



Convention on  
Biological Diversity

# Monitoring Implementation and Indicators

Regional Workshop on the preparation  
of the Fifth National Report,  
Global Biodiversity Outlook and  
regional policy scenarios  
Nairobi, Kenya  
28 January – 1 February 2013



**United Nations Decade on Biodiversity**

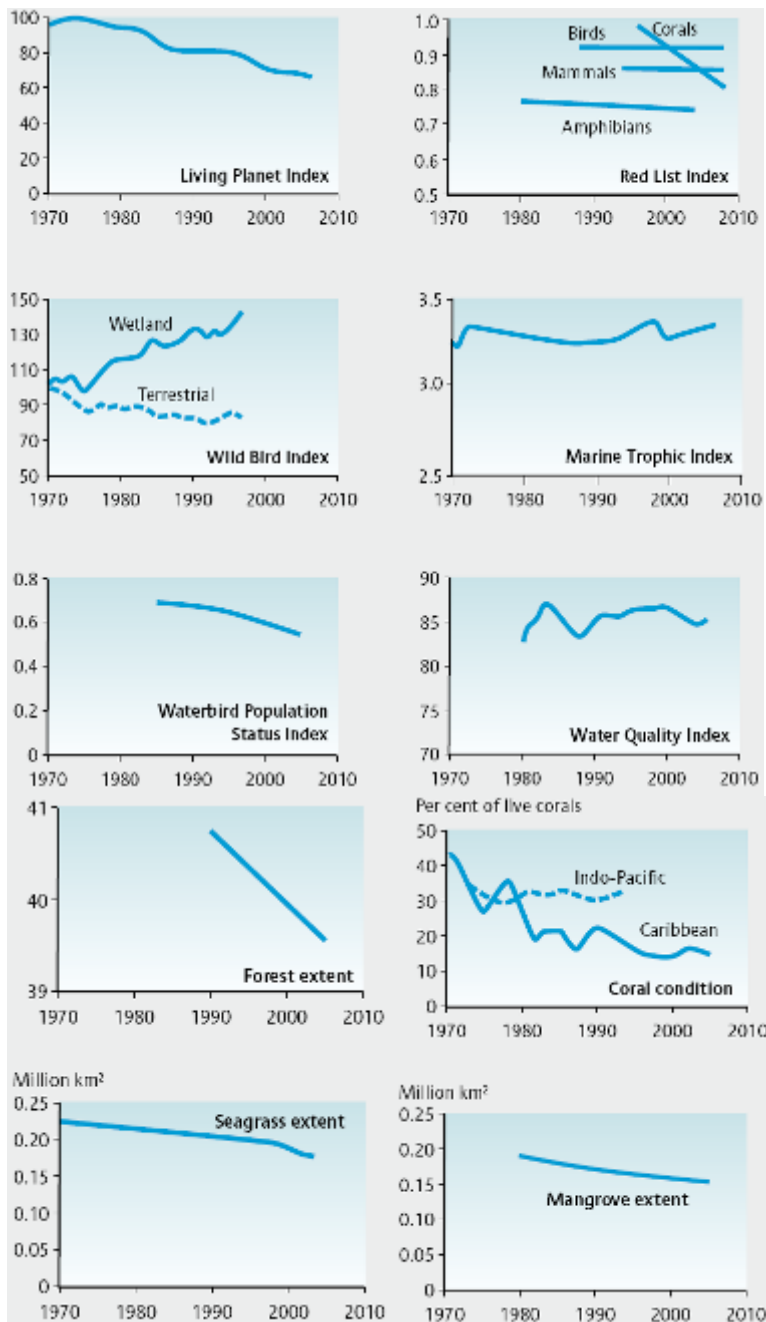
# What is an indicator?

- Indicators refer to measures which tell us what is happening to biodiversity
- Indicators are useful for:
  - Tracking and monitoring progress
  - Guiding policy development of implementation
  - Highlight where action is needed
  - Communicating with stakeholders

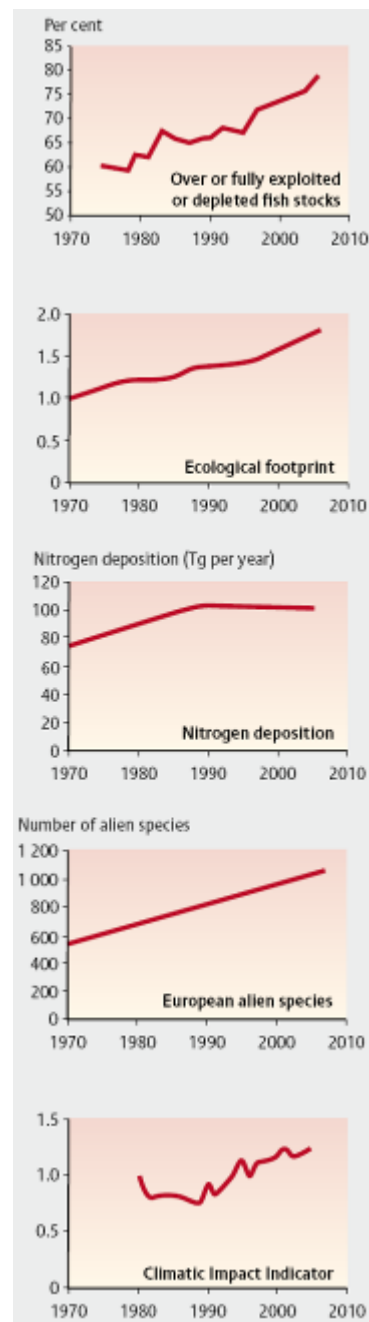
# What is an indicator?

- 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)

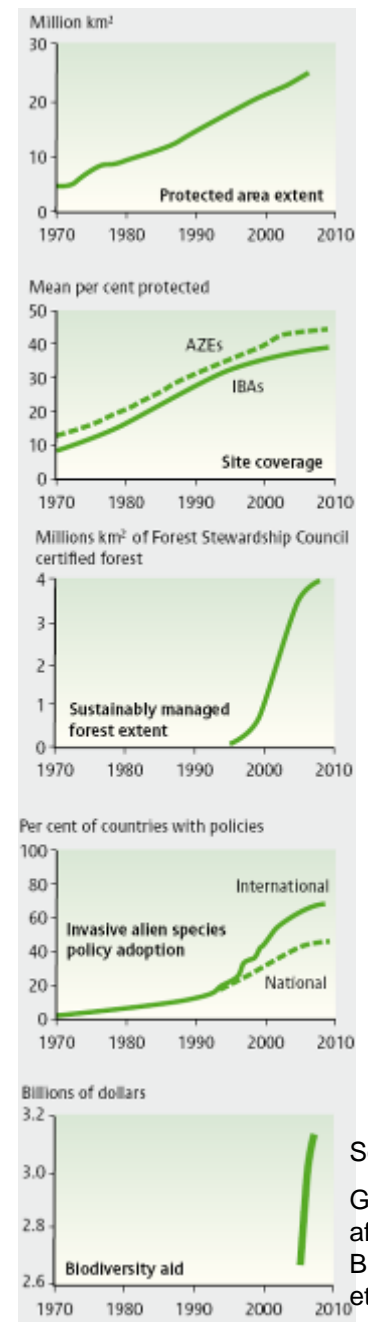
# State



# Pressure

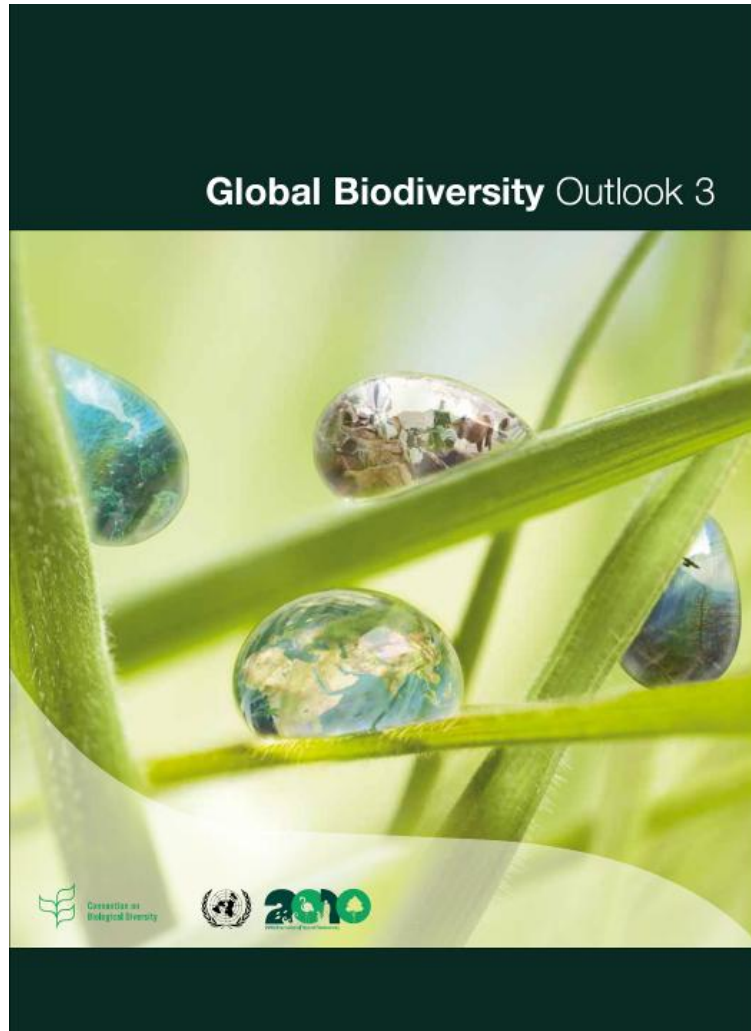


# Response

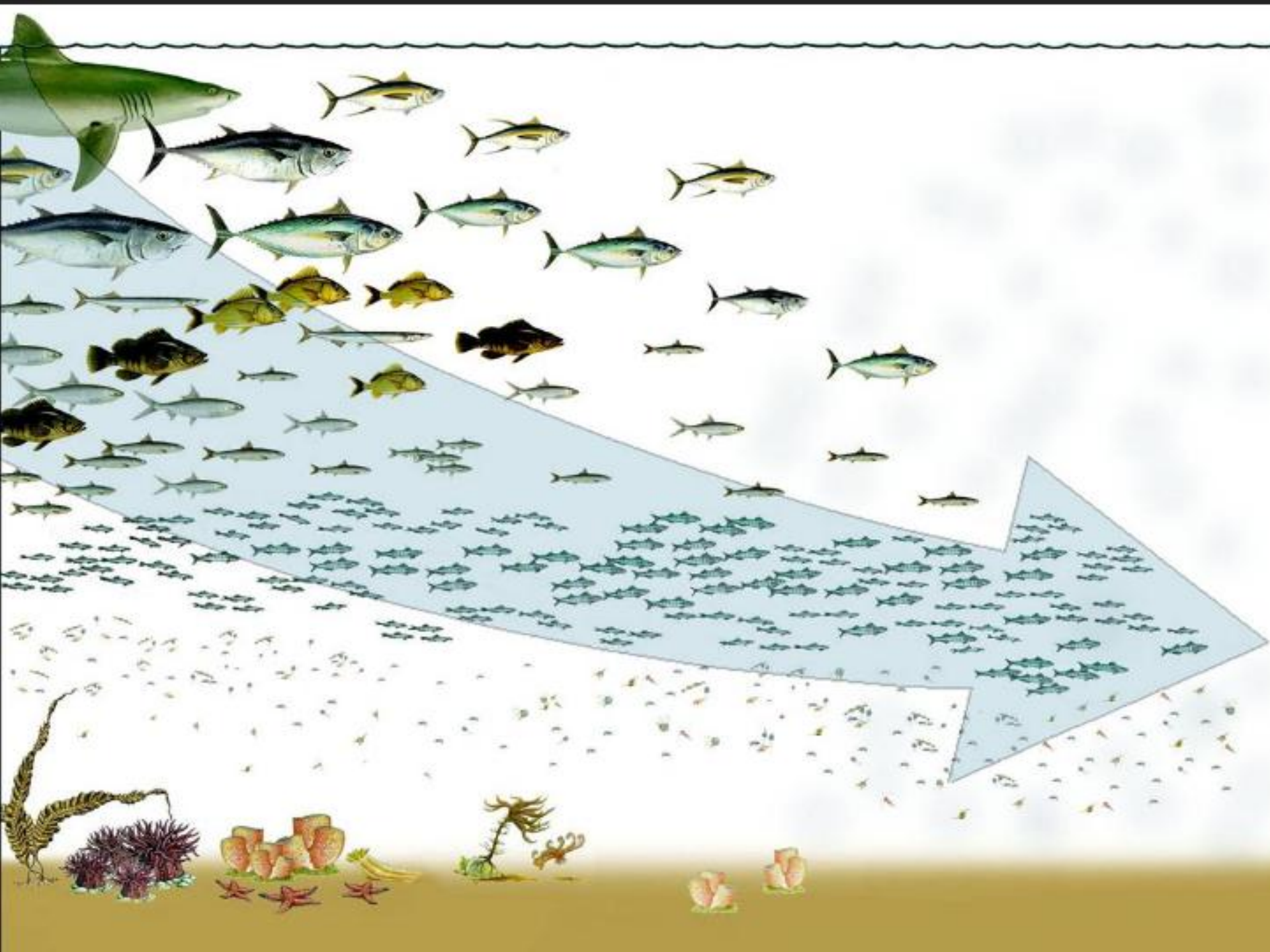


Source:  
GBO-3,  
after  
Butchart  
et al 2010

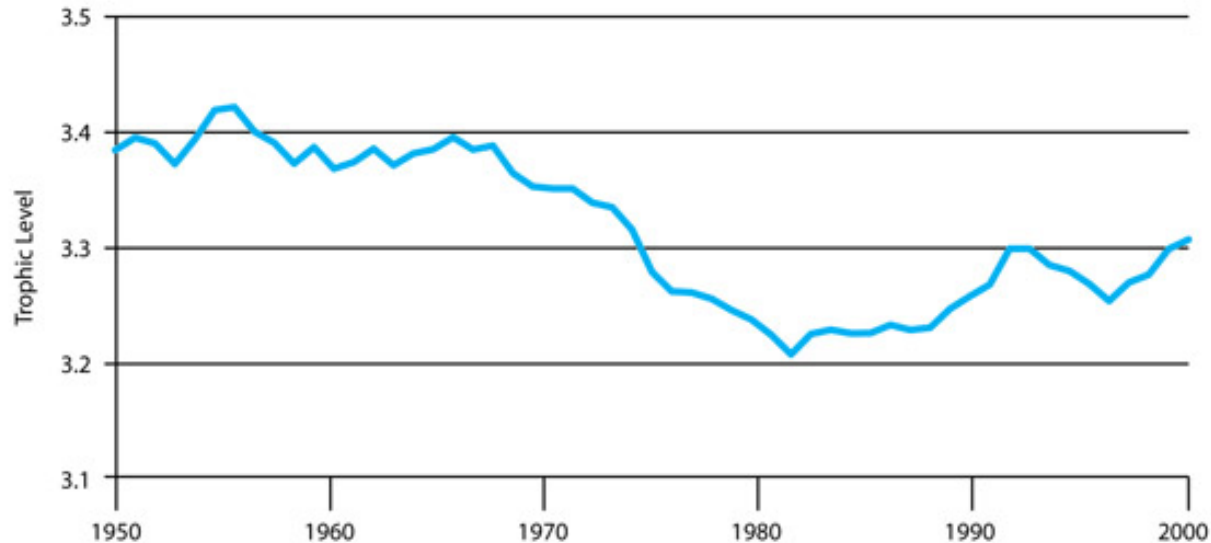
# What is an indicator?



“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.”



## The Indicator



### 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 trophic 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?

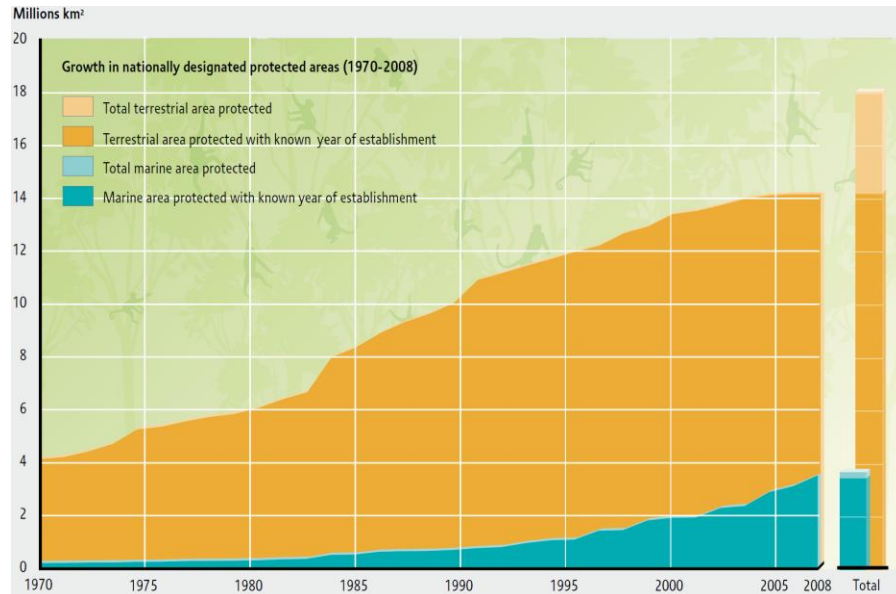
- Based on a clear measure of biodiversity (scientifically valid)
- Has a clear baseline or starting year and a clearly defined scale (habitat, biome, country, eco-region, etc.)
- Based on available data
- Responsive to change in issue of interest
- Easily understandable
- Relevant to user's needs
-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

# Types of indicators

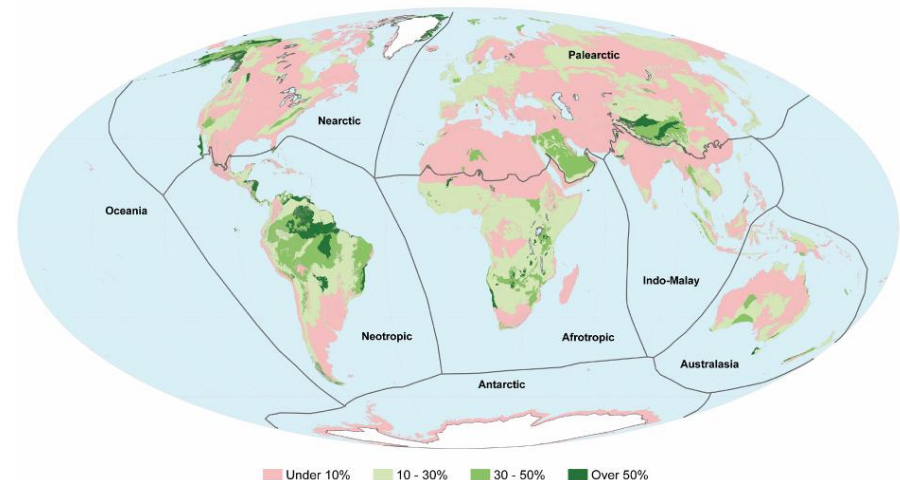
There are different types of indicators:

Quantitative

Temporal

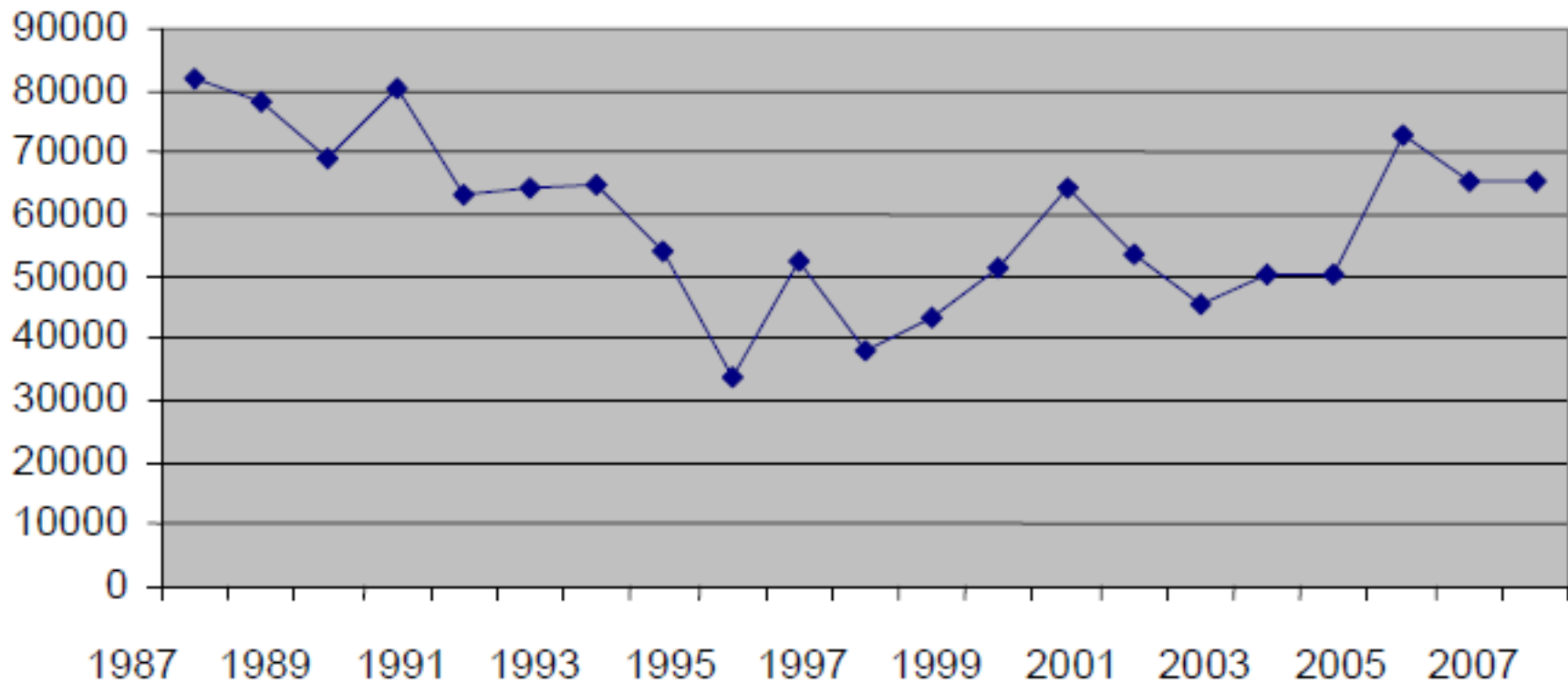


Spatial

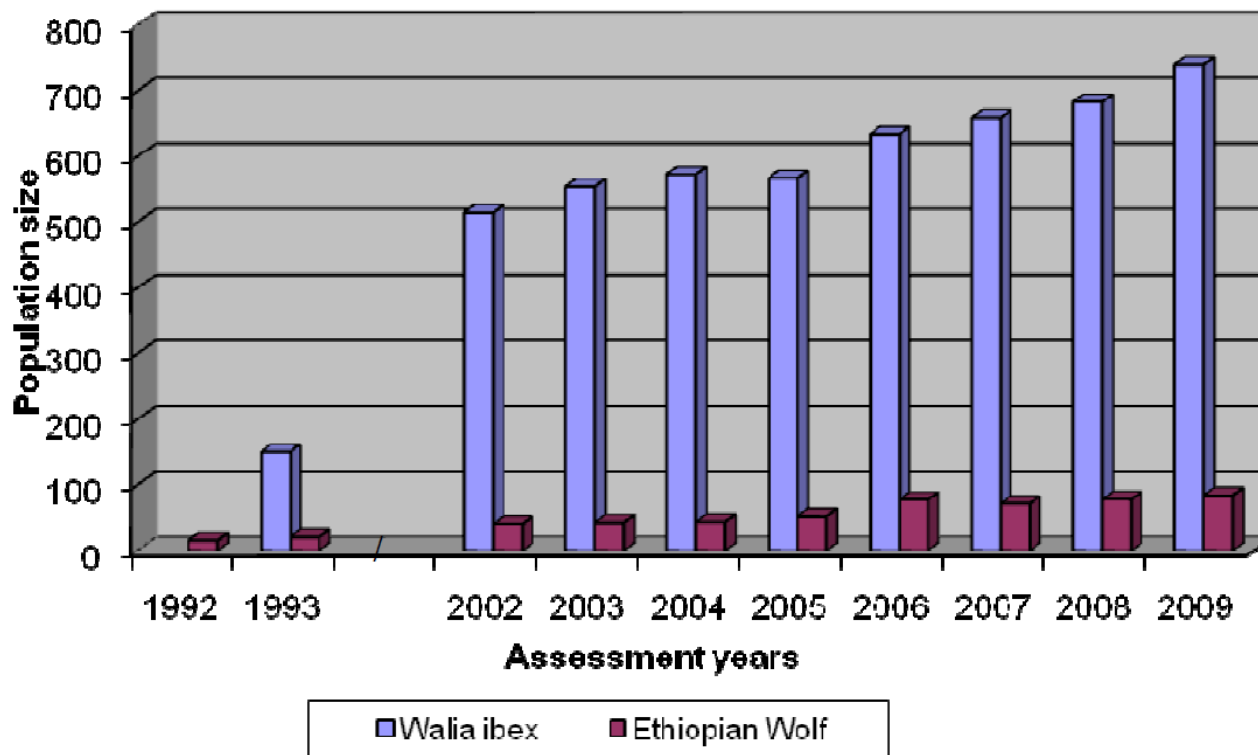


# Types of indicators

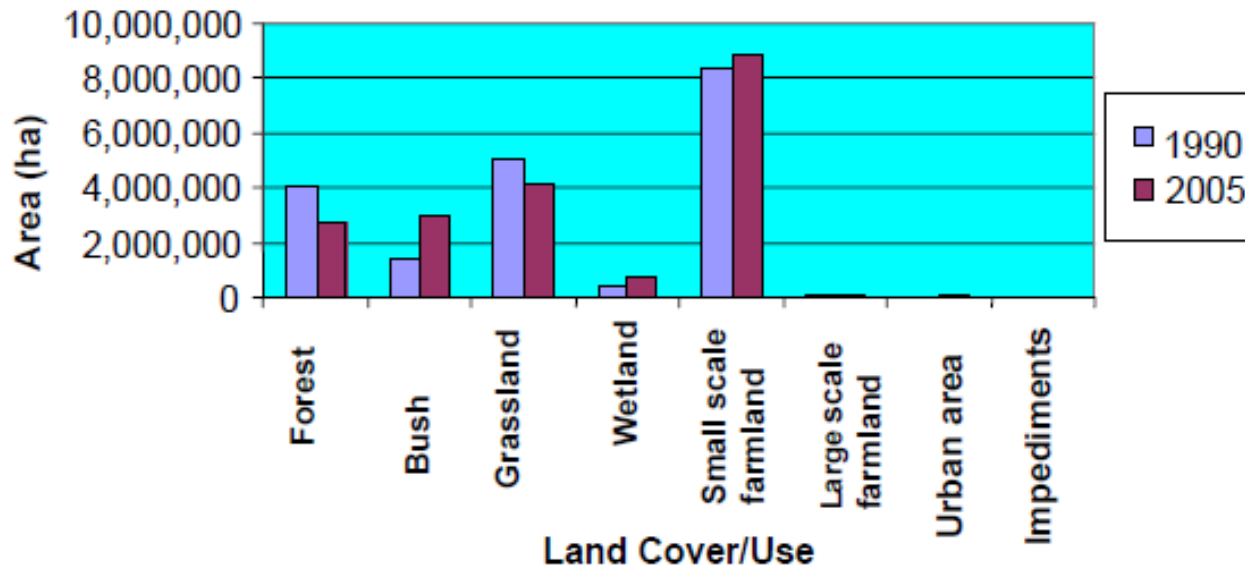
## Malawi – Trends in fish Production



# Types of indicators



# Types of indicators



# 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

# Types of indicators

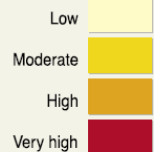
		Habitat change	Climate change	Invasive species	Over-exploitation	Pollution (nitrogen, phosphorus)
Forest	Boreal	↗	↑	↗	→	↑
	Temperate	↘	↑	↑	→	↑
	Tropical	↑	↑	↑	↗	↑
Dryland	Temperate grassland	↗	↑	→	→	↑
	Mediterranean	↗	↑	↑	→	↑
	Tropical grassland and savanna	↗	↑	↑	↘	↑
	Desert	→	↑	→	→	↑
Inland water		↑	↑	↑	→	↑
Coastal		↗	↑	↗	↗	↑
Marine		↑	↑	→	↗	↑
Island		→	↑	→	→	↑
Mountain		→	↑	→	→	↑
Polar		↗	↑	→	↗	↑

## Qualitative

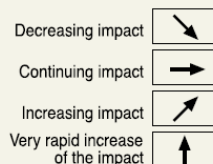
Based on expert opinion, judgment consultation and anecdotal information

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

Driver's impact on biodiversity over the last century



Driver's current trends



Source: Millennium Ecosystem Assessment

# 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

	<p><b>1.1: At least 10% of each of the world's ecological regions effectively conserved.</b></p>	<p>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.</p>
	<p><b>1.2: Areas of particular importance to biodiversity protected.</b></p>	<p>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.</p>

## Goal 2. Promote the conservation of species diversity

	<p><b>2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups.</b></p>	<p>Not achieved globally as many species continue to decline in abundance and distribution. However, some efforts have resulted in the recovery of targeted species.</p>
	<p><b>2.2: Status of threatened species improved.</b></p>	<p>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.</p>






## Goal 3. Promote the conservation of genetic diversity

	<p><b>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.</b></p>	<p>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.</p>
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# 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

	<p>Trends in extent of selected biomes, ecosystems, and habitats</p>	<p>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.</p> <p>❁❁</p>
	<p>Trends in abundance and distribution of selected species</p>	<p>Most species with limited population size and distribution are being further reduced, while some common and invasive species become more common.</p> <p>❁❁❁ (but limited number of taxa assessed)</p>
	<p>Change in status of threatened species</p>	<p>The risk of extinction increases for many threatened species, although some species recovery programmes have been very successful.</p> <p>❁❁❁ (for those species assessed)</p>
	<p>Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance</p>	<p>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.</p> <p>❁ (although many case studies with a high degree of certainty are available)</p>
	<p>Coverage of protected areas</p>	<p>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.</p> <p>❁❁❁</p>

# Relevant Decisions

## 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...

# 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**)

# Indicator Framework

## Target 5

Habitat loss is reduced

### **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)

### **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/>



Global Workshop (Brasilia, March 2012)



> Convention > Strategic Plan 2011-2020 > Indicators

Key Elements

Aichi Biodiversity Targets

Implementation

Indicators

Quick Guides for Aichi Targets

Other useful resources

Meetings and Documents

Briefing Sessions

Notifications

Inputs for revising and updating the Strategic Plan 2002-2010

**UN Decade on Biodiversity**

## Strategic Plan Indicators

In [recommendation XV/1](#) the Subsidiary Body on Scientific, Technical and Technological Advice took note of an indicative list of indicators identified by the [Ad Hoc Technical Expert Group \(AHTEG\) on Indicators for the Strategic Plan for Biodiversity 2011 - 2020](#). The indicators identified by the AHTEG have been compiled in the database below to facilitate their use. Indicators for the Strategic Plan for Biodiversity 2011-2020 will be further discussed during the [eleventh meeting of the Conference of the Parties](#).

SBSTTA welcomed this database in [recommendation XV/1](#) and requests that it be further developed, maintained, and periodically updated, with a view to maximizing its usefulness to Parties and other stakeholders, in collaboration with the [Biodiversity Indicators Partnership](#) and other relevant partners.

Please note that the wordings of the Strategic Goals and of the Aichi Biodiversity Targets have been shortened for reasons of readability. The official wording can be found in [decision X/2](#).

We would be grateful to receive any comments or ideas for how the database could be improved. Please send any comments to [secretariat@cbd.int](mailto:secretariat@cbd.int).

Strategic Goal

<All>

Aichi Biodiversity Targets

<All>

Keyword

[Advanced Search](#)

Search

# Indicator Framework

35 record(s) found

<<|1|2|>>

Headline Indicator(s)	Operational Indicator(s)
<b>Most relevant indicators</b>	
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
<b>Other relevant indicators</b>	
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

 > [Convention](#) > [Strategic Plan 2011-2020](#) > [Indicators](#) > [Factsheet](#)

## 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 RLs). 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	<ul style="list-style-type: none"> <li>■ <a href="#">BIP Indicator: Red List Index</a></li> </ul>



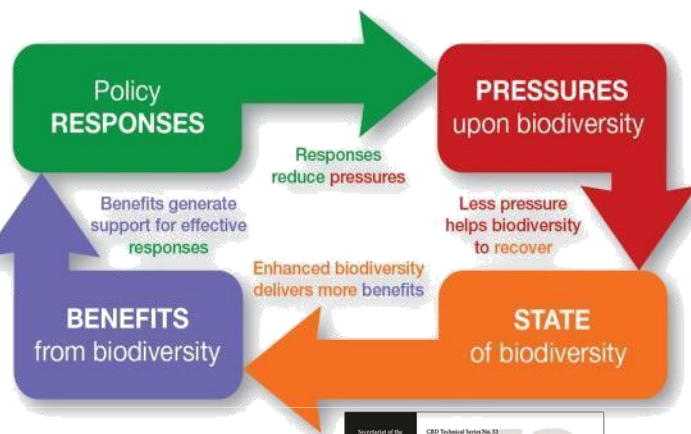
# Biodiversity Indicators Partnership

- 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

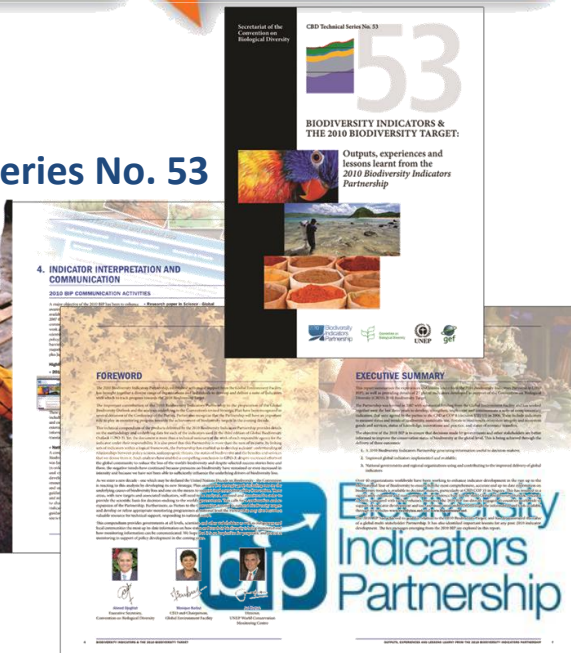


## Global Biodiversity: Indicators of Recent Declines

Stuart H. M. Butchart,<sup>1,2\*</sup> Matt Walpole,<sup>1</sup> Ben Collen,<sup>3</sup> Arco van Strien,<sup>4</sup> Jörn P. W. Scharlemann,<sup>2</sup> Rosamunde E. A. Almond,<sup>1</sup> Jonathan E. M. Baillie,<sup>3</sup> Bastian Bomhard,<sup>1</sup> Claire Brown,<sup>1</sup> John Bruno,<sup>5</sup> Kent E. Carpenter,<sup>6</sup> Geneviève M. Carr,<sup>7†</sup> Janice Chanson,<sup>8</sup> Anna M. Chenery,<sup>1</sup> Jorge Csirke,<sup>9</sup> Nick C. Davidson,<sup>10</sup> Frank Dentener,<sup>11</sup> Matt Foster,<sup>12</sup> Alessandro Galli,<sup>13</sup> James N. Galloway,<sup>14</sup> Piero Genovesi,<sup>15</sup> Richard D. Gregory,<sup>16</sup> Marc Hockings,<sup>17</sup> Valerie Kapos,<sup>1,18</sup> Jean-Francois Lamarque,<sup>19</sup> Fiona Leverington,<sup>17</sup> Jonathan Loh,<sup>20</sup> Melodie A. McGeoch,<sup>21</sup> Louise McRae,<sup>3</sup> Anahit Minasyan,<sup>22</sup> Monica Hernández Morcillo,<sup>3</sup> Thomasina E. E. Oldfield,<sup>23</sup> Daniel Pauly,<sup>24</sup> Suhel Quader,<sup>25</sup> Carmen Revenga,<sup>26</sup> John R. Sauer,<sup>27</sup> Benjamin Skolnik,<sup>28</sup> Dian Spear,<sup>29</sup> Damon Stanwell-Smith,<sup>3</sup> Simon N. Stuart,<sup>1,12,30,31</sup> Andy Symes,<sup>2</sup> Megan Tierney,<sup>1</sup> Tristan D. Tyrrell,<sup>1</sup> Jean-Christophe Vié,<sup>32</sup> Reg Watson<sup>24</sup>

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

## CBD Technical Series No. 53



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



# 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

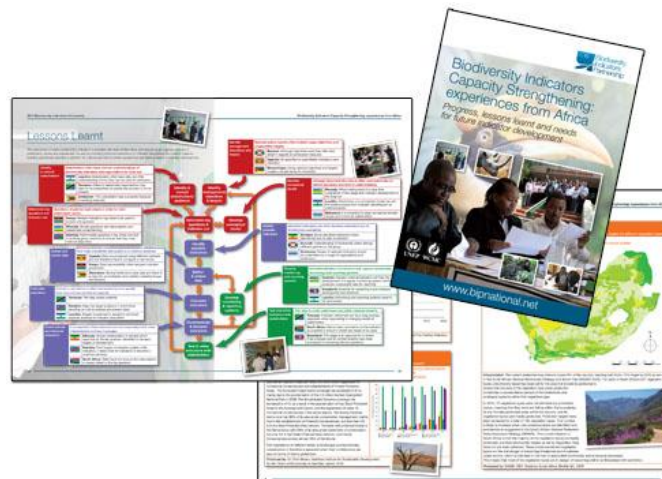
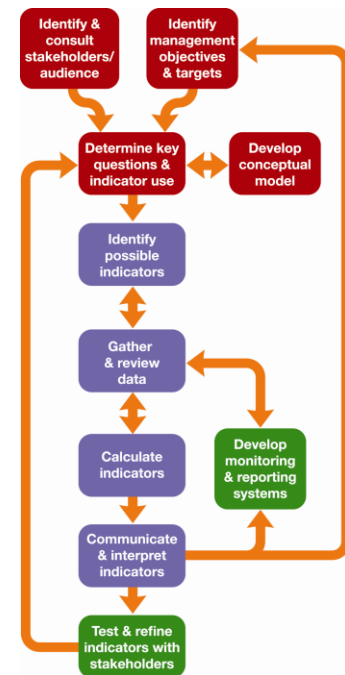
- '**Training of Facilitators**' Programme Launched: ~20 'Biodiversity Indicator Development Facilitators' will be trained to facilitate effective indicator development workshops in their country/region. Now open for applications!

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



# 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](mailto: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
- Restructured website to be launched February 2013

