Third edition of the CBD Global Biodiversity Outlook

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CBD Secretariat

International Scientific Symposium

BIODIVERSITY AND SUSTAINABLE DIETS

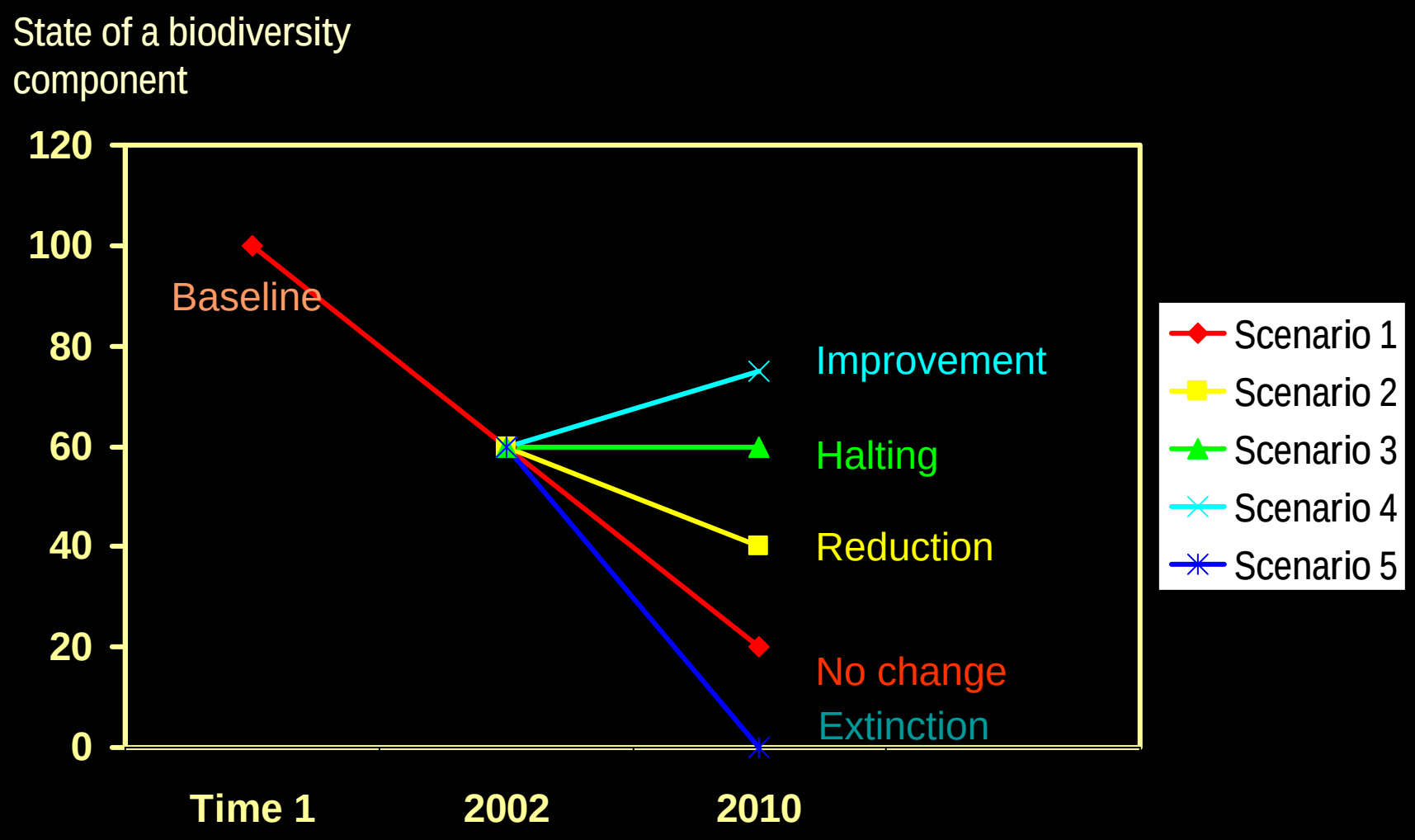
3 – 5 November 2010

FAO, Rome

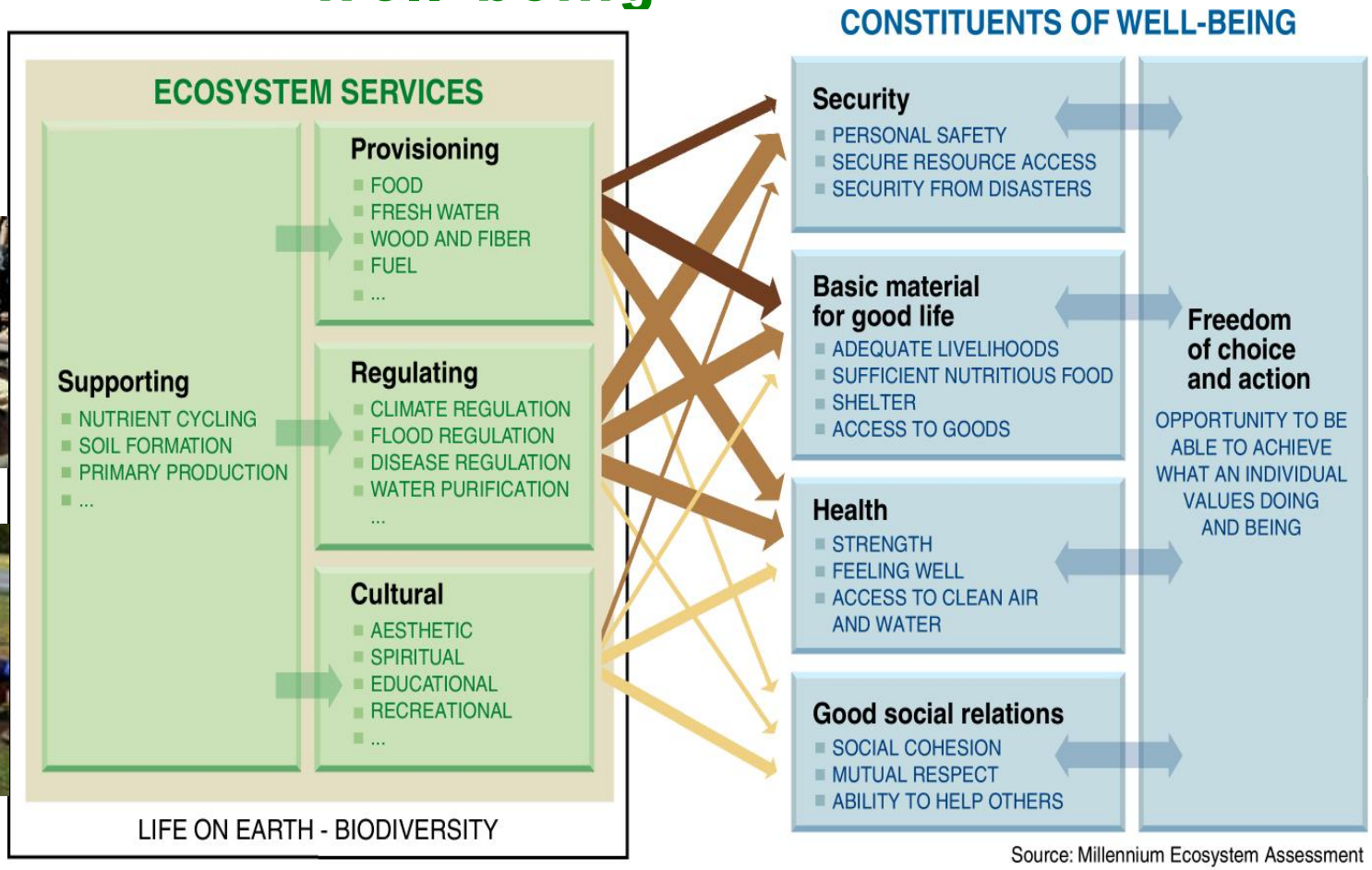
In 2002, adoption of the **2010 biodiversity target**

- "**To achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth**"
- Endorsed by the World Summit on Sustainable Development, the United Nations General Assembly
- Incorporated as Target 7(b) in the Millennium Development Goals
- Sub-targets defined and related indicators agreed upon

Expectations for 2010?



Interlinkages between **ecosystem services and human well-being**



Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong

Framework for **assessing progress** towards the 2010 target

Agreed ready for use indicators of progress towards the 2010 biodiversity target:

Status and trends of the components of biological diversity

- Trends in extent of selected biomes, ecosystems, and habitats
- Trends in abundance and distribution of selected species
- Change in status of threatened species
- Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance
- Coverage of protected areas

Ecosystem integrity and ecosystem goods and services

- Marine Trophic Index
- Connectivity – fragmentation of ecosystems
- Water quality of aquatic ecosystems

Threats to biodiversity

- Nitrogen deposition
- Trends in invasive alien species

Sustainable use

- Area of forest, agricultural and aquaculture ecosystems under sustainable management
- Ecological footprint and related concepts

Status of traditional knowledge, innovations and practices

- Status and trends of linguistic diversity and numbers of speakers of indigenous languages

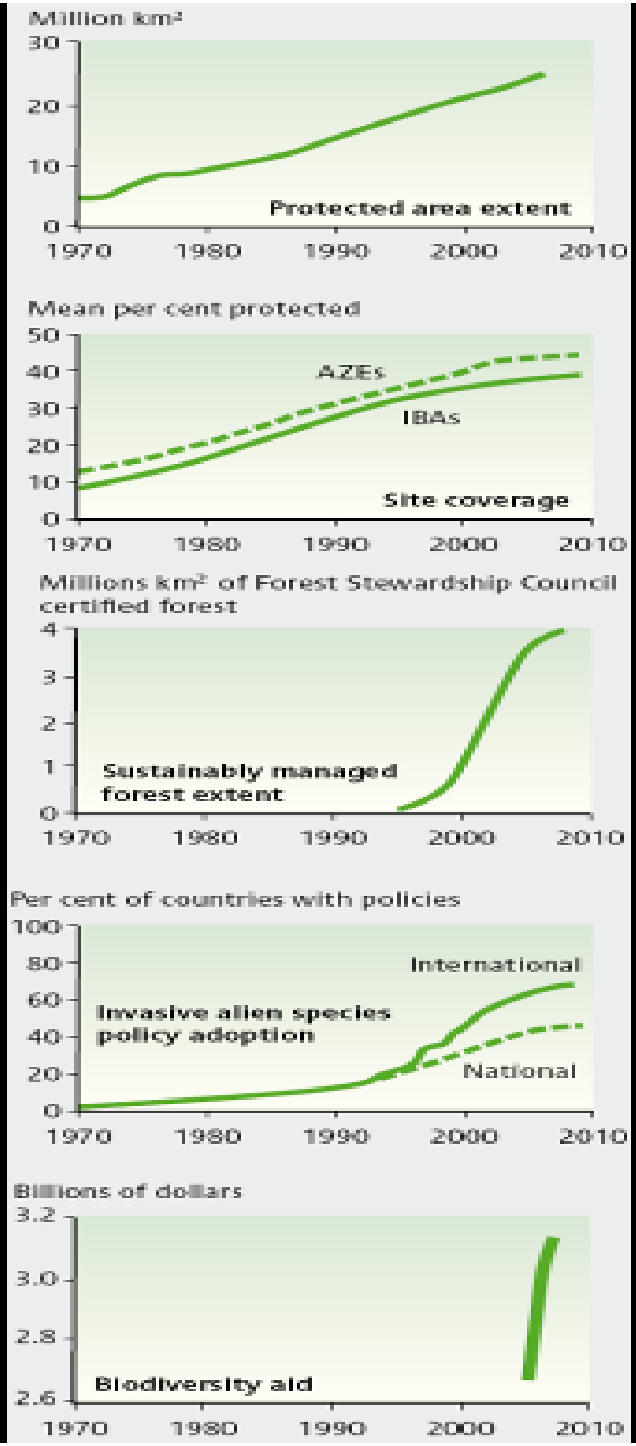
Status of access and benefit sharing

- Indicator of access and benefit-sharing to be developed

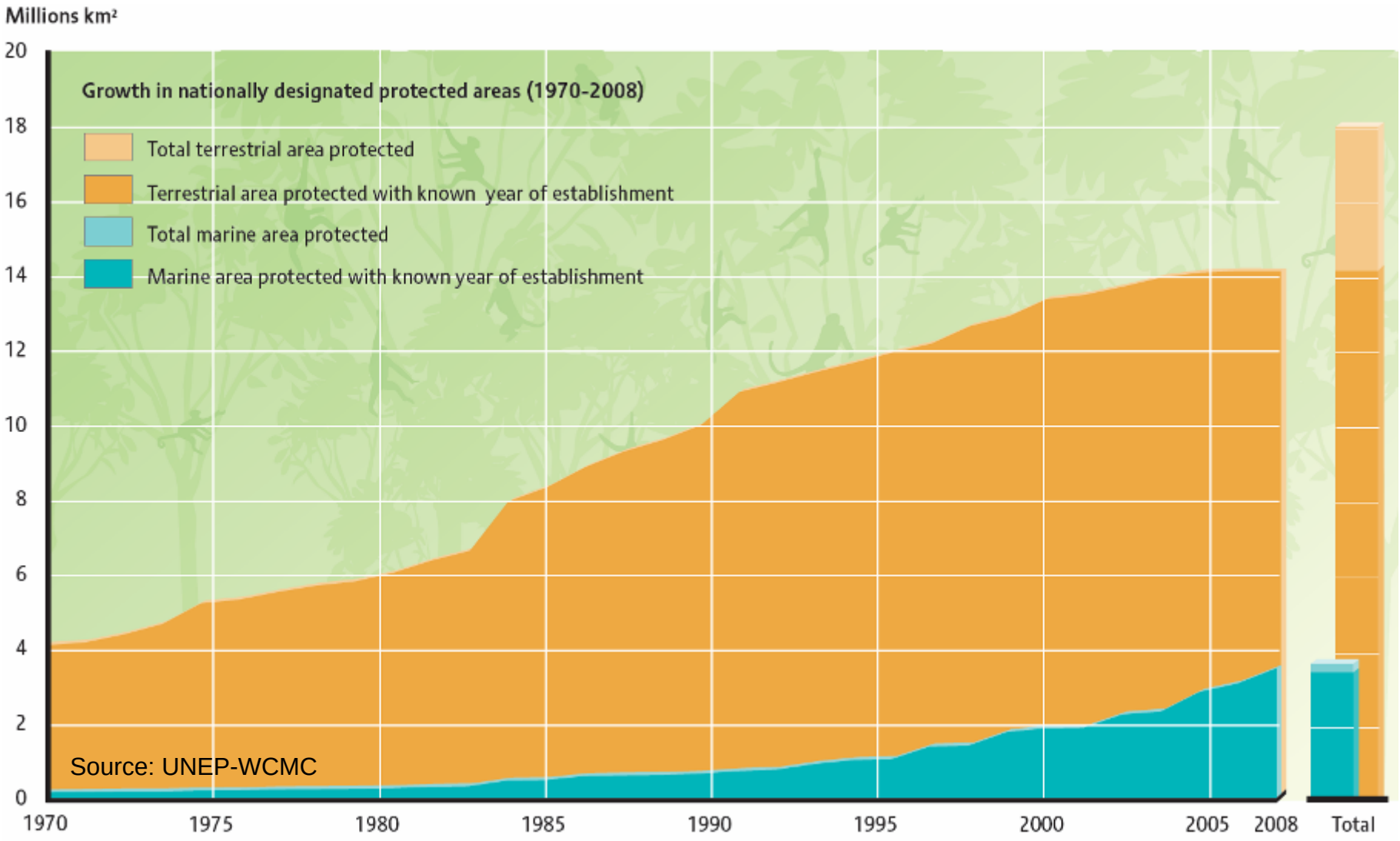
Status of resources transfers

- Official development assistance (ODA) provided in support of the Convention

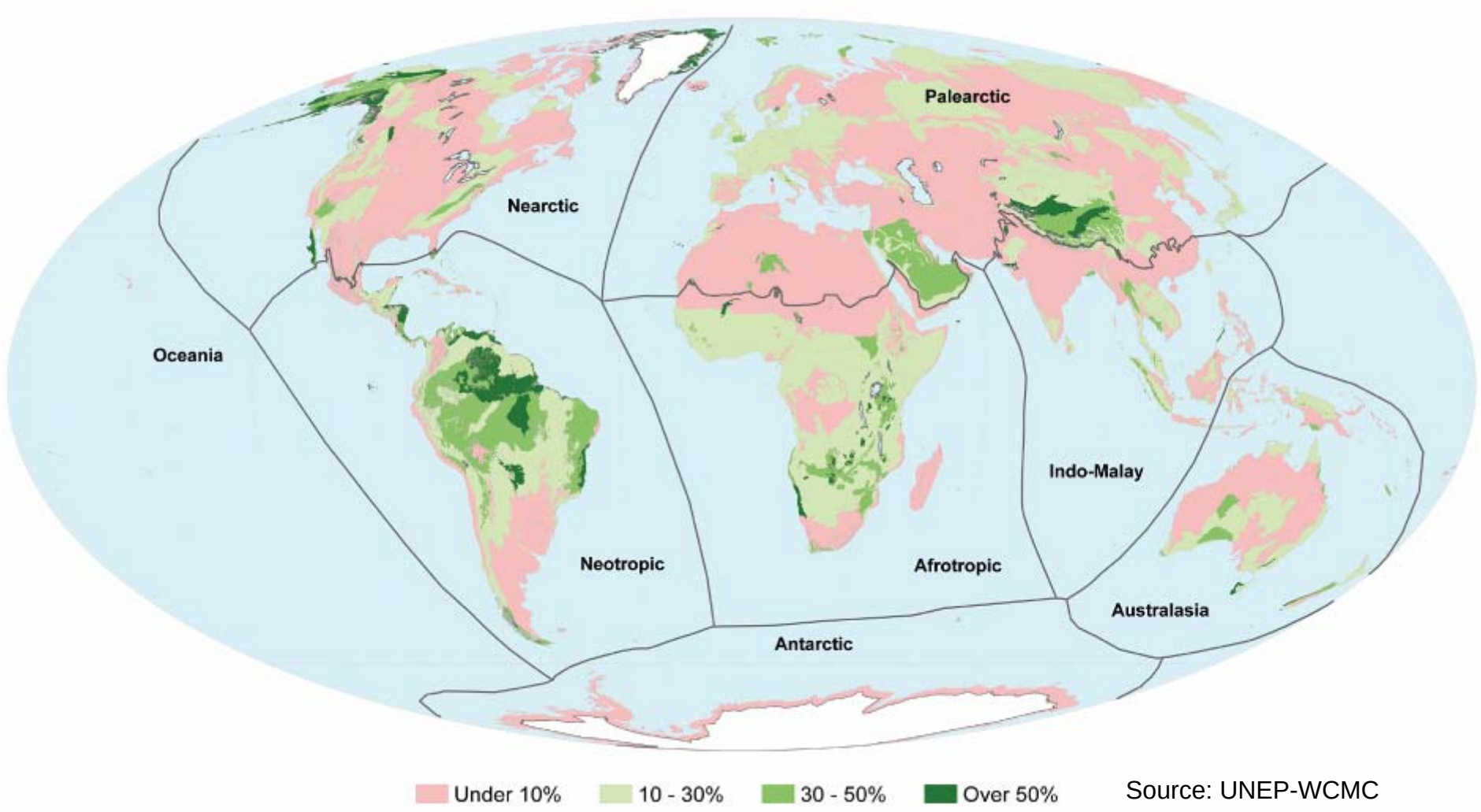
Examples of **actions**



Protected areas **increasing** …

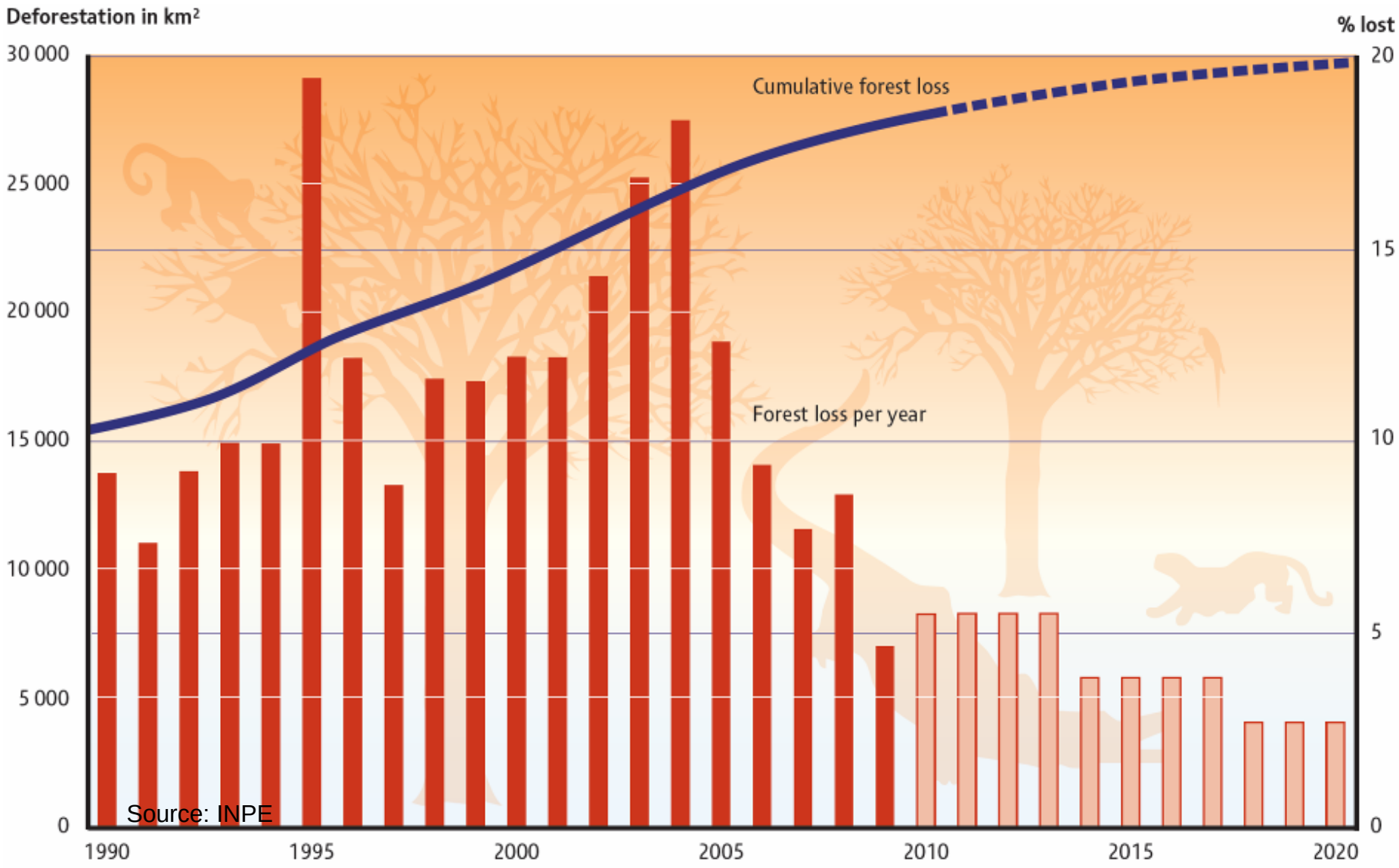


...but **large areas** still under-represented



Source: UNEP-WCMC

Amazon loss **slowing** in Brazil



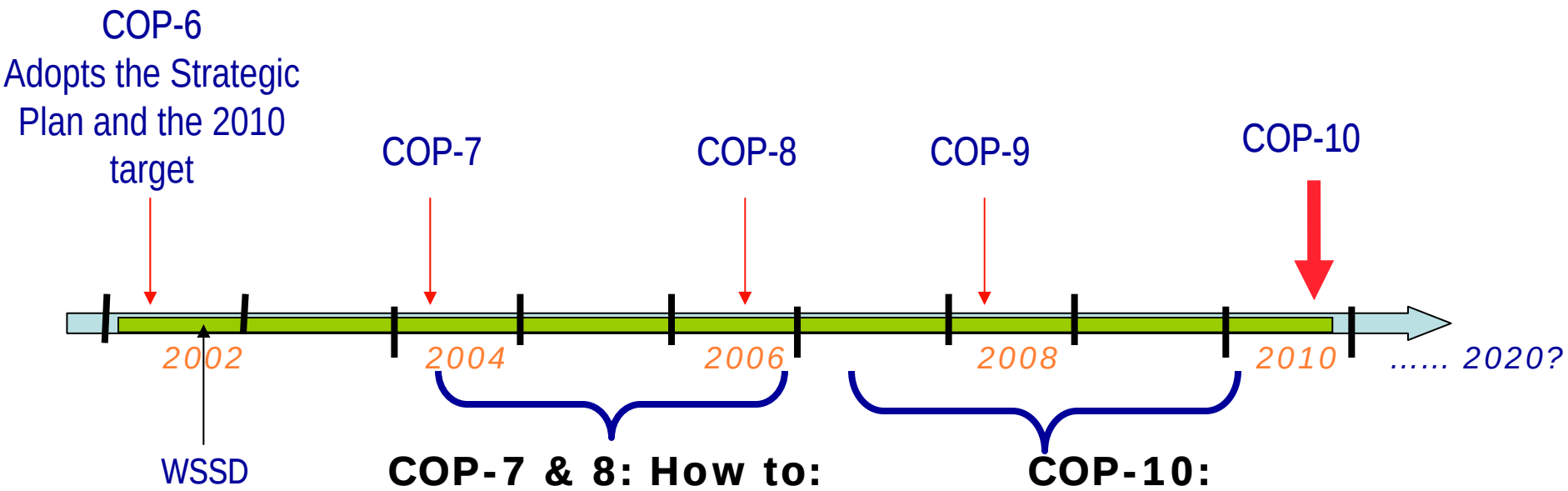
Increase in number of **seed banks** and accessions conserved

- The **Millennium Seed Bank Partnership** includes nearly 2 billion seeds from 30,000 wild plant species, mainly from drylands

- The **Svalbard Global Seed Vault**, which safeguards against the accidental loss of agricultural diversity in traditional gene banks, has capacity to conserve 4.5 million crop seed samples.

Kew Gardens

The **2010** biodiversity target

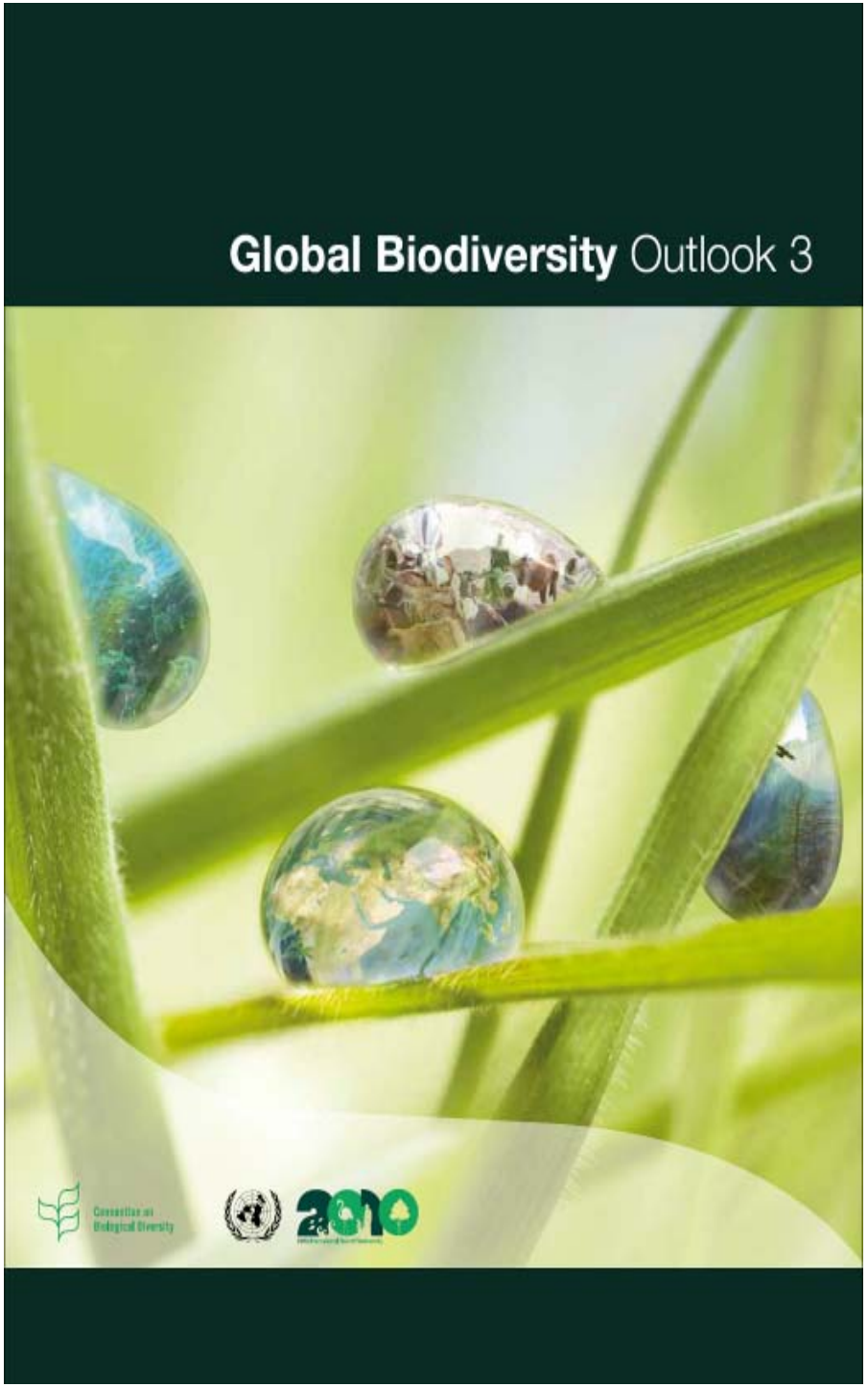


COP-7 & 8: How to:

- **Achieve the target:** 7 focal areas, 11 goals and 21 (sub)-targets
- **Assess progress:** 2 sets of indicators
- **Communicate:** GBO-3 & national reports

COP-10:

- **Assess achievements**
- **Develop Post 2010 Strategic Plan and targets**
- **Communicate**



The information behind GBO-3

- 110 National Reports
- In-depth reviews of POW
- Biodiversity Indicators Partnership
- Biodiversity Futures Study
- 500 scientific papers
- Open review process

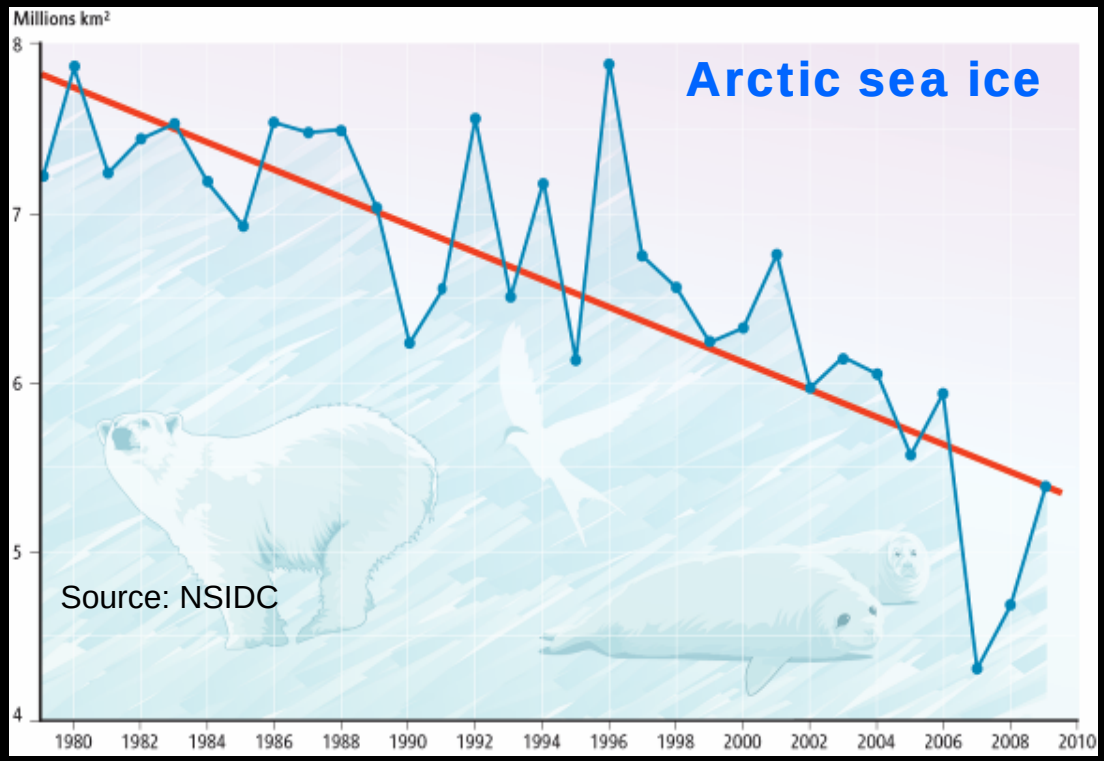
Global Biodiversity Outlook 3

Structure

- Biodiversity in 2010
  - ✓ Ecosystem, habitat, biome, landscape
  - ✓ Species, community, population
  - ✓ Genetic
- Biodiversity futures for the 21st Century
- Towards a strategy for reducing biodiversity loss

Decline in extent of habitats, biomes and ecosystems

- Wetlands, salt marshes, coral reefs, seagrass beds and sea ice continue to decline
- Extensive fragmentation of forests and rivers
- Mangrove decline slowing (except in Asia)
- The condition of many terrestrial habitats is deteriorating (degrading)

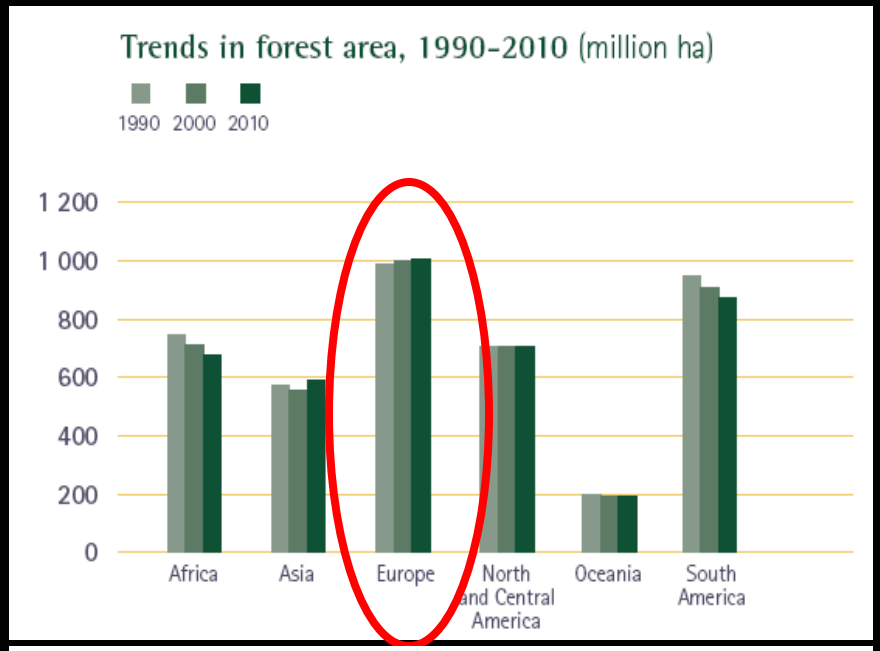


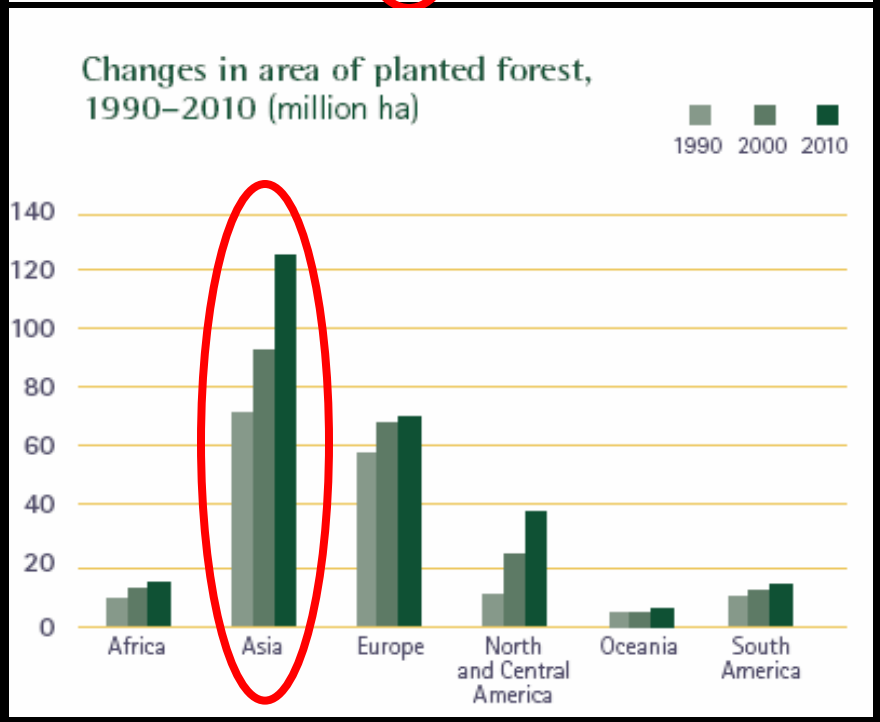
Examples:

Decline in extent of biomes, ecosystem and habitats

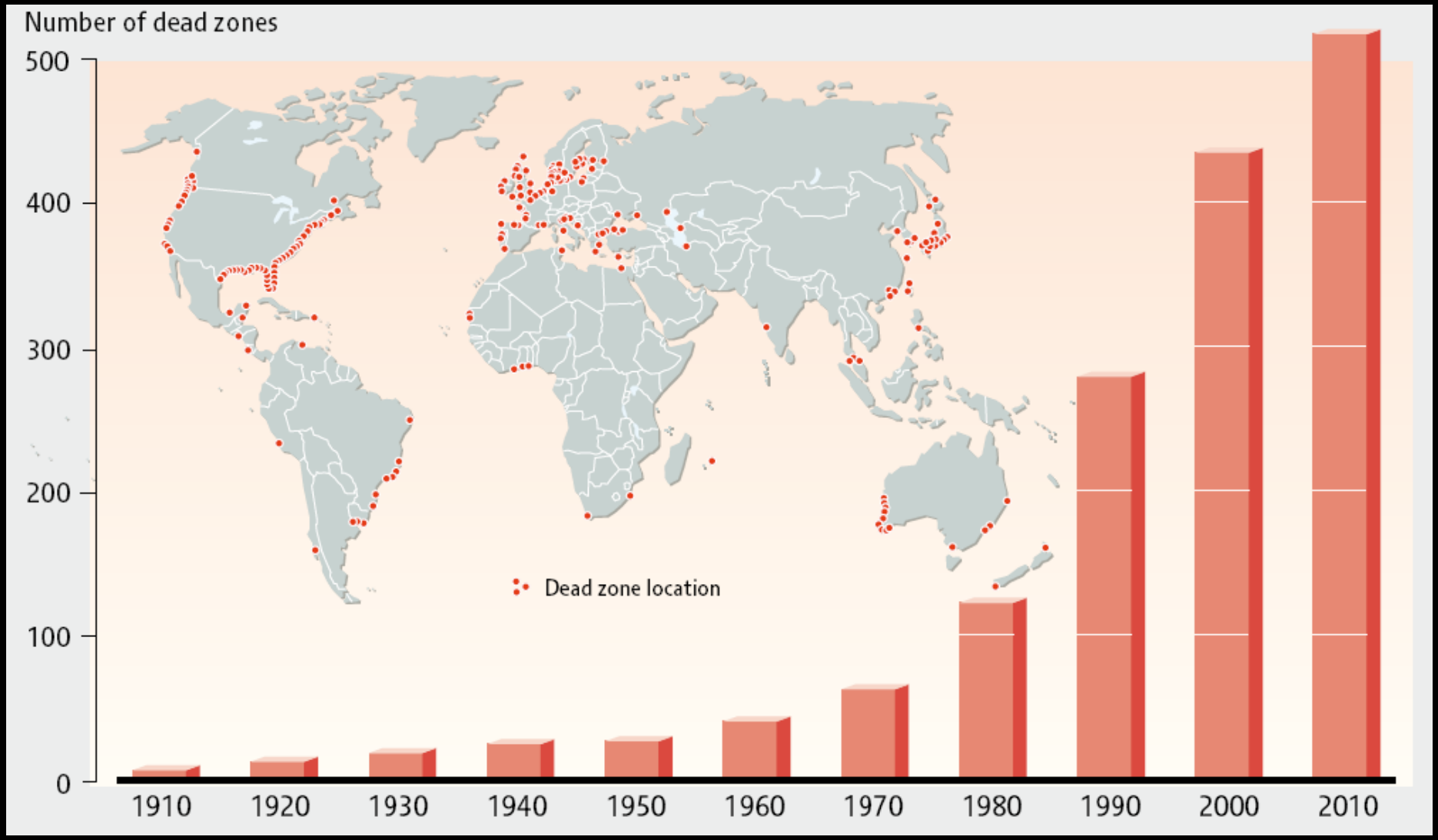
- Around 13 million hectares of forest were converted to other uses or lost through natural causes each year in the last decade compared to 16 million hectares per year in the 1990s.

- Globally deforestation shows signs of decreasing but is still alarmingly high





Number of marine "**dead zones**" is doubling



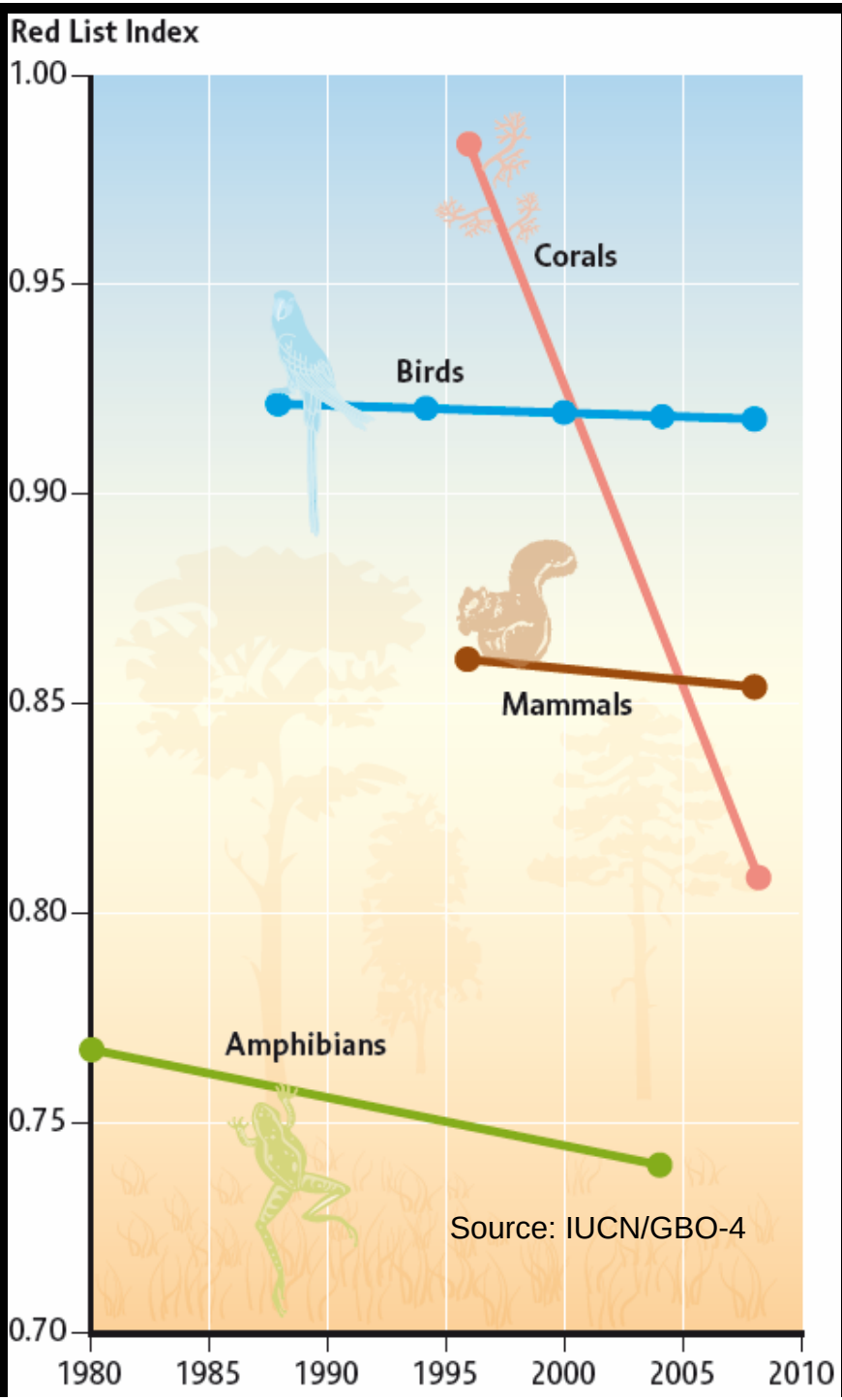
Coral Reefs

- Tropical coral reefs contribute significantly to the livelihoods and security of coastal regions including to nutrition from the fish species they support. Although they cover just 1.2% of the world's continental shelves, it is estimated that between 500 million and more than one billion people rely on coral reefs as a food resource

- Tropical coral reefs have suffered a significant global decline in biodiversity since the 1970s. Although the overall extent of living coral cover has remained roughly in balance since the 1980s, it has not recovered to earlier levels.

- In the Indo-Pacific living coral cover fell from about 48% of reef areas in 1980 to 27% in 1989, Between 1990 and 2004 it remained relatively stable, averaging 31%. However the proportion of reefs with at least half of their area covered by living coral fell from 66% in the early 1980s to just 4% in 2004.

- Living coral cover in Caribbean reefs dropped by nearly half, from 38% to 21%, between 1972 and 1982. The overall decline of Caribbean reefs in the 1970s and early 80s has been followed by a period of stable living coral cover.

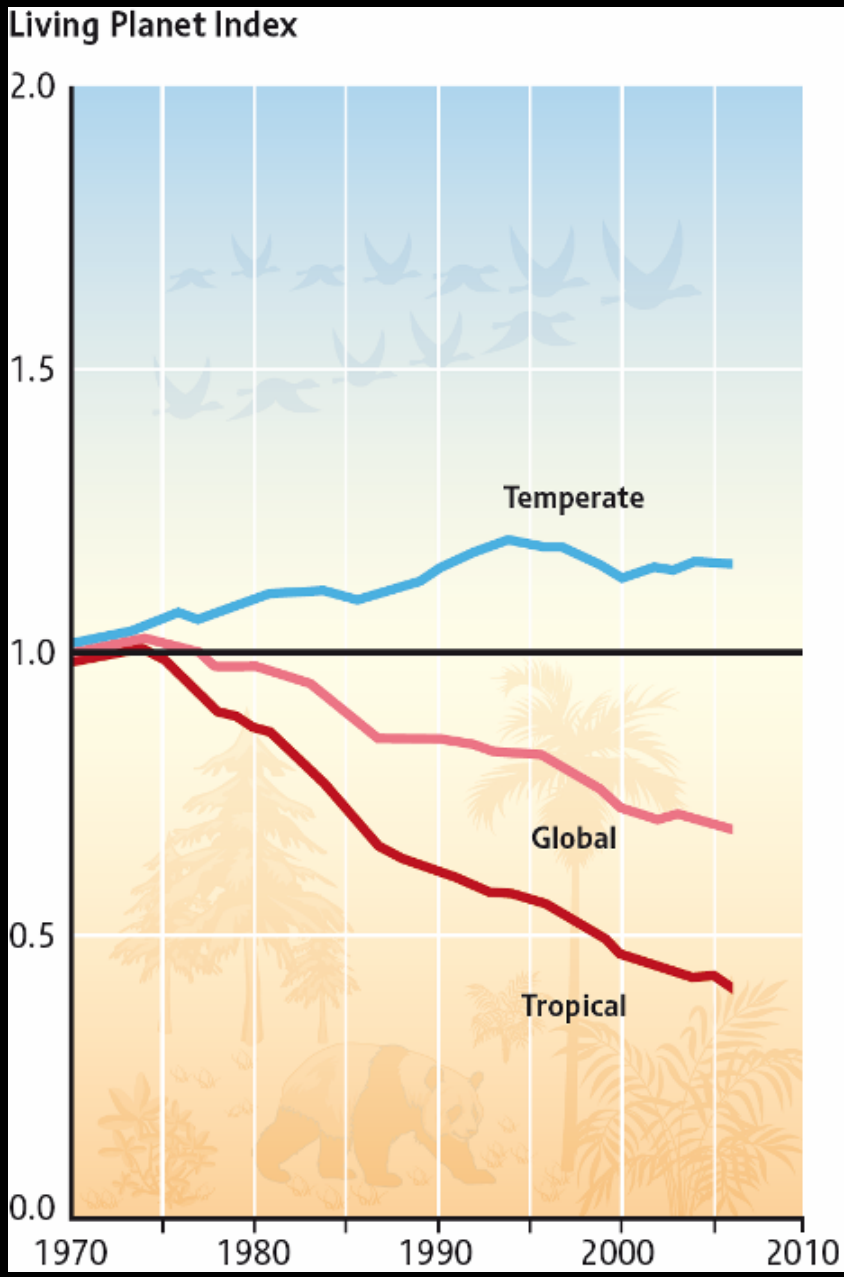


Decline in species

- The Red List Index (RLI) for corals, birds, mammals and amphibians groups is decreasing.
- Coral species are moving most rapidly towards greater extinction risk
- Amphibians are, on average, the group most threatened.
- Bird species have faced an especially steep increase in extinction risk in South-East Asia, on the Pacific Islands, polar regions and in marine and coastal ecosystems.
- Mammals have also suffered the steepest increase in risk of extinction in South and South-East Asia, due to the combined impact of hunting and loss of habitat.

Species

The population of wild vertebrate species fell by an average of nearly one- third (31%) globally between 1970 and 2006, with the decline especially severe in the tropics (59%) and in freshwater ecosystems (41%).

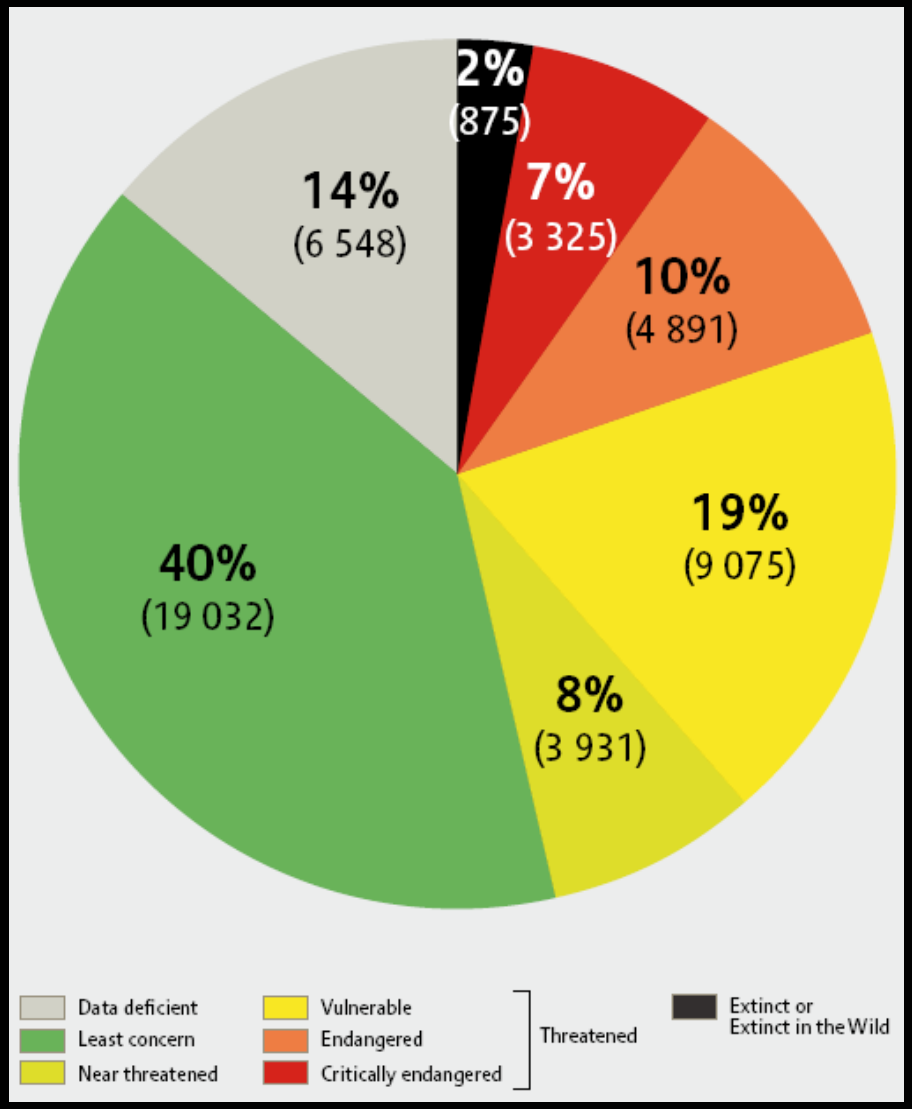


Species

Of the 47,677 species assessed 36% are considered threatened with extinction.

•Of the 25,485 species in completely assessed groups (mammals, birds, amphibians, corals, freshwater crabs, cycads and conifers) 21% are considered threatened.

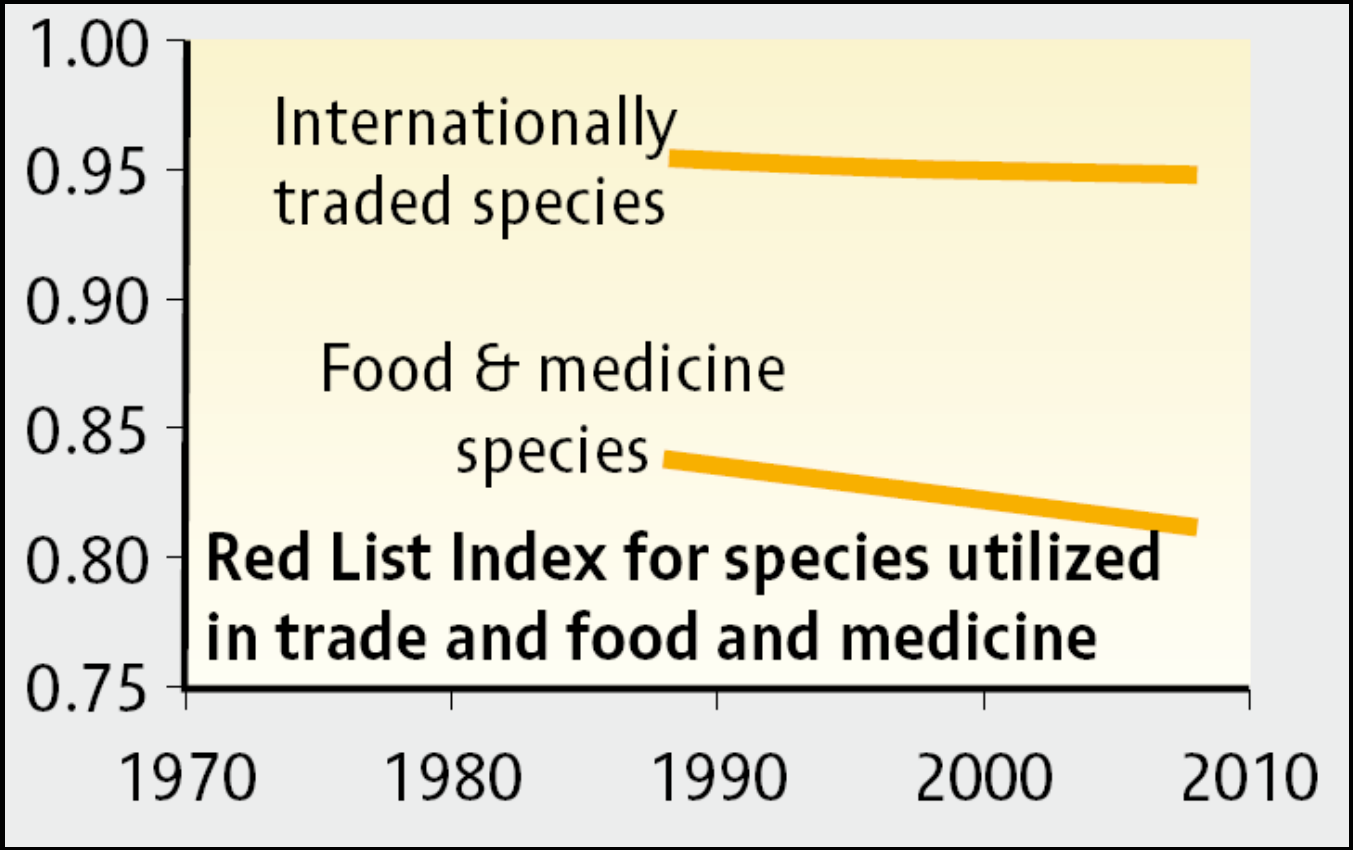
•Of 12,055 plant species assessed, 70% are threatened. However, plant species with a higher average extinction risk are over-represented in this sample.



Source: IUCN/GBO-4

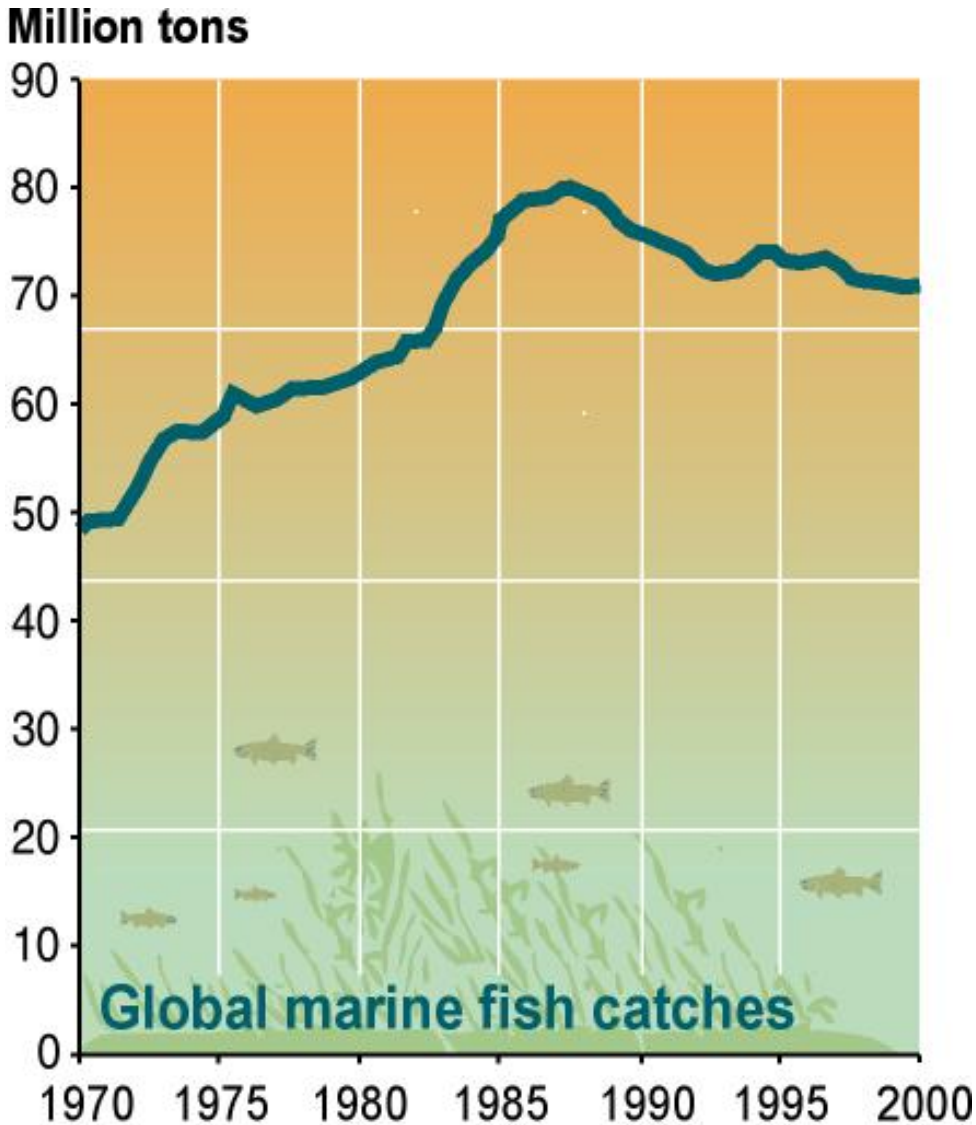
Species

Species used for food and medicine are at an increasing risk of extinction



Fish Stocks

- The world's fisheries employ approximately 200 million people, provide about 16% of the protein consumed worldwide and have a value estimated at US$ 82 billion.
- About 80 percent of the world marine fish stocks for which assessment information is available are fully exploited or overexploited.
- Fish stocks assessed since 1977 have experienced an 11% decline in total biomass globally, with considerable regional variation.
- The average maximum size of fish caught declined by 22% since 1959 globally for all assessed communities.
- There is also an increasing trend of stock collapses over time, with 14% of assessed stocks collapsed in 2007.
- It is estimated that 85% of oyster reefs have been lost globally, and that they are functionally extinct in 37% of estuaries and 28% of ecoregions.



Source: Millennium Ecosystem Assessment

Marine fish harvest **declining** since the late 1980s

Fish **stocks**

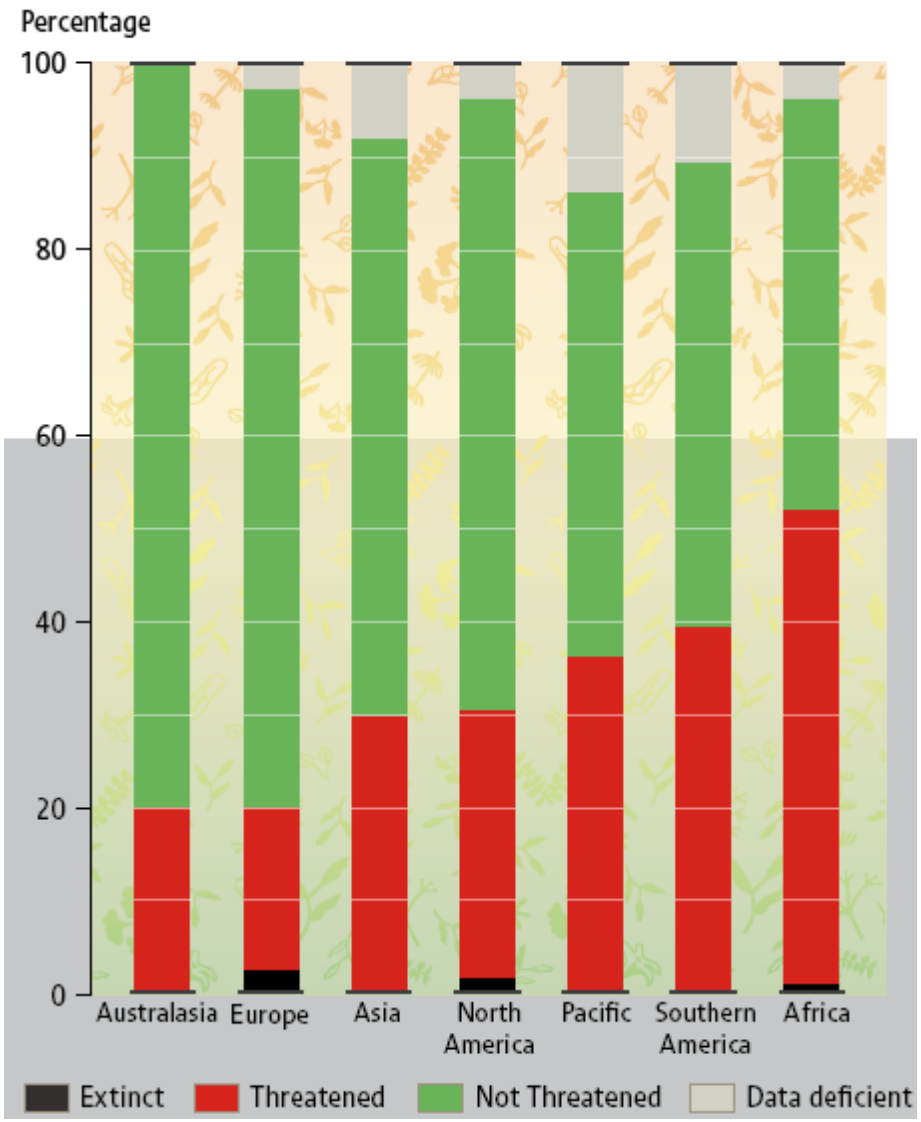
China's Marine Trophic Index has declined in recent years as compared to the 1950s.

Empty forest syndrome

- Unsustainable **bushmeat** (significant proportion of protein in Central Africa) hunting
- Some forest areas become virtually **devoid of animal life** (impacts on forest resilience because some 75% of tropical trees depend on animals to disperse seeds)

Species

Medicinal plants face a high risk of extinction in those parts of the world where people are most dependent on them for health care and income from wild collection – namely Africa, Asia, the Pacific and South America

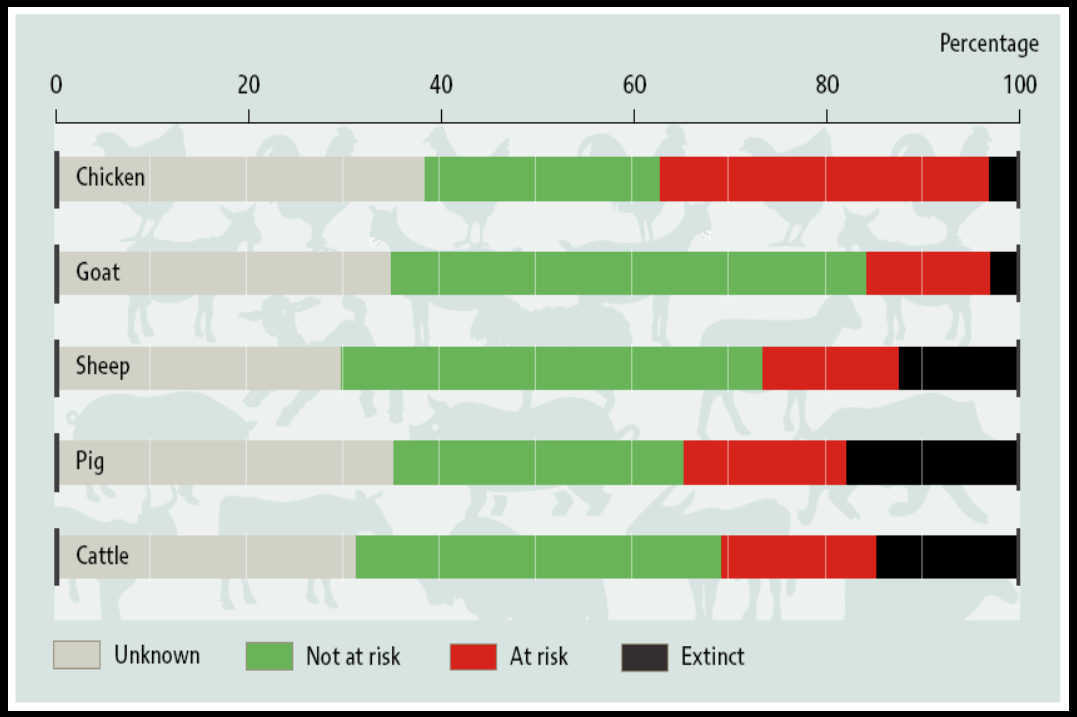


Source: IUCN/GBO-4

Decline in genetic diversity in natural ecosystems and in systems of crop and livestock production

For example:

- 21% of the world's 7,000 livestock breeds (amongst 35 domesticated species of birds and mammals) are classified as being at risk, and
- 36% are of unknown risk status.
- > 60 breeds are reported to have become extinct during the first six years of this century alone.



Thailand: import of foreign animals resulted in decline of local livestock breeds (local swamp buffalo from around 5-6 millions to 1.5 million)

China: decline in number of local rice varieties from 46,000 in the 1950s to slightly more than 1,000 in 2006

Peru: decline in local varieties of potatoes

Trends shown by agreed indicators of progress towards the 2010 biodiversity target:

Status and trends of the components of biological diversity

- Trends in extent of selected biomes, ecosystems, and habitats
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Status of access and benefit sharing

- Indicator of access and benefit-sharing to be developed

Status of resources transfers

- Official development assistance (ODA) provided in support of the Convention

Most (80%) Parties reported that biodiversity was important for human wellbeing in their country including, amongst other things, as a source of food.

Thus biodiversity loss will have serious consequences on human wellbeing

Global Biodiversity Outlook 3

Structure

- Biodiversity in 2010
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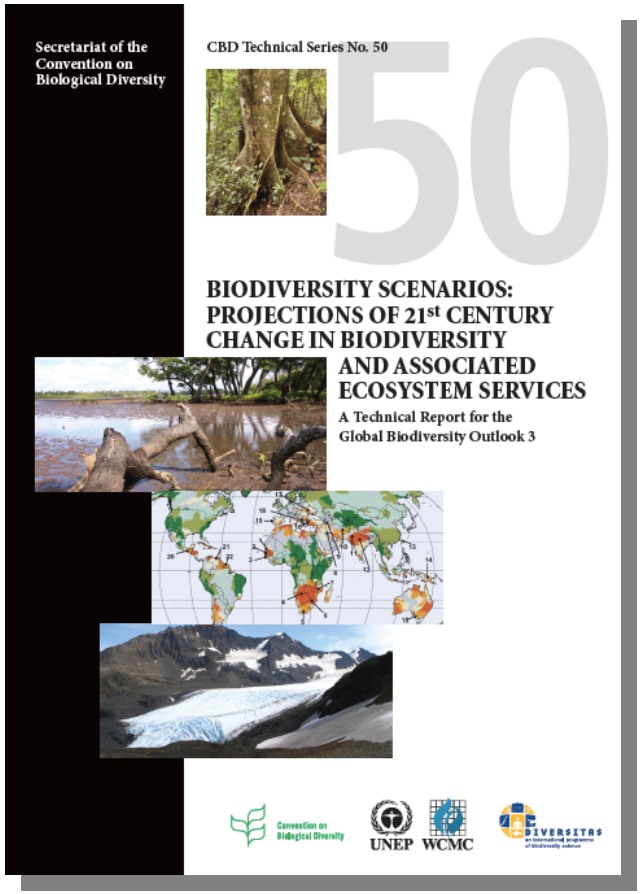
Biodiversity Futures

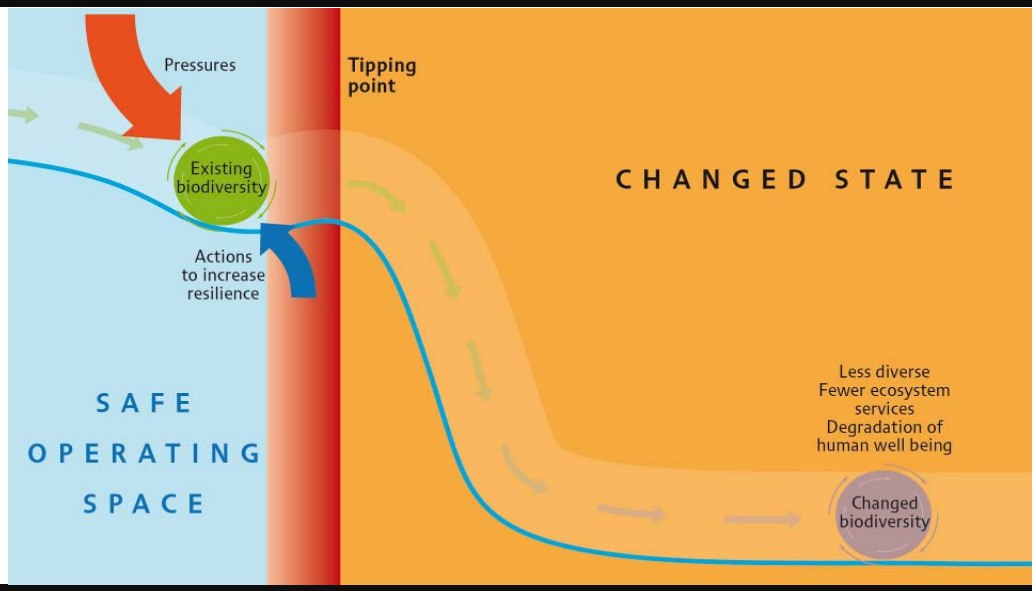
Key Findings:



- Projections show continuing and accelerating extinctions, habitat loss, changes in distribution and abundance of biodiversity
- High risk of dramatic biodiversity loss and degradation of services from tipping points
- Loss preventable and even reversible with strong, urgent action

Tipping Points

Business as usual will lead to tipping points



Amazon dieback

Eutrophication

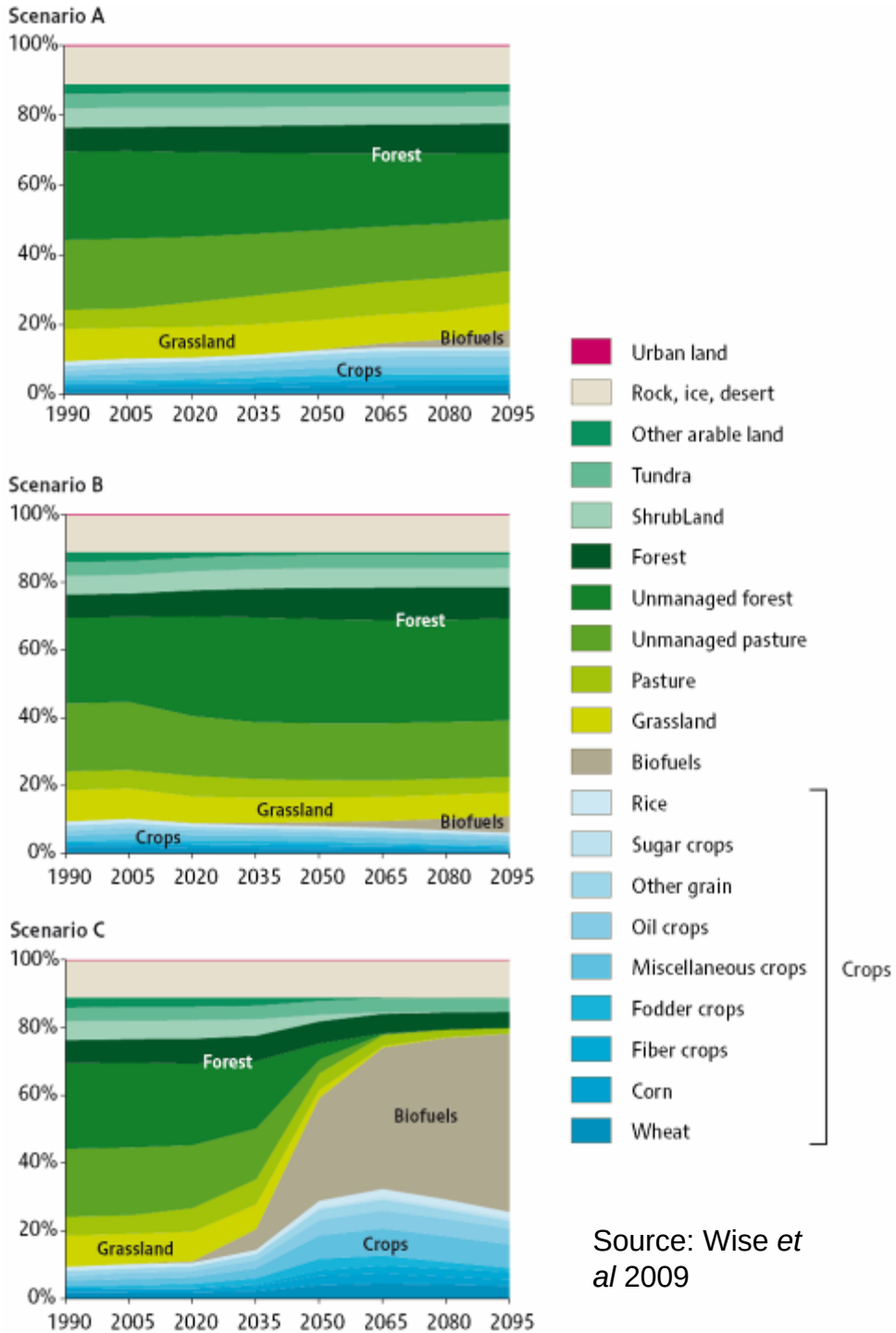
Coral reef collapse

Scenarios for land use

Business as usual

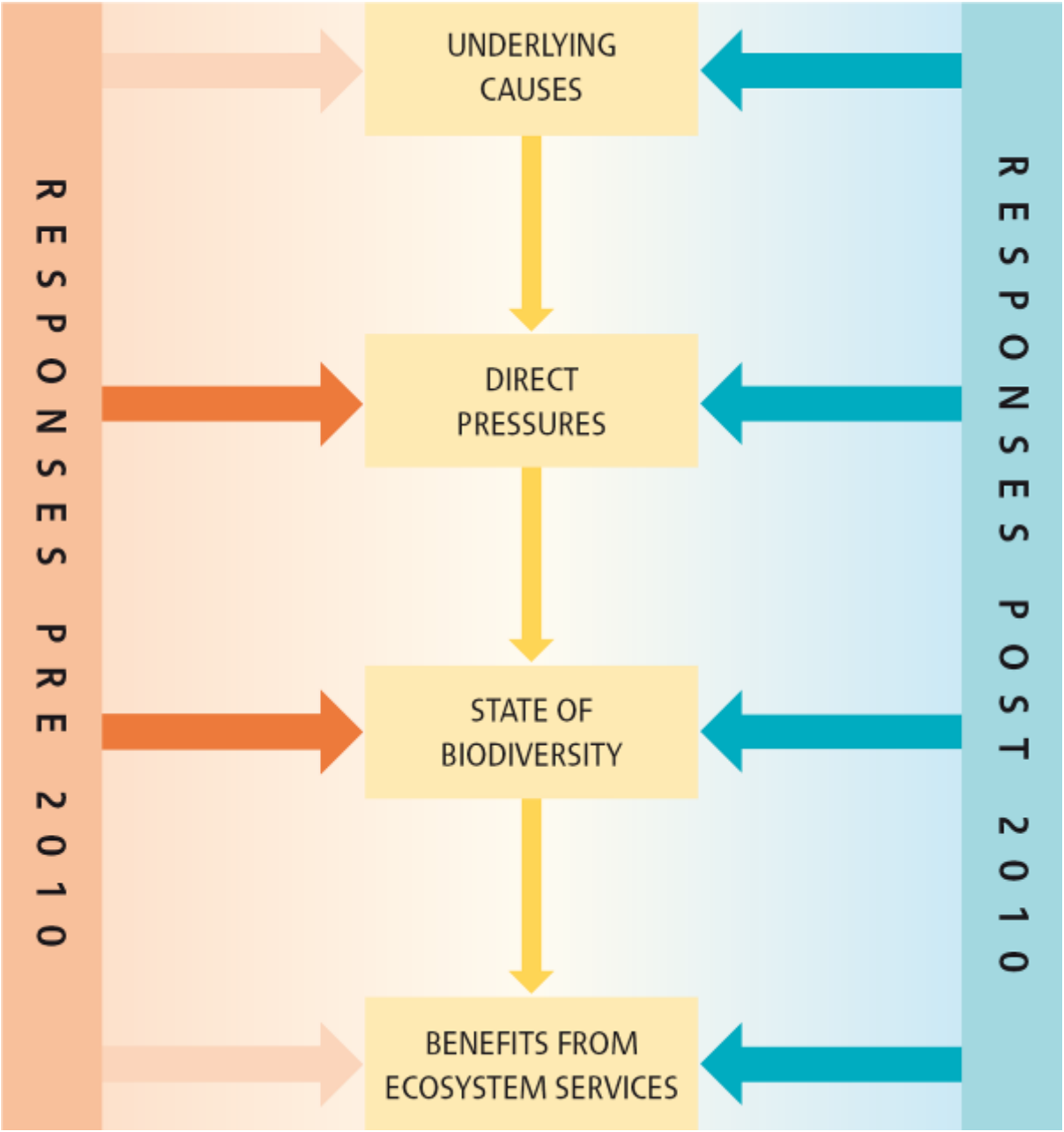
Carbon tax including land use

Carbon tax on fossil fuels and industry only



Source: Wise *et al* 2009

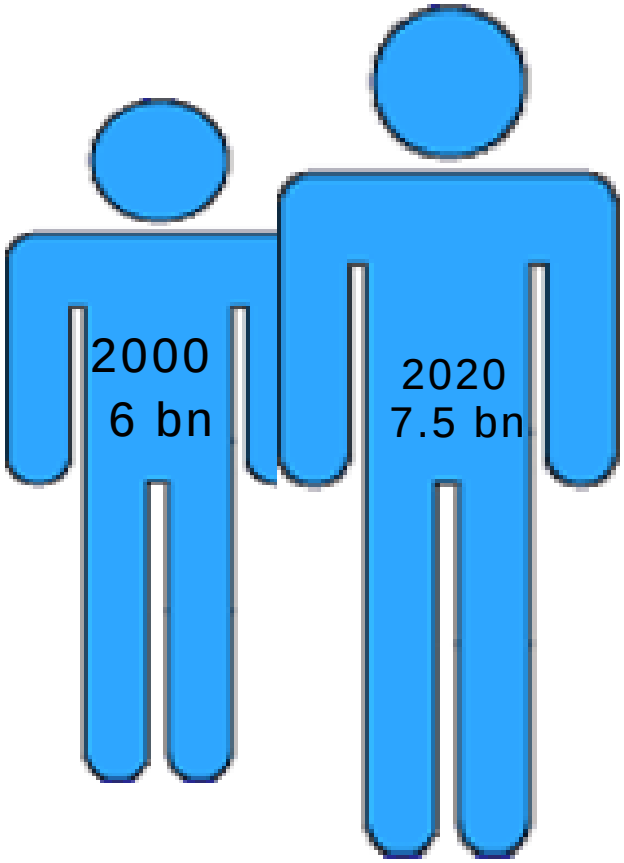
Towards a Strategy



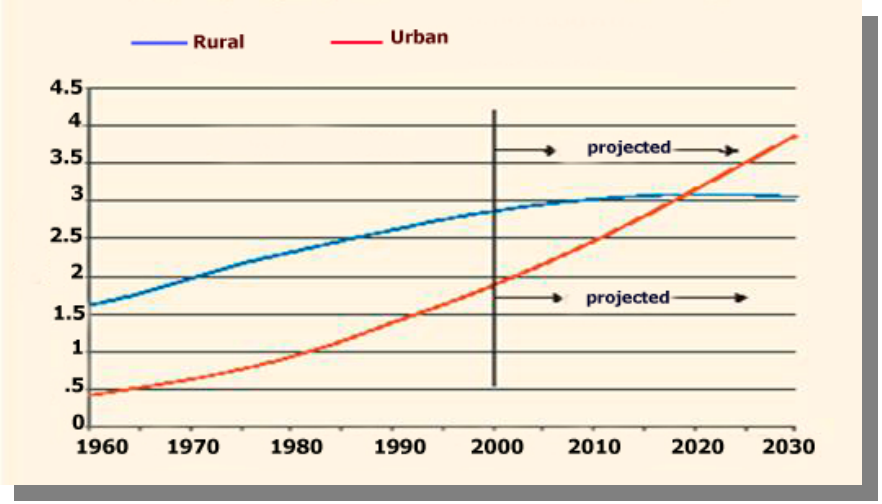
Broadening action on biodiversity

Underlying factors are very important

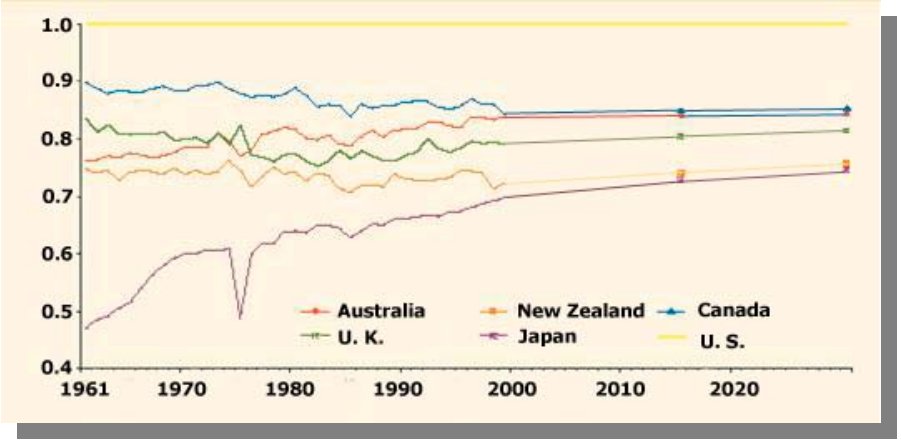
Projected Population Increase



Urbanization in developing countries
(measured in billions of people)



Convergence in Food Consumption
(consumption similarity index - U.S. consumption = 1.0)



Towards a Strategy

- Communication, education and awareness-raising
- Use of market incentives and avoidance of perverse subsidies
- Greater efficiency in use of land, energy and fresh water to meet growing demand
- Restoration of ecosystems
- Address climate change and biodiversity loss in close co-ordination, and with equal priority, if the most severe impacts of each are to be avoided
- Equitable sharing of benefits from use of and access to genetic resources and associated traditional knowledge
- Support and facilitate local action

Strategic Plan for 2011 -2020

Includes a Vision (2050), a Mission and 20 headline "SMART" targets for 2020, organized under five strategic goals:

1. **Address the underlying causes** of biodiversity loss by mainstreaming biodiversity across government and society

2. **Reduce the direct pressures** on biodiversity and promote sustainable use

3. Improve the status of biodiversity by **safeguarding ecosystems, species and genetic diversity**

4. **Enhance the benefits** to all from biodiversity and ecosystem services

5. **Enhance implementation** through participatory planning, knowledge management and capacity building

COP-10 in Nagoya

- No direct decision on diversification or sustainability of diets
- But clear references to need to ensure food security and nutrition in POW on agricultural biodiversity
- Also references to needs to
  - conserve genetic diversity/resources, species and ecosystems/habitats important for food production in adequate quantity and quality
  - use food, agroecosystems and natural systems sustainably
  - share equitably benefits from the use of genetic resources, with food and food security being non-monetary benefits
- References to poverty eradication/alleviation, sustainable development/MDGs and human well-being imply food supply and intake in adequate quality and quantity

Examples of **references to food** in COP-10 decisions

- **Nagoya Protocol on ABS**: In the development and implementation of its access and benefit-sharing legislation or regulatory requirements, each Party shall consider the importance of GRFA and their special role for food security

- **Aichi Nagoya Strategic Plan**:
  - ✓ **Targets 1 to 14** are particularly relevant
  - ✓ **Target 13:** By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity

Examples of **references to food** in COP-10 decisions (ctd)

- **POW on agricultural biodiversity**
  - ✓ Importance of agrobiodiversity for food security and nutrition, especially in the face of climate change and limited natural resources
  - ✓ ES and FAO secretariat to consider
    - underutilized crops and other potential food sources, to improve human nutrition and ensure food security
    - GIAHS and other (potentially) sustainable systems in particular those in the Satoyama Initiative
    - public awareness of the importance of agricultural biodiversity and its relationship to food security
    - possibilities for rehabilitation/ restoration of agricultural ecosystems and landscapes
    - issue of sustainable use of agrobiodiversity
  - ✓ Integrate objectives of the POW in NBSAPs and support farmers in *in-situ* conservation of traditional and local varieties, races and breeds

Examples of **references to food** in COP-10 decisions (ctd)

- Adoption of the **Satoyama Initiative** and decision on **bushmeat**

- **Mountain biodiversity**:
  - ✓ collect and update periodically information on genetic resources in particular GRFA
  - ✓ Develop and implement *in situ* conservation of mountain biodiversity and *ex situ* conservation of genetic resources currently and potentially under threat from **climate change**

- **Biofuels:** potential impact on food and energy security