

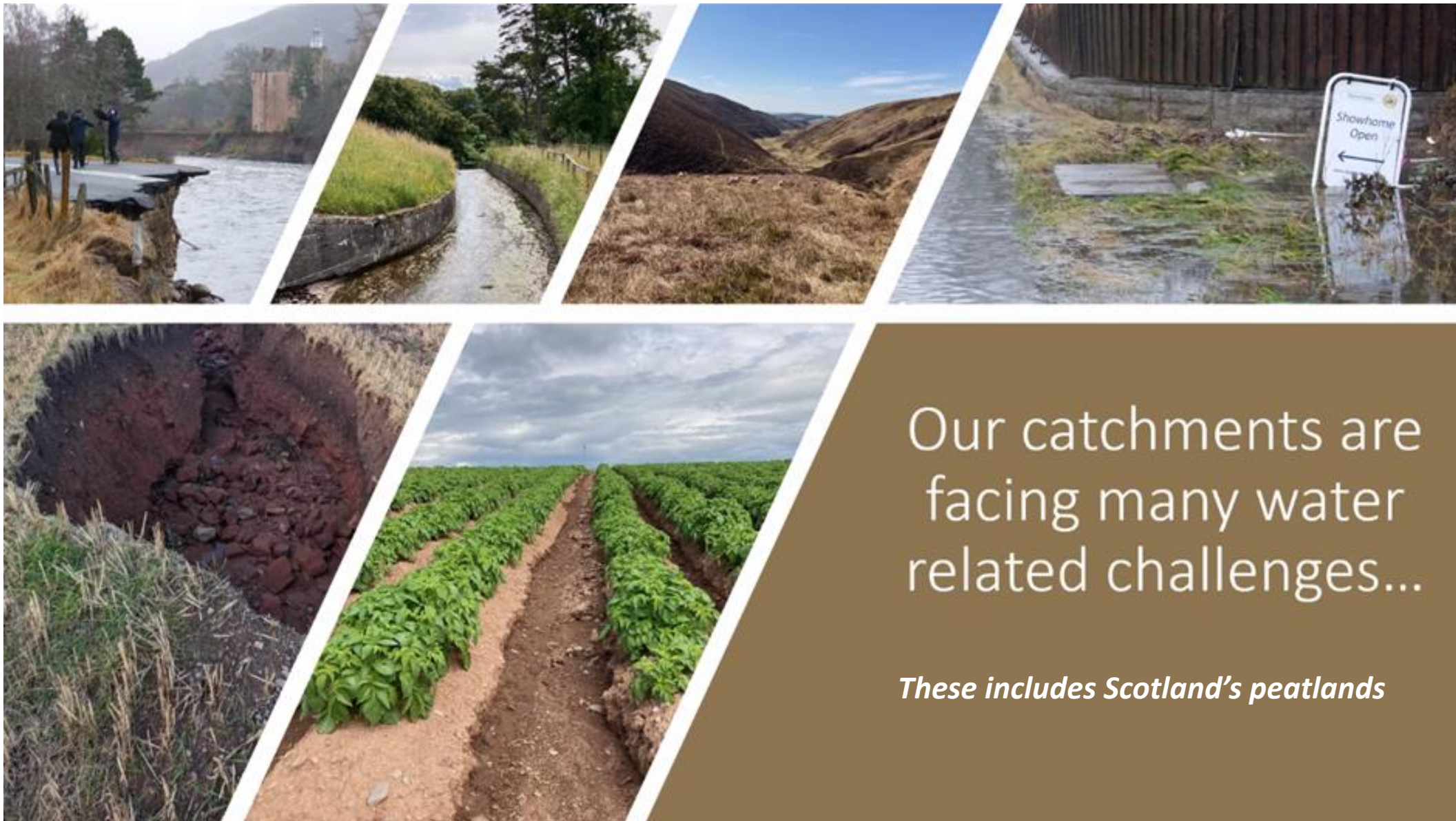
Transforming economic sectors to mainstream freshwater nature-based solutions – Insights from six European sectoral strategies

Scottish Freshwater Group Meeting, 30th October 2025

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The MERLIN project (<https://project-merlin.eu>) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036337.



Our catchments are facing many water related challenges...

These includes Scotland's peatlands

Source: Wilkinson, M., 2024

Role sectors and other stakeholders

- Industries and sectors depend a lot on Scotland's natural capital
- Freshwater ecosystems are part of this natural capital

Agriculture, fishing and aquaculture

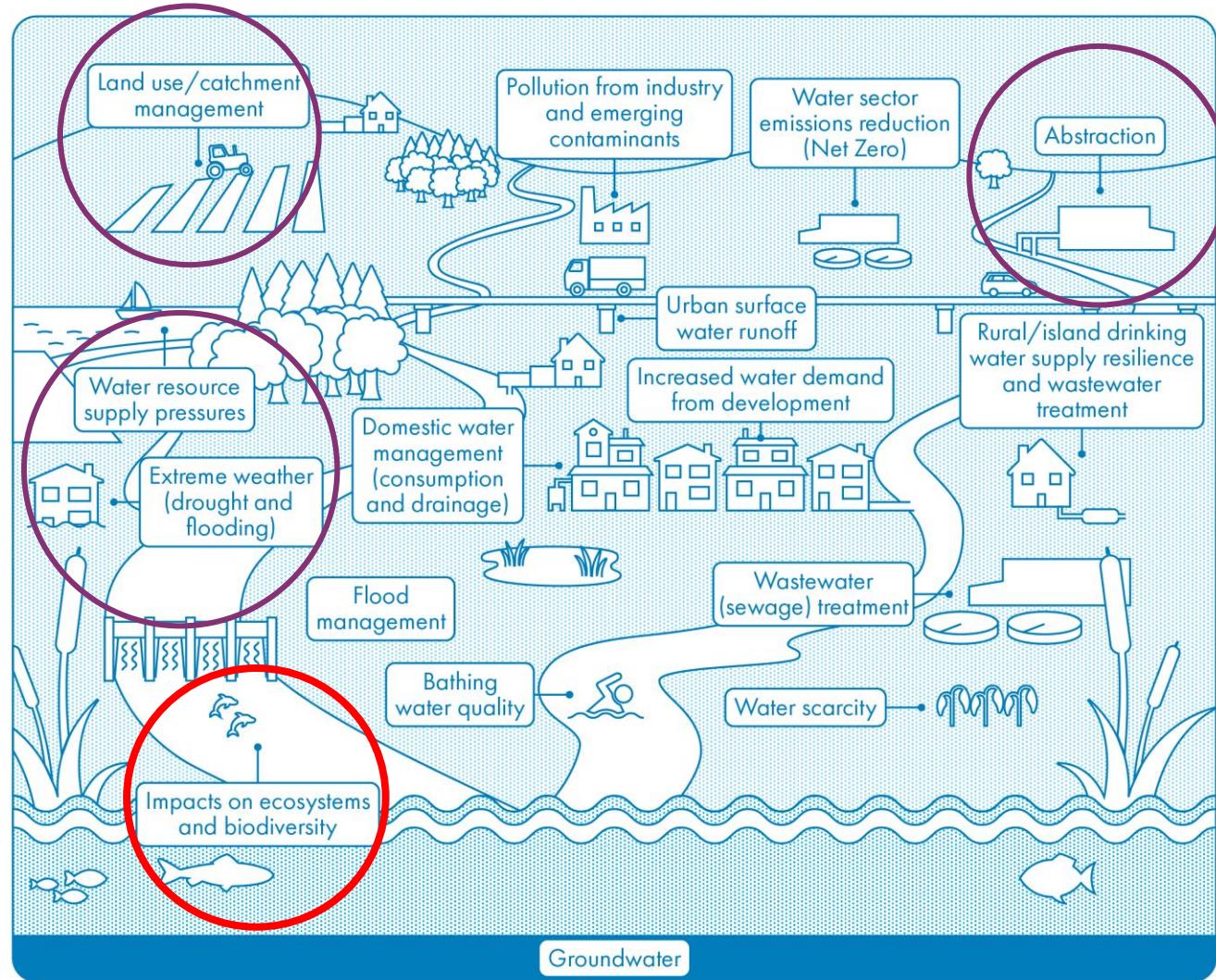
Electricity (renewable)

Spirits / wine & beer / malt sectors

Water and sewage

Forestry and wood products

Key pressures on Scotland's water sector





Need to protect & restore freshwater ecosystems in more places

→ Including rivers, streams, peatlands and other wetlands

→ Upscaling nature-based solutions is essential

→ Solutions need to be embraced across society

But how can we work across society and economic sectors

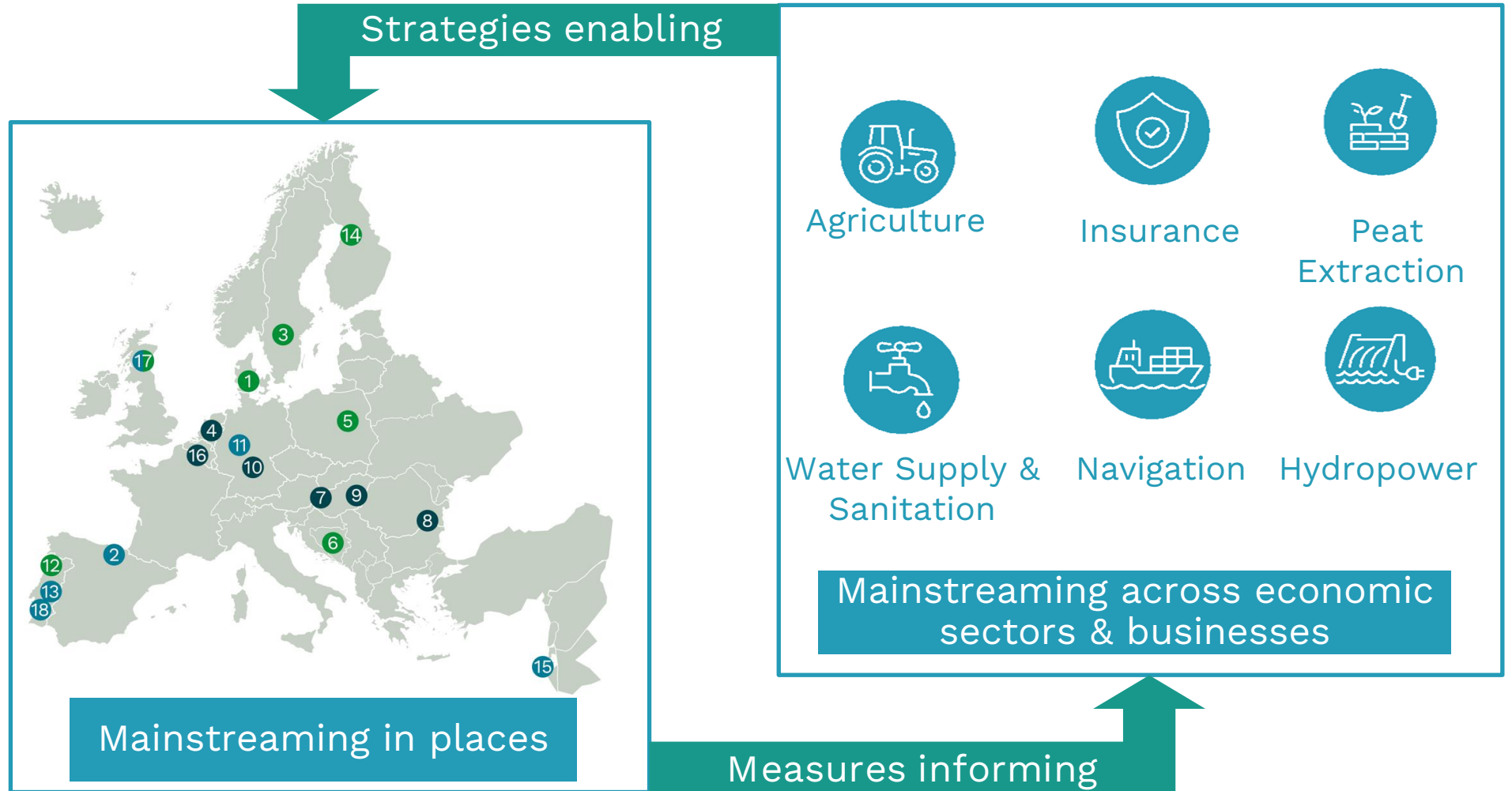
Experience from EU Horizon 2020 MERLIN project

- Large rivers
- Small streams & basins
- Peatlands & wetlands

Duration: 2021-2026

Budget: 21 million EUR (50% to new restoration measures)

48 partners from research, NGOs, Public agencies and industry



NbS in MERLIN – Based on the IUCN Global Standard & UN definition

→ integrated approaches that support both ecosystem integrity and human well-being



Measures

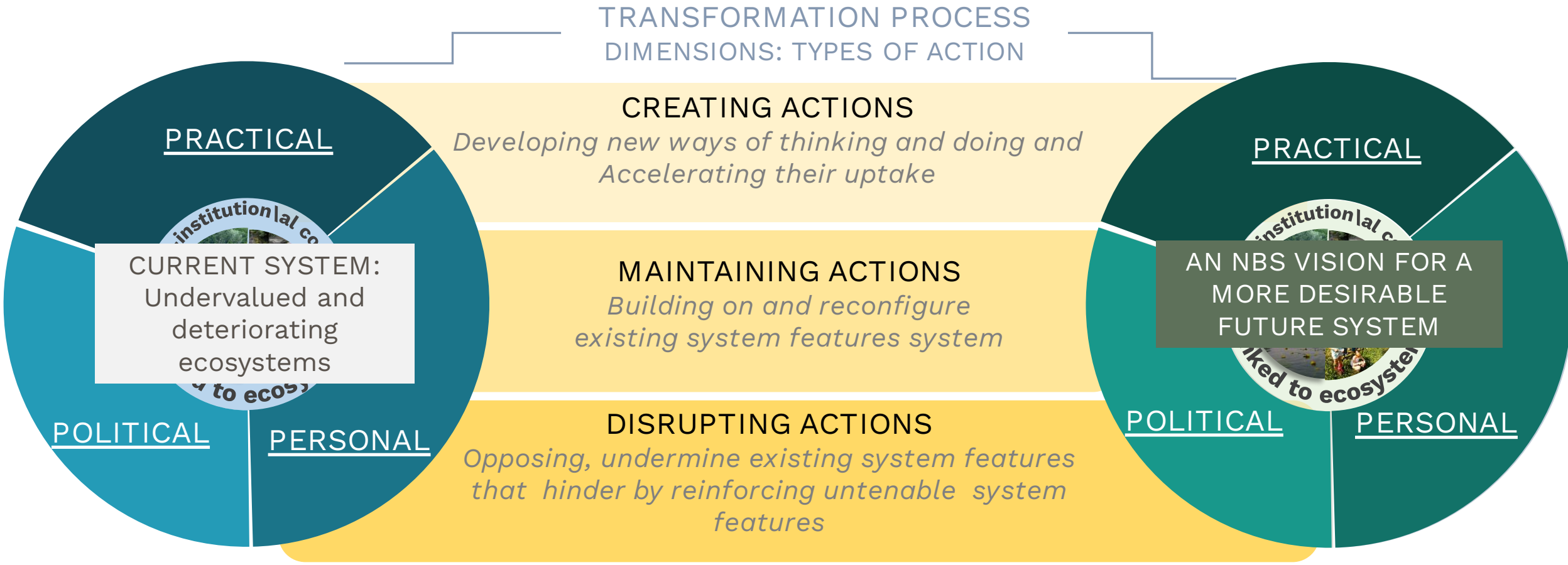
- i** floodplain reconnection / re-meandering rivers
- ii** wetland restoration
- iii** river bank restoration
- iv** transversal barrier removal
- v** increase of water infiltration

Benefits for both people and nature

- A** minimised downstream flood risk
- B** zero pollution / clean drinking water
- C** recreation & enjoyment
- D** drought resilience & carbon storage
- E** wetland habitats
- F** biodiversity
- G** safeguarding natural water needs

Working with rivers

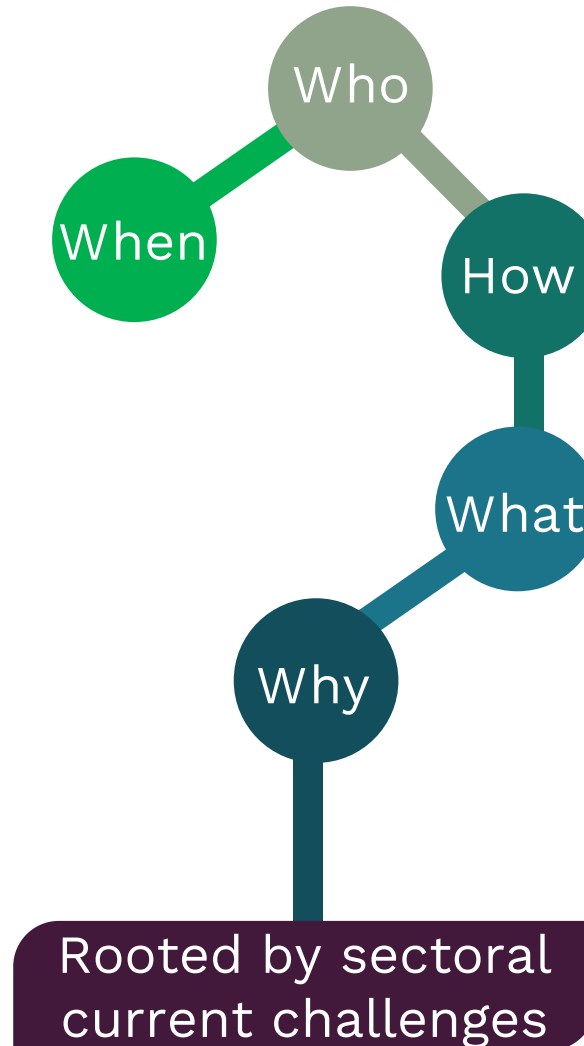
Supporting transformation through strategies



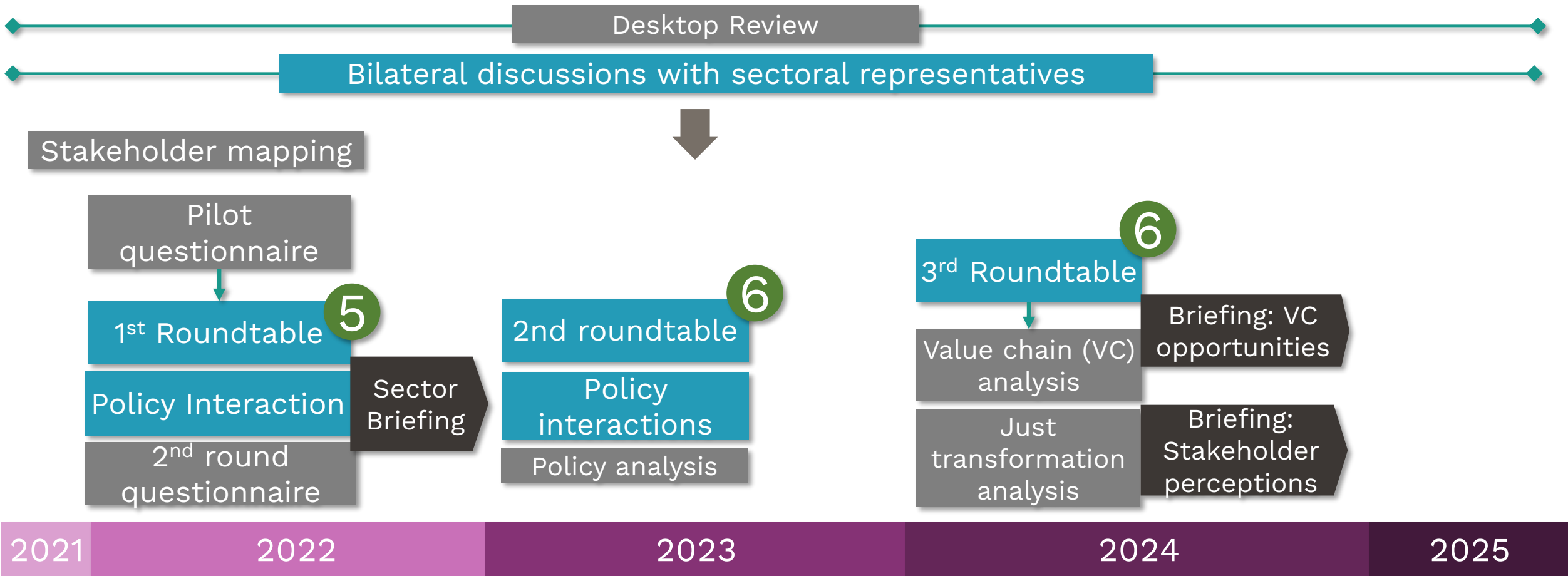
Carmen, E.; Ibrahim, A.; Blackstock, K.; Waylen, K., (2024) A transformations framework for mainstreaming a nature-based solutions approach , Nature-Based Solutions, 6, article 100199

Co-developing Sectoral Strategies

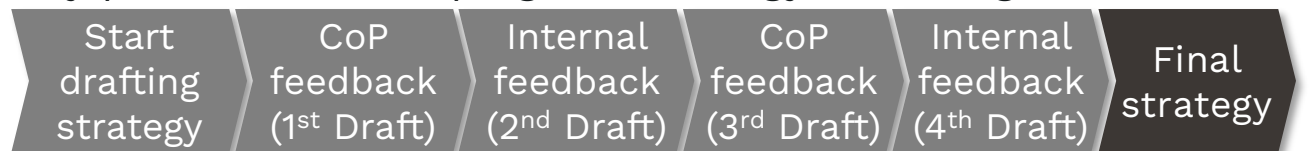
- Promote freshwater measures & natural capital as a business priority.
- Build Communities of Practice to scale up Freshwater NbS.
- Find ways to get each Sector to maintain, create or disrupt their specific sectoral practices
- Provide clear, actionable pathways for mainstreaming NbS in each economic sector.



Co-development approach



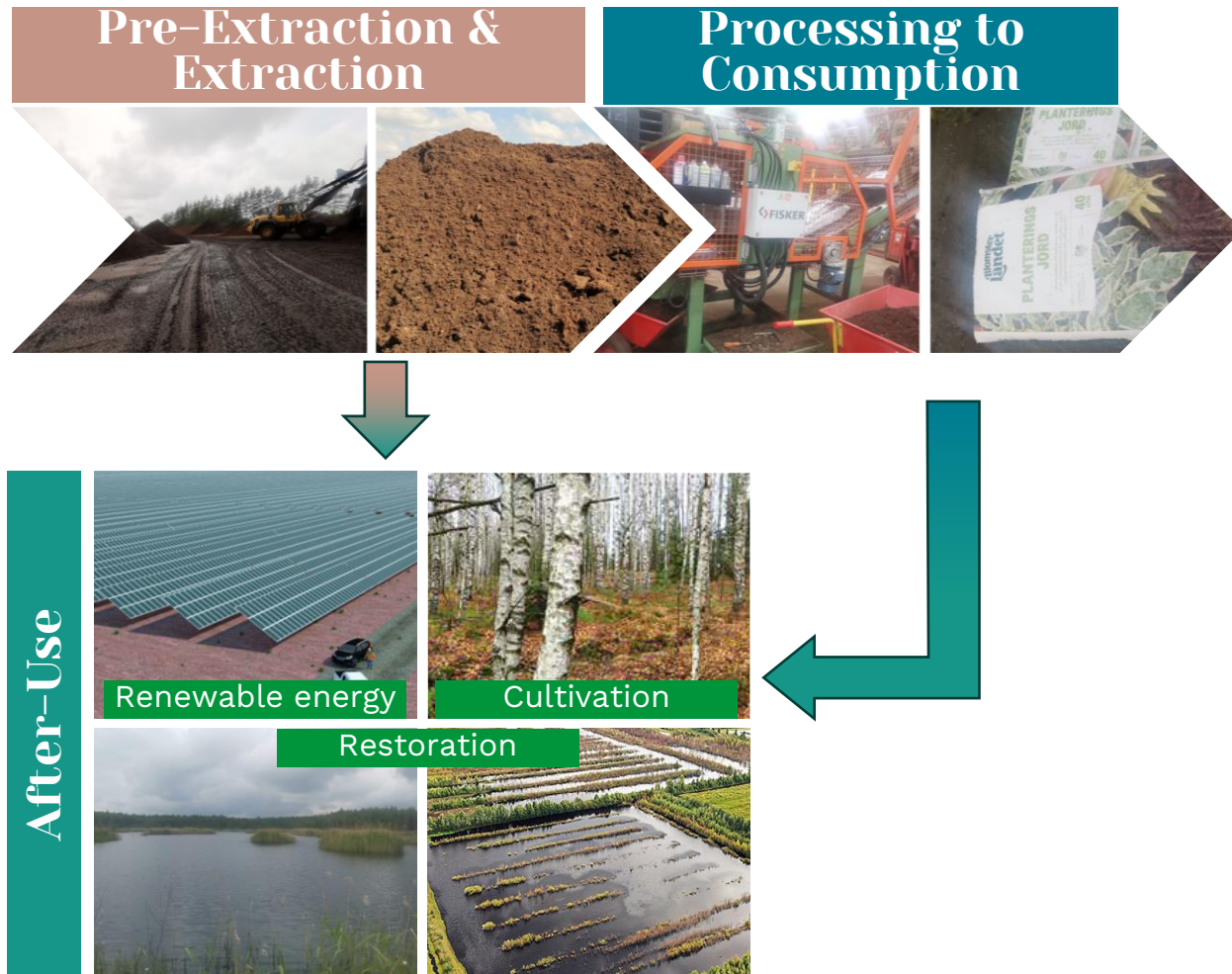
Key phases in developing the strategy following above activities



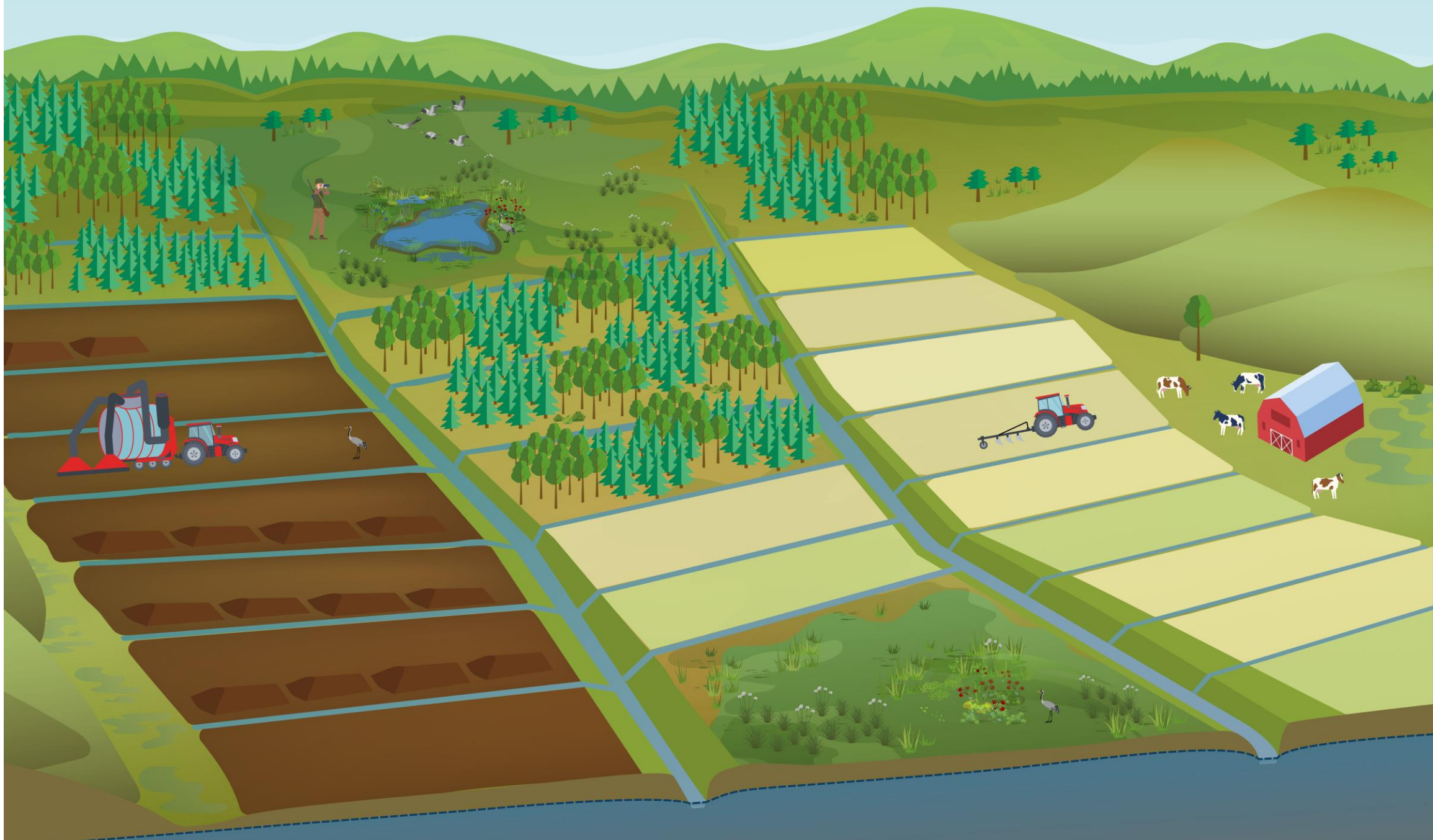
Peat extraction sector example



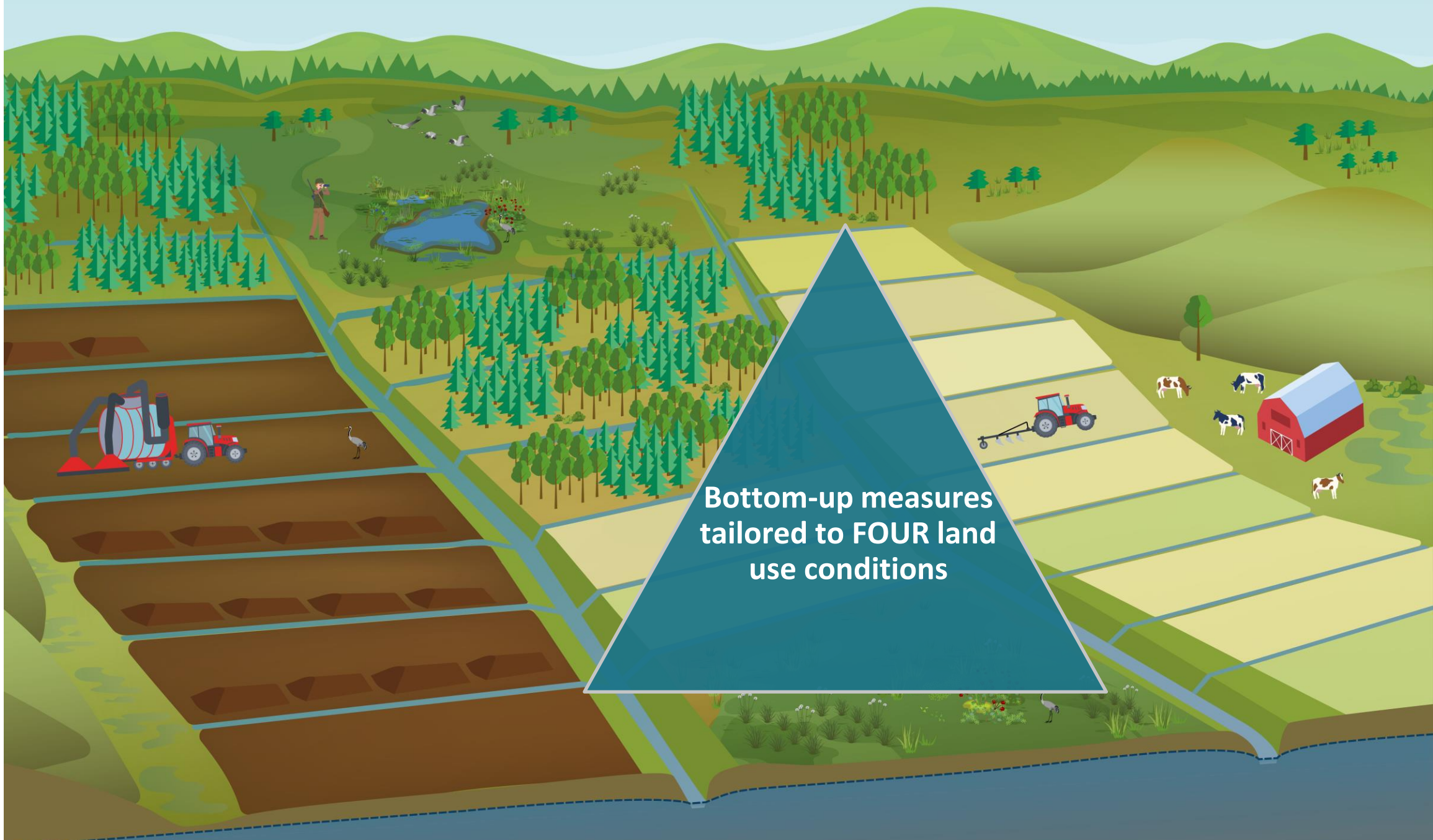
Value chain and opportunities



- NbS requires working in the landscape
- Big restoration potential and expertise
- Existing requirement to develop after-use plans
- Enabling policy alignment and corporate social responsibility

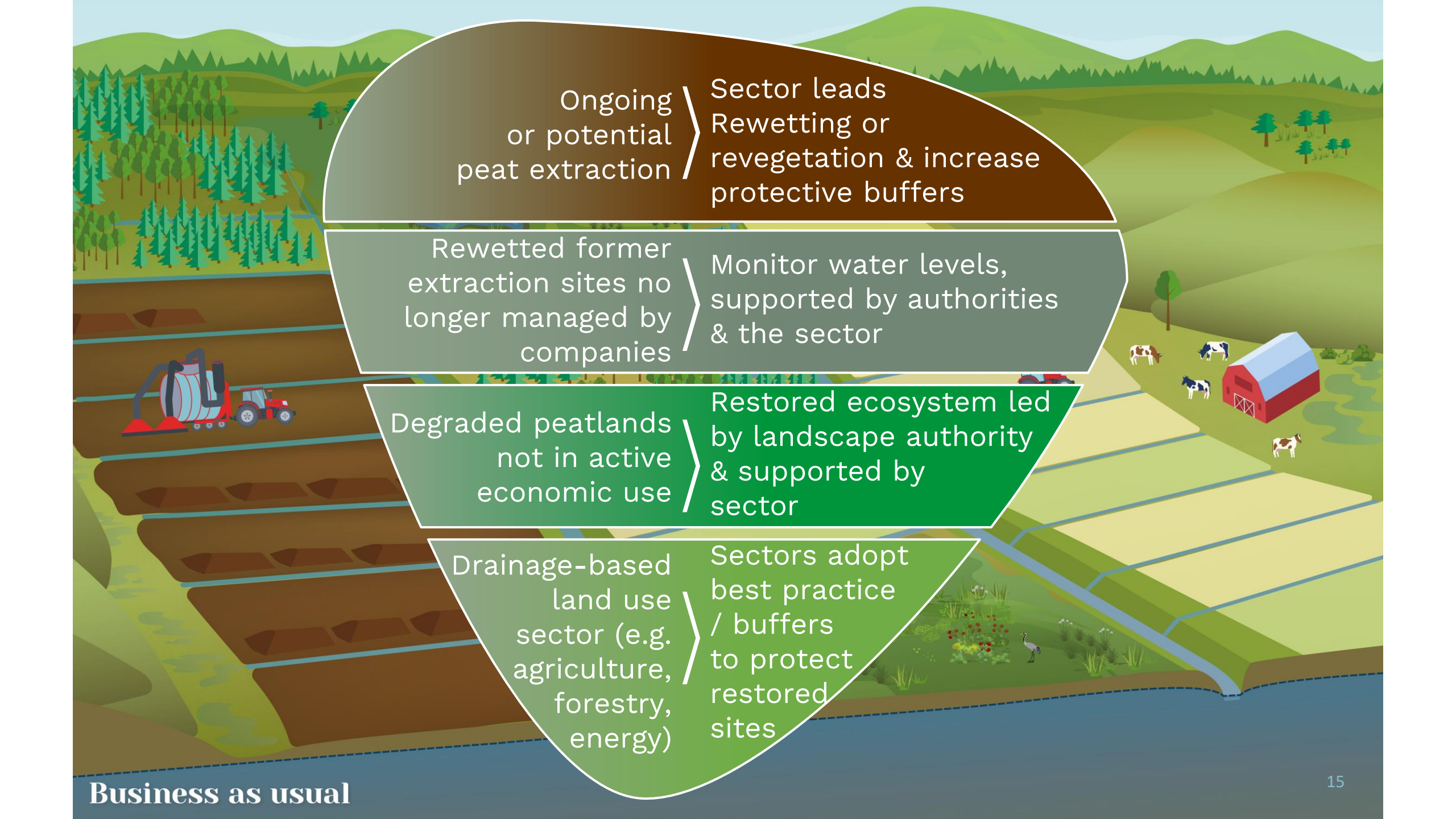


Business as usual



**Bottom-up measures
tailored to FOUR land
use conditions**

Business as usual



Ongoing
or potential
peat extraction

Sector leads
Rewetting or
revegetation & increase
protective buffers

Rewetted former
extraction sites no
longer managed by
companies

Monitor water levels,
supported by authorities
& the sector

Degraded peatlands
not in active
economic use

Restored ecosystem led
by landscape authority
& supported by
sector

Drainage-based
land use
sector (e.g.
agriculture,
forestry,
energy)

Sectors adopt
best practice
/ buffers
to protect
restored
sites



Peat Extraction Sector Strategy

Read the
strategy
here
→



NbS in this context

Measures for habitat restoration in peat landscape to address peatland challenges to benefit people & businesses





Peat Extraction Sector Strategy

Read the
strategy
here
→



Vision



By 2050 to restore peatlands through partnership including peat extraction sector & landowners, led by appropriate authority

FIVE actions are needed to implement and mainstream the measures





Peat Extraction Strategy



B
Action

Enhance after-use plans



Read the strategy here →



Build knowledge

A
Action

Ongoing or potential peat extraction

Sector leads Rewetting or revegetation & increase protective buffers

Rewetted former extraction sites no longer managed by companies

Monitor water levels, supported by authorities & the sector



Degraded peatlands not in active economic use

Restored ecosystem led by landscape authority & supported by sector

Develop clear & viable incentive

Drainage-based land use sector (e.g. agriculture, forestry, energy)

Sectors adopt best practice and buffers to protect restored sites

E
Action



Develop policy & regulatory frameworks

D
Action

Initiate landscape authorities & partnerships



Reflections: Co-development challenges



Lessons for Scotland's freshwater transformations

→ Historical peat extraction is relatively small

Peat extraction area (Ha)	1990	2013
Industrial	2,881	2,840
Domestic	44,923	44,649
Total	47,804	47,489

Evans et al. (2017): Report: Implementation of an Emissions Inventory for UK Peatlands - Defra, UK



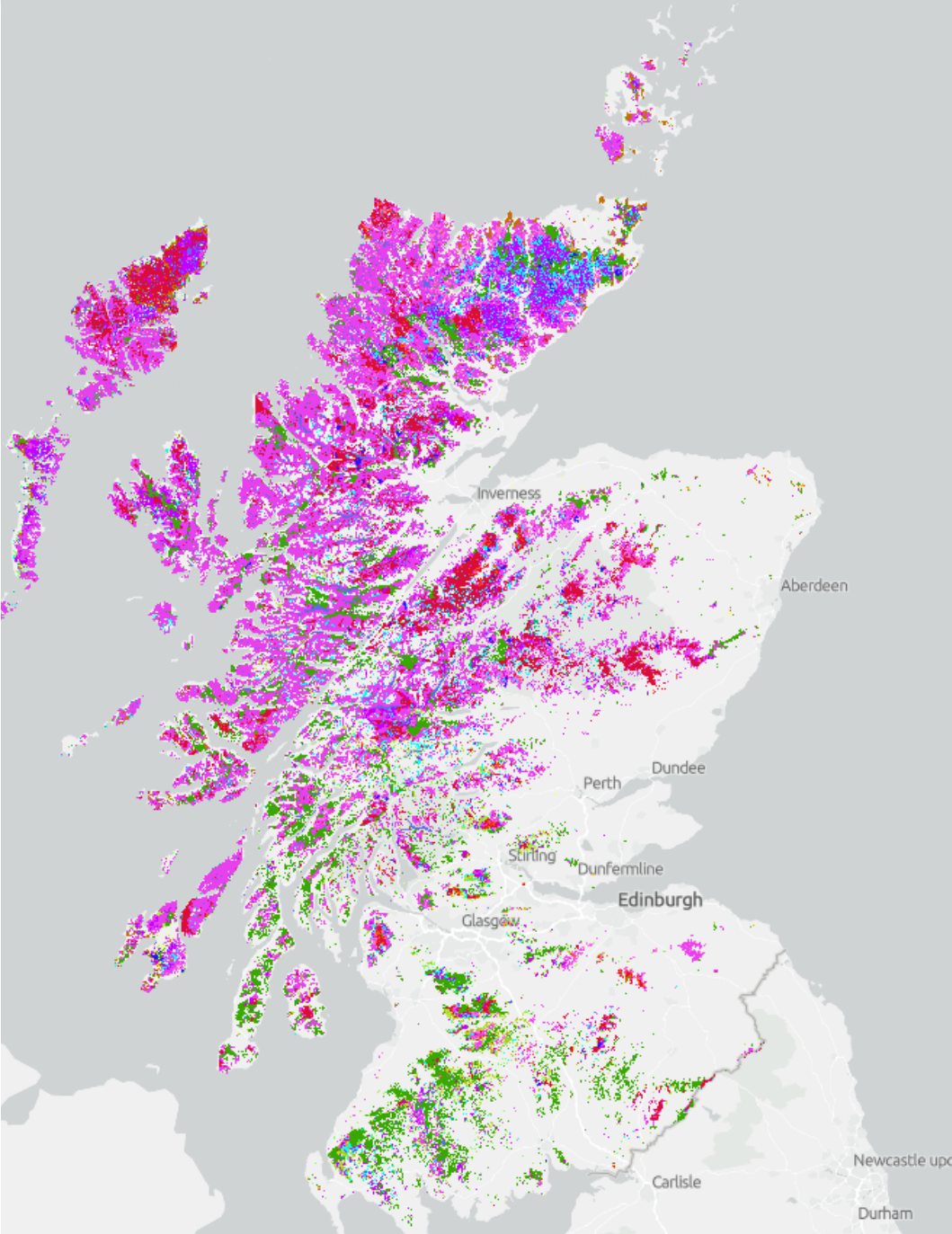
Mainstream

PeatConditionScotland

PeatConditionScotland

Value

- Flooded Land
- Settlement
- Industrial Extraction
- Domestic Extraction
- Forest/Woodland
- Arable Cropland
- Intensive Grassland
- Extensive Grassland
- Bare/eroding modified drained
- Bare/eroding modified undrained
- Molinia drained
- Molinia undrained
- Heather dominated drained
- Heather dominated undrained
- Grass dominated drained
- Grass dominated undrained
- Sedge/rush dominated drained
- Sedge/rush dominated undrained
- Near natural bog
- Near natural fen
- Rewetted Bog
- Other modified peatland



<https://storymaps.arcgis.com/stories/701f6f2b14dc4f17ab4c7c6ff014299a>

50 km

Lessons for Scotland's freshwater transformations

- Upscaling nature-based solutions key to addressing Scottish freshwater challenges
- Existing policies (RBMP 2021–27, NPF4, Climate Change Plan) offer good pathways
- Need to be embedded in sectors' affecting & managing freshwater ecosystems (E.g. Agriculture, water supply, energy, etc.)



Image generated by ChatGPT (OpenAI) on request, 10/2025

Lessons for Scotland's freshwater transformations

- Collaboration and stakeholder engagement are key to achieve mainstreaming
- Having difficult conversation with diverse sectors
- How do keep momentum and ensure just transformations



Image generated by ChatGPT (OpenAI) on request, 10/2025

Next steps

Embedding lessons in ongoing projects

- Acceptability of peatland rewetting for paludiculture among different stakeholders – EU Horizon 2020 Paluwise project
- Accessing local people's understanding, experience and support for nature-based solutions – RESAS
- Pathways to achieve just transformations for nature-based solutions



Acknowledgement: sectoral leads & collaborators

→ Agriculture

- Solen le Clech (Wageningen University), Eva Hernandez Herrero (WWF CEE), Géza Gelencsér (WWF HU), Josselin Rouillard (Ecologic Institute), Lea Ilgeroth-Hiadzi (Naturland), Lea Moog (Naturland), Keith Matthews (JHI), Yuka Sugiura (WWF International), Melinda Aitner-Óváry (WWF HU)

→ Hydropower

- Esther Carmen (JHI), Kirsty Blackstock (JHI)

→ Insurance

- Audrey Vion Loisel (ICATALIST), Elena López-Gunn (ICATALIST), Mia Ebeltoft (Climate Risk Advisory), Florentina Nanu (Business Development Group)

→ Navigation

- Tom Buijse (Deltares), Anna Kusters (Deltares), Tamás Gruber (WWF HU), Anna Bérczi-Siket (WWF HU), Elmar Fuchs (BfG, PIANC), Michael Gerisch (BfG), Kirsty Blackstock (JHI)

→ Peat Extraction

- Alhassan Ibrahim (JHI), Kirsty Blackstock (JHI), Jack Rieley (IPS), Anna-Helena Purre (IPS), Örjan Berglund (IPS)

→ Water Supply & Sanitation

- Marine Boulard (Aqua Publica Europea), Milo Fiasconaro (Aqua Publica Europea), Fanni Nyírő (WWF HU)

Thank you for your attention!

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