

Biodiversity and Biosafety

An Introduction

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Advancing the Understanding of Biosafety
GMO Risk Assessment, Independent Biosafety Research and
Holistic Analysis
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Convention on Biological Diversity (CBD)

Signed at the Earth Summit in Rio in 1992

Came into force in 1993

- 192 countries and the European Union are Parties to this Convention
- They normally meet every second year at **C**onferences **o**f the **P**arties (COP) to decide on matters arising out of their common obligations under the Convention.

The Convention has three Objectives:

1. **Conservation** of Biological Diversity
2. **Sustainable Use** of its Components
3. **Fair and Equitable Sharing of Benefits** arising out of the Utilization of Genetic Resources

Holistic Approach: All three Objectives are interrelated.

Link to Rio-Process

Subsidiarity

Prevention

Precautionary Principle

Polluter Pays Principle

Timely Public Information, Effective Public Participation
and Affordable Access to Justice (Principle 10 Rio)

Technology Assessment including case-by-case Risk Assessment

Environment, Human Rights and Justice have to go
Hand in Hand

For a Benign Common Future

Late Lessons from early warnings

**– the precautionary principle
1896-2000**

Authors: P. Harremoes, D. Gee, M. MacGarvin, A. Stirling,
J. Keys, B. Wynne, S. Guedes Vaz
Environmental Issue Report No 22 =1/2002, European
Environmental Agency, Luxemburg (2001)

Protocol Negotiations on the basis of Article 19, para 3, of the CBD were initiated at COP 2 in Jakarta, 1995

The text of the Protocol was finalized in Montreal, January 2000

The Protocol came into force in September 2003 (i.e. it had The sufficient number of countries that ratified.

Party in this context means countries that bound themselves to the obligations of the Protocol.

Unfortunately, it usually means hard work at consensus building and rarely any partying.

Learning from the Past:

Cartagena Protocol on Biosafety (CPB)

Signed in January 2000 after 6 years of negotiations

Came into force in September 2003

160 countries are Parties to this Protocol to the Convention on Biological Diversity

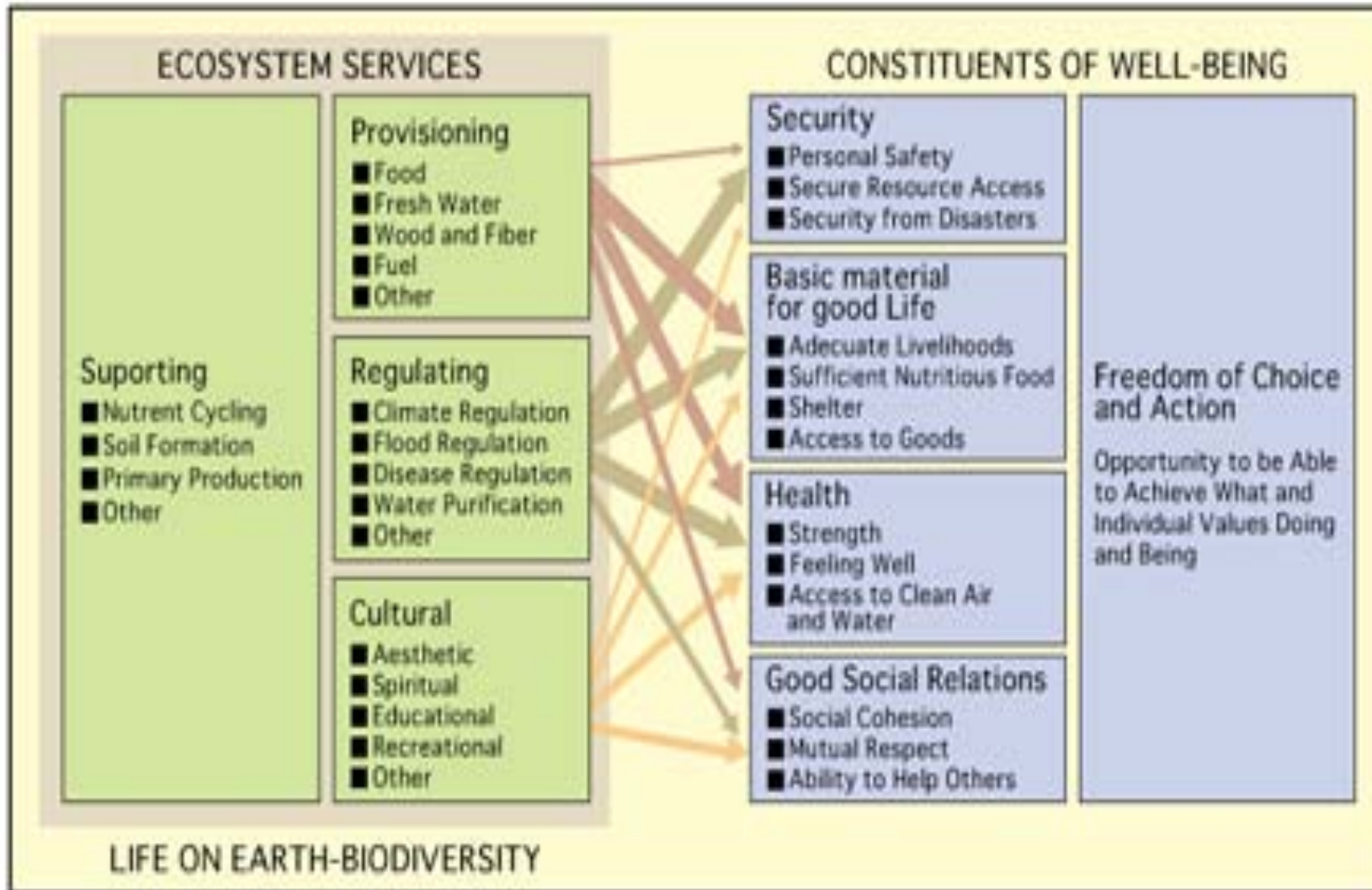
- 1. Addressing transfer, handling and use of genetically modified organisms (for historical reasons called „living modified organisms“ in the context of the Convention)**
- 2. Protecting against adverse effects on the conservation and sustainable use of biodiversity, taking also into account risks to human health**
- 3. Strongest Wording of the Precautionary Approach in MEAs**
- 4. Prior Informed Consent of Importing Country**
- 5. Technology Assessment**



- **Prevention, Precautionary Principle, Prior Informed Consent and Risk Assessment: Cartagena Protocol on Biosafety (2000/2003)**
- **Justice: Nagoya Protocol on Access and Benefit-sharing (2010)**
- **Polluter Pays Principle: Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress (2010)**

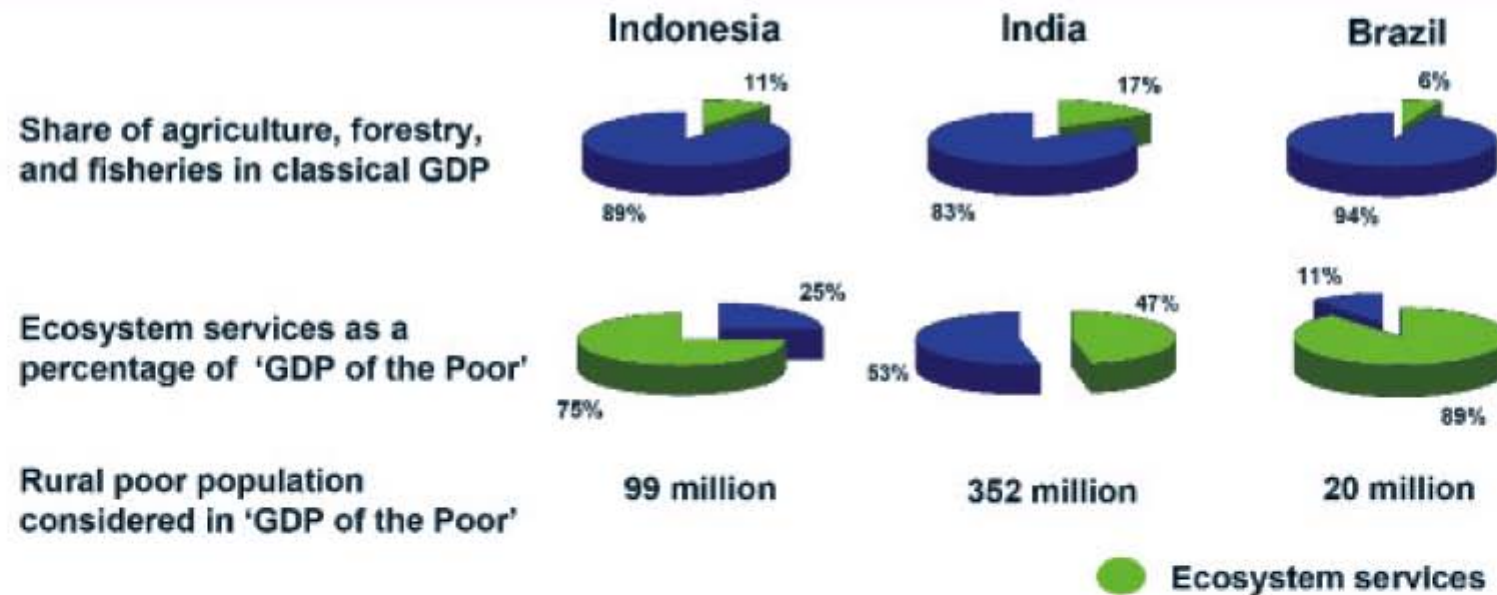
Website of the Convention www.cbd.int

**What services do ecosystems provide for human well-being?
They are the basis for our lives and livelihoods.**



Neither the State nor the formal Market but Ecosystems provide for the livelihoods of the Poor

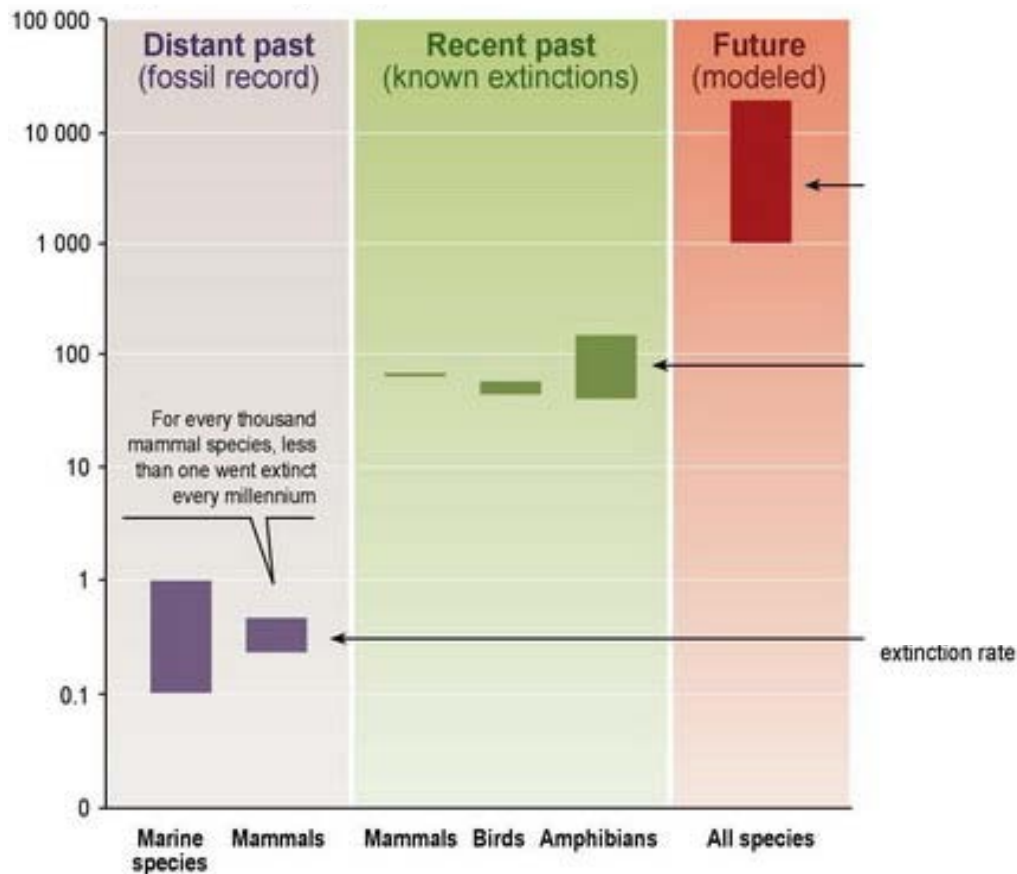
Figure 2: 'GDP of the poor': estimates for ecosystem service dependence



What do Humans do to Biodiversity?

Dramatic increase in extinction of species

How many of 1000 species are lost in 1000 years?

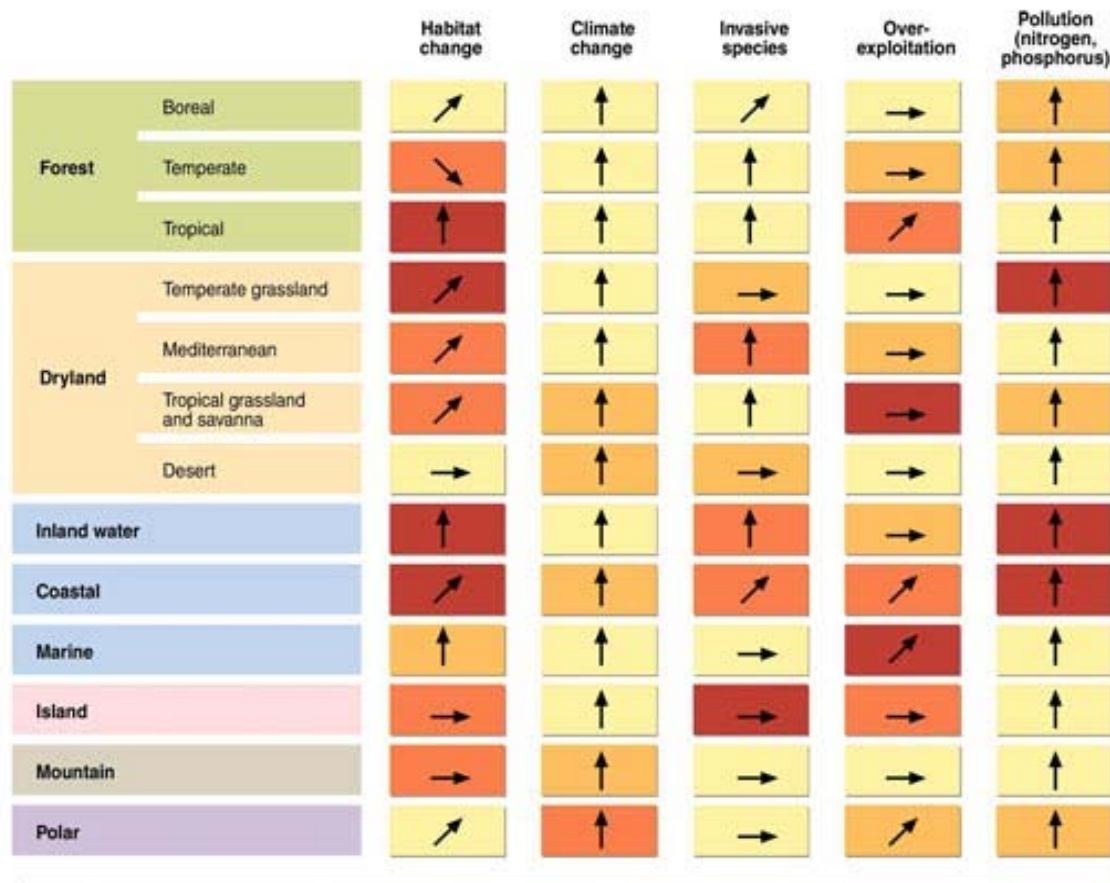


Future extinction rate (without dramatic measures to halt the loss): 10 times the current extinction rate

Current extinction rate: 100 to 1000 times higher

Long term average extinction rate: Less than one

Source: Millennium Ecosystem Assessment

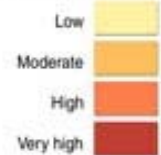


**Also dramatic:
Drivers of
biodiversity loss,
Past impacts on
Ecosystems and
actual trends:**

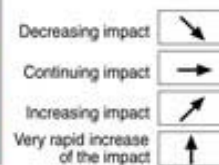
Dangerous past is colored in red, dangerous future is marked with arrows pointing to an increase

RESULT OF PAST EVOLUTION | WHAT HAPPENS TODAY

Driver's impact on biodiversity over the last century



Driver's actual trends



Source: Millennium Ecosystem Assessment

Genetic Engineering and the impact of its results

must not pose additional risks,

- neither by further reducing the ability of ecosystems to provide for human well-being
- nor further increasing the frightening rate of biodiversity loss.

- Risks to human health are part and parcel of such an integrated assessment

Producing new transgenes is faster and easier and requires a much narrower spectrum of expertise.

The wider scientific challenges lie with biosafety and also produce relevant information for the science-policy interface.



Hammock versus Tight Rope

A holistic approach paying due regard the network of ecosystems and to the complex links between humans, their socio-economic conditions and biodiversity is more sustainable and definitely more comfortable.