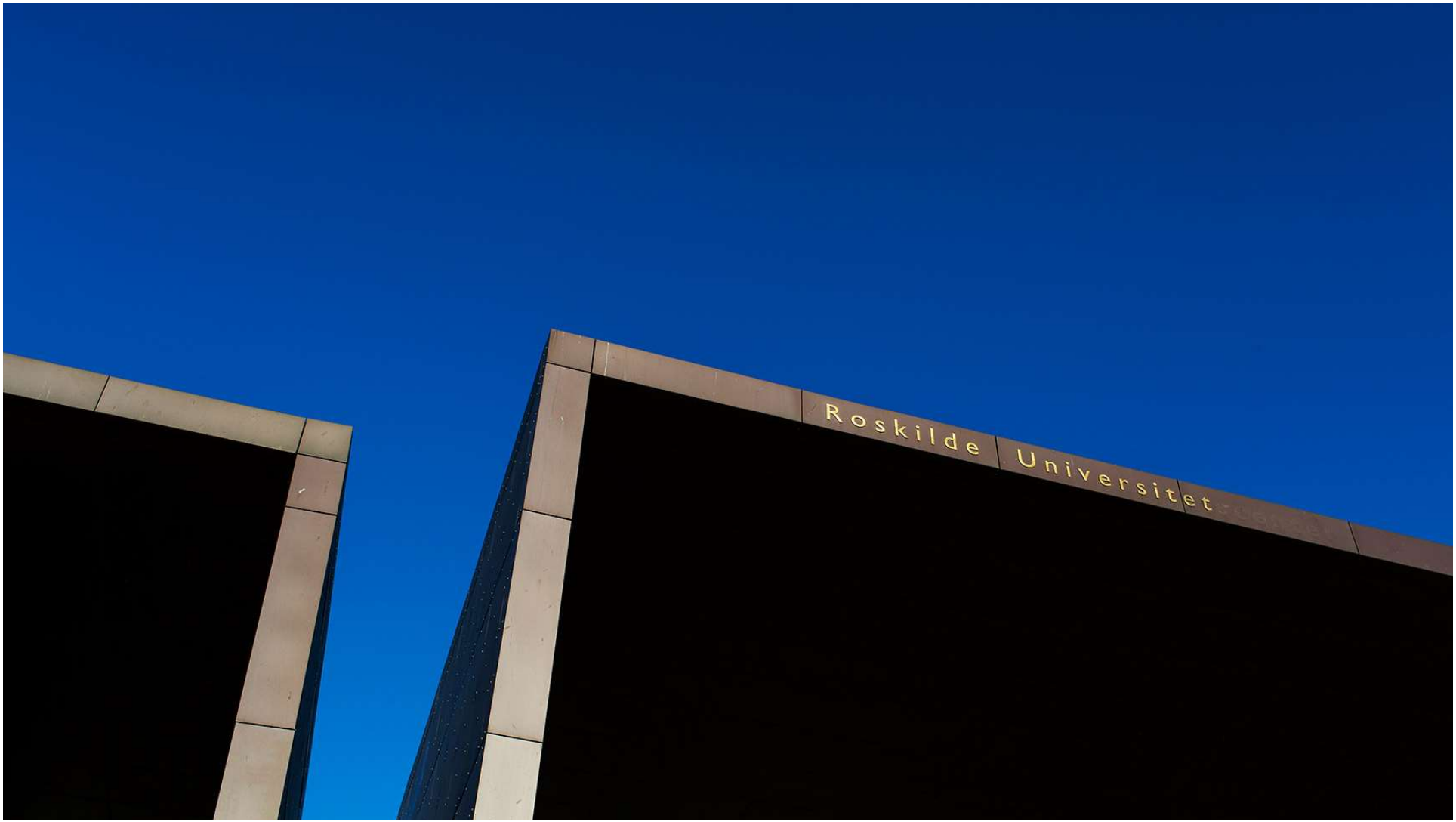
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Valuation of biodiversity in economic terms

- How does IPBES conclude working with economic evaluation and economic impacts ?
- How do we interpret these findings ?
- What do we know about use of ecosystem economic benefits and stakeholder attitude ?
- How can we use economics better?

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‘Valued regulating contributions to people in Europe and Central Asia include: the regulation of freshwater and coastal water quality…’ (2018)

- Regional assessment report on biodiversity and ecosystem services in Europe and Central Asia, 2018
- The assessment report on land degradation and restoration, 2019

‘….costing more than 10 per cent of the annual global gross product in loss of biodiversity and ecosystem services …. Every 5 per cent loss of gross domestic product (GDP), itself partly caused by degradation, is associated with a 12 per cent increase in the likelihood of violent conflict’ (2019)

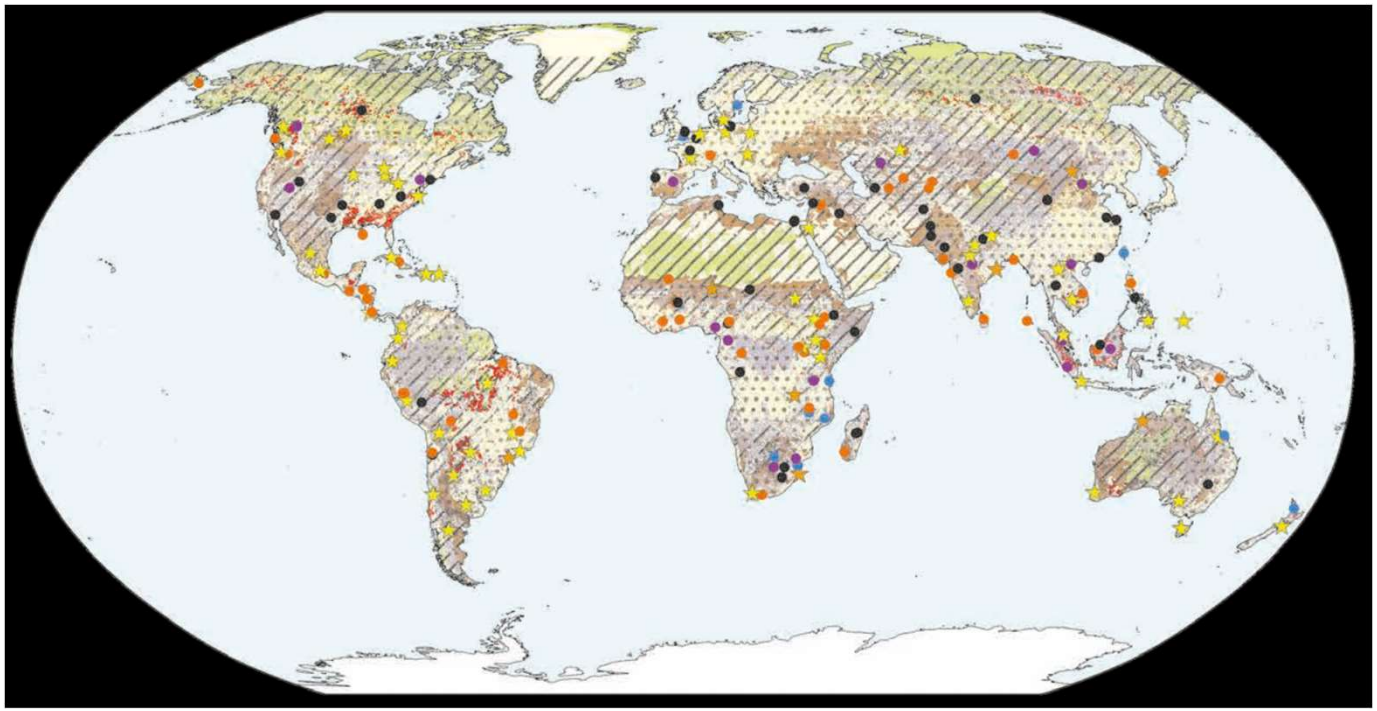
Answer 1: ***From valuation of benefits in 2018 to estimation of costs in 2019.*** In 2019, the *global loss estimation refers to a study of human-induced soil degradation impacts. Biodiversity plays a less prominent role in calculations.*

Table 2.9.4: Mean value per person of NCP (Nature's contributions to People) across Europe and Central Asia (2017 Int $ / person / year)

		Europe and Central Asia	Mean	Median	Minimum	Maximum	N
	1	Habitat creation and maintenance	114.17	41.56	1.88	913.58	59
	2	Pollination and dispersal of seeds and other propagules	53.23	53.23	53.23	53.23	1
	3	Regulation of air quality	112.94	127.5	30.37	189.86	9
	4	Regulation of climate	104.74	26.41	0.82	420.11	12
REGULATING	5	Regulation of ocean Regulation of freshwater and acidification	-		-	-	0
	6	Regulation of freshwater quantity, location and timing	151.49	46.13	0.19	528.25	8
	7	coastal water quality	104.16	65.66	0.15	938.3	51
	8	Formation, protection and decontamination of soils and sediments	11.81	4.03	0.03	48.33	9
	9	Regulation of hazards and extreme events	121.63	112.34	15.07	304.58	8
	10	Regulation of organisms detrimental to humans	144.31	149.91	1.18	281.85	3
MATERIAL	11	Energy	165.02	75.29	0.78	614.08	10
	12	Food and feed	63.26	20.81	0.95	327.35	15
	13	Materials and assistance	280.13	171.41	0.31	777.37	4
	14	Medicinal, biochemical and genetic resources	138.24	33.88	4.45	844.96	11
	15	Learning and inspiration	43.16	43.16	43.16	43.16	1
NON-MATERIAL	16	Physical and psychological experience	111.44	13.57	1.35	1314.79	51
	17	Supporting identities	127.07	53.09	1.06	1399.6	32
	18	Maintenance of options	109.66	79.39	4.34	960.13	53

'Valued regulating contributions to people in Europe and Central Asia include….. (2018 report)

Answer 2a (2018 report): Calculations don't get more transparent than this table in Appendix 2.9



Main loss factors: Deforestation, forest degradation, rangeland degradation and freshwater degradation (2019):

‘Overall, approximately 2% of the global terrestrial NPP (Net Primary Production) are lost each year due to dryland degradation, or between 4% and 10% of the potential NPP in drylands ‘ (Zika and Erb, 2009)

2019, continued: …….5% decline in GDP was associated with a 12% increase in violent conflict (Chapter 5 in the IPBES report, African study, Miguel 2004)……Increasing separation and spatial disconnection between consumers and ecosystems they depend on has resulted in a growing lack of awareness of consumption choices.

Answer 2b: Estimation of the impact of income on the incidence of violence, but where is the ecological link ? ***The correlation between the three main variables (conflict, growth and ecological factors) is not estimated .*** Notwithstanding these shortcomings, ***other observations from the reports of, example disconnections, are highly relevant.*** Economic considerations are downplayed in the IPBES reports. This is not necessarily a problem.

The Ho Family Gully on the China Loess Plateau before [A late August 1995] and after [B late August 2009] the “Grain for Green” conservation program. Photo Credits: Liu & Hiller (2016).

2019, draft report: Assessment of the diverse values and valuation of nature

Main conclusions:

- Deliberations of diverse values with stakeholders does not automatically lead to decisions or actions.
- The large number of valuation studies often reflects what is technically feasible, rather that what is most needed.

Later in the report:

- Laurans et al. (2013) reviewed the use of monetary valuation of ecosystem services (peer reviewed articles). They found that a large majority made only 'cursory reference' to the use of valuation and only a handful have 'documentation of use cases'

Answer 3:
Stakeholder **lack of interest** in valuation studies poses a real challenge to define practical solutions

How can we use economics better:

- Positive attitude to biodiversity and willingness-to-pay – Authors found that the value of a proposed biodiversity conservation plan (the brown kiwi) on planted, private forests can be more than 100 times higher than the overall cost – Yao et al. (2019) – New Zealand. If benefits are this obvious, why don't governments, private sector invest more in protection initiatives ? The answer is quite simple.
- Agriculture and biodiversity - Results indicate that the lower land demand through intensification leads to lower biodiversity losses, Koch et al. (2019) – Africa. Can we generalize this observation ?
- Tourism and biodiversity - Study shows a weak negative or even missing relationship between peoples' activities and their expressed values with protection, so most areas of high biodiversity can be set aside without compromising outdoor recreational activities Tolvanen et al. (2020) – Finland.

- Economic growth and biodiversity. The only Asian country to watch pangolins in the wild is in Singapore – A coincidence ?
- Poverty and biodiversity. Conservation and development. The prevailing view is that both objectives cannot be simultaneously achieved. Opportunity costs of conservation only tell part of the story. Access to infrastructure, schooling and health facilities are sometimes that important, local people don't act on opportunity costs alone. Madagascar and Vietnam.

Figure SPM 11 **Illustration of the biodiversity impacts of international trade in 2000.**

This figure shows the top net exporters (orange) and importers (blue) of biodiversity impacts associated with international commodity trade. Dots are scaled to the total number of threatened species associated with the exports or imports of that particular country. The biodiversity footprint methodology used in this analysis uses a high-resolution input-output economic model that traces the commodities whose production is associated with threatened biodiversity, through several intermediate trade and transportation steps, to the country of final consumption. As is standard in all consumption-based accounting analyses, imported goods that are used and embodied in exported goods from the same country are not included in the consumption account for that country, but in the account of the country of final consumption. The underlying model, which links the Eora global trade database to the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, tracks 18,000 species through more than 5 billion supply chains linking 15,000 sectors across 189 countries. The faint black lines illustrate a representative sample of biodiversity-implicated trade flows. This figure is intended to be illustrative, and the pattern of embedded biodiversity impacts of international trade in imports and exports changes year-on-year with changes in the dynamics of the global economy. Source: Based on data from Lenzen *et al.* (2012).[24]