eNaBLS

Education and NBS -
bending the curve for biodiversity

DELIVERABLE D6.4

From Classrooms to Green Solutions:

Strengthening Higher Education and Technical & Vocational Education & Training for Biodiversity

University of Hohenheim

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Document information

Title	eNaBLS - **e**ducation and **Na**ture-**B**ased So**l**utions: enable **S**ociety to bend the curve for biodiversity (GA No 101135035)
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Coordinator	University of Hohenheim (UHOH) Dr. Ann-Catrin Fender (anncatrin.fender@uni-hohenheim.de)
Project overview	**eNaBLS** will set the basis of networking and collaboration to promote, embed and unfold Nature-based Solutions (NBS) concepts and approaches within universities and vocational schools, the professional sphere and society at large through transdisciplinary dialogue. eNaBLS envisions the creation of 7 Living Labs (DE, NL, FI, AT, LT, EL, CZ), incorporating all 'voices' and leaving no one behind. The goal is to enable society to bend the curve for biodiversity by mainstreaming both NBS and biodiversity in higher education and Technical and Vocational Education & Training (TVET). The ultimate objective is for eNaBLS to contribute more generally to i) the advancement of a Nature Positive society through the necessary transformative change of communities, business models and lifestyles, and, specifically, ii) put biodiversity and climate on the path to recovery responding to the objectives of the EU biodiversity strategy for 2030 and the EU climate adaptation strategy.

Consortium

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0.1	28/02/2025	Setup of the structure, initial text	UHOH

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0.5	18/06/2025	Suggest last changes to version 0.4	All
1.0	24/06/2025	Final version ready for submission	UHOH

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1 Introduction

European campuses educate about 26 million learners a year – a largely unrivalled audience for hands-on Nature-Based Solutions (NBS), which not only could serve to bend the curve for biodiversity, but climate change as well. The following deliverable From Classrooms to Green Solutions shows how Higher Education (HE) and technical vocational education and training institutions (TVET) can be strengthened in their activities to support European society to use NBS to bend the curve for biodiversity. The initial step of the eNaBLS project was to identify and understand key elements that shape the current landscape of HE programs, biodiversity loss, and NBS awareness across society, as well as European and international frameworks, networking, and collaboration patterns. Our mapping served as an initial foundation toward the broader goal of mainstreaming NBS and biodiversity in HE and TVET. Therefore, we conducted desk studies, surveys and interviews and prepared the deliverable D1.1 – Report on Current Biodiversity & Nature-based Solutions Positioning.

The present policy brief summarizes key findings from this eNaBLS project´s first phase to share our learnings with policy- and decision-makers on European, national and institutional level.

2 In a nutshell

- Nature-Based Solutions (NBS) can offer hands-on learning opportunities that strengthen students' and pupils' practical skills, understanding, and motivation to protect and restore biodiversity.
- NBS projects are inherently multidisciplinary, requiring collaboration across fields and sectors. This often entails that actors must engage in unfamiliar domains beyond their traditional areas of expertise, which can lead to hesitation, coordination challenges, and slower implementation processes.
- As practice-oriented learning and transformation spaces, Living Labs foster transdisciplinary collaboration between science and society and actively engage learners in addressing real-world challenges (Schäpke et al., 2018; Favaloro et al., 2019).
- Higher Education (HE) and Technical and Vocational Education and Training (TVET) institutions could be Living Labs where about 26 million learners (European Commission, 2022; CEDEFOP, 2024) can experience NBS first-hand every year. Hence, educational institutions are key drivers in the societal transition toward a biodiversity-friendly future.
- Targeted EU funding would enable institutions to pilot NBS (e.g. rooftop gardens, rewilded courtyards), embed NBS in curricula, and nurture personal engagement, nature-connectedness and collaborative networks. To ensure equity and inclusion, NBS education programmes should also target un-derrepresented learner groups, including rural students and those from vocational path-ways, fostering a diverse green workforce.

This brief equips policy- and decisionmakers with concrete ways to strengthen HE and TVET institutions and the networks between them to support biodiversity through NBS.

3 Why it matters

Biodiversity is declining at an exponential pace, with human activity now pushing more species toward global extinction than ever before; about 25 % of documented animal and plant groups are at risk. This rapid loss erodes vital ecosystem services – climate resilience, healthy soils, clean water, and food security (IPBES, 2019; IPBES, 2024).

NBS are pivotal for halting biodiversity loss. By working with nature to tackle societal challenges, curb climate change and restore ecosystems, they benefit both people and wildlife. The report "*Decent Work in Nature-based Solutions 2024*" calls for a "just transition" and advocates for policies that build the right skills, including embedding NBS in university and TVET curricula. Over 60 million people already work in NBS, and targeted investment could unlock 20-32 million more jobs by 2030 (ILO & IUCN, 2024).

HE and TVET institutions educate future leaders and workers, investigate (pressing) societal challenges, and provide critical reflection, giving them powerful leverage for social transformation (van't Land & Herzog, 2017). By establishing NBS skills-development programmes through equal partnerships among scientists, professionals and vocational educators, they can drive change at international, national, local and individual levels. HE and TVET institutions can play a crucial role as change-makers.

The "*EU Biodiversity Strategy for 2030*" and the Council Recommendation of 16 June 2022 on "*Learning for the green transition and sustainable development*" both call for mainstreaming nature restoration and sustainability skills. HE and TVET uptake of NBS is essential to those targets (European Commission, 2020; European Union, 2022).

A knowledge gap remains. Until now, the extent to which European HE and TVET institutions address biodiversity and NBS – and the related policies – has been poorly documented. eNaBLS investigated this gap through desk research, surveys, and interviews that mapped NBS and biodiversity in curricula, networks, policy initiatives and public perceptions.

4 eNaBLS key findings

eNaBLS Europe-wide mapping confirms that education is regarded as the prime lever for boosting biodiversity awareness and laying the groundwork for its protection. HE and TVET organisations report a growing need for inter- and transdisciplinary skills not only in biodiversity and environmental science. Yet, our analysis of EU policies, funding schemes, research trends, and HE – TVET collaborations shows that funding and policy frameworks for NBS in HE and TVET are developing unevenly across Europe. For example, only three of seventy-two respondents to our survey of obstacles to collaboration between academia and TVETs reported more than 20 collaboration events over the last ten years, compared with thirty-two respondents who reported five or fewer collaboration events. Two of the three respondents were from the Netherlands. Seventy-nine percent of the respondents identified policy-related issues (resistance to change, funding and institutional support) as obstacles to collaboration.

Three dimensions were identified to strengthen HE and TVET:

- ***Supporting interdisciplinary collaborations within HE and TVET;***
- ***Fostering mutual learning between HE and TVETs via network projects;***
- ***Raising personal/individual awareness, interest, and knowledge of educators and students on NBS for sustainable use of biodiversity.***

Additionally, the findings highlight the need to develop indicators to measure the long-term impacts of NBS-based learning approaches, both on learners and local ecosystems.

5 Recommendations

The following ENABLS recommendations are related to the above mentioned dimensions (Table 1).

Table 1: ENABLS recommendations. The meaning of the symbols you may find in the section above.

Dimension	Recommendation
Strengthen educators, training & supply of resources	
	Support teacher training programmes that build educators' NBS knowledge and enthusiasm, tailored to local contexts. Evidence indicates that teachers' personal interest and expertise largely determine classroom uptake.
	Provide funding and tools tailored to educators' needs for teaching NBS and biodiversity. Project preliminary results show that resource availability can directly affect curriculum content.
	Foster joint professional development programs and recognition systems that enable HE and continuing VET institutions to co-create courses or even complete curricula and practice-based teaching. Merging theory with hands-on expertise builds capacity in both sectors equips learners at every level with the green skills required for complex environmental challenges. The need for people with these skills will grow (International Labour Office, 2019) as the recent rapid environmental challenges (see van Vuuren et al., 2025, pp. 911–912) force people to think differently about the sustainability of current resource use practices, and start to apply regenerative practices (Obura et al., 2023, p. 112).
Reinforce structures & curricula	
	Encourage HE to create **new interdisciplinary departments and faculties or even more holistical structures** fostering education dedicated to NBS and keep curricula flexible. Results show that institutional structures can influence whether these concepts are integrated in the curricula.
	Invest in **transdisciplinary study programmes that connect academia or TVET with local partners**. Co-create curricula and educational materials with key stakeholders to promote locally adapted, evidence-based NBS. The focus should be on innovative teaching methods for NBS to address societal challenges while restoring ecosystem functions.
	Expand **challenge-based learning**, means learning that motivates students to utilize the technologies they interact with in everyday life to address practical, real-world challenges (Leijon et al., 2022, p. 616), that brings students from different programmes together with non-academic stakeholders. Adapt Living Lab models focused on real-world problems and proven teaching practices.
	Systematically integrate **soft-skill development** alongside technical training to build: teamwork in transdisciplinary settings, (b) communication that overcomes disciplinary jargon, abilities to conduct clear outreach to non-academic stakeholders, and solid ethical and moral judgement. These skills are indispensable to our search for sustainable NBS that can save biodiversity.

Dimension	Recommendation
Boost engagement & hands-on learning	
	Embed **students in research projects**. ENABLS mapping confirms that the students themselves have a strong demand for hands-on, project- and challenge-based learning.
	Encourage **student-led NBS initiatives as micro-projects** integrated into coursework or community engagement, giving learners ownership and reinforcing learning outcomes. Both points would help promote student agency while offering low-cost, scalable ways to apply NBS in practice and practical individual experiences.
Promote role-model institutions & knowledge sharing	
	Showcase **HE campuses and TVET providers as NBS role models** through whole-institution approaches – e.g. in designing and using green buildings and landscapes, recycling and sustainable maintenance, energy efficiency, and active collaboration with the local community.
	Improve access to **online knowledge platforms and deliver capacity-building for educators, practitioners, and stakeholders** to boost uptake and long-term impact of NBS.
	Strengthen European – and global – NBS collaboration in HE and TVET through **teacher exchanges, co-creation workshops with practitioners, open-access online platforms and courses**. This widens resource sharing, especially in regions with limited capacity, and helps scale solutions.
	Support the **creation of inter-institutional Living Lab clusters across regions**, enabling shared access to NBS pilot sites, peer mentoring, and collaborative student research, what encourages cross-institutional collaboration and strengthens the Living Lab approach at scale.
	Consider a **Whole Institution Approach** to create synergies between the recommendations provided here to avoid ad-hoc, add-on and piece meal approaches that won't have deeper impact in society.

Transformation demands aligned policies at institutional, national, and EU levels.

For NBS to become a lasting part of education systems, coherent policies must align across institutional, national, and European levels. Universities and vocational schools are ready to lead, but they need enabling frameworks.

At the institutional level, policies should encourage flexible curricula, interdisciplinary and transdisciplinary learning, and Living Lab experimentation. National authorities can reinforce this by embedding NBS into teacher training, qualification frameworks, and funding schemes. At the EU level, programmes like Erasmus+, Horizon Europe, and the European Social Fund+ or concrete initiatives like EPICUR, ELLS, European Bioeconomy University can accelerate knowledge exchange and scale implementation.

When these levels work in synergy, Europe can empower its education systems not only to teach about saving nature, but also to practice it.

The full eNaBLS report
is available soon on our webpage

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