



Agriculture and Development Seminar Series
(ADSS)

Values and Economics

-

new paradigms in
biodiversity and
ecosystem conservation

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Food for thought

Did you know that over the millennia, humans have relied on more than 10,000 different plant species for food? Today, however, we have barely 150 species under cultivation. Of these, only 12 species provide 80% of all our food needs and only 4 - rice, wheat, maize and potatoes - provide more than half of our energy requirements. What happened to the 9,850 other species? If they have not been lost already, they are vulnerable. (FAO)

The ASEAN Centre for Biodiversity (ACB)

... is an intergovernmental centre of excellence that facilitates regional and global cooperation on the conservation and sustainable use of biodiversity. It is an autonomous entity of ASEAN and has its seat in Los Baños, Laguna, Philippines





The **Decade on Biodiversity** was established in at the 10th Conference of the Parties (COP10) of the UN Convention on Biological Diversity (CBD). This Convention is a product of the first Earth Summit in Rio de Janeiro, 1992, and has its Seat in Montreal, Canada.

The **CBD-COP10** was held in 2010 in Nagoya, Japan, and has established, as one of the key results, the 20 Aichi Targets on Biodiversity that form the basis for the Decade on Biodiversity.

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

- Target 1** By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
- Target 2** By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes, and are being incorporated into national accounting, as appropriate, and reporting systems.
- Target 3** By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.
- Target 4** By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

- Target 14** By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.
- Target 15** By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.
- Target 16** By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Biodiversity and Climate Change Project (BCCP)

... is the GIZ Module of a Programme, financed by the German Government, to support the ASEAN Centre for Biodiversity.

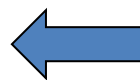
GIZ or German Society for International Cooperation is the technical cooperation arm of German Cooperation

Other German agencies like KfW Development Bank and Ministry for the Environment (BMU) also support ACB



german
cooperation

DEUTSCHE ZUSAMMENARBEIT



This is the new
cooperation logo



BCCP has 2 COMPONENTS:

Ecosystem Management



enhances the understanding
of the interrelations between
biodiversity and ecosystems

Biodiversity and Economy



supports policies and actions
for valuing biodiversity in the
context of ecosystem services

Get Closer: the Value of Biodiversity

Aichi Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Aichi Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes, and are being incorporated into national accounting, as appropriate, and reporting systems.

Biodiversity and Economy



supports policies and actions for valuing biodiversity in the context of ecosystem services

What is the value of biodiversity?

A complex issue as many if not most of the assets and benefits are not traded nor are many of them tradable



Q&A

what are benefits of biodiversity that would be of value to us mankind?

Q&A

What are Biodiversity or ecosystem services?

Coming closer: ecosystem services n°1: Watershed services

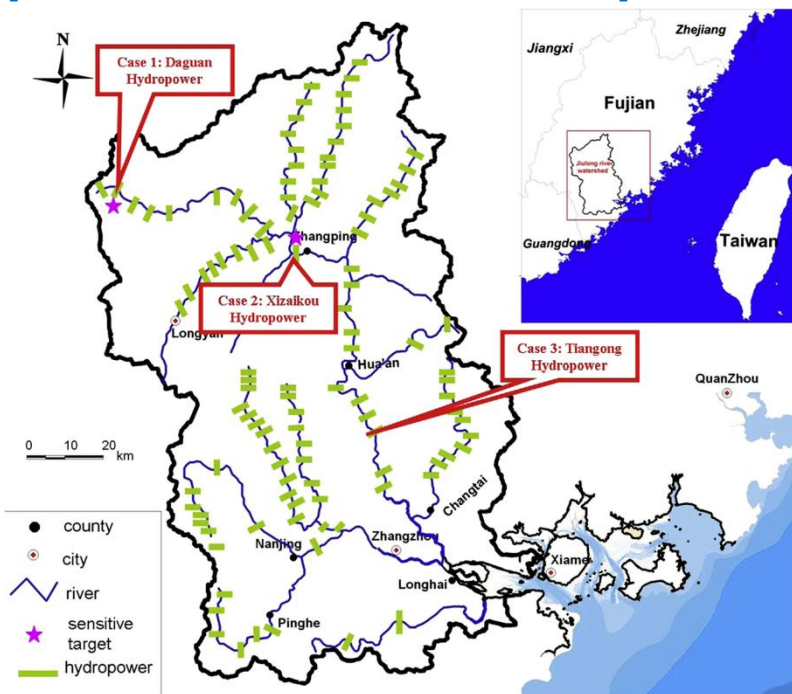
The cost of doing nothing. A hydropower plant might pay 10 times more for regularly cleaning their reservoirs from sediments, compared to the cost they would have to pay for farmers adapting their land use patterns to less erosive practices

Q&A

what other watershed related services do exist, and who would pay for them?

Q&A

What kind of ecosystem services do they provide?



Definition: Ecosystem Services are ...

„flows of value to human societies
as a result of the state and quantity of natural capital“

Different kinds of ecosystem services:

Provisioning Services – for example wild foods, crops, **fresh water** and plant derived materials

Regulating Services – for example **filtration of pollutants by wetlands**, climate regulation through carbon storage and **water cycling**, pollination and **protection from disasters**

Cultural Services – for example recreation, spiritual and aesthetic values, education

Supporting Services – for example soil formation, photosynthesis and nutrient cycling

Coming closer: ecosystem services n°2: Ecotourism

Ecotourism is oriented at several ecosystem services, particularly those related to Cultural Services, besides being a vehicle for creating awareness and funding for ecosystem conservation and management.

Q&A

what historic forms of ecotourism do you know?

Q&A

What kind of services does ecotourism provide?

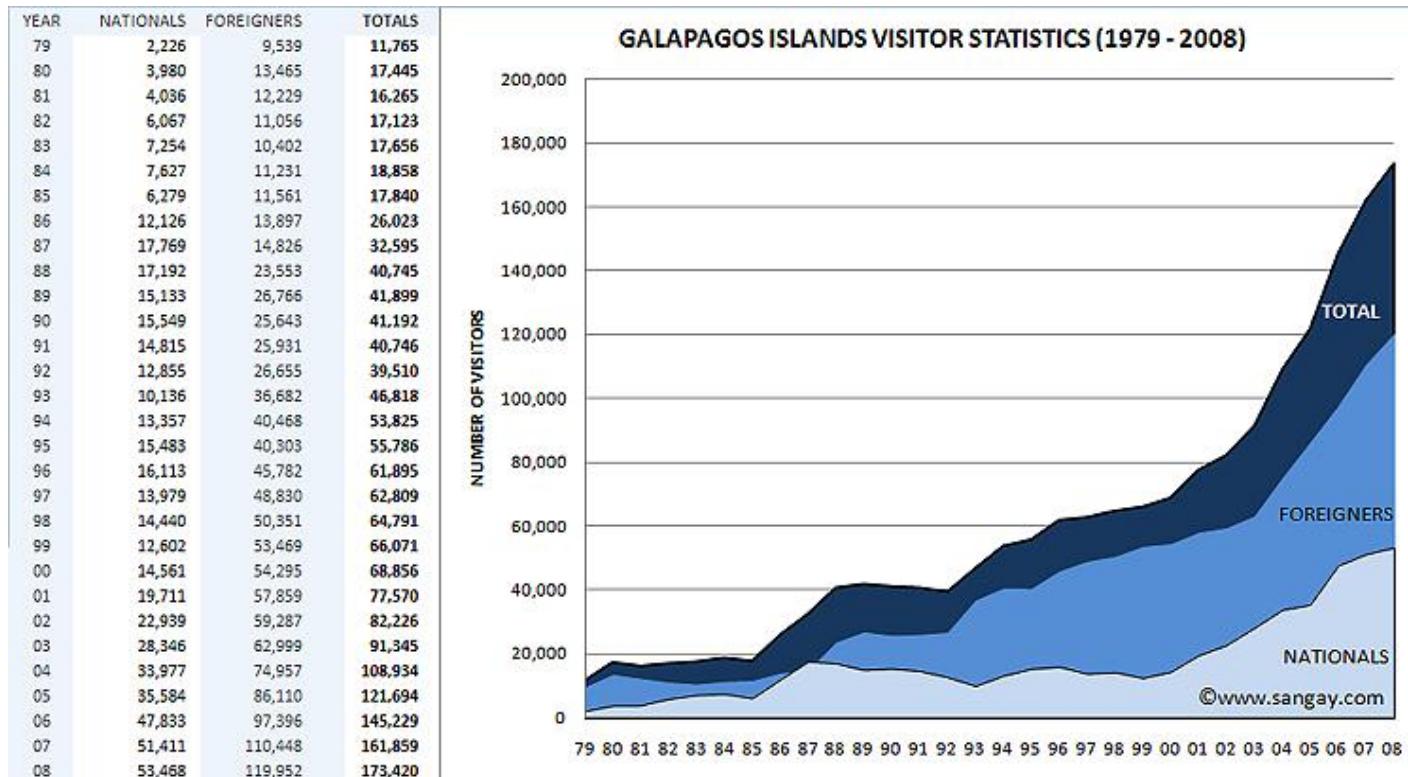
Q&A

Would you pay a higher price for ecotourism compared to regular tourism?



Memories of Wulong, China

Coming closer: ecosystem services n°2: Ecotourism



A prime protected area might generate funding for the entire National Integrated Protected Area System (NIPAS).

Methods:

Valuing Ecosystem Services – The case of Hydropower Development Effects

Economists apply various valuation methods to each Ecosystem Service

Provisioning Services: Water Supply

Municipal water supply: Shadow price method

Irrigation benefits: Shadow price method

Provisioning Services: Agriculture, Forestry

Food supply: Market value method

Aquaculture: Market value method

Forest production: Market value method

Provisioning Services: Shipping Industry

Shipping benefits: Market value method

Provisioning Services: Hydroelectric power

Hydroelectric power generation: Market value method

**Securing a Green Economy
through Ecosystem
Management**



Methods:

Valuing Ecosystem Services – The case of Hydropower Development Effects

Valuation methods to each Ecosystem Service – the second

Regulating Services: Flood regulation

Flood regulation benefits: Shadow price method

Regulating Services: Water regulation

Water flow break-up: Shadow price approach

Regulating Services: River transport

Reservoir sedimentation: Project restoration method

Land formation by sedimentation: Opportunity cost approach

Regulating Services: Soil conservation

Soil erosion: Project restoration method

Geological hazard: Project restoration method

Regulating Services: Environmental decontamination

River water quality: Shadow price approach

Regulation of local micro-climate: Shadow price approach



Methods:

Valuing Ecosystem Services – The case of Hydropower Development Effects

Valuation methods to each Ecosystem Service – the third

Cultural Services: Aesthetic value, tourism

Recreation and entertainment: Travel cost method

Cultural Services: Education and scientific research

Education and scientific research : Shadow price approach

Supporting Services: Primary production

Organic matter production: Market value method

CO₂ sequestration and O₂ release: Market value method

Q&A

Supporting Services: Nutrient cycle

Nutrients: -.-

Supporting Services: Habitat

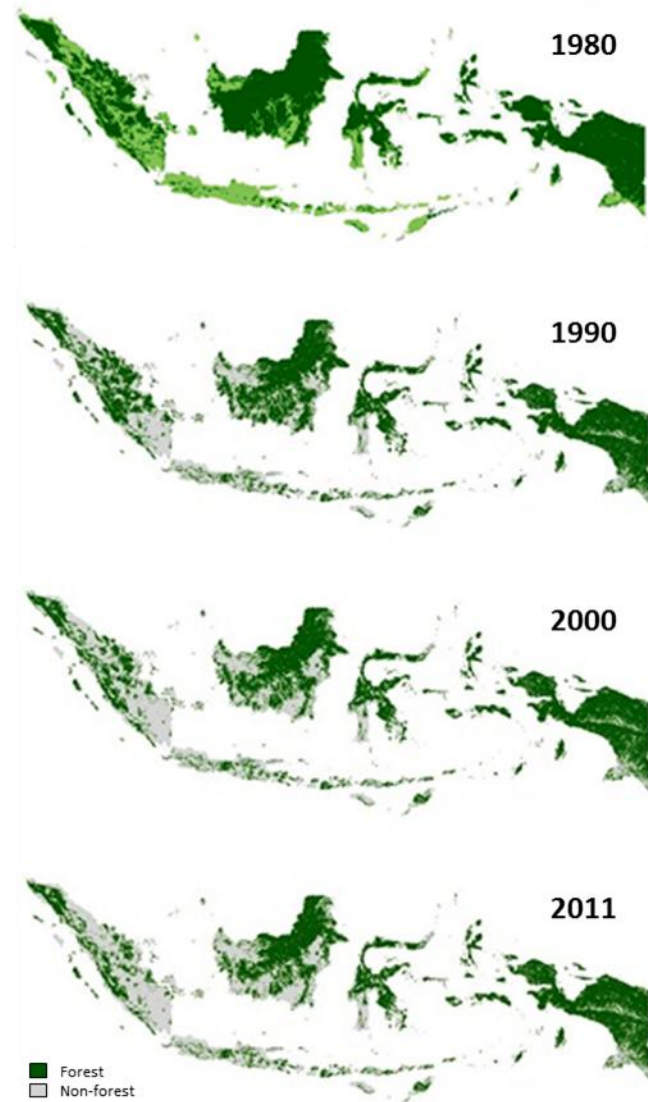
Biodiversity: Contingent valuation method

Are the effects positively or negatively related to the ecosystem services?

***Deforestation and Habitat Loss
are rampant, leading to
(i) widespread ecosystem
degradation and devaluation
(ii) impoverishment of the rural
societies
(iii) loss of biodiversity***

Nothing can be done about it.

NOTHING ?



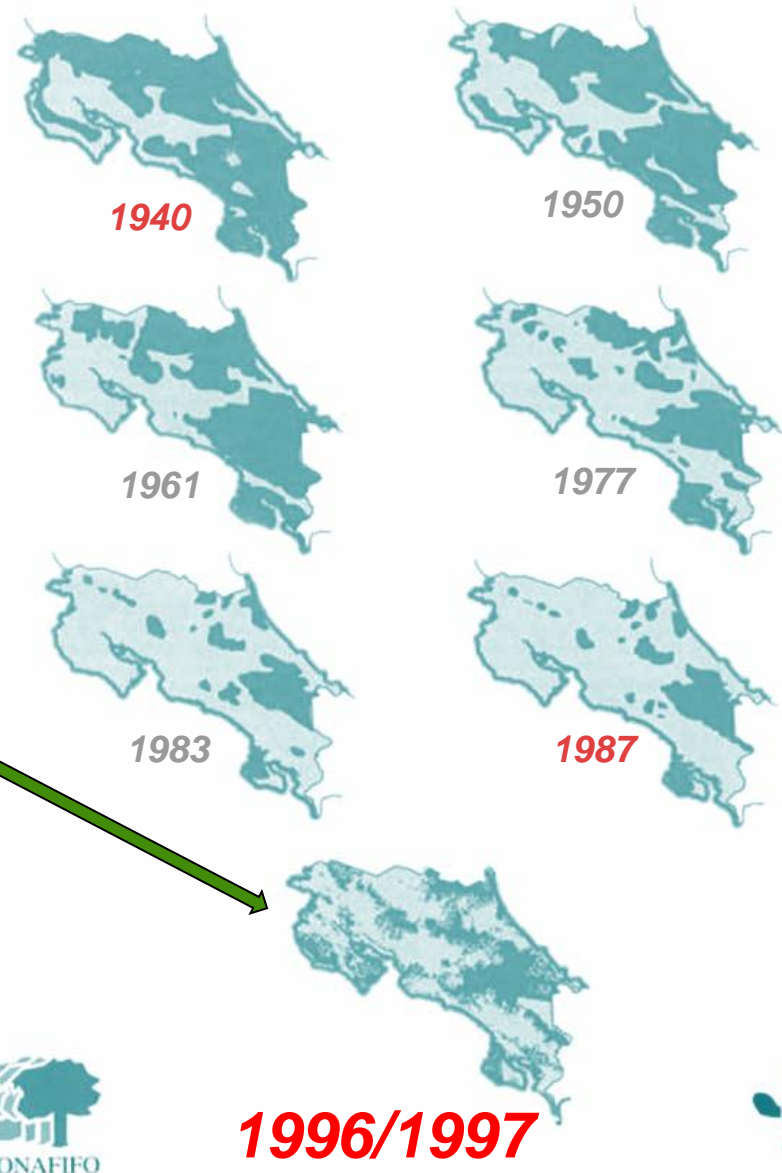
Synthesized and interpreted from the data of the Indonesian Ministry of Forestry

*Deforestation is
ongoing?*

Nothing can be done?

The best case
of reforestation
in Costa Rica after
1987 shows:

**GOOD GOVERNANCE
MAKES A
DIFFERENCE**





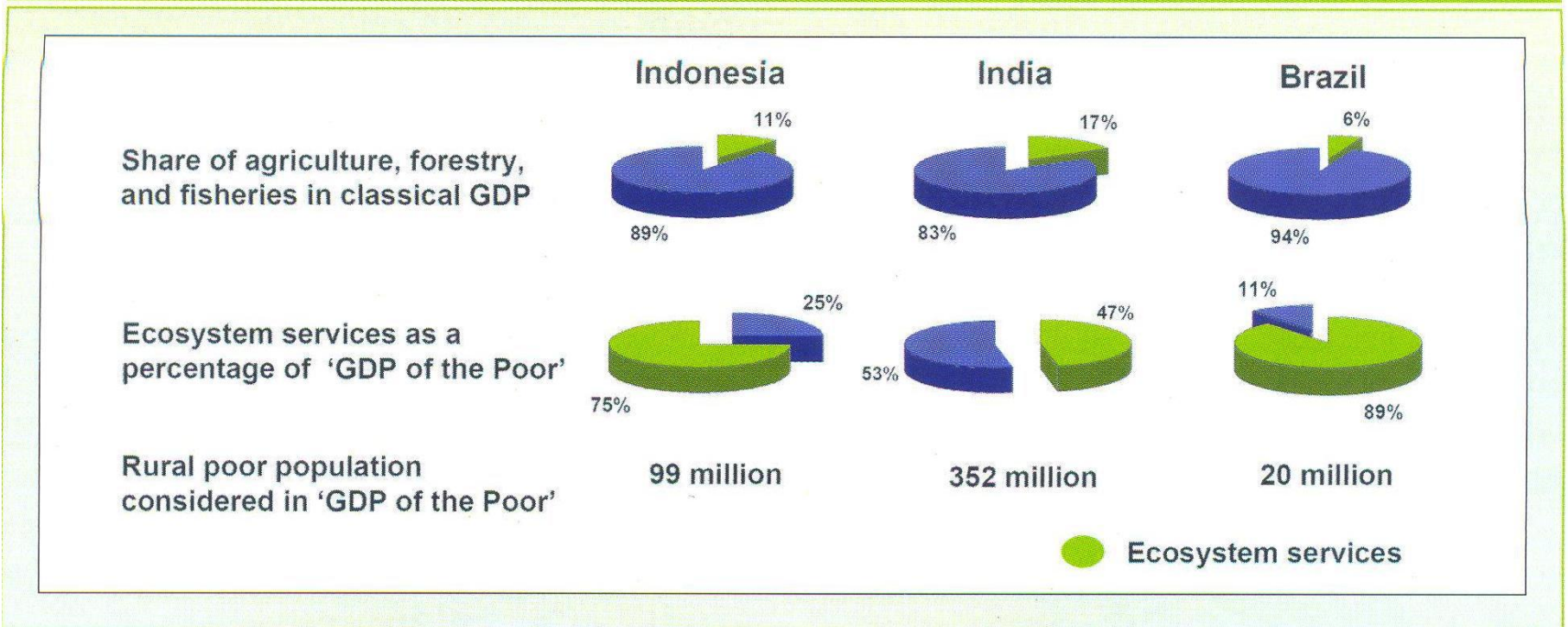
(press pictures from Bophal Cyclone, 2012)

Q&A

Why are the rural poor so much affected by the degradation of land and resources?

The GDP concept: how the poor segment of the population depends on the value generated by ecosystem services

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



Source: TEEB for National Policy, Chapter 3 [N3]

Biodiversity is more than species conservation

Biodiversity assets provide services and goods that form part of local and regional development

The integration of Biodiversity and ecosystem services into development planning is a challenging but necessary exercise

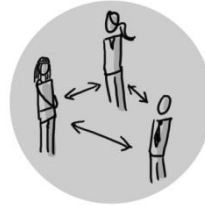
There is a need for new partnerships, governance and an orientation towards green economies

Q&A

What is behind the Integration of Biodiversity and Ecosystem Services into Development Planning ?

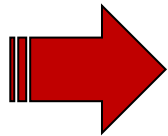
The Approach

Integrating ecosystem services
into development planning (IES)



The Essence

- Biodiversity is the basis of functioning ecosystems
- Development is linked to the availability of ecosystem services
- Development and economic activities can have negative impacts on ecosystems

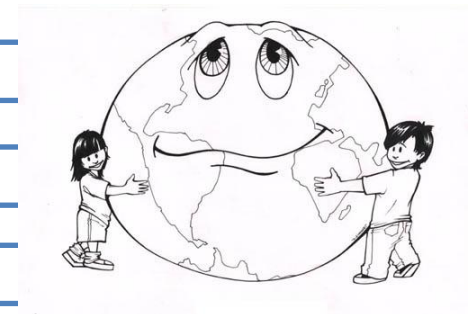


**In the framework of development planning and implementation:
HOW can we and our partners:**

Reduce the dependence of ecosystem services

Reduce negative impacts on ecosystems

Enhance quality and quantity (availability) of ecosystem services



- **Which Risks can we avoid?**
- **Which Opportunities can we use?**
- **How is the distribution of costs and benefits?**

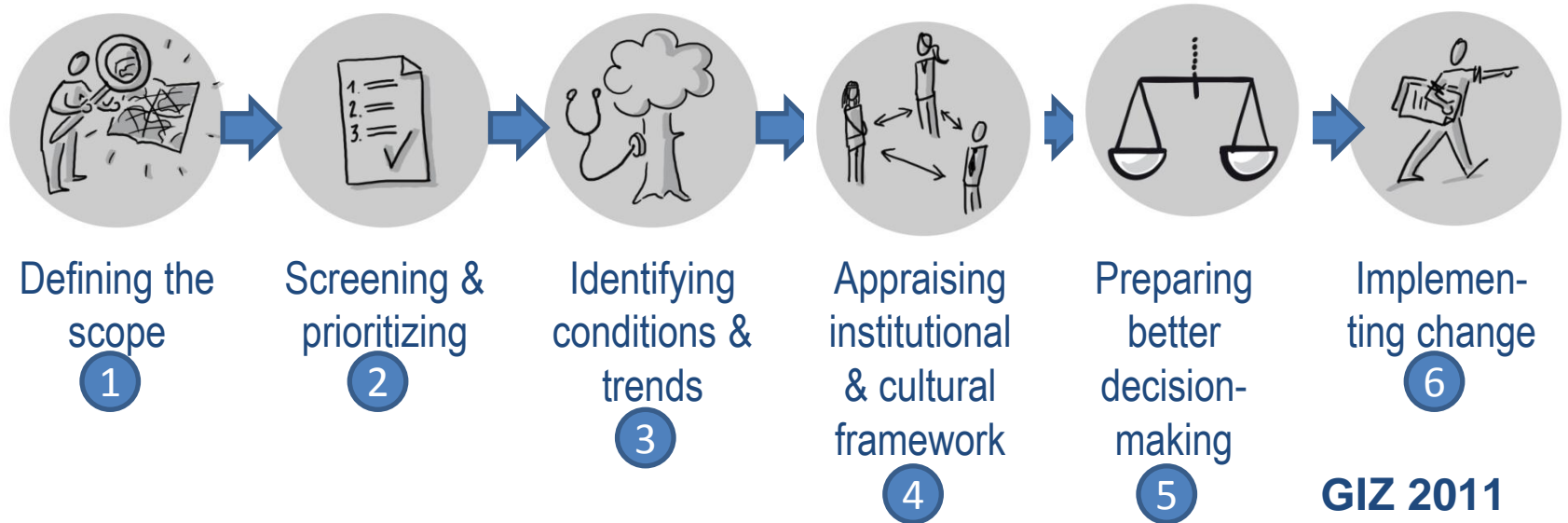
The IES Approach

- **What is IES?** A systematic, stepwise Approach to systematically evaluate and value Ecosystem Services and to integrate them in development processes.
- **What is the Objective?** (i) to visualise the dependence of development planning from ecosystem services; (ii) to visualise the impact of development on the availability of ecosystem services. (iii) Clarify risks and opportunities, identify, assess and implement alternatives.
- **When and where can the approach be used?** Design, Implementation, Monitoring and Evaluation of planning processes (e.g. regional development plans, spatial planning,..), projects and activities (Appraisal missions, project progress control, professional follow-up of ongoing projects, etc.)





IES: Stepwise approach for integrating ecosystem services into development planning



Recognise the value of Ecosystem Services

Describe the values of Ecosystem Services

Integrate the values of Ecosystem Services in decisions

We must reverse the common sense of exploitation of our environment into responsible and sustainable models of extraction and resource utilization



Name the challenge ...



... and provide solutions



Don't let him get away with the last tree without him planting 10

Thank you for your attention

Credit for pictures: EAS Expo 2012; Calendar Contest GIZ China 2003; Author

