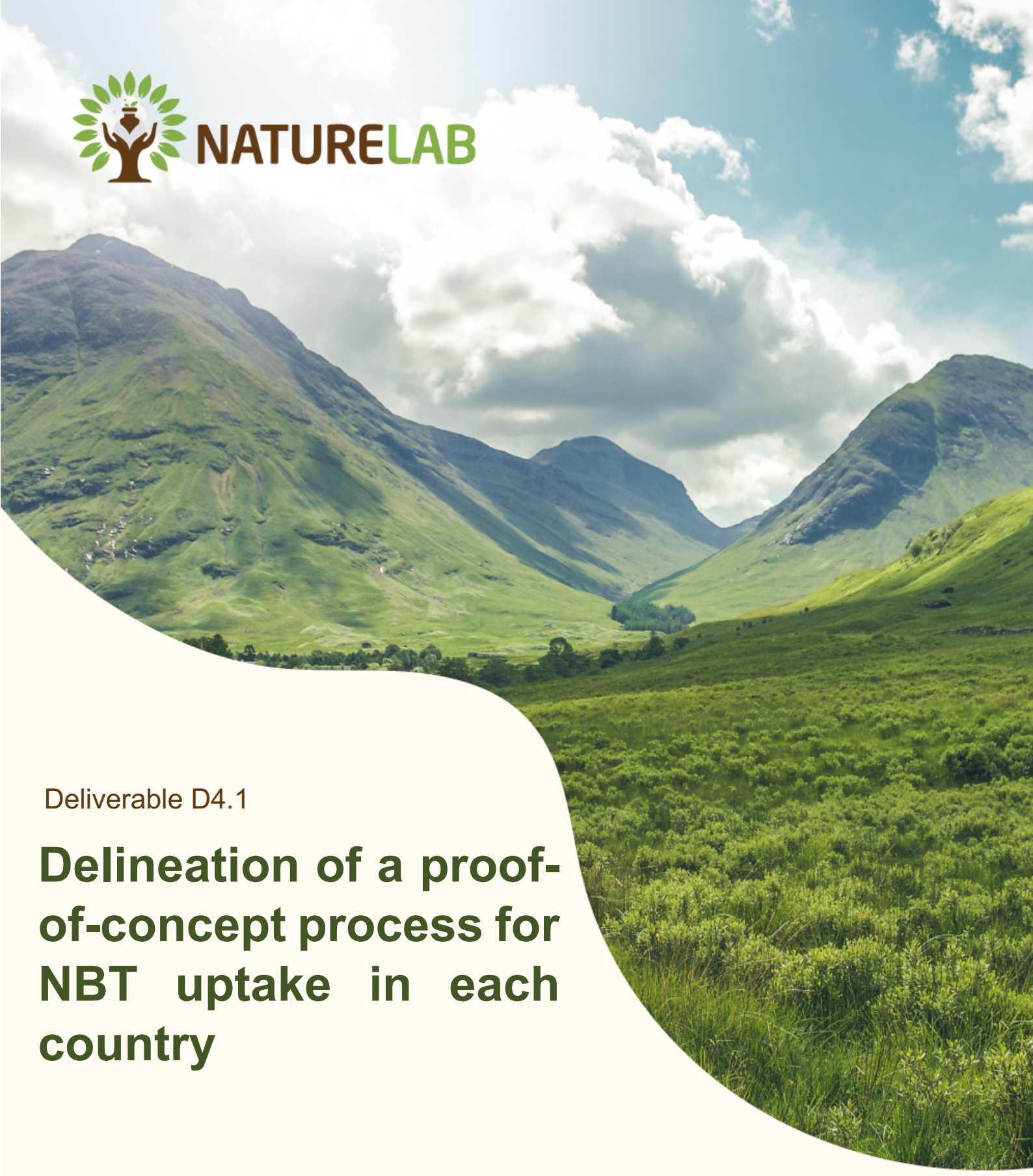
NATURELAB



Deliverable D4.1

Delineation of a proof-of-concept process for NBT uptake in each country

Funded by the European Union

UK Research and Innovation

DOCUMENT CONTROL SHEET

PROJECT INFORMATION

Project Number	101083857		
Project Acronym	NATURELAB		
Project Full title	Nature based interventions for improving health and well-being		
Project Start Date	1 June 2023		
Project Duration	54 months		
Funding Instrument	Horizon Europe	Type of action	Research and Innovation Action (RIA)
Topic	HORIZON-CL6-2022-COMMUNITIES-02-02-two-stage		
Coordinator	Laboratório Nacional de Engenharia Civil (LNEC)		

DELIVERABLE INFORMATION

Deliverable No.	D4.1							
Deliverable Title	Delineation of a proof-of-concept process for NBT uptake in each country							
Work-Package No.	WP4							
Work-Package Title	Governance, social innovation and uptake of nature-based therapies							
Lead Beneficiary	VU (the Netherlands)							
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Due date	M12							
Deliverable Type	x	Document, Report (R)		Data management plan (DMP)		Websites, press & media action (DEC)		Other
Dissemination Level	x	Public (PU)		Sensitive (SEN)		Classified		
	PU: Public, fully open SEN: Sensitive, limited under the conditions of the Grant Agreement Classified R-UE/EU-R – EU RESTRICTED under the Commission Decision No2015/444 Classified C-UE/EU-C – EU CONFIDENTIAL under the Commission Decision No2015/444 Classified S-UE/EU-S – EU SECRET under the Commission Decision No2015/444							

Legal disclaimer

This project is funded by the European Union under Grant Agreement No. 101083857 and co-funded by the UK Research and Innovation Grant Award No. 10067111. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

DOCUMENT HISTORY OF CHANGES

Version	Date	Author and Short Org. Name	Description
1	15/02/2024	VU	First draft structure of D4.1
2	26/02/2024	VU, KMOP, Ficus	Final structure of report
3	23/04/2024	VU	Draft report for review
4	15/05/2024	VU	Revised report (including feedback from reviewers and country partners involved in data collection) for review by coordinators
5	22/05/2024	VU	Final report (including feedback coordinators)
6	24/02/2025	VU, KMOP, LNEC	*EC requested reviewed version*

DOCUMENT REVIEW

Reviewer	Date	Reviewer Name (Short Organisation Name)
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2	29/04-2024	Nicole Heise (FICUS)

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ABBREVIATIONS

Abbreviation	Definition
ES	Experimental sites
DF	Demonstrator fellows
DALYs	Disability Adjusted Life Years
FGD	Focus group discussion
GDP	Gross domestic product
GP	General practitioner
ILA	Interactive learning and action
KII	Key informant interview
NBT	Nature-based therapies
NGO	Non-governmental organisation
OECD	Organisation for Economic Co-operation and Development
SMEs	Small and medium-sized enterprises
VU	Vrije Universiteit
WP	Work Package

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Executive Summary

Executive Summary

This report serves as Deliverable 4.1, titled "Delineation of a Proof-of-Concept Process for NBT Uptake in Each Country", and presents findings from a **qualitative multiple-case study** that explored the needs and perspectives of key stakeholders to engage with and scale up nature-based therapies (NBT). This study was led by the Vrije Universiteit (VU) Amsterdam, conducted as part of the NATURELAB project and in collaboration with academic and non-academic project partners, and used a **transdisciplinary approach**.

Data collection and analysis were guided by a conceptual framework, which combined “interactive-learning-action” and “system innovation perspective”. Scaling up was understood as a cyclical process of embedding novel structures and cultures into existing ones, requiring active stakeholder involvement. **Key informant interviews** were the main method for data collection. Purposive and convenience sampling was used to select interview participants from eight different categories: i) the medical and health care community; ii) scientific community and innovation structures; iii) environmental organisations; iv) policymakers and governance; v) small and medium-sized enterprises; vi) civil society; vii) the media; and viii) people working in the field of NBT. In total, 100 KIIs were conducted in the five project countries (i.e. Germany, Greece, the Netherlands, Peru, and Portugal). Project partners (from within and outside of R&I organisations) led data collection and initial analyses in their respective countries, with training and support provided by the VU. Interview data was thematically analysed using the framework method and synthesised in five country chapters. Comparative analysis was conducted to explore differences between the five project countries and eight interviewee groups. Various quality and validation checks were performed throughout the process.

The five **country chapters** provide detailed narratives of the perceived needs, benefits, and concerns of study participants in each country, including their views of landscape and other factors influencing the potential integration of NBT into existing systems, and of possible strategies for NBT integration and stakeholder engagement. The **comparative analysis** showed that the health benefits of nature exposure were widely acknowledged across country data sets. From the total interview data, seven broad categories of **stakeholders** were identified for future engagement in the scaling up of NBT, with i) the health and social care system being mostly mentioned, followed by: ii) the education sector; iii) citizens, patients, and civil society; iv) government; v) environmental organisations; vi) research community; and vii) business. **Potential influencing factors** could be grouped within ten broad categories, with i) financial resources most often cited by study participants, and next ii) geography, iii) acceptance, iv) communication and dissemination, v) awareness, vi) culture, vii) research evidence, viii) human resources, ix) regulations, and x) demand. These

influencing factors were considered to have the ability to be both **constraining and enabling** the uptake and integration of NBT in existing systems in different countries. As anticipated, there will be some **systemic barriers** that require addressing in all countries, like securing sustainable funding sources for making NBT financially and equitably accessible to potential clients. Also, regulations and human resources will be systemic factors that require careful navigation by niche actors. There were some variations in the dominance of specific categories of influencing factors when comparing the five countries or the eight interviewee groups. For example, while financial resources were overall the most commonly cited influencing factor, this was neither the case for all countries nor for all interviewee groups. Additionally, the comparative analysis revealed some notable differences in stakeholder perceptions and needs, both at country level and between interviewee groups. These differences suggest that **tailored and context-specific scale-up approaches** will be required.

While **no definitive conclusions** can be drawn from this first cycle of stakeholder consultation and engagement, it does provide insights into ways forward, including processes that can be put in motion to facilitate the uptake and integration of NBT in NATURELAB's five project countries. For example, participants in this study perceived there to be multiple potential benefits of NBT for human health and well-being, health systems, and the human-nature relationship. A key next step will be to start communicating and disseminating this positive message to more stakeholders. Additionally, this study showed that for some stakeholders, like health providers and funders, such messages need to be supported with research evidence; therefore, where available, such evidence needs to be highlighted, and where not available, such evidence needs to be generated as part of the NATURELAB project or through other research initiatives. Another practical next step will be to start a second cycle of consultations with stakeholders, such as through the organisation of focus group discussions. Such consultations are necessary for further developing and refining the preliminary strategies for NBT integration and stakeholder engagement outlined in this report. More **general and country-specific recommendations** are described at the end of this deliverable.

Chapter 1

Introduction

1 Introduction

1.1 NATURELAB project

The 4,5-year NATURELAB project which is funded by the European Union's Horizon Europe Research and Innovation programme and commenced on the 1st of June, 2023, aims to increase the recognition, promotion and use of green and blue spaces as care providers by investigating the benefits of nature-based therapies (NBT) that promote well-being and support health prevention and rehabilitation. To achieve this aim, the consortium is coordinated and managed by a research team from the Laboratório Nacional de Engenharia Civil (LNEC) in Portugal and consists of thirteen partner organisations – covering academic institutions, non-governmental organisations (NGOs), SMEs, and public bodies – working on six Work Packages (WP), which are led by different project partners. Together, this transdisciplinary group of organisations work to develop and evaluate NBT for people with health needs, in different national contexts. The consortium will closely collaborate with communities and local, national, and international stakeholders from various sectors (e.g. medical, healthcare, social, educational, governmental, and non-governmental, business), providing solutions to improve health and well-being and promoting the protection of biodiversity and sustainability of rural, coastal, and urban regions.

NATURELAB focuses on nature exposure and experiences provided by i) forests and protected areas, ii) urban parks and iii) horticulture and gardening contexts. The project works at a total of 15 Experimental Sites (ES) and four Demonstrator Fellows (DF) located in five countries, including Peru, Portugal, Greece, Germany, and the Netherlands. Various NBT and variables are being evaluated in pilot trials (at ES) and more definitive trials (at DF) during the project period. Within the NATURELAB project, NBT is understood as being synonymous with outdoor therapies. Outdoor therapies encompass numerous nature-oriented interventions intentionally harnessing nature's advantages for the enhancement of health, well-being, and healing. These practices encapsulate three shared elements: (1) location-oriented, typically outdoors, (2) physically engaged activities, and (3) a collaborative relationship involving the client, therapist, and nature (Nieuwenhuijsen *et al.*, 2017; Harper and Doherty, 2020; Harper, Fernee and Gabrielsen, 2021). If proven (cost)effective in improving the health and well-being of participants, it may be desirable to provide NBT on a larger scale, which requires some level of integration into existing healthcare and social systems to ensure sustainable uptake.

1.2 Task 4.1: Community engagement and awareness for the adoption of NBT

The fourth work package (WP4), titled 'Governance, social innovation and uptake of nature-based therapies', is concerned with behavioural change and societal NBT uptake by means of social

experimentation through real-life conditions in order to achieve an inclusive and robust spill-over effect in multiple sectors and to a broader audience, at the 15 ES and four DF. WP4 is defined by four tasks (T), including:

- **T4.1 Community engagement and awareness for the adoption of NBT (M1-M12)**
- T4.2 NATURELAB Social Innovation Hub (M13-M36)
- T4.3 Promotion of nature-based care within the health sector (M29-M50)
- T4.4 Legal, administrative, ethical, and financial mechanisms for NBT (41-54).

This report serves as **Deliverable 4.1**, titled "Delineation of a Proof-of-Concept Process for NBT Uptake in Each Country" (D4.1), and represents the final tangible product of T4.1. This task was led by VU; co-lead by KMOP; and required collaborative input from all consortium partners. The research activities underpinning this report, as well as the report itself, contribute to the overarching objectives of WP4, which are as follows:

- To ensure the sustainability of the project methodology through its adoption in the public and private healthcare and social system;
- To engage local communities and stakeholders in co-shaping the process of NBT adoption in their respective areas and countries. Additionally, to engage them on the values of nature, biodiversity, and sustainability;
- To propose sustainable and realistic policy changes in each country and at an EU level for integration of NBT in daily practice.

These objectives ask for close collaboration with relevant stakeholders, hence calling for a **transdisciplinary research design**. Transdisciplinary research indicates that stakeholders are engaged throughout the entire research process, rather than that they are only consulted during data collection or being informed – or asked to valorise knowledge – afterwards (Bunders *et al.*, 2010; Lawrence *et al.*, 2022; Thorsten and Schmohl, 2023). With regard to stakeholders, this report will follow this definition of stakeholder: *"any actor that can affect, or can be affected by, a decision or action"* (Freeman, 1984; Leventon *et al.*, 2016). In the transdisciplinary research domain, there are three main reasons for involving various stakeholders in research (Fiorino, 1990; Stirling, 2008):

1) The instrumental reason is increasing the chances of 'success' of intervention implementation and its effectiveness;

2) The normative arguments say it is 'right' to include the viewpoints of those who will experience the effects of the implementation of certain projects, decisions, or actions;

3) Substantive argument proposes that viewpoints of societal stakeholders can provide new and valuable knowledge on certain problems and solutions.

This reasoning is not only applicable to WP4, but clearly contributes to the overarching goals of the NATURELAB project.

1.3 Steps towards and beyond this deliverable

When applying a transdisciplinary research design, it is paramount to consult (and include) the perspectives and concerns of various stakeholders at an early stage of the research process. By means of early engagement, one creates the opportunity for these stakeholders to become aware of possible interventions like NBT and to influence the research from the start (van Mierlo *et al.*, 2010; Leventon *et al.*, 2016). Keeping stakeholders engaged throughout the whole research- or developmental process can be called 'co-creation' or 'co-development', increasing the chance of successful uptake of innovations like NBT (James and Bewsell, 2020).

Thus, the activities undertaken for Task 4.1 (T4.1) were foundational in fostering sustainable stakeholder engagement throughout the duration of the NATURELAB project and beyond. These activities comprised several sequential steps. Initially, **stakeholders were mapped** in each country to identify key actors for engagement and awareness-raising initiatives.[1] Subsequently, **exploratory research** was conducted among the identified stakeholders through around 20 key informant interviews and one data analysis session per country. This research aimed to delve into the pertinent values, perspectives, and issues surrounding NBT adoption, with a particular focus on systemic drivers, and will be futher elaborated below. As the third and final step within the scope of T4.1, the results of this exploratory transdisciplinary study are taken up in this report and serve as core of **Deliverabe 4.1**, since they provide for country-specific and general **guidelines** for ongoing stakeholder engagement, serving towards NBT uptake.

Aligned with the transdisciplinary approach, the guidelines presented in this deliverable are intended to facilitate continued stakeholder engagement and awareness-raising initiatives. They serve as a foundation for further cycles of engagement, aimed at optimising stakeholder involvement throughout the remaining duration of the NATURELAB project and beyond. The first concrete step building on T4.1 involves organising heterogeneous focus group discussions (FGDs) with key

[1] The stakeholder mapping activity was set up in collaboration with T5.3, which is concerned with "Stakeholder mapping, engagement and wide outreach" and led by FICUS.

stakeholders in all five countries during the first half of the second project year (M13-M18). These FGDs will explore shared and opposing stakeholder perspectives and issues regarding NBT integration, while concurrently raising awareness. Collectively, these efforts will stimulate increased stakeholder engagement and awareness of NBT, foster broader and stronger networks, garner increased support for NBT, and enhance understanding of sustainable integration scenarios.

1.4 Study aim and objectives

To contribute to stakeholder engagement and awareness for the adoption of NBT, the overall aim of the exploratory transdisciplinary study – that represented the second step of T4.1 – was **to explore the needs and expectations of key stakeholders within and beyond healthcare systems in the five project countries.**

The specific objectives were to:

a) Explore visions for future sustainable implementation and integration of NBT;

b) Understand the perspectives of potential systemic actors and the factors influencing NBT' uptake;

c) Develop strategies for multi-stakeholder awareness raising, engagement, and co-creation

The rationale behind this aim and objectives can be summarised as follows: To increase the likelihood that novel interventions like NBT will be accepted and integrated, it is important to explore and include the perspectives and concerns of a wide variety of actors in the development of NBT, as was elaborated in the previous sections of this chapter. For this reason, the VU research team facilitated a multi-actor processes through a exploratory transdisciplinary qualitative study, involving consultations with different stakeholders in all five countries involved in the NATURELAB project. The overarching research question that was guiding this transdisciplinary qualitative study was: ***"How can NBT be sustainably integrated into existing healthcare and social care systems in different contexts?"***

1.5 Reading guide

This deliverable offers a comprehensive overview of an exploratory transdisciplinary qualitative study characterised by extensive interview data collected as part of T4.1. The study aimed to investigate the needs and expectations of key stakeholders within and beyond healthcare systems in the five project countries. To enhance readability and navigation, the report is structured into ten chapters.

Following this **introduction**, the second chapter of this report describes the **contextual background**. This chapter covers some relevant contextual statistics of the five project countries to give a better sense of the variations of the countries and the functioning and performance of their health systems. The third chapter oultines the **methodology**, including the study design, conceptual framework, and the methods and processes of data collection and analysis. Subsequently, the report presents **five country-specific results chapters**, organised as follows: Germany, Greece, the Netherlands, Peru, and Portugal. These chapters delve into landscape developments, stakeholder perceptions and needs, (systemic) influencing factors, and strategies for NBT integration and stakeholder engagement, based on findings derived from the interview data. Building upon these country-specific findings, the nineth chapter provides a **cross-country comparison** of the interview data across the five countries. This chapter does not only highlight and discuss key differences and similarities in results per country but also per interviewee groups. The tenth and final chapter offers **recommendations**, including both country-specific and more general suggestions, as well as possible **next steps** following this deliverable.

In addition to the above structure, it is important to note that this document relates to the work conducted by T5.3 (Stakeholder Mapping) and Deliverable 5.3, titled: “Stakeholders mapping, engagement, and outreach activities”. While there may be some overlap in content, it was aspired to minimise duplication and ensure coherence across the two deliverables.

Chapter 2

Contextual background

2 Contextual background

This chapter outlines some contextual background. It provides descriptions of the five project countries of NATURELAB, including **key indicators** describing the country's social, economic, and health system characteristics and trends. Quantitative data was mainly retrieved from relevant publicly available databases from reputable institutions such as the World Bank, the World Health Organization (WHO), and the Institute for Health Metrics and Evaluation (IHME). In addition, some qualitative data was provided by NATURELAB partners, such as on (health) care referral pathways. Such data was based on a combination of personal knowledge and readily available online sources. For the sake of keeping this background chapter concise, no citations were used; instead, original sources can be found in five country indicator tables, which can be found on Basecamp and made available publicly on demand.

2.1 General country characteristics

A comparative summary overview of such quantitative data per indicator for Germany, Greece, the Netherlands, Portugal, and Peru is presented in Table 2.1 and will be elaborated below. In addition to the fact that the five countries are located in different places around the world, with different climates and socio-cultural factors and histories, characteristics such as population size and total land area (see Table 2.1) further accentuate the disparities among them. **Population sizes** span from approximately 10 million (for Portugal and Greece) to over 83 million in Germany, with **land areas** ranging from around 33 to 1280 square kilometres across the countries. Interestingly, these two metrics demonstrate a notable incongruity. For instance, while the Netherlands is characterised by a relatively small population size, the calculated **average population density** is very high (525 inhabitants per square kilometre). On the contrary, Peru exhibits the lowest density at 27 inhabitants per square kilometre.

Table 2.1: General and health system indicators per country

INDICATORS	Ger-many	Greece	Nether-lands	Portugal	Peru
Population size (in millions, 2022)	83.8 million	10.4 million	17.7 million	10.4 million	34.0 million
Total land area (in square kilometres)	349.4 km^2	128.9 km^2	33.7 km^2	91.6 km^2	1,280.0 km^2
Life expectancy at birth (in years, 2021)	81 years	80 years	81 years	81 years	72 years
Urban population (% of total population, 2022)	78%	80%	93%	67%	79%
GDP (in thousands of $USD per capita, 2022)	$48.7 thousand	$20.9 thousand	$57.0 thousand	$24.5 thousand	$7.1 thousand
Inflation, consumer prices (annual %, 2022)	6.9%	9.6%	10%	7.8%	8.3%

INDICATORS	Ger-many	Greece	Nether-lands	Portugal	Peru
Health expenditure (% of GDP, 2020)	12.8%	9.5%	11.1%	10.6%	6.3%
• (**Health expenditure per capita,** in thousands of $USD per capita, 2020)	($5.9 thousand)	($1,7 thousand)	($5.8 thousand)	($2.3 thousand)	($0.4 thousand)
Government expenditures on mental health (% of total government expenditures on health, 2011)	11%	4.4%	10.7%	5.2%	0.3%
Domestic private health expenditure (% of total health expenditure, 2020)	21.6%	45.9%	31.2%	35.5%	31.9%
• (**Out-of-pocket expenditure,** in % of total health expenditure, 2020)	(12.5%)	(33.4%)	(9.3%)	(27.8%)	(22.8%)

Conversely, indicators such as **life expectancy at birth** and **urban population** portray less drastic variation among the five project countries (see Table 2.1). Despite some numerical differences, these trends generally display consistent rising patterns (e.g. see Figure 2.1). Larger disparities again exist in **financial standing** across the five countries. Peru, with a **GDP per capita** of $7.1 thousand, falls within the upper-middle-income classification, while the remaining nations are categorised as high-income countries. However, there is still a substantial variance among these four, with GDP per capita ranging from $20.9 thousand in Greece to $57.0 thousand in the Netherlands.

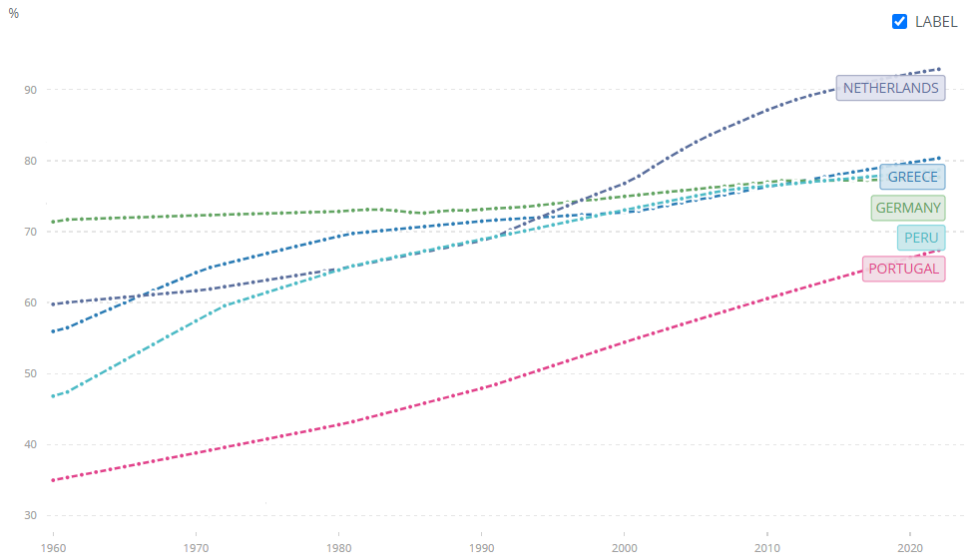

Figure 2.1: Trends in urban population from 1960-2022 (% of total population)

All five countries are politically organised as **parliamentary democracies**. All countries legally operate as republics, except for the Netherlands, which operates as a constitutional monarchy. Government in all countries are broadly organised at three levels: **national, regional, and local**. Similarly across countries, their national government primarily has overall responsibility for the

development and regulation of policies, while regional and local governments focus on implementing these policies and providing services like health and social care.

2.2 Health system indicators

The **health expenditures per capita** seem to somewhat correspond with the nation's GDP per capita (see Table 2.1). Despite their income classifications, all countries are currently experiencing significant **inflation rates**, ranging from 6.9% to 10%, and are witnessing a notable upward trend in **health expenditures** (see Figure 2.2).

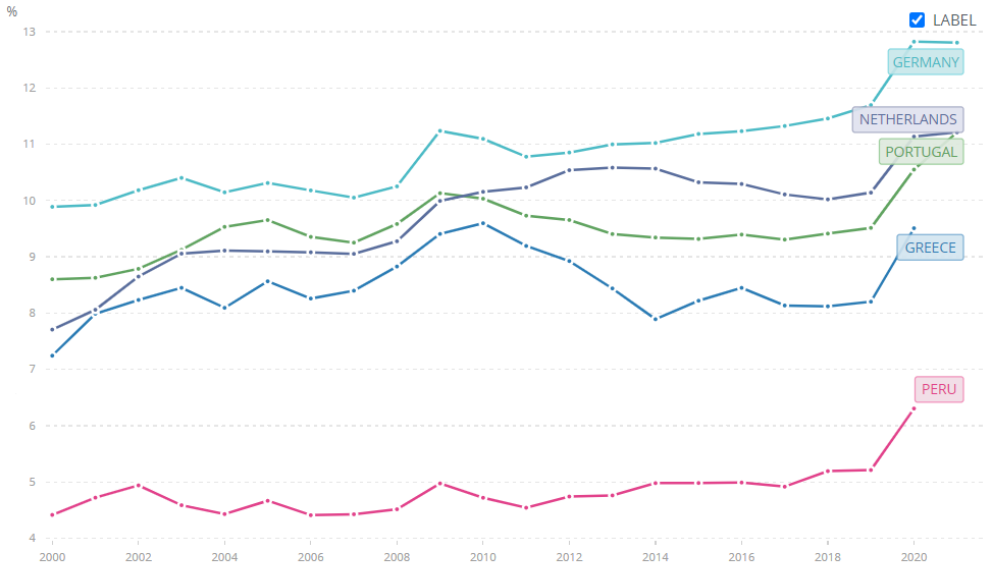

Figure 2.2: Trends in health expenditure from 1960-2021 (% of GDP)

Nevertheless, the allocation of these health expenditures varies, which can for example be seen form the governmental **expenditures on mental health**: While Germany and the Netherlands allocate over 10% of health expenditures to mental health, Portugal and Greece spend around 4-5%, and Peru allocates 0.3%. However, this discrepancy in resource allocation does not necessarily correlate with a lesser mental health' disease burden between the countries. Indeed, the **burden of disease** expressed in Disability Adjusted Life Years (DALYs)[2], especially concerning conditions anticipated to be relevant in the context of NBT, broadly exhibits relatively minor differences across the five countries (Figure 2.3). That said, ischemic heart disease is over three times the proportion of total DALYs for Greece compared to Peru.

[2] It is important to note that DALYs may not be a reliable indicator for countries like Peru where access to healthcare is particularly constrained.

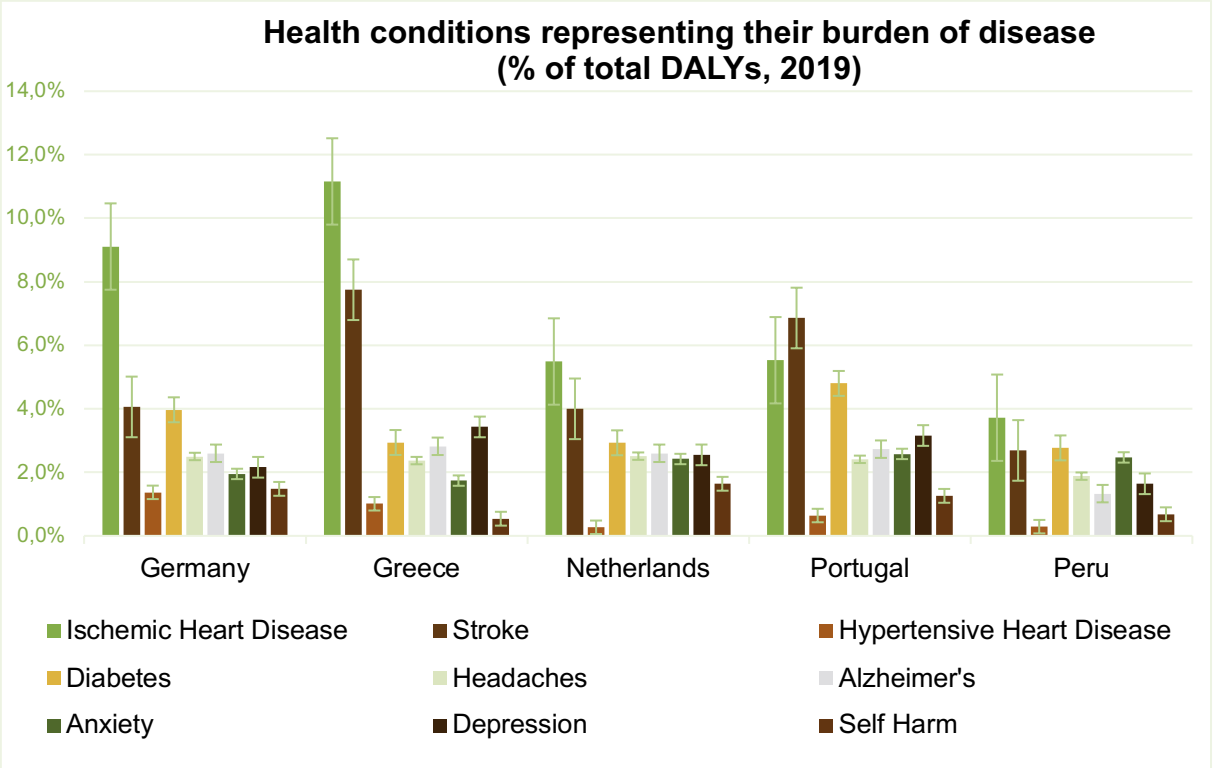

Figure 2.3: Burden of disease in 2019 (% of total DALYs)

Finally, when it comes to the health systems indicator '**domestic private health expenditures**', the World Bank includes expenditures from households, corporations and non-profit organisations. Such contributions can manifest as (pre-)paid voluntary health insurance or as direct payments to healthcare providers. The latter is often also referred to as **out-of-pocket expenditures**. In Greece, nearly half of health expenditures originate from domestic private sources, reflecting the substantial presence of a private sector within the country's healthcare system, supported by the highest out-of-pocket expenditure rate at 33.4%. Following Greece, Portugal and Peru also demonstrate significant reliance on out-of-pocket payments. However, an analysis of trends (see Figure 2.4) reveals disparities: Particularly, Peru shows a noticeable decreasing trend in domestic expenditures, diverging from the relatively stable (considering Portugal, Germany, and the Netherlands) or increasing (Greece) trends observed in the other countries.

All five countries have a form of basic **health insurance** for their citizens, however, how this is organised differs substantially per country. For example, there are variations in whether health insurance is solely offered through private companies or the state, although most countries seem to have both options, except for the Netherlands, where individuals require mandatory insurance from a selection of private health insurance companies, which are state-regulated. Also there are differences in whether health insurance is mandatory or optional, whether there are co-payments for certain services, and there are variations in the amount of health insurance packages available and

types of services covered by such packages. These wide variations between countries indicate that embedding NBT into health insurance systems–often seen as a sustainable funding source with broad coverage– will require country tailored approaches.

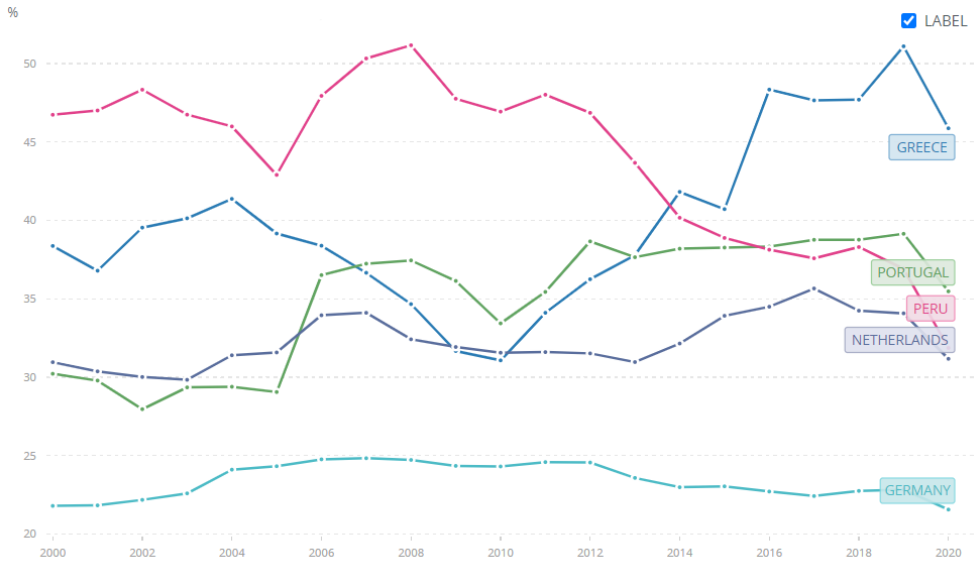

Figure 2.4: Trends in domestic private health expenditure from 2000-2020 (% of total health expenditure)

Referral pathways in the health system are relatively similar across study sites. General practitioners (GPs) at primary care level typically serve as a first point of contact for adults seeking care in the general health sector in all four European countries. These GPs are often responsible for initial diagnosis, routine care, and can provide further referrals for specialist consultation. In Peru, the first level of care are basic health posts, with referrals from these posts possible to more specialised institutions. Care and referral pathways may differ for specific population groups like children, adolescents, refugees, or formal workers. Also in some instances (like for emergency care or certain health conditions) specialists health services and hospitals can directly be accessed. All countries have a private health sector next to a general/public health sector that can generally be more directly and quickly accessed by clients, although such care requires out-of-pocket payments from clients – unless such care is covered by private health insurance or sub-contracted by the public sector. In Greece and Portugal the private sector route was reported as a commonly used route due to the **long waiting lists** in the public health sector.

Similarly long waiting lists were reported for public **mental healthcare**. Although for Greece, no reliable publicly available data about waiting lists for public mental healthcare was available, all other countries reported such lists to be long. For example, an initial appointment with a psychologist in

Germany takes on average 4 months in Germany and 1,5 years in Portugal. Again there are exceptions within and between countries. For example, in the Netherlands larger GP practices generally have mental health practitioners on staff, for which there are shorter waiting lists compared to services provided by specialists working at higher levels of care. Mental healthcare is globally and therefore also in these project countries, increasingly provided in community settings by non-specialist providers (like primary care or social workers), although the numbers of such providers are not consistently measured. In terms of the number of psychiatrists and psychologists per 100,000 population (covering public and private mental health sector), the WHO 2015 Global Health Observatory reported for the Netherlands the highest numbers and Peru the lowest (20.870 vs. 2.948 for psychiatrists; 123,464 vs. 9.507 psychologists), with no data available for Portugal. In Peru, next to having the lowest numbers of mental health specialists, the country also has a rural-urban maldistribution; its capital Lima concentrates 41% of mental health facilities and is home to 74% of the country's registered psychiatrists.

There are many indicators for benchmarking (mental) health system performance and it beyond the scope of this report to provide a comprehensive comparison. However, a recent report by the Organisation for Economic Co-operation and Development (OECD) concluded that, despite efforts, most of the OECD mental health systems are lacking in performance (OECD, 2021). The OECD covers the four European countries part of this study; however, since Peru has, out of five countries, the lowest number of mental health specialists, GDP, and health expenditure, it can be safely assumed that the country has the poorest mental health system performance. With regards to NBT, it can be concluded that there is need for strengthening health systems more broadly and mental health systems in particular.

2.3 'Green' indicators

The percentage of **forested area** per country is quite similar for Germany, Greece and Portugal, with their forest coverage varying between 30-36%. Conversly, the Netherlands demonstrates a significantly lower coverage at 11%, indicating a distinct environmental profile. Peru emerges as an outlier, with forests enveloping over half of its total land area, comprising 56.4%. To some extent, these numbers seem to reflect the average population density in the countries, which can be derived form Table 2.1.

However, this indicator fails to capture the **accessibility and proximity of green spaces** to populations. Peru exemplifies this complexity, where despite extensive forest coverage, access to green spaces varies significantly based on the region and the type of area in which someone is located (urban or rural setting), and socio-economic factors. For instance Lima residents, particularly those with low socio-economic status, often encounter challenges in accessing green spaces.

Similarly, Greece experiences urban-centric difficulties in green space accessibility compared to its rural areas, where green spaces are accessible, generally well maintained and (relatively) near. In the remaining countries there seems to be more attention for urban green infrastructure, evident in Portugal's capital, Lisbon, where each inhabitant enjoys an average of 42m2 of green space (nearly double the WHO recommendation). Furthermore, in the Netherlands, with only 11% forest coverage, 89 out of 100 residents can access green environments (e.g. a park or public garden, an open natural space or woodland area) within a 1-kilometer radius from their homes.

Nature policies and conservation governance across the five countries primarily fall under national jurisdiction, with national ministries or agencies taking the lead in shaping and implementing these policies. However, they are often bound by international regulations and agreements. For instance, Germany, the Netherlands, Greece, and Portugal must comply with EU directives and regulations pertaining to nature conservation and environmental protection. Regional and local governments may also exert influence in nature governance, complementing national efforts. Additionally, alongside governmental initiatives, non-governmental organizations (NGOs) and environmental advocacy groups can significantly contribute to various initiatives, monitoring, and evaluation processes in certain contexts.

Chapter 3

Methodology

3 Methodology

This methodology chapter starts with an outline of the study design and settings, followed by the conceptual framework, methods and process of data collection, data analysis and synthesis, and ethical considerations.

3.1 Study design and settings

This study adopted an exploratory qualitative multiply case study design, using a transdisciplinary approach. Transdisciplinary research is typically explorative by nature, involving qualitative research methods, and has a practice-oriented research approach, which was suitable for the aim of this study. Primary data collection took place in the five countries participating in NATURELAB (Portugal, Germany, Greece, Peru, and the Netherlands). Some contextual background on these five countries and study settings have been described and discussed in the previous chapter.

3.2 Conceptual framework

This section describes the conceptual framework which guided data collection and analysis on multi-stakeholder perspectives towards the uptake of NBT. Ideas from 'interactive-learning and action' and 'system innovation perspective' were used, including the existing literature on the factors influencing the scaling up of health interventions. This framework was first introduced in the "Milestone 4.1 Awareness raising roadmap".

Interactive-learning-action

Co-creation is a systems-based approach suitable for addressing complex societal problems. By taking this approach one is considering the wider systems and environment around the problem, including the different societal actors that are involved (Regeer and Bunders - Aelen, 2009; James and Bewsell, 2020). By means of identifying and continuously engaging key stakeholders, a process of mutual learning will take place. Different values, perspectives, and types of knowledge will be consulted, leading to a more complete picture of possible structural barriers, and coming up with more sustainable and shared solutions (Grin, van de Graaf and Hoppe, 1997; Regeer and Bunders - Aelen, 2009; Regeer, Barbara J., Klaassen and Broerse, 2024). This is an active process, not merely providing stakeholders with knowledge about new interventions like NBT, but actively listening to their viewpoints

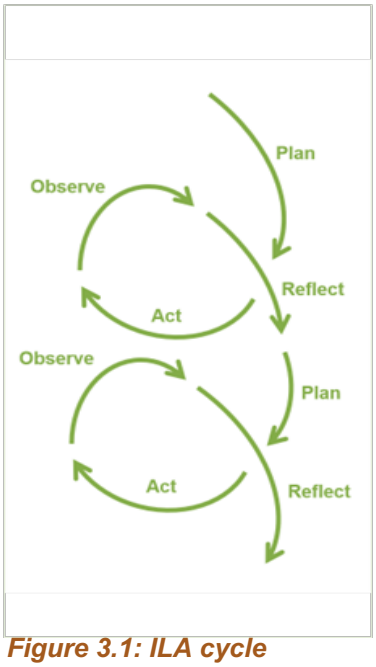

Figure 3.1: ILA cycle

and incorporating these into the development of sustainable solutions to current global issues such as climate change, urbanisation, and with mental health systems.

A transdisciplinary research design is not linear. It can better be described as a process of interactive learning and action (ILA), visualised in spirals that include planning, acting, observing, and reflecting activities (Bunders, 1994; Broerse, 1998; Swaans *et al.*, 2009; Bunders *et al.*, 2010; Betten, Roelofsen and Broerse, 2013; Kemmis, McTaggart and Nixon, 2014). The Athena Institute, VU Amsterdam, has developed a validated methodology existing of five consecutive but overlapping phases to help structure the iterative- and learning-action-spiral nature of a transdisciplinary research approach (Bunders *et al.*, 2010; Betten, Roelofsen and Broerse, 2013): i) exploration, ii) consultation, iii) integration, iv) prioritisation and action planning, and v) implementation.

It is unlikely that moving through the five phases one single time will lead to the immediate successful implementation of NBT. More realistic is that the activities corresponding with the various phases will be repeated several times during the NATURELAB project – and each time in slightly different ways and in collaboration with different groups of stakeholders, depending on the stage of the project. The NATURELAB consortium itself is transdisciplinary as it is made up of partners from various backgrounds, including different academic disciplines (e.g., sociology, environmental sciences, ecology, psychology, health sciences) and from non-academic backgrounds (e.g. NGOs, SMEs, public bodies). This variety of partners, from distinct countries, was collectively involved in various steps of this exploratory qualitative multiple case study, including sampling, data collection, data analysis, validation, and interpretation of results from interviews conducted with a wide variety of stakeholders. For more details on how this transdisciplinary approach was put into practice, see 3.3.ff.

The activities set out in the “Milestone 4.1 Awareness raising roadmap” that represent the foundation for ongoing stakeholder engagement throughout, and beyond, the NATURELAB project, largely correspond with the five ILA phases. The first interviews with key informants are part of the exploration, consultation, and integration phases.

System innovation perspective

During the NATURELAB project there will be experimentation with different forms of NBT in various contexts (i.e., countries, healthcare, and ecological systems) and for various communities (i.e., people with different health needs and from various demographic and socio-cultural backgrounds) with the aim to develop NBT that are taken up in existing healthcare systems. These experiments take place in relatively protected spaces – sheltered from market and system influences and with sufficient (albeit temporary) resources (e.g., financing, people, expertise). Such a protective

experimental space can be called a 'niche' (Geels, 2002). Niches are important places for learning and building social networks to support innovations like NBT.

The NATURELAB project works towards the integration of NBT practices into conventional health and social care systems in the project countries so that it can achieve its intended impact: "turning the ecological transition into opportunities for improved health and well-being, increasing societal and environmental resilience" (NATURELAB Grant Agreement, part B, p.17-18). In other words, the goal is for the 'niche' to become incorporated into the 'regime' (i.e., dominant structures, cultures, and practices of existing systems). The definitions of key concepts from the system innovation perspective can be found in Table 3.1 below.

Table 3.1: Definitions of key concepts from the system innovation perspective on scaling up novel psychological interventions (Woodward et al., 2021)

Landscape level	The broader societal trends and contexts of social change, such as demographics and cultural changes or other developments like "economic growth, wars, emigration, broad political coalitions" (Geels, 2002). Landscape changes are usually slow but may also be sudden (in case of a crisis), and may put pressure on the system (Geels, 2002).
Constellation level	The dominant set of structure, culture, and practices of the existing system. These elements "both define and fulfil a function in a larger social system in a specific way" (van Raak, 2010). Complex systems like the health system could be perceived as having various constellations; "each of which is concerned with a specific aspect of the health system's overall functioning" (van Raak and de Haan, 2017).
Culture	The "set of values, perceptions, and interpretive frames – relating to or relevant for the system – that are shared by most of the involved actors" (van Raak, 2010). It involves the "ways of thinking, mental models and perceptions" (Van der Ham et al., 2013)
Structure	The "physical, economic, legal, financial, organisational, and power structures that facilitate and/or constrain the behaviour of involved actors" (van Raak, 2010). In other words, it refers to "how it works" (de Haan, 2010) or "how people organise the things they do, either physically, institutionally, or financially" (Van der Ham et al., 2013).
Practice	"Actual actions (operations) undertaken within the constellations, which are relevant for the functioning of the constellation" (van Raak, 2010). In short it is "what people actually do" (Van der Ham et al., 2013).
Actors	"Individuals or organised groups that act as a unity" and are seen as related but not part of the system (van Raak, 2010).
Niche level	A protected space where actors experiment with innovations (Geels, 2002, Schot, 1998). Innovative experiments are generally "sheltered from mainstream competition" and may function as 'proto-markets' for the development of market experiments, and eventually system shifts (Schot and Geels, 2008). Experimental settings are important locations for learning processes and for building the social networks to support innovations (Geels, 2002).
Deepening, broadening, scaling up	Deepening involves learning processes which take place in a relatively protected space at local level; Broadening entails linking and repeating experiments in different contexts; and Scaling up is the process in which innovative experiments become mainstream (Van der Ham et al., 2013, Johansen and Van den Bosch, 2017).

A ‘system innovation perspective’ provides a framework for understanding this process (Geels, 2002; van Den Bosch and Rotmans, 2008; de Haan, 2010; van Raak, 2010; Broerse and Grin, 2017; Loorbach, Frantzeskaki and Avelino, 2017; Woodward *et al.*, 2021). This perspective sees the scaling up of innovations as a dynamic multi-level process involving interactions between three levels: the niche (experimental setting), dominant constellations (structures, cultures, practices) and the landscape (external context). Dominant structures (ways of organising) and cultures (ways of thinking) of existing systems and subsystems can be changed by actors adopting new practices (doing), but can simultaneously act as limitations (i.e., systemic barriers). Cycles of deepening (learning), broadening (replicating), and scaling up (integration) are, according to this perspective, mechanisms for making experimental practices like NBT to become normalised daily practices. This perspective is visualised in Figure 3.2 with definitions of key concepts found in Table 3.1. These cycles are supported by the previously described ILA methodology.

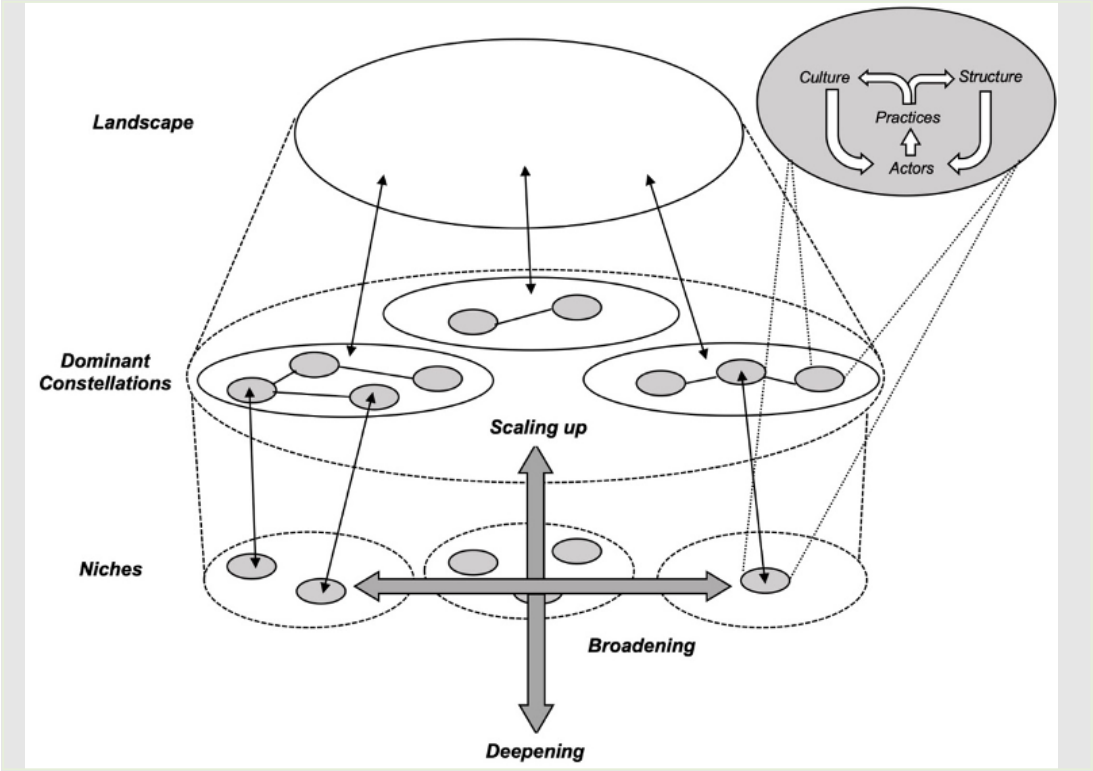

Figure 3.2: System innovation perspective, as first presented in (Woodward et al., 2021)

Taking this framework into account, stakeholder engagement and awareness raising have two key purposes. First, through building relationships with stakeholders there will be learning about existing structures and cultures of the healthcare and social systems in the project countries and how these can be aligned with NBT. Conducting interviews with key informants will be an important way for NATURELAB partners as niche actors to learn about the perspectives, needs, and concerns of actors related to these systems (e.g., health workers) as well as actors outside of these systems but

who still have an influence on, or are influenced by, the potential integration of NBT (e.g., media, policy makers, patients). Such knowledge will aid NATURELAB partners in the development of structures and cultures around NBT practices that work in existing systems (i.e., alignment) but are still innovative. Innovations by nature challenge old ways of thinking and organising, therefore system change will be necessary to accommodate the sustainable integration of NBT practices. This also means that, besides increasing knowledge about possible ways for alignment, the second key purpose will be gaining support for-, and interest in NBT, particularly from powerful players, gate keepers, and change agents. Early stakeholder engagement is crucial in the broader context of raising awareness, as engaged stakeholders can become advocates by means of raising awareness among their networks and the broader public, thus enhancing awareness raising efforts that contribute to the sustainable implementation and uptake of NBT.

3.3 Methods and process of data collection

Stakeholder engagement activities as part of Task 4.1 involve five stages and various methods. Further details can be found in "Milestone 4.1 Awareness raising roadmap". This deliverable reports on findings from the second stage, namely key informant interviews (KIIs).

In total, 100 **semi-structured interviews** were conducted with key informants between November 2023 and March 2024 (see Table 3.2). Key informants were selected based on **purposive sampling** to achieve a diverse range of participants on the basis of their professional backgrounds, roles, or experiences. For pragmatic reasons, initially, people within the networks of local interviewers and NATURELAB partners were approached (i.e. convenience sampling), followed by a snowball strategy (i.e. asking interview participants to nominate other people they know). Interview candidates outside of the networks of involved researchers were also approached through email or social media (e.g. LinkedIn).

Table 3.2: Number of interviews conducted per country and interviewee group

Country / Interviewee group	Germany	Greece	The Nether-lands	Peru	Portugal	Sum
Medical and healthcare	5	3	3	4	3	**18**
Scientific community	3	4	3	2	4	**16**
Governance	2	4	2	3	5	**16**
Civil society	1	3	2	8	1	**15**
Business (SMEs)	4	1	3	1	2	**11**
Environmental organisations	1	3	2	0	3	**9**

People in NBT field	2	1	5	0	0	**8**
Media	2	1	1	2	1	**7**
Sum	**20**	**20**	**21**	**20**	**19**	**100**

The aim was to interview 20 individuals per country and 2-3 individuals from eight a priori selected categories or groups: i) Medical and healthcare community (e.g. doctors, nurses, medical students, psychologists); ii) Scientific community and innovation structures (e.g. researchers and other staff working at universities, knowledge institutes, and technical organisations); iii) Environmental organisations (e.g. individuals working for international, national or local nature conservation organisations); iv) Policymakers and governance (e.g. people working at national, international, local levels on health and nature protection); v) Small and medium-sized enterprises (SMEs) (e.g. those working in the business sector like health insurance companies or tourism industry); vi) Civil society (e.g. patient associations, community groups, NGOs, professional associations, schools and educational centres); vii) Media (e.g. science journalists, mass media); and viii) People in the field of NBT (e.g. people already working as NBT therapists or nature-related coaches). The rationale of the sample size of 20 KIIs per country was to allow for multiple stakeholders from each group to be included, thereby reaching data saturation, whilst ensuring data collection was feasible within the timeframe of the study.

Selection of interview candidates was solely based on professional background and relevant experiences. Vulnerable populations (e.g. patients, or minors) were excluded in this study as their views will be explored during the experiments (which is a separate study within NATURELAB for which separate ethical approval will be applied for).

Table 2.2 shows the number of interviews eventually conducted per country and stakeholder group. For the Netherlands two out of twenty-one interviews were conducted with two participants each; these were treated as one interview account. Some interviewees could fit in two or more stakeholder groups; in such cases the dominant role determined stakeholder categorisation.

Interviews lasted on average 1 hour and followed a topic guide which was based on the conceptual framework (Woodward *et al.*, 2021) and literature on the barriers and facilitators for scaling up health interventions (Milat, Bauman and Redman, 2015). The topic guide was adapted from a topic guide used in previous research on the scalability of novel psychological interventions for refugees in different countries across Europe and the Middle East (Woodward *et al.*, 2021, 2022; Woodward, Burchert, *et al.*, 2023; Woodward, Sondorp, *et al.*, 2023).

The topic guide included optional prompts and probes to ensure some consistency and coherence between interviews. The first individual interview in each country acted as pilot for local

implementation of the topic guide. Pilot interviews were discussed with interviewers and the VU staff, but did not require any adaptation. KIIs explored relevant perspectives and issues towards NBT and its sustainable integration into existing systems, with a focus on potential systemic drivers (e.g. regulations, financing, health workforce etc.). Interviews were undertaken in the local language or English by trained interviewers. All interviewers were trained by the VU research team in an online workshop and provided with detailed guidelines on data collection, analysis, and data transfer. Informed consent procedures were followed, and all interviewees gave written consent.

Interviews were audio recorded and summarised in English using a data extraction summary sheet. Most interviews were conducted online (i.e. through video conferencing) and some face-to-face. Since qualitative studies secure their validity by identifying any potential biases by using reflections and memos throughout the study, interviewers were encouraged to take notes during each interview and write down a brief reflexive consideration after each interviews (e.g. how their academic discipline and background may have influenced the interview; specific topics to further explore in upcoming interviews). These reflexive considerations were captured through online evaluation forms. Completed forms were used during country-specific data analyses sessions to aid interpretation of findings.

Please see “Task 4.1 Key Informant Interviews: a training guide for interviewers”, including its additional documents for more detailed information on the process of data collection for KIIs. This training guide also contains links to nine supplementary files: recruitment script; information sheet; consent form for adults; background information on NATURELAB and NBT; topic guide; confidentiality agreement; data extraction sheet; explanation data extraction sheet; interview evaluation form.

3.4 Data analysis and synthesis

Interview data was managed and analysed using the **framework method** (Spencer L, Ritchie J, Ormston R, *et al.*, 2014), which is an increasingly popular approach towards qualitative data analysis (Gale *et al.*, 2013) and can be considered a form of **thematic analysis.**. “Thematic analysis typically involves inspecting coded or summarised data and combining elements to yield categories or higher-level classes that capture conceptual differences in the data” (Spencer L, Ritchie J, Ormston R, *et al.*, 2014, p.345). Originators of the framework method, suggest five steps for data management (i.e., making large data sets easier to interpret):

1. *Familiarisation*: this involves the researcher getting familiar with the data, including the identification of initial topics or issues that may form labels. These initial labels need to be checked against the topic guide and research objectives for relevance.

2. *Construction of an initial thematic framework*: labels are then organised by themes and subthemes as a way to structure the data.

3. *Indexing and sorting*: indexing is another word for "coding" and means assigning themes to parts of textual data (i.e., transcripts).

4. *Reviewing data extracts*: this involves refinement of the initial thematic framework by reading the indexed data, including a reorganisation of themes and subthemes.

5. *Data summary and display*: a framework matrix is developed and completed by, with cases placed in rows, codes in columns, and cells forming a summary of data.

The first four steps are considered typical for thematic analysis, and the fifth stage unique to the framework method (Spencer L, Ritchie J, O'Connor W, *et al.*, 2014). The framework method is a relatively systematic and easy way to thematically analyse data because of its matrix output. For this reason, it is considered well-suited to analyses involving multiple researchers from various disciplines, including those with limited experience in analysing qualitative data (Gale *et al.*, 2013). Since this study involved such a multi-disciplinary research team, the framework method was a suitable approach. For the purpose of our study, a 'case' was understood as an individual KII.

Not all five steps of the framework's approach need be followed, depending on the research aim and available time and resources (Spencer L, Ritchie J, Ormston R, *et al.*, 2014). Due to time and capacity constraints the interviews conducted for this study were not transcribed. This meant data was in audio format and not textual, which complicated the completion of steps 3 and 4 (i.e., indexing and sorting; and reviewing data extracts). However, since the interviews in our study were semi-structured, steps 3 and 4 are less relevant; topics and concepts from the topic guide were used to form a preliminary coding framework to which data could immediately be summarised and displayed. This a priori list was treated flexibly; for example, additional codes could be added when themes emerge.

Each **individual case** had a separate matrix spreadsheet. The participant code formed a row and the preliminary codes formed columns. Spreadsheets were completed by the respective interviewer (or an assistant) as soon as possible after the interview. This was done by listening once or twice to the audio recording, whilst summarising the interview data in English in the cells.

Interviewers were trained to provide **summaries** that contained the right amount of detail and context "so that the analyst was not required to go back to the transcribed data to understand the point being made, but not include so much that the matrices became full of undigested material, which could make them very unwieldy" (Spencer L, Ritchie J, O'Connor W, *et al.*, 2014, p.309). At this stage of

the analysis, it was important to stay close to what participants said and to "retain the essence of the original material" (Spencer L, Ritchie J, O'Connor W, *et al.*, 2014, p.309). This was achieved by: (i) using key terms or phrases close to the participant's own language; (ii) focusing on description and keeping interpretation to a minimum (although analytic memos could be added, using a different font); and (iii) summarising all data, including data that may initially appear irrelevant (Spencer L, Ritchie J, O'Connor W, *et al.*, 2014). Once a spreadsheet of a case was summarised, interviewers conducted a **member check**. This meant the summary overview was shared with the respective participant with the request to provide feedback by adding a comment into the sheet.

Once data from all individual cases were summarised, a next level of analysis was performed by the VU research team: **abstraction and interpretation**. First, all spreadsheets from all cases one country were combined into one matrix, forming a **country case**. Second, different analysts summarised the country-matrices across columns (i.e. per a priori category), "trying to understand 'what was happening within a theme or subtheme" (Spencer L, Ritchie J, O'Connor W, *et al.*, 2014, p.311). Third, initial codes (based on the interview topic guide and conceptual framework) and emerging codes were discussed among all analysts, with final categories described in a code book. All codes were given a description and examples from the data. Fourth, once consensus was reached on the final codebook, this was applied by the VU research team across the whole data set. Fifth, initial interpretations of the data were discussed with all local interviewers in five online country-specific data analysis sessions (held March-April 2024). Data was analysed with the support of MAXQDA 2024 (Kuckartz and Rädiker, 2019).

Results for each country were **synthesised** in a separate country chapter (Chapters 3-7), which were checked and validated by the respective country partners. Country results chapters were structured according to key elements of the topic guide and conceptual framework, starting with broader landscape developments, followed by: prior knowledge, perceived needs, benefits, and concerns; potential (systemic) factors influencing NBT integration; and strategies for NBT integration and stakeholder engagements. A comparative analysis was performed and synthesised (Chapter 8), which focused on similarities and differences between the five project countries and the eight interviewee stakeholder groups.

Quotes from participants (also called "interviewees") were used in the results chapters to validate interpretations. Quotes are accompanied by a descriptor for the interviewee (i.e. pseudonym), consisting of a combination of the name of the stakeholder group (and including name of country for the comparative chapter) and a number to illustrate variations of responses.

3.5 Ethical considerations

Ethical approval for primary data collection for this study was granted by the Faculty of Science (BETHCIE) of the VU Amsterdam (9 November 2023; reference: 23-017). All interviewees gave written informed consent. Data was pseudonymised, with identifying information and data stored separately from data extraction sheets. Data protection, sharing, and confidentiality measures were in place.

Chapter 4

Results: Germany

4 Results: Germany

Key findings:

- Despite austerity measurements in the health system, the German landscape is mostly considered relatively favourable for the introduction of NBT, partly explained by upward trends regarding interest in 'green' topics in the country.
- Although NBT was not a familiar term to most participants, almost everyone was familiar with the practice of forest bathing. Additionally, some interviewees were rather talking about general engagement with nature, instead of NBT specifically.
- The need for- and benefits of NBT were widely discussed in the context of various target populations, particularly socially vulnerable groups, patients with mental health issues or those at risk for such issues, and patients with somatic complaints.
- Many factors will likely influence the integration of NBT, such as geography, awareness, human resources and regulation. Financing and acceptability were mostly emphasised by interviewees.
- While the goal of engagement with the various types of stakeholders can be different, the most prominent routes for NBT integration that surfaced from the interviews were concerned with increasing awareness, communication and collaboration among stakeholder groups.

4.1 Landscape developments

Within the context Germany, several important trends were identified. First, **climate change awareness** is growing in Germany, despite the fact that the popularity of the Green party is somewhat decreasing. Some participants shared that people in Germany are increasingly aware about the need to preserve nature, which corresponds with a societal trend towards living closer to nature. In addition, several interviewees mentioned an increased consumption of organic foods, spread of Cottagecore lifestyles (which embraces 'simple living'), promotion of sustainability on social media, growing interest in urban gardening and sustainable housing. Some participants did note that the **Covid-19 pandemic** most probably had a positive effect on the popularity and acknowledgement of nature-based interventions. These trends also surfaced on the level of municipal and urban planning, as it was indicated that some of the cities become increasingly aware of the need for more green spaces and are investing in this.

Trends towards **nature preservation** were also noted on the more regional and national levels. Recently there were a few studies that showed potential negative impact of human activities on the forests in Germany, among them Harz Forest. One of the examples given was the ban of wild camping in Saxon Switzerland. However, some also argued that the movement for denaturalisation potentially can have a negative impact on the availability of green spaces for human activities.

Austerity measurements within the health system represent another issue that was mentioned in a couple of interviews. The German health system was reported to be under stress with long waiting lists and limited numbers of mental health support services that can be reimbursed by the state insurance. The general economic situation in the country was believed by several participants to reduce the possibility of out-of-pocket payment for mental health services, while at the same time one interviewee indicated that certain alternative medicine options are being removed from healthcare coverage due to lack of evidence for effectiveness.

Overall, the interview data indicated that the **cultural climate** within Germany is relatively favourable for the introduction of NBT. However, potential barriers exist within the realms of politics and economics, which could impede NBT integration.

4.2 Prior knowledge, perceived needs, benefits, and concerns

Prior knowledge

Despite the fact that all participants could identify and name positive impacts that nature exposure can have on an individual's health (both physical and mental), the level of prior knowledge and familiarity with NBT **varied**. Almost all interviewees mentioned knowledge about forest bathing as a practice that originated in Japan. *"My idea of it [forest bathing] is that you consciously move through forests or certain natural areas and perhaps actively observe/apperceive something or are called on to [e.g. by therapy personal] apperceive something" (Business 2).*

A few participants mentioned that NBT, despite often being seen as an innovative approach, is not in fact new to Germany. Among the examples that were named during the interviews were: nature exposure for treatment of tuberculosis and known positive effects of therapies in coniferous forests. Though it was noted that previously the use of NBT approaches in Germany was more for rehabilitation, not curative care. *"In Germany, e.g. there were Kneipp cures, climate therapy or water treatments" (Scientific community 3).* Regarding the knowledge on where NBT can be of added value, participants mentioned a wide range of fields from physical activity and stress reduction to utilisation for occupational and speech therapies.

Perceived need

Interviewees reported several domains where they feel NBT can be of added value: combating **lonely** societies and **connecting** humans to nature, promoting **participation** in life for vulnerable populations, **preventing** various mental health conditions, and promoting rehabilitative practices.

The need for combatting loneliness was mentioned by several participants in the context of the pervasive impact of digitalisation, urbanisation, and contemporary media consumption patterns on societal disconnect from both the natural environment and interpersonal relationships. One

participant articulated this sentiment, stating: *“Due to digitalisation, stress, hectic pace and so on, people have become more and more alienated from nature. There is a need for guidance, more or less, to go back outside into the nature” (Governance 2).* This aspect of combating loneliness and (re-)connecting people within society was highlighted in relation to several specific groups such as older adults, students, and people living in the cities: “*For example, at university, where you simply spend a lot of time in closed rooms or in the library, that is why such a balance and simply preventative factor - a lot of time in nature - makes a lot of sense and if it was advertised directly, it would I'm sure a lot of people will make use of it” (Media 2).*

In relation to the question which groups may benefit most from the introduction of NBT, a variety of populations were named. Some interviewees said that children are the ones that can benefit from NBT both in therapeutic setting and simply during kindergarten. This was seen as introducing and sensitising children to the new method and that it can increase future uptake later in life. Among other mentioned potential **target groups** were: older people, people with chronic conditions, cancer patients, people with disabilities, individuals who underwent transplantation surgeries, and refugees. In general, there was an agreement that implementing NBT in such populations can increase their level of participation in life. This aspect was also linked to the theme of loneliness: *"It's been proven that if a person is lonely, they get sick much quicker than if they can participate in life, and if we create circular walks and so on with special areas, then people meet and chat a bit, whether with the dog or without - in any case, it has great health benefits" (Environmental 1).*

Most interviewees did report seeing added value of introducing NBT in both **preventive** and **rehabilitative** settings. When talking about the preventive measures, these were mostly linked to stress reduction and increased connectivity with nature, oneself, and others. This, in turn, was seen as having the potential to act as a preventive measure for a variety of mental health complaints. Regarding rehabilitative settings, the potential need was seen in both physical and mental health domains. As mentioned above, among the groups identified as potential beneficiaries were cancer patients, transplant patients and people with a broad range of disabilities. It was, however, also noted that certain disabilities may prevent people from participating in NBT, which should be taken into consideration.

Perceived benefits

Interviewees named several types of potential NBT benefits. Many of them explained in great detail the various groups **for whom** NBT could be of added value. Some of these groups were already mentioned above, but in general it could be separated into **three types of potential beneficiaries**: socially vulnerable groups (i.e. refugees, older adults, children), patients with mental health issues or at risk of developing these (i.e. depressions, anxieties, neurocognitive and developmental

disorders) and patients with more somatic complaints (i.e. cancer, psycho-somatic symptoms, obesity).

Among the types of specific benefits offered by NBT were **stress reduction, increase in movement, mindfulness,** and **increased connectivity of body and mind**. Several interviewees mentioned that because of the stress-reduction and mindfulness effects, NBT has the potential to assist with executive functioning difficulties such as planning, organisation, self-efficacy and memory: *"Nature based therapies can aid with process-oriented actions, such as action planning, memory and logical thinking" (People with experience in the field of NBT 2).*

Another benefit of the NBT is its **adaptability**: participants mentioned that NBT is a flexible approach that can easily adapt to various environmental conditions and different help needs. Regarding the utilisation of NBT, it was noted that the setting of doing things in nature is often seen as more appealing, fun and motivating for beneficiaries. Several interviewees additionally argued that NBT can be seen as more **cost-effective** in comparison to other therapies. *"The treatment would be less risky, more cost-effective, so there is no need for any medication and other things like that, I would see that as a big advantage*" (Governance 2). It is however important to note that some of the interviewees were talking about more general engagement with nature, instead of NBT specifically.

The other positive aspects related to NBT that surfaced in the interviews were, for instance, increased awareness of nature **preservation** amongst the general public, being a possible **alternative** to existing pharmaceutical treatments, and being seen as potentially **less risky** to be implemented: *"So in contrast to medication or other invasive interventions, I can imagine that in the worst case nothing will happen" (Scientific community 2)*

Perceived concerns

Several concerns had been expressed as well, including acceptability and accessibility of NBT. Regarding **acceptability**, some participants mentioned that there may be prejudice among potential NBT users, viewing interventions conducted in nature as not (sufficiently) scientifically established. Consequently, several interviewees raised the importance of more scientific **evidence** on the effectiveness of NBT. On the other hand, it was also mentioned that there is a potential for overestimating the usefulness of NBT, with people with certain conditions benefitting more from different interventions. *"NBT would need to be examined disorder-specifically in a therapeutic context. It would be inappropriate if, for example, a person with severe depression was told to go into the forest" (Media 1).*

Accessibility was spoken about in three different settings. First, several interviewees talked about **physical accessibility** of NBT for people with disabilities or mobility concerns. Some also spoke

about the fact that nature settings can be hard for some people due to overheating, rains, allergies, and insect bites. *"Doing it all year round is not so easy. You're then exposed to the weather…If the patients have legs full of mosquitoes, they can't relax and can't respond to what you've come up with" (Medical and healthcare 2).* Linked to that was the topic of **geographic accessibility** of nature places. Due to increasing urbanisation rates, not all people have easy access to green spaces. Moreover, utilisation of these spaces for therapies may lead to overcrowding, although currently there are no signs of this happening yet. The last aspect of accessibility mentioned was **regulatory accessibility**. NBT is not currently reimbursed by insurance, which on one hand limits individuals' opportunities to receive NBT, but also leads to situations where anyone is able to offer NBT. This can lead to blurring boundaries and potentially dangerous situations where untrained individuals offer NBT practices without guidance.

Lastly, several interviewees mentioned that there is potential **danger for nature** as it can further strengthen the utilitarian relationships between society and nature. Overutilisation of nature spaces for human activity can lead to damage to the ecosystem. *"It is a pity if the connection between humans and nature is reduced to a material, exclusively scientific level" (Medical and healthcare 5).*

4.3 Potential (systemic) factors influencing NBT integration

The most discussed factors influencing NBT integration among German interviewees were the topics of acceptance and financial resources. Regarding **acceptability**, several participants noted that there is both stigma for utilisation of mental health services and prejudice against NBT in particular. Two participants noted that there seems to be some kind of mystification of nature leading to people linking NBT with a more esoteric type of work. This prejudice was reported to be stemming from a lack of knowledge among various stakeholders about the promises and potential benefits of NBT and the relative absence of scientific evidence of its effectiveness. Several medical and healthcare stakeholders also said that acceptance is linked to the duration of the NBT in comparison to more traditional therapies: both in terms of the length of a single session (i.e. one hike can last several hours, while traditional therapy sessions usually take up 30-45 minutes) and the duration of the whole trajectory. Two commonly reported actions to facilitate acceptability were: i) generating more evidence of NBT effectiveness (both scientific, but also considering people's stories/experiences) and ii) spreading knowledge about NBT through different channels including social media, other media platform, flyers in doctors' offices, etc. Notably, linked to acceptance**, awareness** was mentioned by some participants. According to them, many people in Germany do not even know about NBT or what it can offer.

Financial resources were seen as being one of the major influencing factors to NBT promotion. Currently NBT is not reimbursed in Germany, which leads to economic discrimination, where the

wealthy have access to NBT because they can pay out of pocket. For NBT to be able to get reimbursed, a joint action was required on the one hand by politicians who can lobby NBT interest, and on the other hand insurance companies who can start reimbursing NBT once its effectiveness and cost-effectiveness is established. *"And if the effectiveness is proven, then the health insurance companies will also be more open to it. And then we can also make it accessible to the masses" (Medical and healthcare 2).* This shows that both acceptability and financial resources could be addressed by increasing the availability of **research evidence.**

Financial resource factors are directly linked to the theme of **regulations**, which was mentioned by several interviewees. As indicated above, NBT is currently not regulated, which offers both possibilities and threats. Furthermore, some participants stated that the regulatory process is being influenced by the complexity of the field, as there are many stakeholders involved in NBT from healthcare, policy and environmental angles. It was especially emphasised that, at the moment, communication among these stakeholders is sub-optimal in most cases. *"That there are many different players. So if I want to go into the forest with people, then I have to liaise with the state forestry department, then I have to liaise with the forester who looks after the forest area, then I have to liaise with the forest owner and sign contracts everywhere" (Medical and healthcare 1).* Attention to the regulation of the field can also help overcome the **human resource** related difficulties NBT is currently experiencing. As it is not a recognised therapy, practitioners cannot be acknowledged and their training cannot be legitimatised.

Communication and dissemination were described as factors offering many possibilities for the further integration of NBT into German practice. Linked to the previously mentioned factors, the goal of communication should be both raising awareness and combating prejudice. It was mentioned that it is important to adjust communication styles and channels to various stakeholder groups to link better with their needs.

Factors related to **geography** foster both possibilities and barriers. Several participants noted that despite the seeming availability of the green zones in some areas in Germany, other areas are too urbanised. Additionally, unpredictability of the German weather makes it hard to use nature locations in some seasons: *"So a certain dependence on the weather is a real disadvantage…logistically, there are still some difficulties, so it takes more time from the outset" (Medical and healthcare 5).* Among other potential geographical challenges that were mentioned by the interviewees were: transportation from a healthcare practice/institution into nature, accessibility for people with limitation(s), and potential harm by human presence in protected nature areas.

4.4 Strategies for NBT integration and stakeholder engagement

To involve stakeholders, the first step that was mentioned by the interviewees was to increase awareness and knowledge about NBT. Several types of stakeholders were mentioned by the participants with regard to education and information, and the goal of engagement with each of them can be different. The largest groups mentioned were:

- Healthcare professionals and professional associations that need to be convinced about the benefits of NBT, either to recommend it to their patients or to start using it in their practice;
- Insurance companies that need to be provided with information about NBT effectiveness, and cost-effectiveness[3];
- Government officials on a national level require information about the benefits of NBT for various population groups to be stimulated to introduce it in the policy field;
- Authorities on local level that need to become familiar with the benefits of NBT for primary prevention to integrate it in local projects and events;
- Environmental and forestry authorities require knowledge about NBT and its potential integration to be able to provide input regarding safe integration of NBT to not damage the environment;
- General public and patient groups need to be informed about NBT to combat possible stigma and prejudice.
- Additionally, it was mentioned that various stakeholders on the policy and governance level need to be stimulated to increase the amount of green spaces in the cities. Currently, accessibility of nature in urban settings is forming a potential barrier to NBT.

Among other stakeholders mentioned in this category were: sports clubs, tourism industry, pension funds, and media. One participant suggested to think outside the box: *"More unconventional organisations in particular would also have a relatively large influence, for example something like a museum [...] that a lot would be possible, especially on the cultural side" (Scientific community 1).* Regarding the research-related stakeholders, interviewees had several ideas about the **studies** that

[3] Specifically, AOK was mentioned: The AOK (Allgemeine Ortskrankenkasse) is one of the largest statutory health insurance companies in Germany. There are currently eleven legally independent regional health insurance companies in Germany under the name (AOK). A total of around 27 million, or just over a third of the German population, are insured with all AOKs. The AOKs are represented by the AOK Federal Association (the interviewees employer) as a working group within the meaning of the German Social Code (SGB X) in the form of a partnership under civil law.

need to take place, such as cost-effectiveness studies, studies on the effects of NBT for different patient groups, and large-scale general population studies.

One important thing that was underlined by several participants was the need for better **communication and collaboration** among various actors: *"Actors include all areas of the healthcare system. There must be an awareness that it is about "planetary health". A healthy planet with healthy nature is important and in order to convey this message we need many people in the health sector who live and understand this message" (Civil society 1).*

Chapter 5

Results: Greece

5 Results: Greece

Key findings:

- Although interviewees generally believed that nature contributes to both physical and mental health, the medical-centred health system in Greece does not leave much room for interventions like NBT, as the medical sector strongly values evidence-based data and patients typically anticipate pharmaceutical treatments.
- Many factors will likely influence the integration of NBT, varying from cultural aspects, awareness, acceptability, and prevailing mindset towards NBT, to barriers in accessing green spaces, a perceived lack in scientific evidence and challenges regarding financing, protocols and human resources.
- Securing the involvement of the healthcare sector (both considering the public and private system) is seen as crucial yet challenging for the potential integration of NBT.
- Different proposed routes for NBT integration surfaced from the interviews, concerning different operational levels, approaches, and the engagement of unique sets of stakeholders, yet often with an pivotal role for the educational sector regarding awareness raising campaigns.

9.1 Landscape developments

Greece is characterised by a **medical-centred health system** with a dominant role for the pharmaceutical industry and a limited focus on primary care. Many of the interviewees mentioned that in (or because of) this system, there is not much room for the inclusion of initiatives such as NBT. Currently, there does not seem to be political willingness into this direction because there are **no existing policies** related to the promotion of a healthier way of living or the role that nature could play in this regard. Besides, the country's main focus extends to economic growth. Some interviewees even stated that they expect open hostility from the sociopolitical environment towards these types of nature-interventions, because they consider them as 'alternative' treatments – which are often associated with a negative connotation – rather than that they are being recognised as **evidence-based practices**, which are highly valued in the medical-centred system: *"Unfortunately therapies or activities related to nature are currently considered as a neo-hippy tendency and more primitive and not concerning the modern human" (People with experience in the field of NBT 1).*

Considering the challenge that comes with receiving **funding** for any activity in the natural environment, together with issues of (health workforce) time constraints, bureaucracy, and the discussion about responsibilities between the **private and public healthcare sector**, any nature-activity is usually self-funded by clients. However, a few interviewees pointed out that currently the public is mostly concerned about **inflation and other financial** issues, and not about initiatives like this. Whether the beforementioned trends are a cause and/or consequence of a **weakened**

relationship between humans and nature is difficult to say, but that this weakening has been occurring was mentioned several times, for example by *Medical and healthcare 2: "Most of Greeks have been alienated from the natural environment, especially in big cities."* Sometimes such claims were linked with the increased use of **technology**, that has the tendency to replace the perceived need to go out in nature. On the other hand, since the **Covid-19 pandemic**, there seems to be a slight shift regarding a growing appreciation for being outdoors (again).

Another pertinent trend involves challenges in accessing green spaces, which was attributed to various factors: In the context of urbanised areas, the **non-proximity of green spaces** came up several times. Often there is no standardised public transportation to green areas, which is even more likely to disadvantage patients/people with mobility limitations. Another factor that was spoken about repeatedly concerned the **safety of green spaces**: some participants spoke about a perceived **fear** among the population for nature/parks/forests, because of the potential presence of *"bad people" (Scientific community 4)* and criminal activity. Additionally, concerns about safety were mentioned a few times in the context of weather conditions such as **extreme heat**. Lastly, concerns about '**cleanness**' of natural environments were mentioned: *"One of the main issues is the access to safe and suitable green areas: How the patients will go there? Is this place safe? And protected from weather conditions? Who will pay to improve these areas, the private or the public sector?" (Governance 4).*

5.1 Prior knowledge, perceived needs, benefits, and concerns

Prior knowledge

None of the participants had **heard about the term** 'Nature Based Therapies' before. Yet, some were already aware of the existence of activities in the natural environment that can affect health and well-being of individuals, and some linked this to the term 'ecotherapy'. A few interviewees mentioned specifically that they found the term 'NBT' confusing, as it made them think of natural therapies or herbal medication for example: *"I thought that NBT is about medications with natural ingredients" (Media 1).*

Perceived need

Opinions varied with regard to the need for NBT in Greece. A couple of times the need for NBT was mentioned for the purpose of **prevention**: mostly with regard to primary prevention, but sometimes also specifically for secondary and tertiary prevention of diseases, or to perhaps serve as support in a rehabilitation or intensive-treatment process: *"In a country like Greece where we struggle a lot with primary health care, NBT can contribute to all types of prevention (primary, secondary and tertiary) of many mental and physical diseases" (Scientific community 2).* Sometimes the need for NBT came up in the context of the necessity to address mental health issues. One researcher, for example,

specifically could envision NBT as a possible *"social prescription for mental health" (Scientific community 1)*. However, often in the same sentence a reference was made to the issue that if there is no **evidence-based data** about the positive impact of NBT on the health outcomes (both considering mental and physical health), **the exact need cannot be determined**.

The same tendency echoed with regard to the possible target populations for NBT. Some participants indicated that the whole population in Greece could benefit, while others specifically mentioned it would be good to start with children and their parents due to their potential receptiveness to nature activities. Sometimes the necessity for NBT came up in relation to specific disorders or medical treatments, to perhaps alleviate symptoms experienced by patients or to enhance their mental health. However, again many raised the need for more knowledge and evidence about NBT to actually say something about the appropriate **target populations.**

Perceived benefits

Practically all interviewees mentioned their awareness of the **positive impact of nature on health.** Perceived benefits of NBT were mostly described in the context of **physical and mental health**. In a few cases the positive impact was explained by nature being the cause for getting people away from screens and becoming active. Others mentioned how nature interactions can alleviate stress by decreasing cortisol levels in our bodies. Sometimes the possible specific benefits for receiving another treatment surfaced: *"Some doctors seem to forget that the causes of many diseases are multifactorial and involving nature in these diseases can contribute to a positive outcome of the disease and to better receive challenging treatments such as chemotherapy" (Civil society 3).* In comparison with pharmaceutical treatments, some **healthcare benefits** of nature were raised as well, for example the avoidance or limitation of medication side-effects, (additional) medical costs coming from secondary and tertiary care, and severe disease consequences. The last two benefits were mainly anticipated to be applicable in case nature could be used as a preventative measure.

In some cases, the perceived benefits were also linked with nature's **relational function** or **social well-being**, as interacting with nature invites for socialising or team building activities, and to have an open mind, because being outdoors requires you to combine thinking and acting. In return, a few interviewees mentioned that such experiences can also encourage the appreciation for the natural environment, perhaps contributing to its conservation. *"We need to consider nature as a canvas on which each person can project its personality […] the deeper we are related to the nature, the better we understand it and we respect it" (People with experience in the field of NBT 1).*

Perceived concerns

Although the healing power of nature was widely acknowledged among the interviewees, the main concern mentioned had to do with the anticipated difficulty of **standardising** activities in nature,

making its implementation in a medical-centred health system like Greece complex. The sole additional concern raised, emphasised the importance of addressing **disparities** to ensure that individuals or patients from various socioeconomic and educational backgrounds can equally benefit from NBT.

5.2 Potential (systemic) factors influencing NBT integration

According to the Greek interviewees, various influencing factors could be identified regarding potential uptake and integration of NBT. Below, first the most commonly mentioned factors will be outlined, before delving into those closely associated.

In alignment with the landscape developments discussed in section 4.1, Greek **cultural norms** concerning health practices were broadly indicated to be an important barrier for NBT integration. The prevailing medical-centred health system is characterised by doctors with a **conservative and curative** approach, and who are accustomed to their central role and esteemed status within society and the healthcare hierarchy. Therefore, Scientific community 1 for example specifically commented that *"doctors will feel threatened by therapies like these".* Correspondingly, various interviewees mentioned that patients typically anticipate **pharmaceutical interventions** during medical consultations and exhibit reluctance towards alternative treatments. Following this line of argumentation, it was suggested hat a **shift in mindset** among both healthcare professionals and the general population is required to foster the **acceptance** of NBT. Sometimes it was explicitly stated that this shift should start within the medical community: *"If the medical doctors will not be convinced or receive a type of incentive, these therapies cannot be disseminated or implemented. On the contrary, they will fight against them" (Governance 3).* Targeting **new generations** of medical practitioners – as they might be more open to it – or framing NBT as **supplementary** to traditional treatments instead of replacements, both surfaced a few times as possible facilitating strategies for generating greater acceptance and engagement from medical professional associations.

The current absence of a shift in the medical-centred health system-culture was often linked with a pervasive lack of **awareness** regarding NBT and their potential benefits, both within the healthcare sector and among the broader population. Generally, interviewees believed that increased awareness could foster the greater acceptance of NBT. Various strategies were proposed to address this challenge: In addition to the aforementioned emphasis on educating **young/future medical professionals** about NBT to integrate them into their prospective treatment choices, the pivotal role that universities could and should play in promoting NBT acceptance was voiced as well. Specifically, integrating information on NBT into **university curricula** emerged as a promising approach endorsed by several interviewees.

When the broader topic of **education** came up to facilitate NBT integration, participants often emphasised the necessity of commencing interventions from **early childhood** (in schools) onwards. Rather than focusing solely on NBT-specific education, they emphasised to focus on loving, protecting and living in and with the natural environment. This approach would address the growing disconnect from nature and provide for an **experiential way of learning**. Some interviewees from environmental associations mentioned that from their experience with providing nature related workshops/activities, they found that *"children and parents are more receptive to activities in the nature" (Environmental 1)* and that *"we can focus on how children can drag their parents in activities in the nature that can be done at the same time, in parallel" (Environmental 3).* However, an interviewee from the scientific community specifically advocated to start with targeting parents, enabling them to serve as role models by exhibiting (adapted) behaviours for their children. Several possible NBT awareness raising **campaigns** were discussed, varying from the organisation of a global NBT day, to social media campaigns. To ensure the success of educational campaigns, some participants emphasized the importance of 'excellent organisation', accustomed to different population groups, and preferably endorsed by the government.

Different participants indicated that NBT campaigns and interventions should start in the country's **rural and semi-urban (small) communities**, supported by the local municipalities and administrative authorities. They argued that at local level, organisation is easier, costs are lower, and it is easier to access green and blue spaces considering proximity: *"I think that only the local communities can support and implement initiatives in nature" (Medical and healthcare 1).* However, as noted in section 4.1, **urban green space accessibility** was a recognised issue for several reasons. Still, an interviewee from the business sector stressed the need to pilot NBT initiatives in major cities, because this is where key decision-makers reside. A few interviewees highlighted the possibility of **mapping** green and blue spaces as an initial step to tackle accessibility and transportation challenges in urban areas, which in this context were recognised as important barriers for NBT integration.

Another widely supported barrier for NBT integration concerned the perceived lack of **scientific evidence** and (standardised) protocols. *"We as association, but also as a doctor, need to see how good these "packages" [referring to NBT] are and how much evidence-based data they include to approve them and promote them" (Civil society 2).* Since NBT currently do not align with existing insurance models and would require **self-funding** from its clients, some suggested that healthcare sector-validated NBT protocols could also facilitate possible **insurance coverage** by indicating its long-term financial return. However, scepticism prevailed among several interviewees regarding the feasibility of this approach, because of the short-term focus in the Greek healthcare strategy. As another possible incentive for reimbursement, some participants mentioned the option of integrating

NBT in **primary healthcare**, because primary healthcare initiatives have the potential to mitigate the financial strain of costly treatments and hospitalisations. Moreover, Human Resouces (HR) department-managers of large companies might also show interest, given their focus on promoting employee health and well-being, alongside their responsibility for **group health insurance contracts** in the private sector, which could potentially cover NBT. However, several participants emphasised the pivotal role of the **Ministry of Health** in leading such NBT implementation efforts, while cautioning against assuming this would occur.

Besides the Ministry of Health, many interviewees indicated that the individuals and institutions representing the healthcare sector serve as key to possible NBT success. However, considering the medical-centred health system, doctors are not expected to be very supportive. In addition, healthcare professionals already experience a **substantial workload**, meaning that "*There must be funding for the hospitals staff to apply NBT especially if these are additional to their daily duties." (Governance 2).* Others argued it would be more helpful when healthcare personnel would embrace and believe in the potential of NBT, particularly in their capacity to alleviate workload pressures through avenues such as **health promotion** and enhanced **patient recovery procedures**. The suitability of NBT in physical medicine and rehabilitation programs, particularly within the context of **ambulatory care facilities**, emerged as a recurrent theme. Finally, with regards to prevention and health promotion, implementation via GPs, community nurses, physiotherapists, and social workers were highlighted as promising strategies.

5.3 Strategies for NBT integration and stakeholder engagement

According to most interviewees, securing involvement of the **healthcare sector** is deemed crucial yet challenging for the potential integration of NBT in Greece, given their substantial influence. Participants not only referred to potential roles for doctors, but also to those of hospitals**, ambulatory facilities, professional health associations,** and **research centres**. Some participants specifically highlighted the opportunities for NBT in the **private sector**, due to greater flexibility in implementing new initiatives compared to the public sector. Others stressed the potential of incorporating NBT into **primary healthcare**, through collaboration between both the public and private health systems. However, a few acknowledged that the powerful **pharmaceutical companies** may pose a serious obstacle to NBT integration efforts.

At the national policy level – in addition to the **Ministry of Health** – the **Ministry of Social Cohesion and the Family** and the **Ministry of Education, Religious Affairs and Sports** were identified as key players for facilitating the integration and awareness-raising efforts regarding NBT. This is substantiated by multiple interviewees who suggested that nationally endorsed protocols are the most effective means of implementing interventions, which in the case of NBT would likely also ease

the funding or insurance coverage processes. Considering **communication and dissemination** strategies, the **educational sector** in general surfaced frequently as a relevant stakeholder group to facilitate awareness and acceptance of NBT. The education sector was described by participants as having the capacity to incorporate NBT knowledge and activities into school curricula spanning from kindergarten to university (including medical-schools). Furthermore, it was stated that the sector could have a role in initiating broader **campaigns** throughout the country. Considering the content of these educational campaigns, certain interviewees notably emphasized the strategy of emphasizing the benefits of nature and promoting a healthy, sustainable lifestyle with a broader environmental focus, rather than solely concentrating on NBTs. Additionally, via different pathways, **workplaces** were seen by several participants as having an educational and promotional role among adult workforce: *"Beyond just building a gym at the worksite, figure out a way to allow their employees to bond with the nature" (Scientific community 4).*

Some interviewees suggested that adopting a **bottom-up approach** for NBT awareness raising and integration – commencing at the local level, particularly in (semi-)rural areas – may enhance the likelihood of success, because in this way you can leverage the already existing (and near) green spaces, activities, and community structures. A few interviewees spoke specifically about the need for **multi-stakeholder approaches** or interdisciplinary teams, both in the context of gathering additional or new NBT evidence, as well as for its implementation in Greek society. Such multi-stakeholder approaches are more readily organised at the local level. Here, apart from the **Greek Health Directorates** and **public health authorities**, **local administrations** such as municipalities, potentially in collaboration with relevant (environmental) **NGOs** and **civil society organisations**, were deemed significant stakeholders. Lastly, some interviewees underscored the importance of **patients** themselves and **patient organisations**, emphasising not only their receptiveness to NBT, but also their willingness and ability to devote time to such initiatives.

In relation to the potential receptiveness of and demand for NBT (considering both patients/clients and healthcare professionals), a small subset of participants underscored a potential strategy of introducing NBT as **supplementary treatment** within the healthcare system, rather than as a replacement, to address existing gaps. For instance, a participant from the civil society category noted that psychological support alongside a patient's medical treatment is currently not included in any protocols, suggesting that NBT could possibly fill this gap. Another proposed option was to offer NBT as an initial step or trial in the treatment process for conditions such as high blood pressure: *"For a person who has 12.8 to 13 mm Hg blood pressure you cannot give them pills; first say to them do the walking in the nature for 10 weeks as a prerequisite and if this does not work then you can prescribe medication" (Medical and healthcare 3).*

Chapter 6

Results: the Netherlands

6 Results: the Netherlands

Key findings:

- Participants identified a weakening in the human relationship with nature which has influenced more people to live more sustainably and possibly be open to NBT.
- Multiple benefits of NBT were highlighted, with the greatest being the positive effects that nature can have on mental health and well-being.
- The most significant influencing factors identified were financial barriers, particularly the current lack of insurance coverage for NBT.
- Research evidence, human resources, and cultural factors were also commonly cited factors influencing the integration of NBT.
- Despite major barriers, multiple pathways for NBT integration were identified, such as through current initiatives readily working at the interface of nature and health. Also bottom-up and stepped-care approaches were recommended, and references to specific target populations were made.

6.1 Landscape developments

Multiple landscape trends and developments that could impact the integration of NBT in the Netherlands were identified by interview participants. **Sustainability** and sustainable lifestyles were the most commonly mentioned topics, raised by around two-thirds of the participants. There was agreement on a close relationship between nature and health. Many observed an increasing interest among civil societies and patient movements in natural remedies – for instance to not include hormones – and in lifestyles to prevent disease. Multiple participants believed that a healthy environment is a 'pre-requisite' for healthy living. For example, a GP stated, *"our lifestyle is not sustainable, and our lifestyle is also not healthy. If you want to make our health system more sustainable, to reduce the impact of healthcare, then you need to ensure there are fewer lifestyle diseases; then you are working more sustainably but also have healthier people" (Medical and healthcare 3).*

The **Covid-19 pandemic** was seen as a 'wake-up call' by many interviewees and increased awareness among the general population about the benefits of going for walks, being in nature, exercising, or living healthier lifestyles (for instance by eating less meat or using more environmentally friendly products). Although Covid-19 showed the importance of clean air and engaging with urban sports like parkour and dancing, it did not come without consequences. During the lockdowns, parks and forest areas experienced more damage due to the increase in visitors, thus creating additional work for land managers and staff.

In line with sustainability, the Netherlands is progressively becoming more nature-inclusive among property developers and designers, in hospitals and primary care practices, and in some schools. One hospital that has a sustainability team is currently undergoing multiple changes to make the hospital 'greener' inside and out, with the mission to create an environment that could aid speedy recovery of patients. These trends to 'bring nature close by' are increasingly becoming the norm, making it easier for people to access nature and experience its multiple benefits, *"because greenness is not only good for health. It's also good for climate adaptation, for biodiversity, for property values. So, it [nature] has multiple benefits"* (*People with experience in the field of NBT* 6).

Several interviewees explained that the attention to climate change and biodiversity loss – which goes hand in hand with the increasing application of nature-based solutions – has created a greater awareness about the importance of nature. A nature/garden therapist believes, "*climate awareness is a positive development for our profession because people can stand still with nature and our dependence [on nature] and that we need to take better care of nature"* (*People with experience in the field of NBT 2)*. Among medical personnel the attention for sustainability is also growing. However, a participant explained that nature as a source for health and well-being (e.g. through NBT) is still underutilised compared to other nature-based solutions that are more focused on environmental health outcomes. In addition, there is limited space and access to nature can be restricted. The loss of biodiversity concerns some participants because it limits possibilities for people to experience certain species of plants or animals which contributes to the lack of awareness about nature, thus decreasing people's openness to nature as form of therapy. Even though some people specifically seek nature due to the loss of biodiversity, one participant pointed out that this is often limited to the 'green urban elite', who generally have a higher income and socio-cultural awareness.

Some other trends that participants described were the **weakening of the relationship between humans and nature** as well as some political developments. *"As society we have moved far away from a lifestyle that's healthy for us. We [as society] spend insufficient time outside, get insufficient exercise, have limited eye for things around us" (Media 1)*. Due to this weakened relationship, some participants have observed an increasing number of people and programmes working at the interface of health and nature in the Netherlands. However, recent political developments were raised as a potential obstacle to NBT integration. These developments have increased polarisation in Dutch society with regards to biodiversity loss and climate change, giving 'nature' a negative connotation. Additionally, climate friendly policies are often *"difficult to sell" (People with experience in the field of NBT 6)* to politicians, which has caused this issue to be avoided in politics, so there is less urgency.

6.2 Prior knowledge, perceived needs, benefits, and concerns

Prior knowledge

Although every participant acknowledged the positive benefits that nature can have on health, only four of them had heard of the English term 'Nature-Based Therapy.' Several interviewees associated NBT with nature-based solutions or nature-based interventions. Most participants did mention some prior knowledge about activities that are closely related to NBT like walking groups established by GPs, running therapy, forest bathing, or the use of nature coaches. Similarly, many participants showed familiarity with initiatives like 'Groene GGZ' [green mental healthcare] that are implementing more nature-inclusive mental health interventions. Several interviewees also shared their knowledge about other countries, such as health providers being able to prescribe nature, walking, or health insurers covering activities like forest bathing.

Perceived need

Participants generally agreed that NBT is needed for health prevention and promotion. Many felt such a preventative strategy could **reduce the need for more expensive curative care**, thus leading to a **reduction in healthcare costs**. As explained by some interviewees, due to a collective focus on economic growth the Dutch labour force has become overburdened, resulting in many employees experiencing symptoms of stress and burnout. Multiple participants described prescriptions by GPs such as 'welzijn op recept' [well-being by prescription] and 'natuur op recept' [nature by prescription] which aim to address this rising incidence of stress and burnout. However, one GP explained that while they more often advise patients to use nature coaches, patients will need to find and contact such support on their own and pay out of pocket.

The majority of participants named several target populations that could benefit the most from NBT. A commonly cited **target group** was people on the mental healthcare [GGZ] waiting list, *"On the one hand we have a waiting list of 84,000 people and we have a country full of coaches. And there are of course strange coaches, but there are also many very good coaches. It is a pity if that opportunity is not being used"* (*People with experience in the field of NBT* 3). Another regularly raised group in need for NBT were 'disadvantaged groups' such as people with a low socioeconomic status. Many participants expressed difficulty in including these groups due to a lack of physical access to nature, lack of time or interest, or a focus on other priorities.

While nature-based health providers typically perceived a need for NBT for many people in the country, other participants described some specific **target populations** such as children and families and young professionals. Some participants expressed a need to focus on educating children and families about the benefits of nature exposure. The rationale behind this is to increase their

knowledge and awareness about the importance of nature engagement from an early age, stimulating families to create healthy habits.

Perceived benefits

Most interviewees agreed that nature and green spaces have a **positive influence on health and well-being,** which immediately represented the most widely perceived benefit of NBT. Mental health was also highly emphasised in interview accounts as many participants felt that nature could reduce stress and anxiety and help people to better process emotions or difficult experiences. Several interviewees believed that nature exposure can create feelings of amazement and connectedness, which can lead to mental or spiritual exaltation. Physical benefits of NBT were also mentioned by many participants because accessing nature can encourage movement or exercise, and emotional well-being. Yet not everyone was convinced.

Another benefit is the cost-effectiveness of NBT for psychologists who are officially registered as part of the healthcare system, so that care is insured. Social and relational benefits were also mentioned because patients could build stronger bonds and develop trust with their psychologists or therapists. For example, *"based on the concept of positive psychology I really believe in the connection between nature and health. And then in the broadest sense of the term; utilising nature for relaxation, space, walking, exercise, distraction" (Business 1)*.

Perceived concerns

The most identified concerns include the **apprehension by GPs** to prescribe NBT due to fears that patients may feel that their health concerns are not taken seriously and the worry that NBT could 'medicalise' nature since 'therapy' is not something that every person needs. Another concern raised by some interviewees was related to potential privacy or stigma issues, because in case beneficiaries are outdoors following NBT, there is the option they might come across acquaintances. Additionally, several participants were concerned about the professionality of certain NBT providers as it is currently a largely unregulated branch. Lastly, participants who worked closely with environmental organisations explained there could be damage to nature areas if rules and regulations are not followed.

6.3 Potential (systemic) factors influencing NBT integration

The largest influencing factor for NBT integration in the Netherlands will likely be the **lack of sustainable funding**. Several participants mentioned that NBT is not currently covered by insurance packages and only 2% of healthcare funding is dedicated to health prevention and promotion. Although the lack of funding and insurance coverage is a major potential barrier for NBT integration,

some facilitating factors were also identified by interviewees. For example, in the Netherlands there is a growing number of GPs, physiotherapists, and assisting mental health practitioners [POH-GGZ] who go outside with their patients. This suggests a **change in practices** among primary healthcare providers from indoor to outdoor. One GP negotiated with health insurance companies for a change in funding structures of their health practice from 'payments per action or consultation' to 'fixed payment per year, per patient'. This change in funding structure made it easier to hold consultations outdoors and organise citizen focused projects. Additionally, this change resulted in fewer (but longer) GP consultations, fewer hospital referrals and represented the **shift from disease-focused to health-focused care**.

Research evidence was raised by most participants as influencing factor. However, there was disagreement on whether current evidence was sufficient. Participants with experience in the field of NBT believed there was a lot of evidence that points to many positive aspects of implementing NBT-like interventions. On the other hand, some participants from the health, media, and insurance sectors said that there was a lack of NBT 'evidence-based' research, particularly randomised controlled trials.

Participants identified **awareness** as a barrier due to there no longer being any education within the healthcare sector about nature or alternative treatments because it is seen as 'quackery'. Additionally, interviewees mentioned that many healthcare workers were often unaware of the current research that shows the positive effects of NBT-like interventions, which was also linked to sub-optimal communication regarding the topic. Due to the lack of awareness, participants had mixed views about the **demand** for NBT within the healthcare system. Participants who are more aware of NBT explained that there was a high demand. For example, *Medical and healthcare 1* explained, *"I notice a lot of people register for outdoor therapy. At the moment I have a registration stop, meaning I don't take new clients".* On the other hand, participants that had less experience with NBT, stated there was a lack of demand because there was a **lack of knowledge** among both the health sector and the general population, especially regarding disadvantaged groups who are not aware-, or do not know about where to go to for this kind of help..

Cultural factors influencing the integration of NBT were also commonly mentioned and are closely linked with knowledge and awareness. Some participants detailed specific cultural barriers such as a dominant curative approach to health and disease within the health sector or stress prevention lacking embedment in societal structures. One participant believed that increasing use of NBT will likely aid its cultural integration, *"I believe it [NBT] has added value. And once you do it more often, the more knowledge and experience is developed, and this again supports the evidence, making it a foundational part in our ways of thinking"* (*Business 1)*. Although activities related to lifestyle and

behaviour change require a high level of discipline and support, there is growing **acceptance** in some sectors. For example, mental health care organisations and institutions are increasingly including activities that are related to NBT and the primary care sector is referring more patients to walking groups, thus (representing a start of) normalising the use of nature for health and well-being.

When it comes to **human resources**, participants identified more barriers for NBT integration than facilitators. Under human resource barriers interviewees mentioned the crisis in healthcare staffing in the country, explaining this contributes to high workloads amongst healthcare personnel. Also, as NBT typically requires healthcare personnel to be outdoors with their clients, this generally demands a longer consultation time. While human resources were more often perceived as barriers, some participants also raised facilitators in this category like health care personnel finding greater job satisfaction when they get to engage with clients in nature, *"Because I enjoy my work more [since doing therapy outdoors], clients get a better version of myself. Making myself more focused, and thereby the therapy and its effectiveness" (Medical and healthcare 1)*.

Similarly to the influencing factor 'human resources', participants more regularly cited barriers than facilitators when talking about **regulations** that influence NBT integration. Regulations within and outside the healthcare system were seen as potential barriers for NBT integration. Within the healthcare system, participants explained that there are currently no existing guidelines for NBT providers. Outside of the healthcare system, interviewees outlined that some nature areas have strict regulations for group visitors (induced due to damage seen to nature during Covid-19 lockdowns).

Geography was also identified as a barrier by participants. Some explained that potential unsuitable weather conditions and limited access to green space provided some difficulty for implementing NBT. Additionally, several interviewees raised that some people may fear insect or tick bites and Lyme disease when going into nature. That said, according to interviews with people in the field of NBT like nature coaches and outdoor psychologists, it is relatively easily to overcome various practical and geographical barriers. For example such participants mentioned that outdoor coaching or therapy can be moved indoors in case of bad weather or when a client's mobility is restricted due to injury or disability. In such an instances, as outlined by a few people in the field of NBT, indoor plants can be used as a form of nature exposure. Alternatively, the client and therapist/coach can have the session whilst sitting outside on a bench or having a shorter walk.

6.4 Strategies for NBT integration and stakeholder engagement

Almost all participants noted the health sector as most important **stakeholder** for engagement. Other stakeholders mentioned to include conservation organisations, citizens and communities, the education sector, and national and local governments.

Proposed **integration strategies** focused on embedding NBT into **existing similar programmes,** for example by means of addressing the topic in required additional training for (healthcare) professionals. For example, the 'Groene GGZ' [green mental healthcare] movement, began from a nature-inclusive agenda that the Ministry of Agriculture reserved significant funds for. Currently, 18 GGZ facilities are focused on sustainability and the lifestyle coaching that is provided here is covered by insurance. Other existing initiatives identified for NBT integration were ZorgDomein [online platform for GPs to select treatments] and "arts en leefstijl" [doctor and lifestyle]. Next to integration into existing programmes, some interviewees highlighted a need for **bottom-up approaches**, involving neighbourhood teams and local municipalities: *"There is also funding specifically for this [well-being activities] for municipalities. They can themselves partially choose [which activities to fund]. Something like this you can also offer; nature-based therapy for your citizens" (Environmental 2)*. Additionally, some participants saw potential for a **stepped-care approach**, with patients on the waiting list for mental healthcare receiving NBT as a first step of care. Along the same lines, the Fit for Surgery programme (initiative from Radboud UMC) was mentioned by a few participants. As part of this programme, patients are encouraged to improve their lifestyles before undergoing surgery, to accelerate recovery.

Not many **communication strategies** were provided by interview participants, other than to ensure that messages are targeted to specific populations. For example, *"IVN [IVN nature education] works with 'fun' projects, like the name 'tiny forest' is a lot hipper than if you say 'we are going to plant a park'. 'Tiny forest' is a project that involves kids, and via kids people want to listen. People will not listen if you try to convince them directly, but they will listen to their children when they ask them to help with a project" (Civil society 2).*

Chapter 7

Results: Peru

7 Results: Peru

Key findings:

- Various perceived benefits of NBT were identified, including its ability to strengthen the human-nature relationship and to improve human health and well-being.
- Many factors were considered to potentially influence the integration of NBT, varying from physical accessibility challenges in urbanised areas to biomedical thinking and practices within the health system.
- Scientific evidence on the effectiveness and cost-effectiveness of NBT was considered as important for increasing wider acceptance, particularly among health professionals and authorities.
- Some preliminary routes and levels for NBT integration into existing systems in Peru were identfied, each with varying financing options and a unique set of stakeholders.
- Tailored communication and dissemination strategies will be required to increase knowledge, awareness, and broader support for the implementation of NBT in the country.

7.1 Landscape developments

Various wider developments were raised by participants, which may influence the uptake and integration of NBT in Peru. **Climate change** can be seen as a progressive landscape trend. Many participants spoke about its ability to both negatively (i.e. threat to ecosystems) and positively (i.e. increased awareness on need for biodiversity) affect the scaling up of NBT.

Two-thirds of participants spoke about the **human-nature relationship**, with most observing an overall weakening of this relationship as a development in Peruvian society. Several said that many people in Peru have lost this human nature connection with nature, although others noted *"some communities preserve powerful ties to nature" (Civil society 2)*, such as indigenous populations, or *"we Peruvians have that cultural heritage to turn to plants as a medicinal source" (Civil society 8)*.

Three key reasons were given for this overall weakening of the human-nature relationship in the country. The most common reason given was an **increase in rural-urban migration**, followed by **changes in societal values and lifestyles** (e.g. material and individualistic values taking over at the expense of health and nature), and the Covid-19 pandemic. Particularly, adults and children living in large cities like Lima (in which around 1 in 3 Peruvians reside) were observed as being largely disconnected from nature, with youth also being affected by an *"unhealthy" (Civil society 5)* use of technology.

The **Covid-19 pandemic** could be described as a sudden shock to the landscape and was raised by almost half of the participants as a potential influence for the integration of NBT. Many participants spoke about the negative economic and societal effects of the pandemic, including an increase in

isolation, emotional issues, and poverty. Elevated levels of stress due to the pandemic could, according to several participants, be seen as an opportunity to promote emotional support such as through NBT. Positively, several participants highlighted a strengthening of this human-nature connection during the pandemic, which was seen by people escaping to natural spaces. Conversely, others saw a weakening of this human-nature relationship as Covid-19 generated a fear of public spaces, and *"as a result, children have become detached from their social and natural environments" (Civil society 2).*

Finally, nearly half of participants spoke about various **political developments**, such as changes in environmental laws which was considered to influence the uptake of NBT. Some spoke about changes in environmental laws stimulating more responsible use of natural resources, while others highlighted laws having an opposite effect, leading to further deforestation. Another political development was a recent mental health reform, generating greater acceptance of therapeutic interventions. Several participants were critical about the influence of these political developments, with their impact on current practices yet to be seen.

7.2 Prior knowledge, perceived needs, benefits, and concerns

Perceived knowledge

Most participants had **some association with NBT**, giving examples of plant-based remedies, forest bathing, gardening or other healing practices involving nature. Some had heard of the term NBT before, while for others the concept was relatively new. Some first heard of the concept of nature-based therapy during the Covid-19 pandemic and now accept it as a valuable tool to reconnect with nature

Some interviewees shared knowing about people in Peru who are currently working on developing therapies that allow individuals to reconnect with nature through their senses. For example, using one's sense of hearing to experience a deeper, more abstract connection with nature than through visual perception alone. These therapies may include concepts and practices such as forest bathing, bioacoustics tours, and mindfulness techniques. Several participants also indicated being knowledgeable about available research, stating that research has shown that nature can reduce stress levels, particularly for children with anxiety or individuals with conditions such as Parkinson's disease and hypertension, resulting in a positive effect on their well-being.

Perceived need

Nearly all interviewees from Peru perceived a need for us humans to engage more with nature, *"I can't find anything more important for humanity at this point in time than this" (Civil society 1)*, with some explicitly mentioning a role for NBT.

Perceived benefits

A wide variety of perceived benefits of increasing engagement with nature could be observed in given accounts from Peru. **Health benefits** were most commonly mentioned, followed by **healthcare, socio-relational, spiritual, environmental, and cost benefits**. The majority of participants, given their limited knowledge on NBT, spoke in more general terms about the healing effects of nature, while several specifically talked about NBT. Some participants believe that NBT can help people become more aware of the resources provided by nature.

Emotional well-being was a frequently cited benefit of nature to human health, with one interviewee noting that *"observing the green-blue environment"* already *"has a calming effect"* (*Medical and healthcare 3)*. Along the same lines, other participants referred to the *"therapeutic"* effects of nature. Mental and physical health were also often raised health benefits, with several recognising the integral nature of health: *"Health is integral: physical, mental and emotional" (Governance 1)*.

While some participants spoke more generally about the potential benefits of NBT for the general population in Peru, others highlighted specific **target populations.** Older persons and children were most commonly stated, but also health professionals, youth, parents, patients, individuals with mental health issues, indigenous people, communities affected by natural disasters, and people living in cities like Lima.

A few interviewees raised the **comparative advantage** of NBT over pharmaceutical treatments. For example, NBT are perceived as more affordable, have less adverse side effects, and are more likely to treat root causes of distress. NBT was generally seen as a holistic and preventative approach, with an ability to improve lifestyles and collective wellbeing.

Perceived concerns

Very few concerns were raised about NBT in the Peru data. A couple of participants worried that it may become exclusively accessible to people from high socioeconomic levels. While several interviewees cautioned that not everyone needs 'therapy' and that NBT should not replace but rather complement existing treatment options, overall, there seemed to be a consensus that all humans need nature.

7.3 Potential (systemic) factors influencing NBT integration

Numerous factors influencing the potential uptake and integration of NBT in existing systems in Peru were identified. All factors described here were perceived by participants as having the ability to both hinder and enable the scaling up of NBT and most are interrelated.

Most participants spoke about geographical barriers to NBT uptake, such as insufficient green spaces and the rainy season. Participants anticipated **physical accessibility** to green spaces to be particularly challenging in urbanised areas, like Lima. Consequently, an expansion of green spaces, like the development of botanical gardens, was regarded as urgently needed in these areas. When doing so, it is important to consider existing **regulations** in the country. For example, participants mentioned laws related to nature conservation, biodiversity, medicinal plants, and permission requirements by public or private landowners when developing green spaces for NBT on their territory.

Biomedical dominance within society more broadly, and the health system in Peru, was considered another important barrier for the potential integration of NBT. However, according to several participants, this dominance is being challenged. For example, the Peruvian *"cultural heritage to turn plants as a medicinal source" (Civil society 8)* and recent mental health reforms, as highlighted under landscape developments, have opened up doors for other treatments. While pharmaceutical treatment remains dominant, psychotherapies, including group therapies are becoming more accepted, thereby likely facilitating the wider **acceptance** of NBT.

To further increase this acceptance, some participants believed there was a need for more **scientific evidence** on the effectiveness and cost-effectiveness of NBT. Once such evidence has been established, several participants mentioned this needs to be clearly communicated and disseminated to various stakeholders. Effective and targeted **communication and dissemination** would help overcome the current lack of **knowledge and awareness** in Peru about the human-nature connection, the potential benefits of NBT as people *"fear what they do not understand" (Media 1)*, or how to implement NBT. Evidence was considered an important part of the dissemination message, such as demonstrated by this comment: *"We are ready to ask the State to adopt new policies backed by the evidence [on NBT] to improve quality of life" (Medical and healthcare 2).*

New **policies** on NBT would enable the development of **guidelines** for health professionals to prescribe NBT. A few participants explained that such guidelines are currently non-existent. Concurrently to the development of new policies and guidelines, would be the establishment of **training centres for NBT therapists**. A limited number of psychotherapists in general and NBT therapists in particular was regarded by several participants as a barrier for the scaling up of NBT,

such as highlighted by the comment: *"We have a healthcare system that is, in general, very deficient, and access to mental health is very limited…you can't access a psychologist or a psychiatrist because there is a deficit" (Scientific community 2)*. In relation to **human resources**, a few also mentioned a need for people dedicated to the maintenance of green spaces and teachers skilled in training NBT therapists. Such expansion of human resources required for NBT has financial implications, therefore **financing** was a regularly cited barrier. A suggested way to make NBT more affordable is to have sessions in groups.

Several participants raised that many people in Peru are living in poverty and struggling to fulfil basic needs (e.g. water, electricity, food, education), thereby making the financial accessibility of NBT a pertinent concern. One interviewee spoke about the needs of climate refugees: *"[Their] needs now are basic needs, because they are essentially living in a place where there was nothing" (Civil society 3)*. This focus on basic needs, combined with unhelpful changes in societal values and lifestyles (as mentioned under 6.1 landscape developments) may limit people in the country from dedicating their **time and resources** to NBT. Along the same lines, government personnel were regarded as overworked and unstable due to high turnover, making it likely difficult to get their long-term support for the implementation of NBT.

7.4 Strategies for NBT integration and stakeholder engagement

Many **possible stakeholders** were brought up in the interviews, with the educational sector and governmental actors most commonly named. Governmental actors include those working at national, regional, and local levels. At the national level, three Ministries were considered important for the integration of NBT: i) Ministry of Health; ii) Ministry of Education; and iii) Ministry of Environment. Besides the educational sector and governmental actors, other potential stakeholders mentioned involved the health sector, conservation organisations, citizens and communities, research community, and tourism industry.

Stakeholders differed per **implementation level or route**. Ministry of Health was considered an important stakeholder if NBT should be implemented at a national level, and municipalities for implementation at local level. Health centres, hospitals, health professionals, and patients were listed as potential stakeholders for implementation of NBT within the health sector. Staff at schools and universities were found to be key stakeholders for raising knowledge and awareness about nature more broadly, and also for the implementation of NBT for children and youth in the education sector. Additionally, as access to nature is an important requisite for NBT implementation, organisations involved in the development, protection and maintenance of natural spaces were also regularly cited implementation partners.

Gaining support from powerful stakeholders, establishing alliances, and working in partnership towards shared goals were given **strategies for NBT integration**. A 'one-size-fits all' approach seems unlikely as *"in our country we are so diverse in terms of culture, language, and relationship with nature" (Civil society 2)*.

Similarly, **communication and dissemination** strategies likely require a tailored approach in Peru. While various participants spoke of the importance of highlighting the benefits of NBT, due to the wide variations in perceptions and priorities between stakeholder groups of what is considered a 'benefit' or 'valid evidence' in relation to NBT, this also means communication and dissemination strategies will need to be customised. For instance, several participants regarded local citizens, as likely advocates for NBT and important stakeholders in the dissemination of NBT within communities. Particularly individuals with first-hand NBT' experience were found important to collaborate with as well as community leaders, such as exemplified by this quote: *"If the leader has not understood the project, he will not help by opening the doors. In my projects, the first thing I have done is meet with community leaders" (Medical and healthcare 2)*.

Also, engaging universities and researchers working in similar fields or presenting at research conferences was found important for spreading research evidence on NBT, which again was considered vital to grow acceptance of NBT within the medical community. Other more general communication channels cited were the (social) media and social networks. Additionally, a few participants suggested paying attention to the term 'NBT' (i.e. terapias basaedes en la naturaleza) in communication messages; highlighting that there is no shared understanding of this relatively new concept, and where appropriate linking it to local cultures and practices.

Both public and private funds were considered **financing options** for NBT. While the majority of participants did not mention specific funding streams, a minority spoke about financing through the public health system or social security system, with governmental funding for public health, mental health, and conservation seen as opportunities. A couple of participants emphasised the need to ensure financial accessibility of NBT, including for people with limited means. Along the same lines, several participants favoured implementation of NBT in groups (as opposed to on a one-to-one basis) because this increases its affordability and therefore appeal to potential users and funders. A few spoke about adopting a business model, like offering NBT as a tourism service or, when NBT takes the form of horticultural therapy, selling its garden produce.

Chapter 8

Results: Portugal

8 Results: Portugal

Key findings:

- Interviewees indicated the Covid-19 pandemic as possible cause for increased awareness regarding mental health as public health concern in Portugal.
- Generally, a perceived need for NBT surfaced from the interview data, strongly connected with the potential health (system) benefits.
- Many factors will likely influence the integration of NBT. Financials aspects were often mentioned as a potential barrier to NBT implementation, which was often linked to a need for more research evidence on the beneficial effects of NBT. Human resources, regulations and certification of NBT practice, and geographical accessibility were also stated to be influential factors.
- There was a general sentiment that the way and type of engagement strongly depends on the needs of the stakeholder group in question.
- Healthcare professionals and representatives were seen as crucial stakeholders to involve in the NBT integration process, as they will be the ones prescribing and providing NBT in the future.

8.1 Landscape developments

Several societal trends were expressed with regards to potential uptake of NBT in Portugal. Some of these trends were positive, being potential facilitators of NBT uptake, such as: increased attention for mental health as public health concern; climate change anxiety and increased attention to nature conservation; and a general increase in public health education campaigns.

Several interviewees mentioned that especially since the **Covid-19** pandemic, governments around the world, but also within Portugal, are paying increasing attention to the prevention and promotion of mental health and well-being. In general, the Covid-19 pandemic was named on several occasions as a catalyst for change, such as influencing attitudes toward mental health and fostering an increased recognition of the significance of the connection between humans and nature. *"People after Covid-19 have increased attention to mental health, changed their perception of how important is nature to health and well-being. So, after this episode, they have developed the habit of going outdoors more often, which exposes people to nature and different open-air sports" (Business 1).* In addition, one of the participants noted that due to the changes in attitudes and beliefs about health and well-being, increasing attention is being paid to **health promotion and prevention**. This could be a suitable connection point to further implementation of NBT.

Urbanisation was another landscape trend raised in the Portugal data. Increasingly people are moving to urban areas, which are not always designed with nature preservation in mind. Urban areas are also often fragmented and separated from the nature surrounding them. This, in part, is also

connected to another identified trend, which is the **weakening human-nature connection**. However, there is a trend towards the landscape becoming more favourable to NBT: *"National framework is beginning to be able to promote nature exposure and environmental quality, at the municipal level. Legislation also favourable (i.e., inclusion of the right to a healthy and quality environment, in human rights)" (Scientific community 1).* More specifically, it was noted by some participants that there is a growing attention to the **conservation of nature**, which is linked to the increasing awareness about climate change and its potential effects on population health. Despite this growing national attention, this has yet to lead to visible changes in local practices, as outlined by several interviewees. One interviewee considers that the main obstacle is the **cultural** aspect, stressing that even though Portugal has quite an excellent mix of good quality natural spaces and favourable weather, some people do not enjoy natural spaces as much as they could.

8.2 Prior knowledge, perceived needs, benefits, and concerns

Prior knowledge

There was a **large discrepancy** between participants regarding their prior knowledge about NBT. While some interviewees were well familiar with the concept, others reported having no prior knowledge. Several interviewees reported limited knowledge and had certain misconceptions on what is and is not included in the NBT (for instance, including yoga in general).

Even though not all interviewees were closely familiar with the nature-based approach, all of them did have the perception that nature is inherently good for mental and physical health, and well-being. Among the examples given was the way that many people coped with the situation of the Covid-19 pandemic by trying to move closer to nature or having regular contact with nature. It was noted that sometimes people unconsciously try to seek more **connectedness** to nature in times of need and stress: for instance, people working in the busy corporate world are more inclined to obtain property outside the cities to be able to escape the stress of city life.

Within the interviews there was a visible pattern of talking about the link among three components: physical health, mental health and nature. Several participants highlighted that the effects of NBT cannot be seen in isolation from a more **holistic view** of an individual. NBT were perceived to have an effect on physical health not solely through stress reduction, but also through additional exercise component of, for example, walks in the forest. *Scientific community 1* also shared knowledge about the connection between nature proximity and immune system functioning: *"[...] communities living in close proximity to the natural world have a much more resilient immune system and global or biotic flora".*

Several participants mentioned that they were acquainted with research studies on the benefits of nature and green spaces on the general well-being of individuals. For example, a psychologist stated that they previously prescribed walks in nature to some of the patients dealing with stress and anxiety. Other interviewees provided examples of nature-linked interventions that are already in use within their organisations, such as forest immersion, forest bathing, yoga, and pilates lessons held in nature settings.

Perceived need

There was a general agreement among interviewees that more connectivity to nature is always **positive** for the mental and physical health of the individuals. It was noted that benefits of NBT can be utilised both for the prevention and treatment of mental and physical health conditions. Within the range of prevention and treatment for mental health conditions, several interviewees mentioned specifically the perceived need for the promotion of NBT regarding anxiety disorders, depression, burnout and stress-related problems.

During the interviews several specific examples were given of the **target groups** that could especially benefit from a more nature-based approach, such as: children in need of socialisation and better societal integration; older adults who are combating chronic conditions or suffering from loneliness; informal care-givers who are suffering from a high-stress load balancing caring for a loved one and working through the stress of accepting the struggles of the loved one.

The majority of participants saw NBT as **complementary** to other existing interventions. Additionally, it was noted that NBT can help in reducing the need for psychiatric medications. *"Nature-Based Therapies can serve as a viable alternative to medication or as a preventive measure against its necessity" (Environmental 3).* Regarding the specific needs for broader integration of NBT, several interviewees described a need to increase the availability of **green spaces**. Additionally, some expressed a wish to gain more insight into how NBT can be used in specific situations.

Perceived benefits

Participants discussed a wide range of potential benefits of NBT for individual patients. These benefits could be seen on several levels, such as prevention and treatment, physical and mental health, and individual and group benefits. *"Nature exposure promotes a mental component and the distancing from harming urban daily routines and exposure to car traffic, etc and the importance of having pockets of nature within our daily lives to allow that experience (i.e., gardens, urban parks, blocks with small green areas)" (Media 1).*

The main theme that surfaced is the role of nature in **reducing stress** and bringing people more in balance and in touch with themselves and the world around them. Stress was also mentioned as a

mediating factor linking the effects of NBT with effects on individual physical health. *"Yes, we know that there is a relationship between a whole range of diseases, particularly cardiovascular diseases. Essentially, if you visualise a pyramid, at the base you have stress, anxiety, then high blood pressure, diabetes, until at the end you have premature mortality. Therefore, working on a set of landscapes that reduce these elements of stress means that I am less likely to reach the top of the pyramid, which is to die earlier" (Environmental 2).*

Despite the fact that most interviewees focused on the **health benefit**s for individual patients, one participant mentioned that there is potential for NBT to have an impact on intergenerational connectivity: *"Activities such as NBT can have a very beneficial role on promoting intergenerational contact and even work as a stimulus to both the young and the older adults" (Environmental 1).* In addition, several interviewees stated by having positive effects on one's individual health, NBT holds the potential to benefit **health systems** in general. Lastly, NBT were seen by some participants as potentially having positive effects on combating mental health stigma within the society.

Perceived concerns

One of the major concerns that was shared among various interview participants was the potential adverse effects on nature resulting from an **increased influx** of people using nature for therapy, considering specifically the possible impact on native flora and fauna. One civil society interviewee gave an example of outdoor activities like trail runs or Zumba sessions that went viral, attracting an overwhelming number of clients. Additionally, according to some participants, the heightened human presence in a natural setting may counteract the intended benefits of NBT, making spaces less green, more spoilt, and more urbanised.

The other identified side of this concern was that being in a natural environment can potentially be **risky** for the clients participating in NBT activities, for example by consuming contaminated water, risks of insect bites, and potential exposure to bacteria. Another concern mentioned in the interviews was that the wide adoption of the NBT can lead to various **deviations** in how the intervention is utilised. Although this might not inherently be negative, it can lead to dilution of the main principles of the NBT.

8.3 Potential (systemic) factors influencing NBT integration

Participants mentioned several factors that could influence the potential implementation of NBT in Portugal. The most emphasised barrier to implementation was **financial aspects**. As often happens with new therapies, NBT is likely to face challenges due to reimbursement and financing difficulties by both government and private insurance companies. Not being able to reimburse the treatment creates a major barrier to the accessibility of these services for the general population. The solution

suggested for this was two-fold, with the requirement of more research into NBT effects, but also a need for a more bottom-up approach towards the politicians to create **political will**. *"Politicians must react, or usually do react, to the demands of their voters, if we live in a democracy. So, this means that there is a path that is being taken, educating in schools, educating parents, transferring knowledge between the school and the community, the community and the school, so people become more aware, more demanding, then the conditions are created for the financial component to appear" (Scientific community 1).* The financial barrier is closely linked to the factor of **research evidence.** Several participants insisted that the beneficial aspects of NBT need to be further proven by scientific research before they can be implemented on a larger scale. However, such research projects, as with the implementation of NBT, requires sufficient funding.

Some interviewees highlighted that the novelty of NBT could be a problem for their **acceptance** by the general population. Additionally, there is a risk that NBT will be seen as inferior due to potential association with alternative medicine or – on the contrary – too strict and connected to medicalisation. *"I think that by starting there as a suggestion and not necessarily as a medical recommendation, I think it can be more beneficial and can scare people less" (Environmental 1)*

Effective communication and dissemination and raising **awareness** could represent solutions to the acceptance' obstacle. The terminology used in communication messages was regarded as important. For example, the term "therapy" was considered as possibly risky as NBT was seen as currently having insufficient scientific evidence. Additionally, one interviewee cautioned from using too positive language: *"And then you also have to do it with moderation, because overvaluing can also jeopardise the credibility of this type of therapy" (Environmental 2).*

Despite the fact that the introduction of NBT was seen as having the potential to reduce waiting times for the patients seeking mental health services, the availability of **human resources** was also seen as one of the potential barriers for NBT. This was linked to two separate issues, firstly, the anticipated difficulties in organising NBT' trainings and in finding resources for these trainings, and secondly, some interviewees argued that NBT could face some resistance from the existing professionals, such as clinical psychologists due to perceived lack of evidence of its effectiveness.

According to some participants, **regulations and legislations** by themselves do not pose any barriers for the broader implementation of NBT. However, there is a risk of NBT being overshadowed by the medical/pharmaceutical industry **lobby**. *"It's not a problem at all, but when a new therapy appears, it poses a threat to those that are already on the market" (Scientific community 4).*

Lastly, **geographical accessibility** also surfaced as an influential factor. Some people could have difficulty accessing specific spaces to participate in NBT, due to the lack of natural spaces in urban

areas, but also mobility issues. Additionally, the (current) misuse of natural spaces along with the fear of biodiversity and climatic aspects could represent barriers to the use of NBT, if these factors are not being addressed.

8.4 Strategies for NBT integration and stakeholder engagement

Participants mentioned a broad range of possible stakeholders to involve in the integration of NBT into existing systems in Portugal. The largest, most often mentioned ones were representatives of the healthcare sector, policymakers on national and local levels, and NGOs working on national and local levels.

Healthcare providers and representatives were seen as crucial stakeholders to involve in the process, as they will be the ones prescribing and providing NBT in the future. For this reason, it was considered important to increase the acceptance of NBT among these stakeholders. Special attention should be paid to those working in **primary care**, especially GPs and psychologists. It was also suggested to include local health centres as they are the ones working on the municipal level, thus being in contact with local policy makers and having a broad reach regarding patient base.

Adjacent, it was seen as crucial to involve the **national policymaking bodies**, such as the Ministry of Health or the National Institute for Conservation of Nature and Forests. *"If the Forestry Institute contributes to reducing the number of patients hospitalised or admitted to nursing homes or suffering from other types of illness, it's a win-win situation. And that's the job of the public service. In addition to preserving nature and conservation" (Governance 3).* Apart from the national level, most interviewees mentioned the importance of **local governments** and in general the agents and stakeholders on the local level. Regarding the local governments, apart from having the ability for being instrumental in the promotion of NBT and integration of these approaches in local public health projects, it was noted that they can help with the planning of locations for NBT within the city because they are responsible for urban planning.

Many participants underlined that the engagement of **civil society** will be important for the promotion and integration of NBT. Various types of **NGOs** were identified, such as public health-related ones; NGOs operating in the sport and culture sector, and one's related to nature conservation, as for example national parks. *"[..] national parks, such as Gerês, in the sense that they are natural jewels that we have, that are there waiting for us, it was beneficial for everyone, first to raise awareness of the work that is done in the conservation of species" (Media 1).*

Some last potential stakeholders that surfaced during the interviews were **bio farms** – as a possible location for NBT – and **private companies** who are bringing nature and people closer together, such as tourism companies.

With regard to the possible **routes for stakeholder engagement**, there was a general sentiment that the way and type of engagement strongly depends on the needs of the stakeholder group in question. For some stakeholders for example, the possible motivation could be to provide additional services to vulnerable groups, while for others it could perhaps be an increase in attention paid to nature conservation. However, it was clear from the interviews that all interested stakeholders need to be united and collaborate on a long-term basis. Some specifically mentioned integration strategies included for example: working together with the health sector on capacity building; developing a variety of strategies for NBT implementation to make the practice more accessible and diverse; applying for public funding and involving private companies that can help execute trials in private hospitals.

Chapter 9

Results and discussion: Cross-country comparison

9 Results and discussion: Cross-country comparison

Key findings:

- Some clear variances appeared regarding the stakeholder perceptions and needs, both at country level as between stakeholder groups. However, health benefits were widely acknowledged among all.
- From the interview data, seven broad categories of stakeholders were identified, with health and educational sectors being mostly mentioned.
- Influencing factors could be grouped within ten broad categories, with financial resources, geography, and acceptance most often cited by study participants.
- There were several notable variations in the dominance of certain categories of influencing factors when comparing the five project countries and when comparing the eight participant categories. For example, while 'financial resources' was overall the most commonly cited influencing factor, this was not the case for all countries nor for all participant categories.

This chapter provides a comparative analysis of all KII data (n=100). Key differences and similarities between the five countries and eight interviewee groups are described and discussed concerning their perceived needs, benefits, concerns and views of potential of actors and factors influencing NBT uptate and integration.

9.1 General disclaimer regarding interview samples

When interpreting the findings from this study it is important take into account the disparity in interviewee group representation across the country samples. There was an unequal distribution of total interviewee group representation among the 100 conducted KIIs (see Figure 9.1). While proportions were taken into account in the comparative analysis, for groups with higher sample sizes (like "medical and healthcare" actors: n=18) statements can be made with higher confidence of it being representative for that group compared to groups with smaller sample sizes (such as "media"; n=7).

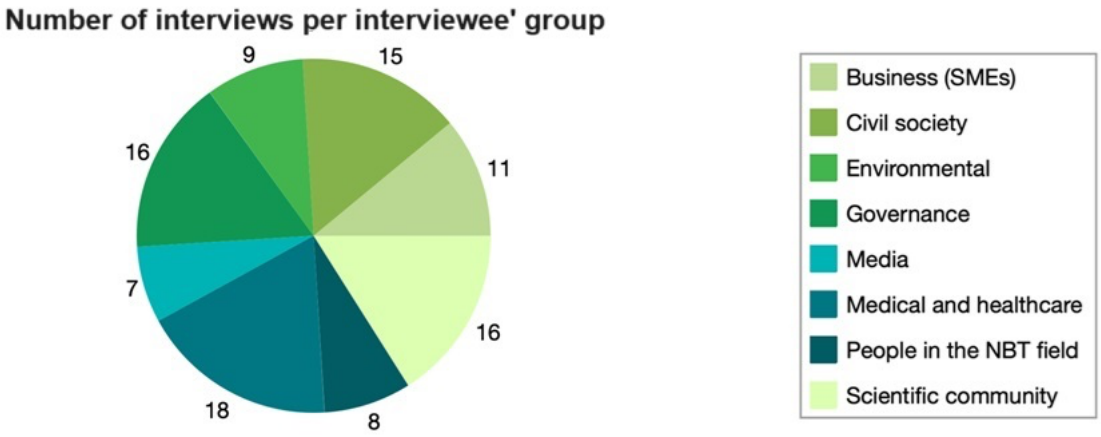

Figure 9.1: Number of interviews per interviewee group

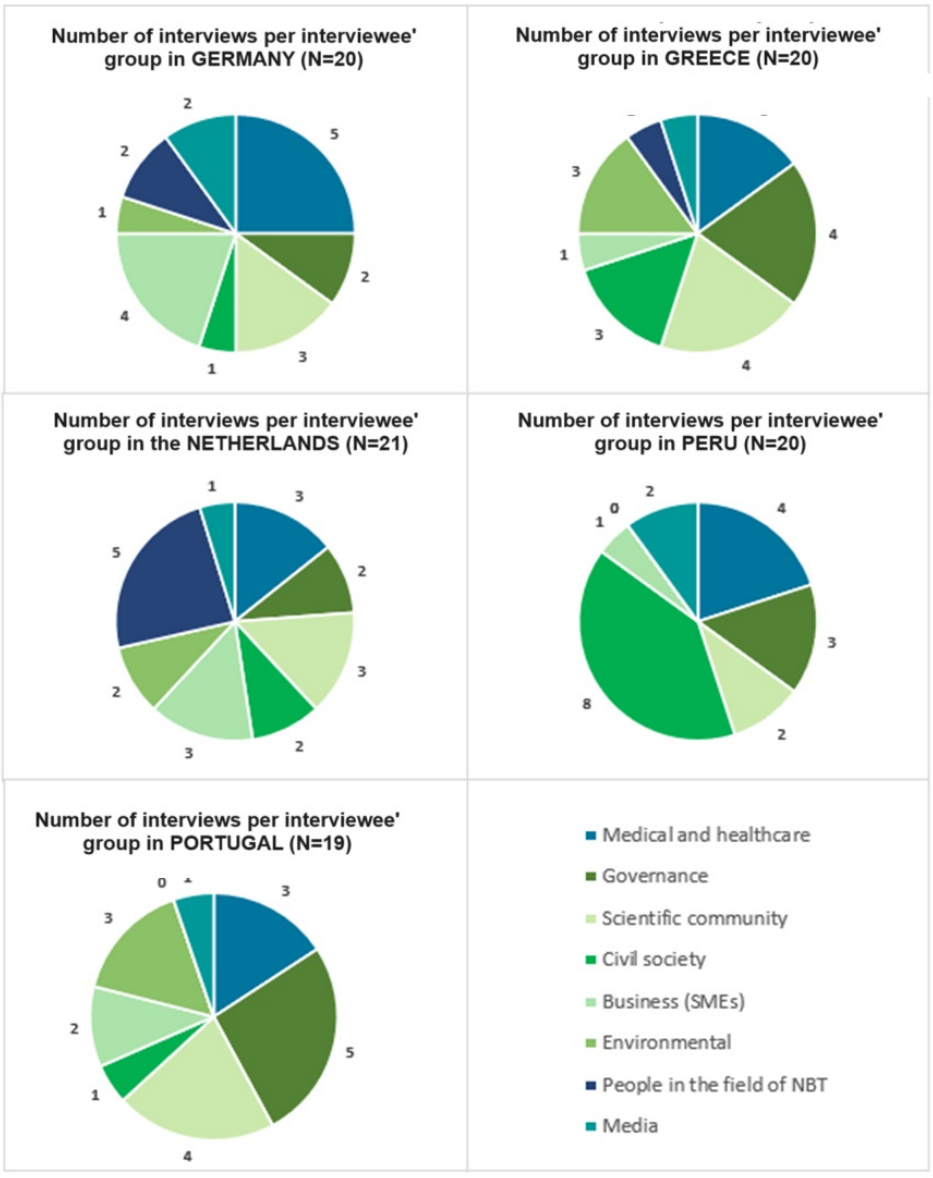

Figure 9.2: Country comparison of the number of interviews per interviewee group

Additionally, it is important to bear in mind that while the total number of interviews per country was similar (ranging from n=19 to n=21), the numbers for interviewee groups varied significantly between the five countries (see Table 3.1). For instance, in Germany most interviews were conducted with participants from the medical and healthcare sector, whereas in Greece and Portugal the governance category was predominantly represented. In the Netherlands, the largest interviewee group was described as people with experience in the NBT field, while in Peru civil society representatives constituted the highest share. Notably, media was often among the least represented category across countries (see Figure 9.2).

9.2 Stakeholder perceptions and needs

The subsequent paragraphs of this chapter will again draw upon the interview data collected from 100 KIIs conducted across Germany, Greece, Netherlands, Peru and Portugal. This section will discuss the perceptions and needs of the interviewees on both a country level – facilitating comparisons between the five nations – and between the different interviewee groups that were identified a priori. The last two paragraphs focus on potential stakeholders and potential influencing factors, respectively.

Differences: country level

The interview participants across the five countries exhibited both similarities and differences in their perceptions of the need for, concerns about, and potential benefits of NBT. While detailed country-specific findings are extensively discussed in the previous results chapters, juxtaposing the data helps to provide insight into areas of convergence and divergence. Figure 9.3 below shows whether the topics of the perceived need for, concerns about, and potential benefits of NBT have been addressed during an interview. However, it does not expose any specific content, emphasis or contextual details surrounding these topics.

Figure 9.3, for example, reveals that the perceived need was discussed in 80-90% of interviews conducted in the Netherlands, Peru, and Germany, whereas for Greece and Portugal, this number dropped to less than 60%. Even more pronounced differences emerged with regard to the mentioning of concerns about NBT, as only in two of the interviews in Greece particular concerns were expressed (10%), which is very different from Germany, where concerns surfaced in 17 of the interviews (85%). When interviewees queried about the potential benefits of NBT, participants across all countries predominantly cited ‘health benefits’, which encompasses mental, physical, and emotional health and well-being.

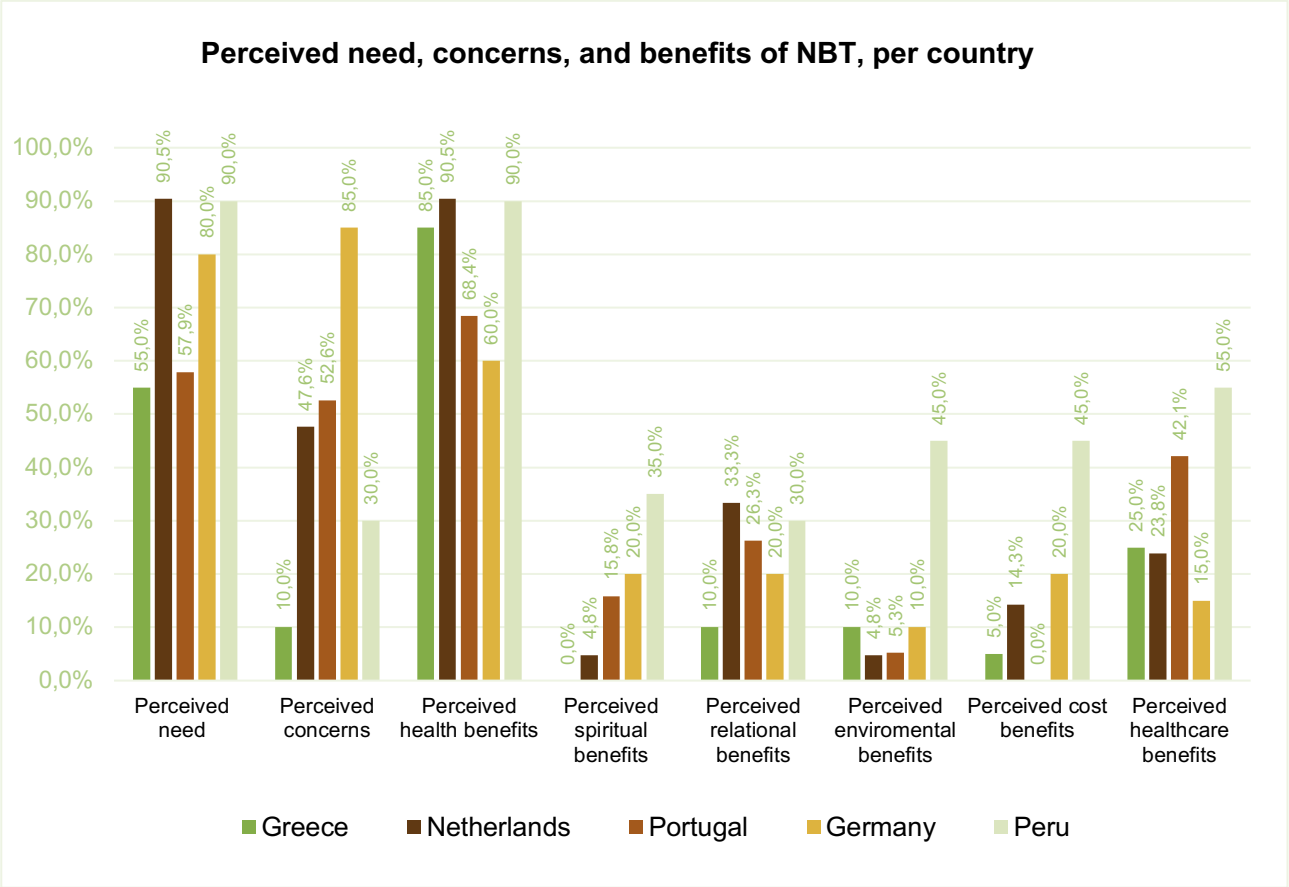

Figure 9.3: Country comparison of the number of interviews mentioning a perceived need for- and concerns about NBT and its potential benefits

The disparities observed among the countries, both in terms of the frequency of topics being discussed and their content— the latter being elaborated in detail in Chapters 4 through 8— may not solely stem from varying socio-political contexts and country-specific characteristics, but also be influenced by the variation in the interviewees' sample compositions.

Differences: interviewee groups

In Figure 9.4, one can see a comprehensive overview of how frequently the topics of stakeholder perceptions and needs were discussed in interviews across different interviewee groups. Concerning the **perceived need for NBT**, it becomes apparent that this topic was commonly addressed, particularly by individuals with experience in the NBT field, media, medical and healthcare, and governance (all exceeding 80% frequency). In contrast, interviewees from the scientific and environmental community discussed this need in approximately 60% of their interviews.

This unity in opinion was not uniform across all interviewee groups. In several cases, interviewees themselves acknowledged or experienced a need for NBT, but doubted whether this need also exists within the general population

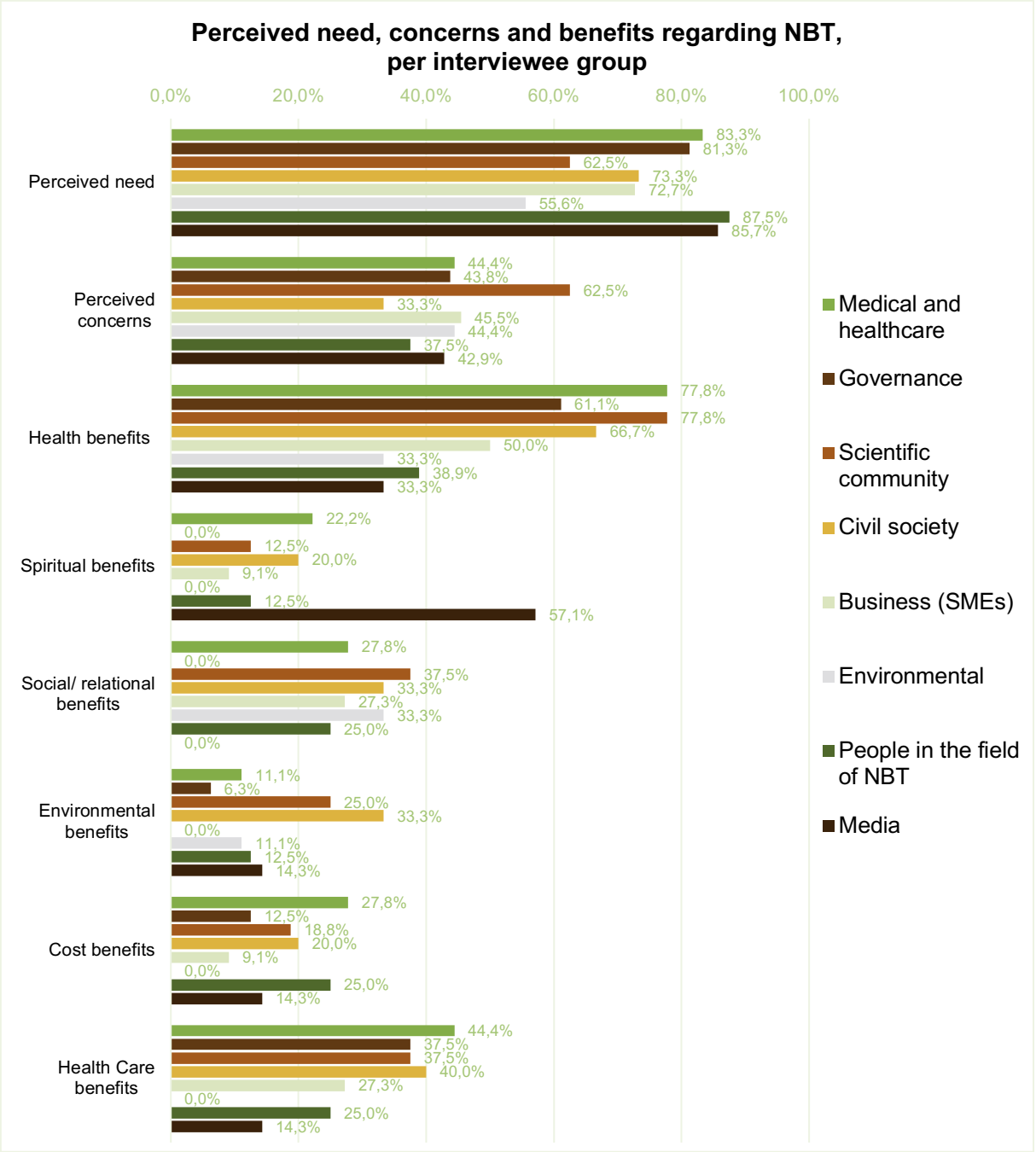

Figure 9.4: Interviewee group comparison of the number of interviews mentioning a perceived need for- and concerns about NBT and its potential benefits

With reference to whether **concerns about NBT** were articulated during interviews, the scientific community emerged as the most vocal, with a frequency exceeding 60%, compared to approximately 30-45% for all other interviewee groups (see Figure 9.4). Interviewees from the scientific community for example expressed concerns about: potential health and accessibility disparities; an (additional) strain on existing health systems and practices; exploitation of nature; and the possibility that NBT is just a passing trend. As stated by one participant: *"But, above all, the big risk is this, the trivialisation of fashions, trends, and not the internalisation of day-to-day processes. That's the main*

problem" (Portugal, Scientific Community 2). These concerns were in some cases echoed by other interviewee groups. For instance, an environmental interviewee also voiced worries about the impact of NBT on nature, partly explained by an anticipated lack of control or authority over certain activities.

Interviewees from the medical and healthcare sector specifically articulated concerns about the acceptance and awareness of NBT, while governance' study participants expressed concerns regarding the (lack of) fit of NBT within the existing (health) systems and cultural norms. Moreover, discussions surrounding culture and specific country contexts revealed additional considerations among some civil society' participants. They expressed concerns about the terminology and practice of NBT, as in some settings the medicalisation of nature as 'therapy' can be a potential pitfall: Therapy was not considered as an intervention for everyone, and it might be stigmatised and requires significant resources (e.g. therapists). This might prevent individuals from engaging with NBT in specific, but also from interacting with nature in general.

Lastly, when examining the **potential benefits of NBT** (see Figure 9.4), it becomes clear that health benefits were most commonly mentioned across almost all interviewee groups. In interviews with business (SMEs), governance, civil society, scientific, and medical and healthcare interviewees, health benefits were referred to in at least half of the cases. Regardless of the interviewee group, there was a general consensus among the interviewees that when we as humans are more in balance with nature – or when there is a harmonious relationship between humans and nature – our health and well-being will be positively impacted.

There was one clear exemption, as participants from the media generally placed a higher emphasis on spiritual benefits (57.1%) compared to health benefits (33.3%). For instance, one media interviewee expressed that: *"There is an interconnection between the mental, emotional, spiritual with the simple contact with the natural that is the potential to heal the most complex pathologies" (Peru, Media 2).*

9.3 Potential stakeholders

Stakeholders in the context of this study involve actors with an ability to influence the potential uptake and integration of NBT in project countries. **Seven broad categories** of perceived stakeholders were identified from the interview data (see Figure 9.5), with stakeholders belonging to the i) health and social care system being most commonly mentioned by interviewees across country data sets, followed by those part of the ii) educational sector, iii) citizens, patients & communities, iv) government, v) environmental organisations, vi) research community, and vii) business.

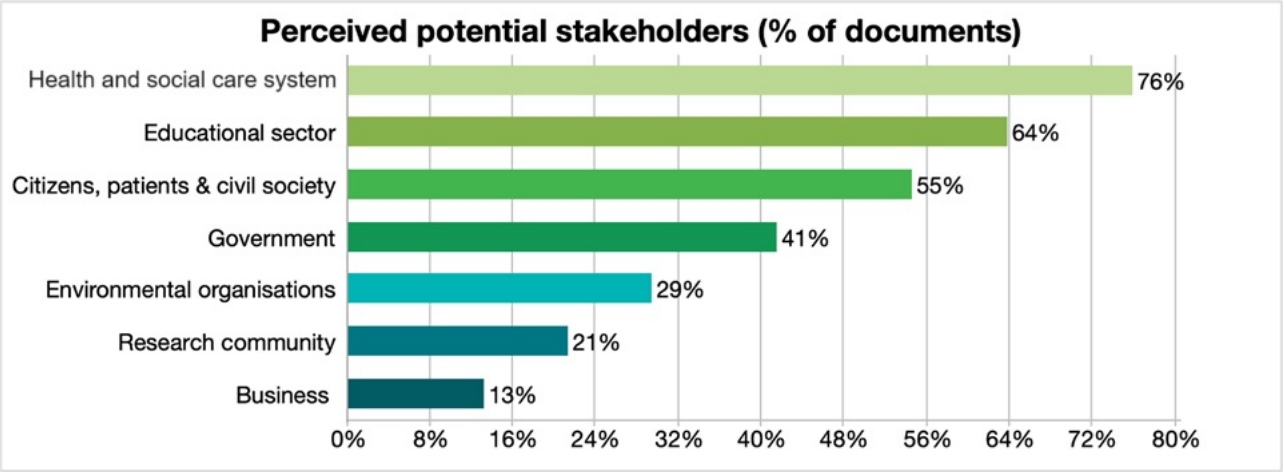

Figure 9.5: Percentage of interview summary sheets (documents) in which an identified (potential) stakeholder group was mentioned

It is important to note how often a category was mentioned does not say much about the importance of this stakeholder category for the integration of NBT. However, it does give an indication of which stakeholders overall to consider across countries. A more detailed stakeholder analysis, including on the power, interest, and support of stakeholders can be found in Deliverable 5.3.

Figure 9.6 shows a joint stakeholder map, with the subcategories of stakeholders that were covered for each overarching category. Each stakeholder subcategory listed in this map was mentioned by at least two participants from different countries; this to ensure relevance and transferability of this map between different countries. It is recognised that some subcategories and overarching categories could be classified differently; for example, “educational institutes for health professionals” could also be seen as part the health sector.

The seven overarching categories displayed here roughly overlap with those identified for the purpose of sampling of KIIs for this study. Except “People in the field of NBT” (which was added to the sampling strategy after the initial stakeholder mapping exercise) which is covered under “health sector” in the figure above. And “media” and “SMEs” were during sampling separate categories but are merged together under “business” in the figure.

Figure 9.6: Joint stakeholder map

Differences: country level

Between country data sets, there were some notable differences in perceived potential stakeholders. For example, the category "citizens, patients & communities" came out stronger in the interviews with participants from Germany and Portugal compared to the other three countries. And within the Greece and Peru data sets the "educational sector" was more commonly mentioned than the "health sector" (the most cited stakeholder category when covering all countries).

Another difference was that some subcategories of stakeholders seemed more important for some countries than others. For instance, interviewees from the Netherlands more regularly mentioned people working in the field of NBT as 'green' health care providers or nature coaches (displayed as a subcategory under "health sector). Another example is that pension funds were only mentioned by a couple of interviewees from Germany (found under "business").

These country differences suggest that certain stakeholder categories and subcategories may be more important to engage with in some countries than others.

Differences: interviewee groups

Between interviewee group data sets, there were also some noteworthy differences. For four interviewee groups the “health and social care system” was the most commonly mentioned potential stakeholder category, while for the other interviewee groups this stakeholder category was regularly reported, it was not the most commonly mentioned stakeholder category. For example, for interviewees from the scientific community and civil society the “educational sector” was at the top, while for media participants this was “citizens, patients & civil society”. All interviewees from the medical and healthcare community reported stakeholders covering the “health and social care system”, suggesting they may see a role for themselves or others that belong to this system as relevant for in the scaling up of NBT.

Some stakeholder categories were not reported by some interviewee groups. For instance, none of the interviewees from media and business cited “research community” as potential stakeholder. Also, again with regards to media, not one interviewee within this group reported “business” as potential stakeholder.

9.4 Potential influencing factors

Numerous factors influencing the uptake and potential sustainable integration of NBT were identified in this study. These factors are based on the perceptions of participants about the expected interaction between the innovation (i.e., NBT) and potential adoptive systems and users (i.e. organisations or target populations). In this section results of the comparative analysis across the whole data set (n=100) are described.

First, the main categories of influencing factors are outlined. Second, commonalities and differences in these factors are described, focusing on the comparison between interview accounts at country level (n=5; Germany, Greece, the Netherlands, Peru, Portugal) and interviewee groupings (n=8; scientific community, medical and healthcare, governance, media, business, people with experience in the field of NBT, civil society, and environmental organisations). These interviewee groups represent those a priori identified for sampling of KIIs, and differ slightly from the stakeholder categories identified under 8.3.

Categories of influencing factors

Influencing factors could be grouped into ten broad categories. As displayed in Figure 9.7, the most commonly mentioned category of factors was i) financial resources, followed by ii) geography, iii) acceptance, iv) communication and dissemination, v) awareness; vi) cultural, vii) research evidence, viii) human resources, ix) regulations, and x) demand. These influencing factors were described

across data sets to have the ability to be both constraining or enabling the uptake and integration of NBT.

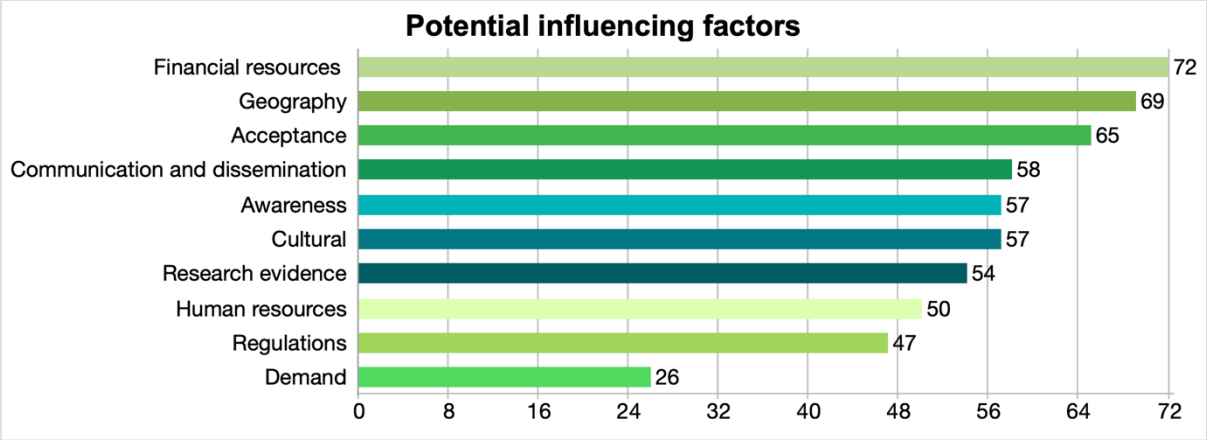

Figure 9.7: Overview of how often the potential influencing factors were mentioned in the interview summary sheets (n=100)

Differences: country level

Various differences could be identified across the five project countries. This analysis is done as an aid for the development of general and country-specific recommendations (Chapter 9), determining whether and how perceived influencing factors may vary between country data sets and therefore require a different approach.

There were several notable variations in the **dominance of certain categories** of influencing factors between the five project countries. For example, while “financial resources” was overall the most commonly cited influencing factor, this was not the case for all countries. Particularly in the Greece sample financing was less dominant compared to categories like “cultural”, “geography” and “awareness”. Also, for Portugal and Peru “financial resources” was not the most commonly cited category of influencing factors. Country-level differences were also visible in relation to the dominance of the category “cultural”. For the Netherlands and Greece this category was far more commonly mentioned compared to the other three countries; twice as often compared to participants from Peru and three times as often compared to the Germany and Portugal samples. Similarly, “human resources” was roughly cited twice as often in the Netherlands sample compared to the other countries.

Also, there were some country-level differences in relation to the **number of interview summary sheets** covering certain categories. For instance, the Netherlands data set varied from 10 summary sheets for “demand” to 20 for “financial resources”, while frequencies ranged from 0 for “demand” to 16 for “financial resources” and “acceptance” for Germany. This difference may be due to practical

variations (e.g. the Netherlands data extraction summaries were generally more elaborate than those of the other countries, making it easier for more categories to be detected), but could also mean there are genuine differences in the importance of certain types of factors that will likely influence the integration of NBT. Interestingly, for both Germany and Portugal the category "demand" was not cited once.

Finally, some **content-related differences** were visible between the five countries. For example, in relation to "financial resources", the most cited influencing factor, interviewees from Greece, the Netherlands, and Germany all spoke predominantly about health insurance as an option for funding, while similarly voicing this will likely be difficult to achieve. For the Netherlands, dominant reasons given were that only a limited proportion of health funding is dedicated to primary health prevention and that more evidence on the effectiveness of NBT is required should this form of therapy have a chance at being covered by health insurance. In Germany the fact that NBT is currently not "a billable item" came up, and in Greece a few participants raised the need for more research on the cost-benefits of NBT. In the Portugal sample insurance companies were not mentioned, however, participants spoke more generally about financing as an obstacle for NBT integration, with some suggesting funding through employers' companies (which was also raised in other countries especially Greece and the Netherlands). In the Peru' sample – the only upper-middle-income country of the project countries – topics like poverty and an overall lack of funding in the country were raised as more broader level barriers.

It is not feasible to compare and report on all categories of influencing factors by country. However, this example on "financial resources" shows there will likely be similarly smaller and larger differences between the project countries for the other nine categories of influencing factors. The country chapters will, therefore, be an important source to consult for national and local stakeholders involved in the further implementation and integration of NBT within the NATURELAB project and beyond.

Differences: interviewee groups

As there were notable country-level differences, there were also several visible variations in findings on perceived influencing factors between interviewee groups. In this section, all interviewee groups are discussed, regardless of their representation among the overall interview sample (n=100), focusing on the likely level of dominance of the ten identified categories of influencing factors. This analysis is done as an aid for the development of general recommendations, particularly in relation to stakeholder engagement strategies (Chapter 9).

Starting with the interviewee group with the highest number of representative participants; the most cited influencing factors among interviewees from the **medical and healthcare community** were "financial resources" and "geography" (both covered by 83% of that interviewee group). Interestingly, while lack of "research evidence" came forward in many country chapter narratives to be an important barrier, only half of those interviewed from the medical and healthcare community themselves spoke about the need for more research evidence. This means that the perceptions of others about the needs of the medical healthcare community likely also plays a role here. Another explanation is that several medical professionals already working with nature such as through outdoor therapy, tend to find their own and their clients' positive experiences of such nature engagement and therapies as sufficient evidence: *"Only the green colour already reduces stress: your heart rate decreases, your breathing relaxes and because of that you feel more relaxed" (Netherlands, Medical and healthcare 1).*

Within the **governance** group, "financial resources" (69%) was the most highlighted factor influencing NBT integration and "demand" the least (13%). While many interviewees with a governance background merely spoke generally about a need for funding and financial barriers, some suggested large companies might be interested in offering NBT to their employees with funding from company's insurance. Others suggested the health insurance route, which may be more difficult due to various obstacles like the need for more convincing evidence on the effectiveness of NBT to generate acceptance by funders and decision-makers, such as noted by this *Governance 2 actor from Germany*: *"This requires the acceptance of the health insurance companies…We also try to get in touch with health insurance companies on this topic again and again. However, it has not yet come to the point where forest therapy is included in this cure catalogue".* The governance group reported the highest within-group coverage on "regulations" with 56%. As this group includes those involved in policy making and overseeing the implementation of regulations, this seems a logical result.

Researchers and others part of the **scientific community** most commonly reported "awareness" (81%) as influencing factor followed by "acceptance" (75%). These study participants spoke mostly about a lack of awareness and acceptance about NBT among people from the general population, but some also specifically referred to health professionals and patients. As exemplified by this comment from *Scientific community 1 from Peru*, generating trust will be an important prerequisite for creating wider acceptance of NBT: *"It is a long process, so also [a barrier would be] the sustained commitment on the part of the patient to trust in this therapy and also their ability to connect with themselves to see the changes".* As research is the core business of the scientific community it is unsurprising that "research evidence" was a more commonly reported influencing factor compared to the total sample (63% vs. 54%). Many interviewees from the scientific community spoke about

readily available evidence on the relationship between nature and health and believed the gap in evidence lies in the effectiveness and implementation of NBT, requiring experimental research designs.

For interviewees categorised as **civil society**, the most cited influencing factor was “geography” (87%), closely followed by “financial resources” (80%). Civil society’ study participants were concerned with limited access to green spaces, particularly for individuals and communities living in cities. Consequently, many emphasised the need for future efforts to scale up NBT to ensure equity in access, this included physical access to green spaces (related to “geography) and financial access (related to “financial resources”).

Interviewees with a **business** background reported three influencing factors clearly more commonly than the other seven, which were “acceptance” (91%), “research evidence” (83%), and “financial resources” (83%). In relation to acceptance, the accounts of participants in the business group concerned various topics, ranging from their own acceptability to those of others and from NBT to more plant-based therapies, without clear themes. Many business’ participants believed there is currently insufficient evidence to support NBT, although some explicitly said it to be enough due to positive first-hand experiences. Once there is a stronger evidence-base this would make it easier to get funding, such as through health insurance, according to many interviewees from this group. Interestingly, “regulations” was only mentioned by one out of the eleven interviews with individuals from the business industry, making it the lowest within group proportion of categories covered.

For participants working for **environmental organisations** “acceptance” and “awareness” were most often discussed (both covering 78% of the subsample), closely followed by “geography” and “communication and dissemination” (both 67%). Interestingly, “demand”, although closely related to “acceptance” and “awareness”, was least mentioned (11%). Also, this interviewee group had one of the lowest within-group proportions citing on “cultural” and “human resources” (both 22%). As these two latter factors were mostly discussed in relation to the potential integration of NBT in the health system (e.g. biomedical dominance and limited NBT specialists or referral pathways), and environmental actors generally operate relatively separate from the health system, this could explain why these factors were less prominent within this group.

People in the NBT field least discussed “demand” and “acceptance” and the other eight influencing approximately as regularly. That said, this interviewee group had the highest proportion of within group coverage for demand (50%, compared to 26% of total sample). While this may just be because of its smaller sample size, another plausible explanation is that people working in the field are more aware of the demand. It is important to note here that the data on “demand” from this group came solely from four nature-related coaches from the Netherlands, all saying their work is in increased

demand. Interestingly, in the stakeholder map presented in Figure 9.6 in the previous section on potential stakeholders, people working in the field of NBT (like nature coaches or forest therapists) are positioned as being part of the “health sector”. While caution needs to be taken due to its small sample size, these comparative results suggest that this group may have slightly different perceptions compared to the medical and healthcare community.

Logically “communication and dissemination” was the influencing factor mentioned by most **media** actors (6 out of 8), followed by two closely related factors, namely “awareness” and “acceptance”. Some participants that are part of this group spoke about various dissemination methods (like social media and networks, conferences, etc.) and others about the content of communication messages. This comment suggests a need for a concrete story: *“Journalists don't like 'container concepts'. You can't do anything with that…you need a concrete concept, story, and cause, otherwise there's no story in it. If you want to make this [NBTs] socially relevant, you need something concrete" (the Netherlands, Media 1).*

Chapter 10

Recommendations and next steps

10 Recommendations and next steps

Previous chapters focused on the three phases of the learning-action-spiral of a transdisciplinary research approach, namely those of i) exploration, ii) consultation, and iii) integration. The country chapters and comparative chapter resulted in the integration of the perceptions of 100 key informants from the five NATURELAB project countries. The next two phases of the learning-action-spiral involve iv) prioritisation and action planning, and v) implementation. This final chapter presents some preliminary action planning, starting with general recommendations, followed by country-specific recommendations, study limitations, and conclusions and next steps.

10.3 General recommendations

Based on the cross-country comparative analysis, some general recommendations can be made for future communication and dissemination, practice, and research.

Communication and dissemination

Three general recommendations for communication and dissemination are to:

- Emphasise the multiple perceived benefits of nature for health, adopting a holistic view of health (covering physical, emotional, mental, social and spiritual health) and highlighting the potential advantages of NBT over regular treatments (e.g. potentially fewer side effects than pharmaceuticals or less expensive compared to psychotherapy). It is important to note that many of those interviewed were readily aware of the various benefits and potential comparative advantages of NBT, however, still it would be good to summarise all these positive perceptions as a starting point for future engagement with these interviewees and other relevant stakeholders.

- More clearly communicate and disseminate existing evidence on the benefits of nature for health. Interviewees more knowledgeable about NBT could more readily cite existing evidence than others, suggesting efforts are needed with regards to the effective communication and dissemination of existing evidence.

- Tailor messages and approaches for stakeholder engagement to the perceived benefits, concerns, and needs of different types of stakeholders.

Future practice

Four general recommendations for practice are to:

- Include learnings from this report in the ongoing NBT training and therapy development (WP2). Particularly viewpoints expressed by interviewees from the healthcare sector and those already working in the field of NBT could be considered for finetuning.

- Integrate NBT not just into the healthcare and social care system (as mentioned in the research question of this study) but also into the educational and cultural ecological systems. In all country case studies, the need to educate the general population about the importance of nature for health was highlighted. Additionally, our multiple case studies confirmed that urban planners and geographers would be important stakeholders to include, with strategies required to mitigate their concerns about the possible negative side effects for nature, as NBT scale-up may increase the numbers of people visiting (protected) nature areas.

- Use both bottom-up and top-down approaches to system change. Many different types of potential stakeholders were identified in this qualitative study, with some stakeholder groups deemed to have a more prominent role in the future integration of NBT than others, and also there were notable variations in the content of these roles. For example, when using a top-down approach, this may involve first informing national policymakers of the latest evidence on NBT (with the aim to increase their acceptance and interest), and second lobbying for changes in existing policies and financing (with the aim to facilitate the legal and financial integration of NBT into existing systems). And when using a bottom-up approach this may entail seeking to form alliances for local implementation of NBT, such as with other people working in the field of NBT or civil society organisations.

- Actively involve the education sector. Educational stakeholders came across as an additional stakeholder group with a specific role in the integration of NBT, namely the education of people on the benefits of nature for health. This involves education in a broad sense for children, youth, and their parents through primary schools and higher education, and for healthcare providers through regular and continuous health professional education.

- Use context-specific approaches. While there was much overlap in the factors and actors influencing the potential integration of NBT, there were also some notable differences in focus and detail between and within the countries. This suggests that context matters, and a 'one-size-fits-all' approach towards the integration of NBT will likely not work.

Future research

Four general recommendations for research are to:

- Conduct FGDs for the co-creation of more concrete and priorised actions and refinement of integration scenarios. Such FGDs are another way to gather the views and generate co-ownership of stakeholders, including to examine opposing view points. While further guidelines on these FGDs are yet to be developed by the VU research team, based on findings from these initial consultations with key informants, it seems important for such FGDs to include those underrepresented in the current KII sample, such as people from the educational sector, human resource departments from relevant companies, and policymakers at national level (responsible for health, education, and environment).

- Test, monitor and evaluate different implementation models within the experimental sites of NATURELAB. Findings from this study have shown a need for developing sustainable NBT financing, training, and quality assurance models. This relates in particular to NBT training and therapists, ensuring its financing models will be affordable to potential user organisations and individual clients. Possible (sustainable) funding scenarios identified in this study were through health insurance companies or through insurance from private companies that focus on employee's health and burnout prevention.

- Conduct experiments in such a way that they provide evidence deemed sufficient and convincing to powerful stakeholders such as decision-makers, funders, and likely implementers (e.g. health providers). This study found that the knowledge gap particularly lies in the effectiveness and cost-effectiveness of NBT, including on contra-indications (i.e. when or for whom will NBT not be a suitable treatment option).

- The VU research team could analyse the interview data with a more explicit focus on the interrelationships between different influencing factors and actors. Such an analysis could contribute to a journal article. Similarly, other interview findings could be further summarised and then published as a collaborative effort between various NATURELAB partners.

10.4 Country-specific recommendations

Based on the interview data and country-specific data analysis sessions, some country-specific recommendations were developed, which are outlined in this section.

10.4.1 Germany

Based on the interview data, several recommendations emerge as pivotal for facilitating the implementation of NBT in Germany, prioritising actions aimed at enhancing (financial) accessibility and fostering acceptance across diverse stakeholder groups, including policymakers, healthcare providers, and prospective patients:

- Elevate public awareness by cultivating understanding and interest in NBT among the general public and potential patients, while also encouraging healthcare practitioners to integrate it into their clinical practice.

- Combat prejudice by addressing misconceptions surrounding NBT, such as notions of it being esoteric and non-real medicine/treatment, and substantiate its effectiveness through research evidence.

- Enhance the body of research evidence supporting NBT, to strengthen its case for reimbursement and accessibility through health insurance schemes, particularly focusing on studies that demonstrate its cost-effectiveness, effectiveness across various patient demographics, and effectiveness in large scale population studies.

- Utilise social media and other media platforms to promote NBT, engaging with diverse demographics and age groups to broaden its reach and appeal.

- Develop regulatory standards/frameworks for NBT practices to ensure professional recognition and mitigate potential instances of malpractice, thereby fostering trust and credibility within the field.

- Explore alternative approaches or modifications for NBT activities and locations, to accommodate geographical challenges or environmental factors such as weather-related issues or allergies, thereby enhancing its adaptability and inclusivity.

During the data analysis session, some more recommendations were developed to inform future implementation of NBT:

- Promote networks and collaboration between stakeholders.

- Secure media exposure for NBT to show its use and efficacy, addressing the lack of information about NBT in Germany.

- Present NBT as an alternative (prevention programme) to psycho-therapy and offer NBT for people on the waiting list for psycho-therapy.

- Ensure recognition of NBT by demonstrating evidence of its effectiveness and then encouraging by Health Insurances to finance them (addressing financial accessibility),

10.4.2 Greece

From the interview data from Greece several recommendations can be identified:

- Ensure involvement of the healthcare sector in the development, communication, and integration of NBT.
- Enhance primary healthcare (in general) by fostering cooperation between the public and private sectors, so this could serve NBT integration.
- Focus on all three levels of prevention and utilise cost-benefit analyses to convince health insurance companies of the value of NBT.
- Explore the potential for integrating NBT into group health insurance contracts (private sector) by companies responsible to keep their staff healthy.
- Frame NBT as supplementary to traditional treatments rather than replacements to enhance the acceptance of healthcare professionals and the general population.
    - Introduce the potential of NBT to healthcare personnel as supplementary treatments, emphasising their capacity to alleviate workload pressures through avenues such as health promotion and enhanced patient recovery procedures, the latter particularly by focusing on introducing it in the context of ambulatory care facilities.
- Tailor awareness-raising/educational campaigns to target populations while involving individuals of all ages, from children to medical students (i.e. the future healthcare professionals) to adults, aiming for a shift in mindset over time.
    - Start by encouraging the general human-nature relationship improvement, with NBT-specific initiatives to follow gradually.
    - Preferably include experiential ways of learning.
- Utilise the current trend of the Greek's increased appreciation for outdoor activities in campaigns and communication and dissemination efforts.
- Address the (safe) accessibility of green spaces in urban areas; potentially start with mapping the existing green spaces.
- Initiate NBT programmes in rural and semi-urban areas, leveraging local governance, financing, solidarity, and existing initiatives.
- Establish interdisciplinary teams, including medical doctors, to contribute to the growth of evidence on NBTs.

- Work towards standardised activities in nature/NBT and introduce protocols endorsed by the Ministry of Health.

During the data analysis session for Greece, several enablers were prioritised. Out of these, the following four are highlighted, based on either their high placement in the grid regarding potential level of facilitation and feasibility, or because the participants in the data analysis session considered them to be the most promising and significant starting points considering possible next steps:

- Set up (interdisciplinary) collaborations between (local) stakeholders for NBT promotion and implementation.
- Encourage workplaces to implement NBT initiatives (or reimbursement thereof), to keep employees healthy.
- Frame NBT as 'supplementary' to medical treatments instead of as a 'substitute' or 'alternative'.
- Lobby the Ministry of Health for the integration of NBT protocols and guidelines into the medical community and society, and monitor these interventions.

10.4.3 the Netherlands

Based on the interview data from the Netherlands the following recommendations can be made:

- Make use of the window-of-opportunity offered by various landscape trends, such as the increasing value and practice of nature-inclusivity, visible among property developers and designers, in hospitals and primary care practices, and in some schools.
- Build on the trend that there is a growing number of GPs, physiotherapists, assisting mental health practitioners [POH-GGZ], and psychologists who go outside with their clients. Integrating NBT as part of the roles of existing primary care providers and psychologists can be an easier route to ensure financial coverage of NBT via health insurance companies.
- Foster more collaboration amongst stakeholders and organisations who are already involved in NBT to engage in knowledge sharing about how to implement NBT at various levels (neighbourhood or municipal initiatives) and within different settings. Such experiential evidence from current local NBT initiatives may spark integration of NBT at the national level.

- Continue to increase awareness amongst the health sector and the general population (education or media campaigns) about what NBT involves and how it can be beneficial to human health and the Dutch health and social care system.

- Highlight the flexibility offered by NBT practice. According to interviews with people in the field of NBT like nature coaches, it is relatively easily to accommodate to people with disabilities, mobility, or transportation limitations (e.g. offering parts of the therapy indoors using plants, sitting on a bench outsider). Similarly, when there are weather restrictions such flexible implementation is possible.

During the data analysis session for the Netherlands, several enabling factors were prioritised:

- Communicate the existing 'evidence' through continuing education of providers.

- Offer NBT to patients part of the mental healthcare [GGZ] waiting list.

- Develop guidelines for referral to NBT therapists in the vicinity.

- Conduct more research and disseminate existing evidence in 'better' ways.

10.4.4 Peru

From the interview data from Peru several recommendations can be identified:

- Further conceptualise the term ‘NBT’. The term NBT seemed relatively new in the country, therefore further conceptualisation may be required, bearing in mind local understandings and associations with this term and similar initiatives.

- Sell NBT by highlighting its various benefits. Many perceived benefits were highlighted in the interview data. This versatility will be an important ‘selling point’ and communication message to increase the acceptance of and support for NBT and the NATURELAB project within Peru.

- Tailor communication and dissemination messages to the type of stakeholder, considering their priorities and perceptions with some suggestions portrayed in the results section for Peru.

- Generate evidence of the effectiveness and cost-effectiveness of NBT. Such evidence was regarded by interviewees as urgently needed, particularly to gain support from the medical community and authorities. This means that experiments conducted as part of NATURELAB project should, where possible, deliver such evidence.

- Provide NBT in groups. A group format for NBT is recommended for Peru as this makes the intervention more affordable, which seems imperative considering it is a middle-income country with many people living in poverty.

- Set up a (local) NBT training centre. Peru has limited human and financial resources for mental health and in addition interview data suggests that psychotherapy is still relatively new. Setting up an NBT training centre is therefore recommended to rapidly train sufficient therapists, while developing training and financial models with 'sustainability in mind'.

- Initially target children and older adults. While many populations could benefit from NBT in Peru, interview findings suggest children and older adults may be relevant initial target groups.

- Further develop routes for NBT integration and explore their feasibility. Various routes and levels for NBT integration likely exist in Peru, each with different funding options and unique stakeholders and challenges. Details and feasibility of these routes need to be explored in follow-up research of the NATURELAB project, such as through FGDs as part of T4.1.

In the data analysis session for Peru four enablers were prioritised, including:

- Establish NBT training centres to address the current limited numbers of NBT therapists in the country.

- Incorporate 'nature' and 'NBT' as topics in children's education to increase knowledge, awareness, and interest at a young age.

- Collaborate with various stakeholders to increase knowledge and awareness on NBT and consequently grow the support base.

- Integrate NBT into health insurance packages to make it financially accessible to all citizens.

10.4.5 Portugal

The following recommendations were identified from the analysis of the data:

- Closely collaborate with healthcare professionals, particularly GPs and psychologists who play pivotal roles in prescribing NBT, to foster greater acceptance and utilisation.

- Partner with local governments to facilitate NBT integration, leveraging their capacity to plan and allocate resources for green spaces within urban areas, thereby promoting NBT and enhancing public awareness.

- Strengthen collaboration among diverse stakeholders including healthcare providers, government entities at both local and national levels, NGOs, and conservation organisations, to facilitate NBT implementation.
- Tailor engagement approaches to the specific needs and interests of individual stakeholder groups, fostering meaningful and sustained collaboration.
- Pursue avenues for securing financial support through, for example, public funding applications and partnerships with private companies.
- Develop effective communication and dissemination strategies to raise awareness and foster acceptance of NBT among the public and relevant stakeholders.
- Involve national policy-making bodies in integration strategies, recognising their influential role in promoting and supporting NBT initiatives.
- Tap into the knowledge and resources available at the local level, leveraging the expertise of local governments to integrate NBT into public health projects and urban planning initiatives.
- Encourage stakeholders to unite and collaborate on a long-term basis, ensuring the continuity and effectiveness of NBT initiatives.

The data analysis session with the different team members from Portugal shed light on other recommendations. The following recommendations were chosen based on their potential feasibility according to the Portugal team:

- Foster education and promotion of NBT among both citizens and decision-makers.
- Allocate research efforts to identify the needs for NBT implementation.
- Validate the effectiveness of NBT through research evidence.
- Increase awareness and disseminate information about NBT to the general public and relevant stakeholders, including technical personnel crucial for its potential implementation.
- Provide tailored training programmes for NBT therapists and healthcare professionals to equip them with the necessary skills for effective implementation in patient care.

10.5 Limitations

There are several limitations to this study that need to be considered. First, there was sampling bias as a result of convenience and snowball sampling. Study participants were selected based on eight a priori identified stakeholder groups (i.e. purposive sampling) and the aim was to include 2-3 participants per category to reach a sample size of about 20 per country. However, due to practicalities some study participant groups were underrepresented. Second, since multiple interviewers and data analysts from different disciplines and with various levels of experience in qualitative research were involved in this study, this may have introduced multiple forms of bias in the data collection, analysis, and interpretation process. Third, interview data was not fully transcribed due to time restrictions, meaning some information may have been lost in translation. Our study findings therefore need to be seen in light of these limitations. Particularly, numbers presented in the comparative analyses need to be interpreted with caution.

Several actions were taken to address the abovementioned limitations. First, all interviewers were trained by the VU research team and provided with a comprehensive interview training guide. Second, data extraction summary sheets were used, following the well-known framework method. Third, summary sheets were checked by interviewees and quality checked by the VU research team. Fourth, intercoder reliability was stimulated through the development and use of a detailed code book. Fifth, country-specific data analysis sessions were held to validate and contextualise findings, and to collectively develop country-specific recommendations. Sixth, country chapters followed an agreed structure and were shared with respective country partners involved in this study to validate the interpretation of findings. Seventh, in total a large number of key informants were interviewed (n=100) using the same topic guide in all countries.

10.6 Concluding remarks and next steps

While no definitive conclusions can be drawn from this first more exploratory stakeholder consultation cycle, it does provide insights into possible ways forward, including on processes that can be put in motion to facilitate the uptake and integration of NBT in NATURELAB's five project countries. The country chapters provide a detailed narrative of the needs and perceptions of key stakeholders, including on the benefits of NBT and factors influencing the integration of NBT into existing sytems. As anticipated, there are some systemic barriers that require addressing in all countries, like securing sustainable funding sources for making NBT financially and equitably accessible to potential clients. Also, regulations and human resources will be systemic factors that require careful navigation by niche actors.

This study has shown that we, as NATURELAB partners and transdisciplinary team, do not stand alone in this niche, but there are many others working on similar initiatives at the interface of nature

and health. Collaborating with such academic and non-academic actors and growing the niche will be of utmost importance for creating a broader support base for NBT and making its novel practices more widely known and accessible. Equally important will be the engagement of system actors, those whose practices are reinforced and constrained by dominant structures (ways of organising) and cultures (ways of thinking) of existing systems. The systems most relevant to engage with in this case are broadly the following three: the health and social care system, the cultural-ecological system, and the educational system. The stakeholder map developed as part of this project – and presented in Figure 9.6 – provides a useful overview of all actors who will likely have a stake in the integration of NBT and, therefore, need to be taken into consideration. Bearing in mind that actors can wear multiple hats and therefore do not always neatly fit into the seven categories as displayed by our map.

Scaling up an innovation like NBT will require a careful balancing act between alignment and disarrangement. In some instances, it will be more effective to seek alignment between existing dominant structures and cultures and the structures and cultures surrounding NBT that are being developed and experimented with as part of the NATURELAB project. In other instances there may be a need to more actively challenge unhelpful dominant cultures and structures. Innovations by nature challenge the existing system, therefore some level of system change will likely be necessary to achieve sustainable uptake and integration of novel ways of working as proposed in NBT.

> Participants in this study perceived there to be multiple potential benefits of NBT for human health and well-being, health systems, and the human-nature relationship. A key next step will be to start communicating and disseminating this positive message to more stakeholders. Our study showed that for some stakeholders, like health providers and funders, such messages need to be supported with research evidence; therefore, where available, such evidence needs to be highlighted, and where not available, such evidence needs to be generated as part of the NATURELAB project or through other research initiatives. Another practical next step will be to start a second cycle of consultations with stakeholders, such as through the organisation of FGDs. Such consultations are necessary for further developing and refining the preliminary strategies for NBT integration and stakeholder engagement, as outlined in this report.

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