



The TEEB study and its implications for development assistance

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Supporting nationally owned Green Economies to achieve the MDGs and respond to climate change

PEP 16, Vienna 16th-18th February 2011

Diplomatic Academy of Vienna, Favoritenstrasse 15a, 1040 Vienna



Rijksoverheid



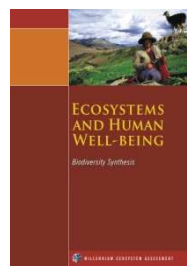
The Economics of Ecosystems & Biodiversity



TEEB's Genesis, Aims and progress

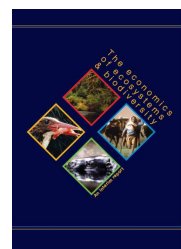
"Potsdam Initiative – Biological Diversity 2010"

- 1) The economic significance of the global loss of biological diversity
- Importance of recognising, demonstrating & responding to values of nature
- Engagement: ~500 authors, reviewers & cases from across the globe



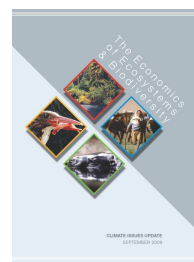
G8+5
Potsdam

Interim Report



CBD COP 9
Bonn 2008

Climate
Issues Update



Input to
UNFCCC 2009

TEEB End User
Reports Brussels
2009, London 2010



India, Brazil, Belgium,
Japan & South Africa
Sept. 2010

TEEB
Synthesis



CBD COP11
Delhi

National
TEEB
Work
Et al.

Rio+20
Brazil

BD COP 10 Nagoya, Oct 2010



Critical issues

The values of biodiversity and ecosystems are missing

- Many not known (but this is changing); widespread lack of **awareness**
 - They are generally not integrated into the **economic signals, into markets** – the economy is therefore often not part of the solution
 - Values are not taken systematically into account in **assessments** and **decision making**
 - The value of nature is not reflected in **national accounts** nor in leading **macro economic indicators**
- ➡ **Inappropriate incentives; misinterpretation of right solutions, insufficient evidence base at policy makers' finger tips and weaker public support for action**
- ➡ **There is not enough political will or conviction or awareness of benefits/cost to launch due policies**
- ➡ **Biodiversity loss continues – eroding natural capital base without realising its value**

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“I believe that the great part of miseries of mankind are brought upon them by false estimates they have made of the value of things.”

Benjamin Franklin, 1706-1790

“There is a renaissance underway, in which people are waking up to the tremendous values of natural capital and devising ingenious ways of incorporating these values into major resource decisions.”

Gretchen Daily, Stanford University

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Multiple benefits from ecosystems

Provisioning services

- Food, fibre and fuel
- Water provision
- Genetic resources

Regulating Services

- Climate /climate change regulation
- Water and waste purification
- Air purification
- Erosion control
- Natural hazards mitigation
- Pollination
- Biological control

Cultural Services

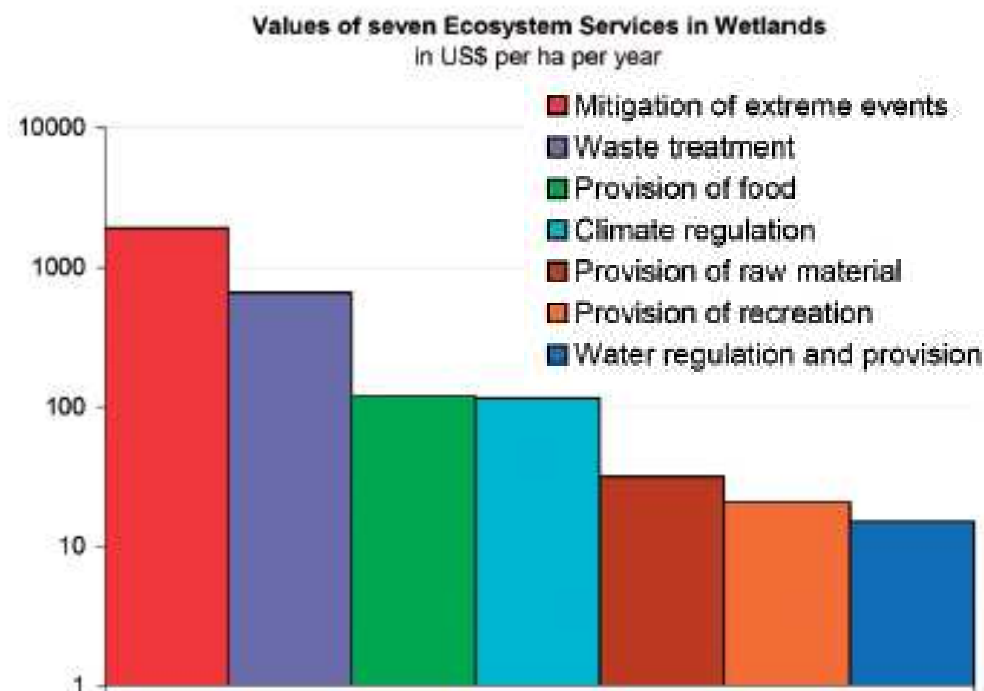
- Aesthetics, Landscape value, recreation and tourism
- Cultural values and inspirational services

Supporting Services

- *Soil formation*

+ Resilience- *eg to climate change*

Many services from the same resource



Source: Emerton and Kekulandala 2003

Important to appreciate the whole set of ecosystem services & take into account in decisions

Not only after they have been lost and oft costly substitutes needed

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Leuser National Park on Sumatra, Indonesia Distribution of ecosystem benefits

What is “best” depends on who you are – understanding who wins and who stands to lose in decisions is paramount.

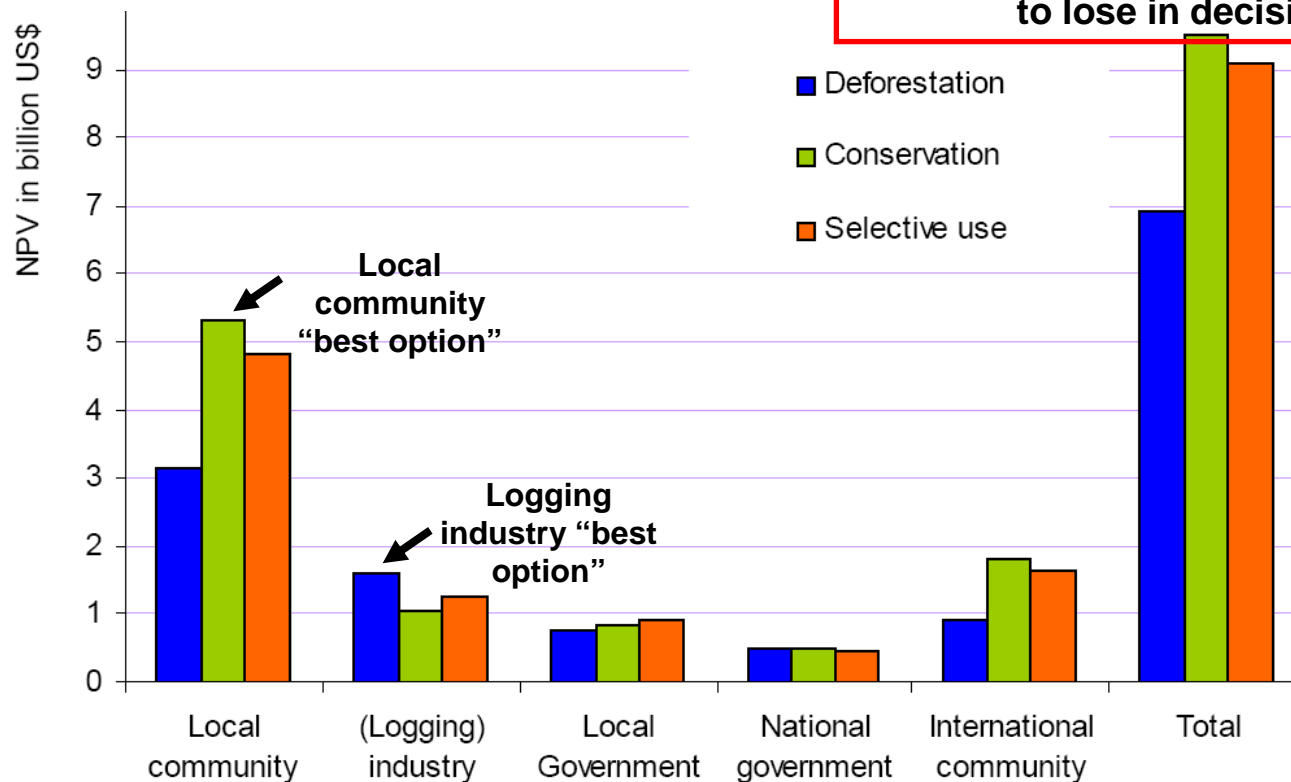


Figure 1: Benefit distribution among stakeholder under different land use scenarios in the Leuser Ecosystem (25,000 sq km), Indonesia, in Net Present Value (NPV) in billion US\$ over 30 years, at a discount rate of 4%.

Sources: van Beukering, P.J.H., H.S.J. Cesar, M.A. Janssen (2003). *Economic valuation of the Leuser National Park on Sumatra, Indonesia*. *Ecological Economics* 44, pp 43-62. and van Beukering, P.J.H., H.S.J. Cesar, M.A. Janssen (2002). *Economic valuation of the Leuser Ecosystem in Sumatra*. In: *Conservation Dividends? ASEAN Biodiversity Vol 2. Nr. 2. 17-24*.



The Evidence base on the value of nature

Assessing the value of working with natural capital has helped determine where ecosystems can provide goods and services at lower cost than by man-made technological alternatives and where they can lead to significant savings

- **Vietnam** restoring/investing in Mangroves - cheaper than dyke maintenance (~US\$: 1m to 7m/yr)
- **Venezuela:** PA helps avoid potential replacement costs of hydro dams (~US\$90-\$134m over 30yr)
- **South Africa:** WfW public PES to address IAS, avoids costs and provides jobs (~20,000; 52%♀)
- **Uganda:** Wastewater services of Kampala wetlands, avoided costs of treatment (@ ~1/8 cost)

TEEB collecting & communicating the evidence base on the value of nature (reports, TEEBCases, Matrix/database) **demonstrating/communicating the value to decision makers at all levels** (international, national and local government, to business and to citizens)

Aim to encourage action by taking the value of nature into account & address information, market and governance failures

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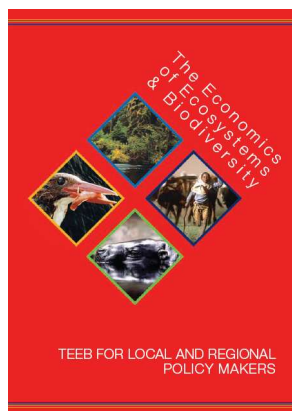


Inform impact assessment of Proposed legislation & policies

Creating and making use of an improved evidence base



Six typical steps for appraising ESS to help inform policy issue



1. Specify and agree the **policy issue** with stakeholders.
2. Identify which **ecosystem services** are most relevant.
3. Define the **information needs** and select **appropriate methods**.
4. **Assess ecosystem services** (mix of qualitative, quantitative, spatial and monetary)
5. Identify and appraise **policy options**.
6. Assess **distributional impacts** of policy options.

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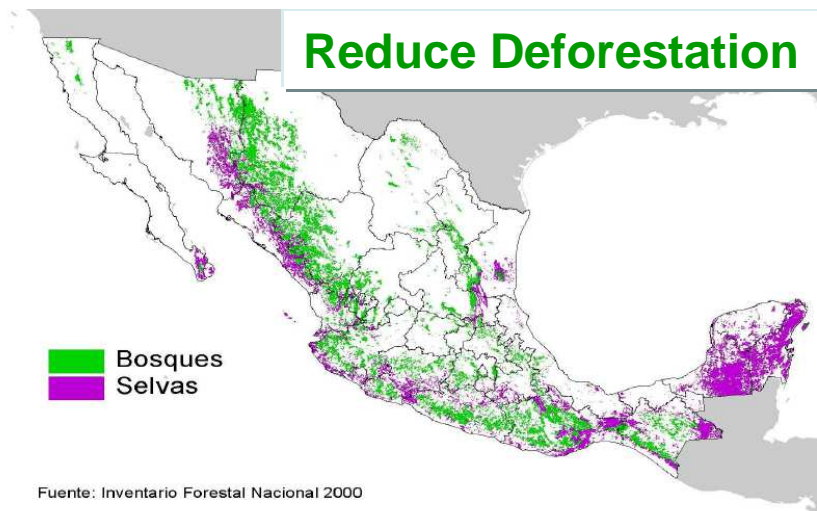
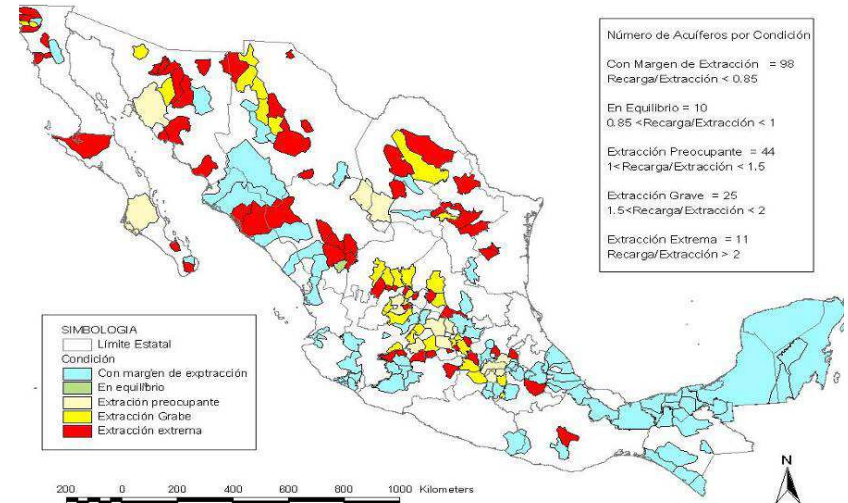


Solution: Mexico PSAH: PES to forest owners to preserve forest: manage & not convert forest

Result

Deforestation rate fell from 1.6 % to 0.6 %.
18.3 thousand hectares of avoided deforestation
Avoided GHG emissions ~ 3.2 million tCO₂e

Hydrological services: Aquifer recharge; Improved surface water quality, reduce frequency & damage from flooding`



Munoz 2010); Muñoz-Piña et al. 2008; Muñoz-Piña et al. 2007

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Multiple Objectives : PSAH Mexico

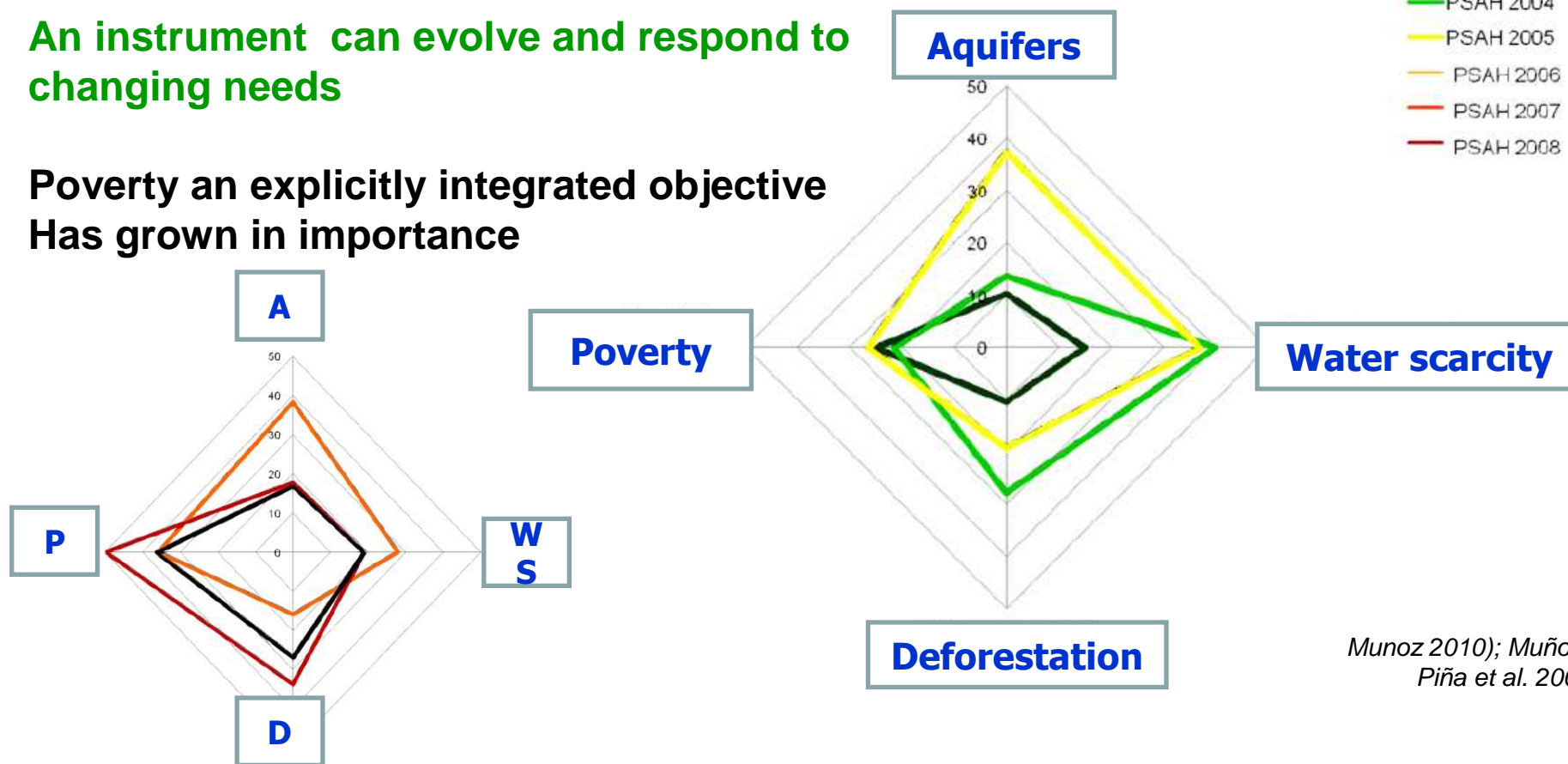
Balance of priorities varied over time

An instrument can evolve and respond to changing needs

Poverty an explicitly integrated objective
Has grown in importance

Targeting Policy Objectives

- PSAH 2003
- PSAH 2004
- PSAH 2005
- PSAH 2006
- PSAH 2007
- PSAH 2008



Munoz 2010); Muñoz-Piña et al. 2008

Mexican PSAH helped by good base data (on aquifers, forests, poverty). A key area of development support could be to help those regions that need it with capacity building, indicators, interrelations (ecological, economic and social systems) & natural capital accounts.



Valuation of ESS from Kampala wetlands, Uganda

Services provided by the Nakivubo swamp include natural water purification and treatment & supporting small-scale income activities of poorer communities

Problem recognition: Plans to drain the Nakivubo Swamp (>40sqkm) for agriculture
→ Waste water treatment capacity of the swamp was assessed (Emerton 2004)

Assessment: Maintaining the wetlands: ~235.000\$ p.a.
Running a sewage treatment facility of equivalent capacity: ~2Mio. US\$ p.a.

Policy Solution: draining plans abandoned & Nakivubo Swamps designated as PA





Establishment of a MPA: Tubbataha Reefs, Philippines

UNESCO World Heritage site, contains 396 species of corals & has higher species diversity per square meter than the Great Barrier Reef

Problem Recognition - 1998 Bleaching & losses

>>Stakeholders meeting

Policy Solution

“No-take” areas agreed, & later, the President passed the Tubbataha Reefs Natural Park Act in 2010 (10 mile buffer zone around the no-take marine reserve) thus increasing Park by 200%

Impacts of policy

❖ Increase **coral cover** – 40% 1999-2003, 50% 2004

❖ **Fish biomass** in nearby reefs doubled since 2000 and perceived fish catches increased 1999 – 2004 from 10 to 15-20 kg/day

❖ Survey found a significant increase in **living standards** from 2000 to 2004



Reefs

© WWF-Philippines / Jürgen Freund

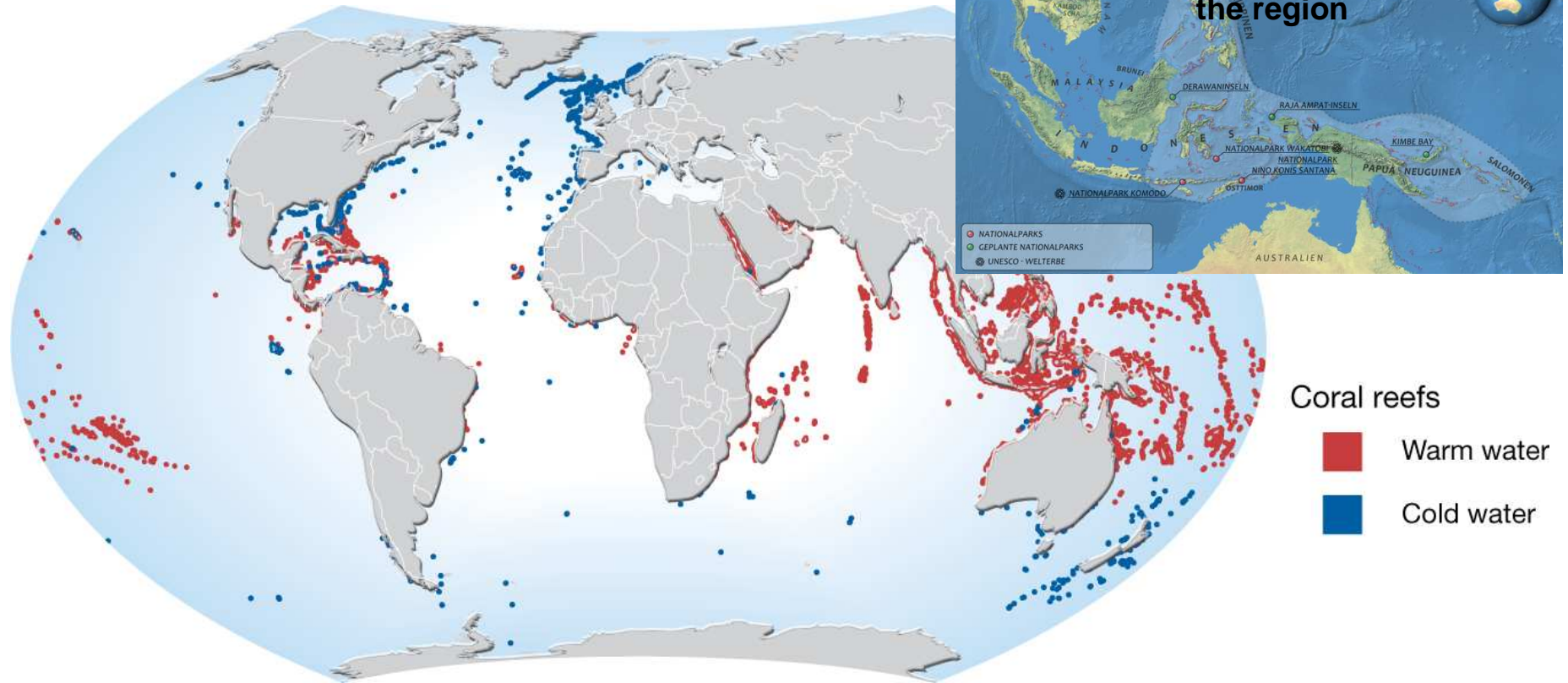
Sources: Tongson 2007, Samonte-Tan et al. 2008, Dygico 2006

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Major coral reef loss already happening

Coral Triangle: Critical to livelihoods / food security across the region



Need: reduce pressure on coral reefs, MPAs et al & encourage GHG emissions reductions -450ppm and 2 degrees already accepting major losses

Local (short term) acceptability, transition challenges & sustainable financing for protected areas key. Development support in each area (demonstrating value of action over time, participation, transition support, sustainable financing) valuable + also critical to understand natural capital (& develop accounts)



Protected Areas (PAs) and Climate change

- **Better managed, better connected, better governed and better financed protected areas are recognised as key to both mitigation and adaptation responses to climate change.**
- **Climate change mitigation: 15% of global terrestrial carbon stock is contained in protected areas (Campbell et al.2008).**
- **Adaptation: help people adapt - maintaining ecosystem services that reduce natural disaster impacts (coastal and river protection, control of desertification), stabilise soils and enhance **resilience** to changing conditions.**



Finalisation of the networks (support CBD SP Target 11)



Address financing gap – new funding, new instruments (eg PES)

Key Areas for development support - demonstrating value of action over time, participation, transition support, sustainable financing



Investment in ecological infrastructure

Ecological infrastructure key for adaptation to climate change

- **Afforestation: carbon store+ reduced risk of soil erosion & landslides**
- **Wetlands and forests and reduced risk of flooding impacts**
- **Mangroves and coastal erosion and natural hazards**
- **Restore Forests, lakes and wetlands to address water scarcity**
- **PAs & connectivity to facilitate resilience of ecosystems and species**

Can help adapt to climate change at lower cost than man-made technological solutions – critical to understand where and support it (eg restoration, protection & management, financing).

Adaptation to climate change will receive hundreds of US\$ billions in coming years/decades.

Critically important that this be cost-effective.

Support for identifying where natural capital solutions are appropriate & invest.



Other key instruments and areas for support

- **REDD-Plus**
- **Green products & services: certification, GPP & standards**
- **No net loss and offsets**
- **Access and Benefits Sharing (ABS)**

Creating markets and fixing markets
[though some issues are beyond markets]

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The CBD Strategic Plan 2011-2020 “Aichi Protocol”

Major potential for Development assistance to support national efforts

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

T1 & T2: Support awareness of value & integration into strategies, plans, accounts

Strategic goal B: Reduce the direct pressures on biodiversity & promote sustainable use

T5: support REDD+ & PAs; **T6&7:** Certification, GPP pull and governance

T9: IAS - support capacity to respond and cooperate

Strategic goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

T11 & T13 : PAs, seed banks, PES etc

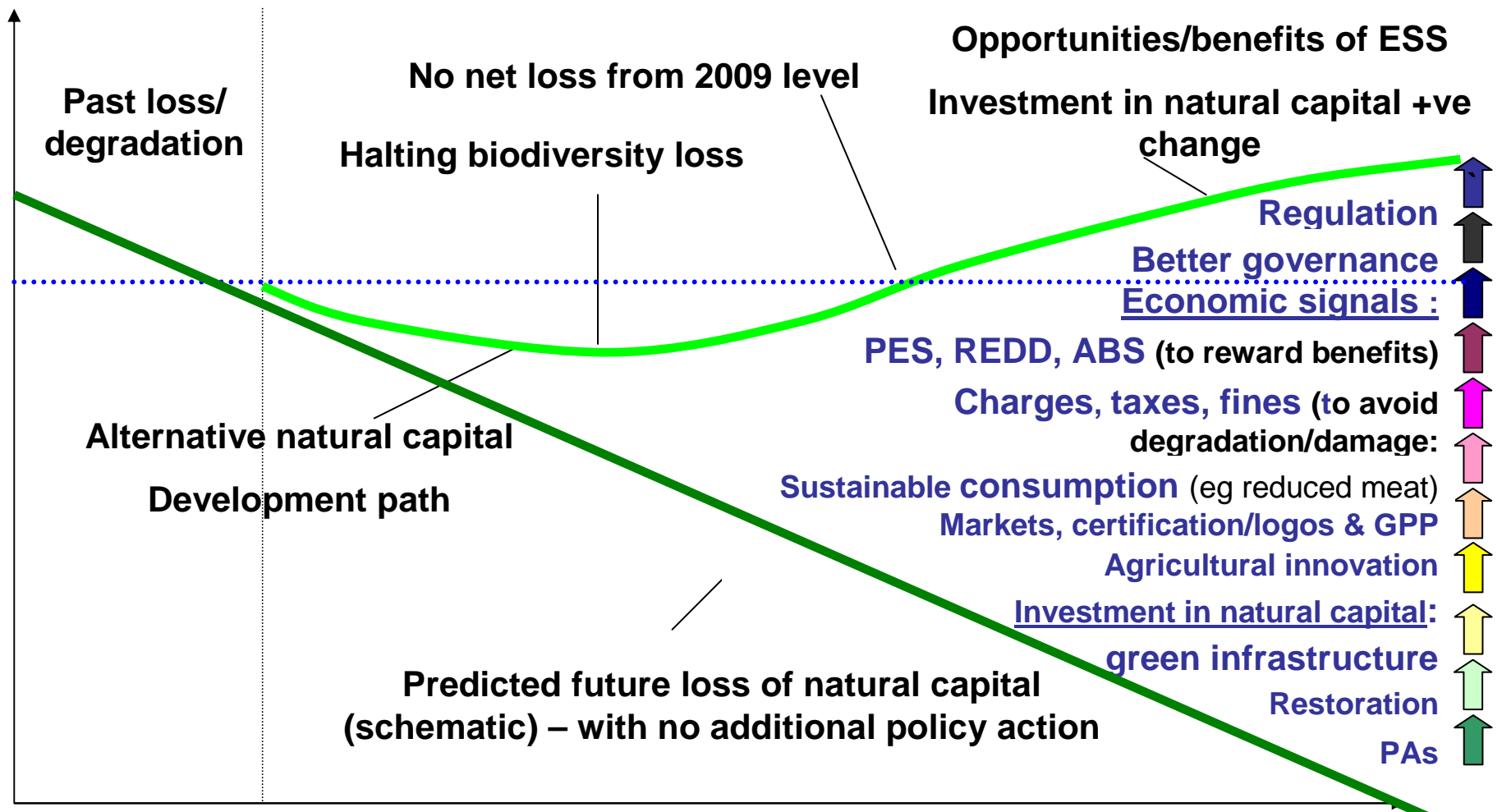
Strategic goal D: Enhance the benefits to all from biodiversity and ecosystem services

T14: PAs, restoration, assessment, participation; **T15:** restoration; **T16:** ABS support

Strategic goal E: Enhance implementation through participatory planning, knowledge management and capacity building

T17: capacity; **T20:** money and new instruments

Eroding natural capital base & tools for an alternative development path, towards a green economy



What contribution can be made by the PEP Community and in which areas ? For what instruments? What potential? What conditions would help ?

TEEB & paths to a Green Economy (ideas for discussion)

Development Path	TEEB/Green economy issues	Instruments to encourage transformation – examples
A: Declining sustainability	<ul style="list-style-type: none"> • Trade offs: Econ – environment – running down natural capital and substitution for other capitals 	<ul style="list-style-type: none"> • Clarify loss values & social impacts • Indicators (BD, ESS), project selection, assessments, EIA
B. Environmental compliance	<ul style="list-style-type: none"> • Water, waste water, waste infrastructures • EIA • Emissions and EQS standards 	<ul style="list-style-type: none"> • Regulation & implementation • Better governance, rule of law • Values; offsets
C. Risk management	<ul style="list-style-type: none"> • Understanding and managing risks (e.g. IAS, natural hazards, water security), ecological thresholds, genetic erosion 	<ul style="list-style-type: none"> • Indicators: res limits & thresholds • Natural capital & SEEA accounts; • Capacity building/cooperation
D. Investment in natural capital	Protection/mgt and Restoration: e.g. <ul style="list-style-type: none"> • Wetlands & carbon storage; • Forests & aquifer recharge; • Management & soil quality; • Mangroves & coastal realignments 	<ul style="list-style-type: none"> • Clarify value of natural cap • PES, REDD+ • Investment in NC; • PAs • ABS
E. Eco-efficiency	<ul style="list-style-type: none"> • Products standards (sustainable production & use); products & innovation 	<ul style="list-style-type: none"> • Market prices & market failures • GPP market pull. • Certification
F. Decoupling	<ul style="list-style-type: none"> • New economy: e.g. Biomimicry; • Avoided damage • Demand changes 	<ul style="list-style-type: none"> • Liability/accountability • Information, social norms & habits (e.g. meat in diet)

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Summary (part 1) on understanding values

Assessing the value of nature improves the evidence base for decisions

Qualitative, quantitative, spatial and monetary analysis each have a role

Has proven to be useful for investment decisions, permit decisions, encouraging support (political and public) for action, helped in instrument choice, design, political and legal launch and implementation.

The whole picture of benefits and costs need to be appreciated – the here and now, the over there and over time, the private and public

...is this enough to work out what to do?



...always better to look at the whole board & engage the full set of players – inc. PEP Community !

Support for countries' & regions' efforts to recognise&demonstrate the value of nature will be invaluable

Needs investment in participation, indicators & surveys, mapping, assessment/valuation methods and capacity building, natural capital accounts and support for SEEA

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Summary (part 2) Tools & Development assistance

Valuation & assessment: capacity building/support for value of nature studies

Measurement to manage: support indicators and accounts

PES (tools to reward ESS benefits; useful for biodiversity, for water, for poverty/development) – **capacity building, indicators and studies to ensure due information base**

REDD+ indicators/accounts/monitoring & pilots to build a solid basis for REDD

Certification and markets (greening the supply chain) – **support their development, help make most of growing GPP** (green public procurement pull)

Protected areas (suppliers of key services, motors of growth): **support assessment of benefits, participation, sustainable financing**

Investment in Natural capital – for climate adaptation, biodiversity, livelihoods

New tools – offsets & no-net loss - in due course GDI?

New economies – biomimicry.

New commitment - e.g. ABS and CBD Strategic Plan 2011 to 2020. Engage

Support the path to a green economy – the above and commit to new development paths.

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Thank you

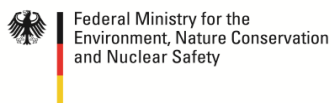
TEEB Reports available on <http://www.teebweb.org/>

See also www.teeb4me.com

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IEEP is an independent, not-for-profit institute dedicated to the analysis, understanding and promotion of policies for a sustainable environment. www.ieep.eu



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Annexes

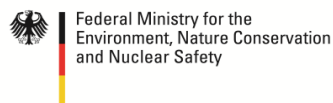
CBD Strategic Plan Targets

Examples of Valuation

Instruments



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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**.

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Strategic goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Target 5: By 2020, the **rate of loss of all natural habitats, including forests, is at least halved** and where feasible brought **close to zero**, and degradation and fragmentation is significantly reduced.

Target 6: By 2020 all **fish** and invertebrate stocks and aquatic plants are managed and **harvested sustainably**, legally and **applying ecosystem based approaches**, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have **no significant adverse impacts** on threatened species and **vulnerable ecosystems** and the impacts of fisheries on stocks, species and ecosystems are within **safe ecological limits**.

Target 7: By 2020 areas under **agriculture, aquaculture and forestry** are **managed sustainably**, ensuring conservation of biodiversity.

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Strategic goal B: .cont.

Target 8: By 2020, **pollution**, including from excess nutrients, has been brought to levels that are **not detrimental to ecosystem function and biodiversity**.

Target 9: By 2020, **invasive alien species** and pathways are identified and prioritized, **priority species are controlled or eradicated**, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 10: By 2015, the multiple anthropogenic **pressures on coral reefs**, and other vulnerable ecosystems impacted by climate change or ocean acidification are **minimized**, so as to maintain their integrity and functioning.



Strategic goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11: By 2020, at least **17 per cent of terrestrial and inland water**, and **10 per cent of coastal and marine areas**, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well **connected systems of protected areas** and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.

Target 12: By 2020 the **extinction of known threatened species has been prevented** and their conservation status, particularly of those most in decline, has been improved and sustained.

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**.



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.

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Strategic goal E: Enhance implementation through participatory planning, knowledge management & capacity building

Target 17: By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an **effective, participatory and updated national biodiversity strategy and action plan**.

Target 18: By 2020, **the traditional knowledge, innovations and practices of indigenous and local communities** relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are **respected**, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective **participation of indigenous and local communities**, at all relevant levels.

Target 19: By 2020, **knowledge, the science base and technologies** relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely **shared** and transferred, and applied.

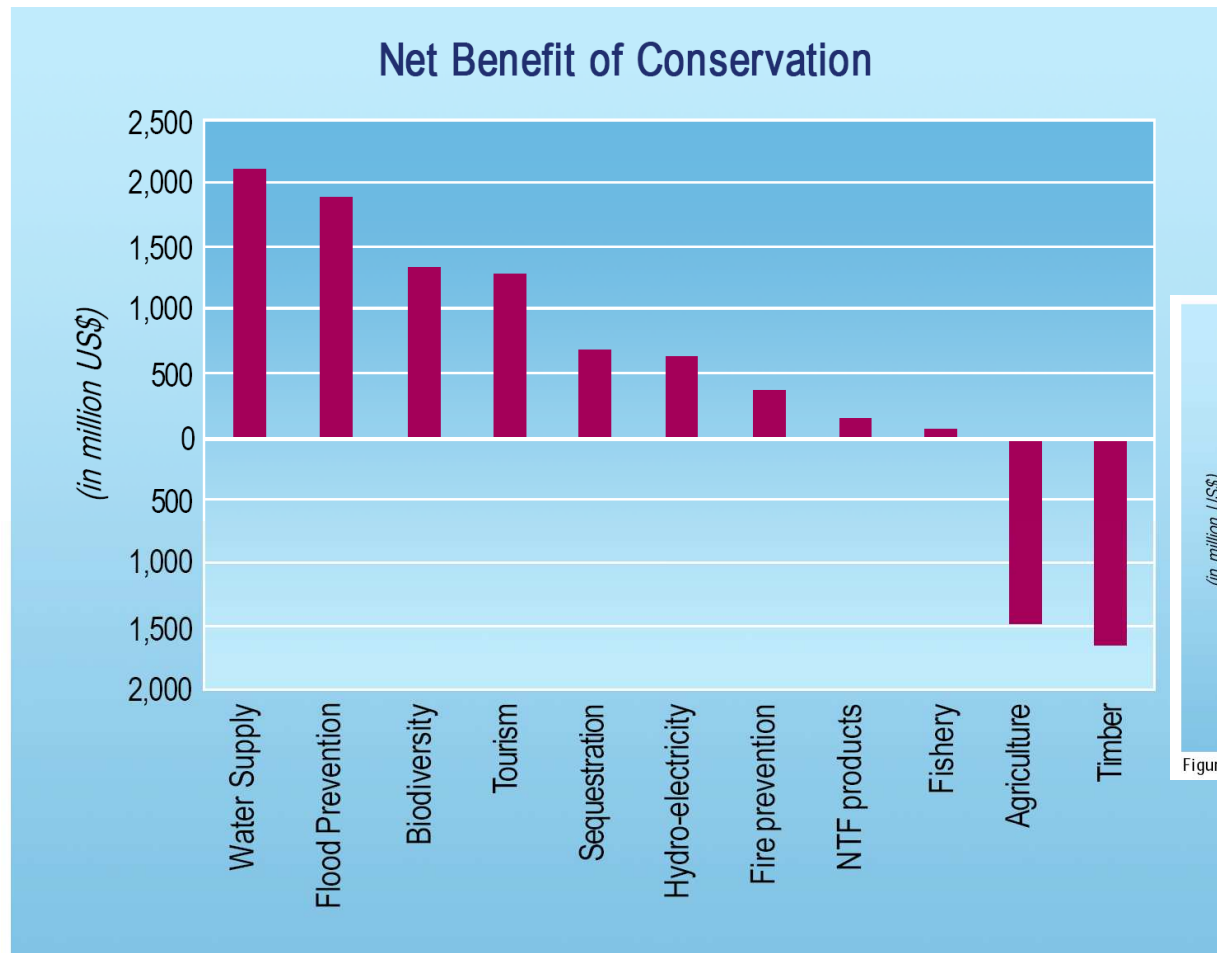
Target 20: By 2020, at the latest, the **mobilization of financial resources** for effectively **implementing the Strategic Plan 2011-2020** from all sources and in accordance with the consolidated and agreed process in the **Strategy for Resource Mobilization** should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties.

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Leuser National Park on Sumatra, Indonesia (cont.)

Range of ecosystem benefits and time profile



The benefits and who wins and loses will be time sensitive

Analysis critical – need capacity

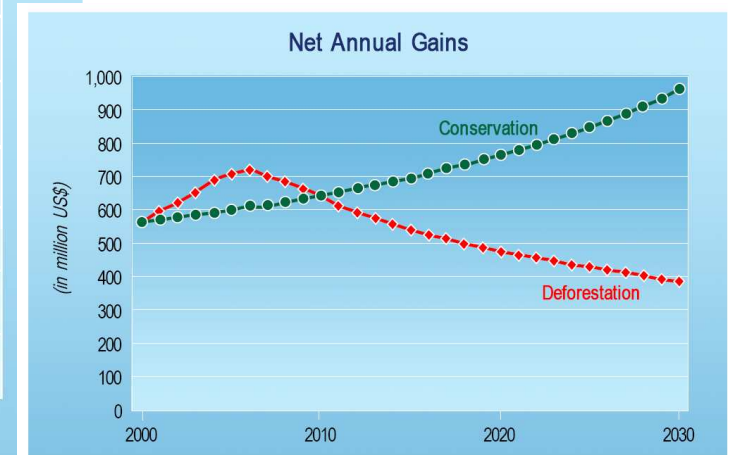


Figure 2. Net gains over time of Leuser National Park for the two scenarios.

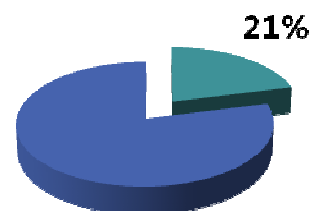
Scenarios 2000 to 2030, discount rate 0% (Beukering et al. 2002)

Figure 3. Net Benefits over time of Leuser National Park for the two scenarios distributed over the various categories.



Natural capital - "GDP of the Poor"

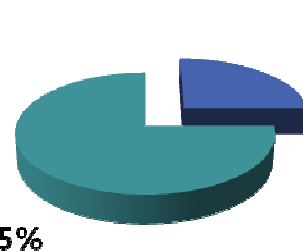
Indonesia



Ecosystem services as a % of classical GDP

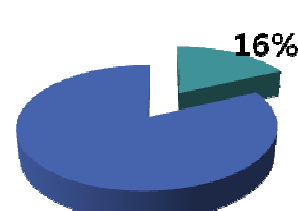
99 million

Ecosystem services dependency

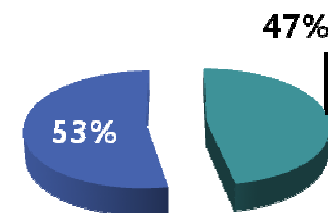


Ecosystem services as a % of "GDP of the Poor"

India

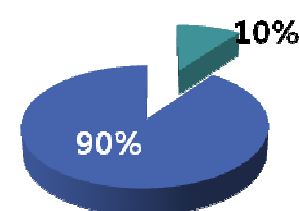


352 million

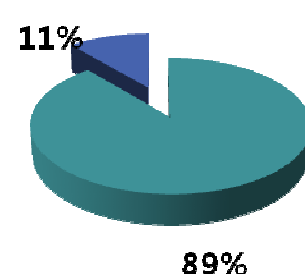


Ecosystem services

Brazil



20 million



Fundamental links between wellbeing/poverty & natural capital
 What is measured in national accounts is not the whole picture.
 Good governance about seeing the whole picture



Working for Water (WfW): SA The Manalana wetland (near Bushbuckridge, Mpumalanga)

- Severely degraded by erosion that threatened to consume the entire system
- WfW public works programme intervened in 2006 to **reduce the erosion and improve the wetland's ability to continue providing its beneficial services**

Results

- The value of **livelihood benefits from degraded wetland was just 34 % of what could be achieved** after investment in ecosystem rehabilitation;
- Rehabilitated wetland now contributes provisioning services at **a net return of 297 EUR/household/year**;
- Livelihood benefits ~ 182,000 EUR by the rehabilitated wetland; **x2 costs**
- The Manalana wetland acts as a **safety net for households**.

Sources: Pollard et al. 2008'; Wunder et al 2008a; <http://www.dwaf.gov.za/wfw/>

Recognising and demonstrating the values and potential for increased value critically important.

Needs: development support for assessment of values

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Sourou River Valley, Burkina Faso

- Traditional development strategies focused on converting wetlands for agriculture

BUT: wetlands provide multiple ecosystem services contributing to the livelihood of about 60,000 people, worth some 15 Mio. € (Somda et al. 2010)

→ **Agriculture is only one service among many others**

Study helped Stakeholder and decision makers realise:

- **Importance of intact wetlands and their multiple ES for local economy**
- Economic valuation of ES is an important tool for guiding wetland management and development strategies

Local stakeholders call for including ES in local development plan

Cross-sectoral partnerships for integrated wetland management



Photo: abcBurkina
(http://www.abcburkina.net/ancien/photos/riz_foto/sourou_750.jpg)

Ecosystem Service	%	Million EURO
Timber (fuelwood and construction)	37	5.6
Non-timber forest products	21	3.2
Pastures	18	2.7
Fishery	10	1.5
Transportation on water	10	1.5
Agricultural production	3	0.5
Tourism	1	0.2
Total	100	15.0

Source: Somda et al. 2010 *Valeur économique de la vallée du Sourou: Une évaluation préliminaire*. IUCN West Africa.

URL:http://cmsdata.iucn.org/downloads/brochure_sourou_corrige_09_08_2010.pdf

Source: Somda et al. 2010



Applying the approach: Spatial planning in Sumatra

Step 1: Following a new spatial planning law (2007) the Indonesian Government designs spatial plans at district levels. An NGO forum supports Riau districts in preparing spatial plans

Step 2: In Riau, lowland forests are affected by intense logging and forest conversion to plantations, affecting biodiversity, water regulation, and causing erosion

Step 3: for planning with ecosystem services, their occurrence and their spatial connections need to be known. Assessment with InVEST – a tool for mapping and analysing services.

Photo: Ahmad Zamroni/AFP/Getty Images



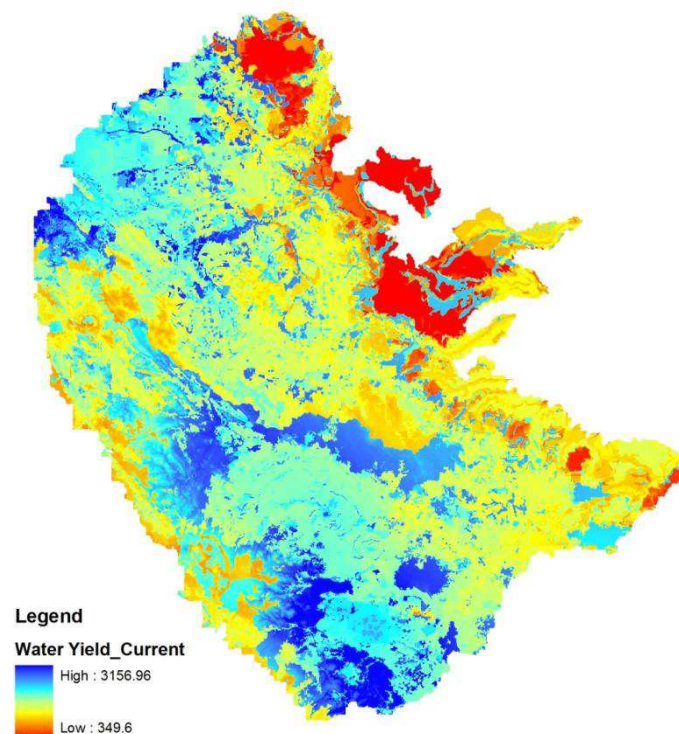


Spatial planning in Sumatra

Step 4: Based on data from the districts, InVEST modelled services under two scenarios: ‚Sumatra Ecosystem Vision` (island wide strategy) and BAU

Step 5: specific recommendation were made based on the maps: where to restore habitats, where to allocate forest concessions, for which areas to apply for forest carbon PES, ..

Step 6: global and local ecosystem benefits. Spatial distribution allows social impact assessment of policy responses



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... as an asset for local development:

Enhancing nature's benefits through a focus on ecosystem services: silvo-pastoral management in Colombia.



(picture: CIPAV)

The problem

Pasture degradation resulting in income loss, further expansion of pasture area.

Focus on Ecosystem services

How to tackle poor pasture practices and with it soil erosion, increase of water runoff and biodiversity loss?

Policy response

Silvo-pastoral management on 3.500ha: planting improved grasses, fodder shrubs and trees. GEF-funded payment for biodiversity and carbon fixation (PES) to cover initial investment costs.

Results:

- 1. Enhanced local benefits: nutrient recycling, fruit, fodder, timber, water flow regulation, protection against landslides.**
- 2. After the project, farmers still keep the silvopastoral systems without the PES, due to its multiple benefits.**

Source:

TEEBcase based on Pagiola et al.



PES: Many applications & growing use, range of needs to make them work

PES Instrument growing in applications

- **300 PES programmes globally, range of ecosystem services** (Blackman & Woodward, 2010)
- **Broad estimate for global value: USD 8.2 billion** (Ecosystem Marketplace, 2008)
- **USD 6.53 billion in China, Costa Rica, Mexico, the UK and the US alone.** (OECD 2010)
- **increasing by 10-20% per year** (Karousakis, 2010)

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REDD-Plus: Reducing Emissions from Deforestation and Forest Degradation-Plus

Major potential for this instrument to address **Green** carbon

- Curb deforestation/degradation - deforestation $\sim 17\%$ of global GHG emissions
- Could offer substantial biodiversity co-benefits: range of ecosystem services
- Eliasch (2008) estimated that REDD could lead to a halving of deforestation rates by 2030 and have an estimated long-term carbon sink of 1.5 GtC
- One of the few areas given fast-track approval in the Kyoto Protocol
- Many risks that need to be addressed: biodiversity impacts (carbon sinks)

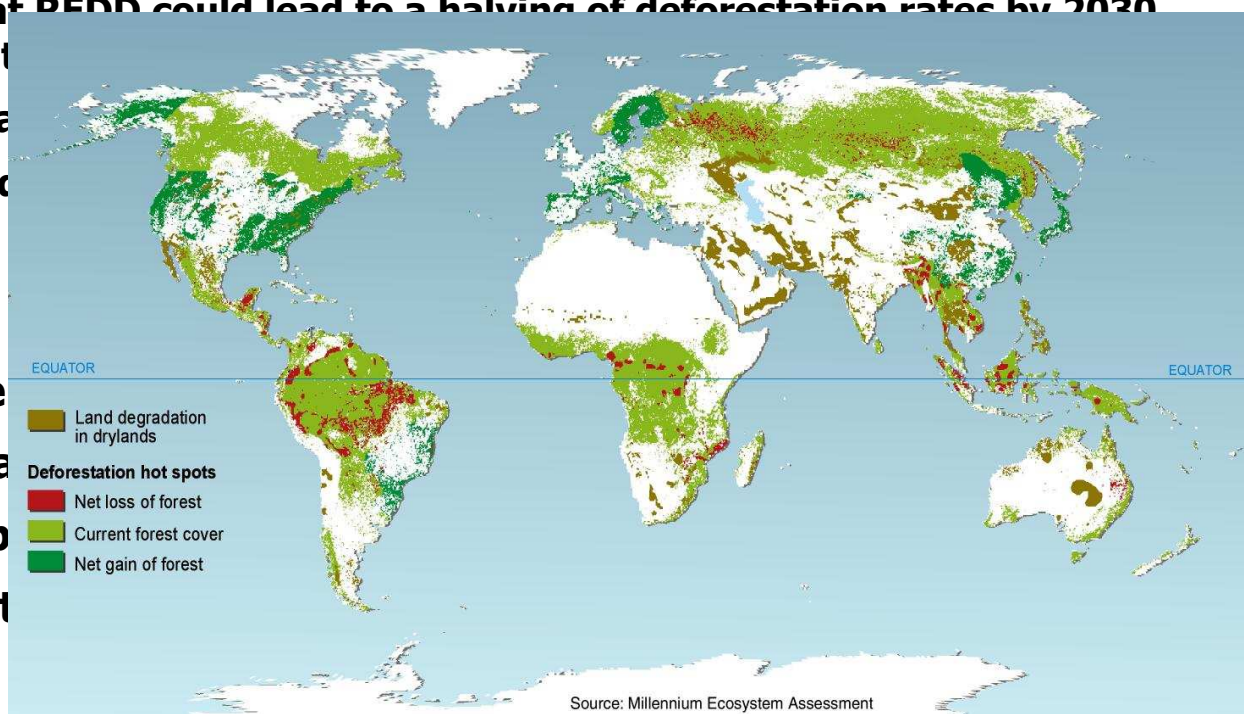
Needs:

Confidence: monitoring & verification

Experience: pilot projects, capacity building

Investment: money for the pilot projects

Evolution: phasing from pilot to full-scale



Support to address the needs critical to make this tool realise its potential : climate & biodiversity & new incomes/livelihoods

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Green products and services

Already a growing set of market niches for services and products based on sustainable use of ecosystem services and biodiversity

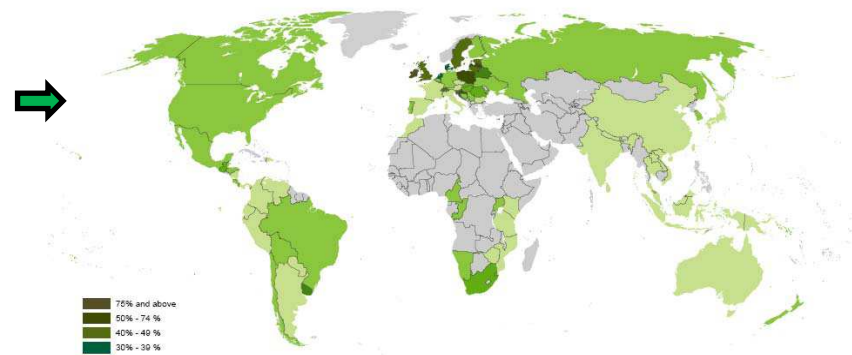
- Services - e.g. **ecotourism**
- Products - e.g. the **natural cosmetics sector**
- Major future potential? - **biomimicry**

This can lead to positive investment / rewards for benefits from ecosystem services.

Complements growing market for products and services that are more respectful to the environment directly – eg **forestry, fisheries, organic certifications** – and indirectly – eg **eco-labelling**.

Certification non progressing at same speed globally
- potential need for support?

Part of greening the supply chain, and greening of the economy.



Range of Areas for development support - certification of markets; capacity building for biomimicry and new economy etc

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Compensating for losses: offsets and biodiversity banks

Biodiversity offsets – aim of avoiding losses

- some companies committing to “no net loss”

Biodiversity banking - credits may be produced in advance of - and without ex-ante links to - the debits they compensate and be stored over time

- more complex than carbon trading
- many biodiversity components and ecosystem services are unique and irreplaceable and cannot be effectively compensated

Examples

- **39 biodiversity compensation programmes around the world** (and another 25 in development) (Madsen et al. 2010)
- **United States** more than 400 wetland banks have been established, creating a market for wetland mitigation worth more than **US\$3 billion/year** (Bayon 2008; DECC 2009)

Opportunity for international offsets? Green Development Initiative?

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ABS (Access and benefits sharing)

The fair and equitable sharing of benefits arising from the utilisation of genetic resources is one of the three objectives of the Convention on Biological Diversity (CBD) - **1992/3**

- This is desirable on equity grounds; and because it is
- critical to ensure the more efficient management and utilization of genetic resources

2010 - Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefit arising out of their Utilization - after seven years of negotiations, this sets out rules and procedures for implementing the Convention's third objective

“The ABS Protocol is only a starting point. Whether it will result in the viable regime against bio-piracy now depends on the implementation,”

The African Group formally made a similar point in the closing plenary, stating for the record that the protocol was simply **a first step**

<http://ictsd.org/i/news/biores/94075/>

Potentially an important area for development support