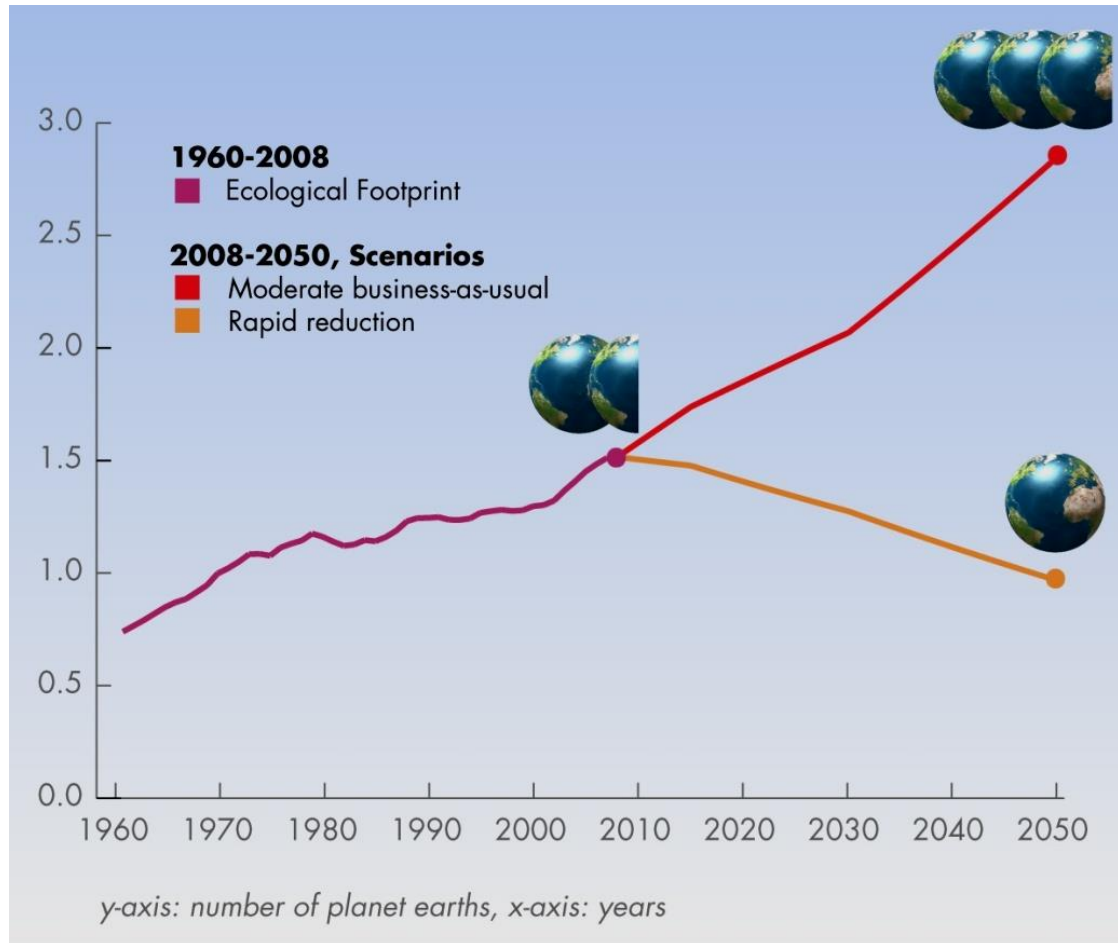


PHILIPPE REKACEWICZ, MARCH 2002

Source: Igor A. Shiklomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational, Scientific and Cultural Organisation (UNESCO, Paris), 1999; *World Resources 2000-2001, People and Ecosystems: The Fraying Web of Life*, World Resources Institute (WRI), Washington DC, 2000; Paul Harrison and Fred Pearce, *AAAS Atlas of Population 2001*, American Association for the Advancement of Science, University of California Press, Berkeley.

How are these boundaries affected?

People are consuming far more natural resources than what the planet can sustainably provide



It now takes the Earth one year and six months to regenerate what we use in a year.

Turning resources into waste faster than waste can be turned back into resources puts us in global **ecological overshoot**.

“By 2050, if current consumption and production patterns remain the same and with a rising population expected to reach 9.6 billion, we will need three planets to sustain our way of life”. (Source: UNEP Voice ‘sasrai’ Appeal)



Living well within planetary boundaries is the most promising strategy for ensuring environmental sustainability.

Yet, we have a relatively smaller ecological footprint



<https://insideclimatenews.org>

Our consumption habits impact on carbon cycles

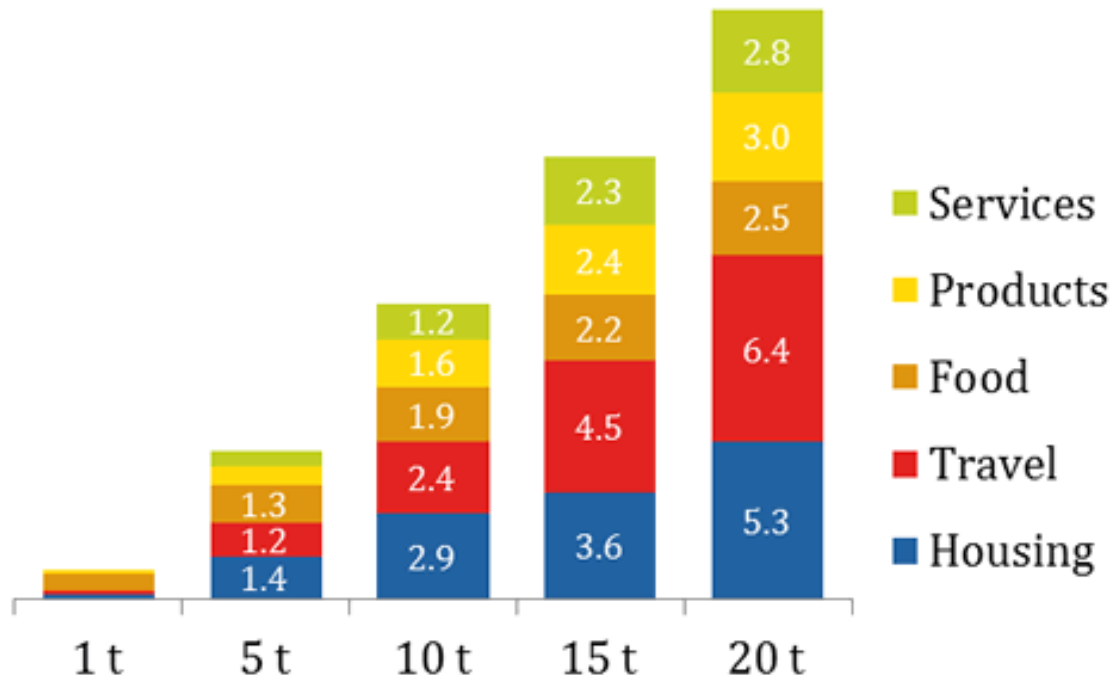
“carboniferous capitalism” relies on the
“accumulated wealth” of carbon based energy --

Lewis Mumford

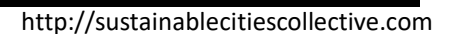


Our carbon footprint is a measure of our lifestyle's climate impact

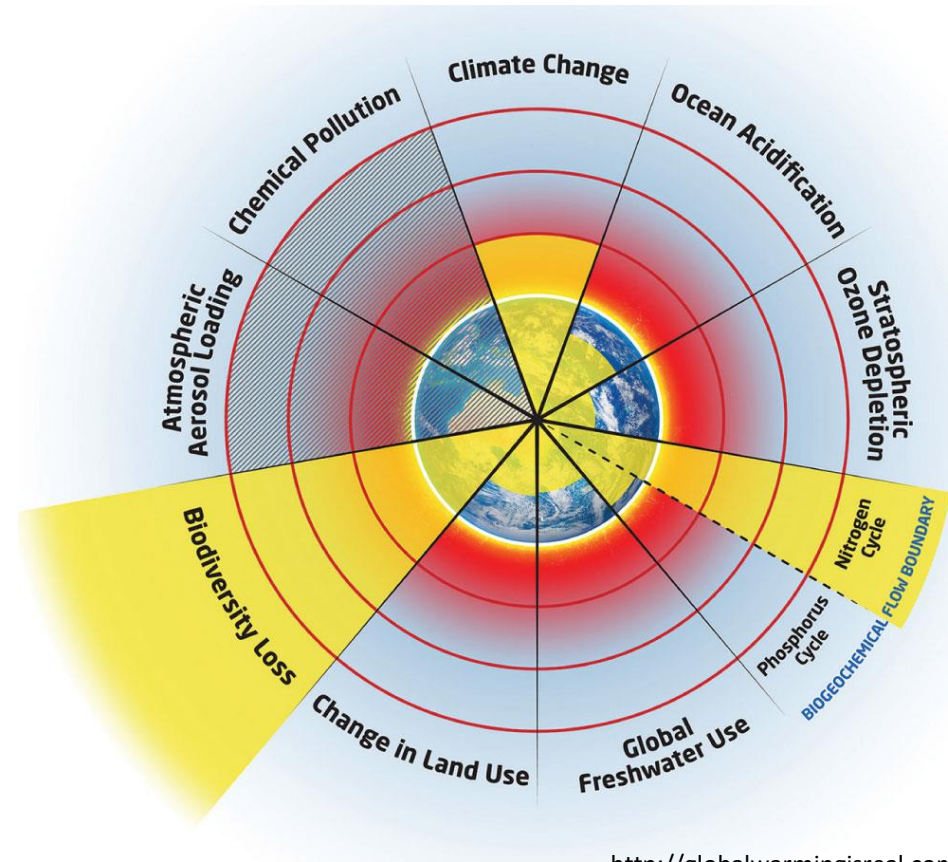
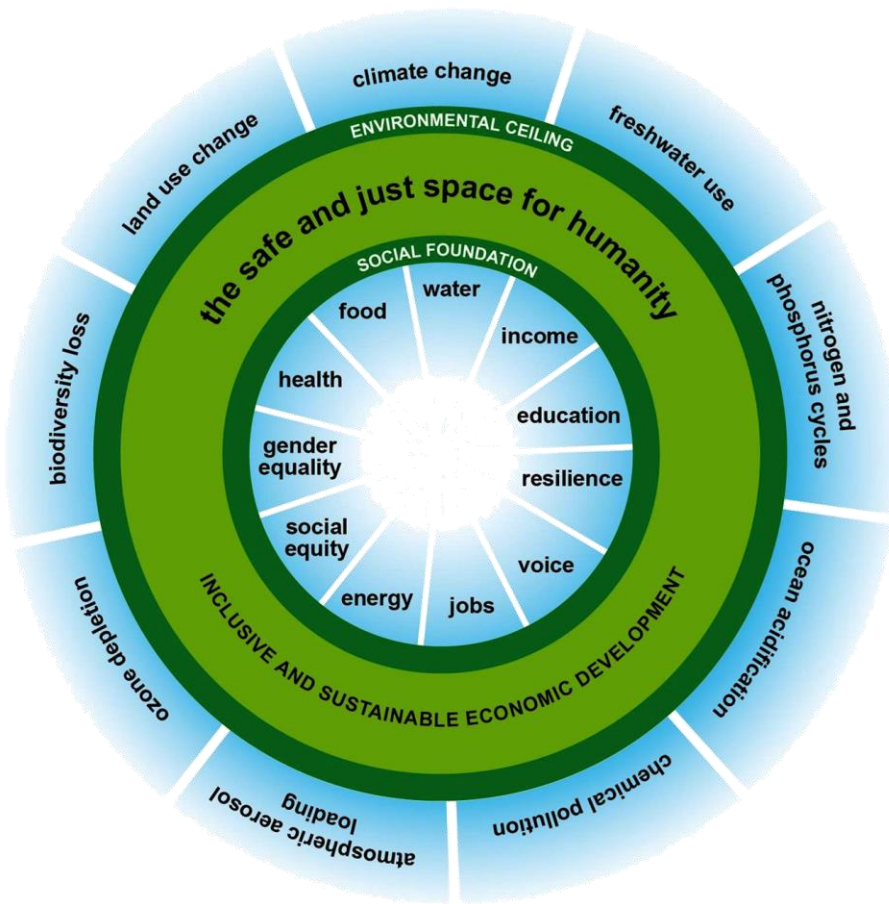
Where our carbon footprints come from



Note: Distributions of emissions are each based on national average footprints of similar size



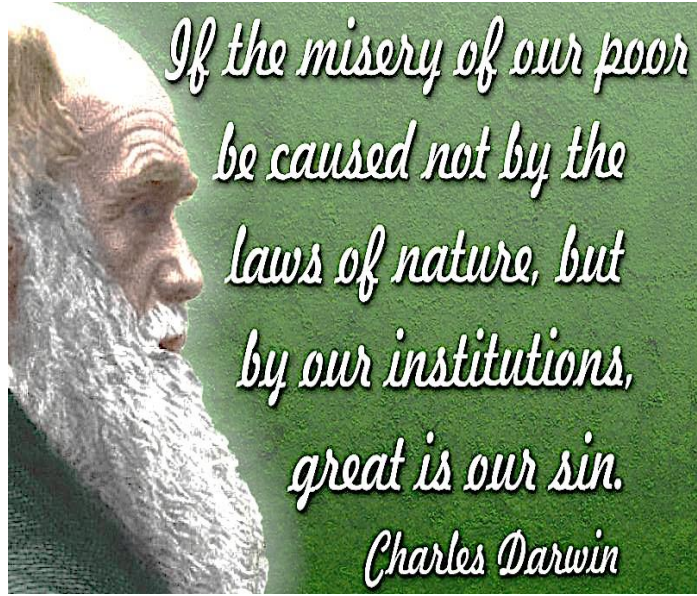
What are these planetary boundaries?



Well-being of humanity and sustainable economies ultimately depends on the responsible management and conservation of biodiversity and other natural resources



Conservation of nature- a universally recognised priority



Conservation means development as much as it does protection. I recognize the right and duty of this generation to develop and use the natural resources of our land; but I do not recognize the right to waste them, or to rob, by wasteful use, the generations that come after us.

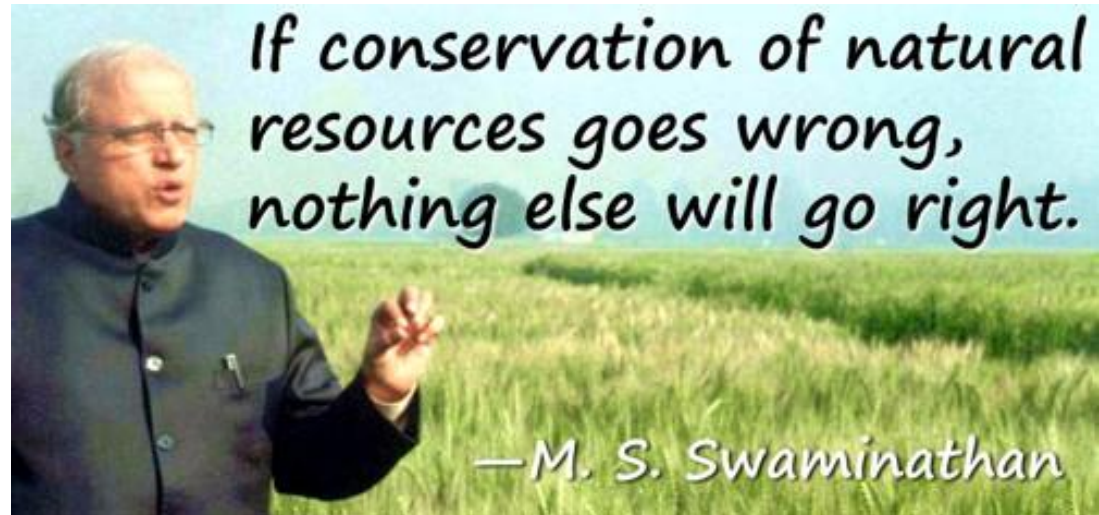
— Theodore Roosevelt —

AZ QUOTES

Conservation is a state of
harmony between men and
land.

Aldo Leopold

BrainyQuote





Environmental Impact Assessment



**EIA can guide
development planning**

What is to be sustained?

Life support system



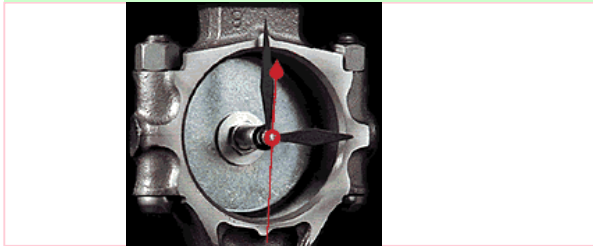
Natural environment



Communities and culture



How long?



In what relation?

At what scale?



**What is to be
developed?**

Economies



Societies



People

