Monitoring Implementation and Indicators

Regional Workshop for South, East and Southeast Asia on the Preparation of the Fifth National Report and Global Biodiversity Outlook and Regional Policy Scenarios

Incheon City, Republic of Korea
20 - 24 May 2013

Convention on Biological Diversity

United Nations Decade on Biodiversity

What is an indicator?

Indicators refer to measures which tell us what is happening to biodiversity

Indicators are useful for:

- Tracking and monitoring progress

- Highlighting where action is needed

- Guiding policy development or implementation

- Communicating with stakeholders

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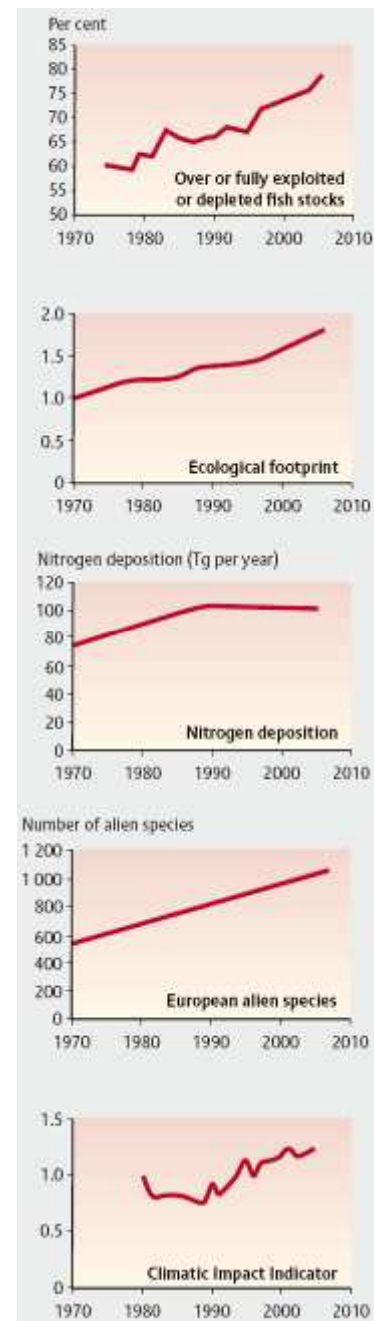
What is an indicator?

An indicator may provide information on many issues or targets but...

- A single indicator will never give you the complete picture

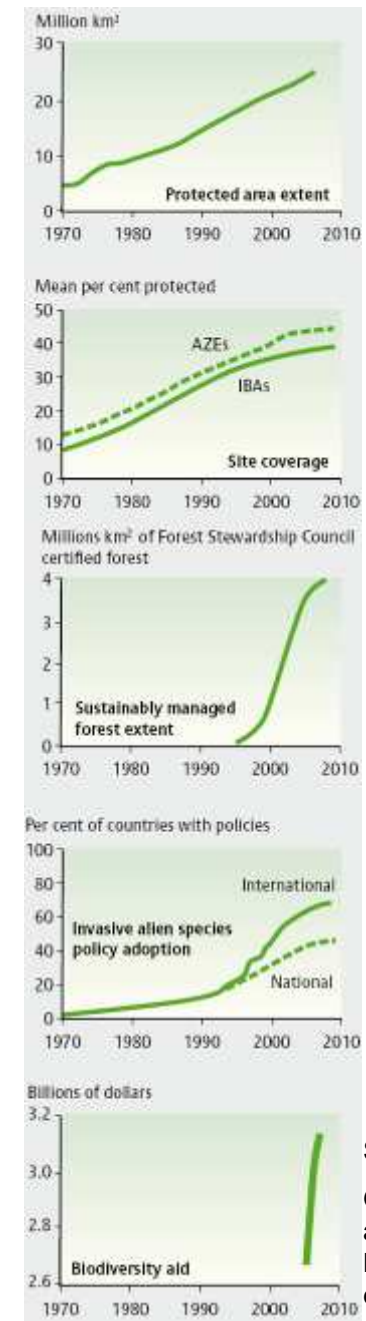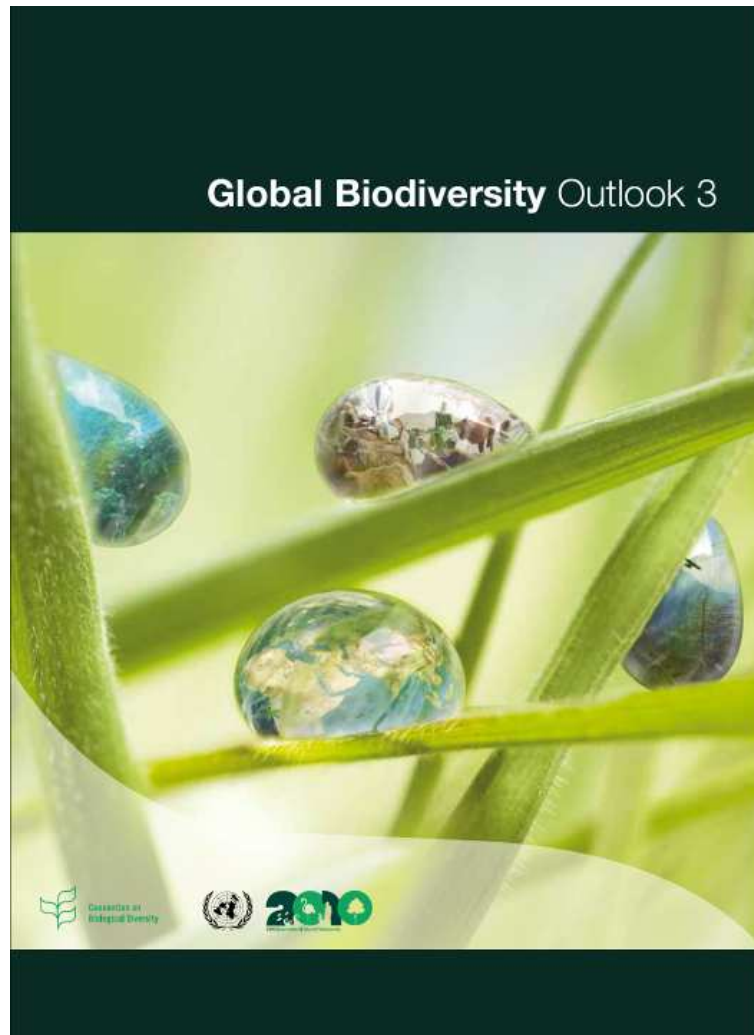- Interpretation is important (what are the implications)

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State
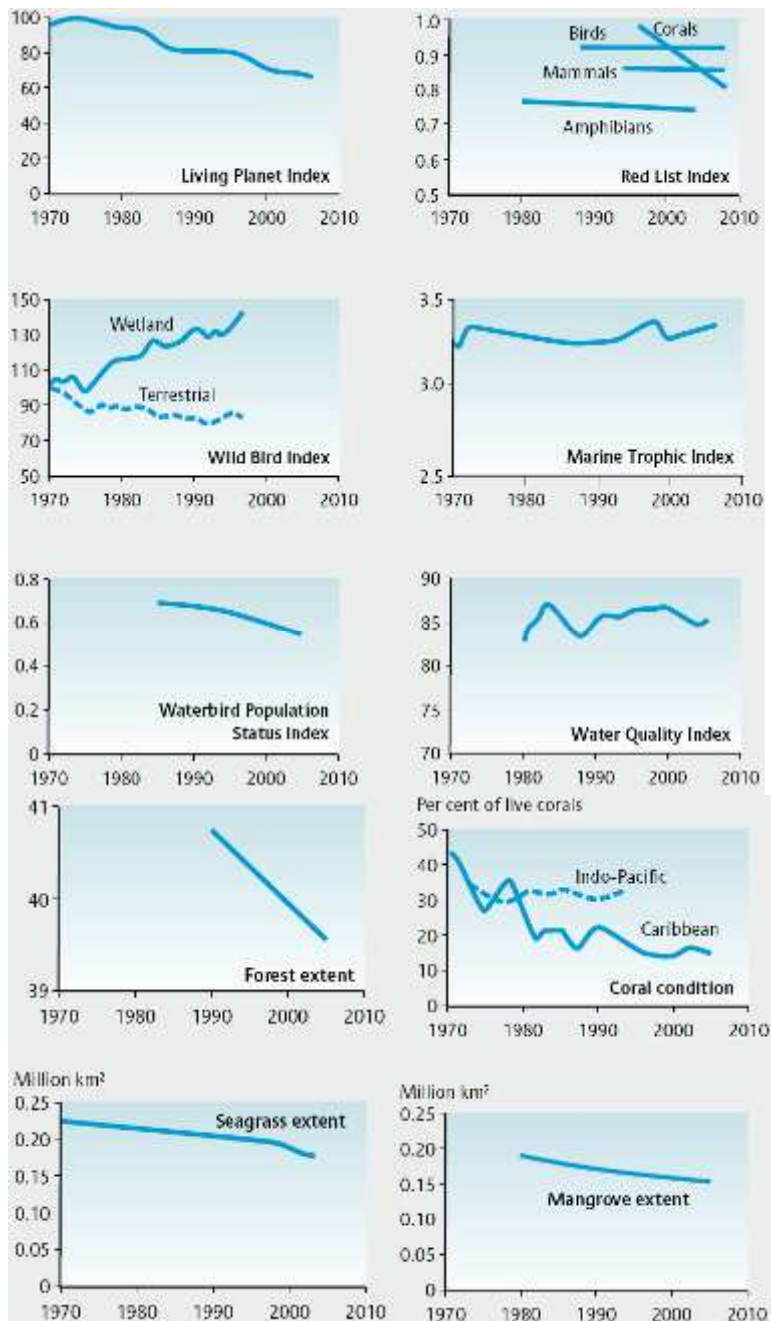
Pressure

Response

Source: GBO-3, after Butchart etal 2010
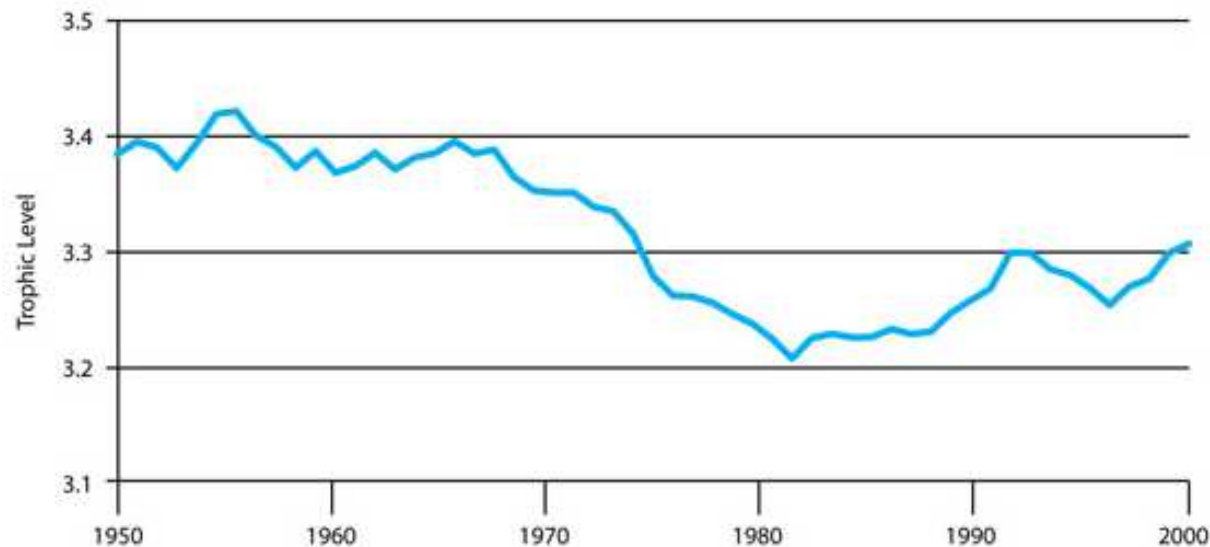
What is an indicator?

Global Biodiversity Outlook 3

"The target agreed by the world's Governments in 2002, "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", has not been met."
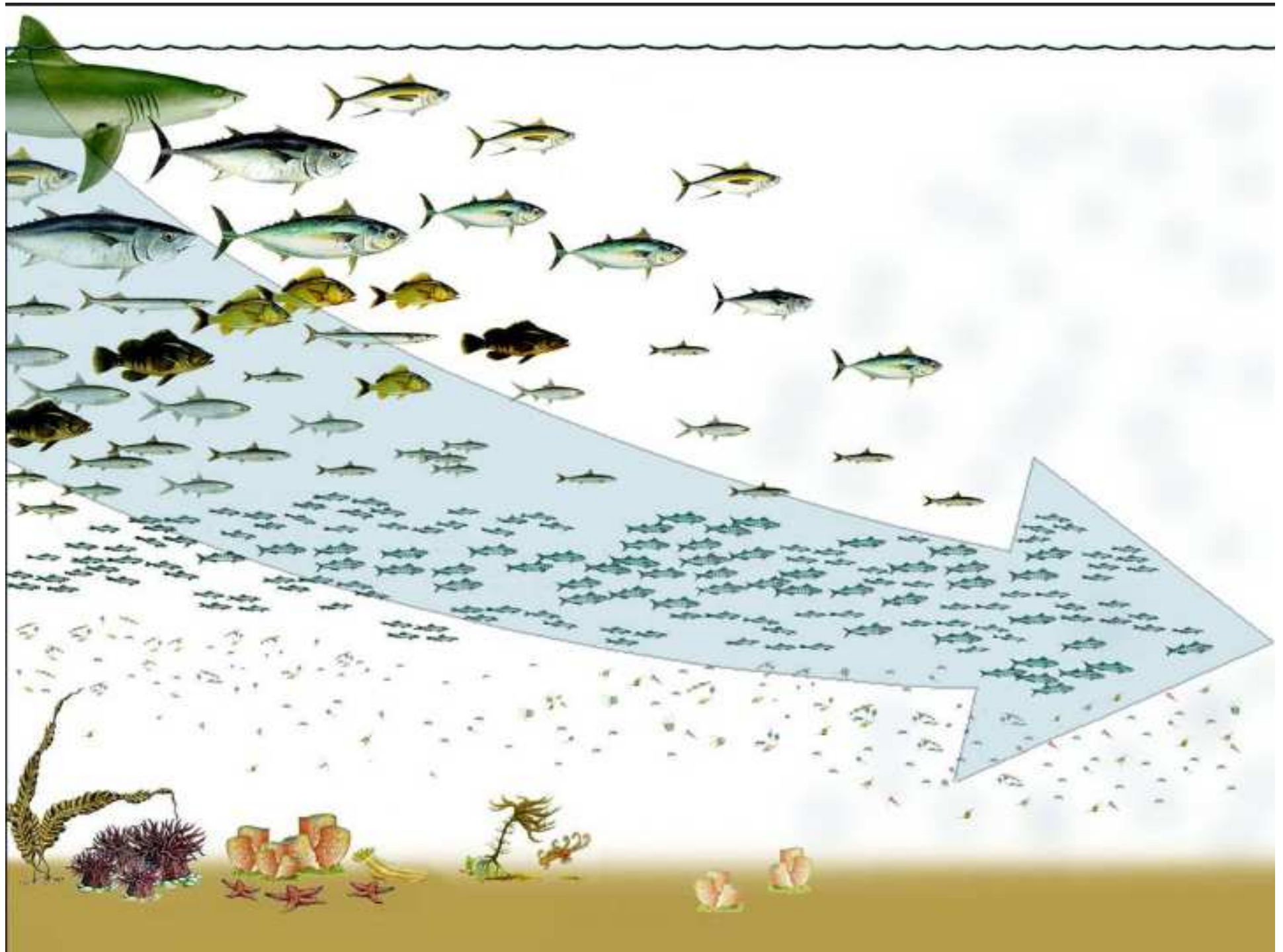
Global Marine Trophic Index

The global index excludes data for Peruvian anchoveta. The very localized fishery for Peruvian anchoveta, a low trophic level species, is the largest single-species fishery in the world, and it exhibits extreme fluctuations in landings which would mask the comparatively more subtle patterns in trophic level changes by the rest of the world's fisheries.

How to Interpret the Indicator

....An increase in MTI does not necessarily mean that abundances of higher tropic level species have increased. Instead an increase may be the result of geographical expansion of fisheries within the area being examined (see Swartz et al. 2010. PLoS ONE 5(12): e15143).

What makes a good indicator?

- Based on a clear measure of biodiversity (scientifically valid)
- Has a clear baseline or starting year and a clearly defined scale (habitat, biome, country, eco-region, etc.)
- Based on available data
- Responsive to change in issue of interest
- Easily understandable
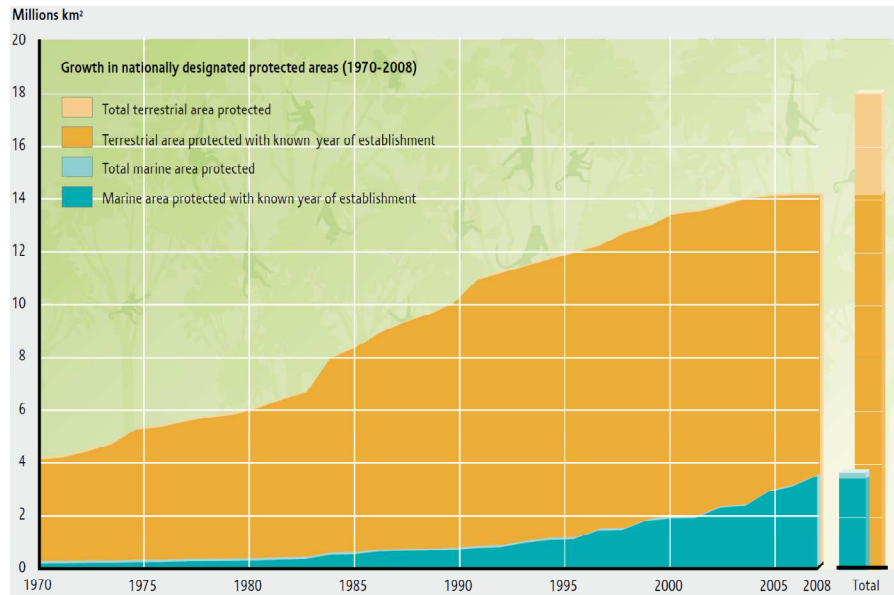- Relevant to user's needs
- Used

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2011-2020
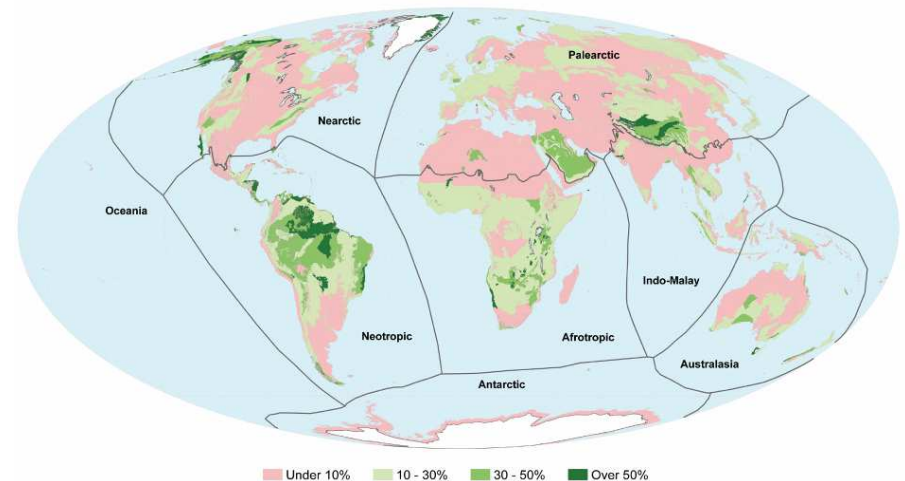United Nations Decade on Biodiversity

Types of indicators

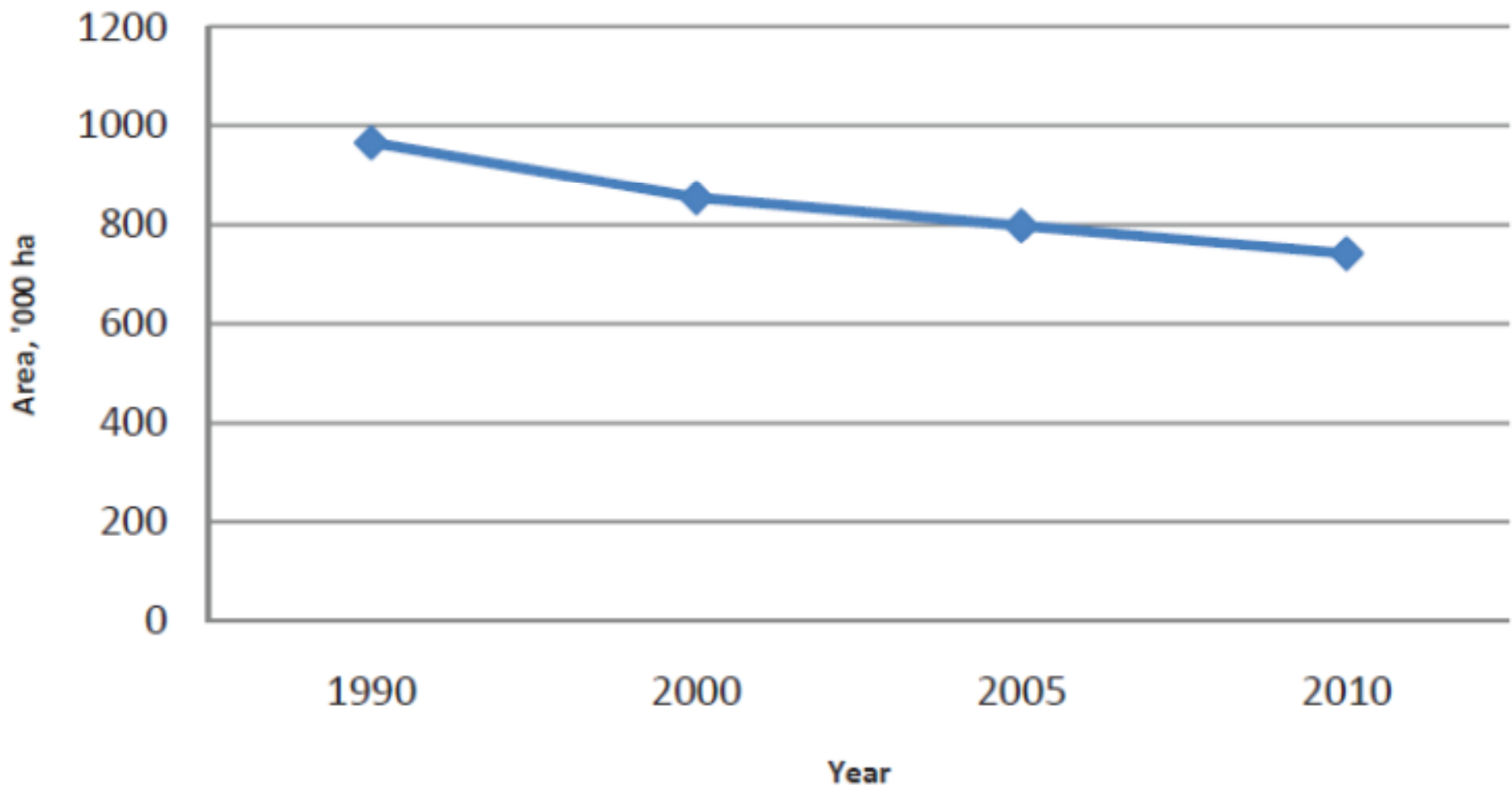**There are different types of indicators:**

Quantitative

Temporal

Spatial

Types of indicators

**Timor Leste:** Trends in total (net) forest cover

Types of indicators

Republic of Korea: Changes in the forest area by year

| Year \ Division	Forest area (1,000 ha)	Forest Stand Volume (1,000 m³)	Volume per ha (m³)
1978	6,578	114,000	17.33
1980	6,568	145,694	22.18
1990	6,476	248,426	38.36
2000	6,422	407,575	63.46
2007	6,382	624,398	97.83

Types of indicators

Lao People's Democratic Republic: National Protected Area System as Percent of Total Land Area, 1993-2008
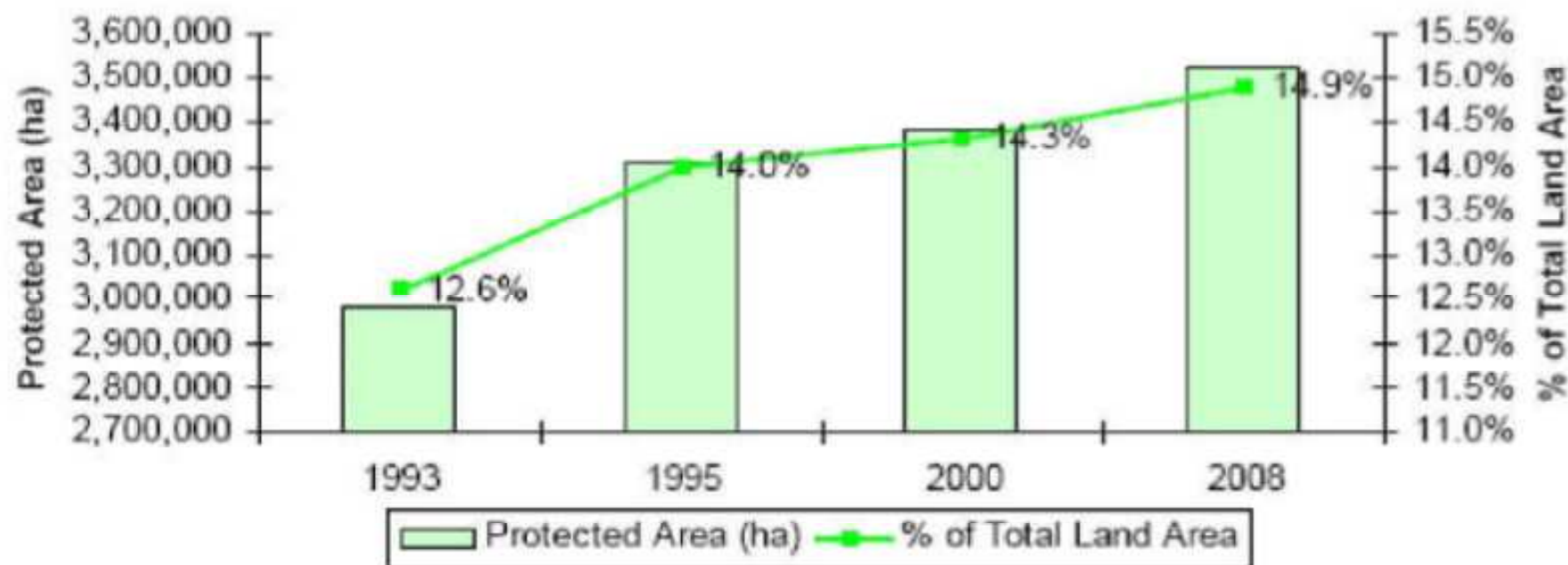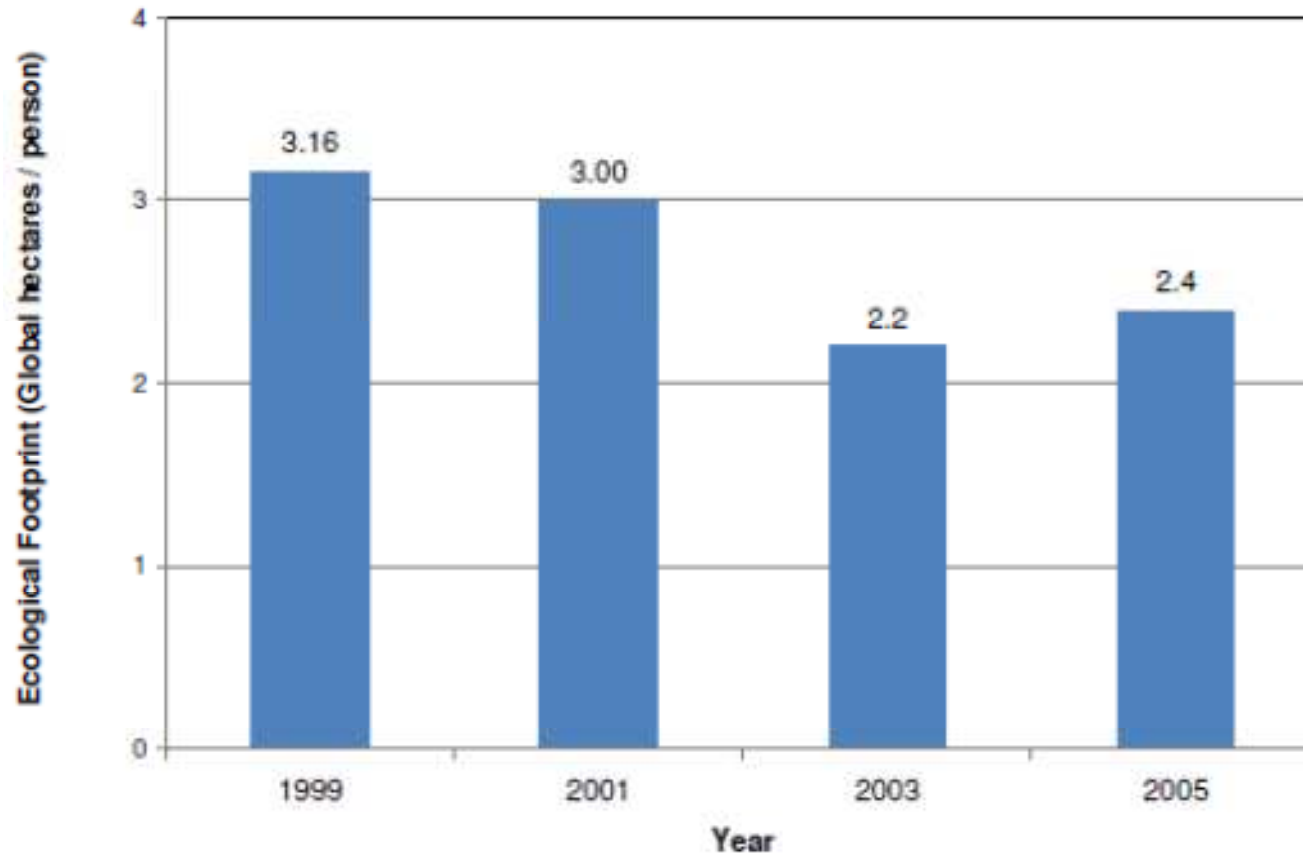
Types of indicators

India: Change in threatened species in 2004 and 2008
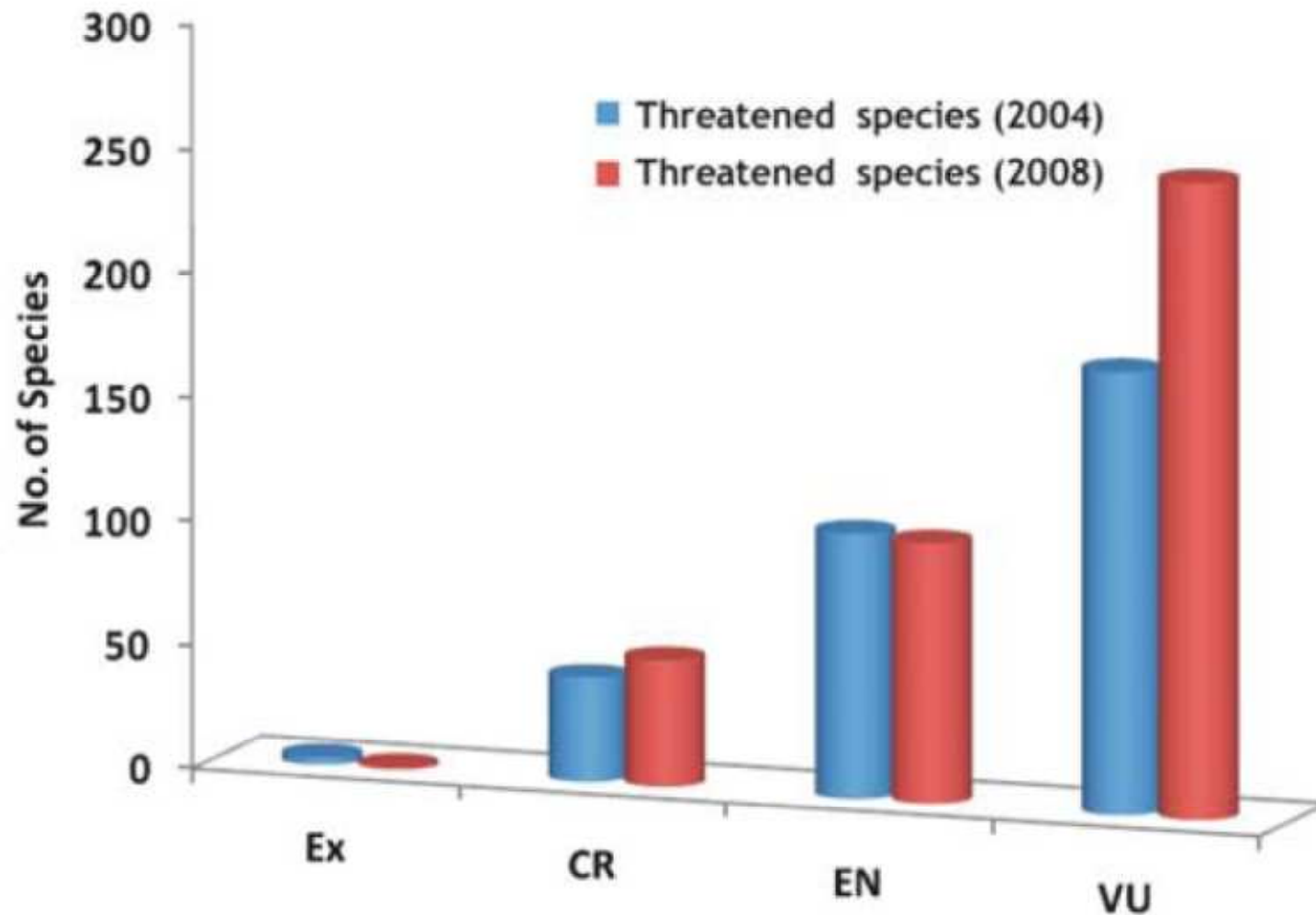
Types of indicators

Malaysia: Ecological Footprint

Types of indicators

Philippines: Percentage of KBA and AZE sites under some form of legal protection (1996-2006)
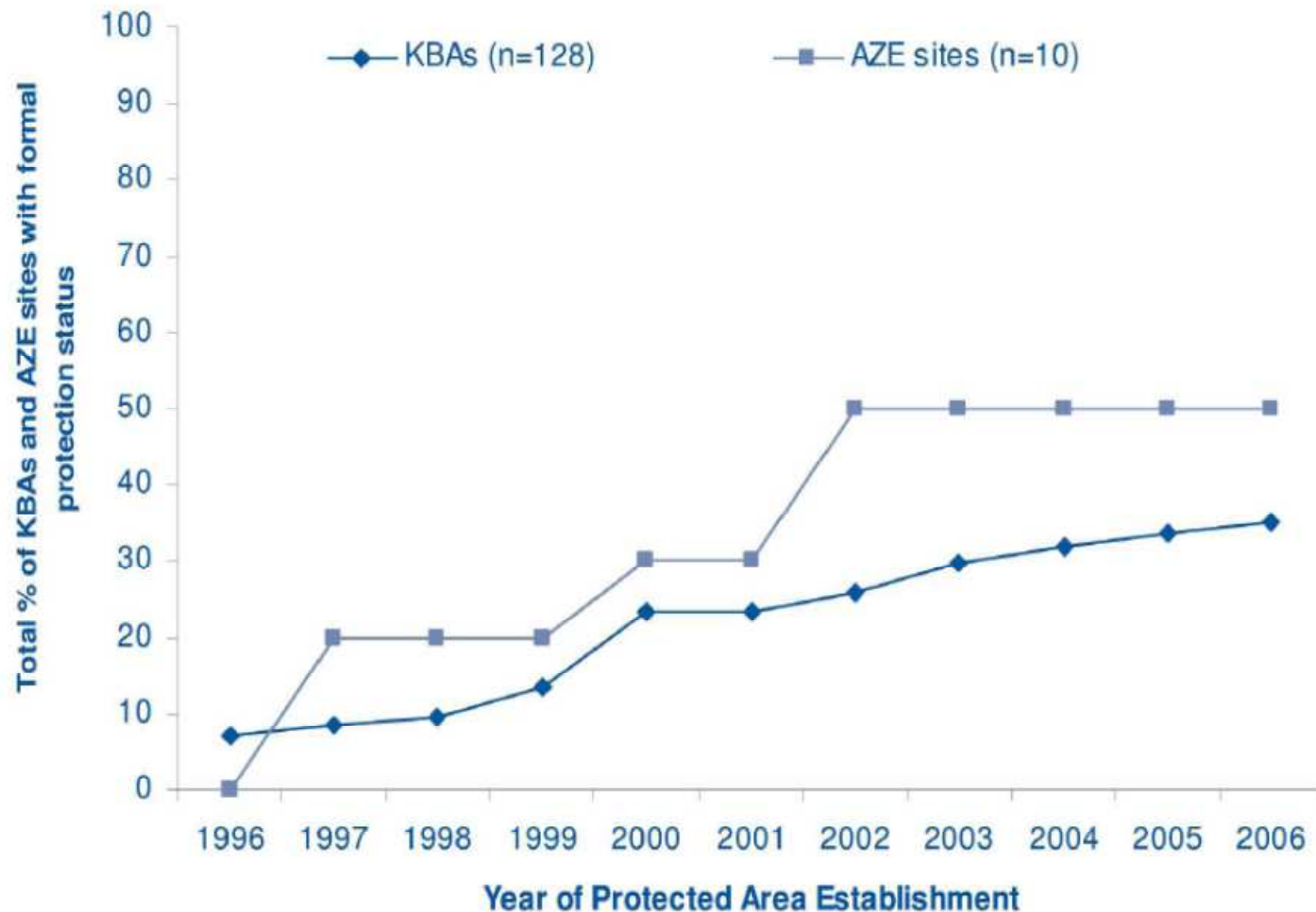
Types of indicators

Nepal: Community forest areas handed over to the communities
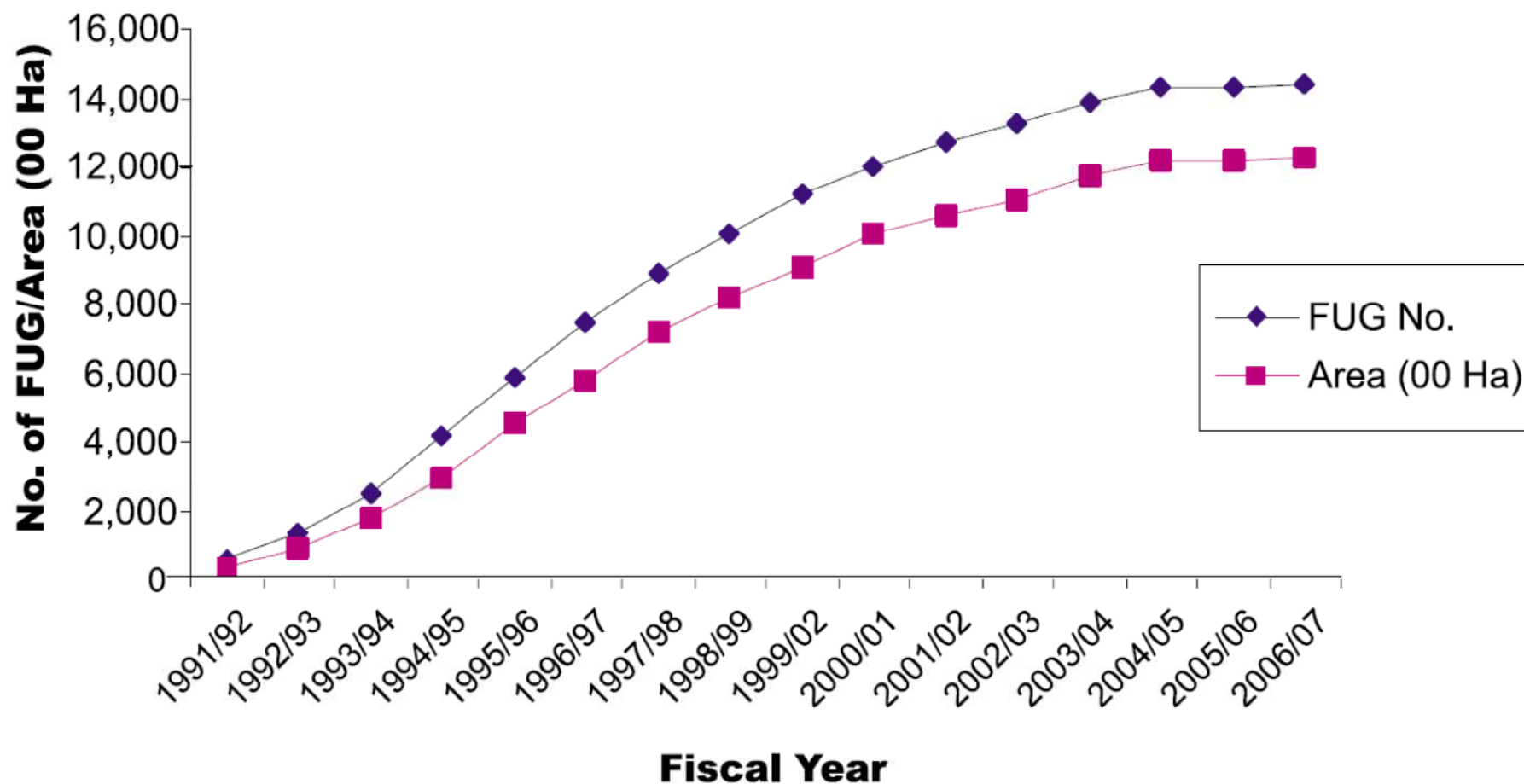
Types of indicators

Japan: Distribution of Raccoons

Distribution in 2003 (meshes with capture)

Expanded distribution by 2008 (meshes with new capture)

Types of indicators

China: Change in the RLI of Vertebrates in Different Taxonomic Groups and Different Years
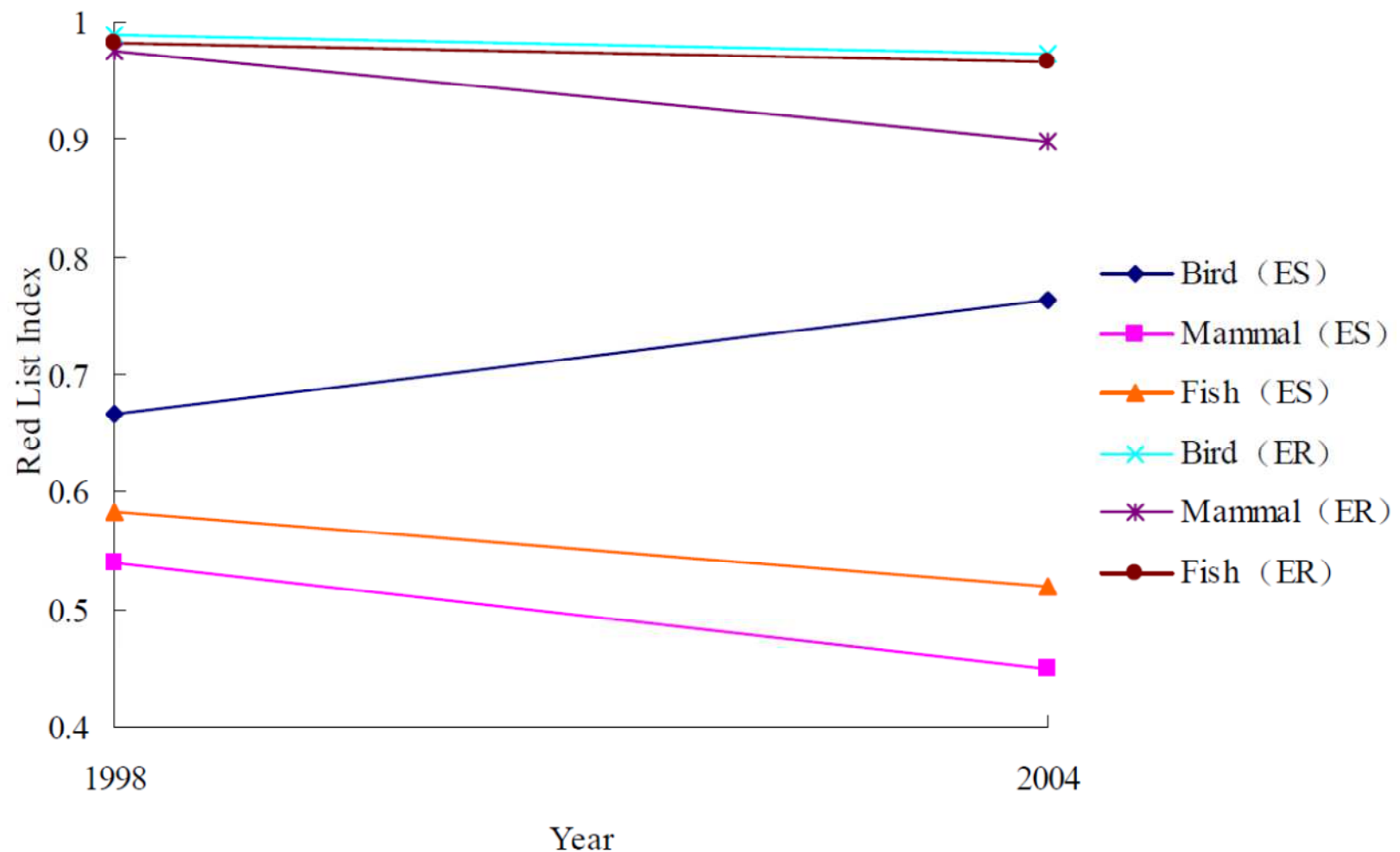
Types of indicators

Obstacles to successful indicators:

- Lack of resources (funding, expertise, data)

- Insufficient stakeholder/audience consultation

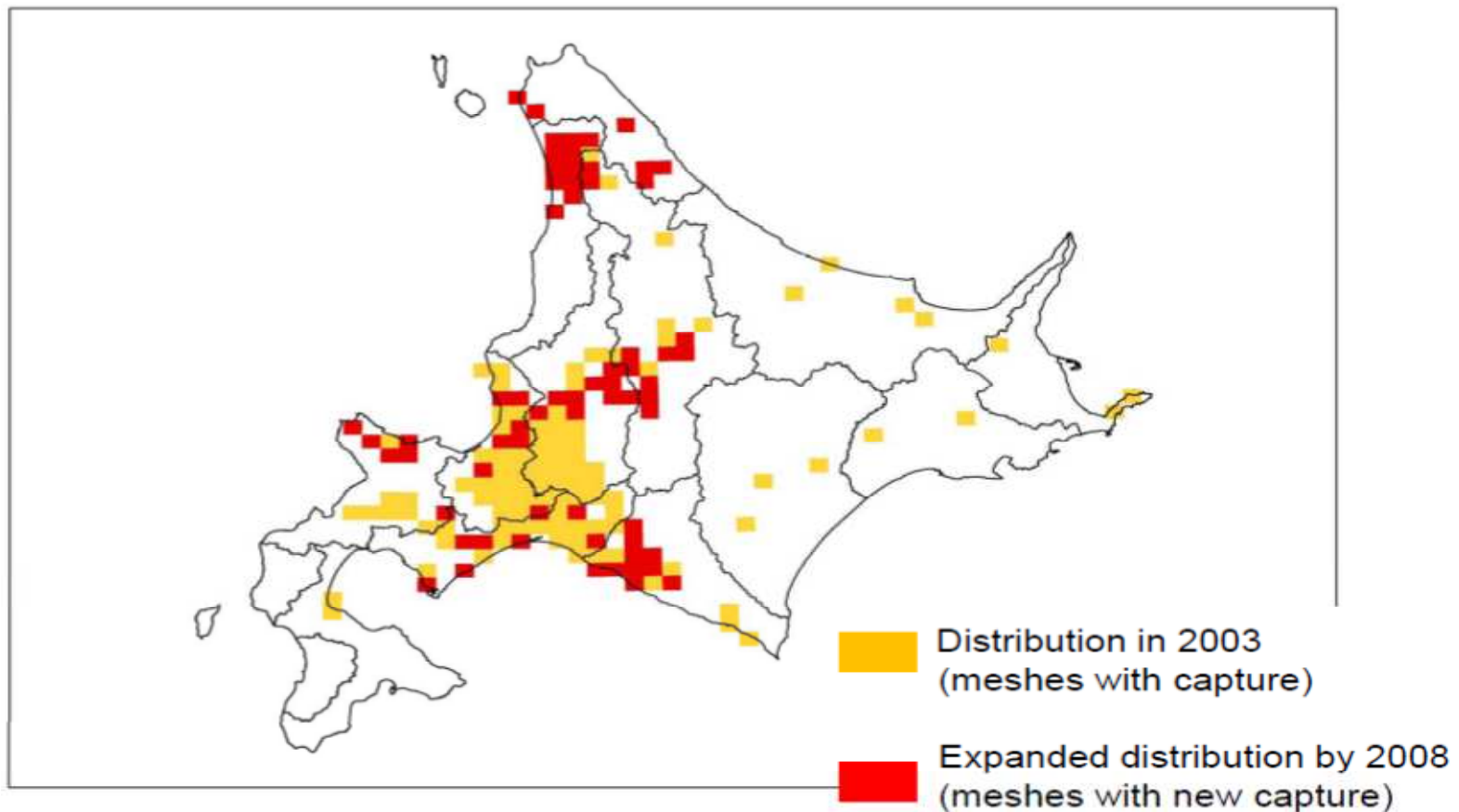- Project-based data collection and/or management

- Data utilised not sensitive to change

- An after-thought to a wider process of strategy development and target setting

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Types of indicators

Source: Millennium Ecosystem Assessment

Qualitative

Based on expert opinion, judgment consultation and anecdotal information

Ideal in situations were quantitative indicators do not exist or are incomplete

Types of indicators

Singapore: Progress Towards the 2010 Biodiversity Target

CBD Goals and Targets	Priority Level	Key Actions	Progress
Goal 5: Pressures from habitat loss, land use change and deforestation, and unsustainable water use, reduced.			
Target 5.1 Rate of loss and degradation of natural habitats decreased	H	As for Target 1.2. URA is the national authority on land use planning, and consultations with other government agencies are carried out when development projects are submitted. An administrative process for biodiversity impact assessments is in place whenever development projects are proposed in areas within 100m of the Nature Areas.	↔
Goal 6: Control threats from invasive alien species			
Target 6.1 Pathways for major potential alien invasive species controlled	H	AVA monitors the ornamental fish industry and regulates the import and export of animals and plants in Singapore. NParks is consulted on potential new alien species to be imported in Singapore. Studies on ballast water and marine bio-fouling are also underway.	↔
Target 6.2 Management plans in place for major alien species that threaten ecosystems, habitats or species	M	Currently, Singapore does not have management plans in place to address threats from major invasive alien species. However, there are activities, which discourage the introduction and removal of alien species in the nature reserves. For example, there is on-going removal of removal of potential invasives (e.g. *Smilax* and *Clidemia hirta*) from the Nature Reserves.	↔
Goal 7: Address challenges to biodiversity from climate change and pollution			
Target 7.1 Maintain and enhance resilience of the components of biodiversity to adapt to climate change	H	Singapore became a Party to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol in 1997 and 2006 respectively. A study is currently under way to look into the impacts of climate change on Singapore, including the impact on biodiversity in Singapore.	⬆
Target 7.2 Reduce pollution and its impacts on biodiversity	H	Singapore's ambient air quality is within World Health Organisation (WHO) standards, while inland waters support aquatic life and coastal waters meet recreational water standards.	⬆

Types of indicators

TABLE 1 Status of agreed subsidiary targets to 2010 biodiversity target

Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes

	1.1: At least 10% of each of the world's ecological regions effectively conserved.	Not achieved globally, but more than half of terrestrial eco-regions meet the 10% target. However, management effectiveness is low for some protected areas. Marine and inland water systems lack protection, though this is increasing.
	1.2: Areas of particular importance to biodiversity protected.	Not achieved globally, but an increasing proportion of the sites of importance for conserving birds, and those holding the last remaining populations of threatened species, are being protected.

Goal 2. Promote the conservation of species diversity

	2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups.	Not achieved globally as many species continue to decline in abundance and distribution. However, some efforts have resulted in the recovery of targeted species.
	2.2: Status of threatened species improved.	Not achieved globally, as species are on average at increasing risk of extinction. However some species have moved to lower risk categories as a result of actions taken.

Goal 3. Promote the conservation of genetic diversity

	3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.	Not achieved globally. Information on genetic diversity is fragmentary. Progress has been made towards conserving genetic diversity of crops through ex situ actions, however agricultural systems continue to be simplified. While the genetic diversity of wild species is more difficult to ascertain, the overall decline of biodiversity presented in this report strongly suggests that genetic diversity is not being maintained. Genetic resources in situ and traditional knowledge are protected through some projects, but continue to decline overall.

Types of indicators

TABLE 2 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	Most habitats in most parts of the world are declining in extent, although forest area expands in some regions, and the loss of mangroves has slowed significantly, except in Asia. ❀❀
↙	Trends in abundance and distribution of selected species	Most species with limited population size and distribution are being further reduced, while some common and invasive species become more common. ❀❀❀ (but limited number of taxa assessed)
↙	Change in status of threatened species	The risk of extinction increases for many threatened species, although some species recovery programmes have been very successful. ❀❀❀ (for those species assessed)
↙	Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance	It is likely that the genetic variety of cultivated species is declining, but the extent of such decline and its overall impacts are not well understood. ❀ (although many case studies with a high degree of certainty are available)
↗	Coverage of protected areas	There has been a significant increase in coverage of protected areas, both terrestrial and marine, over the past decade. However, many ecological regions, particularly in marine ecosystems, remain underprotected, and the management effectiveness of protected areas remains variable. ❀❀❀

Decision XI/3:

- **Takes note of the indicative list of indicators** … and recognizes that these provide a starting point for assessing progress…

- Recognizes that the indicator framework… **provides a flexible basis** (to monitor progress) for Parties which can be adapted…

- Invites Parties to **prioritize the application at national level of those indicators that are ready for use at global level**… and invites Parties to **use the flexible framework** and the indicative list of indicators, inter alia in their updated NBSAPs and in reporting, including in the fifth national reports, as far as possible…

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Indicator Framework

- **12 Headline** indicators addressing the issues of the 20 Aichi targets (broad themes)

- **22 Operational** indicators that are ready for use globally (Category **A**)

- **Additional** indicators that should be developed at global level as a priority (Category **B**)

- A **larger number** of indicators for consideration at subglobal level (i.e. national, state, province, sub-regional) (Category **C**)

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Indicator Framework

Target 5	**Trends in extent, condition and vulnerability of ecosystems, biomes and habitats** •Extinction risk trends of habitat dependent species in each major habitat type (A) •Trends in extent of selected biomes, ecosystems and habitats (A) (decision VII/30 and VIII/15) •Trends in proportion of degraded/threatened habitats (B) •Trends in fragmentation of natural habitats (B) (decision VII/30 and VIII/15) •Trends in condition and vulnerability of ecosystems (C) •Trends in the proportion of natural habitats converted (C)
Habitat loss is reduced	**Trends in pressures from unsustainable agriculture, forestry, fisheries and aquaculture** •Trends in primary productivity (C) •Trends in proportion of land affected by desertification (C) (also used by UNCCD)
	Trends in pressures from habitat conversion, pollution, invasive species, climate change, overexploitation and underlying drivers •Population trends of habitat dependent species in each major habitat type (A)

Indicator Framework

Strategic Plan Indicators Database -
https://www.cbd.int/sp/indicators/

Indicator Framework

35 record(s) found <<|**1**|2|>>

Headline Indicator(s)	Operational Indicator(s)
Most relevant indicators	
Trends in abundance, distribution and extinction risk of species	Trends in abundance of selected species
Trends in abundance, distribution and extinction risk of species	Trends in distribution of selected species
Trends in abundance, distribution and extinction risk of species	Trends in extinction risk of species
Other relevant indicators	
Trends in accessibility of scientific/technical/traditional knowledge and its application	Number of maintained species inventories being used to implement the Convention
Trends in coverage, condition, representativeness and effectiveness of protected areas	Trends in coverage of protected areas
Trends in coverage, condition, representativeness and effectiveness of protected areas	Trends in protected area condition and/or management effectiveness including more equitable management
Trends in coverage, condition, representativeness and effectiveness of protected areas	Trends in representative coverage of protected areas and other area based approaches, including sites of particular importance for biodiversity, and of terrestrial, marine and inland water systems
Trends in coverage, condition, representativeness and effectiveness of protected areas	Trends in the connectivity of protected and other area based approaches integrated into land and sea scapes

Indicator Framework

Strategic Plan Indicator Factsheet

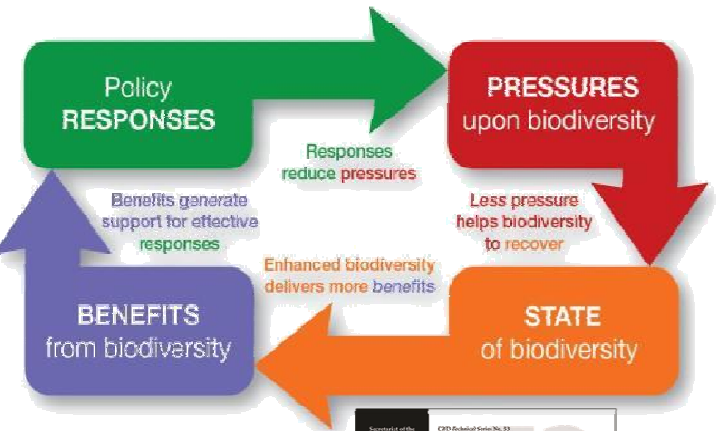| Operational Indicator	Trends in extinction risk of species
Communication Question	State – How is the state of biodiversity changing?
Strategic Goal	C
Headline Indicator	Trends in abundance, distribution and extinction risk of species
Indicator Sub-topics	Trends in abundance, distribution and extinction risk of species
Most Relevant Aichi Target	12
Other Relevant Aichi Targets	5, 6, 7, 10, 13, 14, 15
Operational Classification	Priority and ready for use globally
Status of development	Available for birds, mammals, amphibians and corals globally. Further taxonomic groups being added over the next decade (e.g., sharks, groupers and wrasses, cycads, conifers, etc). Available globally, regionally and, over the next decade, nationally (many countries have produced national Red Lists (some using the IUCN methodology and others not) which when repeated could produce national RLIs). Extinction risk indicators and population trend indicators are complementary because they measure different levels of biodiversity (species vs. populations), have different levels of sensitivity (high for population trends, moderate for extinction risk) and different levels of geographic & species coverage (comprehensive for extinction risk for a number of taxonomic groups; much lower for population trends, which are based on better studied species).
Sensitivity (can it be used to make assessment by 2015?)	High
Scale (global, regional, national, sub-national)	G, R, N
Scientific Validity	High
How easy can it be communicated?	High
Data Sources	Global IUCN Red List. National red lists (either those that apply IUCN criteria and guidelines at the sub-global level, or from other risk-ranking protocols)
Data Requirements	IUCN Red List categories for complete sets of species from two or more time-points. Requires genuine recategorisations to be distinguished from non-genuine changes following standard protocols.
Who's responsible for measuring?	IUCN and its Partners (BirdLife InteR, National, NatureServe, Conservation InteR, National, Kew etc) at the global level. National agencies developing or updating national red lists.
Other conventions/processes using indicator	UN MDGs, CMS
Related Links	▪ BIP Indicator: Red List Index

Biodiversity Indicators Partnership

- CBD-mandated collaboration

- Over 40 organizations working globally

- Secretariat based at UNEP-WCMC

- Promoting the development and delivery of indicators at the global, regional and national levels
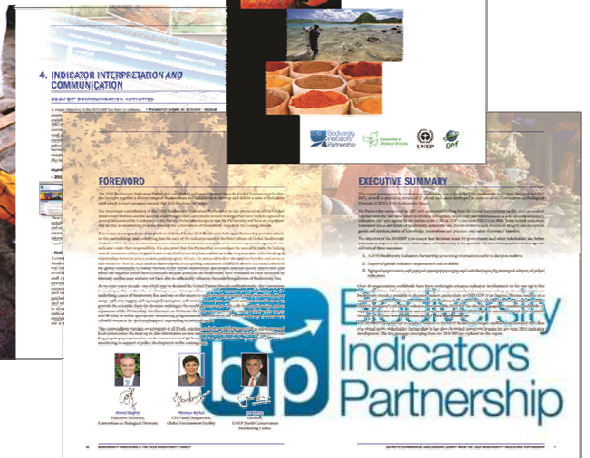
Global Indicator Work

Global Biodiversity Outlook 3

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Policy **RESPONSES**

Responses reduce pressures

PRESSURES upon biodiversity

Benefits generate support for effective responses

Less pressure helps biodiversity to recover

Enhanced biodiversity delivers more benefits

BENEFITS from biodiversity

STATE of biodiversity

CBD Technical Series No. 53

Global Biodiversity: Indicators of Recent Declines

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In 2002, world leaders committed, through the Convention on Biological Diversity, to achieve a significant reduction in the rate of biodiversity loss by 2010. We compiled 31 indicators to report

Butchart et al (2010) *Science* **328: 1164-8**

Biodiversity **Indicators Partnership**

National and Regional Work

To date the BIP has worked with over **60 countries** in **7 regions**

- **Workshops 2012-13:** Series of Capacity Building Workshops: in Francophone Africa, South/South East Asia, Eastern Europe and South America

- **"Training of Facilitators'** Programme Launched: ~20 'Biodiversity Indicator Development Facilitators' will be trained to facilitate effective indicator development workshops in their country/region.

- BIP Participation in **CBD Regional NBSAP capacity-building workshops**

Biodiversity Indicators Partnership

National and Regional Work

Find an Indicator Facilitator in your region

http://www.bipnational.net/GetInvolved/FindaFacilitator#sasia

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BIP Resources for National Indicator Development

- Framework to assist indicator developers

- Series of guidance materials and indicator factsheets

- Forthcoming e-learning module

- Technical support provided to practitioners involved in indicator use/development and NBSAP updating

- **info@bipindicators.net**
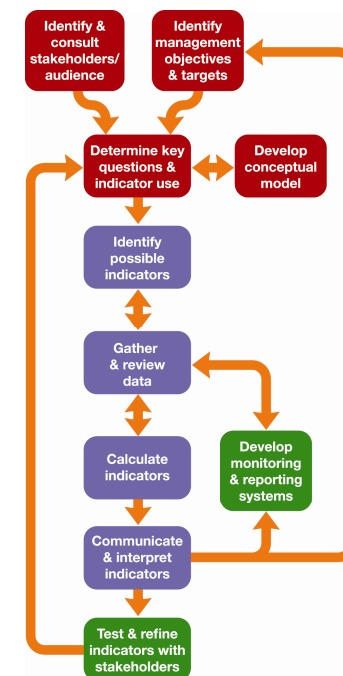
BIP Resources for National Indicator Development

BIP National Website:

- 'Toolkit for indicator developers' containing all guidance materials, e-learning, national publications, FAQ, factsheets...

- Profiles of national and regional initiatives

- Online 'Community of Practice' to share lessons learnt and experiences, to offer and seek support

- Forthcoming portal for connecting with other practitioners

- Forthcoming e-learning module

www.bipnational.net

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