



REST-COAST



From practice to policy: Lessons for scaling up coastal ecosystem restoration for climate adaptation

Giulia Costa Domingo (IUCN MED)

3rd of November, MEER:STARK Final Event: Bridging Science and Policy.
Exploring the Marine Protection and Climate Adaptation Nexus



This project receives funding from the European Union's Horizon 2020 Research and Innovation action under grant agreement No 101037097.



Large scale RESToration of COASTal ecosystems through rivers to sea connectivity

- **Objective:** Reduce coastal risks and provide gains in biodiversity and ecosystem services using coastal ecosystems potential to provide low-carbon adaptation
- **How?** Overcome **BARRIERS** and promote **ENABLERS** for large-scale coastal ecosystem restoration through dedicated **tools** and **on-the-ground action**



Upscaling large-scale coastal restoration

Sánchez, A. et al. (2022) Barriers and enablers for upscaling coastal restoration. <https://doi.org/10.1016/j.nbsj.2022.100032>

Identifying and addressing **BARRIERS**

Technical barriers:

- Need for engineering and ecological expertise
- Lack of data/ metrics for biodiversity and ESS
- Need for monitoring and maintenance plans
- Delayed performance
- Natural resource availability
- Room for adaptation
- Limited compatibility with existing infrastructure

Financial barriers:

- Limited public/ private funding
- Undervaluation of benefits
- Time-lags/ variability/ uncertainty for benefits
- Insufficient returns from investments
- Lack attractive business plans
- Little investment planning experience

Identifying and promoting **ENABLERS**

Governance barriers:

- Institutional inertia
- Social perception
- Short term policies
- Fragmented policies and limited coordination
- Divergent views across levels of governance
- Conflicting stakeholder interests
- Lack of consensus building



Upscaling large-scale coastal restoration

Sánchez, A. et al. (2022) Barriers and enablers for upscaling coastal restoration. <https://doi.org/10.1016/j.nbsj.2022.100032>

Identifying and addressing
BARRIERS

Identifying and promoting
ENABLERS

Technical barriers:

Technical enablers:

- Advanced modelling and monitoring
- Harmonised metrics and data
- Enhanced connectivity

Financial barriers:

Financial enablers:

- Innovative value capture instruments and business models
- Improve capacity to develop business models

Governance barriers:

Governance enablers:

- Multi level governance mechanisms
- Plans for transition in governance
- Strengthened policies

Practice and Techniques

Financial mechanisms

Governance arrangements and Policies



REST-COAST

Upscaling large-scale coastal restoration

Identifying and addressing **BARRIERS**

Identifying and promoting **ENABLERS**

Practice and Techniques

Financial mechanisms

Governance arrangements and Policies

Coastal Restoration Platforms

Restoration Agreements

Hands-on restoration (9 pilots)

Delivery of ecosystem services for **climate change adaptation and mitigation** and **biodiversity conservation**

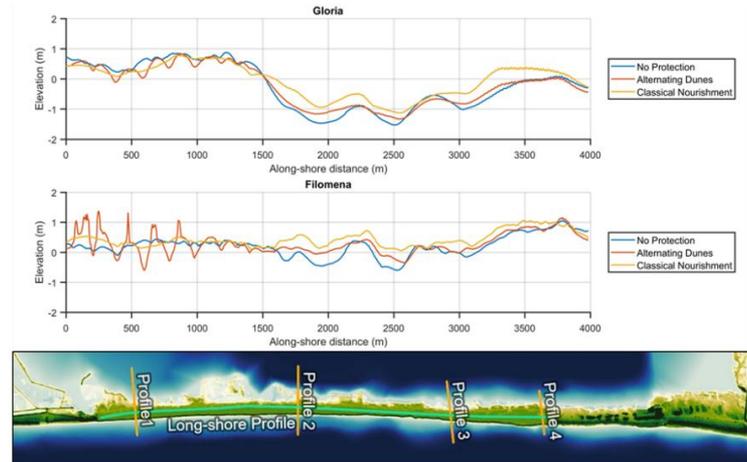
Demonstrating coastal restoration techniques

- Progress & expertise from hands-on restoration in **9 Pilots**
 - sand dune restoration, saltmarsh restoration, seagrass restoration, dice deconstruction, sediment recycling...
- **New practices, harmonised metrics** and EUNIS maps
- Restorations **implemented** and **monitored** to assess their impact (before/after) on ESS & BDV
- Documented results to enable effective upscaling



Applying new tools/data to assess Risk Reduction from restoration actions

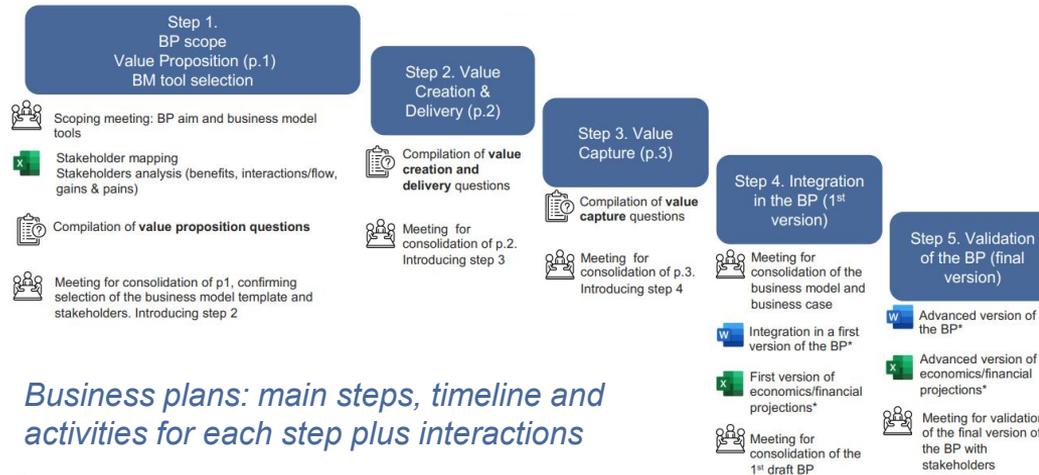
- Nested **simulations to steer actions & plans**
- **Predictions and projections** with combined met/ocean drivers
- Multi-risk experiments to assess **Climate Change impacts on NbS**
- Generation of actionable **risk warnings** with error bars
- **Valuation of ESS** (flood/erosion risk reduction, water quality, productivity, blue C)



Embryo dune performance (Ebro Δ) under storms (red) vs classical nourishment (orange) & no intervention (blue)

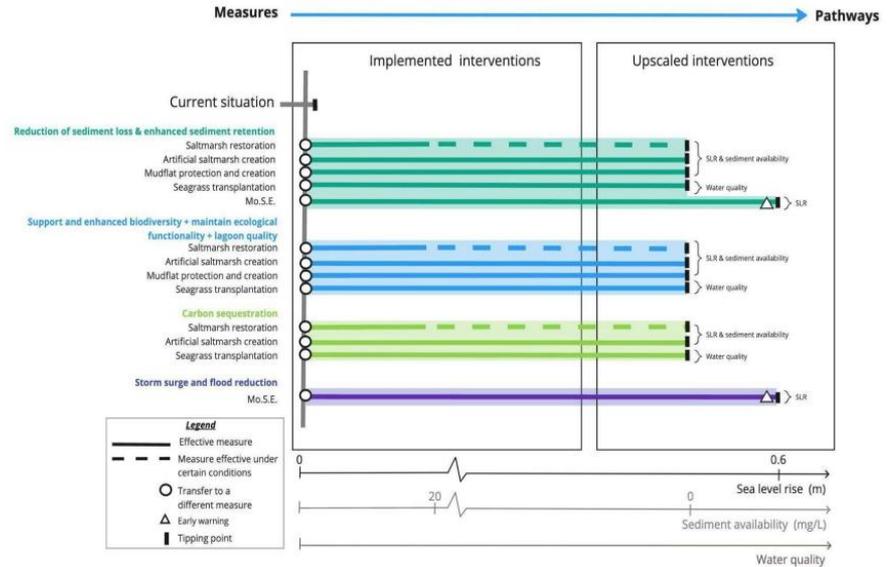
Designing/ applying new financial arrangements

- Financing restoration implementation, upscaling and maintenance
- Review of innovative public funding, finance and provisioning arrangements
- Developing **business models, bankable business plans and financial scalability plans** tailored for each pilot site



Developing /testing plan for coastal adaptation-through-restoration

- **Adaptation pathways** to sequence and prioritize coastal restoration actions
- **Support decision-makers** to manage uncertainties and adapt strategies over time
- Building on observations/simulations
- Incorporating **ecosystem service** and **biodiversity** values
- Linked to **funding and governance** enablers



Adaptation pathways with TPs (Venice lagoon)

Co-designing innovative governance arrangements

- Mapping **stakeholders and policies**
- Establishing clear and measurable **governance criteria**
- Development of **governance roadmaps** and tailored **recommendations**
- Tracking **progress** and continuous improvement

Figure 2. Status of governance roadmaps implementation at REST-COAST level

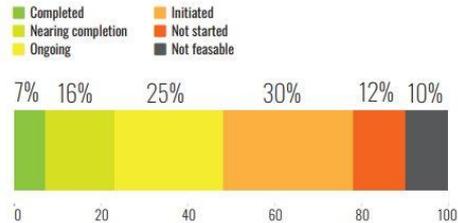
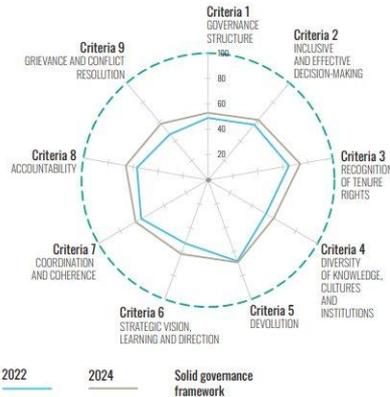


Figure 1. Progress on governance criteria



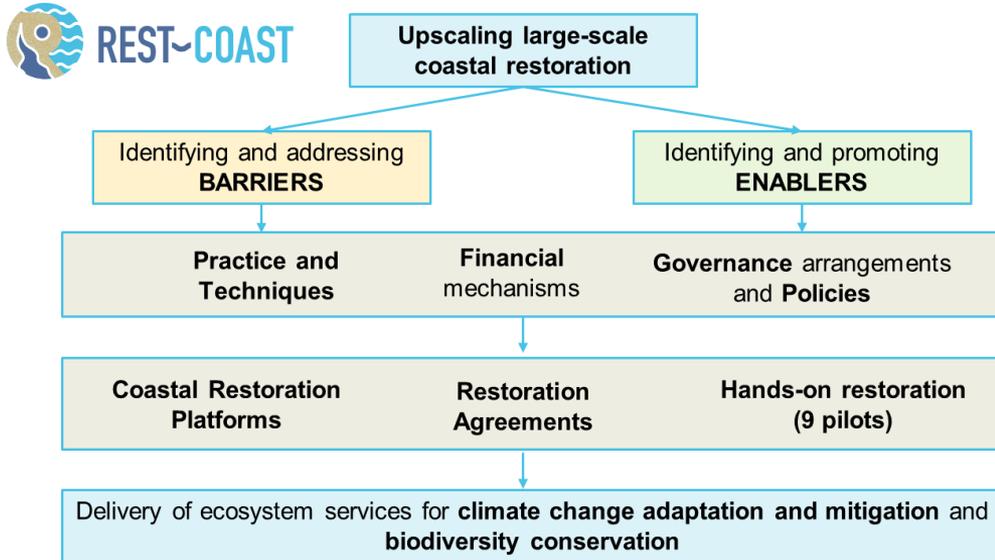
Fostering multi-level stakeholder cooperation

CORE-PLATS (Coastal Restoration Platforms)

- Two levels of participation: Key operational actors, Broader local actors
- Main Purposes: Information sharing, Consensus building, Intervention co-design



Bridging the gap between Local Action and Policy



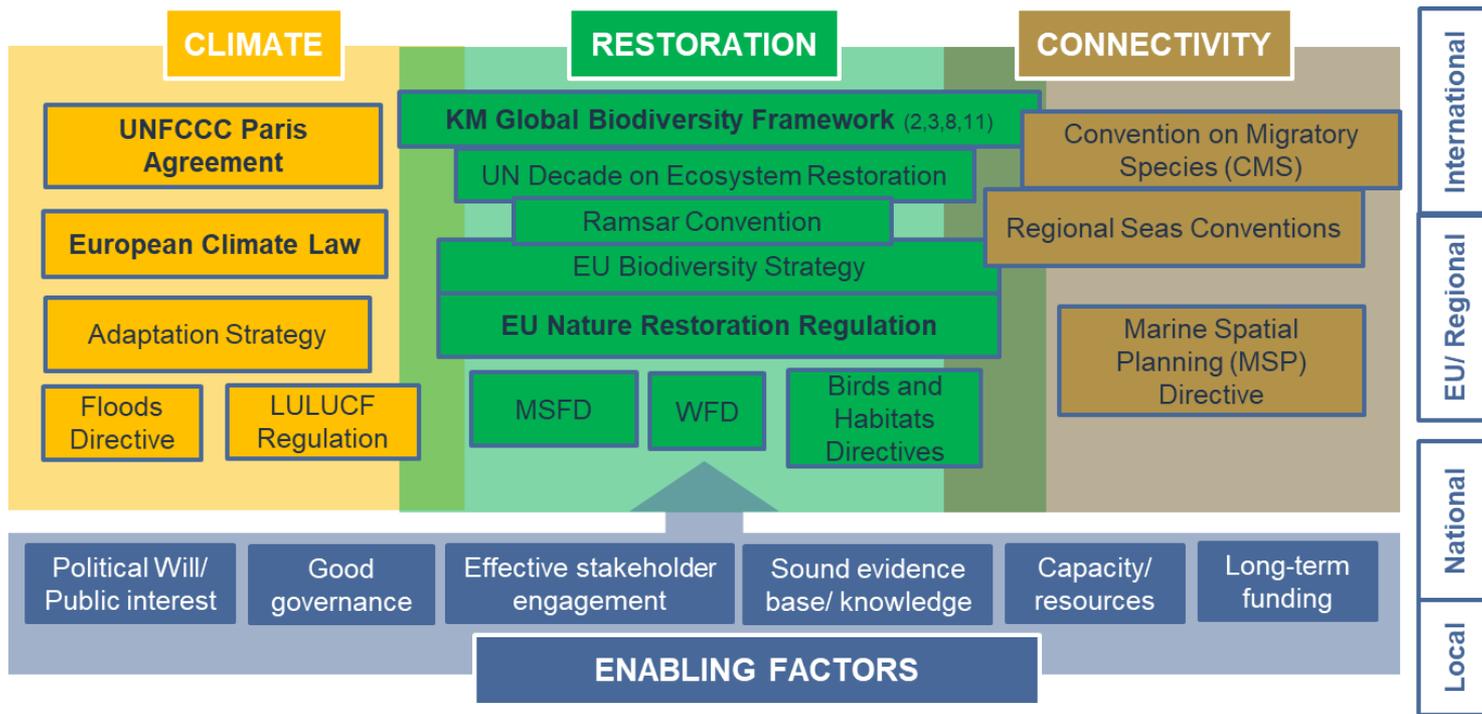
Translating findings into policy recommendations :

1. **Embedding coastal restoration** within existing policy frameworks
2. Strengthening **enabling policy framework** for coastal restoration



Long-term uptake and transference of results

Mapping the policy landscape for coastal restoration



Understanding key policy barriers and challenges

GENERAL

- **No direct mention** of coastal restoration
- **Limited coherence** across policies
- **Limited cross-sectoral coordination**
- **Limited stakeholder engagement** in decision-making processes
- **Limited stakeholder support** and transboundary cooperation
- **Little awareness on the benefits** and conflicting interests

DOCUMENT (YEAR)	ECOSYSTEMS IN GENERAL			COASTAL ECOSYSTEMS		
	MENTION	MITIGATION (targets/ measures)	ADAPTATION (targets/ measures)	MENTION	MITIGATION (targets/ measures)	ADAPTATION (targets/ measures)
EU, NDC (2023, 2020)	Orange	Green	Red	Red	Orange	Red
BULGARIA, NECP (2024)	Orange	Green	Orange	Red	Orange	Red
DENMARK, NECP (2023)	Green	Green	Red	Orange	Red	Red
FRANCE, NECP (2024)	Green	Green	Orange	Red	Red	Red
FRANCE, Overseas Territories NDC (2021, 2016)	Red	Red	Red	Orange	Orange	Red
GERMANY, NECP (2023)	Green	Green	Orange	Red	Orange	Red
ITALY, NECP (2024)	Green	Green	Red	Red	Red	Red
THE NETHERLANDS, NECP (2024)	Green	Green	Red	Red	Orange	Red
POLAND, NECP (2024)	Green	Green	Green	Red	Red	Red
SPAIN, NECP (2023)	Green	Green	Red	Red	Orange	Red
ISRAEL, NDC (2015, 2021)	Red	Red	Red	Red	Red	Red

Integration of coastal ecosystems within NDCs and NECPs in RESTCOAST countries

Identifying key contributions and opportunities

GENERAL

- **Decision-making support tools** that facilitate collaboration across governance levels and policy areas
- **COREPLATs** to facilitate coordination among key experts, stakeholders and decision-makers
- **Innovative funding** pathways and business models

CLIMATE

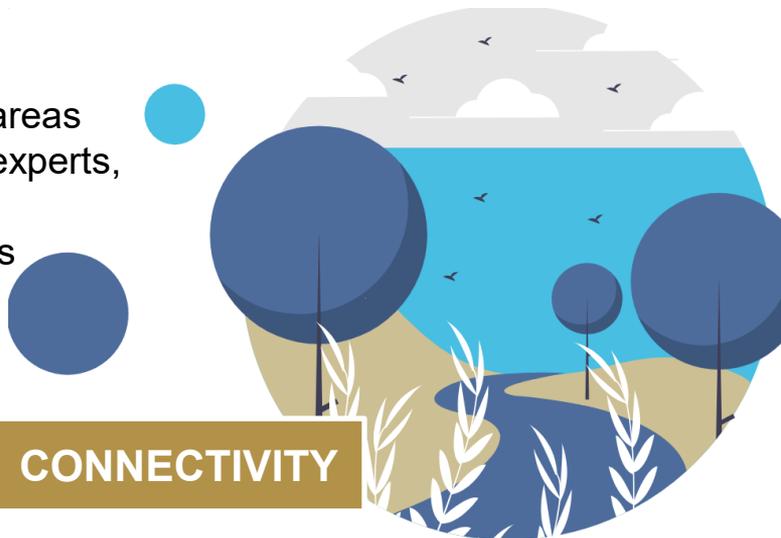
- Tools for designing and testing **adaptation NbS strategies**
- Testing **measures** that contribute to climate adaptation/ mitigation

RESTORATION

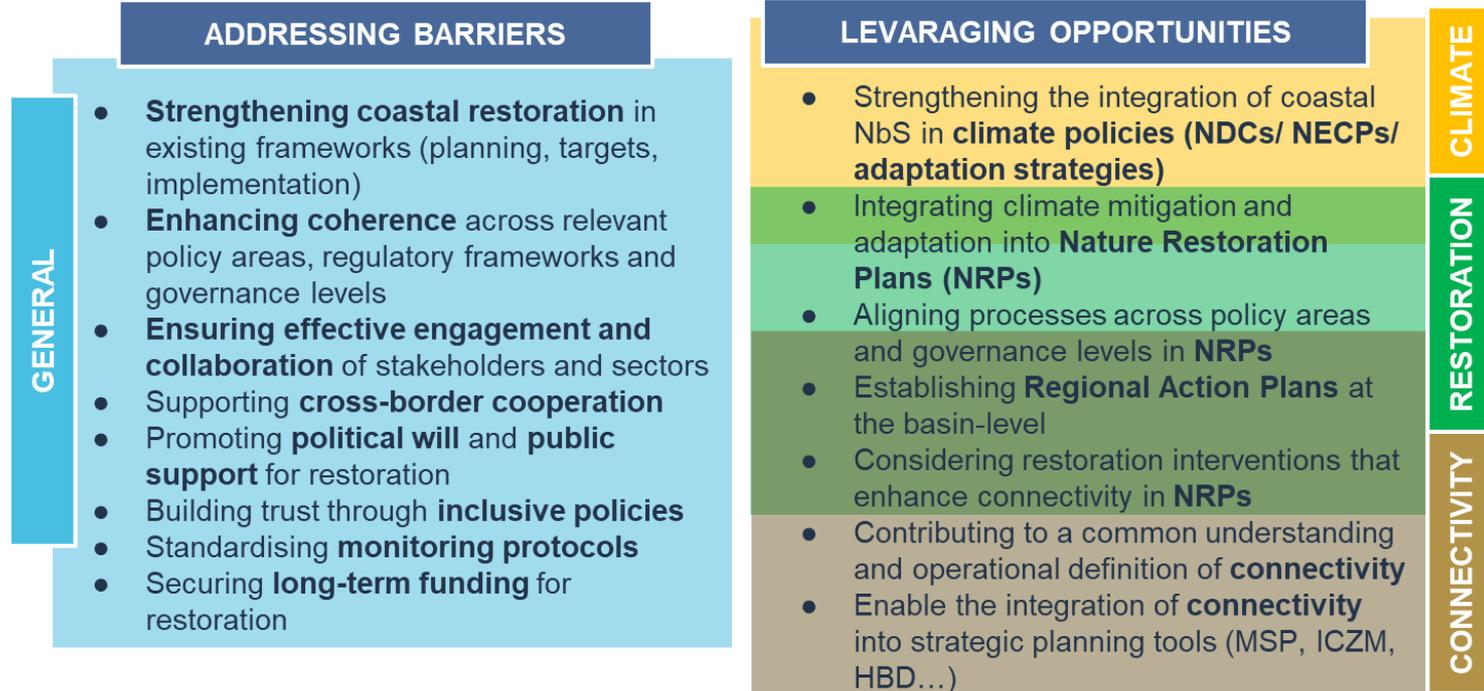
- Demonstrating **coastal restoration techniques**
- Development of **metrics and approaches** to measure coastal restoration success and co-benefits

CONNECTIVITY

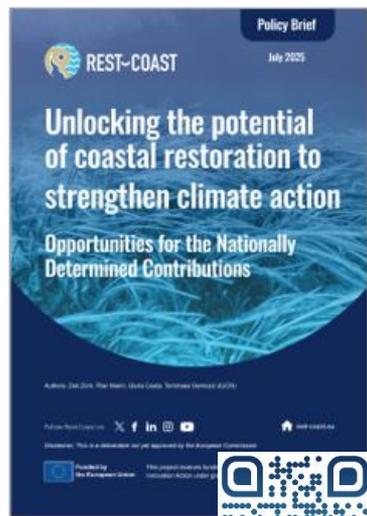
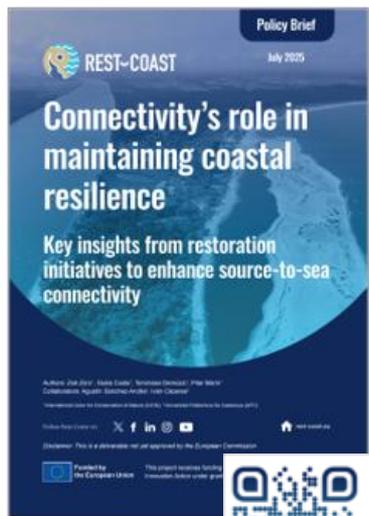
- **Piloting approaches** for enhanced connectivity
- **Cross-border cooperation** e.g. Wadden Sea pilot



Developing policy recommendations



Communicating recommendations to decision-makers





Thank you!