

DIAGNOSTIC METHODOLOGY FOR RESTORATION PROGRAMS

Restoration Readiness Levels

A structured diagnostic framework to monitor ecological recovery over project lifetimes, assess multi-dimensional site maturity, identify institutional bottlenecks, and transition demonstration sites into permanent landscape assets.

LIFETIME TRACKING

GAP IDENTIFICATION

SITE SCALING



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POST-PROJECT SITE SUSTAINABILITY

PHASE 1: Funded Demonstration

- Hydrology is successfully rewetted.
- Native vegetation recovers.
- Sensors and eddy covariance stations generate high-resolution greenhouse gas balances.

➡ Biophysical indicators show positive trends

PHASE 2: Grant Closure

- The research contract concludes.
- Project personnel relocate to other institutions.
- Operational budgets for infrastructure maintenance and water control lapse.

➡ Operational ownership becomes ambiguous

PHASE 3: Subsequent Degradation

- Unmaintained water control structures degrade.
- Adjacent land users dispute high water tables.
- The site ceases to function as a restored ecosystem.

➡ Pilot collapses post-grant

EUROPEAN WETLAND DEGRADATION

70%

Historic loss of European wetland surface area

~10%

European peatlands currently in favorable ecological status

230 Mt

Annual CO₂e emissions from drained EU peatlands (~7% total)

€4 – €38

Documented ecosystem benefit return per €1 invested

Regulatory & Economic Context

Regulation (EU) 2024/1991 legally requires restoring 30% of drained agricultural peatlands by 2030, increasing to 50% by 2050.

Achieving continental targets requires bridging an estimated **€37 billion annual funding gap** for EU biodiversity. Public capital alone is insufficient.

Private finance, water authorities, and municipal boards require standardized, comparable criteria to assess operational risks before funding long-term restoration assets.



What the readiness lens changes

1

Gaps become locatable

Instead of asking whether a site is “ready”, the lens shows exactly where it is ready and where it is not - a specific, addressable gap.

2

Gaps get closed on purpose

Once the bottleneck is named - social acceptance, governance fragmentation, no revenue logic - it can be matched to the right instrument and the right partner.

3

Peer learning gets structured

Dutch revenue stacking, Estonian data protocols, Austrian flood-resilience governance: sites strong in one dimension can coach sites weak in it.

A policymaker, investor or land manager reads the profile and knows what kind of site this is and what it needs next.

POST-PROJECT SITE SUSTAINABILITY

NASA 1974: Technology Readiness (TRL)

Established to evaluate hardware maturity across a 9-level continuum. TRL determines whether a physical component is in early testing or flight-qualified.

➡ **Limitation: Assumes closed, isolated engineering conditions**

Bax 2024: Innovation Readiness (IRL)

Extended readiness scales to complex public systems, analyzing development across Policy, Economy, Society, and Technology (PEST) domains.

➡ **Finding: Non-technical barriers govern project survival**

REWET 2026: Restoration Readiness (RRL)

Calibrated specifically for ecosystem restoration initiatives: 5 independent dimensions tracking sites from scoping (RRL 1) to self-sustaining permanence (RRL 9).

➡ **Integrates socio-ecological and financial maturity**

FIVE DIMENSIONS OF READINESS



MULTI-DIMENSIONAL PROFILE



Ecological Readiness

Vegetation structure, water table stabilization, peat accumulation, and net greenhouse gas balance (CO₂, CH₄, N₂O).



Technological Readiness

Instrumentation continuity, automated dataloggers, remote sensing integration, and open European data compliance.



Social Readiness

Landholder consensus, participatory stewardship, local community integration, and perceived socio-economic benefit.



Policy & Governance Readiness

Statutory water permits, inclusion in River Basin Management Plans, and institutional stability beyond single actors.



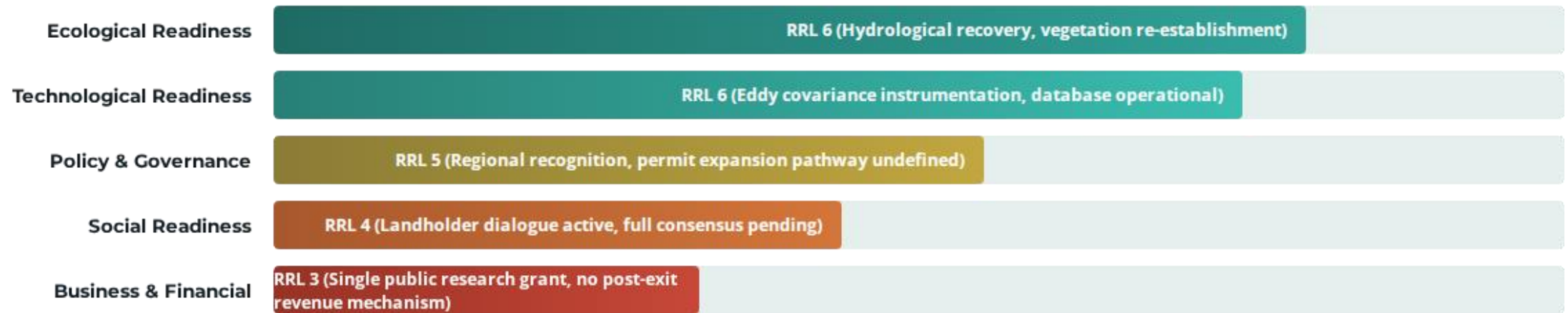
Business & Financial Readiness

CapEx and OpEx structuring, revenue streams (paludiculture, nature credits), and recurring post-grant operational funds.

RRL ASSESSMENT FRAMEWORK

RRL	Ecological	Technological	Social	Policy & Governance	Business & Financial
Design Phase: From Problem Identification to Implementation Plan (RRL 1 – 3)					
1	Site value recognized; baseline data absent.	Monitoring systems discussed; no data collection.	Local awareness absent; no stakeholder outreach.	Wetlands in general policy; no site linkage.	Financing discussed generally; no budget defined.
2	Stressors identified (drainage, oxidation).	Geospatial data (Copernicus, maps) collated.	Key stakeholders identified; initial contact made.	Regional policy cited; permit route explored.	Cost estimates established; donors contacted.
3	Pilot plan drafted; ecological surveys done.	Monitoring plan structured; baseline sampling active.	Stakeholder mapping done; workshops conducted.	Site cited in draft local/basin documents.	Pilot grant funding secured; valuation begun.
Demonstrate Phase: From Plan to Live Field Demonstration (RRL 4 – 6)					
4	First trial deployed; initial hydrological response.	Field sensors validated; site database established.	Residents engaged; volunteer field days organized.	Permit review ongoing; agency coordination open.	Small-scale PES/credits piloted; costs monitored.
5	Indicators improving (water table, flora cover).	Integrated monitoring: field dataloggers & EO.	Broad acceptance; tangible community benefits.	Authorities cite site in restoration programs.	Multi-year co-financing confirmed.
6	Full pilot extent reached; clear carbon trends.	Active monitoring with continuous logging stations.	Community groups actively support maintenance.	Restoration plan approved; permits granted.	Multi-annual financing commitments active.
Deliver Phase: From Demonstration to Operational Permanence (RRL 7 – 9)					
7	Functionally stable under floods and droughts.	Continuous data streams shared with partners.	Shared stewardship; peer regions visit for learning.	Site included in statutory River Basin Plan.	Stable revenues (credits, PES) sustain site.
8	Quantified services (carbon, flood mitigation).	Standardized data published on EU open portals.	Stewardship embedded in educational curricula.	Success integrated into national climate targets.	Financing diversified and recurring (endowments).
9	Reference benchmark; long-term resilience proven.	Monitoring directly guides adaptive management.	Flagship asset recognized regionally and nationally.	Governance model informs national policy updates.	Self-sustaining economic model independent of grants.

DIAGNOSTIC PROFILE OF PILOT SITES



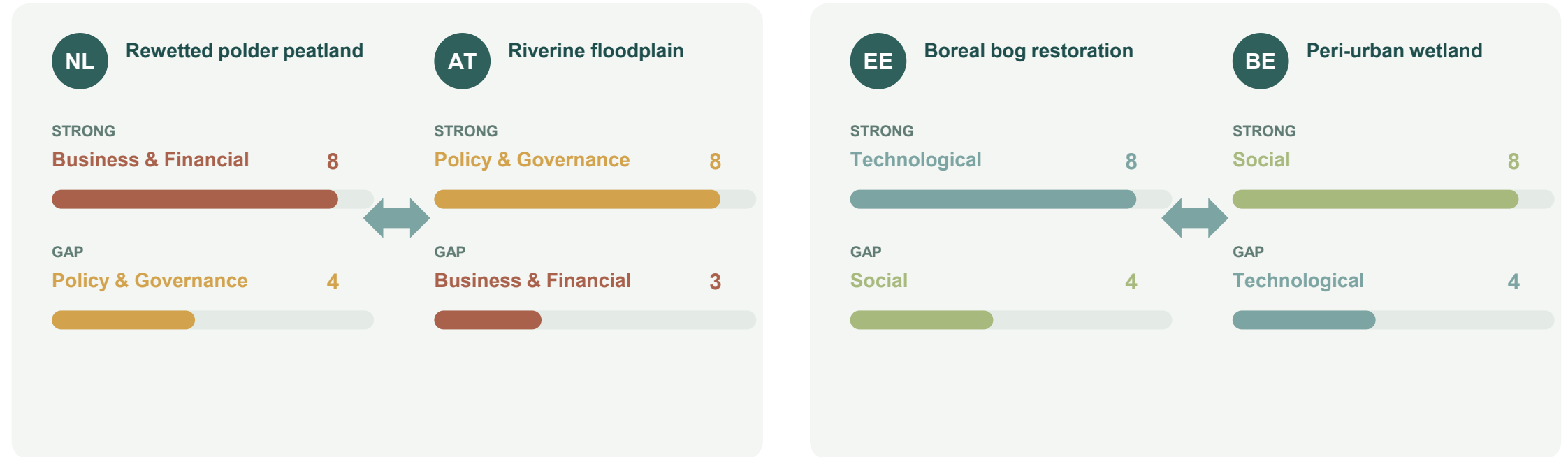
Representative diagnostic profile across European demonstration sites: scientific and technological capabilities advance rapidly, while business modeling and statutory governance remain critical constraints.

READINESS-BASED RISK ASSESSMENT

Dimension	Level	Identified Operational Risk	Targeted Corrective Action
Ecological	RRL 6	Low residual risk. Measurable progress verified in hydrology and flora.	Maintain current water regime; continue standardized seasonal surveys.
Technological	RRL 6	Datalogger maintenance lapses post-project; time-series data terminates.	Transfer sensor infrastructure to national monitoring agency or regional university.
Policy & Gov.	RRL 5	No formal regulatory pathway to scale beyond the pilot boundary.	Incorporate site targets into the regional River Basin Management Plan.
Social	RRL 4	Adjacent landowners object to elevated regional water tables.	Conduct structured hydrological modeling workshops on drainage buffer zones.
Business & Fin.	RRL 3	Grant terminates at Month 48; site operations and maintenance cease.	Structure blended revenue: nature credits, water utility fees, and paludiculture.

A low readiness score provides an explicit diagnostic indicating where resources must be allocated to secure site permanence.

EUROPEAN PEER-TO-PEER EXCHANGE



Each site's strongest dimension is another site's bottleneck. Bilateral exchange replaces ad-hoc experimentation.

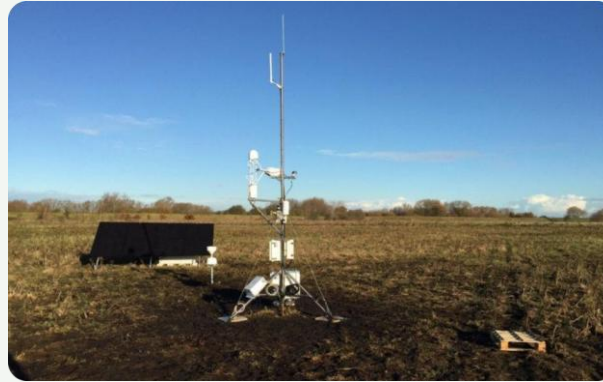
Three replication archetypes



Urban & recreational wetlands

Scale through societal integration.

Visitor infrastructure, community ties and education frameworks matter as much as the hydrology.



Carbon-farming peatlands

Scale through technological credibility.

Grid-connected monitoring and standardised GHG protocols are the precondition for investor trust.

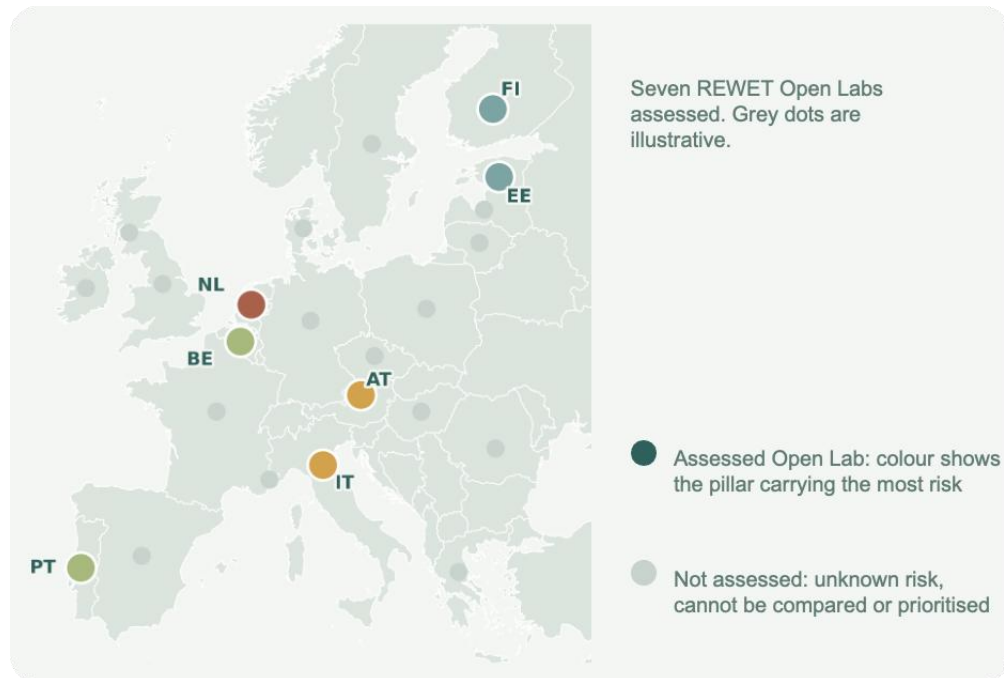


Riverine floodplains

Scale through policy alignment.

Value and systemic funding come via basin authorities and disaster-risk reduction frameworks.

NEXT STEPS: EUROPEAN READINESS MAPPING



Example REWET European Network of 7 Open Labs in 7 Biogeographical Regions

Strategic Use

For Environmental Authorities **Policy Scale**

Reveals cross-cutting institutional barriers. If multiple regional sites stall at RRL 4 in permitting, interventions can be targeted at national licensing regulations.

For Public & Private Financiers **Capital Allocation**

Creates a transparent project pipeline distinguishing early-stage pilots from de-risked sites ready for commercial blended finance.

For Site Coordinators **Targeted Pairing**

Enables direct pairing with matched demonstration sites that have already resolved identical institutional or financial bottlenecks.

CONTACTS AND COLLABORATION

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REWET HORIZON EUROPE PROJECT

Restoration Readiness Levels for Natural Ecosystems

A multi-dimensional framework for assessing and advancing the readiness of ecosystem restoration initiatives, from pilot sites to systemic climate solutions.

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