



biodiversa+
European Biodiversity Partnership

EUROPEAN PARTNERSHIP

Report on the Strategic Workshop on Nature-based solutions

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Author:	EL Harrak Mariem Lemaitre Frédéric
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What is Biodiversa+

Biodiversa+ is the European co-funded biodiversity partnership under Horizon Europe, supporting excellent research on biodiversity with an impact on policy and society. It was jointly developed by BiodivERsA and the European Commission (DG Research & Innovation and DG Environment) and was officially launched on 1 October 2021.

Biodiversa+ aims at making the bridge between science, policy and practice as part of the European Biodiversity Strategy for 2030.

Biodiversa+ currently gathers more than 80 research programmers and funders and environmental policy actors from 40 European and associated countries to work on 5 main objectives contributing to a sustainable ecological transition in Europe:

1. Plan and support research and innovation on biodiversity through a shared strategy, annual joint calls for research projects and capacity-building activities
2. Set up a transnational network of harmonised schemes to improve the monitoring of biodiversity and ecosystem services across Europe
3. Contribute to high-end knowledge for deploying Nature-based Solutions and valuation of biodiversity in the private sector
4. Ensure efficient science-based support for policy-making and implementation in Europe
5. Strengthen the relevance and impact of pan-European research on biodiversity in a global context

More information at: <https://www.biodiversa.eu/>

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Introduction

1. Objectives of the Workshop

A key part of Biodiversa+'s work focuses on promoting and supporting the development and implementation of high-end knowledge on Nature-Based Solutions for policy, businesses and practitioners. Biodiversa+ is notably launching a flagship programme on Nature-Based Solutions in 2022, which may include funding opportunities for R&I on the topic as well as activities related to knowledge co-production and operationalisation, support to policy-making and international cooperation on NBS.

In this context, Biodiversa+ organised a strategic workshop on NBS to provide inputs for Biodiversa+ concrete activities in support of NBS in the coming years. The Strategic workshop intended to build a common vision amongst participants of the role of R&I on biodiversity in supporting the deployment of NBS and to collectively reflect and advise research areas, as well as coordination, capacity building and support activities on NBS that could be undertaken by Biodiversa+

The outcomes of this workshop will be used to feed the Biodiversa+ programming and activities on NBS R&I. In particular, this workshop was a good opportunity to do stocktaking, and explore and help define the niche of Biodiversa+ in implementing the European Roadmap for R&I on NBS currently under development by NetworkNature.

2. Context of the Workshop

2.1. What are we talking about? Definition of NBS.

The term nature-based solutions (NBS) emerged in the late 2000s as a new concept to address and mitigate societal, economic and ecological challenges simultaneously. This conceptualisation was initiated by the World Bank and supported by the International Union for Conservation of Nature (IUCN) and later on by the European Commission (EC). In March 2022, at the Fifth Session of the United Nations Environment Assembly (UNEA-5.2) was adopted a resolution on NBS (UNEA/EA.5/Res.5), which included a multilaterally agreed definition of NBS recognise the important role NBS plays in the global response to climate change and its social, economic, and environmental effects. Under the resolution, NBS are defined as “actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits”. At the end of last year, at COP27 in Sharm el-Sheikh and COP15 in Montreal, the term “Nature-based solution” has been included in both the Sharm el-Sheikh Implementation Plan and in the Kunming-Montreal Global Biodiversity Framework as part of targets 8 and 11.

The concept of NBS draws and builds from a variety of previously conceptualised approaches including e.g., Green Infrastructure, Ecosystem-based management approaches or ecological engineering.

2.2. Past Biodiversa works on NBS

Biodiversa organised foresight activities on Nature-based solutions that led to the development of a new typology ([Eggermont et al. 2015](#)) widely referred to in many areas (European Commission, IUCN Global Standards on NBS, Wikipedia, academia...). This typology was notably used by NetworkNature in collaboration with Biodiversa to conduct one of the first comprehensive studies of [NBS-related projects supported through major EU R&I programs](#).

In parallel to such activities, Biodiversa has also supported R&I on NBS through its research calls, notably in the BiodivClim call with one of the non-exclusive themes being on “Potential of nature-based solutions for mitigating and adapting to climate change”. In total for 2011 to 2021, 45 projects are considered working on NBS from 2011 to 2021 (on 135 projects funded overall) with 12 projects identifying NBS as an element of their project. The project funded tackles a large variety of societal challenges and environments.

Lastly, Biodiversa is also involved in brokerage and dissemination activities on Nature-based solutions through the development of [policy briefs](#), case studies (published on [Oppla](#)) and through the promotion of the results from its projects. For example, two NBS projects [URBES](#) and [ENABLE](#) received the Biodiversa Prize for Excellence and Impact and their results were promoted through videos.

2.3. Larger context of the workshop

NBS were in the context of the workshop understood following the UNEA definition (definition detailed above) and more specifically the workshop was also framed by work developed in [NetworkNature](#). Mainly the European Research and Innovation Roadmap on Nature-based solutions, this roadmap aims to co-develop a strategic vision for R&I support to support NBS deployment and to identify strategic areas of development, including knowledge gaps and R&I support in NBS implementation and uptake.

Methodology

The workshop was organised in Oslo on the 27th and 28th of October 2023 in two half days and gathered 30 participants (see full list in **Annex 1**).

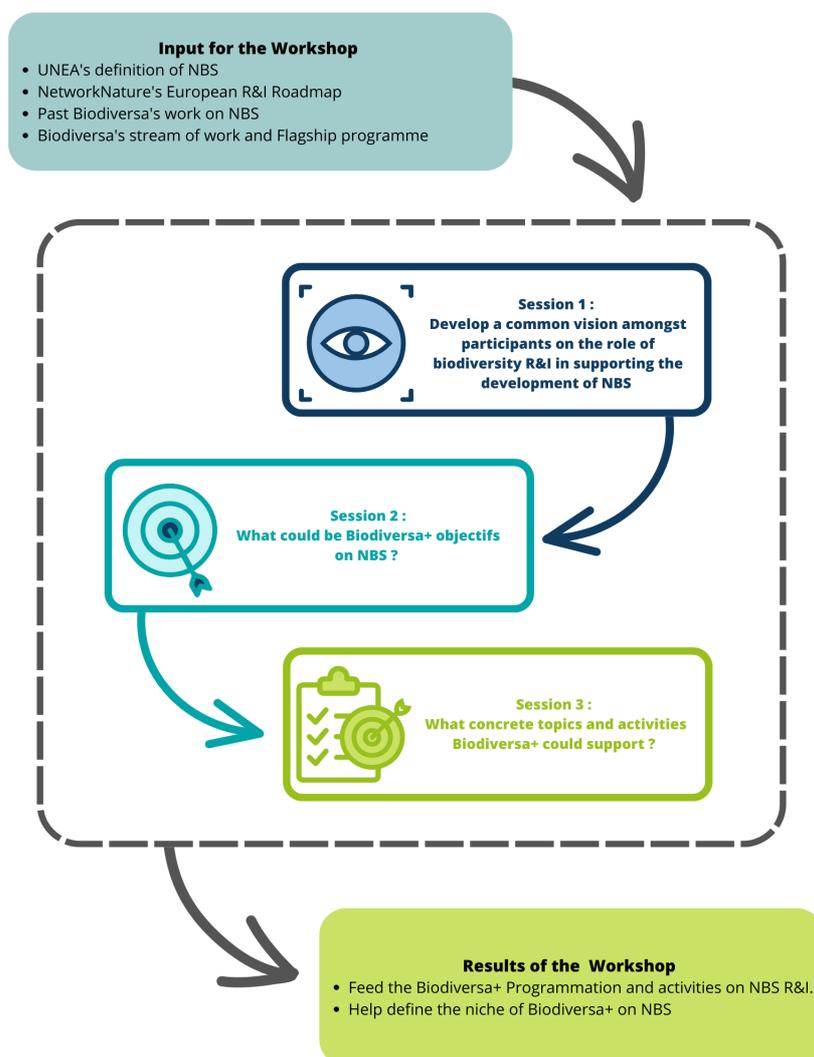


Figure 1: Organisation of the Workshop

The first day began with an introductory session done by the Biodiversa+ Chair and Operational team to present Biodiversa+, the existing work of BiodivERsA on NBS and the current European landscape of R&I on NBS. The introduction was followed by a collaborative session with all participants on the development of a common vision amongst participants on the role of biodiversity R&I in supporting the development and deployment of NBS. Participants were asked to respond to “What is the role of biodiversity R&I in supporting the development and deployment of NBS in Europe and beyond?” The session was done using the fishbowl method to allow a free flow of discussion.

The first half day ended with a second collaborative session; which was based on the discussion in the first session; participants were asked to reflect on what would be Biodiversa+ objectives on NBS. Participants were first asked to reflect individually and were then divided into 6 groups and share their ideas. Each group then presented the results of their discussion in plenary.

The second half day started with an introductory session in which the Biodiversa+ operational theme presented a summary of the results from the day before. The objective was to discuss freely with the participants to gather their feedback and to check that their vision was rightfully gathered. The last day ended with a collaborative session on “What concrete topics and activities Biodiversa+ could support as part of its flagship programme on NBS (or beyond?).” Participants were divided into groups and were asked to respond to the question for 5 broad types of activities Biodiversa+ support (Foresight/Agenda setting, support to R&I (including biodiversity monitoring), capacity building and transdisciplinary dialogues, internationalisation and support to evidence-based decision-making (public and private)). The collaborative session used the “World café” method and each group at their last topic was asked to then present the results of each group in plenary.

Results

1. Vision on the role of Biodiversity R&I in the development and implementation of NBS

Participants were asked to reflect on the role of biodiversity R&I in supporting the development and deployment of NBS. The following text presents the overarching principles and contexts that frame this vision:

1. **Transformative Change:** The vision recognises the need for transformative change at both individual and global levels. It highlights the importance of identifying opportunities for fast-track transformation and aligning with the concept of a "just transition" to ensure fairness.
2. **Social-Ecological-Technological System Perspective:** The vision acknowledges the interconnectedness of social, ecological, and technological systems. It emphasises the need to consider these systems holistically when designing and implementing NBS.
3. **Biodiversity as a Fundamental Asset:** The vision raises questions about the value of different types of biodiversity, including those considered "non-valuable" or invisible. It stresses the importance of understanding and harnessing the potential of biodiversity for NBS.
4. **NBS as Climate and Biodiversity Crisis Response:** NBS are seen as essential responses and tools to address the challenges posed by the climate and biodiversity crises. They provide a pathway to mitigate environmental degradation and promote sustainable development.

In terms of research and knowledge development, the vision suggests the following:

- **Connecting Biodiversity Conservation and Human Well-being:** It emphasises the importance of understanding the benefits derived from biodiversity conservation and its link to human well-being. This involves exploring connections with food systems, health, well-being, and external subsidies.

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- Climate Change, Biodiversity, and NBS: The vision highlights the need to establish links between climate change, biodiversity, and NBS. It emphasises the role of research in generating knowledge and understanding the interactions among these factors.
- Nature-Positive Approach: The vision calls for more research to guide the concept of "nature-positive." This approach, currently led by corporations, needs further examination to ensure its effectiveness and alignment with sustainability goals.
- Governance: The vision advocates for a common biodiversity policy, addressing harmful subsidies, and considering social norms and perceptions related to NBS. It recognises the role of society in shaping NBS and calls for research on governance mechanisms.

When it comes to research and knowledge implementation, the vision highlights the following points:

- Implementing Existing Knowledge: It emphasises the need to synthesise research findings per topic or sector and acknowledges that implementation may not be perfect but should be feasible. Legal feasibility assessments are encouraged, along with implementation projects in agriculture, forestry, and rural areas. The EU restoration law is seen as an opportunity, particularly for forestry and agriculture.
- Actionable Research: The vision stresses the importance of conducting hands-on experimentation with NBS and ensuring that research findings are linked to policy agendas. It advocates for rapid response mechanisms to incorporate scientific insights into decision-making processes, policies, contracts, and investments. The vision also suggests organising the science community through knowledge platforms and connections. It highlights the potential of EU missions to test and implement NBS at the local scale.

Regarding engagement, the vision suggests the following:

- Engaging with Policy: R&I is seen as having a responsibility to engage with policy across different sectors. It aims to increase the ambition of decision-makers at various scales, including cities and emphasises Inspiration from other domains, like the circular economy, which is also encouraged.
- Engaging Beyond the Public Sector: The vision stresses the importance of cross-sectoral involvement and proactive engagement with the private sector. It suggests including insurance companies in discussions to reduce risks and ensure NBS. The vision also highlights the need to adapt communication to different audiences and conduct capacity-building activities with multiple actors.

The vision acknowledges the importance of impact assessments, systematic data, and monitoring for the implementation of NBS. It emphasises the need for capacity development in monitoring data and the utilisation of new technologies such as remote sensing for tasks like land-use change analysis. Standardisation of methods, designs, implementation, and assessments is also seen as essential for effective NBS implementation.

2. Objectives of Biodiversa+’s Flagship Programme on NBS

2.1. Presentation of the Actual flagship programme

As part of its strategy, Biodiversa+ is launching multi-annual flagship programmes. These flagship programmes address a particular biodiversity issue, aligned with the themes identified in the [Biodiversa+ Strategic Research and Innovation Agenda](#), and encompass a portfolio of activities relevant to the issues tackled and across the different Biodiversa+ work streams. In 2022, Biodiversa+ launched a flagship on “Better knowledge to develop, deploy and assess nature-based solutions”. This Flagship programme defined 3 objectives/impacts for the Flagship as shown in **Figure 2**.

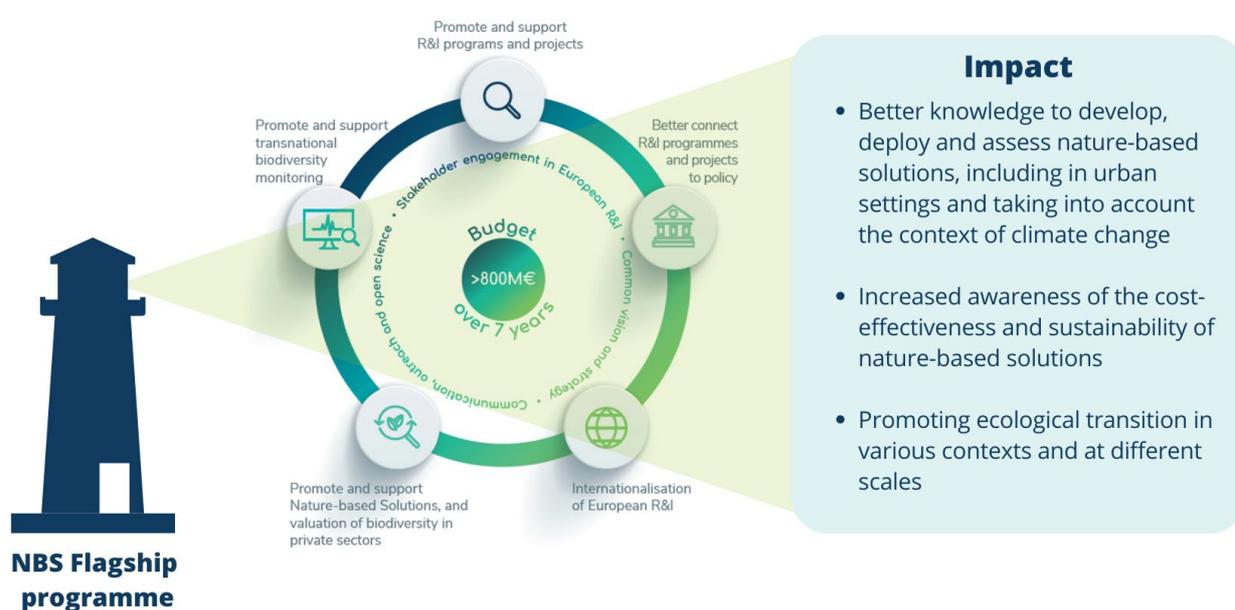


Figure 2: Ongoing NBS Flagship’s objectives

2.2. Results from the workshop

- **Develop knowledge for NBS development and implementation in different sectors**

Biodiversa+ thrives to support more targeted research on Nature-based solutions to contribute to solving the biodiversity crisis. Support should follow a strategic approach based on pre-identified knowledge gaps/needs, topics and sectors. The focus could be given to understudied ecosystems and towards how NBS perform under different global environmental drivers.

Nature-based solutions are by nature transdisciplinary but there is still a strong need to include social sciences in the development and deployment of NBS, to better understand the link between climate, biodiversity and health, integrate the social cost of externalities or to develop NBS to facilitate transformative change. Including social science could also help to address the impact of human

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behaviour, decision-making and cultural difference and values on the success of NBS or better understand what is needed to ensure environmental justice and equity of NBS.

The implementation of NBS should be monitored and there is still a strong need for the development of a monitoring scheme and data collection for NBS.

- **Synthesis and/or operationalise knowledge on NBS**

Knowledge has already been produced on Nature-based solutions and there is known an incentive to start synthesis on for example the role of biodiversity for society, human health or for NBS. Existing knowledge can also be operationalised to develop standards for NBS implementation in different ecosystems and areas and on NBS quality. Knowledge could also be utilised to develop guidelines for NBS on how to effectively implement and monitor NBS and evaluate their impacts.

Operationalising and synthesising NBS knowledge can help to evaluate and assess the feasibility of NBS (legally, socially, economically, politically, and bio-physically), to better understand risks and opportunities at different landscapes and to identify possible business cases for NBS. Lastly, this knowledge can also be used to better inform and support policy-making for NBS.

- **Promote innovation with NBS and demonstrations scale**

In links with Knowledge generation through research, Biodiversa+ should also support Innovation and upscaling of NBS, this could be achieved through the development of tools for decision-makers and the monitoring of the deployment of NBS. Large and small-scale demonstrations for NBS should also be promoted at the European level and national/regional level based on research developed under Biodiversa+.

- **Build awareness of NBS (policy, business and general public)**

Nature-based Solutions effective deployment and development are greatly linked to their acceptability and demand by the general public but also by policy and business.

To do so Biodiversa+ could build awareness of the general public on NBS effectivity but also more generally on biodiversity and the link to their well-being by engaging with the education sector and through the mobilisation of citizen science. Building awareness can also be reached through adapting narratives and languages to different audiences.

- **Support capacities for NBS development and implementation in different sectors**

Building on knowledge, Biodiversa+ will support the development of capacities for NBS in different sectors by supporting the development of platforms for knowledge sharing; such as lessons learnt, best practices or planning and implementation amongst stakeholders; and for community building.

These objectives could also be achieved by supporting the mobilisation and cooperation at a national/local scale by facilitating a national expert network and mobilisation of experts by decision-makers, especially towards policy development. Biodiversa+ could specifically focus on enabling

financing for NBS by putting forward arguments for increasing public financing and also by promoting and supporting biodiversity valuation in private sectors.

3. Topics and Activities for Biodiversa+

3.1. Topics

In link with the vision some key and overarching topics have been identified by the participants

- **NBS & Business and Finance**

The link between nature-based solutions and business & the finance sector should be developed and encouraged by developing standards for Nature-based enterprises and socio-economic indicators.

- **NBS in a changing world:**

Nature-based solutions are a response to the biodiversity and climate crisis but will also be impacted by the change in their environments. For such reason understanding which NBS will be needed in the future and ensuring the current one will still work is essential. Predictive tools and strategic foresight on NBS for the short, medium and long term are needed. Such works could also be coupled with foresight activities on NBS as a response to conflicts and address post-catastrophic and rebuilding scenarios.

- **NBS for transformative change:**

To reverse Biodiversity loss and achieve the 2050 vision for Biodiversity, transformative change is needed (IPBES, 2019). NBS can play an active role and future research is needed on NBS as enablers of just transformation and should be framed in a transformative context.

- **NBS & Health and Well-being**

Biodiversity health and human health and well-being are strongly linked, NBS can help tackle both Biodiversity loss and help achieve global health. Integrating the concept of NBS into the One Health approach could strengthen this link.

3.2. Activities

Description of the activities envisioned by the participants of the workshop

- **Support and links with existing initiatives and networks:**

Biodiversa+ could link up and support existing initiatives to achieve its objectives. This could help to link with actors at the local scale such as regions or cities as well as reach global actors by working with international networks. Furthermore, this could help to build partnerships, promote dialogue, to share knowledge and develop exchange programmes and mentoring activities.

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● Facilitate and support dialogues for research:

Nature-based solutions are by nature transdisciplinary and encompass a large variety of actors. Biodiversa+ could facilitate and support dialogue across calls and projects and between researchers and stakeholders. Such dialogues should be done from the earliest stage of activities to result in the co-development of activities and projects between actors.

● Capacity building for decision makers and business:

To help spread knowledge on NBS and its deployment, capacity-building activities are essential and should be specific to different sectors (business, policy, local scale ...). To help NBS development and implementation, creating space for capacity building is crucial for professional and young entrepreneurs. Some capacity-building topics could be of particular interest to developing such as transdisciplinary or financial strategies for NBS.

● Communication and Knowledge dissemination to foster support

Biodiversa+ evidence and knowledge should be disseminated and communicated to help build awareness and foster support for NBS.

- For decision-makers and businesses, best practices and case studies on implementation, as well as business cases, could be developed. Facilitating knowledge dissemination could be achieved by using a common definition and local language. Knowledge market and networking events could be organised to share best practices and experiences and a welcome pack for decision-makers on NBS could be developed.
- The inclusion of NBS in education and the promotion of citizen sciences for data collection could help to foster public support for NBS. More educational activities on human impacts on biodiversity and its ecosystems could be envisaged to inform the general public.

● NBS Impact Assessment and Standardisation

Research is needed on NBS's evaluation and impact assessment, to build uptake of and confidence in methods, identify barriers and enablers of NBS as well as levers to enhance legitimacy and acceptability of such solutions. The assessment frameworks and indicators should be cross-sectoral and context-specific and allow for robust conclusions. Standards of practice for the implementation should also be developed to allow upscaling and the implementation of NBS at a large scale.

● Mapping and Stock Tacking Activities

To better understand the landscape mapping activities could be foreseen for example to understand controversies on the topic of NBS in EU regulations or to track international commitment/initiatives and European policy instruments on NBS. Those activities could allow us to better inform on what has already been done and to learn from experience.

- **Synthesis of knowledge:**

Abundant knowledge of NBS has been produced and a need to synthesise this research was flagged, to bring together the outcomes of projects but also to better link fields of research such as climate change and biodiversity.

- **Policy support:**

Biodiversa+ aligns and works towards the implementation of EU policy (EU Restoration Law, EU deforestation Law, soil health law) and international frameworks such as the SDG or the post-2020 GBF). Such policy needs scientific support to define ambitious targets and to adopt such regulations and the local level. Support for decision-making is also needed on certain topics such as transformative change, biodiversity monitoring and the link with ecosystem services.

- **Monitoring and Use of Data for NBS Implementation**

Monitoring plans are needed to follow the implementation and performance of NBS. Responding to the need for suitable biodiversity data and exploring the possible role of digital tools such as artificial intelligence or machine learning for such schemes could be activities envisioned by Biodiversa+.

- **Internationalisation of NBS R&I**

NBS needs to be understood in a global context and research and innovation should help achieve this goal. Projects should be pushed to have international exposure and Biodiversa+ activities from the earliest stage should have multicultural and transnational engagement.

Conclusion

The outcomes of the strategic workshop on the role of biodiversity research and innovation in supporting Nature-Based Solutions (NBS) have played a crucial role in shaping the future activities of Biodiversa+. These results have been used to inform the development of Biodiversa+'s upcoming call for research on NBS, scheduled to be launched in September 2023.

The workshop provided valuable insights and a common vision among participants regarding the role of biodiversity research and innovation in NBS deployment and development. To provide a visual summary of the report, **Figure 3** illustrates the key elements discussed during the workshop.

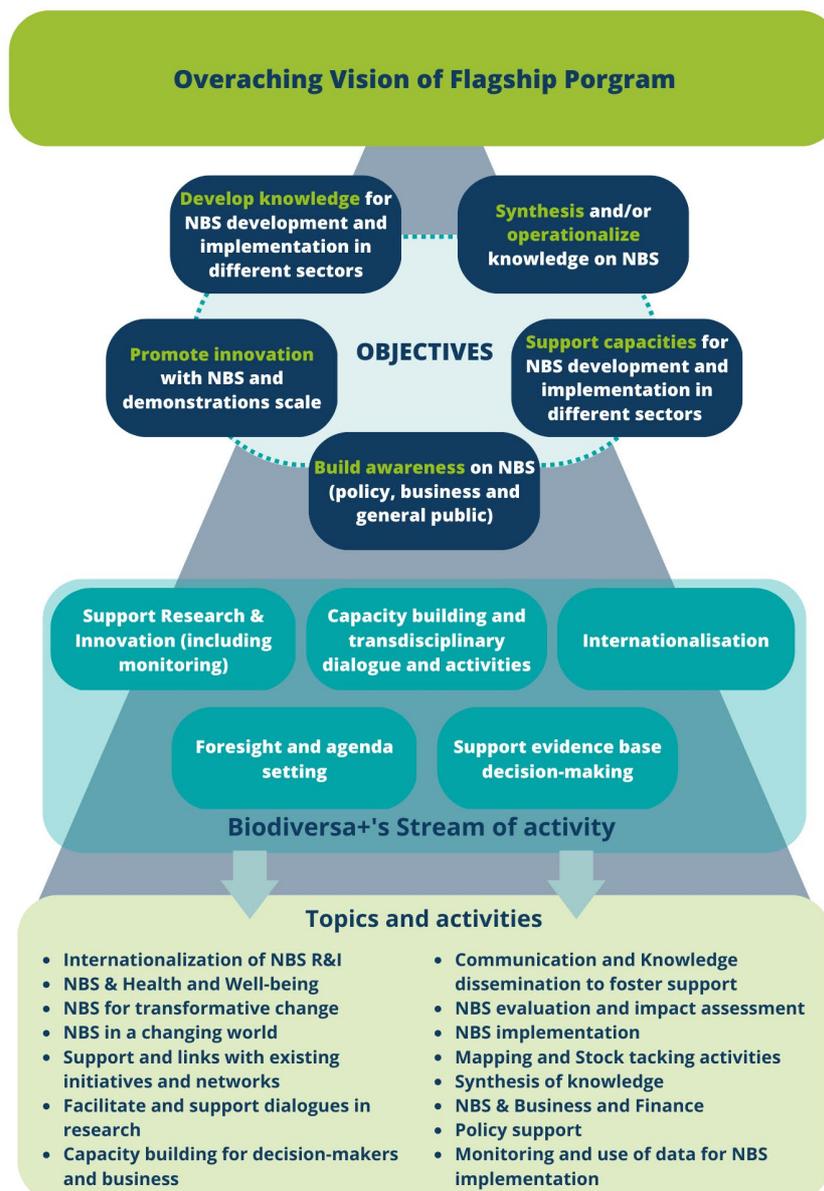


Figure 3: Summary of the Results