MERLIN

Mainstreaming Nature-based Solutions in Insurance activities – A Sectoral Strategy

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MERLIN

Imprint

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Disclaimer: Throughout the participatory process and strategy revision, we received many valuable insights which were invaluable to foster discussion, though they sometimes revealed conflicting views which did not always lead to a consensus or a resolution. Therefore, the Strategy uses these insights but does not necessarily reflect the opinion of the full Community of Practice.

MERLIN Key messages

1. By 2030, the European insurance sector aims to promote large-scale freshwater Nature-based Solutions (NbS) for disaster risk reduction (DDR) and ecosystem-based adaptation (EbA).
2. The goal is to mitigate freshwater-related disaster and climate risks through NbS adoption.
3. The strategy outlines seven key actions: four main and three supporting actions. Main actions drive the vision, while supporting actions facilitate implementation.
4. Supporting Action 1: *Facilitate loss data sharing to improve risk assessment and adaptation planning.*
5. Supporting Action 2: *Conduct cost-benefit analyses of green vs. grey infrastructure for informed decision-making*
6. Main Action 3: *Develop standards/tools to help insurers evaluate NbS sustainability.*
7. Main Action 4: *Integrate NbS into insurance and financial policies (e.g., Solvency II, EU Taxonomy) to incentivize adoption.*
8. Supporting Action 5: *Assess insurance portfolios to identify opportunities for NbS integration.*
9. Main Action 6: *Develop innovative non-life insurance products incorporating NbS for climate resilience.*
10. Main Action 7: *Encourage life insurance investments in NbS through viable financial models.*

MERLIN Executive Summary

This insurance sector strategy emphasises ecosystem services and the **potential of Nature-based Solutions (NbS) and freshwater ecosystem restoration to mitigate disaster and climate change related risks** like floods and droughts. Given the insurance sector's expertise in risk management, there is a significant alignment of interests in incorporating NbS to reduce disaster and climate-related risks. Furthermore, insurance, acting as a risk transfer mechanism, can itself also **benefit from reduced exposure** and potentially offer premium reductions to **encourage actions** by policy holders that reduce damages.

Climate change exacerbates natural hazards, making the insurance sector vulnerable to increased claims. The MERLIN project explores **the role of the insurance sector in promoting NbS**, which can offer multifunctional benefits including risk reduction and other co-benefits for society. The **strategic action plan for 2025-2030** is particularly aimed at frontrunners, with the possibility to be extended for others. It pays special attention to integrating NbS into non-life insurance, leveraging large-scale freshwater Nature-based Solutions (LSFNBS) like floodplain restoration. It also considers life insurance investments in nature, emphasising the sector's capacity to incentivise the mainstreaming of NbS across other sectors as “nature investors”.

The strategy is based on research that includes a number of research methods, specifically a literature review, interviews, roundtables, and case studies insights. The aim of this research was ultimately **to identify key actions to help mainstream the adoption of NbS by the insurance sector.** Several key actions have been identified which are: 1) sharing of loss data, 2) conducting cost-benefit analyses of NbS measures, 3) developing standards for evaluating NbS sustainability, 4) encouraging policies to consider NbS for risk reduction, 5) revisiting insurance portfolios, 6) creating innovative products incorporating NbS, and finally 7) insurers as investors in nature-based projects.

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Abbreviations and Acronyms

- CAP: Common Agricultural Policy
- CoP: Community of Practice
- CSRD: Corporate Sustainability Reporting Directive
- EbA: Ecosystem-based Adaptation
- EcoDRR: Ecosystem-based Disaster Risk Reduction
- EIB: European Investment Bank
- EIOPA: European Insurance and Occupational Pensions Authority
- ESI Funds: European Structural and Investment Funds
- EU: European Union
- LSFNBS: Large Scale Freshwater Nature based Solutions
- MS: Member States
- NbS: Nature-based Solutions
- NGOs: Non-governmental organisations
- NRL: Nature Restoration Law
- PAID: Insurance Pool Against Natural Disasters
- PPP: public private partnerships
- PSI: Principles for Sustainable Insurance
- SMEs: small and medium-sized enterprises

1 Introduction

MERLIN stands for Mainstreaming Ecological Restoration of freshwater-related ecosystems in a Landscape context: INnovation, upscaling and transformation. It is a H2020 project that aims to contribute to delivering the EU Green Deal goals through a focus on how to mainstream freshwater restoration through Nature-based Solutions (NbS) predominantly in rural areas throughout Europe. MERLIN is a Green Deal project, and thus aims to support its implementation, particularly of the goals on climate action and biodiversity restoration, whilst leaving no one behind, not forgetting other important Green Deal goals like zero pollution, sustainable food systems, health, and wellbeing (Ibrahim et al., 2023).

NbS are defined by the United Nations Environment Programme Finance Initiative (UNEPFI) as "actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature." (UNEPFI, n.d.). Moreover, the IUCN has developed a framework comprising eight criteria for users to assess and improve their NbS (IUCN, n.d.). According to the UN, ecosystem restoration means "assisting in the recovery of ecosystems that have been degraded or destroyed, as well as conserving the ecosystems that are still intact." (Decade on Restoration, n.d.). Specifically, MERLIN is looking at a number of large-scale freshwater NbS measures like for example wetland and peatland restoration; instream and riparian restoration in small streams; and floodplain restoration in large rivers (see Figure 1). Such NbS measures require the engagement of relevant stakeholders including the economic sectors that both affect and are affected by interventions in our freshwater ecosystems. MERLIN targeted six economic sectors that are strategic to the restoration of large-scale freshwater ecosystems so that the MERLIN work and research findings could help these sectors to be in the driving seat to mainstreaming NbS solutions and accompany the Transformation process that will be needed.

Figure 1: MERLIN Measures Infographic (Source: MERLIN project, n.d.)

The present document presents the results from the work undertaken for one of the chosen economic sectors: insurance. Insurance is a risk management transfer measure that works by transferring the insured risk from the policy holder (insured person or organisation) to the insurance company, against the payment of a fee called a premium. It contributes to the economy by ensuring that public and private assets, businesses, and people are financially protected in the event of an accident, a loss, or a disaster. It is a heavily regulated sector

both at the European Union (EU) and the national level, and substantial differences can be observed depending on the different countries, although a basic structure of the sector is shared.

There are two types of insurance: non-life insurance and life insurance. Non-life insurance relates to insuring and compensating the insured (i.e. the policyholder) for losses such as those relating to property, car, travel, etc. It operates on shorter timeframes, the contracts being short term (typically for a year). Meanwhile, life insurance compensates when the policyholder dies or suffers a long-lasting illness, and therefore operates on a longer timeframe.

In the MERLIN context, mainstreaming means normalising ideas considered common in one domain into other domains, to build a shared understanding that translates into concerted actions (Scott et al., 2022). Although MERLIN's focus is on biodiversity and climate action, the overall focus adopted in this strategy is based on the concept of ecosystem services. The work presented here is based on the idea that, when adequately designed and placed in the landscape, NbS and the protection and/or restoration of freshwater ecosystems can contribute to disaster risk mitigation and climate change adaptation. Since insurance deals with risk transfer, we identified a potential alignment of interests between the restoration of freshwater regulation functions to reduce risk, and the insurance sector which specialises in risk management.

1.1 Purpose of the Strategy

The purpose of the strategy is to provide an action plan until 2030 for frontrunners in the insurance sector to become "early adopters" of these new approaches. In other cases, more time might be needed for the insurance sector to incentivise the use of NbS at the EU scale to reduce climate change-related and disaster risk.[1] The use of NbS for climate change disaster risk reduction is a fairly new topic for the insurance sector, as the current *modus operandi* and business model focuses more on post-disaster compensation, as opposed to incentivising preventive measures (Marchal et al., 2019). Therefore, this strategy aims to identify key actions that could facilitate or even accelerate a wider consideration of NbS in this changing climate context. It describes the need for these key actions, and details key aspects to consider in the implementation of the actions, such as a description of the actions, a timeline for implementation or identified key implementing actors. In short, through a series of actions, the document provides a pathway that insurers could follow that could lead to the mainstreaming of NbS for risk reduction.

The strategy builds on the work being conducted through the MERLIN project which is based on a multi-method approach consisting of a literature review of relevant documents, and a multi-step participatory process consisting mainly of expert interviews and roundtable discussions.

Target Audiences

This document is targeted primarily at insurance stakeholders such as public or private insurance companies and reinsurance companies. It is also potentially relevant to other key actors like associations, policy makers, Non-Governmental Organisations (NGOs) and researchers seeking to innovate in the insurance sector in relation to Nature-based Solutions (NbS) as ecosystem-based disaster risk reduction (EcoDRR) and ecosystem-based adaptation (EbA) measures.

1.2 Insurance Sector Community of Practice

A Community of Practice (CoP) consists of individuals who share common concerns, challenges, or passions and continuously deepen their expertise through ongoing interaction (Lave & Wenger, 1991; Wenger-Trayner, Arnold McDermott, & Snyder, 2002). Recent research underscores CoPs as key platforms for bridging science, policy, and practice to address complex issues (King et al., 2023; Raška et al., 2022; Wickenberg, 2023; Wickenberg et al., 2022). The members of the MERLIN insurance sector CoP, like the audience for the present document, include insurance companies, insurance associations, NGOs, researchers and policy makers, as described under "Section 2: methodology". A detailed analysis of the CoP work is available in MERLIN Deliverable 4.2 about Just Transformations (Schulz et al., 2024).
In MERLIN, the work done with the insurance sector has opted to focus mainly on the non-life insurance sector. This is because the non-life insurance sector could benefit from the potential of NbS to reduce losses associated with water-related disasters such as floods and droughts. Our work gave special attention on how

[1] We have adopted an ambitious timeline because due to the escalating impacts from climate change there is increased pressure on the sector to take action. We think this is a window of opportunity for innovative insurance solutions that consider Eco-DRR and EbA as an option.

to incentivise the wider use of LSFNBS such as floodplain restoration to reduce flood risk. We also looked at the life insurance sector but from a different perspective, i.e. the idea of life insurance as potential investors in NbS since life insurance deal with longer term contracts, which allows this potential for “locking” capital into NbS investments.

2 Methodology

The results included in this strategy are based on a multi-method approach which is summarised below and further detailed in Annex 1.

First, we undertook a literature review to collect relevant information from peer-reviewed, grey and other digitally available sources. We also interviewed seven key stakeholders, including representatives from insurance companies, insurance associations and policymakers. Moreover, three roundtables were organised over three years, with insurance and non-insurance relevant actors to help advance our understanding of the sector.

The first roundtable focused on the identification of the current situation regarding the consideration of NbS by the insurance sector in Europe (e.g. familiarity with the term and/or use NbS in activities). The second roundtable focused on the role of the regulatory and policy frameworks in enabling or hindering the insurance sector to contribute to nature restoration through large-scale river restoration. The third and final roundtable helped us to gather feedback regarding the insurance value chain map as one of the key insurance works in MERLIN, and to discuss and validate how the sector perceived the proposed vision[2] and steps to get to that vision as a draft sectoral strategy.

Reflecting on the research method, the sometimes low number of attendees in roundtables and difficulty to find adequate examples could be due, for example, to the lack of familiarity and thus innovative nature for the insurance sector to consider NbS.

Finally, a case study approach was taken to go more in depth to understand how the MERLIN vision and strategy could be downscaled at the national level, since the insurance sector is a heavily regulated sector, and regulation varies by Member States (MS). In particular, we focussed on the Romanian MERLIN case study where an emphasis was made on agricultural insurance. We also identified the MERLIN Basque country case as a secondary case regarding catastrophe insurance for flood protection.

Box 1. The Case of Agricultural Insurance in Romania to help mainstream (Agricultural) NbS for large scale river restoration in the lower Danube

From our work together with the Romanian Danube floodplain reconnection case study on the Lower Danube we learned that the main climate risk currently affecting Romanian agriculture is drought. Therefore, the Romanian case helped us to go deeper to better understand whether insurance could function as a tool for incentivising the uptake of NbS by the agriculture sector to prevent damages due to different climate change impacts (floods and droughts). The focus on agricultural insurance is because of the role the insurance sector plays in insuring agricultural businesses including crops, coupled with the potential of the agricultural sector to implement large-scale NbS.

Most of the statements relating to Romania in this document are taken from the internal report: Insurance sector's capacity on NbS issues and review of relevant natural resources management policies to assess NbS inclusivity, in Romania (Nanu, 2024)

A more detailed description of the methodology is available in Annex 1, and a visual summary of the participatory process is provided in Figure 2.

[2]The vision is: By 2030, the European insurance sector promotes the use of large-scale freshwater Nature-based Solutions as water-related disaster risk reduction and ecosystem-based adaptation measures

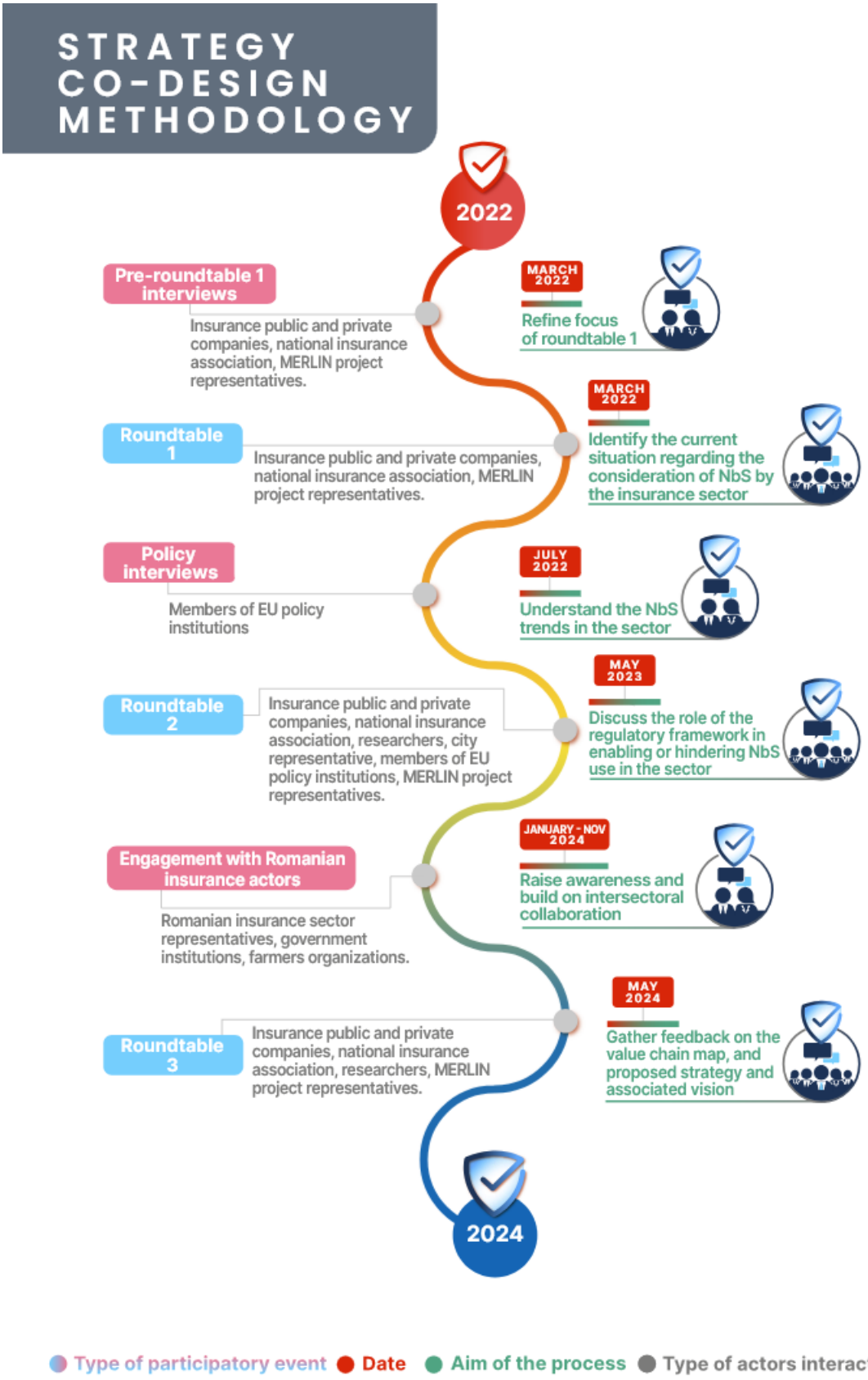


Figure 2: Visual representation of the participatory process steps

3 Why do we need a strategy?

3.1 What is the relationship between the insurance sector and MERLIN?

Insurance acts as a risk transfer instrument through the transfer of risks from the individual, company, municipality, to the insurer. It provides its policyholder (that is to say, the insured person or people) with protection and financial security should the insured event take place, providing the money to repair the damages incurred. However, it is foreseen that the insurance sector will itself be quite vulnerable to the increased frequency and intensity of climate-related hazards in the future.

The rationale for including insurance in the MERLIN project is based on the hypothesis that the restoration of freshwater ecosystems could help mitigate the risks insured by the insurance sector, such as floods (European Commission, 2023) and droughts (WWF, 2024). For MERLIN the main aim is to study the role that the insurance sector could have (or not) in promoting NbS to reduce the climate-related risks that their customers are exposed to. This could have a number of beneficiaries, from the insurance company itself (reduced damages to pay out) to the policyholders as well as for nature. These could benefit from the increased protection due to reduced risks and a potential premium reduction in some cases if NbS measures are implemented to reduce risks. Finally, society at large would also benefit from NbS implementation due to the well-known co benefits such measures offer due to their multifunctional nature.

Benefit 1: If the NbS implemented to reduce the insured damage costs, the insurance sector would have to disburse lower payouts to its customer, therefore benefitting from the NbS implementation like e.g. river restoration.

Benefit 2: Some areas have the risk of becoming uninsurable. For example, following the Ciara windstorm in 2020, EUR 816 million of claims were reported and affected a small number of insurers (EIOPA, 2022b). Thus, preventative NbS measures could help these areas remain insurable and thus retain the current market size and penetration.

In MERLIN we focus on large-scale freshwater NbS as a risk reduction and adaptation measure to reduce water-related perils such as floods and droughts. In the context of this document, the strategy will focus specifically on a number of specific NbS as risk mitigation adaptation measures:

- wetland and peatland restoration;
- instream and riparian restoration in small streams; and
- floodplain restoration in large rivers - see the 18 MERLIN case studies.

In relation to insurance this strategy mainly focuses on non-life insurance, and to a much lesser extent, on life insurance and its capacity to invest on a longer term to potentially finance NbS directly.

3.2 What is the current problem?

Climate change will increase disaster risk such as floods and droughts (IPCC, 2021; World Bank, 2021), which are events covered by the non-life insurance sector in exchange for the payment of a premium. When these events occur, and depending on the conditions of the policy agreed between the company and the policyholder, the insurance company indemnifies its client with a sum of money. The problem lies in that climate change exacerbates perils and thus vulnerability and exposure to climate-related disasters. Figure 3 shows the results of a study carried out in 2020 (EIOPA, 2022a), where insurance company representatives were asked to assess the current and expected impact of specific perils on their activity. It shows that, regarding river, coastal and flash floods, as well as drought, around 20% of companies have already experienced an impact, while more than 60% expect these perils to affect their business by 2030-2040.

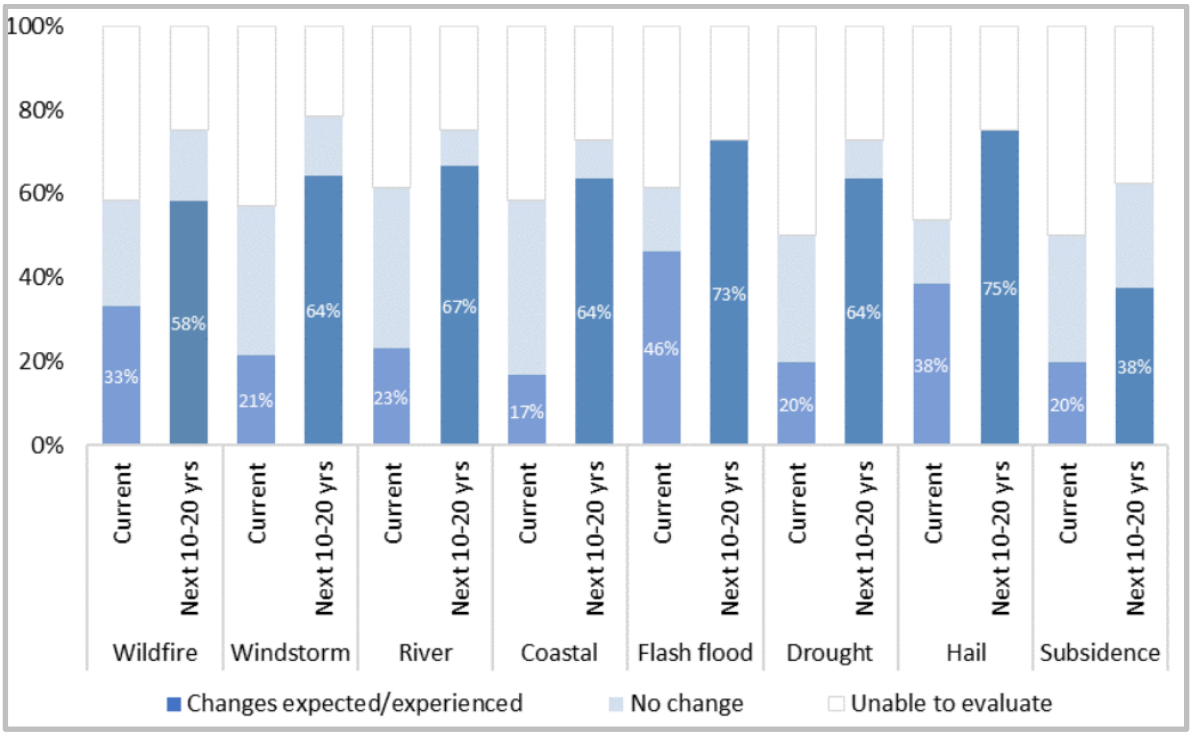


Figure 3. Observed and expected climate change impact at global level by peril (% of positive answers). Reference date: 2020. Note: Results represent participants' views and should be interpreted with care due to the limited sample size. Source: EIOPA, 2022a

Regarding non-life catastrophe insurance, in a business-as-usual scenario where no preventive measures are taken and risks are neither mitigated nor adapted to, the increased disasters will lead to increased damages. This subsequently means that insurers will be required to pay out increased damages (*intensity of events*) and/or more often (*frequency of events*). If this pattern generalises, the insurance sector will see its ability to cover climate-related events decrease due to two combining effects. First, its own capacity to compensate for the damages covered will decrease. Second, insurers may need to raise risk-based premiums (EIOPA, 2022a). This can result in a lack of capacity of its policyholders to get insured, making insurance policies unaffordable and thus ultimately resulting in reduced insurance penetration and a lower client base. A vicious circle of lack of insurability for the company AND the policy holders may materialise. Overall, this would result in 1.) a loss of revenue for the insurer as well as a wider protection gap, and 2.) a financial burden on the individual who cannot insure their property in case of a disaster, therefore generating social consequences.

Regarding life insurance and long-term investments, financing nature projects could be undertaken under the life insurance concept where money can be invested on benefit-generating activities over longer periods.

In fact, according to the European Investment Bank (EIB), "Insurance companies are uniquely positioned to develop nature-based solutions", yet "many insurance companies have not scaled up their investments in nature-based solutions" (EIB, 2023). Hence the necessity of the strategy to bring awareness on the actions to take and proposed ways forward.

3.3 What is the sector's role in resolving these problems?

In order to contribute to resolving the escalating losses and damages from climate related risks, the insurance sector's role is key. Non-life insurance companies could play a role by incentivising the use of freshwater NbS by their clients for example at a wider, municipal level (where public buildings are insured against damages), or by raising awareness on a more local, individual customer level to build the insured asset 'back better'. This way, non-life insurers contribute to reducing the risk that their assets are exposed to, while delivering a series of co benefits for the environment and society via ecosystem restoration and enhanced biodiversity. As stated by the EIB (2023), "it is cheaper to prevent damage than pay for its restoration".

In the case of life insurance, these companies, like any other investor, could invest in nature, contributing for example to the implementation of large scale freshwater projects that can deliver societal benefits such as recreational value (van Rees et al., 2023), biodiversity (EIOPA, 2023; Freshwater Blog, 2022), flood risk reduction

or the improvement of water quality (Schuster et al., 2024). Figure 4 highlights some mechanisms attributed to NbS that lead to flood risk reduction, which include water infiltration and interception. The topic of life insurance investing in nature is covered under section 5.4.

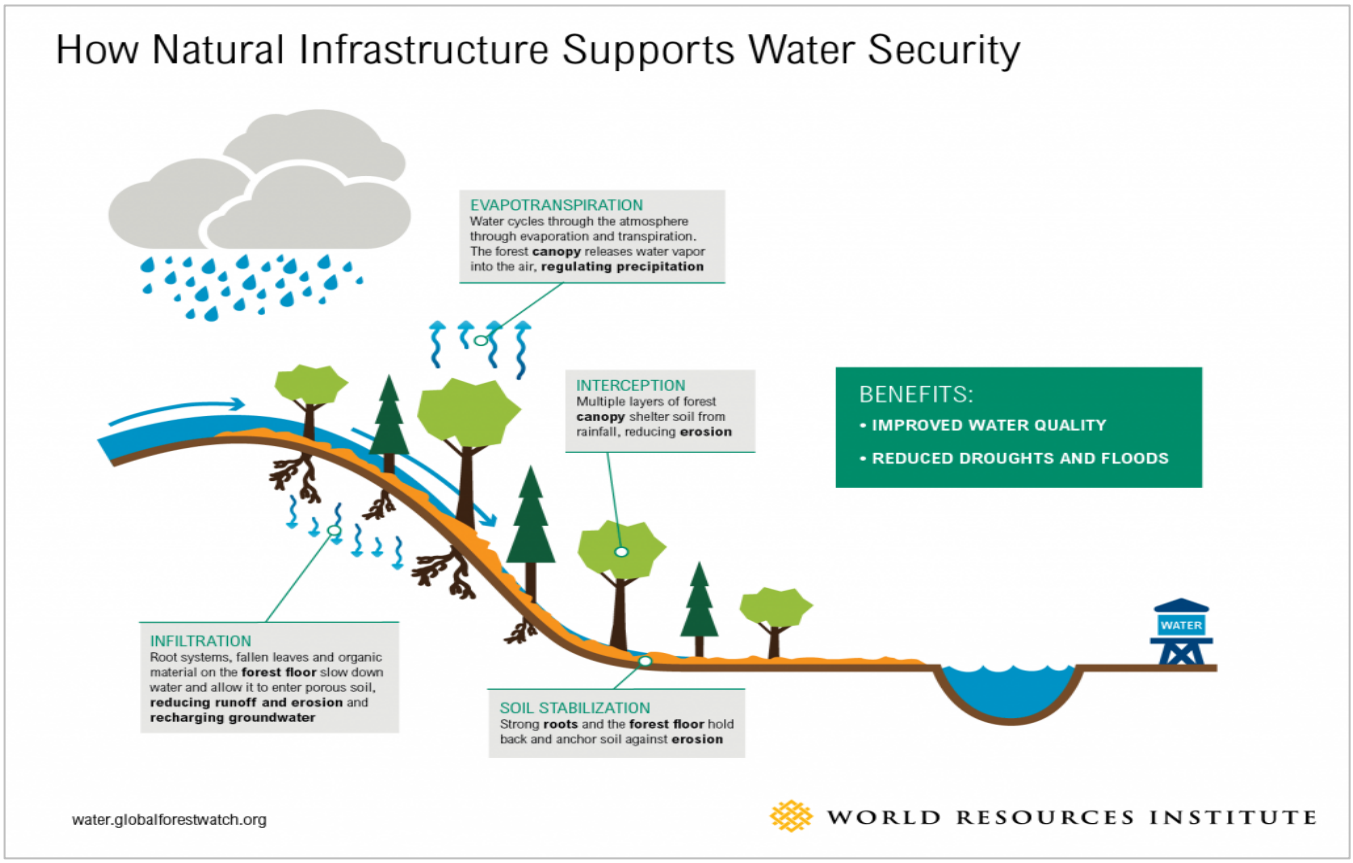


Figure 4. Mechanisms of flood risk reduction by NbS (Crescenti & World Resources Institute, 2016)

Individual examples of insurers who promoted the use of NbS for risk reduction include AXA climate which was involved in the protection of the Mesoamerican Coral Reef via parametric insurance (MAR Fund, 2021). Insurance companies can also participate in EU projects relating to prevention of climate risks and adaptation to climate change, for example the case of UnipolSai in the LIFE ADA project touching on reinforcing the agricultural sector's resilience to climate change in Italy (UnipolSai, n.d.).

Although individual examples exist of insurers who have actively promoted the use of NbS for risk reduction, it is not yet mainstreamed (i.e. widely adopted) by the insurance sector. During roundtables (*see above under methodology*), some insurers have voiced their need for a wider (public) framework where the roles that various actors play in incentivising NbS use is better defined. The insurance sector would be willing to participate in such a framework with a defined role (co-financing, one-time payment maintenance financing, etc) but would struggle to actively create such a role. This indicates a clear indication on which direction to follow in the MERLIN sectoral strategy.

Another overarching challenge was also identified in the project when considering the insurance's role as a key actor for large scale restoration. When an insurance company promotes an NbS action it would not necessarily be the only beneficiary of that action. This is because the market is very dynamic and actions taken one year could benefit competitors who did not invest in them since the market is very dynamic and it can change from year to year. This is known as the free rider problem, defined by the Corporate Finance Institute as "a person who benefits from something without expending effort or paying for it" (Corporate Finance Institute, n.d.).

3.4 What is the focus of the Strategy?

This document is intended primarily for insurance stakeholders such as public or private (re)insurance companies, and to a lesser extent to other actors in the ecosystem like associations, policy makers or

researchers. However, it can also have implications to other sectors targeted in MERLIN like e.g. agriculture, because insurance companies insure these sectors. Therefore, it opens potential opportunities to collaborate across sectors that share risks in their value chains and to the interdisciplinary nature of the challenge that mainstreaming NbS represents to all sectors. This is even more so in the context of the recently approved Nature Restoration Law (NRL) and its targets on recovering degraded ecosystems (European Commission, 2024b).

The present strategy focuses on how the insurance sector can support the mainstreaming of NbS as a key measure for disaster risk reduction and EbA, due to the need to "systematically integrate disaster risk reduction and adaptation" (International Strategy for Disaster Reduction, 2008). Therefore, this strategy is not trying to cover all environmentally related aspects the sector is facing, but rather it is specifically related to promoting the uptake of NbS in (or incentivised by) the insurance sector. Where possible, the strategy goes deeper in considering specifically large-scale freshwater restoration as a type of NbS, as this is the focus of the wider MERLIN project. However, due to the recent consideration of NbS in general in insurance activities, and in order to make the strategy as relevant and useful as possible in defining the steps forwards with this new concept, the strategy sometimes illustrates actions with non-freshwater restoration related examples.

This strategy is ambitious and stretches its focus beyond business as usual towards transformative actions. Transformation in MERLIN is understood as "the fundamental change in a social-ecological system resulting in new forms, functions or meanings" (Blackstock et al., 2023; Chan et al., 2020; O'Brien, 2011). Transitioning from the present to an agreed future vision requires employing a variety of institutional levers—be they formal or informal, technological, or social—to drive the change.

The geographical scope of this document is the EU, although local examples at the MERLIN case study level and international good practice are used to help further illustrate with specific examples the desired outcomes and reflections on what elements could constitute the action plan. For example, we discuss the case of agricultural insurance and NbS in Romania.

4 What is the vision and goal of the strategy?

4.1 Vision and Mission for the sector

As part of this document, we define the vision as the end goal of the strategy, that is to say the point that would be reached should all the actions proposed were to be implemented across Europe. The vision for this action plan is:

> *By 2030, the European insurance sector promotes the use of large-scale freshwater Nature-based Solutions as water-related disaster risk reduction and ecosystem-based adaptation measures.*

In parallel, a mission is defined as the role each actor can play in contributing to the realisation of the vision, that is to say, the means employed by individuals to deliver it.

The present set of proposed actions are defined for the 2025 to 2030 timeline. However, since not all European countries are at the same point in their journey in relation to the adoption of NbS as a risk mitigation measure by the insurance sector, the proposed timeline is an ambitious one. It is proposed for the early adopters to showcase the pathway to follow but which can be adapted to different local contexts, conditions and specificities of other national insurance sectors, so the timeline of the actions can be stretched until 2040. We decided to opt for an ambitious strategy since the insurance sector is currently undergoing a lot of pressure and changes, and there are some early movers that could help speed up the uptake of innovative insurance solutions like the use of NbS. This strategy is particularly targeted for these early adopters to showcase the way to other insurance followers.

5 Strategic actions

The strategy focuses on reaching the target of mainstreamed use of freshwater related NbS by the insurance sector to reduce disaster risk while providing co benefits for society and nature.

We identified seven key actions that make up the strategy to mainstream NbS use by the insurance sector, four we consider as main actions in order to reach this vision, and three are considered as supportive actions. In order to enhance the reader's understanding of the overall strategy, the three supporting actions are briefly presented in this section, while the other four are presented in more detail in the rest of the document due to their particular relevance and the attention they require by a variety of actors. Key actors identified for the implementation of the proposed actions are mentioned in the associated detailed actions in section 5.1 to 5.4.

Ideally, the actions laid out would follow a sequence and take place in a chronological order as mentioned in Table 1. That is to say, for example, that action 3 can only happen after actions 1 and 2 are completed. However, it is important to note that the proposed actions and their order of implementation are suggestions and represent just one of various possible ways to achieve the vision. The strategy outlines a specific pathway; however, the content or timeline can be adapted to the specificities encountered by the adopters of the strategy.

The main actions identified to reach the vision are summarised below **in bold**, while the supporting or enabling actions are in *italic*. A timeline is also proposed in Figure 5.

Table 1. Summary of the action plan

Timing	Strategic Plan - Actions to help mainstream large scale Freshwater NbS by the insurance Sector	Type of Action
2025	*Encourage the sharing of loss data for cost-benefit analysis and optimal NbS design*	*Supportive – Action 1*
2026	*Undertake the cost-benefit analyses (green vs grey measures)*	*Supportive – Action 2*
2027	**Encourage the development of standards and/or other tools that can help insurers to objectively evaluate the sustainability of NbS**	**Detailed - Action 3 (or A)**
2028	**Allow or even encourage insurance to consider NbS for risk reduction in insurance and/or financial policies**	**Detailed - Action 4 (or B)**
2029	*Revisit insurance portfolios and evaluate policies or assets that could integrate NbS*	*Supportive – Action 5*
2030	**Create innovative non-life products and services that can integrate NbS (and thus LFNBS)**	**Detailed - Action 6 (or C)**
2030	**Encourage life insurance to invest in restoration actions (investable assets)**	**Detailed - Action 7 (or D)**

As mentioned, three of the actions cited as supportive actions are not analysed in detail in this strategy, however, it is important to highlight their significance in supporting the overall process.

Regarding action 1 and 2, the EU Taxonomy for Sustainable Activities ("the Taxonomy" thereafter) (European Commission, 2020) mandates that insurance companies share their loss data with local authorities. This requirement helps municipalities and potentially others (e.g. regional authorities, etc.) to understand the risks they face, where these risks are concentrated, and the areas most exposed and therefore vulnerable to repeated damage. Such data is vital for local authorities during the planning phase, enabling them to decide where to focus their adaptation efforts. Moreover, sharing loss data feeds into cost-benefit analyses aimed at understanding the risk reduction potential of *green* solutions which are based on nature, as opposed to *grey* solutions which are more engineered infrastructures such as the construction of physical barriers. If the impact

of these solutions is better understood, decision-making regarding the type of adaptation measure to use becomes more informed, data-driven, and easier. This, in turn, allows NbS to be better considered in the insurance sector's activities, as one key barrier is the insufficient knowledge about the benefits of specific NbS adapted to the local contexts. Considering NbS refers to reflecting on their potential to positively affect insurance activities, to incentivise their use to reduce clients' risk (Action C), or to see them as investable assets (Action D).

A better understanding of costs and benefits enables actuaries[3] and underwriters[4] to calculate the risk reduction potential of specific measures more precisely, leading to more accurate premium calculations for policies related to properties or assets benefiting from these reductions. Additionally, conducting cost-benefit analyses will enhance the design of NbS, improving their efficacy in reducing risks. Sharing loss data also helps tailor NbS to local conditions by identifying where they are most needed and understanding the characteristics required to adapt to the type and intensity of observed risks and damages. Consequently, insurers' shared loss data significantly enhances the overall efficiency and effectiveness of implementing NbS.

Box 2. The case of the Deba River MERLIN case study

In the case of one of MERLIN case studies, the Deba barrier removal case study in the Gipuzkoa province in Spain, it is crucial to understand the benefits associated with the measures planned. In this area, floods are not only recurrent, but they also cause especially serious damage, as most floodplains are developed with high-density urban or industrial areas. These floods occur even though channelisation, lateral dykes and other defences against flooding affect virtually all medium and low reaches in Gipuzkoa rivers. Indeed, human infrastructure, especially transversal dams and weirs, increase the risk of flooding in some areas of Gipuzkoa, as they raise the water level. It is anticipated that streams will become more torrential due to climate change and large floods (those with a return period between 100 and 500 years) are forecasted to increase in size (Uraren Euskal Agentzia, 2019). Also, in the lowermost part of the rivers, sea level rise will increase the frequency of flooding. Therefore, the damage caused by floods is also expected to increase unless measures are taken. One measure that MERLIN is looking at in this regard is the removal of weirs. In fact, such measures help reduce the risk or damage associated with flooding, but it also brings other co-benefits that are of particular interest, such as recovering biodiversity.

This box was created based on inputs shared by UPV colleagues.

Finally, according to action 5, insurance companies should revisit their portfolios in order to evaluate whether any of their policy or assets could benefit from integrating NbS. This could take place once cost-benefit analyses are completed (action 2). This reassessment of the insurance companies' activities allows them to capitalise on the documented benefits of NbS, enhancing risk reduction and sustainability. Incorporating NbS in insurance policies that previously did not, can lead to more accurate premium calculations and improved resilience against climate-related risks. Additionally, integrating NbS aligns with broader environmental goals, fostering biodiversity and creating a positive impact on communities. This proactive approach could position insurers as leaders in sustainable practices and risk management and can help them comply with policies such as the EU Taxonomy, or the Corporate Sustainability Reporting Directive (CSRD) which are more detailed in section 5.2.

[3] "a person who calculates how likely accidents, such as fire, flood, or loss of property, are to happen" (Cambridge Dictionary, n.d.)
[4] "Insurance underwriting is the process of evaluating a risk to determine if the insurance company will insure it and, if yes, then pricing it" (Insurance Training Center, n.d.)

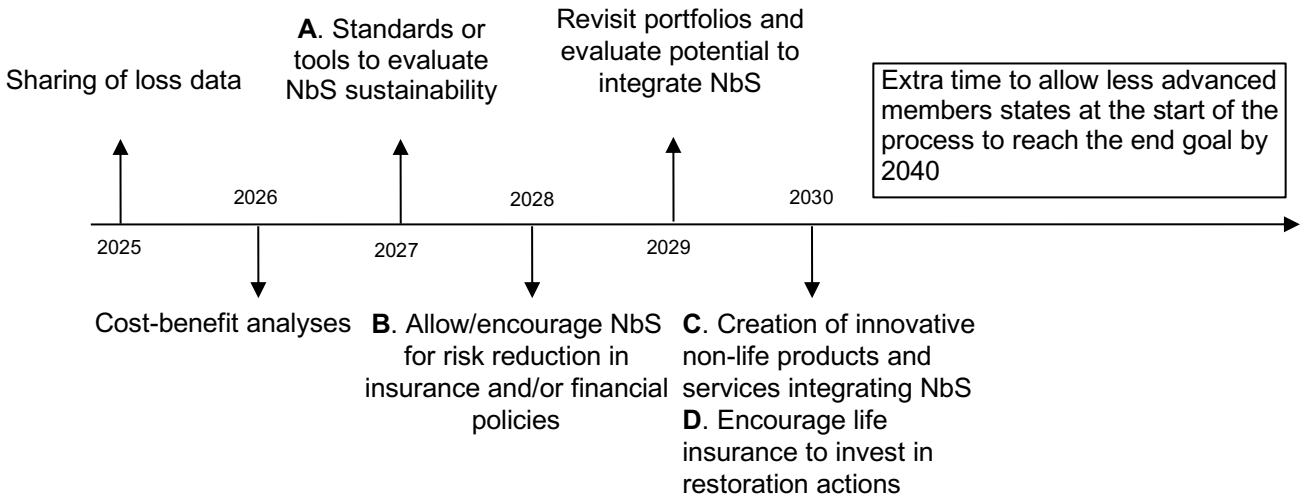


Figure 5. Timeline of the proposed actions.

5.1 Action A: Encourage the development of standards and/or other tools that can help insurers to objectively evaluate the sustainability of NbS

There are two approaches to this action, the use of standards on the one hand and tools on the other.

Regarding standards, a significant way forward that could help insurers understand the potential of NbS to reduce risk associated with climate change would be to have a systematic, reliable and conditions-specific set of standards. These would attest to good practice considering various criteria such as materials, building techniques, locations, etc to help better define the greatest risk reduction potential. Insurers would benefit from such standards, which would indicate precise information on the risk mitigation evidence documented and recorded that occurs by implementing specific large scale freshwater NbS measures to the insured assets that are exposed to e.g. floods.

The difficulty in implementing this action is that nature-based projects and measures and their impact on the local environment, ecosystems and therefore risk mitigation is highly dependent on factors inherent to the specific location like the risk to be mitigated and the specific local conditions. This makes standardisation complex. However, insurance could benefit from having standards that define requirements for NbS designing and implementation to reduce risk. These would be validated by a standard setting entity and function as a sort of label, much like the Underwriting Laboratories' (UL) products certification, although this certification (see Box 3) does not relate to nature.

When thinking about standards for the risk reduction potential of NbS, an important factor is to build these standards based on a variety of case studies taking place in varied conditions to reduce different risks, in order to be able to transfer the findings to the local context and derive key elements of the standard.

Box 3. The Underwriters Laboratories (UL) Certification Scheme

The UL certification means that the certified product has been tested by experts to ensure that the process in which the product was manufactured followed applicable standards, but also that it complies with current regulations.

Source: Control de Accesos, 2022.

Another approach to this action is the use of a tool rather than a standard, to encourage insurers to consider freshwater NbS as a risk reduction measure. Such tool(s) could take several forms, including a web-based platform that would help insurers understand the climatic risk affecting their assets. The Mitigrate company

helps actors to prioritise what type of preventive measures based on nature can best reduce specific risks at properties, as no one NbS fits all. It is a tool that could be used by insurers to understand how NbS affect the risk a property is under and the consequences they can have on their activities.

Another idea would be to develop the existing tools described in Box 4 into one that would integrate a calculation of the risk mitigation observed after the implementation of specific NbS by studying the local data such as meteorological, demographic or hydrologic. This would help to consider the local conditions, requirements, and specificities. These kinds of tools would help insurers to better assess the real risk which affects their policyholder or insured assets, to incentivise the use of the measure recommended by the tool to reduce the risk.

Box 4 Web-based tool from the LIFE DERRIS and LIFE ADA projects

The LIFE DERRIS project created a web tool to assess small and medium-sized enterprises' (SMEs) climate risk and what kind of measures SMEs could implement to reduce their risks (Derris project, n.d.). Green infrastructure is mentioned but these are not the only type of measure considered. The tool was created with a preventive purpose, meaning that it aimed to support SMEs in getting information on 1.) the hazard level of the area where they operate and 2.) the risk prevention and management actions they can implement to prevent damage. This enables SMEs to self-assess their risk and act to manage residual risks, which can include insurance underwriting.

Another tool is the Life ADA tool (ADA project, n.d.) which supports farmers to adapt to climate change providing them with information on climate scenarios, as well as to help them to select interventions that could be used to tackle climate change in the mid to long term. Integrating NbS as these key interventions could be useful in the particular case of Romania where we specifically studied the case of the uptaking of NbS for the agricultural sector to reduce climate change related risks.

The insurance sector could derive an interest from contributing to the adaptation of these tools to make them relevant for their own use in their day-to-day work by helping them assess the risk their clients are exposed to. Such interest includes maintaining the insurability of the sector in the long term.

NOTE: These tools were highlighted during an interview with a representative from the insurance sector.

Insurer-oriented tools like the ones presented could be used in parallel with a more policyholder-oriented tool, such as the German flood pass described in Box 5, should it be adapted to consider freshwater-related NbS as measures recognised to reduce specific risks.

Box 5. German flood pass

In Germany, a flood pass has been created to evaluate risks a house is under, certify that they have been mitigated, and how (Hochwasser Kompetenz Centrum e.V., n.d.). The tool is not related to NbS, but rather about self-protective measures in general. A proposition in this strategy is to adapt it in order for it to consider NbS and incentivise its use by the policyholder, which could then justify the effectiveness of the measure to its insurer in order to get a reward, as specified in Article 8 of the EU Taxonomy. Currently, a campaign is underway to get more public awareness about the tool and understand how acceptance evolves over years. The campaign will have an insurance association involved.

This information was highlighted during the participatory process.

Building on a similar idea of the German "pass", during a MERLIN roundtable event a member of the consortium pointed out that policyholders, as well as insurance companies would benefit from all houses being equipped with a risk certificate. Such a document, which would appear visually as a label on the house, or in the documents necessary to buy or rent a property, would state which hazards the house is exposed to. This would both help the buyer anticipate costs due to adapting to these hazards, but it would also help the insurance companies recommend adequate adaptation measures and calculate premiums accordingly. These custom-made tools could help insurers to get more precise information on the impact of NbS targeted to their particular case.

In the third roundtable event held in May 2024, it was highlighted that such tools or standards should be pragmatic and straightforward to aid a better understanding and promote their use. Moreover, these types of tools should help the sector to comply with the EU Taxonomy, which is a classification system categorising sustainable activities to help insurers make informed decisions when looking to invest in sustainable activities. The Taxonomy is further discussed in detailed Action B. Insurers agreed that such standards or tools must be robust and not create uncertainty, since this could be counterproductive and could potentially be perceived as a source for greenwashing impacting negatively on the reputation of the sector. Therefore, tools and standards should not be designed to work in parallel with the Taxonomy but rather to help comply with it. Based on a statement made by a Roundtable 3 participant, standards should be considered as a priority due to its potential to guide insurers who are struggling with the Taxonomy.

Table 2. Action A implementation details

Action A. Encourage the development of standards and/or other tools that can help insurers to objectively evaluate the sustainability of NbS.	
Who will act?	Standard: • Researchers exploring the scientific evidence for risk reduction of the measures (pre standard development) • Standard setting entity - for example the European Committee for Standardisation - in collaboration with industry (standard creation) • Standards/label approval body (standard authorisation) • Insurers, and other sectors who might benefit (standard uses) Tool: • Industry • Expert groups (people who design, implement, maintain, monitor NbS) • Public authorities Additionally, a consultation process should take place to know who wants to be involved. It should be organised at the start of the standards creation phase by the organisation leading the initiative, for example public authorities.
When will the action be taken?	By 2027

5.2 Action B: Allow or even encourage insurance to consider NbS for risk reduction in insurance and/or financial policies

This action relates to the fact that because the insurance sector is heavily regulated, the policies that it follows should incentivise or at least allow the consideration of NbS as a risk mitigation measure for insurance activities on the ground to be able to make use of such measures.

This section focuses on describing the opportunities that the proposal for the Solvency II Directive amendment (European Commission, 2021a) and the EU Taxonomy (European Commission, 2020) offer to incentivise the use of NbS by the insurance sector. These two policies were chosen due to their relevance to the sector. The relation between insurance and the NRL was touched upon in Roundtable 2, however it was still a draft at the time and got officially adopted after the event. Therefore, a certain deal of uncertainty prevented an in-depth discussion of this policy.

In the case of the Solvency II Directive, it is the main piece of regulation that the insurance and reinsurance sectors must comply with at the EU level. In the case of the EU Taxonomy this is a classification tool of sustainable activities to help investors make informed and sustainable decisions to incentivise sustainable investments. Other directives (e.g. Floods Directive (European Commission, 2007)) or principles (e.g. the Principles for Sustainable Insurance – PSI (United Nations Environment Programme Finance Initiative, n.d.)) were identified as relevant and discussed during the second insurance roundtable in May 2023. However, due to their lower relevance to the daily activities of the insurance sector (in the case of the Floods Directive) or to the notion of freshwater-related NbS for disaster risk reduction (in the case of the PSI), these policies are not analysed in this strategy.

Solvency II

The Solvency II Directive was published in 2009, and acts as a framework for supervision of the European insurance sector (EIOPA, 2022c). It is a European policy, transposed at national level in EU MS where it creates the main framework for market governance. In order for it to remain fit for purpose, a review was launched in 2020, with the European Insurance and Occupational Pensions Authority (EIOPA) providing its opinion, followed by the European Council publishing its proposals in 2021 (Barrett, Broens, Christy, Franzky, & Tucker, 2024). Ultimately, the amendments of the Solvency II Directive review were agreed by the European Council and the European Parliament by the end of 2023 (Hallak, 2024), and the European Parliament adopted the text in a vote in April 2024 (European Parliament, 2024). Recently, in a vote on November 5th 2024, the European Council adopted the text (European Council, 2024). Therefore, its relevance to the current strategy should be highlighted. Both the proposal for the Solvency II Directive amendment (European Commission, 2021a) and the proposal for the Insurance Recovery and Resolution Directive (European Commission, 2021b) were reviewed for the inclusion of references in the text to NbS or disaster risk reduction measures. None of these terms are mentioned in either of the documents. However, “sustainability”, “climate”, “environment” and “natural catastrophe” are recurrent words found in the review of the proposal of the Solvency II Directive. This shows the consideration given to environmental matters in policies, although they lack more direct incentives for the use of NbS. Having such incentives would be considered an enabling factor for the mainstreaming of such measures by insurance given the importance of the policy in the sector. However, a novelty of the review is the addition of a requirement to perform climate change scenario analysis in order to better include and integrate sustainability considerations into the financial system.

The EU Taxonomy

The Taxonomy has been published in 2020 in an effort to direct investments towards sustainable projects and activities, via the establishment of a common definition and classification system for environmentally sustainable economic activities (European Commission, 2022a). The Taxonomy set up six environmental objectives, including *climate change adaptation, the sustainable use and protection of water and marine resources, and the protection and restoration of biodiversity and ecosystems.* In order to facilitate the interpretation of the regulation, a Taxonomy compass was created (European Commission, n.d.-a), detailing the criteria that each sustainable activity contributes to, as well as a description of the contribution. In particular, insurance activities appear in the Taxonomy on two occasions, relating to Reinsurance, and Non-life insurance (underwriting of climate-related perils) both listed as contributing to climate adaptation. Under the Taxonomy for example, insurers need to offer incentives to take preventive actions such as reduced premiums to policyholders who protect themselves against natural disasters (European Commission, n.d.-b). Moreover, data sharing (supportive action 1 identified in the present strategy) and innovative insurance coverage solutions (detailed Action C in this strategy) are both aspects laid out in the Taxonomy which are also mentioned in the present strategy. Therefore, the compliance with the Taxonomy, which can be demonstrated via reporting as

part of CSRD (see Box 6), would enable more preventive measures to be put in place. However, a key action would be to include more incentives for such measures to be nature-based.

Box 6. Corporate Social Responsibility reporting requirements for EU insurers

Since the 5th January 2023, the CSRD (European Commission, 2022b) has entered into force. Its role is to ensure companies disclose their Environmental, Social and Governance impacts more consistently and uniformly, based on three main objectives: Standardisation, Transparency and Alignment with Other Regulations. In fact, CSRD is strongly connected with the EU Taxonomy since the taxonomy defines the criteria for sustainable investments that are used in CSRD reporting (Casado Barral, 2023). As stated in Insurance Europe (Insurance Europe, n.d.), from 2021, insurers have to report how much of their underwriting and investment is Taxonomy-eligible, and starting in the financial year 2023, the insurance sector also must report on their Taxonomy alignment. To be Taxonomy aligned, an activity needs to be Taxonomy eligible and meets all four overarching conditions defined by the regulation (Insurance Europe, n.d.). Insurance Europe writes about some weaknesses of the EU Taxonomy which result in the insurers' reporting not fairly reflecting their ability to contribute to adaptation. It cites, amongst other aspects, that the Taxonomy does not consider transitional investments, but only activities that are already green, meaning it does not incentivise investment into companies that are not currently green but have plans to take a step forward. A detailed explanation of the regulation's weaknesses for Insurance Europe are provided here.

Future EU policy opportunities for the sector to incentivise the mainstreaming of NbS could include the reviews of policies such as the EU Climate Adaptation Strategy or the EU Climate Law. Taking a more specific look focusing on a MERLIN case study country, the box below (Box 7) indicates the main strategic documents that provide favourable conditions for the upscaling of NbS in Romania. A good practice would be to map EU member states' national policies or initiatives which incentivise insurance products that consider the benefits of NbS.

Box 7. Zooming in: main policy windows for upscaling NbS in Romania through insurance

1. **The National Plan for Recovery and Resilience implementing NextGenerationEU**: This Plan considers NbS under Pillar 1 Green Transition (as alternatives to be assessed by the feasibility studies for Component 1- Water management and specifically referring to afforestation for Component 2- Protection of Forests and Biodiversity).
2. **The European Structural and Investment Funds** (ESI Funds): These ESI funds are playing an important role in funding societal objectives in Romania via Operational Programs supporting the Economic and Social Cohesion Policy at the national level. For example, the Operational Program Sustainable Development also provides allocations to complement the implementation of national strategies for prevention, adaptation, preparedness and response to climate change effects, acknowledging floods and drought as major threats and also providing for biodiversity conservation.
3. **National Integrated Urban Development Strategy for resilient, green, inclusive and competitive cities 2022—2035**: This Urban strategy has a priority objective towards developing green-blue infrastructure to mitigate and adapt to urban risks by integrating NbS in local strategies. The responsible government authority plans to publish a set of guidelines for the implementation of NbS (in cities), by the end of 2024, supporting NbS uptake at the local (urban) level, inspiring replication and upscale.
4. **EU Common Agricultural Policy (CAP)**: A policy incentive in the agricultural sector in Europe, customised to specific national needs. Incentives are provided to support farmers in adopting sustainable farming models and climate adapted, environment-friendly farming practices. Two interventions in the Romanian CAP Strategic Plan will be financed to encourage farmers to apply risk management tools at the farm level by (1) subsidising part of the eligible insurance premium paid, in both vegetable and livestock sectors, and (2) to create a risk management tool related to natural disasters with a major impact on agricultural production.

Source: Internal report Insurance sector's capacity on NbS issues and review of relevant natural resources management policies to assess NbS inclusivity, in Romania (Nanu, 2024)

Overall, policies are a powerful tool to help encourage insurers to consider NbS in their daily activity from the perspective of public private partnerships (PPP). Some progress has been made at the European level with legal reviews (Solvency II), tools (Taxonomy compass) and new policies (CSRD) helping insurers move to more sustainable practices. Moreover, a temporary reflection group has been created on "Mobilising Climate Resilience Financing" to reflect on how to facilitate climate resilience finance. The group, which includes representatives from the insurance industry such as EIOPA, will provide reflections on obstacles and enabling conditions of financing climate resilience (European Commission, 2024a).

In our strategy however we argue that this could be further speeded up with an additional specific focus on restoration or NbS as a practical example, where insurers could be incentivised to encourage the use of, or invest in, large-scale freshwater restoration as a risk mitigation measures. The MERLIN roundtables (May 2023 and 2024) shed light on important opportunities to speed up these PPP collaborations (and thus the changes of the industry be an active part of large-scale freshwater restoration).

1. Help the insurance sector to identify, understand and quantify the damages from not restoring large scale freshwater ecosystems
2. Sharing data to identify where it would be best to restore large scale freshwater ecosystems to achieve both biodiversity protection/restoration goals and also to help reach adaptation goals which could make it very attractive for a wider range of investors.
3. Upgrading the EU Taxonomy to make it clearer and more targeted for the insurance sector in the language used relating to insurance related aspects, and to include more details pertinent to insurance activities that go beyond non-life underwriting of climate related perils, and reinsurance.
4. An explicit mention of NbS in policies such as the Taxonomy or Solvency II, which are key policies for the sector, would help in speeding up the mainstreaming of NbS by the sector.

Box 8. National policy in action towards insurance action for society

In the Emscher catchment in Germany, a MERLIN case study site, a health insurance company is cooperating with the Emschergenossenschaft by funding health-related projects that align with a national policy, namely the Prevention Act. The project operates on a local scale, and specifically focuses on implementing actions for health-related awareness raising and promotion of healthy lifestyles. These include gardening projects to teach healthy eating habits, promoting cycling and nature-based outdoor activities for mental health, and implementing fitness facilities along the Emscher. While the policy is implemented at a national level, the actions focused on the Emscher region, potentially indicating similar local initiatives across the rest of the country.

Although this example does not relate directly to freshwater NbS, it shows the possibility for the insurance sector to engage with actions to incentivise their customers or raise their awareness of important topics related to their activities.

This box was created based on information communicated in a bilateral meeting with the Emschergenossenschaft (EGLV), a partner organisation in MERLIN.

Table 3. Action B implementation details

Action B. Allow or even encourage insurance to consider NbS for risk reduction in insurance and/or financial policies	
Who will act?	1. EU level policy makers, such as EIOPA 2. National MS policy makers and regulating bodies Illustrative example: In Romania the Financial Supervisory Authority oversees the activity of all the insurance market and is responsible for regulating, licensing, and supervising all the risk undertakers and distributors. The institution is also closely supervising insurers' risk management policies, actuarial procedures, and consumer protection issues An issue noted in Romania is that available funding and financing mechanisms are not always synchronised with policy ambitions and are often delayed in terms of activation, posing additional barriers to practical implementation.
When will the action be taken?	By 2028

5.3 Action C: Create innovative non-life products and services that can integrate NbS (and thus LSFNBS)

This action relates to insurance companies offering innovative non-life insurance products that relate to using NbS that have a positive impact on adaptation for disaster risk reduction. Incentivising the use of LSFNBS could also benefit the company's business through avoided damages. Examples of these NbS include ecosystem conservation or restoration such as wetland and peatland restoration; instream and riparian restoration in small streams; and floodplain restoration in large rivers.

This action is important in order to put in place protection measures against water-related climatic disasters, therefore reducing the amounts to be paid out by the insurer.

The products and services to be offered should be targeted to the type of contract, local condition, and sector the insurance policy is directed to. According to the EU Taxonomy, insurers should reward customers who put in place preventive measures, which can take the form e.g. of a reduction in premium price. This reduction in premium could incentivise more people to get insured, and therefore increase the insurance penetration rate, which is the ratio of total insurance premiums to gross domestic product in a given year (Rudden, 2024), reducing the protection gap.

An example of an innovative insurance product that could be more widely used to help the mainstreaming of NbS is parametric insurance. As detailed in the MERLIN D4.4 deliverable about Value Chain mechanisms (Chen et al., 2024), parametric insurance or index-based insurance, is a type of indemnity insurance that pays a predefined amount when a specific event occurs (e.g., a natural disaster), based on measurable parameters (such as wind speed or earthquake magnitude). The payout is triggered automatically when these parameters exceed a predetermined threshold, streamlining the claims process and enabling faster payouts (SwissRe, 2023). This product is particularly relevant in the case of restoring ecosystems that have been degraded after a disaster.

In the example explained in the D4.4 deliverable, the Mesoamerican coral reef serves as a protection mechanism to the inland areas of Quintana Roo in case of a hurricane. During such events, the reef suffers damages and needs restoration in order to keep performing its protective function. Mesoamerican coral reefs now benefit from a parametric insurance cover for such restoration practices. A wider consideration of this insurance product for other cases transposed to the European landscape could be an entry point into complying with this specific action of the present strategy.

Additionally, insurers could directly encourage individuals to take actions, as is the case with Dutch insurer Interpolis that is looking to incentivise the installation of green roofs in an effort to help society and the environment. In particular, the focus on the solution being beneficial against rainwater runoff and biodiversity decline is highlighted in the communications the insurer put in place to promote such initiatives in the media (Zwinkels et al., n.d.). These kinds of efforts are key in raising awareness among policyholders which could lead to them considering taking up preventive actions against climate-related risks. This uptake can be further stimulated via the use of risk-based rewards, such as premium reduction (EIOPA, 2023).

A barrier to the implementation of these specific, individual policyholder-led examples, is that EbA benefits are often materialised at a large scale. When looking at small scale measures such as green roofs, a conclusion is that a large number of individual policyholders would need to implement the solution in order for a large-scale benefit to be seen. Therefore, as mentioned in a sectoral interview in March 2022, premium reduction is not the ideal incentive for big adaptation measures, since it might not compensate for the costs to an individual to take the measure.

Another idea that can be built upon is the replication of the Barnier fund to specifically help financing NbS for risk mitigation. The Barnier Fund in France (Fund for the Prevention of Major Natural Hazards) helps finance work carried out by individuals and small businesses to reduce the vulnerability of their homes or premises. This fund is partially financed by a small percentage of premium collected from the multi risks house insurance paid by policyholders. In France, disaster risks are pooled, meaning that an individual wishing to contract flood insurance also has to get insured against storms. This approach helps reduce the natural disaster protection gap, by ensuring more people are covered against a variety of risks. A similar approach as the Barnier fund is taken in Germany, where a similar tax is applied for the co-financing of fire brigades, as mentioned in the third roundtable (MERLIN insurance team, 2024).

In both the French and German case, the measures financed are not necessarily NbS, therefore adapting these schemes in order to include NbS and transposing them to other EU member state level would allow the wider use of NbS for protection against damages arising from freshwater related disaster events.

Box 9. Ideas for Innovative Insurance Products and Services in Romania

The need for creativity regarding innovative non-life insurance products and services integrating nature by 2030, is acknowledged by the stakeholder interviewed in Romania. In this box we highlight the types of products companies such as AGRA Asigurări and MARSH in Romania have put in place to increase their competitiveness to differentiate themselves from competitors and retain customers' loyalty. Insurers are striving to include in their offer additional value-added services as pathways to be followed for market development:

a. in ESG reporting

b. in the adaptation of roles e.g. brokers as links between insurers and farmers based on aggregation platforms for risk modelling and risk management approach and information dissemination

c. providing more comprehensive approaches in product design e.g. parametric insurance products that pay out based on predefined triggers such as rainfall or drought rather than assessed losses, allowing for quicker payouts to support recovery)

Examples:

Meteorological information and weather alerts: Groupama's complete meteorological forecast includes technical information related to the potential impact of the expected weather evolution on different types of crops.

Tailored products per crop and improved claims management:

AGRA Asigurări has tailored products for different agricultural crops (such as viticulture or horticulture) and a portal to facilitate customers' interaction with the company for speeding up the claims-solving period.

MARSH, created a tailored product for drought designed in direct dialogue with farmers' organisations, covering both classic risks (droughts, heat, floods, hail, torrential rain, storms, blizzards, tornados) and specific risks (diseases and other harmful organisms, frost, drought/heat or excessive rain). It does not include NbS for risk reduction, but it can include risk reduction recommendations based on the specific conditions of the insured crop.

Source: Internal report Insurance sector's capacity on NbS issues and review of relevant natural resources management policies to assess NbS inclusivity, in Romania (Nanu, 2024)

On another note, one can think of insurance as a proxy for investment (MERLIN project, 2024a) considering that projects need to have insurance to be considered by investors. Helped by the need to comply with the EU Taxonomy, insurers could decide to set strict sustainability criteria that projects to be insured should comply

with in order to be granted protection. For example, by generalising insuring a NbS projects such as floodplain restoration instead of other grey solutions, an insurance company would indirectly contribute to mainstreaming NbS. In the Basque Country case study, a similar idea arose that could have helped reach the MERLIN objectives for this case. This is described in Box 10.

Box 10. Importance of insurance risk management for civil protection

In the Spanish Deba barrier removal case study, MERLIN aims to remove weirs that have been identified as increasing flood risk in the area. However, because these weirs are part of the region's cultural heritage, some locals oppose their removal on cultural grounds. In such cases, if insurance companies were to acknowledge the flood risk associated with these weirs and adjust premiums accordingly, or refuse to insure the weir, it could influence public opinion. Thus, it is believed that the insurance sector's expertise on risk management could support barrier removal and further restoration measures based on their potential to reduce risk, which could help the public become more conscious about the associated risk.

This information builds on bilateral meetings the MERLIN insurance team had with the Deba case study leaders.

As a general reflection, large scale projects addressing insurability of risks with a societal perspective need the involvement of a diverse profile of stakeholders, both public and private, from the early stages of the development of these projects. A clear identification and evaluation of trade-offs can help to incentivise alliances and stimulate actions for implementation. Understanding stakeholders' perceptions could help as regards the effectiveness of a given NbS to address the climate challenge but also to fully value the range of ecosystem services/co-benefits provided which becomes essential subsequent actions.

Table 4. Action C implementation details

Action C. Create innovative non-life products and services that can integrate NbS (and thus LFNBS)	
Who will act?	Insurance companies as developers and marketers of the products Scientists and expert as advisors on effects of specific NbS (helped by cost-benefit analysis, especially avoided damage/cost) Regulators as enablers for innovative products to be launched on the market Policyholder as buyers of the products
When will the action be taken?	By 2030

5.4 Action D: Encourage life insurance to invest in restoration actions (investable assets)

Life insurance has a greater capacity to invest in assets, compared with non-life insurance. This is because life insurance covers a longer-term period. This detailed Action D promotes innovative investments, for example directly into NbS projects or investments in nature. In fact, the EIB categorises the insurance sector as an institutional long-term investor in NbS via equity and loans, although the maturity level in this field is mid-stage (EIB, 2023).

There are a variety of reasons why life insurance could have a motivation to invest in NbS, such as: increasing their alignment with the EU Taxonomy, to get a financial return like in any other investment, to increase resilience, or to reduce the risks that insured assets are exposed to.

According to the European Investment Bank (2023), insurance companies can invest in NbS either by insuring the natural capital itself, by investing their assets under management in the development of nature-based projects, or by investing in NbS at large for financial returns. Several mechanisms can be used to finance such

measures, from direct investments via for example grants or loans, all the way to different types of partnerships like PPP. Innovative finance mechanisms like debt swaps or blended finance can result of interest for private investors (Global Environment Facility, 2023).

A barrier expressed in a bilateral meeting in March 2022, referred to the lack of investment opportunities when discarding black and brown investments, suggesting that insurers struggle to find NbS projects in which to invest. A recommendation for insurance companies to start investing in nature directly is to proactively engage with environmental consultants, experts or project managers, or attend conferences and workshops in order to gain awareness on the projects that need financing and that could contribute to fulfilling the aims that the insurance company is looking to achieve, or the regulations it needs to comply with. More relevant information will be available in D3.5 offering a *Best practice catalogue of public and private financing and upscaling*, due in January 2025.

In the various interactions the MERLIN team had with the sector, a recurrent topic was the need for more PPPs to reach the mainstreaming of NbS. In fact, while the EIB classifies the maturity level of the insurance sector to invest in NbS as mid-stage, nation states, regional authorities and municipal authorities are listed as investors at a more advanced stage (EIB, 2023). Therefore, a way forward uniting the risk management expertise of insurance with the higher NbS investment maturity level of public entities could contribute to the mainstreaming of such measures.

During a feedback session at the MERLIN consortium meeting in February 2024, it was discussed how the insurance sector is more likely to invest in funds, where the money is used to finance a variety of projects, as opposed to investing in specific projects (MERLIN project, 2024a). Specifically, impact funds are a good option to generate social and environmental benefits alongside the economic returns. However, these impact funds do not guarantee that the investments are directed towards NbS. Nonetheless, there exists investment funds that consider NbS, such as the one AXA Climate has created in 2022 for regenerative agriculture which aims to finance sustainable projects, in particular by reducing dependence on pesticides (Pachon, 2023). AXA also launched in 2022 a new Natural Capital strategy aiming to support sustainable forest management especially via protecting habitats from deforestation, while enabling carbon sequestration (Shain, 2022).

A challenge that remains when thinking of insurers as investors in nature is to understand which (economic) return they could get from it, in addition to the positive environmental or social impact it can have. Connecting Nature gives insights into what the economic value proposition for NbS could be, for example investing in a tree cover could raise the attractiveness of the area to businesses (Connecting Nature, 2019). Here NbS are therefore an enabler for creating economic value where it is located.

It is still possible to find examples of life insurance contributing to NbS directly and using it as a source of financial revenue, like in the case of the restoration of Scotland's damaged peatland. In this case, landholders in Scotland who restore peatlands get 80% of their expenses reimbursed by the government and can keep the profits made from carbon credits (Segal, 2022). According to Segal (2022), this has attracted investors like life insurance companies or private equity funds to buy land.

According to the EU Commission, the Capital Markets Union is a plan to create a single market for capital which would lead to more investments and savings flowing across the EU so that it can benefit a range of actors regardless of where they are located (European Commission, n.d.). In this context, the EU Commission seeks to remove regulatory barriers for insurance companies to invest for the long-term, without threatening financial stability or reducing policyholder protection. Operationalising such opportunities e.g. in countries like Romania can represent an opportunity for mainstreaming investments in NbS using well-structured blended financial instruments for leveraging the governmental funding streams with a long-term perspective.

Table 5. Action D implementation details

Action D: Encourage life insurance to invest in restoration actions (investable assets)	
Who will act?	Insurance companies as investors in NbS Insurance associations as advisors on the sector's interests Financial organisations such as the European Investment Bank can provide guidelines and frameworks NbS project managers looking for financing
When will the action be taken?	By 2030

5.5 Summary of Actions

This visualisation (Figure 6) is based on the sequencing proposed in the strategy, but it is essential to acknowledge that the vision can be reached through alternative pathways.

Figure 6. Summary infographic

6 Discussion

The present document lays out a number of possible actions that could allow to reach the strategy ‘s vision: By 2030, the European insurance sector promotes the use of large-scale freshwater Nature-based Solutions as water-related disaster risk reduction and ecosystem-based adaptation measures. Considering the scale of such vision, a significant point to underline is that there exist differences in the way insurance works in various EU countries. This can include how the insurance sector is regulated, the products and services offered, or their uptake. Therefore, the strategy should not be followed and implemented in the same way by all insurance companies in every EU country. Its implementation should be flexible and companies should see it as a way to enable their consideration of the topic and start (or keep) considering NbS as part of their day to day activities, depending on their ability, knowledge, and responsiveness of their policyholders.

The timelines included in this strategy are a possible scenario for the frontrunners, actors who are already interested in and convinced by NbS but need insights and potential entry points for where to start. It was stated in the participatory process that, regarding the first supportive action about sharing data, some countries have already developed platforms to share risk data. An example is Norway, where the Knowledge Bank data platform was launched in 2020, aiming to share asset-level insurers flood loss data with municipalities for them to better plan for adaptation measures, while the public can access data on a more aggregated, municipal level (Climate Adapt, 2020). However, participants outlined that reaching this point took a long time and that it was a difficult process. Therefore, the 2025 proposed deadline is probably not feasible for countries who have not started this journey yet. Another example from the study carried out in MERLIN reveals that within the Romanian context the insurance sector can primarily step in by sharing risk data and risk modelling expertise contributing to NbS design as well as impact monitoring and evaluation. However, it is important that all countries contribute to the best of their abilities.

The insurance sector is heavily regulated, and its processes vary from country to country within Europe, although a basic structure of the insurance sector is shared and there are some pertinent EU regulations as already discussed in section 5.2. It consists in EU countries like e.g. Romania of primary activities focused on product and service development, underwriting and pricing, marketing, distribution and sales, policy administration and claims management, as well as assets and investment management. Support activities are focused on risk management, actuarial activities, data and technology and human resources management. However, aside from this basic structure, specificities have to be considered in each country. For example, the innovative products offered by companies will differ based on the local needs, ecosystem types, disaster risk and customer “appetite” or demand. A preliminary study of reasons for the protection gap in some countries could be performed as a first step to designing new innovative products that would make them more attractive to customers, or cheaper due to the risk mitigation conferred by NbS.

6.1 Do the actions require help from other Sectors?

The insurance sector is in many ways an umbrella sector that covers the losses from other sectors, thus it is cross-sectoral in nature, and can consider and incorporate the needs and involvement of external sectors. For example, the work performed in Romania on agricultural insurance proves this point. In this case, the data collected and processed allowed a better understanding of the communities currently active with the insurance industry, the evaluation of the potential for enlarging those communities to consider large scale freshwater NbS considering the general Romanian context and the specifics of the agricultural and land management activities (with a focus on the Danube floodplain area). Specific opportunities and challenges were highlighted and analysed for this purpose in the field of water-linked perils, and the level of knowledge in instrumenting NbS as tools for risk management at local level, including the relevant policies supporting the NbS approach. Future policy instruments for sectors such as water management or local development also need to integrate risk management instruments and associated investments with explicit inclusion of nature-based solutions and consider the benefits NbS provide for nature conservation and climate adaptation.

6.2 Progress on mainstreaming

The involvement of the insurance sector in the implementation of large-scale freshwater NbS for water related disaster risk reduction is both a challenge and an opportunity. In fact, the insurance sector is competitive, while the benefits relating to the implementation of an NbS can be observed on a wider scale, benefiting individuals and other companies who did not necessarily invest in it i.e. private investment for public goods. This means that the investment of one insurance company in a large-scale risk mitigation measure would also benefit its competitors who made no investment. This is known as the free rider problem and is a big barrier to the sector incentivising (large scale) NbS. The incentivisation of more localised, policy-holder scale measures (by premium reduction for example) is better accepted since the risk reduction will directly benefit its insurer. Even then, a barrier exists, which is that the effect of NbS can become apparent over the mid to long-term, when in fact non-life insurance contracts typically last for only one year. Therefore, based on the free rider concept, the insurer who incentivises the implementation of the NbS measure might not see the associated reduction in risk, which would benefit the policyholder's next insurer.

Even though the will is expressed strategically and NbS are mentioned in different guidelines for financial allocations[5], the actual mainstreaming of NbS in practice is quite slow. In the specific conditions in Romania the inter-sectoral cooperation is not yet fully functional and public-private dialogues are not always balanced. Additionally, keeping long-term objectives within short-term political horizons remains a challenge leading to discontinuity in concrete actions. A notable limitation for decision-making stakeholders at various levels is the insufficient knowledge of NbS beyond their definitions. There is a lack of expertise in designing, implementing, and monitoring the impact of these solutions in practice (see action in section 5.1).

There is also very little knowledge on their potential for connection and interaction with traditional (grey) infrastructure in hybrid projects. The gap includes the ability to conduct comprehensive cost-benefit analyses and comparisons with traditional grey infrastructure, as well as practical experience with implemented projects and shared insights on their effectiveness in risk reduction and socio-economic development. This is the reason why one of the non-detailed, supporting actions (action 2) touches upon the cost-benefit analysis necessary for the insurance sector to consider NbS as part of their activity.

The Romania-centred work shows that the Romanian insurance sector is open to considering NbS but currently perceives its main role at this stage as an ally with other stakeholders by contributing to building a risk culture and providing financial education of the potential customers. From this perspective it is actively seeking to understand farmer's needs and develop adapted products including coverage of climate related risks, trying also to respond to challenges considered uninsurable in the past (such as drought). However, no NbS initiated or supported by the insurance sector as a risk management tool was identified during the study, and the sector is not yet positioning itself as a direct investor in risk reduction measures. Rather, the insurance sector in Romania is playing an advisory role for the policyholders focusing on reducing the risk itself, without necessarily recommending NbS as a preferred alternative. The priority remains on increasing penetration of insurance products and educating farmers to get insured. More insights on the identified barriers to mainstreaming are proposed in Box 11.

A major step for the natural catastrophe insurance in Romania was the activation of PAID – *the Insurance Pool Against Natural Disasters*, in 2010. The contract covers damages caused to the home by three basic natural disasters: floods (due to natural causes), earthquakes and landslides, and as a direct or indirect effect thereof. However, PAID has no risk prevention component, and it is merely a financial reserve to protect Romania in case of extreme natural phenomena and reduce the impact on the national budget in case of catastrophes (mainly earthquakes).

[5] The diverse range of terms used in different policy documents ("green solutions", "natural solutions", "green measure", "sustainable solutions", "innovative solutions"), contributes to confusion regarding alternatives in implementation.

Box 11. Insights on barriers to mainstreaming from the Romanian case study

Despite the societal acknowledgment of climate change's impact on agriculture, farmers' awareness of insurance protection options remains fairly limited. The Romanian insurance industry recognises the need for innovative strategies to incorporate climate action while focusing on core business and client needs. However, customised strategies for agriculture and food sectors face obstacles in reaching customers. Financial difficulties lead farmers to insure only high-income potential crops, and while risk understanding and forecasting are advanced, incorporating NbS in risk management is seen as a future step. Landowners are generally reluctant to adopt green solutions as there is a lack of knowledge about their investment, maintenance, and impact on risk mitigation. No innovative nature-related insurance products were identified in the study; current products address climate change impacts without integrating NbS. Different NbS projects are implemented or planned in Romania but are not yet initiated or supported by the insurance sector. The insurance industry is currently more of an advisor than a direct investor in risk reduction measures, prioritising the increase of insurance product penetration and farmer education.

It is important to acknowledge the struggles some countries may face, even in light of the very ambitious strategy set in this document, as this initiative is not designed only to drive immediate implementation but also to serve as a guide for countries that are not yet ready to pilot or scale up. Frontrunners can lead the way and via experience provide insights and best practices to equip countries with the knowledge needed to accelerate their efforts when they become ready.

Source: Internal report Insurance sector's capacity on NbS issues and review of relevant natural resources management policies to assess NbS inclusivity, in Romania (Nanu, 2024)

7 Conclusion and Next Steps

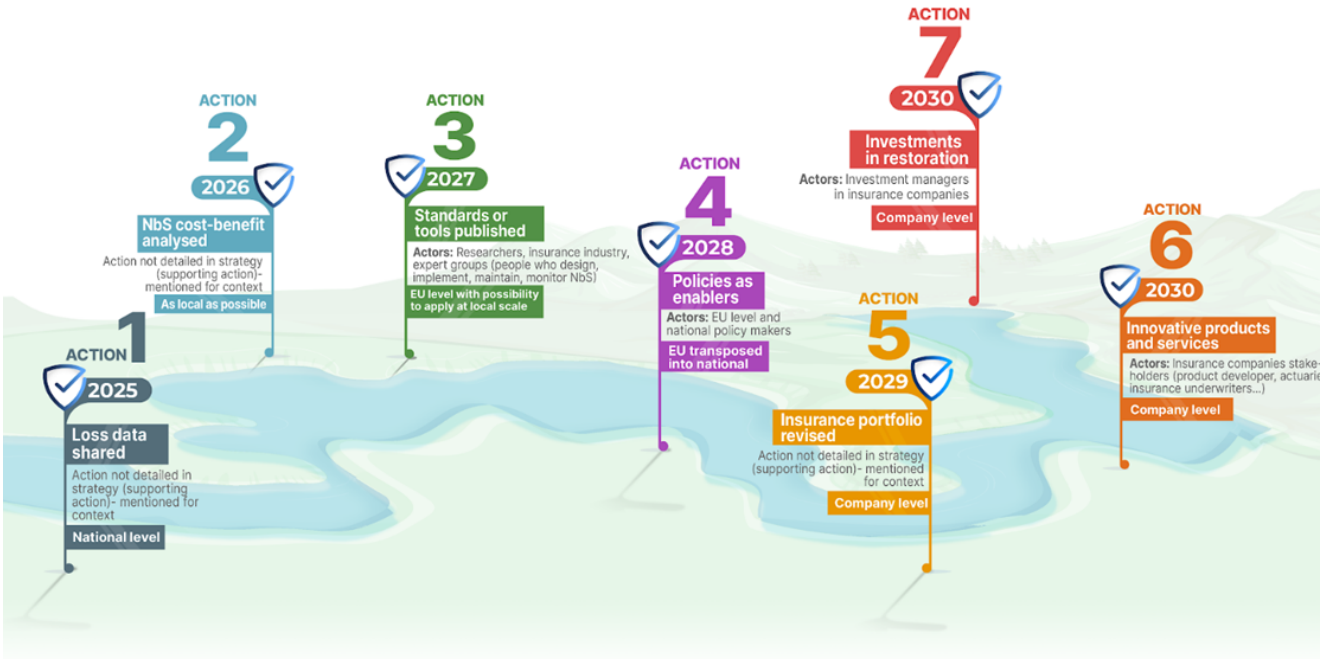
This document outlines a strategic action plan for the period 2025 to 2030 for the insurance sector to incentivise the use of large-scale freshwater NbS at the EU scale to reduce climate change-related disaster risks by 2030. Given that NbS is relatively new for this sector, the document serves as a guide, detailing the necessity of these practices, key implementation aspects, descriptions, timelines, and identified actors. The focus is firstly on how to integrate NbS into non-life insurance to mitigate financial risks from water-related events like floods and droughts, particularly through large-scale freshwater NbS solutions like floodplain restoration, although it also touches secondarily upon the consideration of life insurance investing in nature.

The strategy is based on research, based on a multi-method approach that includes a literature review, direct interviews with key stakeholders, including about Romanian agriculture, a series of roundtables and a case study approach. The research highlighted the sector's capacity and a number of possible actions to help incentivise the adoption of NbS by the sector to help prevent damage from climate impacts such as floods and droughts. The strategy emphasises the important role that insurers could play in helping to mainstream large scale freshwater NbS at various levels to reduce their asset risks while enhancing environmental and societal co-benefits.

The proposed strategy aims for a transformational shift towards mainstreaming freshwater NbS use by the insurance sector, identifying specific actions and a potential timeline for achieving this vision. It outlines seven key actions, including four with a detailed explanation to help guide the insurance sector towards integrating NbS into their business. These actions include sharing loss data for cost-benefit analysis (2025), conducting cost-benefit analyses of green vs. grey measures (2026), encouraging the development of standards to help insurers on evaluate NbS sustainability (2027), and encouraging insurance and financial policies to consider NbS for risk reduction (2028). Additionally, insurers are encouraged to revisit portfolios for potential NbS integration (2029), create innovative non-life products and services that can integrate NbS (2030), and encourage life insurance to invest in restoration actions (2030). These actions and their sequence are suggestions, representing one of several potential routes to reach the vision. They collectively make up the proposed strategy by providing a structured, phased approach that builds capacity, sets standards, and fosters innovation, leading to a mainstreamed use of freshwater NbS in the insurance sector.

The next phase should involve sharing or piloting this strategy to encourage further adoption and implementation. The MERLIN project will end in March 2026 and in its final year can raise awareness of this strategy and encourage that the proposed actions are set into motion by the proposed target audience. Members of roundtables and communities of practice are warmly invited to take up the suggested actions and lead the way.

8 Visualisation



This visualisation is based on the sequencing proposed in the strategy, but it is essential to acknowledge that the vision can be reached through alternative pathways.

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10 Annex 1. Methodology

Literature review

Our first method was a literature review which gathered relevant information from peer-reviewed, grey and other digitally available sources. The period of literature revision was more intense during the first few months of the project, although relevant reports, news articles or papers have been continuously reviewed throughout the research process. The main findings from the literature review were to help us better understand the importance of disasters and climate impacts for the sector, as well as to investigate to what extent insurance as a sector was considering NbS to address disasters and associated damages. In terms of reflections on the method, the fact that we had difficulty in finding relevant examples to illustrate the key actions highlights the emergent and innovative nature of the approach.

Expert interviews

Our second method was to undertake seven interviews with key stakeholders such as representatives from insurance companies (four), insurance associations (one) and policymakers (two), some at the EU level and some focused on specific MS. A more detailed analysis of the external stakeholder interactions that took place with the sector within MERLIN is performed in Deliverable 4.2 about Just Transformations (Schulz et al., 2024).

Table 6. Summary of interviews undertaken with the insurance sector within MERLIN

Type of interview	Timing	Objective	No interviews	Interviewees	Level
Pre-Roundtable 1 interview	March 2022	Gather information about the current level of NbS uptake in the sector to inform the roundtable focus	5	Insurance public and private companies, national insurance association, MERLIN project representatives	Various MS
Policy interviews	July 2022	Understand the trends in the sector, how NbS fits with it and what impact it could make, link to the green deal goals. Introduce the notion of transformation	2	Members of EU policy institutions	EU
Engagement with Romanian insurance actors	January - Nov 2024	Engagement of key stakeholders to raise awareness and build on intersectoral collaboration.	8	Direct interviews with market leaders: AON, AGRA, APPA, UNSAR as main insurance players in Romania Government Institutions Farmers Organisations	Romania

Roundtables

The third method used was to host a total of 3 roundtables in March 2022, May 2023 and May 2024 i.e. one per year, with insurance and non-insurance relevant actors to advance our understanding of the sector. The first roundtable focused on the identification of the current situation regarding the consideration of NbS by the insurance sector in Europe (e.g. familiarity with the term and/or use NbS in activities). The second roundtable focused on the role of the regulatory and policy framework in enabling or hindering the insurance sector to contribute to nature restoration through large scale river restoration. The third and final roundtable helped us to gather feedback regarding the insurance value chain map as one of the key insurance works in MERLIN, and to discuss and validate how the sector perceived the vision[6] and proposed steps of the draft sectoral strategy. Stakeholders were asked for feedback and to voice any concern about the actions, including whether they saw them as an effective way to reach the vision.

Additionally, roundtable participants were sent the short notes the MERLIN team had prepared after each roundtable so attendants could review the content according to what was discussed and have the opportunity to add to the key takeaway messages. The summary reports were then published on a dedicated page on the MERLIN website (MERLIN project, 2024b).

Table 7. Summary of MERLIN insurance roundtables

Roundtable	Date	Main areas covered	Participants
Roundtable 1	March 2022	Identification of the current situation regarding the consideration of NbS by the insurance sector in Europe (familiarity with the term and/or use NbS in activities) and the challenges or needs the sector perceives to reach a more mainstreamed use of these solutions	Insurance public and private companies (7), national insurance association (2), MERLIN project representatives (7)
Roundtable 2	May 2023	Discussion on the role of the regulatory and policy framework in enabling or hindering the insurance sector to contribute to nature restoration through large scale river restoration.	Insurance public and private companies (2), national insurance association (3), researchers (3), city representative (1), members of EU policy institutions (2), MERLIN project representatives (10)
Roundtable 3	May 2024	Gathering feedback on the MERLIN work regarding the value chain map, and the proposed steps of the present sectoral strategy as well as the vision to reach: By 2030, the European insurance sector	Insurance public and private companies (3), national insurance association (3), researchers (2), MERLIN project representatives (13)

[6]The vision is: By 2030, the European insurance sector promotes the use of large-scale freshwater Nature-based Solutions as water-related disaster risk reduction measures.

		promotes the use of large-scale freshwater Nature-based Solutions as water-related disaster risk reduction measures	

In terms of limitations on some occasions a bigger participant sample would have been welcome. As a minimum we secured the participation of 8 non-MERLIN actors in the third roundtable which had the lowest number of attendees, as opposed to the second roundtable when we had 11 non-MERLIN participants. Reflecting on the research method, this low number of attendees in some cases showed the difficulty to bring together a large number of relevant stakeholders which could be due to for example the innovative nature for the insurance sector to work with NbS.

MERLIN case studies: Romania and Spain

The fourth and final method was a case study approach which would allow us to go more in depth to understand how the MERLIN Vision and strategy could be downscaled at the national level, since the insurance sector is a heavily regulated sector and regulation varies by MS. We therefore had a more in depth look at the Romanian MERLIN case, with a focus on the case of agricultural insurance in Romania, and the Spanish case study, where we referred to the case of catastrophe insurance in Spain for flood protection.

Box 12. Methods relating to the Case of Agricultural Insurance in Romania

The methodology applied, in line with the overall methodology, a mixture of desk research to gather public information available on the relevant governance and policy framework for enabling NbS for mitigation of water-related risks, complemented with dialogues conducted with relevant stakeholders to help capture existing practical experiences. Direct interviews were performed with key Romanian stakeholders in the insurance and with other actors (policymakers, the farmers community) collecting information on the specifics of the agricultural natural catastrophe insurance in Romania for identification of existing or potential entry points for incentivising the use of NbS for risk mitigation.

Methodological co-design roadmap followed

Table 8 illustrates how the MERLIN insurance team has initiated to build the CoP and the process developed to co-design the present strategy.

Table 8. Summary of the type of interactions with the CoP

Type of participatory event	Date	Aim of the process	Type of actors interacted with
Pre-Roundtable 1 interview	March 2022	Gather information about the current level of NbS uptake in the sector to inform the roundtable focus	Insurance public and private companies, national insurance association, MERLIN project representatives
Roundtable 1	March 2022	Identification of the current situation regarding the consideration of NbS by the insurance sector in Europe (familiarity with the term and/or use NbS in activities) and the challenges	Insurance public and private companies, national insurance association, MERLIN project representatives

		or needs the sector perceives to reach a more mainstreamed use of these solutions	
Policy interviews	July 2022	Understand the trends in the sector, how NbS fits with it and what impact it could make, link to the green deal goals. Introduce the notion of transformation.	Members of EU policy institutions
Roundtable 2	May 2023	Discussion on the role of the regulatory and policy framework in enabling or hindering the insurance sector to contribute to nature restoration through large scale river restoration.	Insurance public and private companies, national insurance association, researchers, city representative, members of EU policy institutions, MERLIN project representatives
Engagement with Romanian insurance actors	January - Nov 2024	Engagement of key stakeholders to raise awareness and build on intersectoral collaboration: Joining sector events: · MERLIN presentation at "2024 Challenges: the risk landscape is changing. Is the industry ready?", February 2024 · Participation in media event "Main trends for agricultural insurance", AGRA Insurance, March 2024 · Risk Hour broadcast at Radio France International, in dialogue with Aon and Agra, May 2024 · Dedicated panel of discussion at FIAR - The International Insurance-Reinsurance Forum 2024, "Gathering Forces for including Nature-Positive Solutions in Catastrophic Risk Management. Opportunities and challenges for Agricultural Insurance in Romania", May 2024 - Dialogue insurance-agricultural sector, November 2024 Direct interviews with market leaders: AON, AGRA, APPA, UNSAR	Main players on the agricultural insurance in Romania Insurance sector representatives Government Institutions Farmers organisations
Roundtable 3	May 2024	Gathering feedback on the MERLIN work regarding the value chain map, and the proposed steps of the present	Insurance public and private companies, national insurance

		sectoral strategy as well as the vision to reach: *By 2030, the European insurance sector promotes the use of freshwater large scale Nature-based Solutions as water-related disaster risk reduction measures.*	association, researchers, MERLIN project representatives

11 Annex 2. Organisations that attended the participatory process

AgroSeguro
Association Française pour la Prévention des Catastrophes
AXA Climate
Business Development Group (BDG)
Caisse Centrale de Réassurance (CCR)
Climate Risk Advisory
CMS Albiñana & Suárez de Lezo
Connectology
Consorcio de Compensación de Seguros (CCS)
DG CLIMA
DG ENV
DG RTD
Dutch Association for Sustainable Investors – VBDO
Dutch Association of Insurers
DZI (Bulgaria State Insurance Institute)
Ecologic
European Environment Agency (EEA)
ERRIN (European Regions Research and Innovation Network)
Fédération Française de l'Assurance (FFA, also known as France Assureurs)
German Insurance Association (GDV)
Grupo Unipol
Helmholtz Centre for Environmental Research
iCatalist
Insurance and Pension Denmark (F&G)
Insurance Europe
James Hutton Institute
PIK (Potsdam Institute for Climate Impact Research)
Poznan university of economics and business
Universidad del País Vasco
Universität Duisburg-Essen
University of Antwerp
Vienna Insurance Group (VIG)
WWF – various offices
Zurich Insurance

12 Annex 3. List of organisations that reviewed the draft strategy

Business Development Group (BDG)
Climate Risk Advisory
Consorcio de Compensación de Seguros (CCS)
Ecologic
Emschergenossenschaft
Grupo Unipol
Helmholtz Centre for Environmental Research
James Hutton Institute
PIK (Potsdam Institute for Climate Impact Research)
Universidad del País Vasco
University of Antwerp
WWF – various offices