



**Thematic assessment of the
interlinkages among
biodiversity, water, food and
health (nexus assessment)**

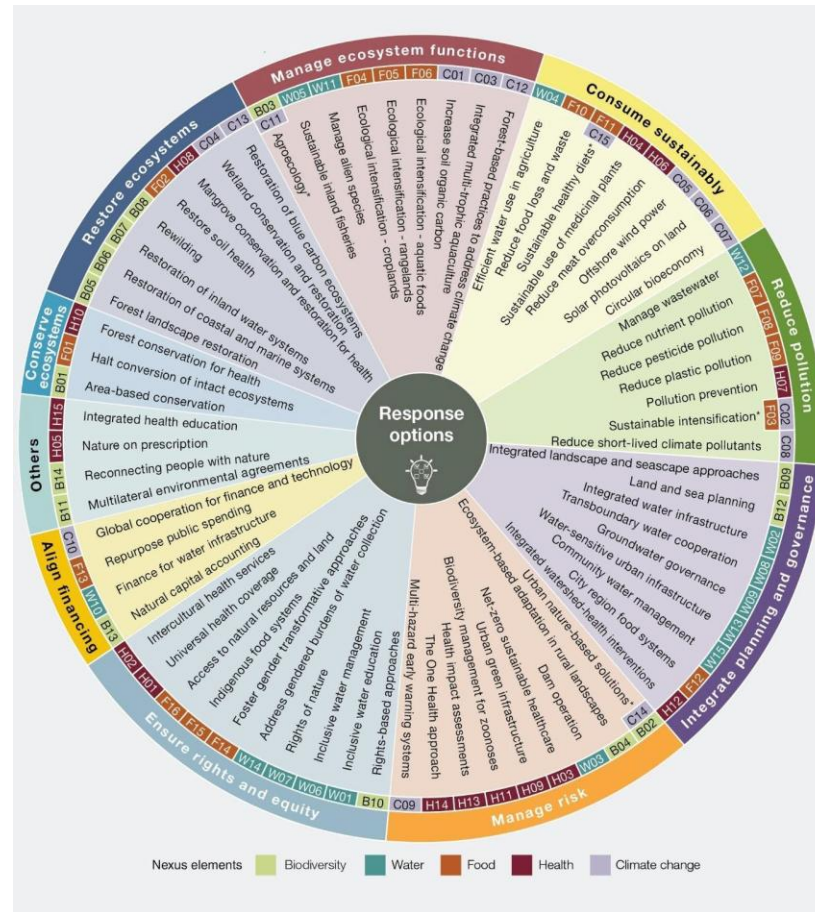
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Chapter 5 – Options for sustainable approaches

71 response options across 10 categories are available to actors in multiple sectors

- Address drivers of polycrisis: consume sustainably, reduce pollution
- Interventions: conserve, restore and sustainably manage ecosystems
- Enabling factors: integrated planning and governance, manage risk, ensure rights and equity, align financing



Conserving, restoring and sustainably managing ecosystems

Biodiversity response option	Brief description
B01 Area-based conservation	Conservation strategies including, but not limited to, protected areas and Other Effective Conservation Measures (OECMs) that use a nexus approach to conserve biodiversity across landscapes and seascapes.
B02 Urban nature-based solutions	Implementing nature-based solutions in urban areas to support sustainable development objectives and reconnect people with nature; current urban nature-based solutions focus primarily on climate risk management and adaptation to climate change.
B03 Agroecology	Designing and managing agricultural and food systems using ecological and social concepts and principles to support sustainable agricultural production, minimize negative environmental impacts of production and secure nature's contributions to people.
B04 Ecosystem-based adaptation in rural landscapes	Using biodiversity and nature's contributions to people to reduce human vulnerability to climate change by facilitating adaptation and building resilience to the impacts of climate change.
B05 Forest landscape restoration	Restoring forests at the landscape scale to increase forest cover and improve ecological functions on restored lands, including the restoration and enhancement of nature's contributions to people from forest ecosystems.
B06 Restoration of coastal and marine systems	Restoring coastal and marine systems (e.g., mangroves, salt marshes, seagrasses, seaweed, coral) to improve habitat integrity and connectivity, ecosystem functioning and ecosystem resilience and secure nature's contributions to people from these ecosystems.
B07 Restoration of inland water systems	Restoring inland water bodies (e.g., lakes, rivers (including riparian areas) and wetlands) to improve water flows, water quality and hydrologic connectivity, increase water security and support the sustainable use of aquatic biodiversity.
B08 Rewilding	An approach to restoring ecosystems that focuses on recovering ecological processes, improving ecological connectivity, restoring wildlife populations and reconnecting people with nature; natural processes lead the recovery rather than a defined ecosystem end state.

Example: People-centered approaches to nature conservation

Approach	Key features	Example strategies	Case studies
1. People-centred approaches to PA management and OECMs	• Pursuit of integrated conservation and socio-economic development goals • Utilization of diverse systems of knowledge, including ILK • Devolution of decision-making authority to non-state actors at the local level representing the interests of IPLC • Promotion of broad-based participation in biodiversity conservation efforts • Recognition of the legitimacy of local institutions and customary property rights of IPLC	• Community-based conservation (D. Armitage et al., 2020; Brechin et al., 2003; Brosius et al., 1998; Gelcich et al., 2019; Ghimire & Pimbert, 1997; Stephen R. Kellert, Jai N. Mehta, S, 2000) • Biocultural approaches to conserving Indigenous lands and territories (GBF Target 3), including Indigenous community conserved areas (Berkes, 2009). • Convivial conservation (Büscher et al., 2022; Iordachescu, 2022) • Integrated conservation and development projects (Brechin et al., 2003; Lele et al., 2010) • Co-management of conserved areas with IPLC (Akamani & Hall, 2015; Estradivari et al., 2022a; Gavin et al., 2015; Kawaka et al., 2017; Lane, 2001; Rocliffe et al., 2014; M. Samoilys et al., 2021; M. A. Samoilys et al., 2019) • Rights-based approaches (Keune et al., 2022; Tauli-Corpuz et al., 2020), see B10, Rights based Approaches for rights of IPLC over ownership of Indigenous lands and traditional territories as primary focus	• The Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) of Zimbabwe (Frost & Bond, 2008; Taylor, 2009) • Ghana's Community Resource Management Area (CREMA) program (Agyare et al., 2015; Foli et al., 2018; Murray et al., 2019) • Territorial user rights for fisheries (TURFs) in Chile (Gelcich et al., 2010, 2019) • Co-management of forests and protected areas in Ghana (Akamani, 2023; Akamani & Hall, 2015, 2019; Soliku & Schraml, 2020) • Locally managed marine areas in Kenya, Madagascar and Mozambique (Kawaka et al., 2017; Rocliffe et al., 2014 (Samoilys et al., 2019; MIHARI and Ralaimihoatra 2022); Indonesia (Estradivari et al., 2022a; Fidler et al.2022); Fiji and

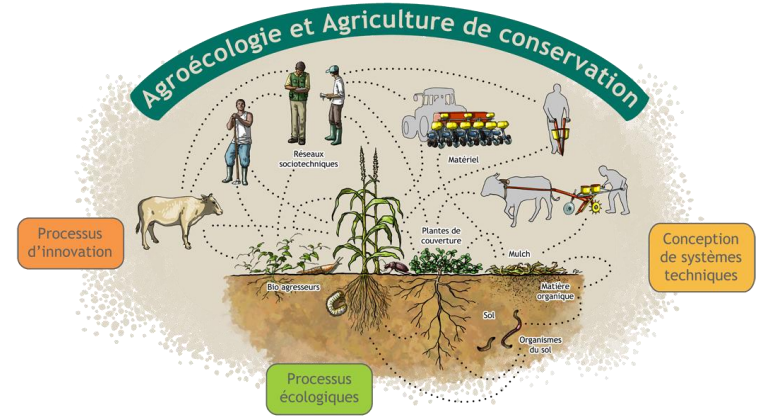
Urban nature-based solutions

Implementing nature-based solutions in urban areas to support sustainable development objectives and reconnect people with nature



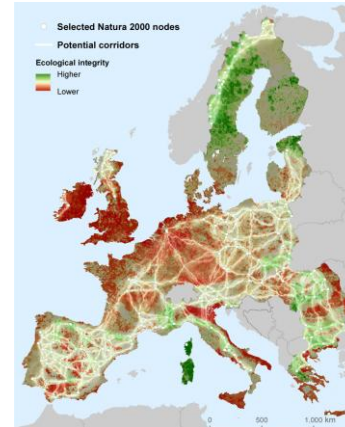
Agroecology

Designing and managing agricultural and food systems using ecological and social concepts and principles to support sustainable agricultural production, minimize negative environmental impacts of production and secure nature's contributions to people.



Rewilding

An approach to restoring ecosystems that focuses on recovering ecological processes, improving ecological connectivity, restoring wildlife populations and reconnecting people with nature; natural processes lead the recovery rather than a defined ecosystem end state.



Ecosystem-based adaptation in rural landscapes

Using biodiversity and nature's contributions to people to reduce human vulnerability to climate change by facilitating adaptation and building resilience to the impacts of climate change.



Enabling response options

Biodiversity response option	Brief description
B09 Integrated landscape and seascape approaches	Multi-stakeholder, multi-sectoral, collaborative processes to adaptively co-manage landscapes and seascapes over the long term that emphasize connectivity between socio-ecological systems with synergistic outcomes for environmental, social and economic objectives.
B10 Rights-based approaches	Applying human rights principles to conservation and other measures, and accounting for the rights of nature and the rights of non-human entities; this includes recognizing the rights of Indigenous Peoples, local communities and women, such as to land and territories, water, food, health and a safe and clean environment.
B11 Multilateral environmental agreements	Implementing international environmental agreements, focusing on flexible implementation processes that account for local knowledge and needs, foster intergovernmental cooperation and promote synergistic outcomes across agreements and development priorities.
B12 Land and sea planning	Employing spatial planning to configure the use of terrestrial and marine territories over the medium to long term to balance trade-offs between multiple uses of the natural environment, support sustainable development objectives and meet socio-cultural needs.
B13 Natural capital accounting	Measuring and reporting on the stocks and flows of natural assets (renewable, non-renewable, biotic, abiotic), at the individual and ecosystem level, to manage, sustain and enhance nature's contributions to people.
B14 Reconnecting people with nature	Restoring and fostering a deep connection between people and the natural world, including deepening understanding and appreciation of nature; the process draws on multiple knowledge systems and benefits human health and well-being and nature.

Reconnecting nature and people

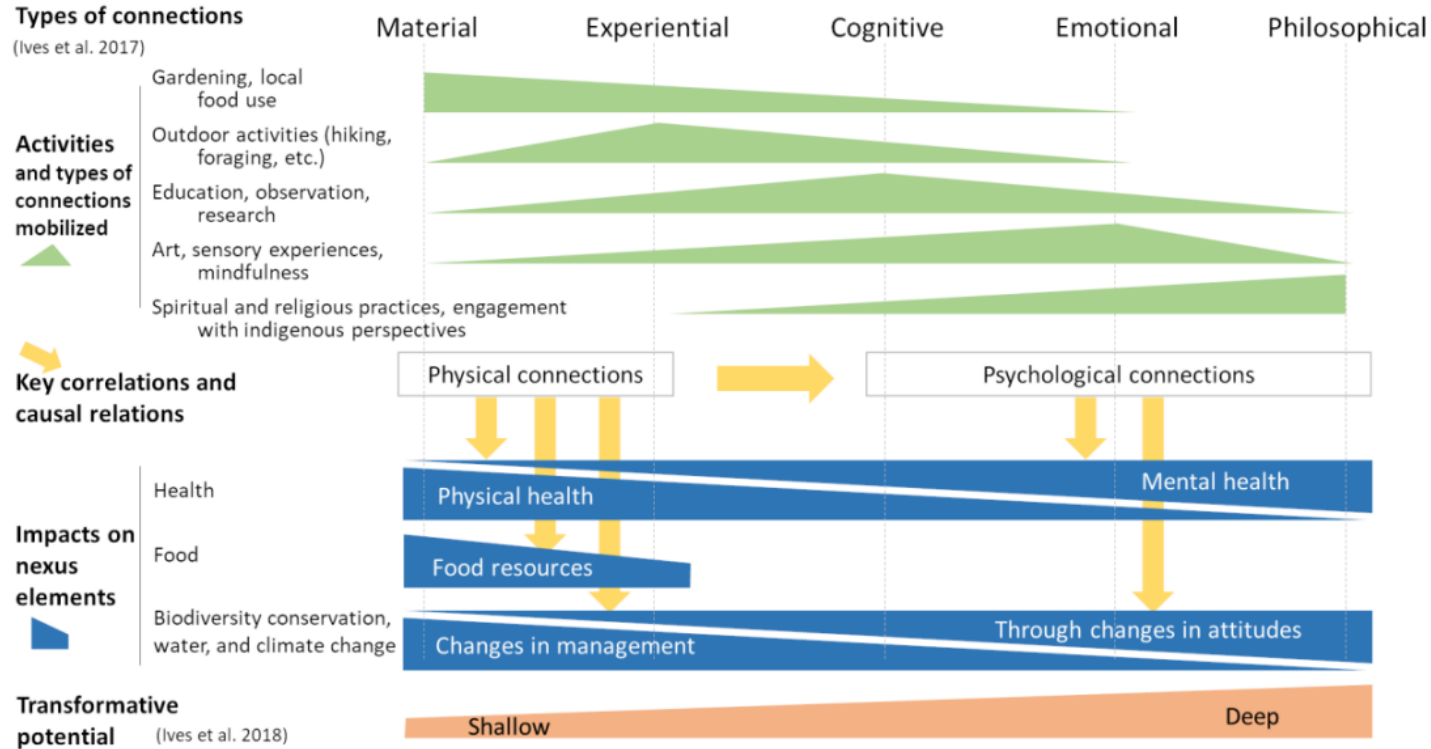


Figure 5.1.9. The types of connections mobilized by activities to reconnect people with nature (blue), their impacts on the nexus elements (green), the correlations and causalities identified in the literature (yellow) and transformative potential (red).

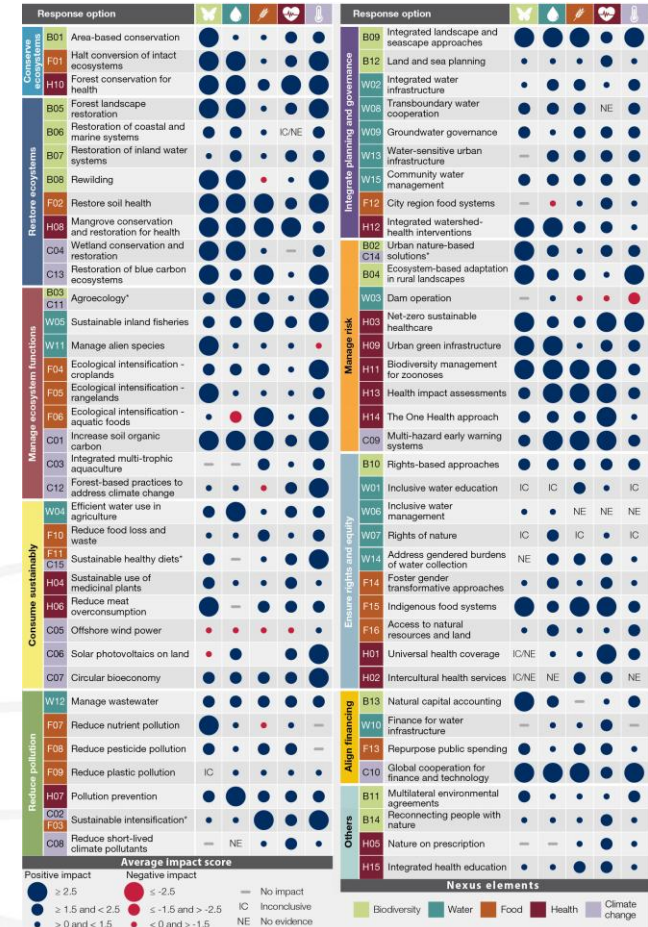
Response options assessment

- **Multisectoral, multidimensional approach to assessing response options**
 - Assesses **options for different actors** to create the changes needed for achieving a sustainable future
 - Assesses options for actions that **build on synergies between the nexus sectors**: biodiversity, water, food, health and climate change
- **Response option assessment:**
 - Benefits to Nexus elements
 - Actors and key institutions
 - Individual and collective action
 - Enablers and barriers
 - Feasibility
 - Cost and benefits
 - Consideration of regional differences, multiple value systems, populations, places and scale
 - Contributions to SDGs, Global biodiversity framework, Paris Agreement goals

Chapter 5 – Options for sustainable approaches to the Nexus

Impacts on nexus elements

- Many response options benefit multiple nexus elements when implemented at appropriate scales and accounting for context
- Example response options with **nexus-wide benefits**:
 - Conserving or halting conversion of ecosystems of high ecological integrity
 - Conserving and restoring mangroves for health
 - Increasing soil organic carbon
 - Integrated landscape and seascape approaches
 - Community water management



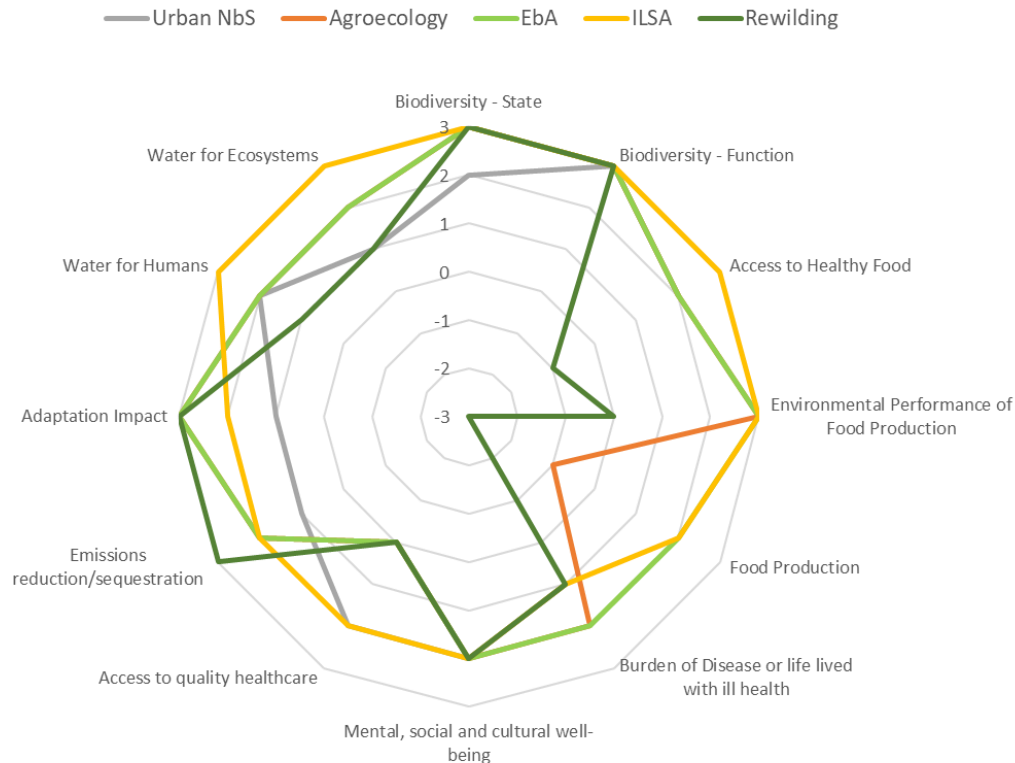
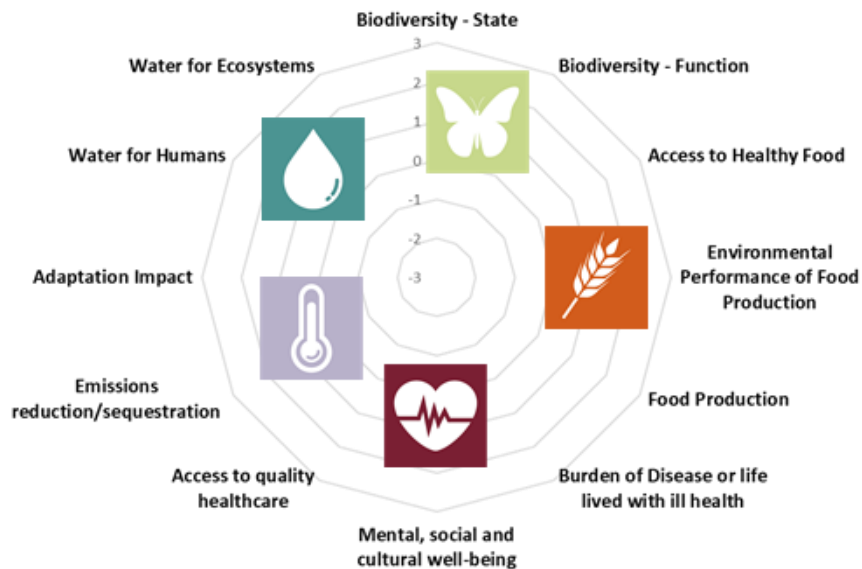
Integrated landscape and seascape management

Multi-stakeholder, multi-sectoral, collaborative processes to adaptively co-manage landscapes and seascapes over the long term that emphasize connectivity between socio-ecological systems with synergistic outcomes for environmental, social and economic objectives.



Figure 5.1.6. The Xinshe socio-ecological production landscape and seascape (SEPLS), Xinshe Village, Hualien County, China. Photo credit: Vision Way Communication Ltd. – CC BY-NC-ND

Benefits of response options across Nexus elements



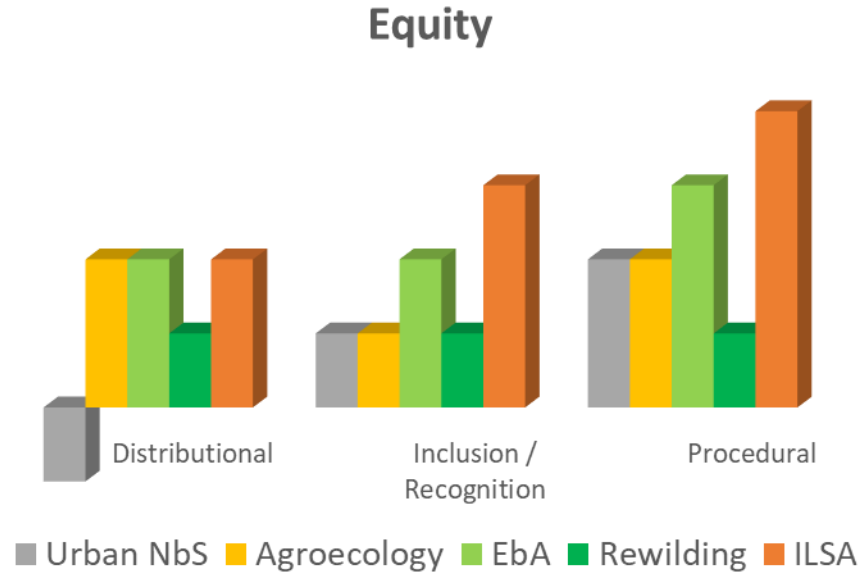
Biodiversity response options for the Nexus

Enablers and barriers

 Biodiversity response option	Enablers and barriers							Enabler and barrier classifications
	Policy design and implementation	Equity and diversity	Institutional capacity	Finance and economics	Behaviour and lifestyle	Technology	Material endowments	
B01 Area-based conservation	●	●	○	●	●	●	●	● Strong enabler
B02 Urban nature-based solutions	●	●	○	●	ND/U	○	●	● Enabler
B03 Agroecology	●	ND/U	●	○	●	●	●	● Both enabler and barrier
B04 Ecosystem-based adaptation in rural landscapes	●	●	●	○	●	●	●	○ Neither enabler nor barrier
B05 Forest landscape restoration	●	●	●	●	●	●	●	○ Barrier
B06 Restoration of coastal and marine systems	●	●	●	●	●	●	●	○ Strong barrier
B07 Restoration of inland water systems	●	●	●	●	●	●	●	○ Unclear
B08 Rewilding	●	○	●	●	●	○	●	ND/U No data or unable to determine
B09 Integrated landscape and seascape approaches	●	●	●	ND/U	●	●	○	
B10 Rights-based approaches	●	ND/U	●	●	●	●	ND/U	
B11 Multilateral environmental agreements	●	●	●	●	●	ND/U	ND/U	
B12 Land and sea planning	●	●	●	●	●	●	●	
B13 Natural capital accounting	●	○	●	●	○	●	ND/U	
B14 Reconnecting people with nature	●	○	●	●	●	○	●	

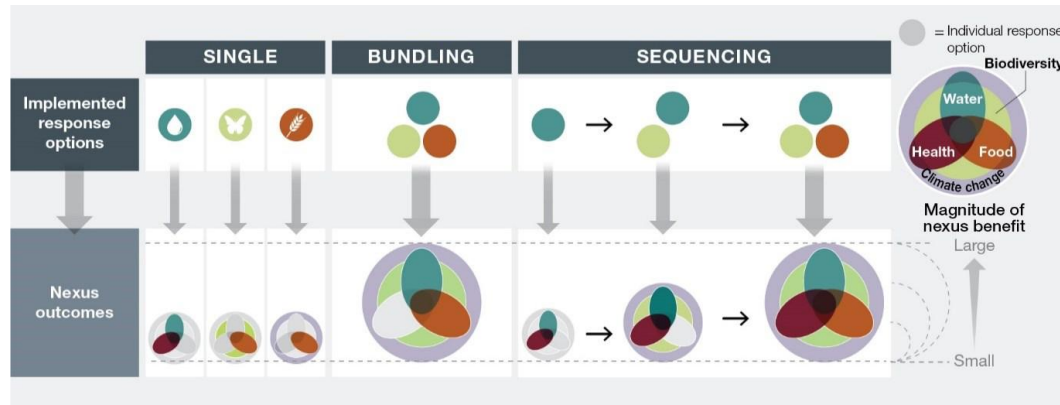
Figure 5.1.11. Enablers of and barriers to successful implementation of each of the 14 biodiversity response options. See Table 4.6 in chapter 4 for descriptions of the enablers and barriers.

Social benefits of response options



Chapter 5 – Options for sustainable approaches to the Nexus

- Implementing response **options together or in sequence** can enhance **nexus-wide benefits**, because some response options enable others or **amplify their impacts**



BUNDLING

Transforming the Paris food system

Benefits of bundling: Adoption of sustainable healthy diets created local demand for foods produced by ecological intensification which reduced water pollution and improved the effectiveness of water treatment.

B03 W02 W10
F04 F11 F12
H06 C11 C15

B03 C11 Agroecology*
W02 Integrated water infrastructure
W10 Finance for water infrastructure
H06 Reduce meat overconsumption

F12 City region food systems
F11 C15 Sustainable healthy diets*
F04 Ecological intensification -croplands

The Paris Sustainable Food strategy bundled response options to increase adoption of sustainable healthy diets as a means of addressing hunger and poor health due to overconsumption of unhealthy foods. A €47 million investment from Paris and Eau de Paris finances farmers' costs of transitioning to ecological intensification, resulting in reduced nutrient and pesticide pollution and thereby reducing the costs of water treatment.

Nexus benefits: Improved biodiversity on farmlands, reduced nutrient and pesticide pollution, improved soil health, healthier diets, increased carbon sequestration



Thank you!
¡Gracias!
Merci !



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	Biodiversity		Water		Food		Food		Health		Climate change	
	Change in function	Change in state	Water for ecosystems	Water for humans	Access to healthy food	Environmental performance of food production	Food availability and production	Access to quality healthcare	Burden of disease	Well-being	Adaptation impact	Mitigation impact
B01 Area-based conservation						INC						
B02 Urban nature-based solutions						INC	INC	INC				
B03 Agroecology								NA	NA			
B04 Ecosystem-based adaptation in rural landscapes												
B05 Forest landscape restoration												
B06 Restoration of coastal and marine systems								NE	NE	INC	NE	
B07 Restoration of inland water systems												
B08 Rewilding												
B09 Integrated landscape and seascape approaches												
B10 Rights-based approaches									NE	NE		
B11 Multilateral environmental agreements								NE	NE	NE		
B12 Land and sea planning								NE	NE	NE		
B13 Natural capital accounting												
B14 Reconnecting people with nature												



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	Social acceptability		Alignment with political priorities		Alignment with international frameworks			Economic implications				Equity			Transformative change potential		
	Political support	Positively affects vulnerable groups	Existing policies	Included in national priorities	SDGs	GBF	Paris Agreement	Economic benefits	Economic risks	Gross economic costs	Individual economic costs	Distributional equity	Inclusion and/or recognition	Procedural equity	Social, cultural and technical innovation	Structures and institutions	Views and values
B01 Area-based conservation																	
B02 Urban nature-based solutions		INC INC															
B03 Agroecology										NE							
B04 Ecosystem-based adaptation in rural landscapes																	
B05 Forest landscape restoration																	
B06 Restoration of coastal and marine systems		INC						INC INC	INC INC		NA NA						
B07 Restoration of inland water systems																	
B08 Rewilding											INC INC						
B09 Integrated landscape and seascape approaches																	
B10 Rights-based approaches				NE NE						NE							
B11 Multilateral environmental agreements								NE NE	NE NE	NE NE	NE NE						
B12 Land and sea planning							NE NE	NE NE	NE NE	NE NE	NE NE						
B13 Natural capital accounting	NE NE	NE NE								NE NE		NE NE					
B14 Reconnecting people with nature																	

