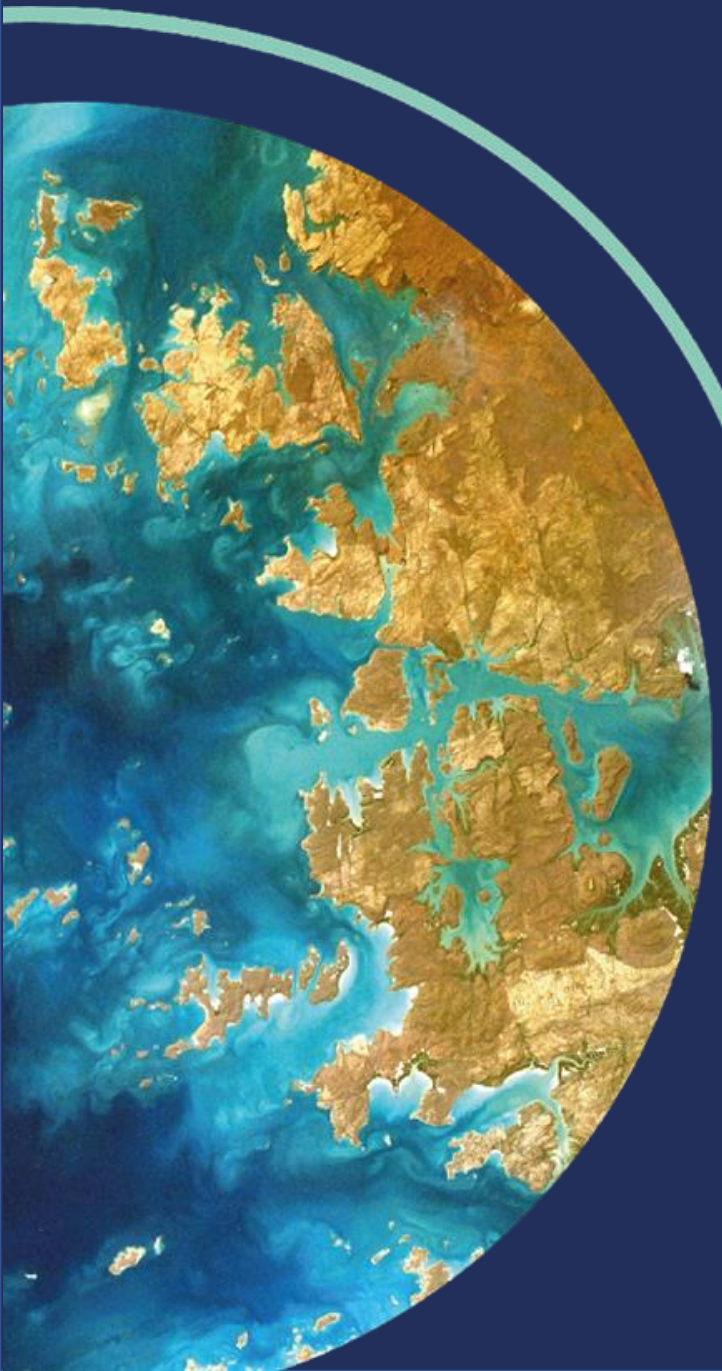

Mapping Essential Life Support Areas: The Recipe

Annie Virnig
Strategic Advisor on Spatial Planning
UNDP Nature for Development

Essential Life Support Areas: The “Big Enchilada”

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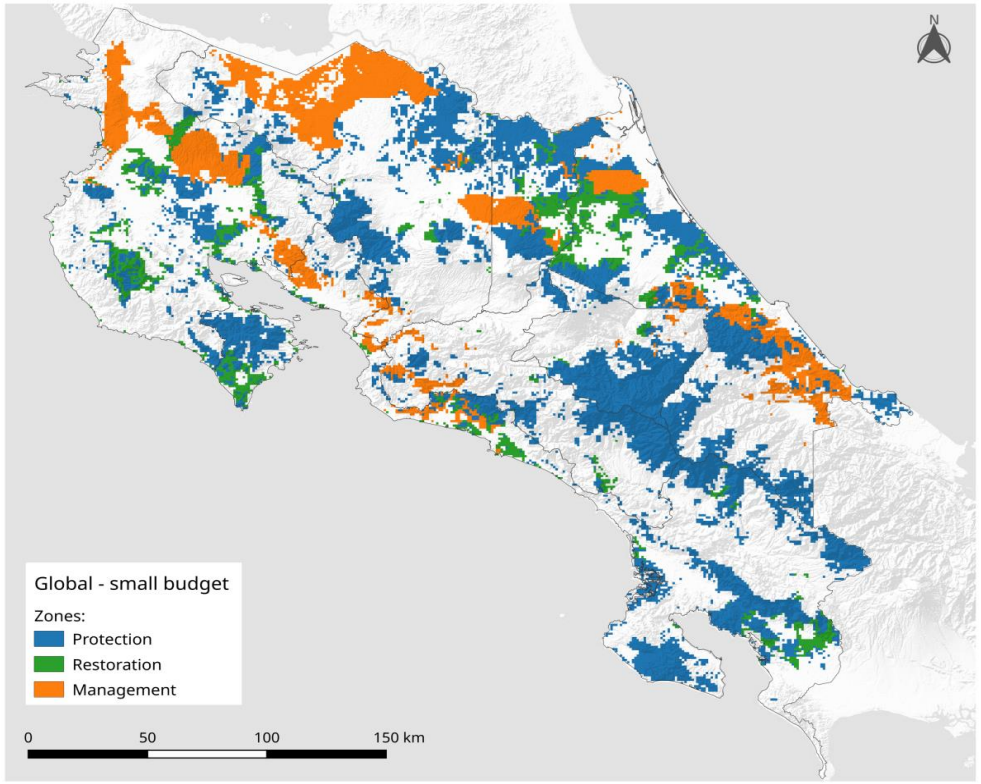
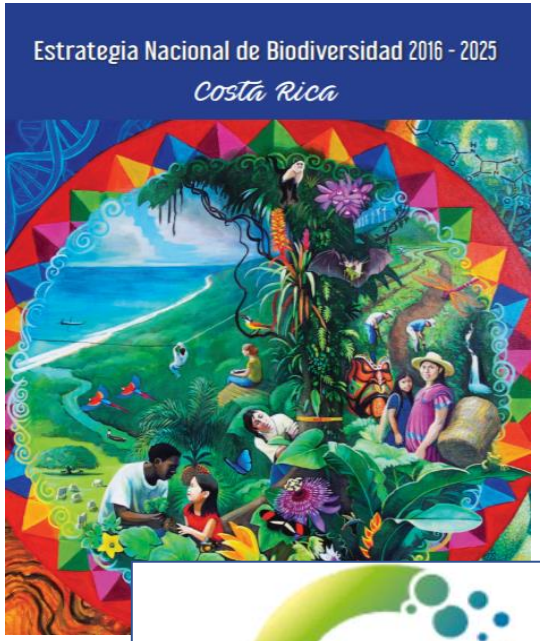


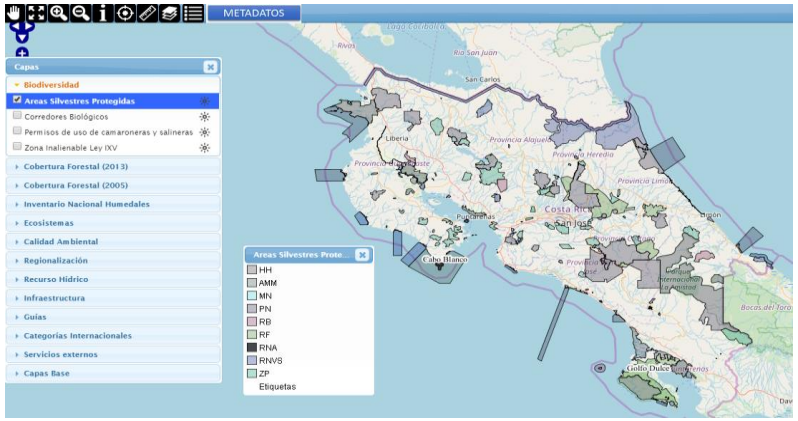
The Flavors: Key Policy Targets

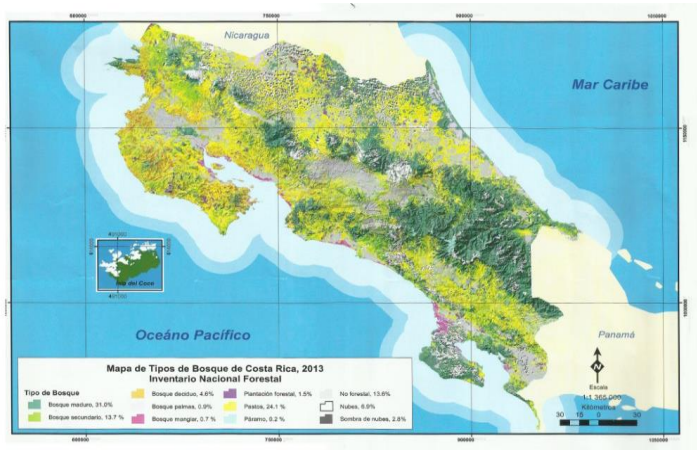


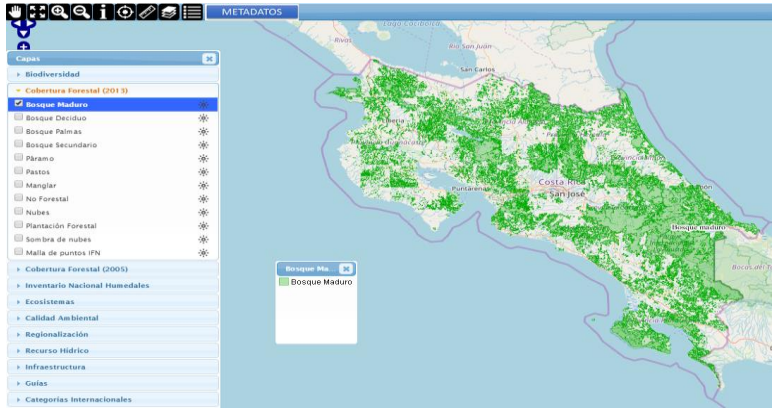
DESCARBONICEMOS
COSTA RICA
COMPROMISO PAÍS 2018-2050

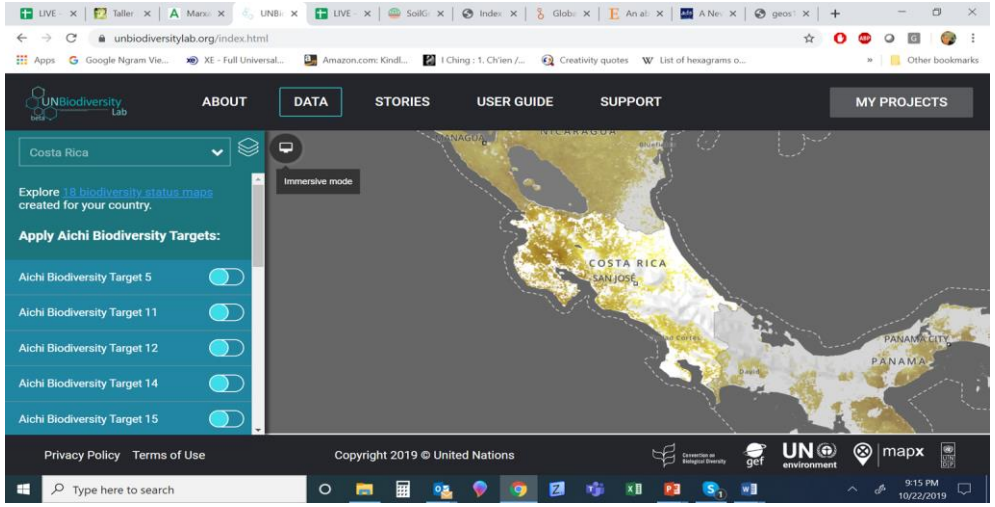
Natural capital & carbon sequestration								
Policy doc	Thematic area	Interventions/Strategies	Objectives/Actions	Indicators	Baseline	Targets/Vision	Comments	
National Development Plan 2019–2020	Infrastructure, Mobility and Regional Planning		Establish the necessary conditions for urban design, regional planning, infrastructure and mobility, in order to create resilient, sustainable and inclusive places in both urban and rural settings.	Environmental Performance Index (EPI) Ranking.	2017: 30th out of 178 countries	2020–2022: Achieve a ranking between 15 and 10 2020: Achieve a ranking between 20 and 15 2022: Achieve a ranking between 15 and 10		Key for
		National Greenhouse Gas Reduction Program	Work toward carbon neutrality by securing the support of the forestry sector and other key sectors such as public transit and agriculture, and by fostering local government participation in efforts to mitigate the effects of climate change	Tonnes of carbon dioxide equivalent reduced	**2017: 4,159,892 tCO2e**	**2020 and 2022: Cut CO2 equivalent emissions by 4,000,000 tonnes. 2020: 2,000,000 2022: 2,000,000**	Key for ELSA. Good to note that the decarbonization plan is more ambitious for these items. Instructions to science team: find a scenario that enables us to reduce deforestation by 4,000,0000 tonnes.	Second
				Tonnes of CO2 equivalent captured by forests under payment for ecosystem services (PES) contracts	**2017: 127,422,344 tCO2e**	**2019–2022: Maintain a forest carbon stock of 115,000,000 tonnes of CO2 equivalent. 2019: 115,000,000 2020: 115,000,000 2021: 115,000,000 2022: 115,000,000**	Key for ELSA. Good to note that the decarbonization plan is more ambitious for these items. Instructions to science team: find a scenario where 115,000,000 tonnes Co2 equivalent captured by forests under PES.	Discuss
				Number of municipalities participating in the National Carbon Neutrality Program 2.0	2018: 6 municipalities	2019–2022: 10 municipalities 2019: 2 2020: 2 2021: 3 2022: 3		
		Forest Harvesting Program (PPAF, in Spanish) for landscape restoration.	Strengthen the capacities of local micro-producers through agroforestry and silvopastoral projects.	Number projects funded under the PPAF	2017: 89 projects	2019–2022: 448 projects 2019: 78 2020: 112 2021: 129 2022: 129		
				Number of projects for mixed agroforestry systems submitted to the Payment for Ecosystem Services Program (PPSA, in Spanish)	N/A	2019–2022: 200 projects 2019: 50 2020: 50 2021: 50 2022: 50	Are these reported as the number of projects, or as hectares, or as geospatial files?	
		Axis 8. Supporting highly efficient	2019–2022: Embed innovative processes in the value chains of priority products that help create decarbonized agricultural goods	2 new programs for reducing emissions in the production of: bananas, rice and sugarcane	N/A	By 2030: Value chains for coffee, livestock, sugarcane, rice and bananas will employ emissions-reduction technologies both at farm level and during processing.		
				2 financial tools designed to encourage producers to change their methods.				
			2023–2030: Establish a solid national decarbonization strategy for the agricultural sector, encompassing axis 8	N/A	N/A			

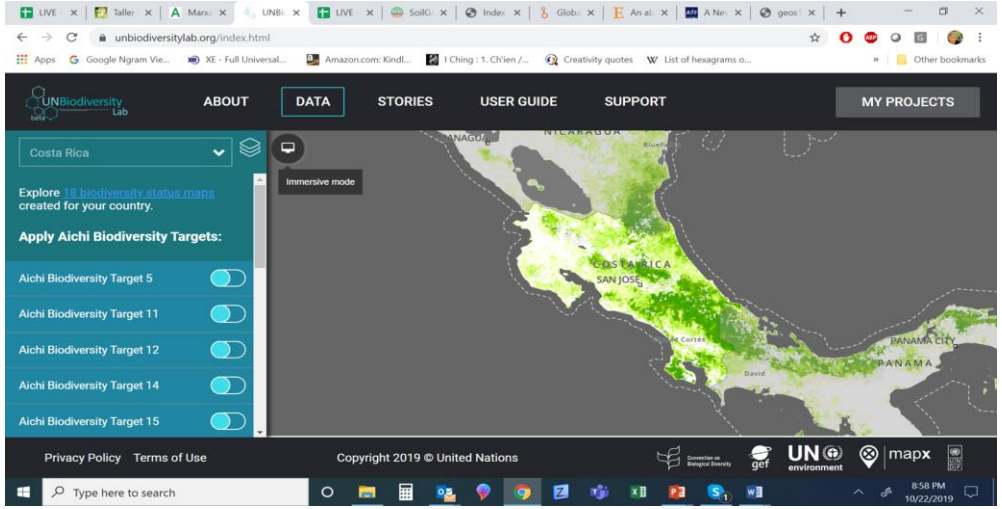
The Ingredients: Global and National Data Sets





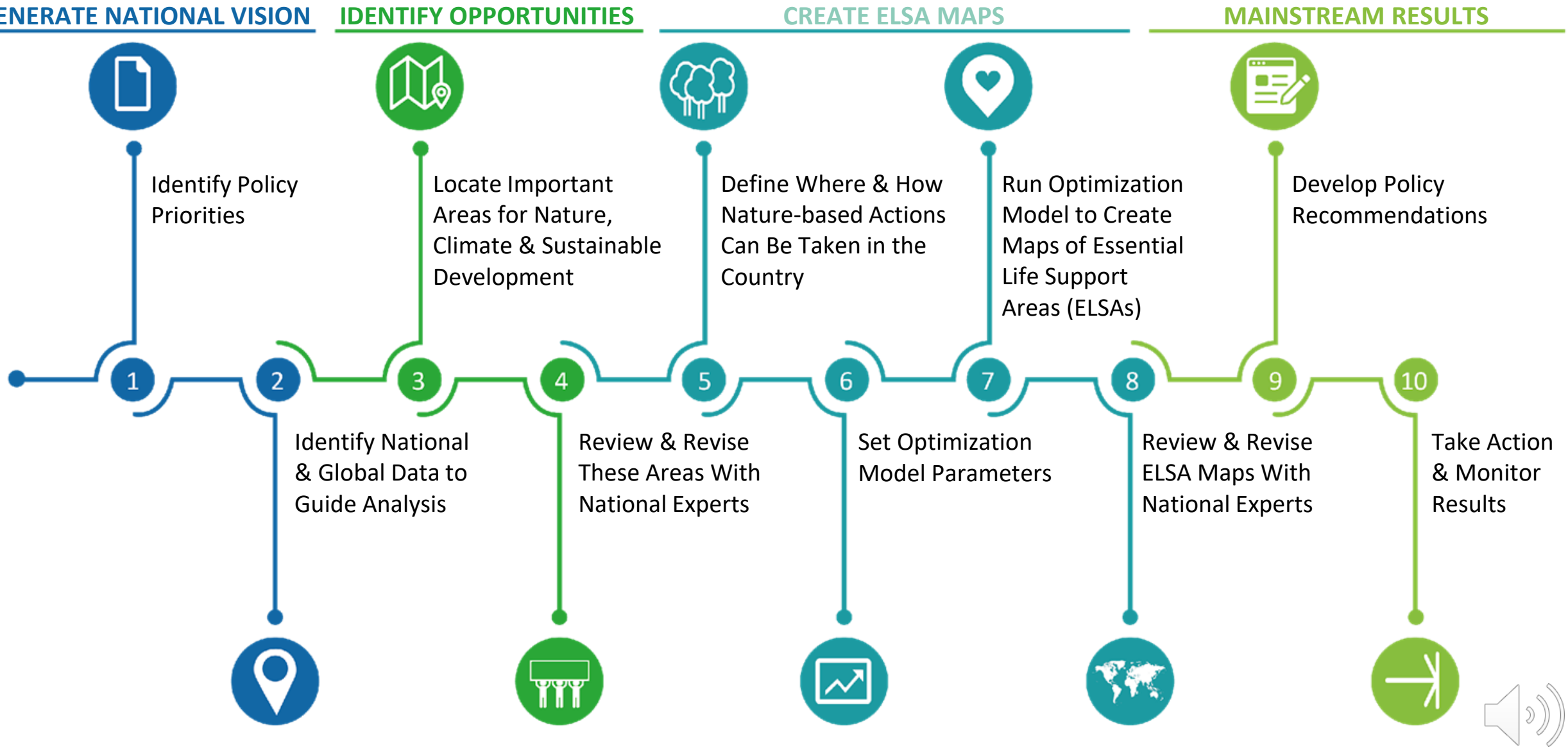






The Recipe

Mapping Essential Life Support Areas



Mapping Essential Life Support Areas

GENERATE NATIONAL VISION

Step 1: Identify Policy Priorities

- Identify **key policies** for your country related to nature, climate, and development
- Identify **nature-based targets** and actions that have the potential to be mapped
- Prioritize up to **10 commitments** for which the analysis will create a roadmap to achieve

Mapping Essential Life Support Areas

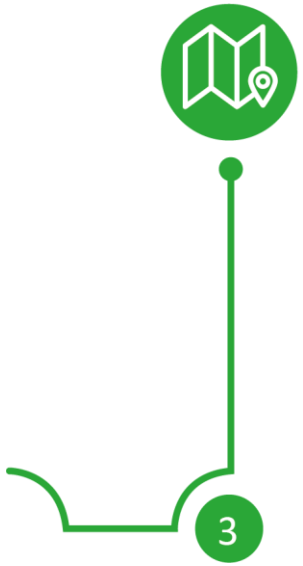
GENERATE NATIONAL VISION

Step 2: Identify National and Global Data to Guide the Analysis

- Identify **national and global spatial datasets** that relate to the policy commitments
- These datasets will **spatially represent the policy commitments** in the analysis

Mapping Essential Life Support Areas

IDENTIFY OPPORTUNITIES

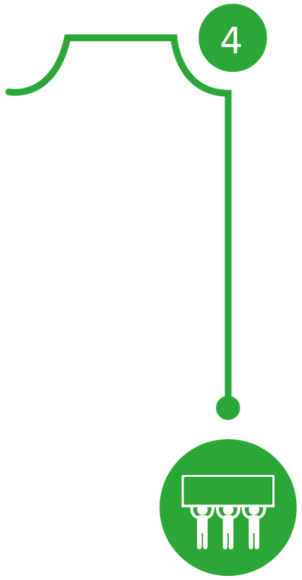


Step 3: Locate Important Areas for Nature, Climate & Sustainable Development

- Use GIS software to **visualize spatial data** layers to see where they overlap
- Identify '**high-value**' and '**low-value**' locations that indicate important ecosystems

Mapping Essential Life Support Areas

IDENTIFY OPPORTUNITIES

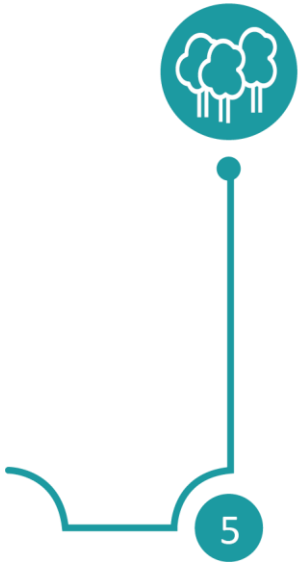


Step 4: Review & Revise These Areas with National Experts

- Gather national experts
- Use their knowledge to review these locations and identify:
  - What areas **appear important but are not**, and vice versa
  - What **national datasets** are needed to fill gaps

Mapping Essential Life Support Areas

CREATE ACTION MAPS



Step 5: Define Where & How Nature-based Actions Can Be Taken

- Determine the **total amount of land area** that can be allocated to potential **nature-based actions**, such as protection, management, or restoration
- **Visualize land zoning maps** using GIS software to identify the range of locations where it is possible to protect, manage, or restore nature

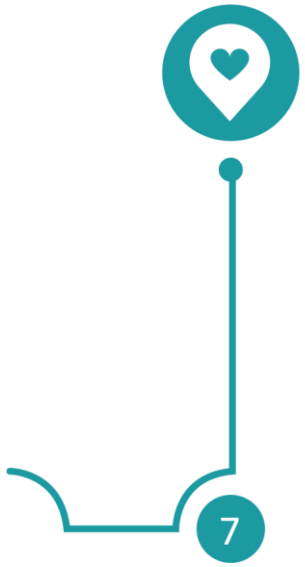
Mapping Essential Life Support Areas

Step 6: Set Optimization Model Parameters

- Gather expert opinions to **assign weights** to:
  - Each spatial dataset to reflect the **priority** of each policy commitment
  - The **potential impact** that each nature-based action can have on achieving each policy target

Mapping Essential Life Support Areas

CREATE ACTION MAPS



Step 7: Run Optimization Model to Create Maps of Essential Life Support Areas (ELSAs)

- Use the software **Prioritizr** to run the model
- Create **individual nature-based maps** for commitments on nature, climate, or development
- Create ELSA maps that show **where** taking a particular nature-based action can best accelerate **progress towards all targets**

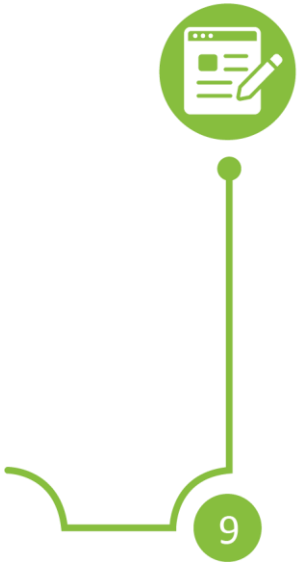
Mapping Essential Life Support Areas

Step 8: Review & Revise ELSA Maps with National Experts

- Gather national experts to:
  - **Compare potential locations** to take action to achieve different targets
  - Discuss **synergies and tradeoffs**
  - Revise weighting & iterate

Mapping Essential Life Support Areas

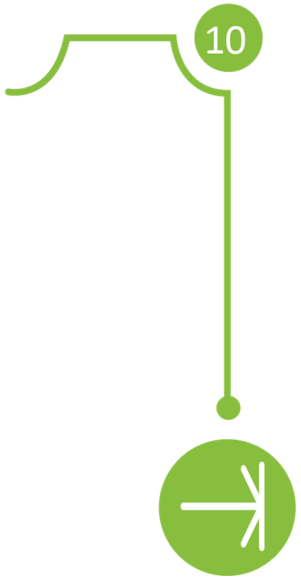
MAINSTREAM RESULTS



Step 9: Develop Policy Recommendations

- **Assess ELSA maps** in the context of current national policies
- Create **policy recommendations** based on project results
- **Review** with national experts and **revise**

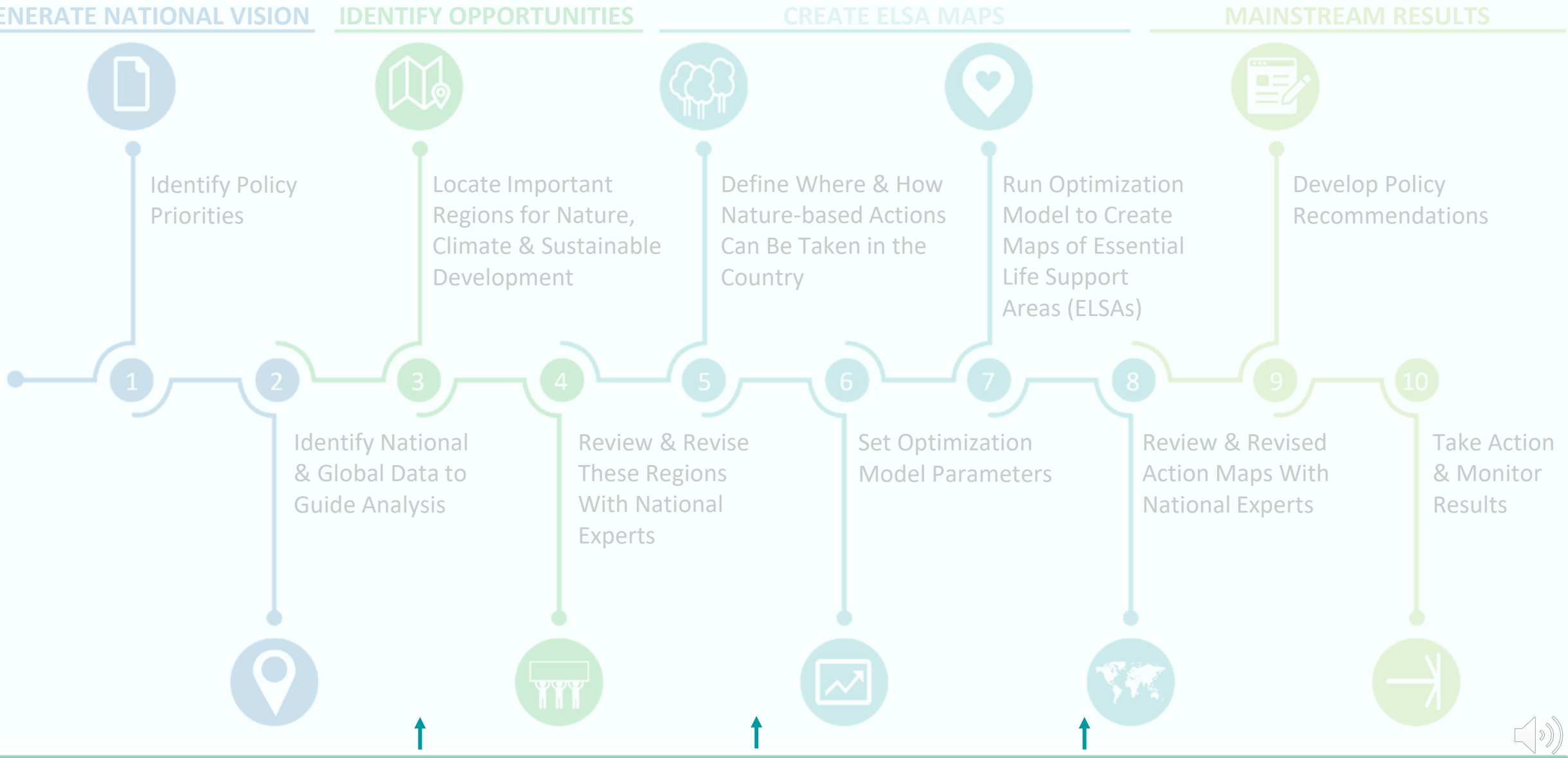
Mapping Essential Life Support Areas

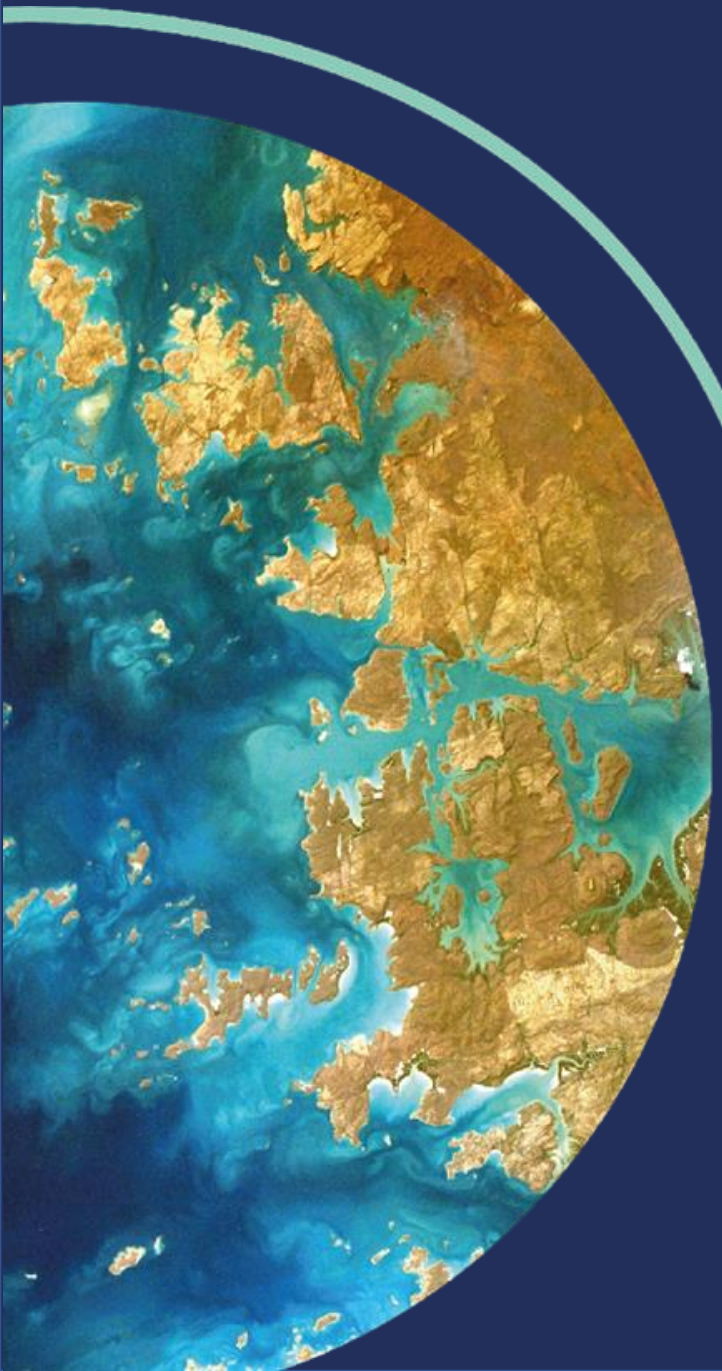


Step 10: Take Action and Monitor Results

- Engage in **cross-sectoral coordination** to apply policy recommendations and mainstream project results
- **Monitor targets** through dynamic indicators
- **Iterate** upon ELSA maps and related policies based on results

Mapping Essential Life Support Areas





Thank you!

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anne.virnig@undp.org
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