Assessing Ecosystem Services in Canadian Biosphere Regions

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Assessing Ecosystem Services in **UNESCO** Biosphere Reserves













The framework



United Nations Educational, Scientific and Cultural Organization



Man and the Biosphere Programme A New Roadmap for the

Man and the Biosphere (MAB) Programme and its World Network of Biosphere Reserves

MAB Strategy (2015-2025)
Lima Action Plan (2016-2025)
Lima Declaration





Assessing ecosystem services

Provisioning, Supporting and Regulating, and Cultural



Explain first what they are









Periodic reviews

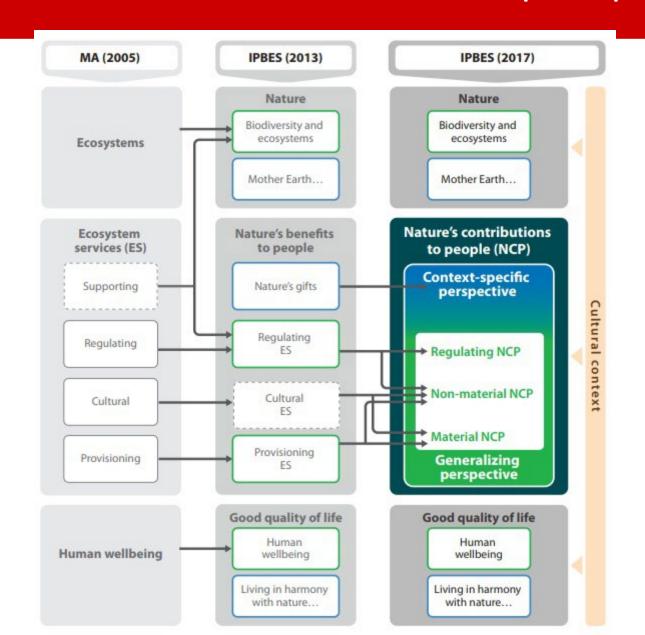
- Or the challenge of assessing them...
- Valuing nature's contributions to people (Diaz et al. 2018)
- ...a tool to connect people and nature







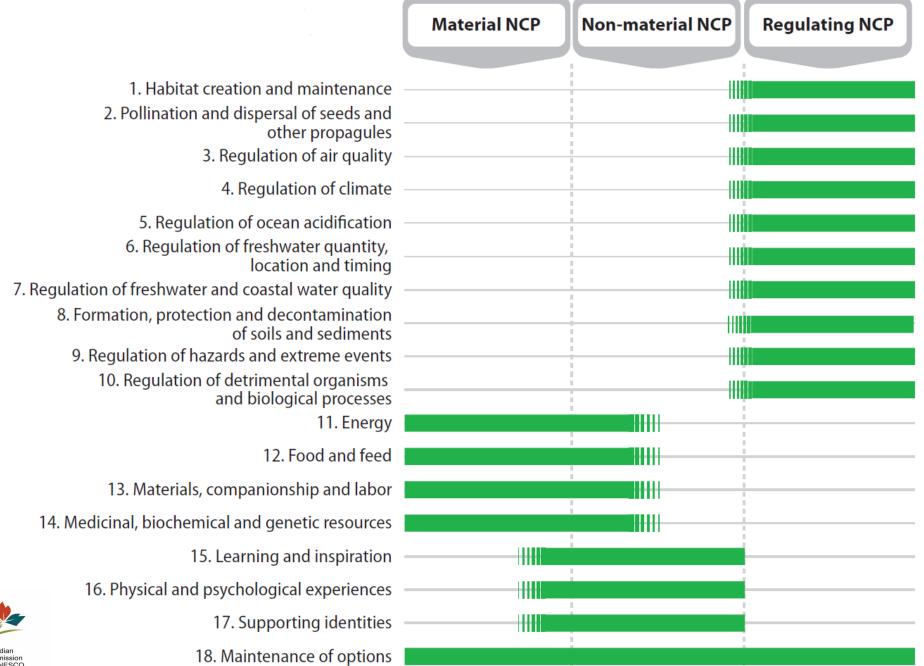
Nature's contributions to people



Educational, Scientific and Commission
Cultural Organization for UNESCO

(Diaz et al. 2018)









A tool for decision making

- To improve the connection between humans and nature:
 - To raise awareness of the importance of ecosystems, promote the protection of the natural environment for well-being of communities
 - To offer a positive alternative to alarmist speeches about environmental degradation
 - To propose a positive vision of the territory and the future.





And reaching SDGs

Goals directly related to ecosystem governance and management

Critical to achieve all SDGs

Goal 6 – Water availability and sustainable management

Goal 13 – Tackling climate change

Goal 14 – Conservation and sustainable use of oceans, seas and marine resources

Goal 15 – Protection and restoration of terrestrial ecosystems



Goal 2 - Food security

Goal 3 – Ensure healthy lives and promote wellbeing

Goal 4 - Inclusive and equitable quality education

Goal 5 - Gender Equity

Goal 7 - Reliable sustainable energy for all

Goal 8 – Inclusive and sustainable economic growth

Goal 9 – Build resilient infrastructure, promote sustainable industrialization

Goal 10 – Reduce inequalities within and among countries

Goal 11 – Inclusive and sustainable cities and human settlements

Goal 12 - Sustainable consumption

Goal 16 - Promote peaceful and inclusive societies, justice and institutions for all

Goal 17 – Revitalize global partnership for sustainable development



Achievement of all SDGs



Vasseur et al. 2017



Starting point

• ES assessed through the lens of the priorities and objectives of the BR, with a realistic view of which ES can be measured, and in which zone

Objectives and priorities of the BR

Which ES can be measured?

Zone of current interest





A proposed step-by-step approach

1. Define your BR's objectives and priorities

2.
Selection
of key ES
within
your BR

3. Working together to assess ES

4. Monitor ES over time





1. Define your BR's objectives and priorities

- Specific to each BR with some placing more importance on conservation measures and others on sustainable development.
- E.g.: priority is habitat creation and maintenance (SDG15), and this is done through various activities such as land acquisition for conservation and promoting nature literacy (SDG4) by engaging with citizen scientists.





2. Select **key** ES within your BR

Regulating NCP: Habitat creation and maintenance



• Regulating NCP: Regulation of climate



• Material NCP: Medicinal, biochemical and genetic resources





Non-material NCP: Learning and inspiration









3. Work together to assess ES

- Keep the process simple
- First step: acquire data and information from the different partners about ES/NCP and make a summary of what the initial situation is
- Invite as many people as possible



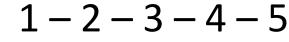


Assessing together

- Convening people together to assess NCP can be done in formal and informal settings
- Visualization using maps or drawings
- Measuring the status of NCP can be quantitative or as simple as using emoticons or a number scale









NCP	Main	Ecosystem	Exampl	Biosphere Reserve case					
categories	ecosyst	Services	es of	studies					
and names	ems	examples	related	Clayoquot	Mont-St-				
and	produci		indicat	Sound	Hilaire				
contributio	ng NCP		ors						
ns to SDGs									
Regulating NCP									
1. Habitat	All types	Essential	Identificat	Suitable habitat for	Ha of forests				
creation	of	habitat for	ion of	salmon	Ha of protected				
Creation		species' life	habitat		areas				
and	ecosyste	cycle (e.g.,	types		Habitat quality				
maintenanc	ms	nursery,			(monitoring of				
15 LIFE ON LAND		spawning	Habitat		species by citizen				
\$		ground areas)	quality		science) of forest				
			assessme		patches in the				
14 LIFE BELOW WATER			nt		agricultural milieu.				



2.	Forests,	Essential	Number	Number and
Pollination	wetlands,	process to	and	diversity of
and seed	agroecosy	plants	diversity	pollinators in
dispersal	stems	reproducti	of	apple
and		on and	pollinators	orchards
propagules		agriculture		Flower visits
		(crops)	Plant	by pollinators
2 ZERO HUNGER			populatio	Seed set in
(((ns	plants that
			pollinated	require
				pollination





4. Monitor ES over time

 Assess ES on a regular basis, providing data to inform local decision making and to describe in the BR's periodic review

Important to keep the process be transparent, inclusive,

iterative and collaborative







Ideas to retain

- Simple guide
- Greater collaboration with the various partners
- May lead to new actions
- Help manage sustainably some of the activities
- Importance of using local resources and people





Huge thanks

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- Contributions: Eleanor Haine Bennett (Canadian Commission for UNESCO), Elena Bennett (McGill University), Shailyn Drukis (Youth Advisory Group), Andreas Link (Ontario Ministry of Natural Resources & Forestry), Laura Loucks (Clayoquot Biosphere Trust), Lenore Swystun (Prairie Wild Consulting), and Geneviève Poirier-Ghys (Mont Saint-Hilaire Biosphere Region)
- https://en.ccunesco.ca/-/media/Files/Unesco/Resources/2019/03/AssessingEcosystem.pdf



