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The Green4C project is co-funded by the Erasmus+ Programme by the European Union.

Green4Care

The Green4C Knowledge Alliance, co-funded by the Erasmus+ Programme of the European Union, is a three-year long project (2020-2022) that aims at creating new university-business partnerships to develop, support and enhance knowledge and practice exchange and flow, while fostering innovation and facilitating entrepreneurial opportunities, capacity and skills for students, researchers, professionals, as well as practitioners in the field of Green Care (GC).

At the foundations of the alliance is the Green4C consortium made up of expert universities, research institutes, businesses and international organizations in the different thematic sectors proposed by Green4C. The partners of this consortium include the University of Padua (UNIPD – coordinating institution) in partnership with Etifor | Valuing Nature, Elevate Health, the Universitatea Transilvania din Brașov, Istituto Superiore di Sanità, Meath Partnership, Bundesforschungszentrum für Wald, the European Forest Institute, Wageningen University and Research, Forest Design, The University of British Columbia and The University College Dublin.

Etifor | Valuing Nature (Partner 2) is lead partner for Working Package (WP) 3 on Research and assessment of needs, for which this report and its associated task (Task 3.1) pertain. Etifor | Valuing Nature was supported, for the most part by UNIPD for this task, however, we would like to give special thanks to all those partners who contributed to the technical development and revision of this report, the assessment itself and the questionnaire.

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INDEX

LIST OF ABBREVIATIONS

ANFT - Association of Nature and Forest Therapy
BFW - Bundesforschungszentrum für Wald (Austrian research institute for forests)
BA - Bachelor of Arts
BCs - Bachelor of Science
CSO – Civil Society Organizations
DAFM - Department of Agriculture, Food and the Marine
EFI - European Forest Institute
EU - European Union
FTI - Forest Therapy Institute
GC – Green Care
HEI - Higher Education Institution
HSE – Health and Safety Environment
ISS – Istituto Superiore di Sanità
IUCN – International Union of Conservation for Nature
MA – Master of Arts
MSc – Master of Science
MEA - Millennium Ecosystem Assessment
NbS – nature-based solutions
NGO – Non-government Organization
OECD - Organisation for Economic Co-operation and Development
PPS - Project for Public Spaces
PhD - Doctor of Philosophy
SIMRA – Social Innovation in Marginalised and Rural Areas
TNA - Training Needs Assessment
UBC – University of British Columbia
UCD – University College Dublin
UNITBV - Universitatea Transilvania din Brașov
UNIPD – University of Padua
WHO - World Health Organisation

SUMMARY

The Green4C (GreenForCare) project, co-funded by the Erasmus+ Programme by the European Union, is a three-year project that aims at **increasing Europe's innovation capacity among universities and businesses to promote nature-based solutions for health, well-being and social inclusion**. The project was conceived with the overarching aim of integrating two **business and scientific sectors** that are currently disconnected: the health and social inclusion sectors and the sectors related to the use of natural resources in both rural and urban areas. To support successful integration of business and scientific sectors, Green4C is proposing the development of four innovative **thematic sectors**: **Forest-based care, Social agriculture**, **Urban green care** and **Green care tourism**.

During the course of the project, new opportunities for promoting Green Care will be identified - through online training courses a business innovation challenge, a specialisation school and Green4C hackathons. The **online training course** will be designed incorporating the **training needs of stakeholders** connected to the thematic sectors and will have the aim of promoting the Green Care sector and boosting the availability of knowledge and skills.

This document reports on the results of a **stakeholder analysis and Training Needs Assessment** (TNA), the first major Green4C project expected output under **Deliverable 3.1**. of the Green4C Project, Working Package (WP) 3, Task 3.1. The report is a first attempt at portraying the complex picture of social innovation and entrepreneurship activities, future perspectives and relevant training opportunities currently offered within academic and non-academic courses/institutions that operate in Green Care, its four thematic fields and other connected themes within the European Union (EU).

The methodology for the stakeholder analysis included: 1) Stakeholder identification, and 2) Stakeholder prioritization (assessment of interest, influence and level of participation in the project). The stakeholder analysis helped to identify project beneficiaries and to conduct a beneficiary TNA. The main data collection methods included academic and grey literature review, a TNA questionnaire and in-depth interviews. A total of 206 responses from 49 countries for the TNA were received and 16 in-depth interviews with experts and practitioners from 10 countries were carried out. As a result of the analysis, a list of beneficiary categories that could be reached through the Green4C project was defined.

Some of the **findings** are the following:

- There is a clear trend of growing interest in Green Care and in the different thematic sectors of Green4C, yet differences among sectors and regulations in countries indicate that there is uneven access to training and opportunities for entrepreneurship and innovation in Green Care.
- There are challenges with regard to the financial sustainability of many initiatives, yet space exists for creative and innovative approaches to new business models and for cross-fertilisation.
- There is a need to support the involvement of policy makers and public authorities, and more specifically the health sector, through examples and methodologies that inform about the health benefits of Green Care, and through partnerships aimed at better service delivery.
- There is a need for creating and growing connections among the different thematic sectors so that successful and new business models can learn and share on each other's strengths and weaknesses.

Responses to the TNA questionnaire indicate the desire to acquire thematic knowledge mostly in *assessment of nature-based solutions for health, well-being and social inclusion*, *marketing and promotion of nature-based solutions*, *enhancement of ecosystem service provision through active management of urban and rural areas*, and *accounting tools for ecosystem services and forest management.* In terms of **social innovation and entrepreneurship**, respondents would like to acquire skills and knowledge in: *impact investment, innovative*

idea development, *knowledge and application of cutting-edge technology*, *business management skills*, *business strategy/operations*, *value proposition, budget and financing.* Innovative services targeted at the general public, as well as at specific groups, can support successful new business models and bring changes in attitudes and human-nature relationships. However, to do this, a diversity of competences and skills, including soft skills, need to be provided.

The analysis of this data shows that training needs in Green Care sector can be divided into two large categories: (a) thematic knowledge and skills and (b) soft skills and knowledge related to social innovation and entrepreneurship. The Green4C training courses and follow-up activities will involve experts from each thematic sector to provide thematic-specific content, while a large part of the effort will be devoted to enhancing social innovation and entrepreneurship.

Indications for **new training** knowledge and opportunities developed by the Green4C Consortium include:

- Training opportunities need to be based on knowledge of the thematic sector(s) and include **access to science-based research**. Already existing practical application of academic research should be provided for adaptation and implementation within new business models. Methods for measuring health and well-being benefits should be developed or adopted for practical application by businesses. Research into the actual design of spaces for health and wellbeing related benefits should be made easily accessible.
- **Legal and policy literacy** among stakeholders who wish to navigate through complex regulatory systems to establish and advance their businesses in Green Care sector needs to be provided.
- **Business support** is needed in all the areas, including: idea development, development of the business model, trend analysis, product development and/or co-designing, business plan, communication and marketing as well as networking and soft skills development.
- Business development in Green4C thematic sectors is often undertaken by a social or cooperative enterprise/association and entails close collaboration in the co-creation of the final service or product. Entrepreneurship training needs to focus on **social entrepreneurship**, including aspects of social innovation, adopting design elements and teaching tools such as the social business model canvas and social value creation.
- Green Care activities on the ground require **facilitation capacities** to connect different actors, co-design a business model and develop a new service. Skills for facilitating the exchange, learning and co-designing processes may well define the success of the initiatives in this sector.
- Training should focus on **co-designing and co-creation skills** to ensure that the services offered involve the correct partners, and respond to specific needs and to the targeted demands of the market.
- **Peer-learning and knowledge sharing** is needed for stakeholders from diverse countries and involved in diverse thematic sectors. This also involves exchange and learning between Higher Education Institutions (HEIs) and business through volunteering, internship and on-the-ground experiential opportunities.
- Finally, training opportunities need to provide tools for **assuring quality** and standards of the services provided.

1 INTRODUCTION

1.1 Introduction to Green4C

Recent studies show that **nature-based solutions** (NbS) such as social agriculture, urban green infrastructure and forest therapy are providing **cost-effective and efficient ways to reduce** the negative effects of some growing megatrends such as **stressful and unhealthy lifestyles** and the **growing threat of climate change** to human health and well-being (MEA 2005; Rook, 2013; van den Bosch and Sang, 2017; Kondo *et al*., 2018; Hunter *et al*., 2019).

While the **public sector** is indirectly involved in the process and outcomes of the Green4C project, **the private sector** providing health, well-being and social inclusion through nature-based solutions is the focus of the Green4C actions through **the development of Green Care (GC) entrepreneurial opportunities** for students, researchers, professionals, as well as practitioners. Specifically, Green4C aims at **improving interdisciplinary skills and encouraging innovation and entrepreneurship attitudes** among university undergraduate and graduate students, research staff and professors across the fields of Agriculture, Forestry, Urban Planning and Environmental Management as well as Medicine, Psychology and Social Work, and more broadly business owners and practitioners from these different fields.

The project has an overarching and ambitious aim of integrating **two business and scientific sectors** that are currently disconnected: the health and social inclusion sectors (e.g., public and private hospitals, health centres, care houses and social centres for disadvantaged people) and the nature-based related sectors (e.g., forestry, agriculture, tourism etc.) in both rural and urban areas (including forest owners, farmers, cooperatives, environmental and social associations and public-private tourism consortia). In order to do this, Green4C focuses on four **thematic sectors**, namely: **Forest-based care -** promotion of health and well-being through the use of forest resources, e.g. forest therapy**; Social agriculture** – promotion of well-being and social inclusion through agricultural activities; **Urban green care -** improving mental health, reducing stress, fostering social capital, etc. through the use of urban green spaces; and **Green care tourism** – promotion of health, well-being and social inclusion through the use of green tourism destinations.

1.2 Green Care: definition and applications

Green Care is an emerging concept referring to "*…a range of activities that promotes physical and mental health and well-being through contact with nature*" (Sempik *et al.*, 2010, p.121). Because of the centrality of nature to health and well-being, **Green Care can be understood within the context of nature-based solutions** (NbS) (IUCN, 2013). The approach is based on the use of ecosystems for individual and collective health. It is important to note that Green Care is **an active process** that is intended **to promote or improve health and well-being** as opposed to a purely passive experience of nature. In other words, whilst the health benefits of experiencing nature are increasingly being recognized, the natural environment is not simply a backdrop for Green Care activities. Not everything that is green is 'Green Care' (Sempik *et al*., 2010, p. 11). In this project, **we focus on *health, well-being, and social inclusion*** as primary objectives of Green Care activities.

According to the World Health Organisation (WHO), **health** is "*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*" (WHO, 1948). Green4C incorporates this definition within a more dynamic health concept, recognizing health as the ***"the ability to adapt and to self-manage"*** (Huber *et al*., 2011). This implies that the ability of people to adapt to and manage their situation is key to health.

Wellbeing is "*a holistic, subjective state which is present when a range of feelings, among them energy, confidence, openness, enjoyment, happiness, calm and caring are combined and balanced*" (Pawlyn and

Carnaby, 2009). The WHO definition explicitly links health to wellbeing. Green4C interprets health holistically and includes wellbeing as part of the health concept in each of the following subgroups: a) **physical health and wellbeing; b) mental health and wellbeing; c) social health and wellbeing.**

Social inclusion is defined as "*the process of improving the terms for individuals and groups to take part in society, and the process of improving the ability, opportunity, and dignity of those disadvantaged on the basis of their identity to take part in society*" (World Bank, 2013).

Green Care can be viewed as an umbrella term summarizing a wide range of activities and targeted beneficiaries, ranging from health promotion (targeted to the wider population), disease prevention (accessible to a wider population, but typically targeted towards more vulnerable individuals or groups) and therapeutic interventions which include targeted therapeutic or treatment/ rehabilitation interventions for addressing specific needs (Sempik *et al*., 2010).

1.3 Social Innovation and entrepreneurship in Green Care sector

The Green4C project focuses on supporting new entrepreneurship ideas and innovation. An **entrepreneur** is an innovator who implements changes within markets by carrying out novel combinations of products, processes and marketing (see Schumpeter, 1934; Hagedoorn, 1996), explores new opportunities (Kirzner, 1973; Cromer *et al*., 2011) and creates new organizations (Drucker, 2014).

In Green4C, we focus on **social entrepreneurship** as a specific form of business that can lead to innovation in new Green Care entrepreneurship activities. *"Social entrepreneurship and social innovation aim to provide innovative solutions to unsolved social problems, putting social value creation at the heart of their mission in order to improve individuals' and communities' lives and increase their well-being*" (OECD, 2010). In Green4C, **social innovation**, is defined as in the H2020 SIMRA project as "*the reconfiguring of social practices, in response to societal challenges, which seeks to enhance outcomes on societal well-being and necessarily includes the engagement of civil society actors*" (Secco *et al*., 2019).

Social innovation deals with **changes in networks, attitudes and governance which enhance outcomes for social well-being**. Business models developed for Green Care are complex and require partnerships and new types of formal and informal relationships with intermediaries. One of the areas where we find innovation is the relationships with intermediaries, e.g. nature guides, teachers, social workers, municipalities. For example, Green Care activities may be carried out in public spaces – thus requiring partnerships and agreements with public institutions, or they may rely on access to, and use of, private lands, thus again requiring more formal agreements with private owners of land. Some initiatives may also rely on contracting some services to professionals, such as health professionals and therapists, nature guides, or pet therapy experts.

Businesses operate within the context of complex institutional and legal frameworks. These include **formal institutions**, laws and regulations (on land tenure, public health, safety, commercial activities, labour, etc.) and **informal institutions** (societal norms and rules, traditions, political will, cultural background, etc.) (Casson *et al*., 2009). Governance models also directly influence the development of new entrepreneurship ideas, through the interrelation among actors, power distribution, tasks and roles assigned as well as decision-making processes (Arts and Goverde, 2006). A policy context can also be very important, both as a driver and as an inhibitor, for innovation and entrepreneurship. As Green Care initiatives cut across many policy domains (health, social care, enterprise, rural development, etc.) policy fragmentation may inhibit systems thinking as well as coherent policy and regulatory frameworks for the development of Green Care initiatives and activities.

1.4 Objectives and structure of the report

This document reports on the results of a stakeholder analysis and TNA conducted within the framework of the Green4C Project, WP3, Task 3.1; Detailed stakeholders' analysis and beneficiaries training needs' assessment. The TNA and stakeholder analysis is the first major Green4C project expected result under Deliverable 3.1. The report is a first attempt at portraying the complex picture of social innovation and entrepreneurship activities, future perspectives and relevant training opportunities currently offered within academic and non-academic courses/institutions that operate in Green Care, Green4C's thematic sectors (Forest-based care, Social agriculture, Urban green care, Green care tourism) and other connected themes within the European Union (EU).

From the project proposal, WP3 aims *"to better tailor learning material, training courses, and the creation of the network to specific stakeholders and beneficiaries' needs. Moreover, it aims to narrow specific knowledge on social entrepreneurship and social innovation in the field of Green Care through better targeted research at EU level."* With this in mind, the **aim of the TNA** is to better understand stakeholders' current level of competency, skill or knowledge and identify the training needs and gaps that hinder a desired level performance. Thus, the specific **objectives** of the report are to:

1. Conduct a stakeholder analysis to identify, analyse and create an initial database of stakeholders relevant for Green4C project;
2. Identify beneficiary training needs in social innovation and entrepreneurship for four specific thematic sectors: Forest-based care, Social agriculture, Urban green care and Green care tourism.

The contents of the report thus focus mainly on two types of assessment: stakeholder analysis and beneficiary TNA. The stakeholder analysis is carried out to identify all possible key actors that could be interested and targeted within the project, what country they are from and what sectors they operate in. These include targeted MSc and PhD courses, Green Care (and associated topics) research groups, business sectors and networks, alliances, initiatives, etc. The report also contains an analysis based mainly on information collected through in-depth interviews and a survey launched at EU and global level in order to collect feedback on what are currently the more requested training needs in the field of **social entrepreneurship and innovation** connected with Green Care and with a focus on the four proposed thematic sectors: Forest-based care, Social agriculture, Urban green care and Green care tourism. The analysis presented in this report covers 49 countries (23 European) through the TNA Questionnaire and 10 countries (9 European) through the in-depth interviews.

The report is structured in the following sections. Section 2 presents the methodology and data collection methods employed in this report. Section 3 presents the results of the Stakeholder Analysis and TNA. Section 4 discusses the results in light of available literature and qualitative information gathered through in-depth interviews. Section 5 provides some conclusions followed by references and annexes.

2 METHODOLOGY AND DATA COLLECTION METHODS

2.1 Stakeholder analysis

Green4C project stakeholders are defined as the people, groups and organizations *"…affected by the project or in a position to influence it"* (Eskerod and Huemann,2013; Andersen, 2008, p. 81, building on Freeman, 1984) regardless of whether they have an official role in the project or not (Eskerod and Huemann, 2013; Loch and Kavadias, 2011). The objective of the stakeholder analysis presented in this report is to identify, analyse and create an initial database of stakeholders relevant for the Green4C project. In later stages of the project, this database will provide a basis for establishing the Green4C Knowledge Alliance - the university-business partnership at EU level that strengthens the exchange and facilitates the co-creation of knowledge with organizations in the field of Green Care.

The stakeholder analysis was carried out in two main stages: 1) Stakeholder identification, and 2) Stakeholder prioritisation (assessment of interest, influence and level of participation in the project).

2.1.1 Stakeholder identification

The stakeholder identification process was mainly based on snowball sampling and was conducted through several channels:

a) First, the partners of the project were asked to identify different categories of stakeholders and to fill in a **Green4C Stakeholder Alliance** database (Database 1 – D1) based on the perceived relevance for the project. Each partner was asked to provide at least 10 additional stakeholder entries (see Annex 1). This database was combined with a database (D2) created by partners (P) 1 (UNIPD) and 2 (Etifor) following a preliminary review (internet searches, literature review) of existing courses in Green4C Thematic areas and a final database (D3) again developed by P1 and P2 for the dissemination of the online questionnaire. The final database includes organizational and sectorial details of the stakeholders' organizations. It also allows for the grouping of entries based on the 4 thematic sectors of the Green4C project and gives an indication of whether or not the stakeholder organization has a related training course in a Green4C thematic area.

b) Additional stakeholders were identified as the result of 206 responses received for the **TNA Questionnaire** (See Annex 3).

c) The TNA questionnaire was designed to allow respondents to suggest the names of relevant stakeholders.

d) **In-depth interviews respondents** (as part of TNA process) also supported the stakeholder identification process by sharing their experiences with their networks and by suggesting additional names for conducting in-depth interviews.

2.1.2 Stakeholder prioritisation process

The stakeholder prioritization process involved categorizing the identified stakeholders according to their influence, interests, and levels of participation. The prioritisation process follows the classic Power/Influence grid methodology but follows the approach suggested by Ackermann and Eden (2011). They suggest categorising the stakeholders into four groups (Figure 1):

- **Players**: these are the high-power, high-interest individuals with whom you will want to collaborate and keep fully engaged.
- **Subjects**: these are the low-power, high-interest stakeholders who can offer great insights and ideas for the project but whom you don't need to always say yes to.
- **Context-setters**: these high-power, low-interest stakeholders (heads of departments, for example) can have a lot of influence over the project but don't want to be involved in the details.
- **Crowd:** finally, the low-power, low-interest stakeholders are called the crowd. These individuals will require some ongoing communication about the project's progress but probably the least of all stakeholders.

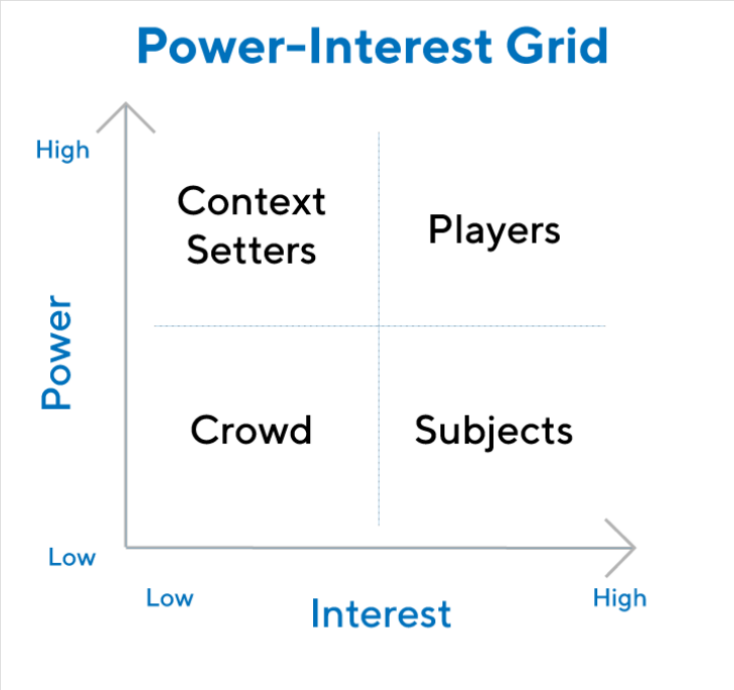

Figure 1. Stakeholder Influence/Power grid suggested by Ackermann and Eden (2011)

The stakeholder prioritisation process followed a subjective assessment by the authors of this report based on the data and additional information received about each identified stakeholder. This process helped to focus mainly on "player" and "subject" categories of identified stakeholders. Annex 1 presents the details and also the results of the stakeholder analysis focused on "player" and "subject" categories. As a result, a list of stakeholder groups relevant to the Green4C project were identified (Table 1; the examples given in brackets are non-exhaustive lists).

Green4C aims to positively impact individuals, groups and organisations through the project's process and outputs, both directly and indirectly. The following are expected **target beneficiaries** of the activities of the project that are filtered out from the stakeholder category list (the examples for each category given in brackets are non-exhaustive lists).

Table 1. The list Green4C stakeholder and beneficiary categories

Stakeholder categories	Beneficiary categories
Beneficiaries of Green Care activities (general population, vulnerable groups and people with special physical and mental needs) Government organizations, including regional, metropolitan, city councils, local governments and municipalities Authorities/ managers of national parks and protected areas Private land, farm and forest owners and managers Learners, including from partner institutions, e.g., vocational trainees, BA and BSc, MA and MSc, PhD, researchers and professors in Agriculture, Forestry, Urban Planning and Environmental Management as well as in Green Care related sectors For-profit and not-for-profit businesses, e.g., forest guides, nature coaches, private health and care service providers, tourism operators Tourism agencies Public health and social service providers Higher Education Institutions (HEI) and research institutions including project partners Civil society organizations (CSO) Thematic networks and forums; business, research, consumer, associations and unions	Private land, farm and forest owners and managers Learners, including from partner institutions, e.g., vocational trainees, BA and BSc, MA and MSc, PhD, researchers and professors in Agriculture, Forestry, Urban Planning and Environmental Management as well as in Green Care related sectors For-profit and not-for-profit businesses (e.g., forest guides, nature coaches, private health and care service providers, tourism operators) Tourism agencies Public health and social service providers Higher Education Institutions (HEI) and research institutions including project partners Civil Society Organizations (CSOs) Thematic networks and forums; business, research, consumer, associations and unions

2.2 Beneficiary Training Needs Assessment

2.2.1 The Training Needs Assessment questionnaire

Based on Wright and Geroy (1992), the TNA refers to a systematic process of collection, analysis and interpretation of data on individual, group and/or organizational skill gaps. The aim of this process is to collect and analyse data that supports decision making about training and non-training opportunities to improve individuals' performances, define who should be trained, and exactly what content should be taught and how (Clarke, 2003; Gould *et al*., 2004).

The data for the TNA was collected through three main methods: review of scientific and grey literature, the TNA questionnaire and in-depth interviews with key informants. The triangulation of data helped to use different sources of information, approach the topic from different angles and thus, increase the validity of the analysis (Guion *et al*., 2011). Google Scholar was chosen as the scientific literature search engine and using different

combinations of keywords, for example “nature-based solutions”, “green care”, “forest therapy”, “Social agriculture”, “urban green”, “health and wellness tourism”, “wellbeing tourism”, “health tourism”, “green tourism”, “social innovation”, “social entrepreneurship”, etc. The grey literature mainly consisted of policy and thematic reports, commentaries, website contents and blog articles on the mentioned topics.

The TNA questionnaire was designed to reach a wide audience and potential beneficiaries of Green4C. The survey was designed to take 15-20 minutes to complete. It included 27 questions on background, available and desirable skills and knowledge in Green Care, social innovation and entrepreneurship, training courses and possible examples for practical applications in Green Care (see Annex 3). The design process of the survey included two rounds of feedback acquisition from project partners, as well as 5 test responses to its final online version. The questionnaire was disseminated through different formal and informal channels within the period of May 22- June 15 2020. It was linked to the Green4C website, and the dissemination channels included the Green4C project partner mailing list, existing mailing lists of previous projects, the European Forest Institute dissemination list, social media pages of partners institutions as well as private pages. The questionnaire was voluntary and anonymous and the data was analysed in an aggregated way. The total number of responses were 206. The data collected through the questionnaire was analysed and presented in an aggregated way. The data was collected and stored by Etifor, the lead partner for WP3 of the Green4C project.[1]

2.2.2 In-depth interviews

In-depth interviews presented the third channel of data collection for the TNA. The interviewees were identified by a combination of selective criteria – such as operating in one of the thematic areas, representing a research institution or a private company – and purposeful sampling. The purposeful sampling method involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about, or experienced with, a phenomenon of interest and are to communicate experiences and opinions in an articulate, expressive, and reflective manner (Palinkas *et al*., 2015). This combination reinforced reaching the most apt stakeholders with the most relevant information power. The objective criteria for choosing the interviewees was to keep the number of interviews to a total of 12, three per thematic sector. Through the efforts at diversification and requests made over different channels, the authors conducted interviews with a total number of 16 interviewees that represent 10 different countries. The interviewees were selected to also represent diverse beneficiary categories mentioned in the beginning of this section.

The interviews were designed in the form of in-depth semi-structured interviews to help respondents share their extensive experience and ideas on the main topic. Annex 1 presents the list of questions asked during the interviews but adapted each time according to the experiences and expertise knowledge of the stakeholder. Interviews were held using the Zoom platform, and an invitation link was sent in advance mostly over email. Interviews were recorded and oral consent was received at the beginning of each interview for recording them, in addition to the information given in the invitation mail text. Table 2 presents the list of the interviewees per thematic sector of Green4C.

It is worth mentioning that, the close involvement of Italian partners of the project (UNIPD and Etifor) in the research and assessment of needs, has created a clear but acknowledged bias in the results by skewing the available data on the training opportunities and respondents for TNA and in-depth interviews towards Italy (country representation) and forestry sector (thematic representation).

[1] ETIFOR’s privacy, data treatment and protection policies are described here: https://www.etifor.com/en/privacy-cookies-policy/

Table 2. The list of interviewees for the TNA

Forest-Based care				
Name and Surname	**Specialization**	**Country**	**Organization**	**Interview date**
Celine Girardon	Forest bathing guide	Spain	Habla del bosque	June 2, 2020
Simon Yu	Taiwan Forest Therapy Guide, local development	Taiwan	National Taiwan University	June 8, 2020
Alex Gesse and Shirley Gleeson	Forest Therapy and bathing, training and guiding	Spain/Ireland	Forest Therapy Institute	June 8, 2020
Katriina Kilpi	Research, practice, consulting in forest-based care	Belgium	Nature Minded	June 8, 2020
Marco Nieri	Bioresearcher, forest therapy	Italy	Archibio / Forest Therapy Institute	June 10, 2020
Social Agriculture				
Francesco Di Jacovo	Researcher, professor	Italy	Orti Etici	June 4,2020
Aisling Moroney	Coordinator	Ireland	Social Farming Ireland	June 5,2020
Manon Vernerey	Student interested in Social Farming	France/Netherlands	Wageningen University and Research	June 10, 2020
Urban green care				
Fabio Salbitano	Urban Forests, Silviculture, Forest and Landscape Restoration, Landscape Ecology	Italy	FAO/Università di Firenze	June 9, 2020
Kjell Nilson	CEO, urban planning and design	Norway	Nordregio	June 12, 2020
Joan Pino Vilalta	Director, Urban Ecology and Biodiversity	Spain	CREAF	June 11, 2020
Green care tourism				
Ayako Ezaki	Tourism skills and jobs	Germany	Training Aid	Jun 16, 2020
Sara Bellshaw	Nature-based tourism, slow adventure	UK	Slow Adventure	June 18, 2020
Cristina Căluianu	Care tourism	Romania	Sanotouring	June 17, 2020
Cross-cutting fields				
Gorka Altuna	Private forest owner mobilization and business diversification	Spain	Forests and Health, Forests Europe, USSE	June 11, 2020
Giovanni Gallo	Health professional interested in Green Care / Former director of the unit on infectious diseases at regional level in Veneto, Italy	Italy	Ottawa Charter	June 12, 2020

3 RESULTS

3.1 Beneficiary Training Needs Assessment Questionnaire

This section presents the results of the data collected through a questionnaire designed for the beneficiary TNA (Annex 3). A total 206 responses were recorded within the period 22 May-15 June 2020. However, some questions that did not require a compulsory response received less than the total number. The number of responses received per question are reported in the following sections. The results of the questionnaire are presented based on the structure and rational for the design of the questionnaire: a) Background of the respondents, b) Respondents' existing knowledge and skills, and training needs in Green Care, c) Previously attended courses in Green Care.

3.1.1 Background of the participants

This subsection presents the result based on the background information of the respondents. This information helps to better understand and contextualize the existing skills, knowledge and competences, as well as training needs indicated in the follow-up sections.

3.1.1.1 Age and gender

202 responses were recorded for age and gender, the majority of the respondents belong to the age category 25-34 (31.2%), followed by categories 45-54 (20.8%), 35-44 (19.8%), 18-24 (14.9%), 55-64 (10.9%), and 65 and above (2.5%) (Figure 2).

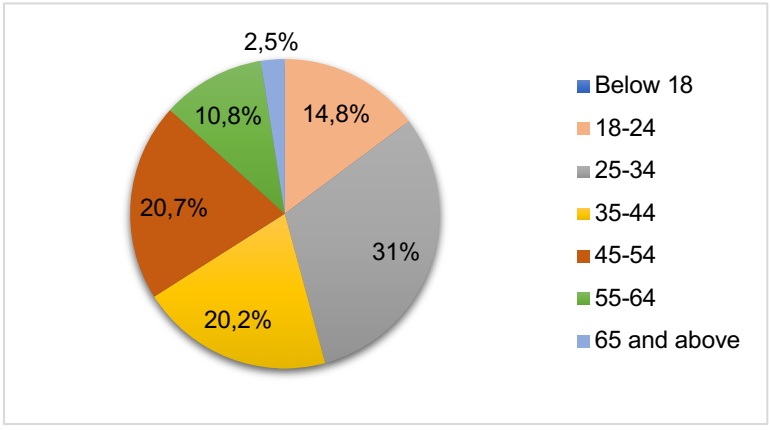

Figure 2. The age distribution of survey respondents (percentage of total) (no. = 202)

The majority of the respondents have identified themselves as **female (60.9%** of total no. 202), while male respondents make up 39.1% of the 202 responses received (Figure 3).

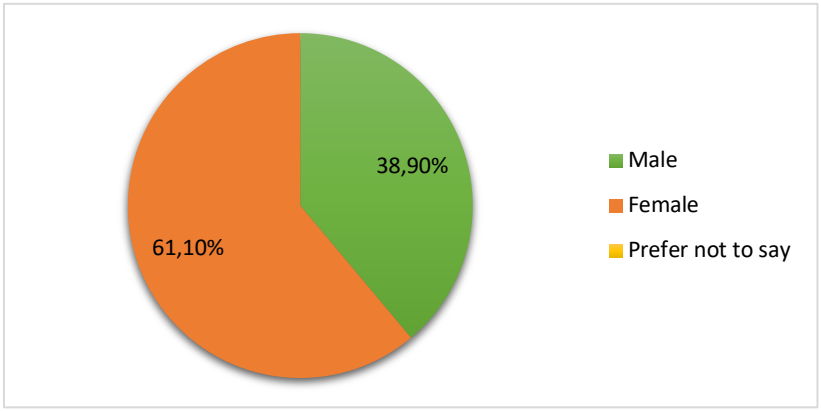

Figure 3.The gender distribution of survey respondents (percentage of total) (no. =202)

3.1.1.2 Nationality and country of residence

A total of 206 responses were recorded for the questions on the nationality and country of residence of the respondents. Respondents have indicated a total of **49 different countries** (23 European) as country of nationality. Categorization of the countries into continents demonstrates that the majority of the respondents are of European origin (46% of total - 206), followed by Asian (22% of total), African (12% of total), South American (10% of total), and North American origin (8% of total) (Figure 4). Most of the respondents from Europe are Italian (38, 18% of total), Romanian (18, 9% of total), Irish (12, 6% of total), Austrian (11, 5% of total), French (8, 3% of total) nationalities. Outside of Europe, Canada (13, 6% of total) and USA (10, 4% of total) were the next most responsive countries for nationality of respondents.

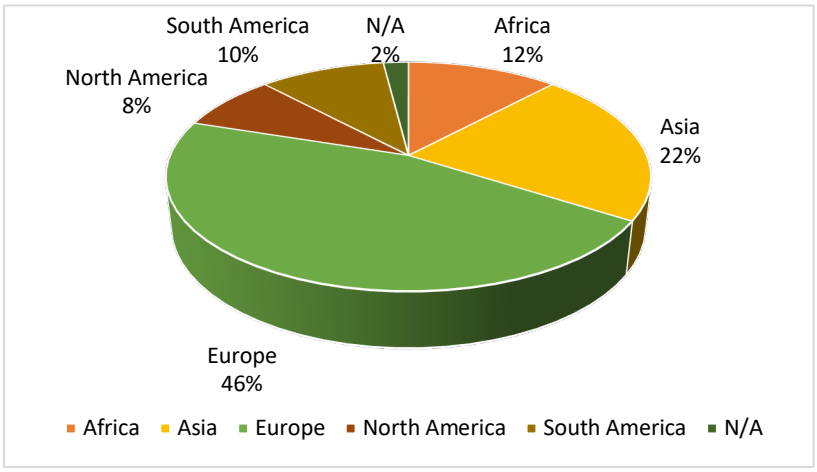

Figure 4. Nationalities of survey respondents per continent (percentage of total) (no. = 206)

Respondents indicated a total of **53 different countries as their country of residence**. Categorization of the countries into continents again demonstrates that the majority of the respondents have a European residence (56% of total - 206), followed by Asian (22% of total), South American (7% of total), North American (6% of total) and African (5% of total) residences (Figure 5). Most of the respondents in Europe have Italian (39, 19% of total), Romanian (18, 9% of total), Irish (12, 6% of total) Austrian (11, 5% of total), German (11, 5% of total) residences. Outside of Europe most of the respondents have indicated to have Canada (16, 8% of total) and USA (7, 3% of total) as a country of their residence.

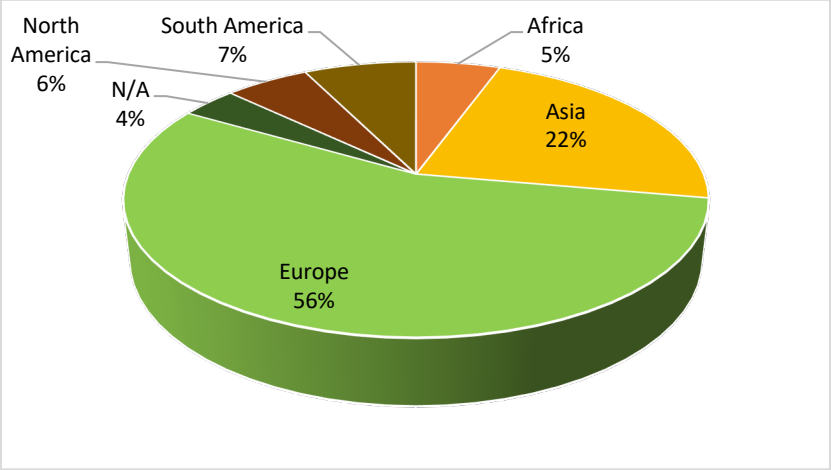

Figure 5. Residence countries of survey respondents per continent (percentage of total) (no. = 206)

3.1.1.3 Educational background and current positions of the respondents

A total of 192 responses were recorded for question 1.5 on the educational background of the respondents. As the question was designed as open-ended, a detailed statistical analysis based on the responses is challenging to conduct. Four respondents indicated clearly to have graduated from high school, 12 respondents indicated to have Bachelor's degrees (i.e. in *Liberal Arts, Forestry, Psychology, Environmental Sciences, Biology, Behavioural Science*), 28 respondents indicated to have Master's degree (i.e. *Health Promotion, Social Work, Forest Wildlife Ecology and Management, Psychology, Psychiatry, Neuroscience and neuropsychological rehabilitation, Media Production, Sustainable Tropical Forestry, Sustainable Forestry and Nature Management, Forest engineering, Environmental Economics and Policy, Business Studies, Engineer in agriculture*), 17 respondents indicated to have some kind of University degree, 21 respondents indicated to have a doctoral degree (i.e. in *Landscape Architecture, Chemical Engineer, Environmental Economics, Geoscience, Environmental Economics, Agronomy*, etc.). Some other interesting educational backgrounds were indicated as *Kindergarden pedagogics, Landscape architecture and Public health*.

A total of 206 responses were recorded for the question #1.6 on the current position of the respondents. Most of the respondents identified themselves as *Master student* (50 responses, 24.3% of total), followed by *Consultant/ External expert* (35 responses, 17% of total), *entrepreneur/self-employed* (35 responses, 17% of total), *Researcher* (32 responses, 15.5 % of total), *Employee* (29 responses, 14.1 % of total).(Figure 6) In addition to the mentioned categories respondents added the categories *Personal development facilitator, Local government- climate action and environment, Program coordinator (NGO), Medic, Post lauream master, Extension forester (University), Hiking guide and forest-bathing guide (Forest Therapy Institute).* It is worth noting that question #1.6 allowed multiple choice answers: respondents could choose multiple options and add categories that more accurately described their current positions. For example, entries such as a) *Consultant/ External expert, Entrepreneur/self-employed* or b) *Researcher, Social Service Provider, Manager (farm, forest, company), Entrepreneur/self-employed* were recorded. This again demonstrates the multidisciplinary character of the Green Care sector (Figure 6).

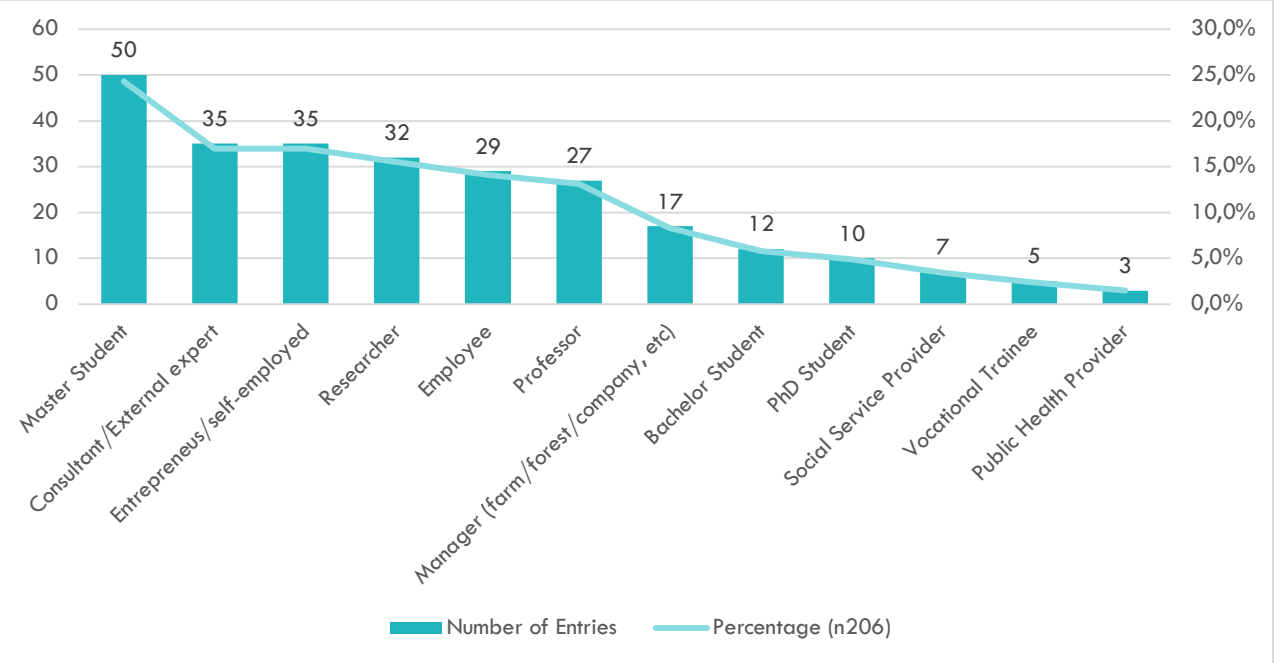

Figure 6. Current positions of the respondents

3.1.1.4 Background in Green4C thematic sectors

The respondents were asked to indicate their **current and future (potential) involvement** in the thematic sectors of Green4C, to better understand the context of current knowledge and skills and future needs in skill and knowledge acquisition. The comparison of the responses to the questions #2.2 "*To what extent do you **CURRENTLY** deal with the following thematic sectors of Green4C? (Please select one option for each row, 0 = not at all 4 = to a very great extent)" and* #2.3 *"To what extent do you expect to deal with the following thematic sectors of Green4C in the **FUTURE**? (Please select one option for each row, 0 = not at all 4 = to a very great extent)"* shows the clear trend of growing interest in Green4C thematic sectors. More specifically, mean average of 55.5 for the choice answer =0 (not at all) decreases to 25.5 and mean average of 30.75 for the choice answer =4 (to a very great extent) increases to 70.25 when comparing current and future involvement in the thematic sectors (Figure 7 and 8). The comparison of the mean averages of the number of responses received for each thematic sector also show significant increase when comparing the current and future involvement (Figure 9).

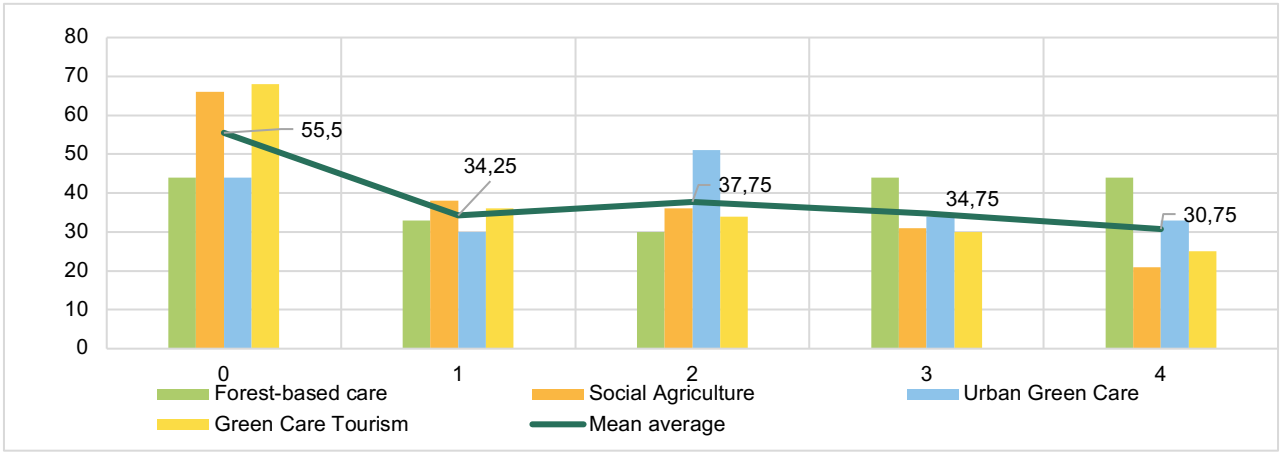

Figure 7. Current engagement of respondents in the thematic sectors of Green4C

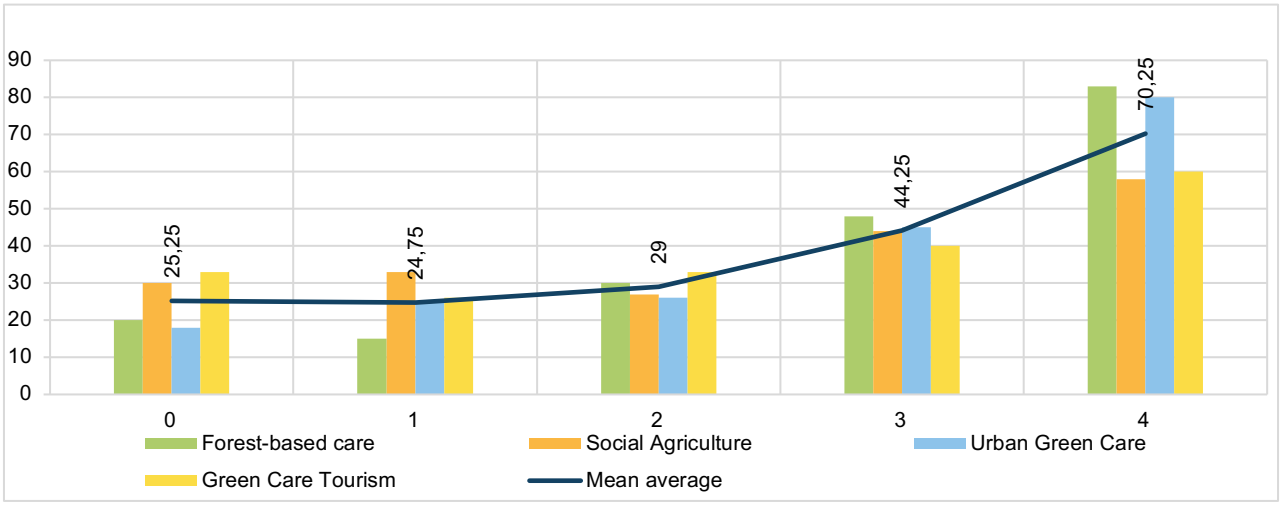

Figure 8. Future engagement of respondents in the thematic sectors of Green4C

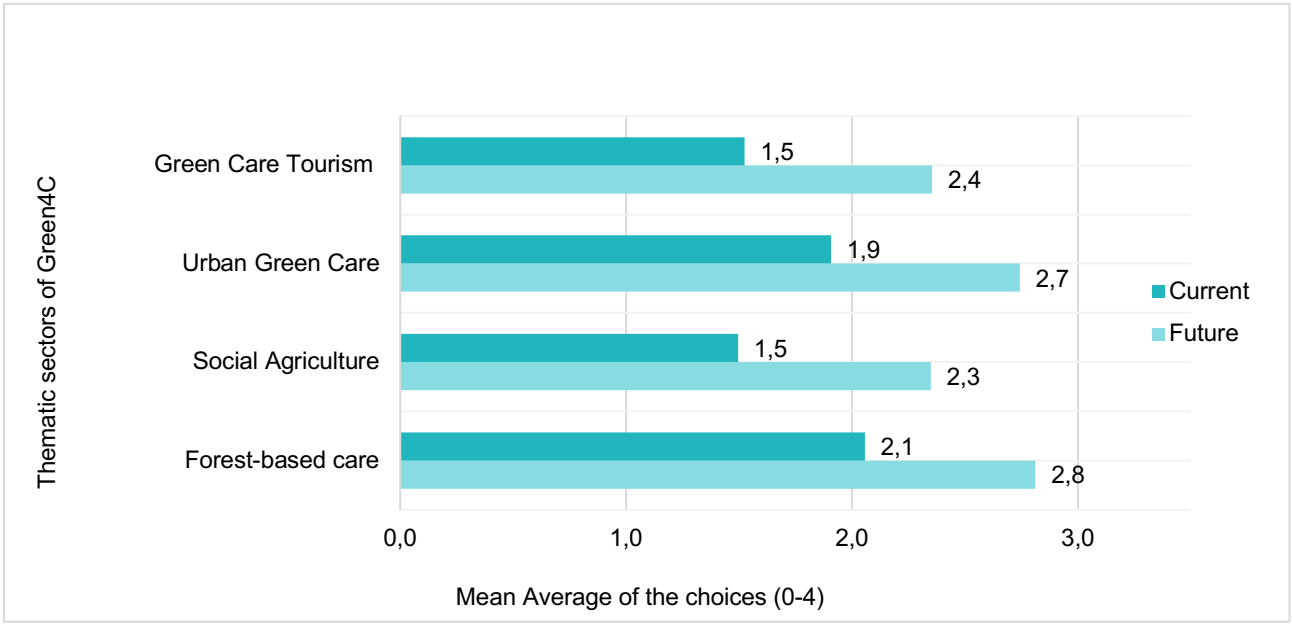

Figure 9. Comparison of the mean value of the respondents' choices for each thematic sector of Green4C, at present and in the future

3.1.2 Respondents' existing knowledge and skills in Green Care

3.1.2.1 Skills and knowledge in Green Care

The respondents were asked to indicate the knowledge and skill sets that they currently possess and that relate to Green Care. The question offered different options for multiple choice, but also allowed for the possibility to indicate additional ones not mentioned in the options. A total of 206 responses were received for this question. The top five chosen skill sets are *forest management* (105), *assessment of nature-based solutions for health, well-being and social inclusion* (81), *enhancement of ecosystem service provision through active management of urban and rural areas* (80), *systems thinking* (64) and *marketing and promotion of nature-based solutions* (61)
(Figure 10).

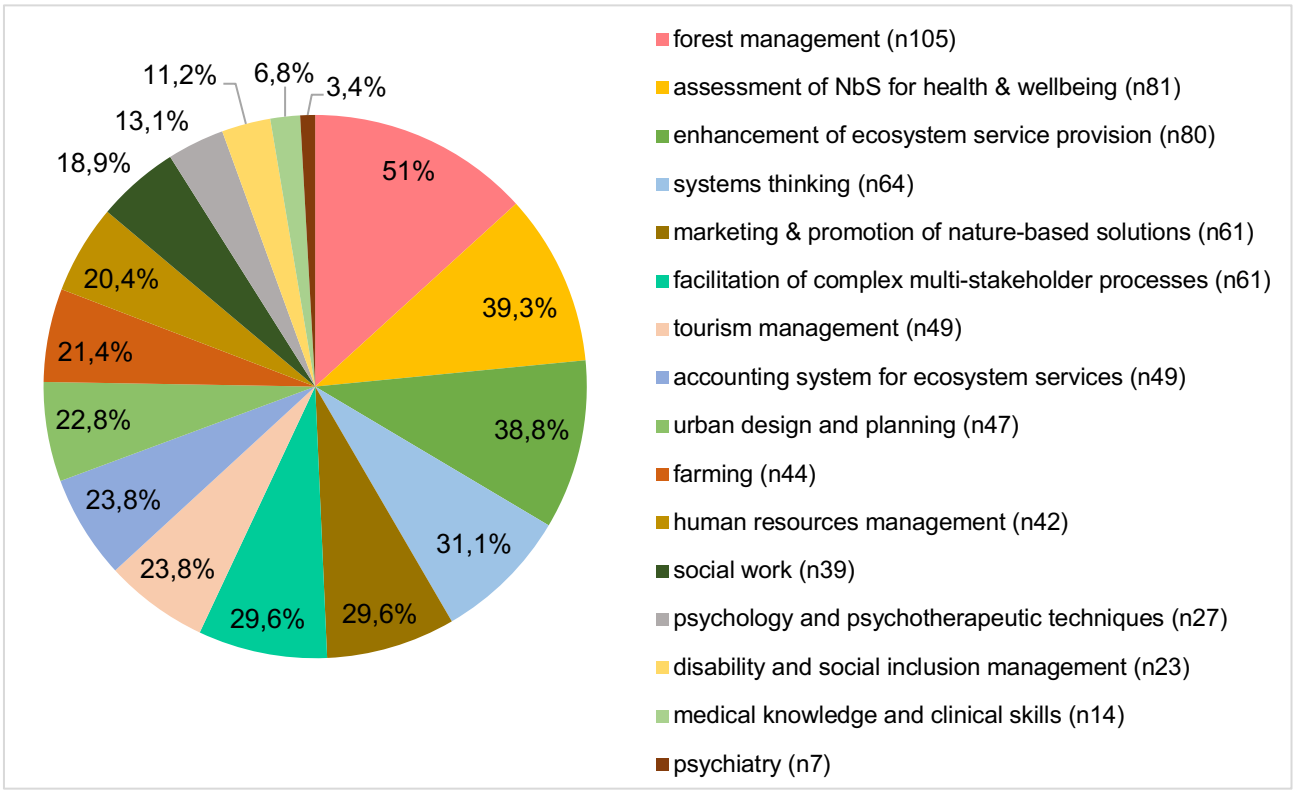

Figure 10. Skills and knowledge related to Green Care that respondents currently have

The same set of multiple-choice options was provided to understand what kind of skills and knowledge respondents would like to obtain in the future for their potential career in Green Care sectors. The respondents were given space to add their own options. A total of 199 responses are recorded. The top five desired skills and knowledge are *assessment of nature-based solutions for health, well-being and social inclusion* (95), marketing and promotion of nature-based solutions (85), *enhancement of ecosystem service provision through active management of urban and rural areas* (72), *accounting system for ecosystem services* (69), *forest management* (68) (Figure 11). The comparison of the current skills and knowledge and the future desired ones demonstrate a clear gap (Figure 12). Urban design and planning, accounting system for ecosystem services, marketing and promotion of NbS, psychology and psychotherapeutic techniques, assessment of NbS for health and well-being are the fields where the gap between current and future desired skills and knowledge are more evident.

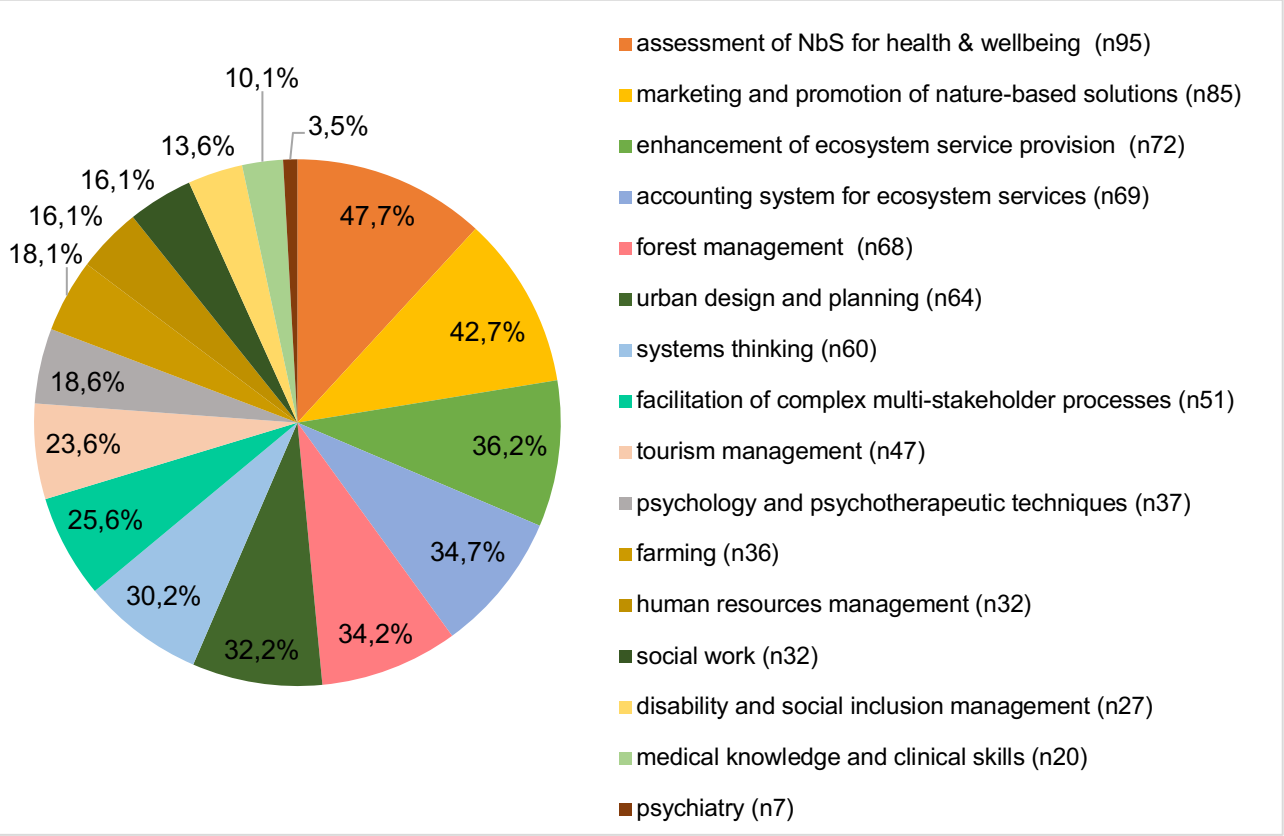

Figure 11. Skills and knowledge related to Green Care that respondents would like to acquire in the future (no. = 199)

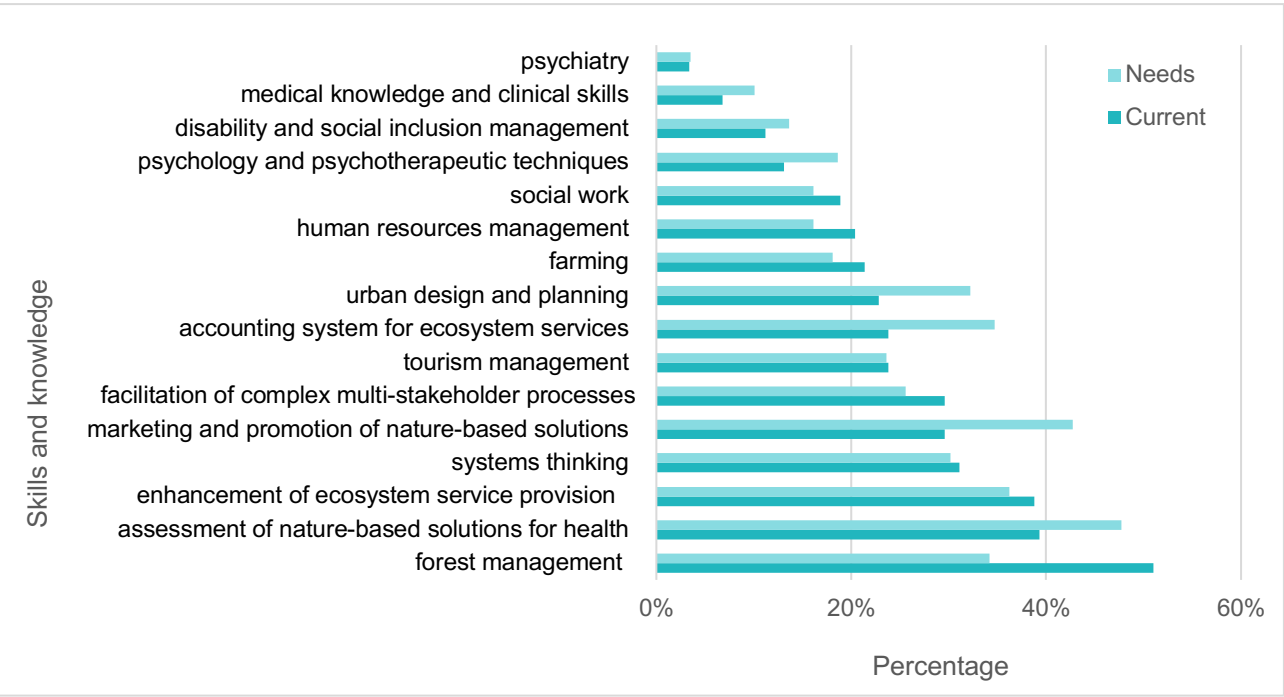

Figure 12. The comparison of the percentages on skills and knowledge in Green Care the respondents currently have and need

Table 3 presents the list of skill sets and knowledge that the respondents currently possess and would like to obtain, in addition to the choice options provided in the questions. These additions help to understand the perception of the respondents of Green Care as a sector and the **thematic knowledge and skills** they consider important to acquire for operating within the sector.

Table 3. Additional thematic skills set and knowledge that respondents currently have (left) and would like to obtain in the future (right)

Current	Needs
Forest-based care	
Forest bathing and forest therapy training Forest education Forest entomology and pathology Nature and forest therapy guiding	
Social agriculture	
Horticultural therapy	Garden design and planning, permaculture Horticulture Therapy
Urban green care	
Green areas and urban outskirts Tree care, plant selection, quality plants, Proper planting and pruning	
Green care tourism	
International tourism certification	Ecotourism development
Healthcare	
Public health, assessment of user group needs, health-promoting activities Health promotion	Knowledge psychology and psychotherapeutic technics
Social Service	
	Bringing the outdoors in to residential and care homes, prisons, hospitals
Business	
Green finance Communication Fundraising and strategy design	Behavioural economics Entrepreneurship Business skills

Science	
Scientific skills, evidence-based research for efficacy of Green Care Technical knowledge about ecosystems Carbon accounting Teaching and training skills	Biodiversity survey technics Social research
Policy	
Knowledge translation strategies on a policy level	Policy for and governance of nature-based solutions Rural development Sustainable development
Interdisciplinary	
Environmental education Heritage interpretation and pedagogics, integrating traditional (i.e. Indigenous) ecological ways of knowing into management approaches Landscape approaches and architecture Planning, promotion and coordination of clean-up groups on hiking trails Relationship between green and pollution Yoga	Better understanding of and ability to integrate non-colonial (western) world views into processes and approaches Ecosystems and Resource Management Impact of Green Care on further sectors and vice versa Social law

3.1.2.2 Skills and knowledge in Social Innovation and Entrepreneurship in Green Care

For the purpose of exploring the topic of **social innovation and entrepreneurship** in Green Care, respondents were asked to indicate their current skill sets and the knowledge they currently possess. The respondents were allowed to include additional options. A total of 202 responses were received. The top five choices are *critical thinking* (134), *leadership skills* (125), *communication* (123), *planning and development* (123), and *creativity* (121) (Figure13).

The same set of multiple-choice options was provided to understand what kind of skills and knowledge the respondents would like to obtain in the future related to **social innovation and entrepreneurship** in Green Care. The respondents could also add their own options. Total 206 responses are recorded. The top five desired skills and knowledge are *impact investment* (87), *innovative idea development* (82), *knowledge and application of cutting-edge technology* (79), *business management skills* (77), *business strategy/operations* (75) (Figure14). The comparison of the current skills and knowledge and the future desired ones demonstrate a clear gap (Figure 15). *Impact investment, Knowledge and application of cutting-edge technology, Value proposition, Budget and financing, Business management skills* are the fields where the gap between current and future desired skills and knowledge are more evident.

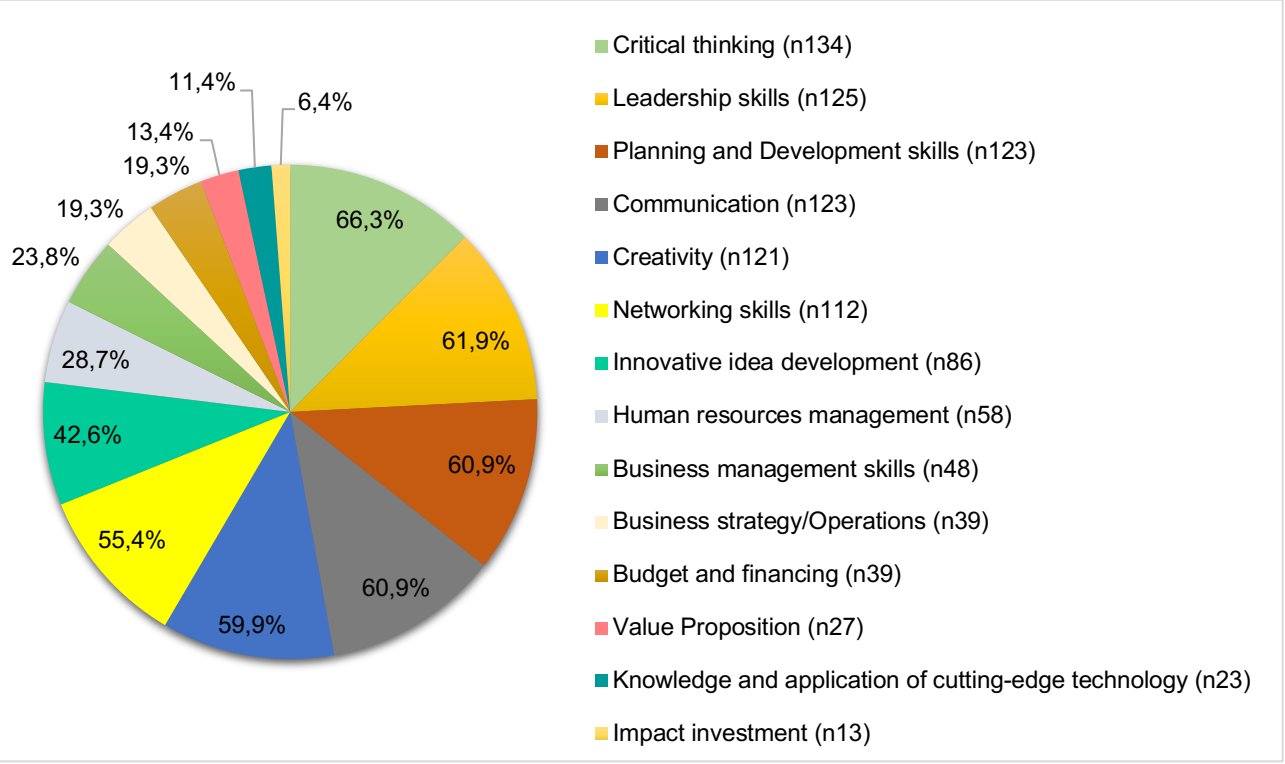

Figure 13. Skills and knowledge related to social innovation and entrepreneurship in Green Care the respondents currently have (no. = 202)

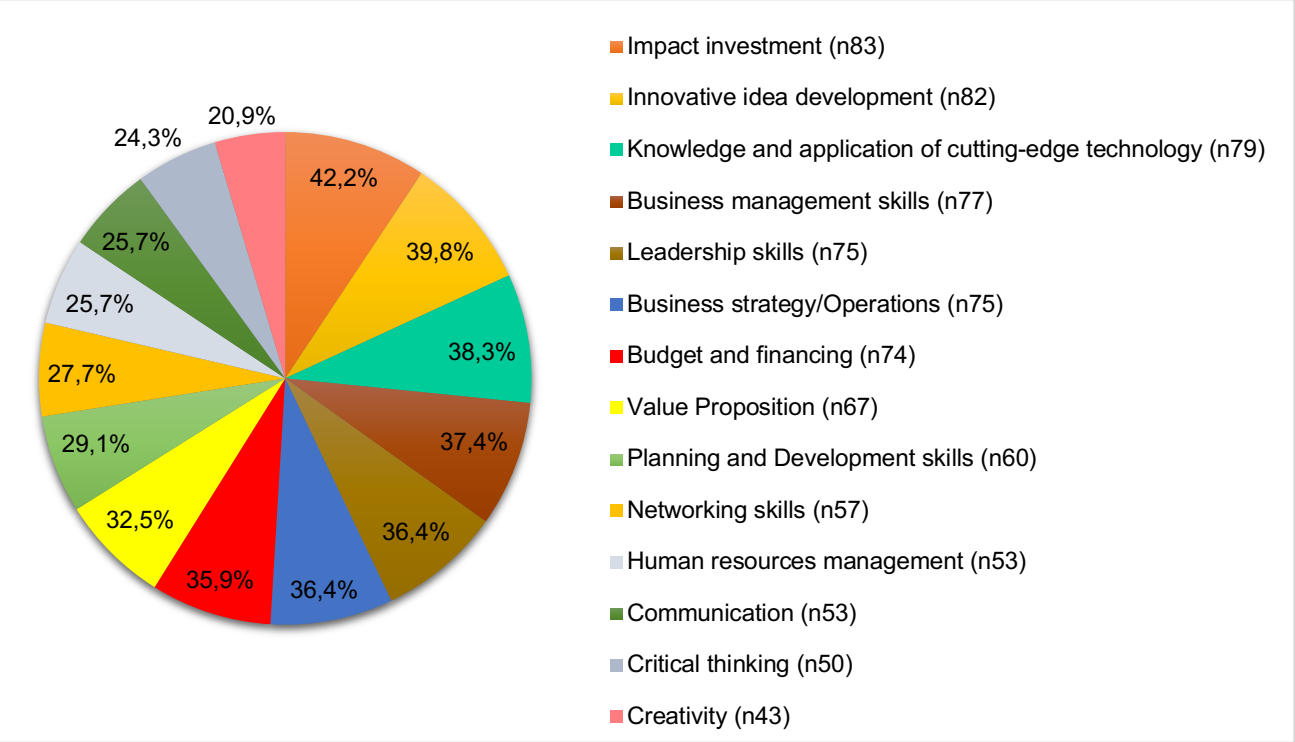

Figure 14. Skills and knowledge related to social innovation and entrepreneurship in Green Care that respondents would like to acquire in the future (no. = 206)

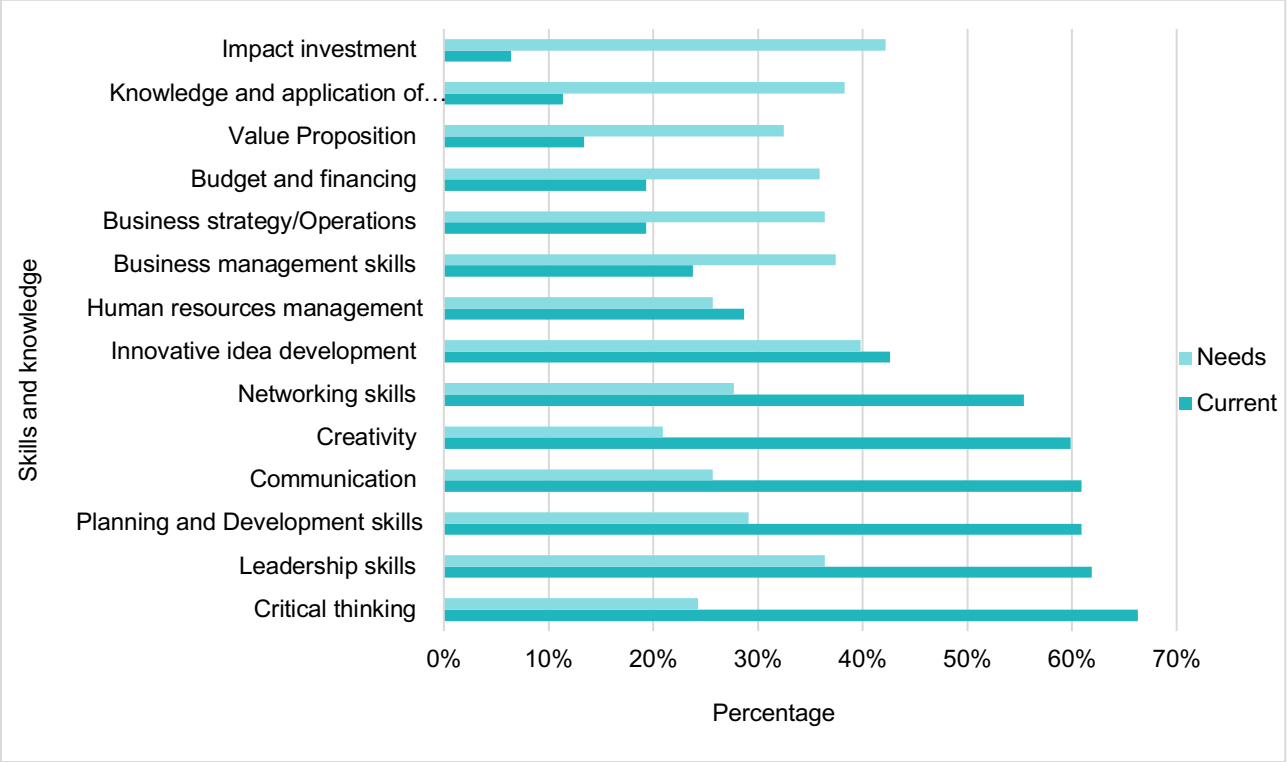

Figure 15. The comparison of the percentages on skills and knowledge in social innovation and entrepreneurship in Green Care the respondents currently and need

Table 4 presents the list of skill sets and knowledge related to **social innovation and entrepreneurship** in Green Care that the respondents currently possess and would like to obtain, in addition to the choice options provided in the questions. These additions help to understand what kind of skills the respondents consider important for the enhancement of entrepreneurship and innovation in Green Care sector.

Table 4. Additional skills set and knowledge that respondents currently have (left) and would like to obtain in the future (right), related to social innovation and entrepreneurship in Green Care.

Current	Needs
Empathy and compassion, blue-sky thinking Empowerment, educational-learning skills, collaborative and co-creation skills + hands-on skills, working with hands, impact measurement Knowledge of Assessments to determine best interventions Learning new things (and Self-development) Resources investigator Rural extension, regional development Specialists on green jobs in the forest sector	Active listening Environmental economy All of the above, but specific to nature-based solutions like Green Care

3.1.3 Training courses in Green Care

The respondents were asked to indicate if in the past they attended any training courses in thematic fields related to Green Care. In total, 183 responses were received. Most of the attended training courses were related to *Forestry* (100*), Ecosystems and Resource Management* (87) and *Health, well-being and Social Inclusion* (56) (Figure 16).

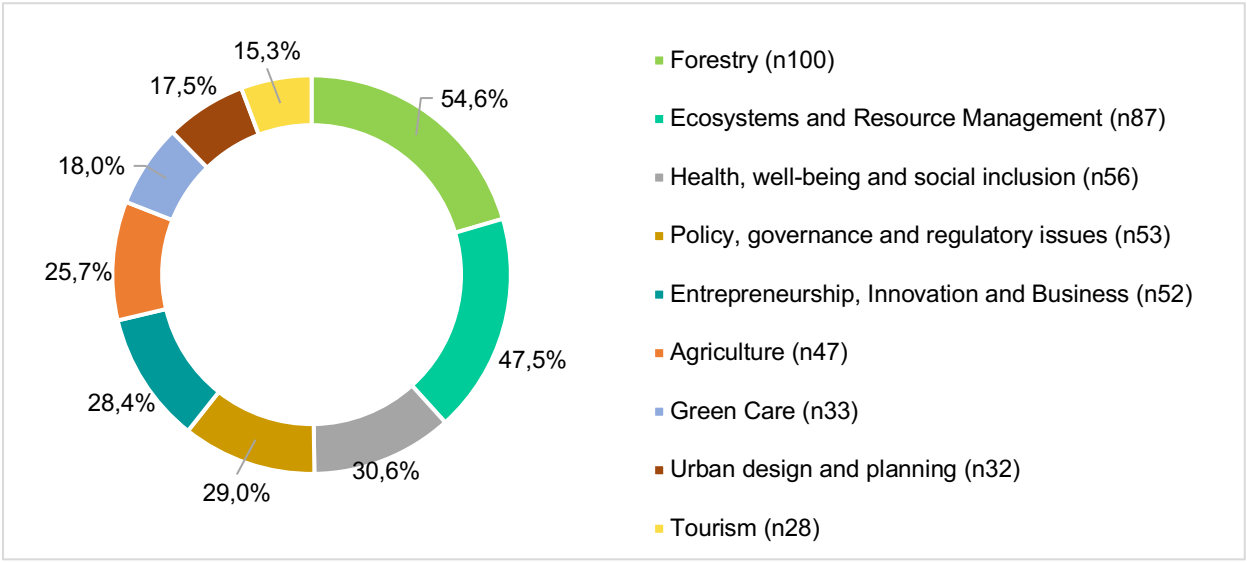

Figure 16. Thematic topics of training courses previously attended by the respondents (no. = 183)

During the course of the Green4C project, new opportunities will be promoted - through online training courses, hackathons and a specialisation school. To support the development of these opportunities to suit the needs, the respondents were also asked to indicate the topics they would like to see as part of the offered training course, with the aim to develop more targeted opportunities and deliver a training-course tailored to the needs of the stakeholders. When asked which format of the training course and what kind of design elements they would like to see in the course, the responses vary widely. Figure 17 demonstrates the responses received for this question. Additionally, a respondent indicated that:

> *"…Green care is about real life and real relationships, so most of the learning should take place in real life (face-to-face) learning, as well as group learning assignments (co-creation of knowledge), and furthermore skill development for the Green/gardening/farming/forestry parts, and practice on the ground to apply and learn at the same time"* (Respondent, TNA Questionnaire*).*

The respondents were also asked about the preferred content of the Green4C training course. The question #4.1 presented the respondents with options divided into larger categories of a) Forest Management; b) Agriculture; c) Urban green design and planning; d) Tourism Management, e) Health, well-being, social inclusion; f) Ecosystems and resource management; g) Policy, governance and Regulatory issues; h) Entrepreneurship, Innovation and Business Management. The full list of options per category is provided in TNA Questionnaire in Annex 3. Figure 18 shows the top three preferred options by respondents, as per the above-mentioned categories. It is worth mentioning that all the other subtopics also received significant responses, despite not being presented in the figure.

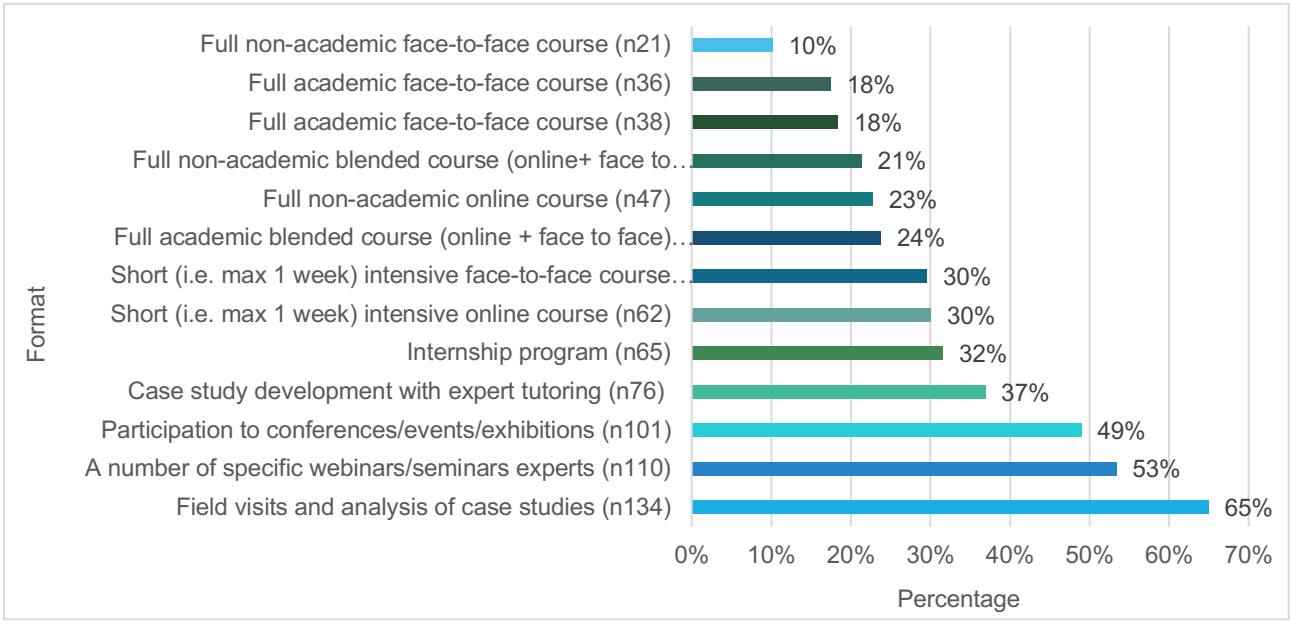

Figure 17. Green4C training course format and design elements, as preferred by the respondents (no. = 206).

The respondents also added additional topics per category to indicate the relevant content they would like to learn and be trained in. In Table 5, we present the compilation of the additional content presented by the respondents per category.

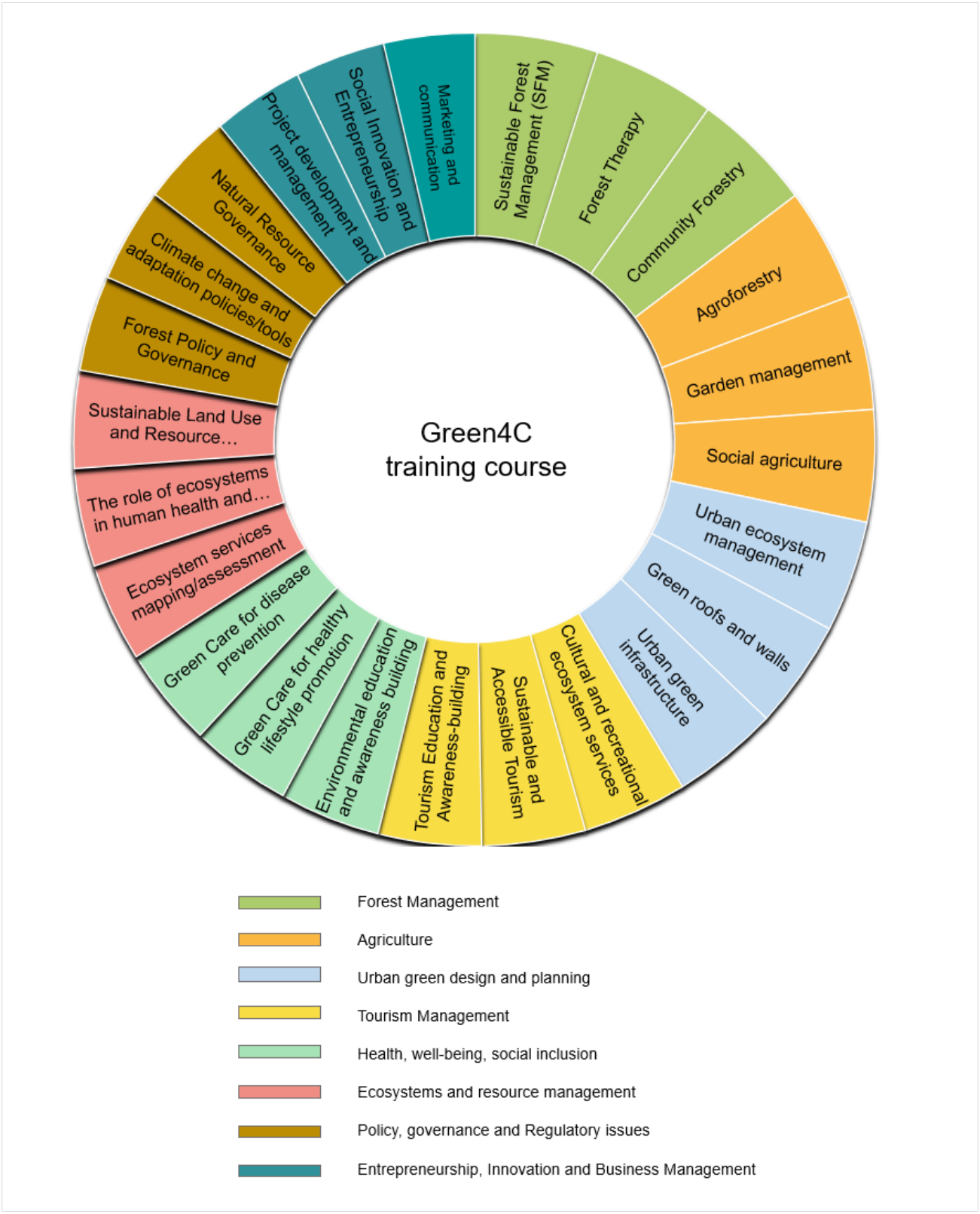

Figure 18. Top 3 preferred choices per category as part of Green4C training course design

Table 5. Additional topics added by respondents as desirable topics to study within Green4C training course

Categories	Additional topics
Forest Management	Business plan for Forest Management Financing and business models for Green Care Education in Forests (Forest Classrooms) Healing and Cure Forests Design and Management Forest healing Creating nice places attracts visitors and creates value Community based fire management Rewilding Social forestry, Reforestation GIS based modelling Silvopasture All the topics above with an Urban Forest focus
Agriculture	Financing and business models for Green Care Value chain, business models Climate Smart Agriculture Permaculture Small personal gardens for growing our own food Urban agriculture/farming Permaculture, agroecology, food-forests Agroecological gardens
Urban design and planning	Climate change and related event management (heat waves, floods) Urban forestry and trees “Universal green design” Urban wildlife management Cycling and pedestrian road management Providing the space for mature trees to grow to maturity City permaculture and circular principles for new products and services and integrated water and energy management, (composting systems at micro, meso, macro levels, new products from waste), principles of equal access and use of the public space and clean air Financing nature-based solutions
Tourism Management	Tourism for children Responsible tourism Respite for specific groups Heritage interpretation (already exists, which also implies to connect people to place again and stimulates taken on stewardship for your environment. Tourism also involves the critical issue of (polluting) travel and its impacts on the local socio-economic and ecological tissue. Business plan for tourism marketing

Health, Well-being and Social Inclusion	Physical activity. Risk management and assessment. Green Care for prisoners Social inclusion and nutrition As a trained forester, I would like to learn about health, well-being and inclusion Balancing tree canopy among different economic parts of a community The spiritual and philosophical connections, the past, present and future Nature based workplace well-being
Policy, Governance and Regulatory issues	Public health policy No consumer fraud designs Equal access and use of public green spaces/nature + new forms for collective use and ownership
Entrepreneurship, Innovation and Business Management	Financial management Collaborative models Value chains, business models All of the above but specifically related to Green Care opportunities

3.2 Results of in-depth interviews

The TNA data collection method also included in-depth interviews with selected stakeholders. In the following subsections we present a **(1) brief description of a thematic sector** as perceived and described by interviewees, main points regarding **(2) challenges that the sectors face** and **(3) internal training needs of involved actors for developing new entrepreneurship**, based on responses of the interviewees. Some of the internal training needs could be addressed through the training courses and capacity building offered within this project. As an Erasmus+ project, Green4C can also address some of the external challenges the sectors face by creating more visibility for these sectors, by engaging in political discussions about the promotion of nature-based solutions and Green Care approaches and by creating basis for stakeholder alliances, thematic communities and peer, cross-sectoral learning.

3.2.1 Training needs in Forest-based care

Forest-based care can be understood as an **umbrella term that covers diverse activities aimed at health, well-being, stress-relief and connection with nature through the use of forests**. These activities are based on research and science on forests and human health, international nature connection practices, ancient wisdom, eastern philosophy and indigenous teachings.

Activities of forest-based care can carry different names such as “Forest therapy”, “Forest bathing”, “Shinrin-Yoku”, “Forest walks”, “Natural Mindfulness”, “Healing forest”, “Forest Mind”, “Forest lolling”, “Forest immersion”. Depending on the school of thought and the level of personal training and values of a guide, the emphasis of the existing services across the world can range from being mere instrumental – the use of forests as a source for reaching stress-relief, acquiring the sense of well-being – to more spiritual and deeply relational practice (the focus on relationships between humans and the more-than-human world, that become the source of healing and joyful well-being).

The term Shinrin-Yoku emerged in Japan, as practice of a national health programme designed to reduce population stress levels in 1982. In Asian countries such as Japan and South Korea, Shinrin-Yoku practices are more embedded in society, the healthcare systems are more likely to give out green prescriptions and it is more institutionalised in public services. For example, South Korea is well-known for its “From cradle to grave: Life with forests.” The Law on Forest Welfare Promotion, which covers the timeline of human life from birth to death, such as Forest Welfare programmes for pregnant women to Forest Kindergardens, Forest School Guide, Forest healing to tree burial (being buried in a forest).

The western interpretation of forest bathing/ forest therapy is inspired by the Japanese concept but is not a replication of it. In Europe or North America, most of the forest-based care services are provided privately by trained forest-therapy guides or instructors. The element of innovation of these practices or services is found in the approach that a guide/instructor follows and also in the type of partnerships with other stakeholders such as forest owners or employers interested in employee care and stress relief.

> *“Each of these approaches have their own way and all of them focus on the healing aspects of being in the forest, coming in contact with the forest with all our senses, with some differences in emphasis. The more variety, the more the likelihood that we can find a fit for more needs” (Personal Communication, Katriina Kilpi, 8 June, 2020).*

A couple of **well-known institutions provide training for guides**. The Association of Nature and Forest Therapy (ANFT) in the USA or the Forest Therapy Institute (FTI) based in Europe are the most prominent examples. To become a certified trainer/guide/instructor and be able to start your own services under the umbrella of these institutions, it is important to go through a training process. In their training programme, FTI differentiates between Forest Bathing Guide Training and Forest Therapy Practitioner Training, as the

competence, skill and knowledge set required for forest bathing and forest therapy are considered complementary but also different, as these two groups of practices have different target groups.

The guides or instructors that go through the training and mentorship programs provided by these institutions can later on **start their own services or business in their local communities**. That implies building upon existing networks, partnerships and relationships and creating new ones. Forest bathing and therapy practices in Europe **mostly rely on accessibility to forest areas**. The type of accessibility also differs across countries. Depending on access to the forest, business models will be developed differently. For example, in Finland you can access and walk through forests anywhere, even private forests (also known as **freedom to roam**, or "**everyman's right**"). This is not the case in all European countries, where access is granted mostly in areas that are protected under Natura2000 legislation because not all private forest owners may want to open their lands to these types of activities. Table 6 presents a compilation of external challenges for promoting the sector and internal needs of the actors for enhancing more innovation and entrepreneurship, as per interviewee responses.

Table 6. External challenges and internal training needs for promoting social innovation and entrepreneurship in Forest-based care

External challenges	Internal training needs
Promoting forest therapy through green jobs	Agreement on terms and definitions and their consistent use
Embedding forest therapy into healthcare systems	Knowledge on how to treat trauma and understanding the feeling of responsibility when dealing with different target groups
Embedding forest therapy into health insurance requirements and services	Flexibility, knowledge and comfort to adapt during the guiding process
Need to bring young people back to rural communities by offering new economic opportunities - forest therapy and guiding (also as a tourism offer) is just one	Business skills. Benchmarking for pricing your activities (challenging specially in the beginning)
	Training on First aid in nature
	Network and community support
	Science circle and constant interaction, mutual learning
	Partnership with parks and private forest owners

3.2.2 Training needs in Social agriculture

Social agriculture or social farming refers to *"…those farming practices aimed at promoting disadvantaged people's rehabilitation, education and care and/or towards the integration of people with 'low contractual capacity' (i.e. intellectual and physical disabilities, convicts, those with drug addiction, minors, migrants) but also practices that support services in rural areas for specific target groups such as children and the elderly*" (Di Iacovo and O'Connor, 2009). Social agriculture activities and related business models can differ based on the **context and institutional model of welfare** of a country. These affect the **revenue streams, the economic sustainability and the perception of risks of private businesses involved in this sector**. For example, social farming can be organised as an extension of a government public service to its citizens (the Irish model), as a private business offer targeting private "clients" (the Dutch model) or as a social inclusion model where responsibility lays with the public authorities (Italian model) (Di Iacovo and O'Connor, 2009). Despite the differences in organizational model, social farming promotes innovation and entrepreneurial attitude among farmers who seek to have positive social impacts:

> "*Social farming has really opened some farmers eyes to the potential of their farms. Irish farming in general has low levels of diversification though some of the social farmers would already have a number of different income streams from things like selling produce at the local farmers market, having a holiday let etc.*" (Personal Communication, Aisling Moroney, 5 June, 2020).

The process of training farmers and preparing them for social farming practices is also different from country to country. For example, in **Ireland,** Social Farming Ireland is a national office under the Department of Agriculture, Food and the Marine (DAFM) that acts as an intermediary between farmers and social service centres and supports them in their journey of becoming social farmers. They provide training courses including farming, health and safety, inspections, peer to peer learning, HSE training.

In **Italy**, training and support is provided through cooperatives or trade associations, within project activities related to social farming and Animal Assistance Therapy, and through university-wide efforts. For example, a consortium of universities including Pisa, Avellino, Benevento, Tuscia and Sannio have joined efforts to provide interdisciplinary and high level courses for graduate and undergraduate students. Pisa University has also directly run social farming activities with the Centre for Research in Agriculture for over ten years ago as part of an initiative called Orti Etici. They run activities with people coming from the mental disability centres and the Centre for Addiction and receive people from different areas. Finally, Wageningen University and Research in the Netherlands also offers social farming as an educational offer.

Depending on the institutional model and the legislation, farmers involved in the sector might be required or have an incentive **to possess different set of competencies and skills** that span beyond agriculture and include basic knowledge or understanding of psychology and social work. The major element of social farming practices involves soft skills, including empathy, being open-minded and having trust as a prerequisite to opening your space and home to others – these, however, might not be qualities taught through trainings.

> *"Social farming is about heart, soul, interest, and a particular kind of personality. Social farming, being involved, helps farmers give each other peer to peer learning. By visiting other farmers, they learn from each other"* (Personal Communication, Aisling Moroney, 5 June, 2020).

Social agriculture is a sector that **demands institutional support, constant peer learning and strong and lasting partnerships with diverse stakeholders**. Farmers learn from each other and by participating in wider regional initiatives.

> *"Your work should be co-designed with people with responsibility (i.e., social service authorities). Co-designing is strongly demanding, and requires the facilitation process and this is missing from the*

ground. The farmer can facilitate but it is a time-consuming activity. Some pioneers do that because they are strongly motivated. They act on a voluntary basis to facilitate their project. But because they are innovators, their revenue stream is the recognition of their project. The extra effort is huge and can be done only with a strong motivation behind or done by others that can facilitate. At the local level there should be someone that has the skills and can act – services, public institutions, or from farmer organizations, or from NGOs in the facilitation project" (Personal Communication, Francesco Di Jacovo, 4 June, 2020).

Table 7 presents a compilation of external challenges for promoting the sector and internal training needs of the actors for enhancing more innovation and entrepreneurship, as per interviewee responses.

Table 7. External challenges and internal training needs for promoting social innovation and entrepreneurship in Social agriculture

External challenges	Internal training needs
Clear laws and procedures that recognize social farmers as stakeholders and frame how the activities are developed	Need for quality assurance and organic labelling that is affordable. Not everyone can afford to go through certification
Market recognition of social farming. Insurance that the economic risk is not high and even if it is it will be covered by government	Using creative ways to promote the activities: Documenting the activities at all the different levels. Storytelling, social media, best practices, influencers. Getting the right people to experience what you are talking about. Telling the human story and sharing participants' own voices
Common frame on Social agriculture across countries	Social care (basic health and safety training)
Social prescribing by health professionals. Involvement of health professionals into activities to collect more evidence and advance research	Partnerships with psychologists, medical doctors, veterinarians, etc.
Getting key decision makers involved, bringing them out to case studies and showing the example, involving different institutions	It's a good news story, the world needs it - communication and marketing is important
Green Care thematic sectors and associated activities in practice to be integrated into the public health and administration even more	Understanding cross-cutting issues among different sectors of Green4C- having a bird-eye view and learning from other sectors to broaden the world -view and come up with innovative applications
Increased access to natural spaces and open air for scholastic activities (more time in natural spaces improves attention span, concentration, improves health through exercise, physical activity. Teachers need to understand this	Being cautious about having overemphasis on the "therapy" on the social farming, the positives and best lessons are from being on the farm themselves and the relationships that

before they teach it, therefore this needs also to be taught to the teachers)	emerge, not because it is another therapeutic method
Change the mindset of certain political and public mentalities. Defining new politics- at regional and even state level in the various institutions there needs to be a complete change towards the way in which green spaces are viewed	Practical and collaborative training. Bringing experts to speak. Keeping it grounded, non-theoretical and as practical as possible.

3.2.3 Training needs in Urban green care

Urban green care is rooted in regional, municipal and urban design and planning and aims at promoting green spaces as places for health promotion, social inclusion and increasingly as part of strategies for climate change mitigation. Activities on the ground are supported by policies but are not specifically codified in law. Urban green care is a concept introduced by the Green4C project to address activities that take place in green spaces located in urban settings and that have a positive health and wellbeing outcome. As a result, the term Urban green care still needs to be properly defined. Urban green care activities might involve community or city gardens and fall more directly under the definition of Social Farming or forest walks and therapies in nearby forests and parks which fall under the description of Forest-based care.

One of most important starting points for promoting Urban green care starts with encouraging more tactile experiences with nature, design of spaces and activities and more generally, activities that might help to change the attitude of urban residents towards nature. The perception of safety and security might differ depending on whether it is an urban forest or a city park. Urban green spaces also need to be open and welcoming in order to contribute to a sense of well-being, rather than creating fear.

This thematic area highly depends on the engagement of municipalities, regional development agencies, hospitals, universities and research centres. The benefits of urban green areas need to be researched and communicated more systematically, so that it is prioritised over grey and private car-related infrastructure (highways, parking lots, etc.).

> *"I learned there is a need for quite widespread understanding of healing capacities of green areas, but it is not structured; it requires more knowledge on scientific terms. Not only traditional beliefs but also rooted, evidence-based knowledge. Whenever you try to confuse a bit the question, then you can cross-check the results"* (Personal Communication, Fabio Salbitano, 9 June, 2020).

Training opportunities are mostly offered through university courses on landscape architecture, urban planning and design, urban ecology and arboriculture. Local community groups, or initiatives such as Project for Public Spaces (PPS) in New York (USA) might provide regular in-house trainings, conferences, and speaking engagements that help to promote the sector. Table 8 presents a compilation of external challenges for promoting the sector and internal needs of the actors for enhancing more innovation and entrepreneurship, as per interviewee responses.

Table 8. External challenges and internal training needs for promoting social innovation and entrepreneurship in Urban green care

External challenges	Internal training needs
Green spaces should not be a cost to the city (green spaces maintenance and management), they should be viewed as a benefit. This is the public view that needs to change	Pristine national parks are usually far away from the cities. Using forests next to the cities is important- less transaction costs for bringing people outside, and more willingness of people to participate regularly.
There is a strong resistance from the medical sector and protocols by health workers are missing (i.e. Scotland's experience on green prescriptions). Green therapy and green health need to be a discipline used in medical studies	Communicating well to the health sector with their own terminology to avoid fuzziness. Choice of language and words- away from mysticism
Clinics and hospitals should be required to have access to green spaces	Development of methods for measuring health and well-being benefits
Evidence-based research on the healing capacities of green areas in cities	Public health- need more data, more empirical projects
Multifunctional urban green areas, not only decorative- Prioritising cycling, green areas etc. in urban design before car infrastructure is good for climate change mitigation and for health and well-being. Green areas are also used for infiltration purposes, against rain storms, which become more frequent with climate change	Design elements of the green spaces impact the perception and also its impact on health
Awareness on the role of nature and green spaces (the "virus" does not come from nature)	Studies needed on the perception of green spaces in cities
Dialogue between different sectors of knowledge	Diversification of tourism offers in the area. Income diversification for forest owners in urban settings and requalification of the forests based on the offers
Good communication on financial viability -how much we can save on money from traditional health programs	Quality assurance - FTI certification, personal knowledge about the guide
Not only education about the forests, but educating in the forests, training students to have positive relations to green settings (example of Norway)	Promoting tactile experiences with green in the cities

3.2.4 Training needs in Green care tourism

Green care tourism can be understood as the type of tourism that builds on the **concepts of sustainable and responsible tourism.** While health, medical and wellness tourism are the first examples that come to mind when attempting to describe the sector, there are more concepts and activities on the ground that make the field more complicated and interesting from the perspective of developing high quality training needs.

Green care tourism has a strong focus on health and wellbeing, and wellness tourism refers to places where healthcare services are provided or where the healing capacity of nature is being used commercially and offered as a tourism product. Healing muds, waters, mineral springs and sulphuric mud have been proven to help with dermatological issues, rheumatism, quicker rehabilitation after an accident. These places often require a doctor in place that can monitor the visitors' conditions. However, Green care tourism can also exist within a broader context of ecotourism- nature hikes, animal-based education in rural spaces that help children build connection with animals and nature, birdwatching, and connection to the local culture.

Green care tourism also involves accessible tourism and slow tourism. *"Accessible tourism enables people with access impairments, including mobility, vision, hearing and cognitive dimensions of access, to function independently and with equity and dignity through the delivery of universally designed tourism products, services and environments. This definition is inclusive of all people including those travelling with children in prams, people with disabilities and seniors"* (Darcy and Dickson, 2009, p. 34). Accessible tourism is a segment of the industry that addresses the needs of elderly, children, people with disabilities and pregnant women among others. With ageing, demand for this type of tourism is growing as well. Accessible tourism is a business opportunity that usually entails double occupancy – for the person and the personal caretaker or family member. Accessible tourism is also based on word of mouth, and thus offers good opportunities for improving marketing.

> *"Sustainable tourism means also accessible tourism. We cannot talk about sustainability if a segment of society is forgotten and their needs are not being met"* (Personal Communication, Cristina Căluianu, 17 June, 2020).

Slow tourism "is about slowing down the rate of tourism and a guarantee of rediscovering oneself (the physiological and the psychological); it is about low greenhouse gas emissions and it is a synonym of patience, peace of mind, deeper experiences, improved cultural understanding and knowledge" (Babou and Callot, 2009). **Slow tourism** refers to time (spent in one location), nature (as a surrounding environment), passage (as a personal journey, but also as the passage of seasons in nature through time), comfort (of being with nature). Diet is an important part of slow tourism: local food, gathered food and wild meat are just a few examples. Accommodation is another important element for creating the experience – either outdoor or with a local host. Slow tourism involves partnerships at the local level and the co-designing of a common product.

> *"Social innovation here is not about technology, it is about transforming ideas into action. It is a conceptual innovation when businesses help each other, promote a co-created product and strive together instead of competing"* (Personal Communication, Sara Bellshaw, 18 June, 2020).

Table 9 presents a compilation of external challenges for promoting the sector and internal needs of the actors for enhancing more innovation and entrepreneurship, as per interviewee responses.

Table 9. External challenges and internal training needs for promoting social innovation and entrepreneurship in Green care tourism

External challenges	Internal training needs
Access to industry network and letting the word out	Capacity to work with and target passion communities, i.e., micro-breweries, wilderness bush-craft, survival skills, millennials
Creating the community of people (service providers and users) with the same deep values	Exchange with representatives of slow adventure in other countries, who share the same values and can act as a guarantee for the quality of the service
Introducing standards for accessible tourism	Building websites that are accessible to the people with disabilities (The case of Sanotouring in Romania[2])
Introducing standards for slow tourism/adventure (Snail icon as an example of a slow tourism label)	Capacity building for meeting more diversified offers for accessible tourism, i.e., sailing or climbing in a wheelchair
Transportation adapted to diverse needs – wheelchair, accessible infrastructure and paths	Working, designing products with people with disabilities and testing with them
Being part of an organised tourism destination	Correct pricing: these are high quality service with an added value which are not a luxury but are also not for everyone.
	Development of tourism products that support Green Care activities.

[2] https://www.sanotouring.eu/

4 DISCUSSION

The four Green4C thematic sectors – Forest-based care, Social agriculture, Urban green care and Green care tourism – aim to bring together concepts of nature-based solutions and health, understood as health promotion, disease prevention and therapeutic interventions, under the umbrella concept of Green Care and within an entrepreneurial framework. Green4C sectors can provide innovative services that connect activities to wellbeing and health outcomes, that can be paid by public health authorities or directly by residents and tourists, and that can strengthen their financial sustainability and economic impact when developed within an organised tourism destination. Green4C sectors can also develop innovative value propositions and business models, on an individual basis or as social entrepreneurship activities, and provide win-win solutions to forest and farm owners (be they private, or public as in parks or protected areas), trained guides, tourism operators as well as residents.

In order to bring new opportunities for entrepreneurship development, the results of the TNA questionnaire and interviews show that these interdisciplinary and multidisciplinary sectors require scientific training, specific to well-defined disciplines, as well as soft skills development and leadership connected to business training and development. Before discussing the training needs, in this section we address **five issues that differentiate the Green4C thematic sectors** and that, if recognised, can help guide the development of high-quality training opportunities for new and emerging business opportunities in the Green4C sectors (Table 10):

1. Regulatory clarity
2. Agreed-upon definitions and recognised standards
3. Public-private governance arrangements and allocation of responsibility
4. Social innovation and entrepreneurship
5. Financial sustainability
6. Quality educational and training offer

Table 10. Emerging issues and differences in Green4C thematic sectors

Issues	Forest-based care	Social agriculture	Urban green care	Green care tourism
Regulatory clarity	Emerging in a few countries for forest bathing and forest therapy activities	At the national and regional level	Activity-dependent	Specific to sectors such as thermal treatments, health and medical tourism
Definitions	Yes (emerging)	Yes (well established)	Not yet, spanning between forest therapy and Social agriculture	Established for specific areas: green, wellness, health and medical tourism
Recognised standards	Emerging, i.e. Forest Therapy Association	Regional specific protocols	Not yet	Internationally: certification by the Global Sustainable Tourism Council

Public-private governance arrangements	Not necessary for individual activities geared at the general public but to increase access and monitoring of health benefit for targeted groups	Necessary for allocation of responsibility in the case of social inclusion	Necessary for access to land and allocation of responsibility in the case of social inclusion	Not necessary but useful for an organised destination promoting Green Care activities
Social innovation and entrepreneurship	Yes (emerging)	Yes (well established)	Yes (emerging)	Yes (emerging)
Financial sustainability	Provision of services paid by public health authorities/ residents or tourists	Provision of social inclusion paid by public health authorities; Demand for products with a social value	Provision of public or private spaces for Green Care activities; both as services (i.e. forest-based care, social inclusion in agriculture) and products from Social agriculture	An organised destination can promote Green Care services for tourists as well as residents
Training offer	Emerging, still limited by lack of standards	Well consolidated	Not specific to care, but integrating different disciplines (i.e. forest-based care, Social agriculture, social inclusion, architecture and planning)	Consolidated, also within the context of sustainable and accessible tourism

As an emerging field, **forest-based care** has not been adequately codified in national legislation and as such there is a lack of regulatory clarity on what constitutes the sector. Examples of policy and legislation exist in Japan and South Korea that are specific to forest bathing and forest therapy (Shin, 2015; Hansen *et al.*, 2017). There is no-agreed-upon definition and set of criteria that define the sector and this may pose a challenge to initiatives that aim to position themselves as distinctive to other more consolidated activities (i.e. nature walks). For example, lack of regulation can mean that an activity such as forest bathing may be practiced by any guide, and this may confuse potential clients and hamper the field for pioneer entrepreneurs to experiment with activities that more closely monitor the impacts of forest bathing on people's wellbeing, and that lead to socially innovative business models. At the same time, there are several initiatives at the international level that are striving to develop their own standards (i.e. Forest Therapy Institute, NatureMinded). The current situation is leading to a wealth of experiences that can cross-fertilize and lead to novel services in the sector. Eventually, however, these experiences will benefit from more rigorous research in the field and the setting of international standards to guide national legislation. Forest-based care activities also can benefit from public-private relationship, i.e. agreement with public or private entities for access to forest areas; and connections to the public health authorities for monitoring health benefits. Likewise, educational training in the field is quite uneven, with short terms courses ranging from one day to six days to balance costs and time investment of

participants. Even though market access is a challenge and many activities in this sector are on a part-time basis, forest-based activities provide new and innovative approaches that can be developed by entrepreneurs, also in connection to Urban green care and Green care tourism.

Social agriculture is a well-established field with a well-represented definition and regulations in place in many countries in Europe and beyond. Regulation, however, differs quite significantly from country to country, depending on the definition of what a social farm is, what the expected outcomes of its activities are and how responsibility is shared among different actors. For this reason, there are no internationally recognised standards that define this activity but rather protocols that are developed at the local, regional or national level. Whether they provide social inclusion through services or through work placement, social farms necessarily rely on public-private arrangements for the allocation of responsibility. This is not necessarily the case in the other Green4C sectors where activities can also be carried out on an individual basis. For this reason, social farms can develop a business model that combines or includes provision of social inclusion opportunities paid by public health authorities or provision of high-quality products rewarded on the market for their social and environmental outcomes (most notably in the case of organic agriculture).

Unlike forest-based care, several examples of training at the graduate level in Social agriculture exist in Europe and beyond. This means that the field is quite consolidated. However, the need to specifically include social impacts within the business model means that the development of the business is quite different from country to country, depending on regulation, governance and allocation and responsibility. In the case of Italy, for example, where responsibility for social inclusion rests within the public health authorities, social cooperatives are better equipped to integrate different demands within their business model. At the same time, their role in Social agriculture is not recognised when revenue from agriculture is less than 30% of their total revenue (Fonte and Cucco, 2019).

Urban green care brings together a wealth of innovative activities and experiences that can be carried out by different public agencies, private entrepreneurs and volunteers in the context of urban green areas. Because Urban green care can be developed based on different activities, regulation in this sector is activity-dependent. There are no agreed-upon definitions or standards, however, there is potential for social innovation to be nurtured in urban green areas through infrastructure and communication, i.e., through public campaigns. Many social or civic movements are borne out of recuperating abandoned green city lands and at the same time, many cities, through their public authorities, are finding paths to sustainability by enhancing the overall quality of their green spaces (Poulson, 2017). For example, green infrastructure, recreational facilities and greening projects for environmental justice and social integration can support health promotion and prevention. Hospital design, biophilic design or campaigns for physical activities and school ground greening can also support health interventions. As a result of its variegated and multifaceted nature, training in Urban green care is non-specific to care, but it integrates different disciplines (i.e. forest-based care, Social agriculture, social inclusion, landscape architecture and planning, park management).

Finally, **Green care tourism** has the potential to integrate these different sectors through the creation of new tourism products, their promotion and marketing. This activity can be developed by individual entrepreneurs (i.e., guides, hotel operators) or at the destination level, where a destination pro-actively brings together public and private actors to develop and promote new and innovative services such as forest bathing. If developed together with the health and medical sector, forest therapy activities can also be developed, promoted and health benefits monitored and studied (see, Valli del Natisone in northern Italy[3]). Successful models can also be developed on an individual basis, but in the context of an organised destination, there is great potential for activating different value chains and supporting local level territorial development. For example, Hohe Tauern

[3] https://www.spiaggiadiffusa.it/stazione-di-terapia-forestale-valli-del-natisone/

in Krimml[4], in Austria, is a hotel that focuses its certification on health benefits for guests and is promoted as part of a larger area recognised for its impacts on wellbeing and health.

4.1 Training needs in Green Care

The section above described some of the issues, and in some cases challenges, that define each of the Green4C thematic sectors. Figure 19 presents **an overarching view of the challenges faced by actors in Green Care and their training needs**. The topics were collected as the result of comparing and combining the external challenges and internal training needs faced by actors within the different Green Care sectors. Based on the data analysed in this report and the emphasis given by the respondents to different topics, we can classify them as 'core issues', 'contextual challenges' and 'training needs'.

At the core of the Green Care sectors lie human-nature and human-to human relationship. Gratitude, humility and spirituality create the basis for Green Care activities aimed at re-inventing and improving human connection with, and attitude towards nature. Trust, reciprocity and gift in human to human relations can help to build strong and meaningful communities, as well welfare and sharing economies. These **core issues** lie at the basis of developing and promoting Green Care sectors.

Contextual challenges refer to policy silos, fragmented laws and standards, different welfare models, public perception of nearby green spaces, day-to-day practices of ethics and norms, that create another level of complexity for Green Care activities. Lobbying for regulatory clarity, agreed-upon definitions and recognised standards, and support for space for public-private governance arrangements and transparent allocation of responsibility, can be a means of supporting Green Care sectors. The detailed discussion on these challenges are presented in Table 10.

Training needs require innovative solutions for the development of meaningful training opportunities and new business models. The analysis of the data shows that training needs in Green Care sector can be divided into two large categories**: thematic knowledge** and **skills and soft skills and knowledge related to the development of new entrepreneurial models**. While Green4C training course and follow-up activities will involve experts in each thematic sector for sharing the experiences and training in specific thematic fields, it will mainly focus on improvement of soft skills and knowledge of the participants in the field of social innovation and entrepreneurship.

[4] https://www.hohe-tauern-health.at/de

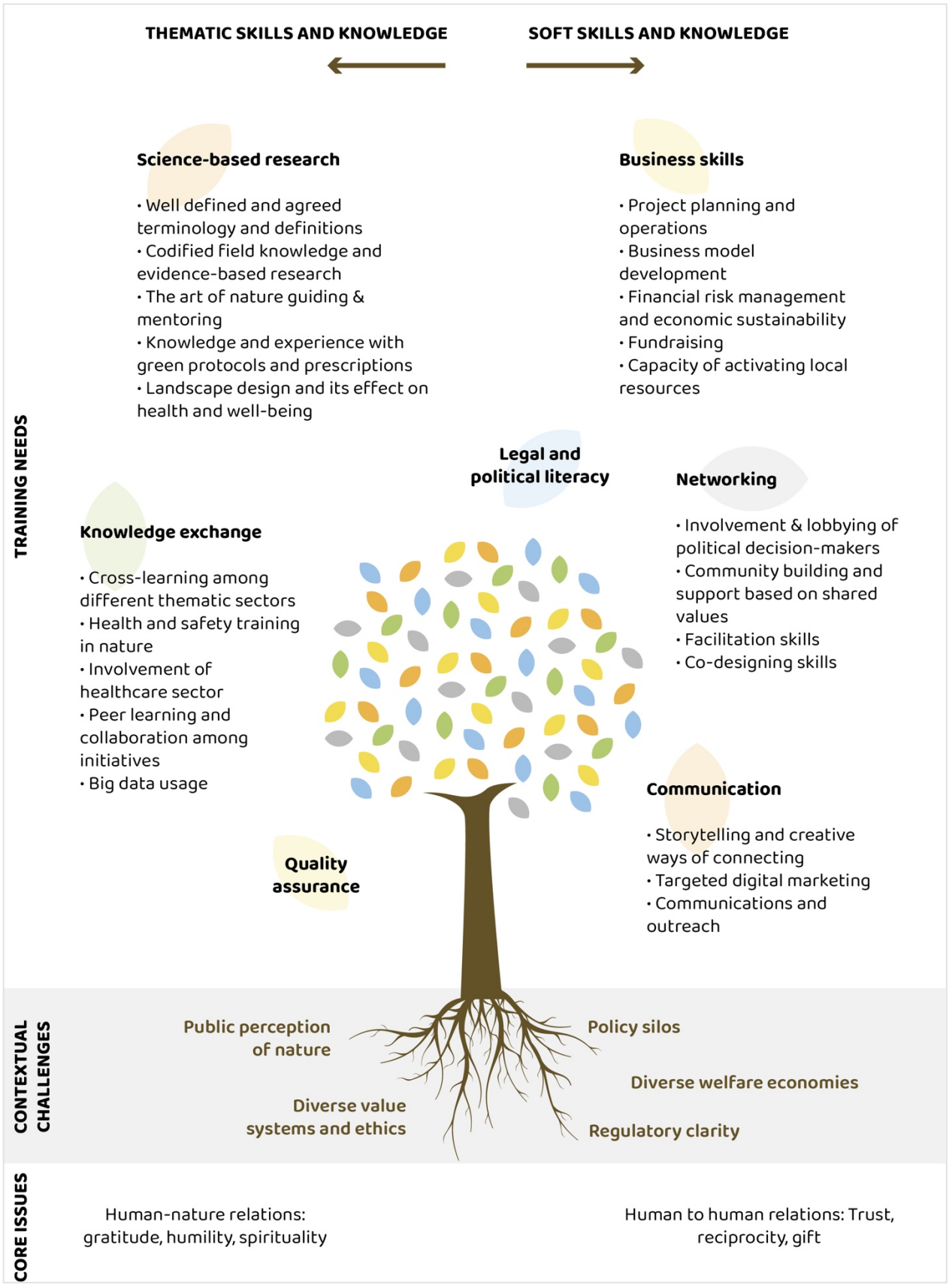

Figure 19. Core issues, contextual challenges and training needs in Green Care sectors

More specifically, for each beneficiary, categories were identified in terms of the training gaps and are presented in Table 11.

Table 11. Training needs by beneficiary category

	Generic learners	Businesses	Private land-owners and managers	Tourism agencies and facilities	Public health and social service providers	Higher education Institutions and research institutions	Civil Society Organizations
Science-based background on the thematic sectors, cutting-edge knowledge and research, i.e. agreed-upon definitions, methodologies for measuring health and wellbeing benefits, design of green spaces, social business models	X	X		X	X	X	
Evidence-based research and codified knowledge					X		
Benchmarking and practical applications of science-based research in business models and collaborations	X	X					
Knowledge of applicable laws and standards	X	X	X	X			
Business support – all phases, with a specific focus on social entrepreneurship and social value creation	X						
Facilitation skills, co-designing and co-creation skills	X						X
Communication and outreach, storytelling	X	X		X			
Business idea development and		X					

value proposition							
Networking	X	X	X	X			X
Marketing and digital marketing	X			X			
Quality assurance (checks)	X	X					X
Financial risk management and economic sustainability and diversification	X		X				
Fundraising			X	X			X
Future trends analysis				X			
Product development				X			
Diversification and catering to diverse tourism segments				X			
Contribution to standards					X	X	
Co-design, participation and partnership in the development of new services in green care, including through public private arrangements and clear allocation of responsibility					X		
Skills and experience with green prescriptions					X		
Diversified and high-quality academic offer, mentoring and capacity-building						X	
Science-policy dialogue for regulatory clarity					X	X	X
Science-business alliance						X	X
Capacity for activating local resources							X
Knowledge sharing and mutual learning							X
Lobbying							X

5 CONCLUSIONS

Green4C offers the opportunity to develop new and innovative training for emerging and future Green Care professionals. The project aims to complement a rich and varied offer in training already available from the university to the professional level integrating a set of four different thematic sectors through the development of new business models. As such, the project brings together a varied set of scientific interdisciplinary knowledge with entrepreneurial skills on the topic of nature-based solutions to health, wellbeing and social inclusion. Here are some major conclusions on the analysis presented in this report.

Major findings

Specific knowledge and skills acquisition:
When comparing current and future involvement in the Green4C thematic sectors, the TNA responses show a **clear trend of growing interest in Green Care** as well as a specific need for business training to be applied in the fields of Green Care and nature-based solutions to health, wellbeing and social inclusion. For example, responses to the TNA indicate the desire to acquire knowledge in: *assessment of nature-based solutions for health, well-being and social inclusion*, *marketing and promotion of nature-based solutions*, *enhancement of ecosystem service provision through active management of urban and rural areas*, *accounting system for ecosystem services and forest management.* In terms of **social innovation and entrepreneurship related skills and knowledge**, respondents would like to acquire skills and knowledge in: *impact investment, innovative idea development*, *knowledge and application of cutting-edge technology*, *business management skills*, *business strategy/operations*, *value proposition, budget and financing.* Innovative services targeted at the general public, as well as at specific groups, can support successful new businesses and bring changes in attitudes and human-nature relationship. However, to do this, a diversity of competences and skills, including soft skills, need to be provided.

Legal and regulatory framework for entrepreneurship and innovation in the Green4C thematic sectors:
At present, **differences among sectors, national and local laws and regulations** provide uneven access to training and opportunities for business development. Green4C activities and trainings can contribute to the ongoing processes of scoping of the thematic sectors and agreeing on the relevant concepts and definitions. It can also **help improve legal and political literacy** among stakeholders who wish to navigate through complex legal and regulatory systems to establish and advance their businesses in Green Care sector. For example, as an emerging field, forest-based care still needs to be adequately codified in national legislation in European countries for regulatory clarity on what constitutes the sector and how new businesses can be developed. The same applies to the Urban green care sector. Social agriculture is a well-established field with a clear definition and regulations in place in many countries in Europe and beyond. Green care tourism brings together concepts of sustainable, responsible and accessible tourism, as well as health and medical tourism, and as such it presents a space for developing a unified approach to tourism product development and marketing.

Facilitating knowledge exchange, learning and co-designing:
Green Care activities on the ground require **facilitation process** to connect different actors and to co-design a business model or a final product. This facilitation involves high transaction costs, requires good interpersonal skills, and investment of significant time and effort. The process can be undertaken either by individuals or organizations as their prime function or be distributed among different involved actors relying on formal and informal relationships. Acknowledging that the facilitation process is an important element for developing Green Care activities and investing in improvement of local resources able **to facilitate the exchange, learning and co-designing processes** will help define the success of the initiatives in this sector. Thus, Green4C training courses and follow-up activities can put a focus on improving knowledge, skills and competences of participants through facilitation.

Enhancing public-private involvement across sectors:

There is a **need to involve the public sector, and more specifically the health sector, in Green Care and in the development of new social entrepreneurship activities**. While in some thematic sectors private business models are more developed and market access is well established, in others the services still continue to be provided mainly by the public sector and require public sector involvement: there is thus a need for greater knowledge sharing and skill building for business models to be developed through **public-private partnerships**. Further, collaboration can **enhance service provision**, **business development monitoring** of wellbeing, health and social inclusion. Evidence-based research, codified empirical knowledge and benchmarking are needed to successfully engage the healthcare sector in new social entrepreneurship opportunities and to co-facilitate Green Care activities. Benchmarking based on different country models and front-runners, that help to understand the external and internal factors for financially viable business models, and that enhance public health and well-being benefits of Green Care, can support the **involvement of policy makers and public authorities.**

Peer-learning and knowledge sharing:

Peer-learning and knowledge sharing is needed for stakeholders from diverse countries and involved in diverse thematic sectors. While thematic sectors are more developed and thus regulated in some countries rather than others, also available training opportunities in Green4C thematic sectors differ across countries (Annex 1). There are also differences in the models adopted within each one of the thematic sectors across countries. Mobility can help with knowledge transfer and with activities such as the business innovation challenge, high specialization school and hackathons. **Green4C can contribute to mutual learning and knowledge sharing** by creating an alliance between HEIs and businesses. In this way Green4C would also lay the basis for **volunteering, internship opportunities and pragmatic learning** for students wishing to build their career in Green Care sector.

Focussing on co-designing and co-creation through case-studies and best practices:

Training should focus on **co-designing and co-creation skills** as a way to ensure that the services offered respond to specific needs connected to the demands from the market. This process can also lead to the activation of local resources beyond those of the welfare state or of the market. Skills can be honed through online courses, in-person training, group work, field visits and collaborative experiences which can help build connections among different disciplines and multidisciplinary experts. Facilitation is also needed to bridge differences in methodology and approach, sectors, and in public-private partnerships and to create lasting relationships and institutional support.

Professional sector-specific mentoring:

Business support is needed in all the areas, including: idea development, development of the business model, trend analysis, product development and/or co-designing, business plan, communication and marketing as well as networking. Special attention needs to be paid to the honing of soft skills needed to carry forward activities that require strong interactions with specific targets of people – from people with disabilities, to youth, elders, but also tourists.

"For" or "not-for" profit business models:

Business development in Green4C thematic sectors is often undertaken by a **social or cooperative enterprise/association** or entails their close collaboration in co-creation of the final service or product. Business models developed for Green Care are complex and require partnerships and different types of **formal and informal relationships** with the surrounding social capital (bonding, bridging and linking). Thus, networks, partnerships, relationships, attitudes and governance are where social innovation is mostly found in Green Care sector. This affects the choice **of entrepreneurship training (i.e. focusing on social innovation and entrepreneurship), its design elements and teaching tools (i.e. social business Canvas model)** that Green4C will be focusing on.

Investment in research and development:
Training opportunities should include access to cutting-edge research to provide trainees and new businesses with **science-based information** to develop their social entrepreneurship and business models, properly **communicate and market** the designed services and activities, and apply **monitoring tools to the practice**. Practical application of academic research should be provided for adaptation and implementation within the new business models.

Identification and development of tools and further context analysis:
Training opportunities need to be based on **providing tools for improving quality in the services developed**. Training opportunities should help trainees in being responsive to local contexts, provide relevant information on regulations, standards and protocols in place, and properly frame the allocation of responsibility among the many actors that may be involved in one of the Green4C thematic sectors. Where legislation or standards are missing, local or regional level protocols may serve to create and enhance space for high quality delivery of Green Care services.

REFERENCES

Ackermann, F., Eden, C., 2011. Making strategy: Mapping out strategic success. Sage.

Andersen, E.S. (2008), Rethinking Project Management: An Organisational Perspective, Prentice-Hall/Financial Times, Harlow.

Arts, B., Goverde, H. (2006). The governance capacity of (new) policy arrangements: a reflexive approach. In: Arts, B., Leroy ds.), Institutional Dynamics in Environmental Governance. Environment and Policy, 47:69–92.

Babou, I., Callot, Ph. (2009). Slow tourism, slow (r)évolution? Cahier Espaces, 100, 48–54.

Casson, M.C., Della Giusta, M., Kambhampati, U.S. (2010). Formal and informal institutions and development. World Development, 38(2), pp.137-141.

Clarke, N. (2003). The politics of training needs analysis. Journal of Workplace Learning, 15(4), 141-153. doi: 10.1108/13665620310474598

Cromer, C.T., Dibrell, C., Craig, J B. (2011). A study of Schumpterian (radical) vs. Kirznerian (incremental) innovations in knowledge intensive industries. Journal of strategic innovation and sustainability, 7(1), 28-41.

Darcy, S., Dickson, T. (2009). A Whole-of-Life Approach to Tourism: The Case for Accessible Tourism Experiences. Journal of Hospitality and Tourism Management, 16(1), 32-44.

Di Iacovo, F. and O'Connor, D., 2009. Supporting Policies for Social Farming in Europe. Progressing Multifunctionality in Responsive Rural Areas. SoFar project: supporting EU agricultural policies. Arsia, Florenz (Italien).

Drucker, P. (2014). Innovation and entrepreneurship. Routledge.

Eskerod, P., Huemann, M. (2013). Sustainable development and project stakeholder management: What standards say. International Journal of Managing Projects in Business.

Fonte, M., Cucco, I. (2017). Cooperatives and alternative food networks in Italy. The long road towards a social economy in agriculture. Journal of rural studies, 53, 291-302.

Freeman, R.E. (1984), Strategic Management: A Stakeholder Approach, Pitman/Ballinger,Boston, MA.

Gould, D., Kelly, D., White, I., Chidgey, J. (2004). Training needs analysis. A literature review and reappraisal. International Journal of Nursing Studies, 41(5): 471-86

Guion, L.A., Diehl, D.C. and McDonald, D., 2011. Triangulation: Establishing the validity of qualitative studies. University of Florida IFAS Extension. Online Document.

Hagedoorn, J. (1996). Innovation and Entrepreneurship: Schumpeter Revisited. Industrial and Corporate

Hansen, M. M., Jones, R., Tocchini, K. (2017). Shinrin-yoku (forest bathing) and nature therapy: A state-of-the-art review. International journal of environmental research and public health, 14(8), 851.

Huber, M., Knottnerus, J. A., Green, L., van der Horst, H., Jadad, A. R., Kromhout, D., ... Schnabel, P. (2011). How should we define health?. Bmj, 343.

Hunter, M. R., Gillespie, B. W., Chen, S. Y. P. (2019). Urban nature experiences reduce stress in the context of daily life based on salivary biomarkers. Frontiers in psychology, 10, 722.

IUCN (2013). Nature-based solutions. The International Union for the Conservation of Nature Available at: https://www.iucn.org/commissions/commission-ecosystem-management/our-work/nature-based-solutions

Kondo, M. C., Jacoby, S. F., South, E. C. (2018). Does spending time outdoors reduce stress? A review of real-time stress response to outdoor environments. Health & place, 51, 136-150.

Loch, C. and Kavadias, S. (2011), “Implementing strategy through projects”, in Morris, P.W.G., Pinto, J.K., So¨derlund, J. (Eds), The Oxford Handbook of Project Management, Oxford University Press, Oxford

Millenium Ecosystem Assessment (MEA). (2005). Overview of the Millennium Ecosystem Assessment. Available at: http://www.millenniumassessment.org/en/About.aspx#1

OECD. (2010). Social Entrepreneurship and Social Innovation. SMEs, Entrepreneurship and Innovation. Available at: http://ec.europa.eu/DocsRoom/documents/14506/attachments/22/translations/en/renditions/native

Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N. and Hoagwood, K., 2015. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. Administration and policy in mental health and mental health services research, 42(5), pp.533-544.

Pawlyn, J., Carnaby, S. (2009). Profound intellectual and multiple disabilities: nursing complex needs. Chichester: Wiley-Blackwell.

Poulsen, M. N. (2017). Cultivating citizenship, equity, and social inclusion? Putting civic agriculture into practice through urban farming. Agriculture and Human Values, 34(1), 135-148.

Rook, G. A. (2013). Regulation of the immune system by biodiversity from the natural environment: an ecosystem service essential to health. Proceedings of the National Academy of Sciences, 110(46), 18360-18367.

Secco, L., Pisani, E. , Da Re, R. , Vicentini, K. , Rogelja, T. , Burlando, C. , Ludvig, A. , Weiss, G. , Zivojinovic, I., Górriz-Mifsud, E., Marini-Govigli, V., Martínez de Arano, I., Melnykovych, M., Tuomasiukka, D.,, Den Herder, M., Lovric, M., Ravazzoli, E., Dalla Torre, C., Streifeneder, T., Vassilopoulos, A., Akinsete, E., Koundouri, P., Lopolito, A., Prosperi, M., Baselice, A., Polman, N., Dijkshoorn, M., Nijnik, M., Miller, M., Barlagne, C., Hewitt, R., Prokofieva, I., KuvlankovaOravska, T., Špaček, M., Brnkalakova, S., Gezik, V. (2019). Manual on Innovative Methods to Assess SI and its Impacts. Deliverable 4.3, Social Innovation in Marginalised Rural Areas (SIMRA), pp: 1-203.

Sempik, J., Hine, R. Wilcox, D. eds. (2010) Green Care: A Conceptual Framework, A Report of the Working Group on the Health Benefits of Green Care, COST Action 866, Green Care in Agriculture, Loughborough: Centre for Child and Family Research, Loughborough University.

SHIN, Won Sop. (2015). Forest Policy and Forest Healing in the Republic of Korea. International Society of Nature and Forest Medicine. Available at: https://www.infom.org/news/2015/10/10.html

van den Bosch, M., Sang, Å. O. (2017). Urban natural environments as nature-based solutions for improved public health–A systematic review of reviews. Environmental research, 158, 373-384.

WHO (1948). Constitution for the World Health Organization. Copenhagen: WHO Regional Office for Europe.

World Bank. (2013). Inclusion Matters : The Foundation for Shared Prosperity. New Frontiers of Social Policy;. Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/16195 License: CC BY 3.0 IGO.

ANNEX 1. GREEN4C STAKEHOLDER ANALYSIS AND DATABASE (PRELIMINARY)

As per objective 1 (See section 1.4), the following preliminary list of stakeholders and initial analysis of these stakeholders, was carried out to identify all possible key organizations that could be initially interested and targeted within the project. The list is the result of the combination of three other databases (DBs) that were developed for creating the Green4C Alliance (WP6 – DB1), disseminating the questionnaire for the training needs analysis (TNA – DB2) and an initial database of training courses that exist in Green4C thematic sectors (DB3). The data for DB1 was collected from the Green4C partnership network, whereas DB2 and DB3 were DBs developed by Partners 1 (UNIPD) and 2 (Etifor). Indeed, the fact that partners 1 and 2 (Italian) were the main contributors for DBs 2 and 3, this is reflected in the higher number of Italian organizations listed. That said, the resulting database, Table 12, is an initial attempt to list and analyse the status of courses available in Green4C thematic sectors, what countries they are held in, the organizations they are associated to and the sectors they are active in, and live links to each is also given.

Overall, 168 organizations were listed. The organizations were organized by country, sector type, Green4C thematic sector type and existence of course. The sector type was analysed first, the organizations were organized into their country of origin where they were then divided into whether they fell into the private sector, public sector or third "volunteer" sector, see Figure 20 below for the results.

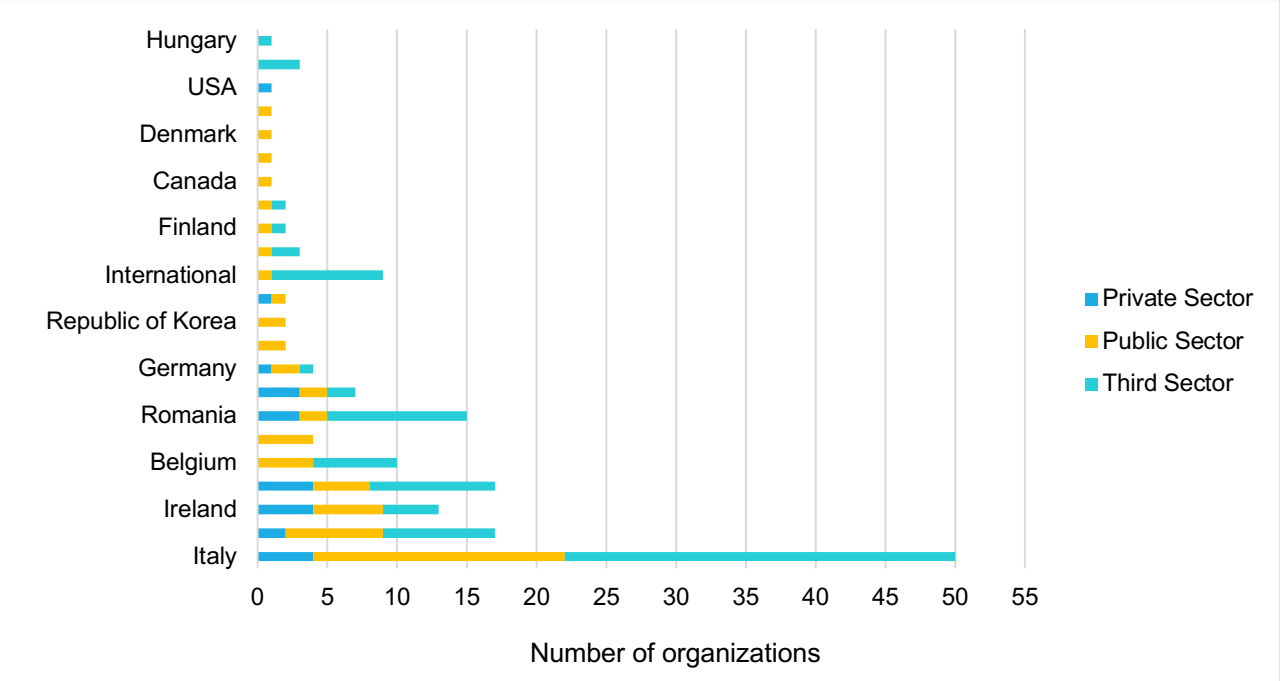

Figure 20. Organization sector per country of origin

The organizations were then again organized into their country of origin, and then divided into (Figure 21):

- "Course": whether or not a course in one of the Green4C thematic sectors exists
- "Information": whether or not there is educational/further reading information connected to one of the Green4C thematic sectors
- "Initiative": that the organization has founded project/idea/business model in one of the Green4C thematic sectors
- "None": none of the above, but with network links through partners and further information in one of the Green4C thematic sectors

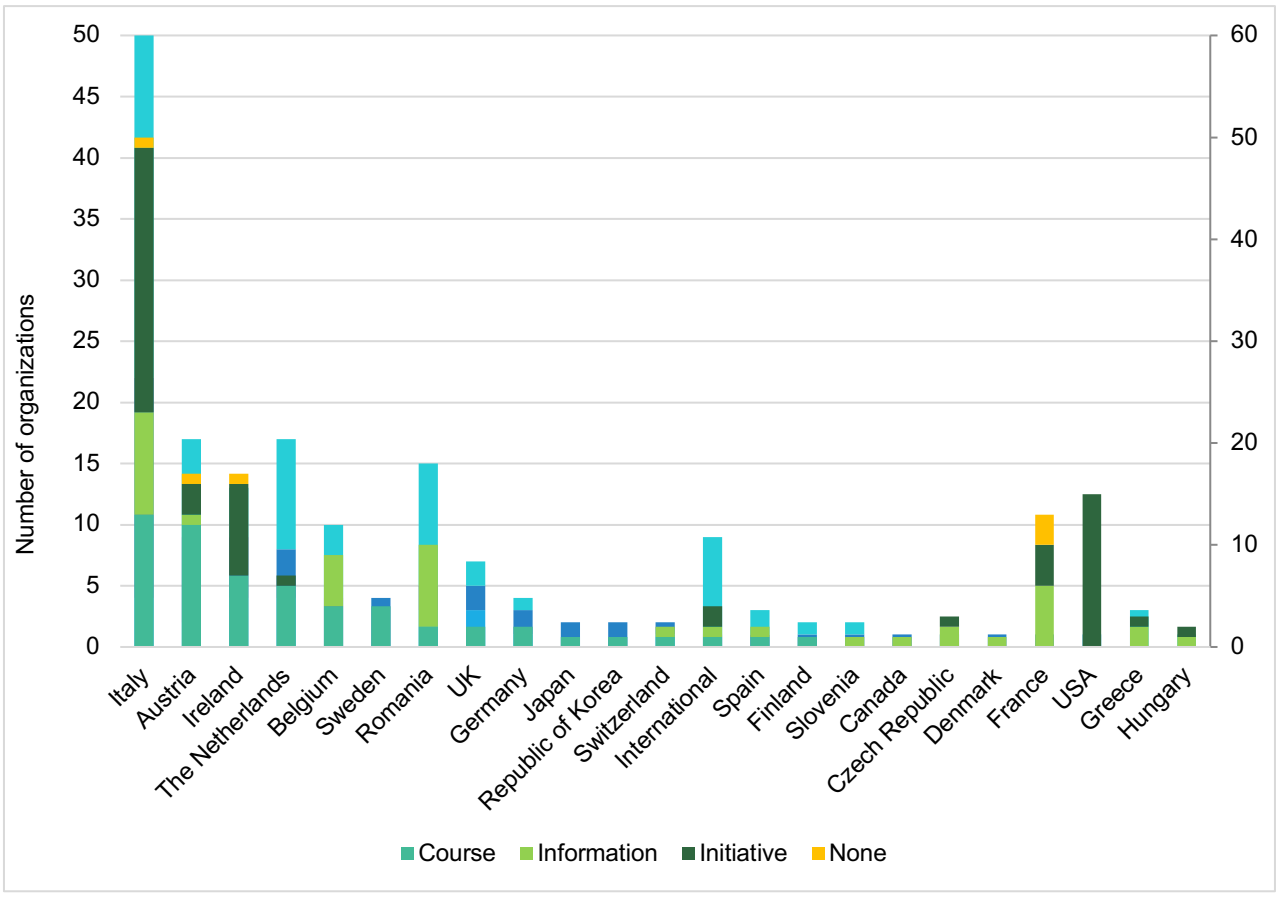

Figure 21. Existence of courses, initiatives and information offered by organizations per country

Finally, the previous four categories were analysed further to highlight which Green4C thematic sector they fell into. Each of the Green4C thematic sectors were listed in this analysis and one additional category was also added, the “All Apply”, which identifies whether 2 or more of the Green4C thematic sectors are referred to in the categories “Course, Initiative, Information or None”. To find out more information on each of these types, the live web-links are also provided in the Table 12 below.

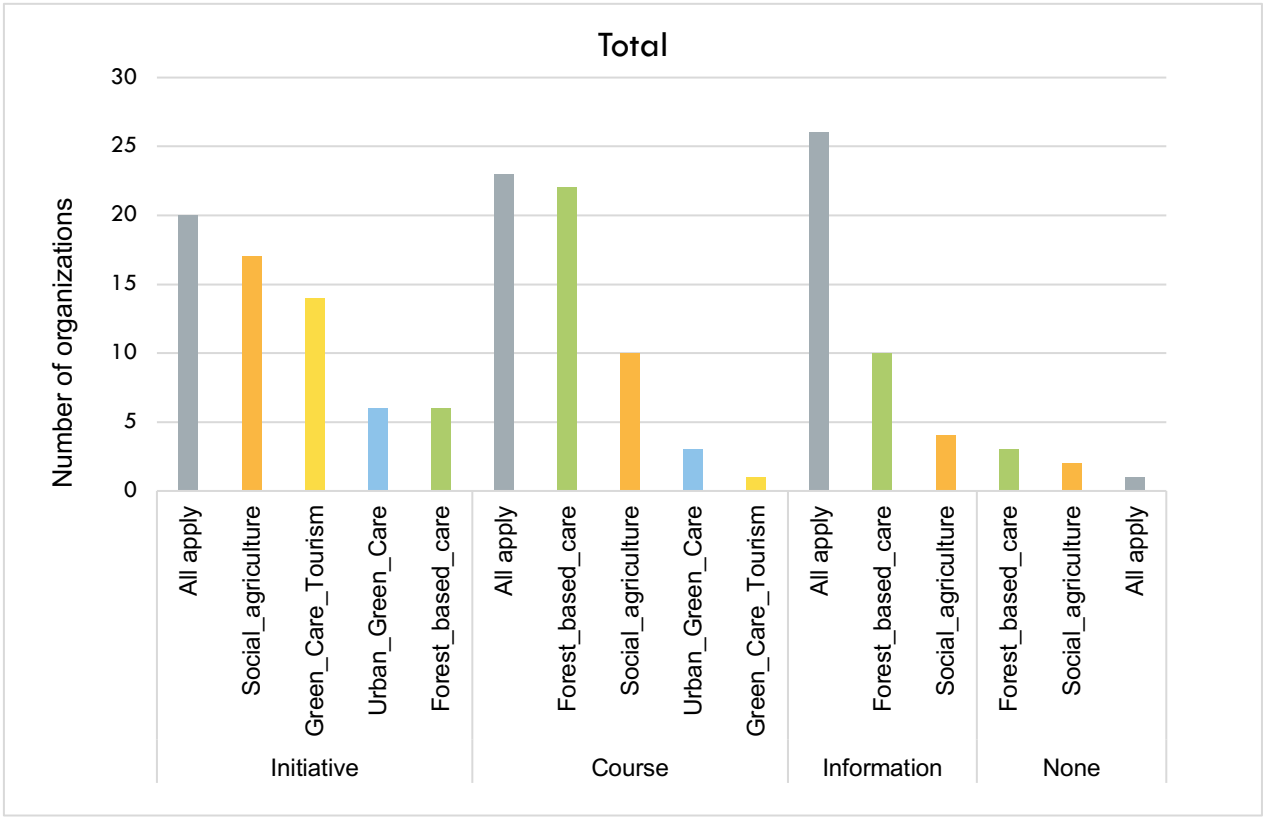

Figure 22. Green4C thematic sector type per course category

Table 11. Preliminary Green4C Stakeholder List

Name of the Organisation/Institution/ Consultancy	Type of Organization	Country	Main Green4C Thematic Sector (select)	Training course in Green4C or related thematic sectors
Etifor	Private Sector	Italy	Forest_based_care	Initiative
Austrian research and Training Centre for Forest	Public Sector	Austria	Forest_based_care	Report
University of British Columbia	Public Sector	Canada	Urban_Green_Care	Course
Hochschule für Agrar- und Umweltpädagogik	Public Sector	Austria	Social_agriculture	Course
Green Care - Wo Menschen aufblühen	Third Sector	Austria	Social_agriculture	Course
Tiere als Therapie	Third Sector	Austria	Social_agriculture	Course
Stützpunkt gGmbH	Third Sector	Austria	Forest_based_care	Initiative
Waldness	Third Sector	Austria	Green_Care_Tourism	Initiative
Forstliche Ausbildungsstätte des BFW Traunkirchen	Public Sector	Austria	Forest_based_care	Course
Forstliche Ausbildungsstätte des BFW Ossiach	Public Sector	Austria	Forest_based_care	Course
LFI Österreich	Public Sector	Austria	Social_agriculture	Course
Universität für Bodenkultur Wien	Public Sector	Austria	Forest_based_care	Course
Ärztegesellschaft für Präventionsmedizin und klassische Naturheilverfahren	Third Sector	Germany	Forest_based_care	Course
Mühlviertler Waldluftbaden	Third Sector	Austria	Green_Care_Tourism	Initiative
Verein für Waldpädagogik Österreich	Third Sector	Austria	Forest_based_care	Course
Vienna City Farm - Verein zur Förderung von Urban Gardening, Gartenpädagogik und ökologischer Bildung	Third Sector	Austria	Urban_Green_Care	Course
De Marsen	Third Sector	The Netherlands	Social_agriculture	Initiative
Wald.Bildung. Managment	Private Sector	Austria	Forest_based_care	Course
Stefan Lirsch	Private Sector	Austria	Forest_based_care	Course
Accessible Romania and Sano Touring	Third Sector	Romania	Green_Care_Tourism	Initiative
Eco Herbal	Third Sector	Romania	Social_agriculture	Initiative
Lókodi Youth Foundation/LIA e. V. Projekthilfe in Rumänien	Third Sector	Romania	Social_agriculture	Initiative
Hip Tep	Third Sector	Romania	Social_agriculture	Initiative
Gradinescu	Public Sector	Romania	Urban_Green_Care	Initiative

Sensory Garden	Third Sector	Romania	Urban_Green_Care	Initiative
"Zimbrului Land" Natural Park	Public Sector	Romania	Green_Care_Tourism	Initiative
Ecotourism destination Padurea Craiului	Private Sector	Romania	Green_Care_Tourism	Initiative
Băile Tușnad	Third Sector	Romania	Green_Care_Tourism	Initiative
Adept Transylvania Foundation	Third Sector	Romania	Social_agriculture	Initiative
Baile Govora SA	Private Sector	Romania	Green_Care_Tourism	Initiative
Garden Boutique	Private Sector	Romania	Urban_Green_Care	Initiative
Asociația Pădurea Copiilor	Third Sector	Romania	All apply	Initiative
Club ecvestru Transilvania-Riding Resort	Third Sector	Romania	Green_Care_Tourism	Initiative
Forest School Romania	Third Sector	Romania	Urban_Green_Care	Initiative
Stichting Present	Third Sector	The Netherlands	Urban_Green_Care	Initiative
Rebooth Specialists	Private Sector	The Netherlands	All apply	Initiative
STIP VSO	Third Sector	The Netherlands	Social_agriculture	Initiative
Erasmus University Rotterdam	Public Sector	The Netherlands	All apply	Initiative
Natural Step	Third Sector	The Netherlands	All apply	Course
Duurzaam MBO	Third Sector	The Netherlands	All apply	Course
Natuurlijk Utrecht	Third Sector	The Netherlands	Social_agriculture	Course
Federatie zorg en landbouw	Third Sector	The Netherlands	Social_agriculture	Initiative
Ontwikkelcentrum Wageningen	Private Sector	The Netherlands	All apply	Course
Green Deal 190	Third Sector	The Netherlands	All apply	Initiative
Universiteit Utrecht	Public Sector	The Netherlands	Social_agriculture	Information
Teagasc	Public Sector	Ireland	Social_agriculture	None
Leitrim Development Co.	Third Sector	ireland	Social_agriculture	Initiative
Agriland	Third Sector	Ireland	Social_agriculture	Information
Social Farming Ireland	Third Sector	Ireland	Social_agriculture	Initiative
Health Services Executive	Public Sector	ireland	All apply	Information
Ecowellness Consulting	Private Sector	Ireland	Social_agriculture	Initiative
Gerard Deegan Farmer	Private Sector	Ireland	Social_agriculture	Information
Coillte	Public Sector	Ireland	Social_agriculture	Information
Mental Health Ireland UCD	Third Sector	Ireland	Social_agriculture	Information
BOS+	Third Sector	Belgium	Forest_based_care	Information
Natureminded	Third Sector	Belgium	Forest_based_care	Information

Foresterra	Third Sector	Belgium	Forest_based_care	Information
The Mersey Forest	Third Sector	UK	Forest_based_care	Course
Belgian One Health network	Third Sector	Belgium	All apply	Information
Chair Care and the Natural Living Environment	Third Sector	Belgium	All apply	Information
Province of Antwerp	Public Sector	Belgium	All apply	Information
The World Health Organization	Public Sector	International	All apply	Information
Natuurpunt	Third Sector	Belgium	Forest_based_care	Course
University College Ghent	Public Sector	Belgium	All apply	Information
Forest Therapy Days	Third Sector	Finland	Forest_based_care	Information
Université Libre de Bruxelles	Public Sector	Belgium	All apply	Course
Instituut voor Natuur- en Bosonderzoek	Public Sector	Belgium	All apply	Information
Pan Bern	Public Sector	Switzerland	Forest_based_care	Information
European Forum on Urban Forestry	Third Sector	International	All apply	Information
Humboldt-Universität zu Berlin	Public Sector	Germany	All apply	Information
Institute for Forest Pedagogics	Third Sector	Slovenia	Forest_based_care	Course
Slovenian Forestry Institute	Public Sector	Slovenia	Forest_based_care	Information
University of Pisa	Public Sector	Italy	Forest_based_care	Course
Arte Sella	Third Sector	Italy	Forest_based_care	Initiative
Montagna Terapia	Third Sector	Italy	Forest_based_care	Initiative
Lund University	Public Sector	Sweden	All apply	Course
Ceeweb	Third Sector	Hungary	All apply	Information
Forum Nazionale Agricoltura Sociale	Third Sector	Italy	Social_agriculture	Information
Bottega dei ragazzi	Third Sector	Italy	All apply	Initiative
Consiglio Nazionale FederTrek	Third Sector	Italy	Green_Care_Tourism	Initiative
Ente Parco Dolomiti Bellunesi	Public Sector	Italy	Green_Care_Tourism	Initiative
Regione Veneto	Public Sector	Italy	All apply	Initiative
Associazione Italiana Persone Down	Third Sector	Italy	Social_agriculture	Initiative
Scuola agraria Vellai	Public Sector	Italy	Social_agriculture	Initiative
GAL Prealpi e Dolomiti	Public Sector	Italy	Green_Care_Tourism	Initiative
Università di Udine Stazione Terapia Forestale Valli del Natisone	Public Sector	Italy	All apply	Information
Bosco delle Viole	Third Sector	Italy	All apply	Initiative
Guida certificata ANFT	Private Sector	Italy	Forest_based_care	None
Univeristà di Firenze - Urban Forestry	Public Sector	Italy	All apply	Course
EUROMONTANA/SIMRA	Third Sector	International	All apply	Course
Rete Rurale Nazionale	Third Sector	Italy	All apply	Information
University of Stockholm	Public Sector	Sweden	All apply	Course
Global Institute of Forest Therapy (GIFT)	Third Sector	International	Forest_based_care	Course

Commonwealth Scientific and Industrial Research Organisation	Third Sector	International	All apply	Information
Social agriculture Istituto Nazionale per l'Analisi delle Politiche Pubbliche	Public Sector	Italy	Social_agriculture	Initiative
Chiba University	Public Sector	Japan	Forest_based_care	Course
Korea Forest Service, Daejeon	Public Sector	Republic of Korea	Forest_based_care	Course
National Research Centre of Italy	Third Sector	Italy	All apply	Information
Cooperativa Dumia Feltre	Third Sector	Italy	All apply	Initiative
Fattoria in Valle	Third Sector	Italy	Social_agriculture	Initiative
Coop Now	Third Sector	Italy	Social_agriculture	Initiative
Veneto Agricoltura	Public Sector	Italy	All apply	Information
EFI-MED	Third Sector	International	All apply	Information
Associazione Forestale di pianura	Third Sector	Italy	Forest_based_care	Initiative
Cooperativa Cadore	Third Sector	Italy	All apply	Initiative
Slow Adventure / Tourism and Recreation Highlands University	Public Sector	UK	Green_Care_Tourism	Initiative
I Briganti di Cerreto	Third Sector	Italy	All apply	Initiative
Fondazione Mach	Third Sector	Italy	Social_agriculture	Initiative
Cooperativa Società Nuova	Third Sector	Italy	All apply	Initiative
GAL Alto Bellunese	Third Sector	Italy	Green_Care_Tourism	Initiative
APT Valsugana	Third Sector	Italy	Green_Care_Tourism	Initiative
Consorzio Tarvisiano	Third Sector	Italy	All apply	Initiative
International Union of Forest Research Organization	Third Sector	Greece	All apply	Information
Seul National University	Public Sector	Korea	Forest_based_care	Course
Sopha University	Public Sector	Japan	Forest_based_care	Course
LUKE	Public Sector	Finland	Forest_based_care	Course
PANBERN - funeral forest	Private Sector	Switzerland	Forest_based_care	Initiative
BOSCHI VIVI - funeral forest	Private Sector	Italy	Forest_based_care	Initiative
Arch bio/ European forest therapy Institute Italia	Third Sector	Italy	Forest_based_care	Course
Resp. Stazione Terpia Frestale Pian dei Termini	Third Sector	Italy	All apply	Initiative
University College Dublin	Public Sector	Ireland	All apply	Information
Forest Research Insitute	Third Sector	Greece	Forest_based_care	Information
Compagnia delle foreste/sherwood	Third Sector	Italy	Forest_based_care	Information
University of Grongin	Public Sector	The Netherlands	All apply	Course
NatureSquared	Private Sector	The Netherlands	All apply	Initiative
Ospedale Gorizia	Public Sector	Italy	All apply	Initiative
Università di Barcelona	Public Sector	Italy	All apply	Course
Helmholtz - Centre for	Public Sector	Germany	All apply	Initiative

environmental Research UFZ				
Gartentherapie - Psychotherapie HPG (siehe Vita)	Private Sector	Germany	All apply	Initiative
The Meraki People	Third Sector	Greece	All apply	Initiative
S!MPL	Third Sector	The Netherlands	All apply	None
University of Natural Resources and Life Sciences	Public Sector	Austria	All apply	Course
Forest Therapist	Private Sector	Ireland	Forest_based_care	None
PUTTI-HOF	Third Sector	Austria	Social_agriculture	Initiative
WalkInniù	Private Sector	Ireland	All apply	Initiative
Psychosocial Green Care Italia	Third Sector	Italy	All apply	Information
Green City Watch	Private Sector	The Netherlands	Urban_Green_Care	Initiative
Agresta	Third Sector	Spain	All apply	Initiative
Politecnico di Milano	Public Sector	Italy	All apply	Information
Forest Therapy Institute	Third Sector	International	Forest_based_care	Course
Food and Agriculture Organization	Public Sector	Italy	All apply	Information
University of Padua	Public Sector	Italy	All apply	Course
Czech University of Life Sciences	Public Sector	Czech Republic	All apply	Information
National Association of French Foresters	Public Sector	France	All apply	Information
European Forest Insititue	Third Sector	Spain	All apply	Information
Rivista Sherwood	Third Sector	Italy	Forest_based_care	Information
Politecnic Universita di Madrid	Public Sector	Spain	All apply	Information
Waterford Institute of Technology	Public Sector	Ireland	All apply	Information
University of Groningen	Public Sector	The Netherlands	All apply	Course
University of Göteborg	Public Sector	Sweden	All apply	Course
Thrive learn	Third Sector	UK	All apply	Course
Scuola agraria del Parco di Monza	Third Sector	Italy	All apply	Course
International Nature and Forest Therapy Alliance	Third Sector	International	Forest_based_care	Course
Swedish University of Agricultural Sciences	Public Sector	Sweden	Urban_Green_Care	Course
University of Copenhagen	Public Sector	Denmark	Green_Care_Tourism	Course
University of Exeter	Public Sector	UK	All apply	Course
Savonia University of Applied Science	Public Sector	Italy	All apply	Course
PARS Onlus	Third Sector	Italy	Social_agriculture	Course
Hayley Marshall Counselling	Private Sector	UK	Forest_based_care	Course
Outdoor leadership Seminars	Private Sector	USA	All apply	Course
Ecopsychology UK	Private Sector	UK	All apply	Course
Association of Nature and Forest Therapy	Third Sector	International	Forest_based_care	Course

Università di Bologna	Public Sector	Italy	Social_agriculture	Course
Università di Roma Tor Vergata	Public Sector	Italy	Social_agriculture	Course
Agricoltura Sociale Fiore del Deserto	Third Sector	Italy	Social_agriculture	Course
Shinrin Yoku Centre of Excellence	Private Sector	UK	All apply	Course
Università della Valle d'Aosta	Public Sector	Italy	All apply	Course
Scuola ecopsiché	Private Sector	Italy	All apply	Course

ANNEX 2. GREEN4C TNA IN-DEPTH INTERVIEW QUESTIONS

A. **Introduction to Green4C**
    a. Brief info about Green4C and its aim. The concept of Green Care used in this project
B. **Practical applications in Green Care (best practices, case studies, business models, etc.)**
    a. Are you aware of any good examples of innovation and entrepreneurship in the field of Green Care (or relevant thematic sector)?
    b. What puts them apart? Strength and weaknesses
    c. What is missing in this field? What kind of knowledge and skills do entrepreneurs in Green Care miss? And would most benefit from?
    d. What are their challenges? (institutional, policy, etc.)
C. **Educational offer in Green Care**
    a. Are you aware of any academic and non-academic training courses in this field?
    b. What do they teach? What kind of methods and tools do they use?
    c. What is missing in their syllabus?
D. **Promotion of Green Care**
    a. How can we promote Green Care as a valid and effective approach for achieving better health and well-being? What needs to be done?
    b. Any other comments?

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ANNEX 3. GREEN4C TNA QUESTIONNAIRE

THE GREEN CARE TRAINING NEEDS ASSESSMENT

Welcome to the Training Needs Assessment survey of the Green4C project: we need your help to better understand how the knowledge of Green Care is widespread. During the course of the project, new opportunities will be promoted - through online training courses, hackathons and a business accelerator course. By completing this questionnaire, you will help our international team create more targeted opportunities!

The survey takes 15-20 minutes to complete and it includes questions on background, experience and expectations in Green Care, Social Innovation and Entrepreneurship. The survey is voluntary and anonymous and the data will be analyzed in an aggregated way.

Green4C is a three-year (2020-2023) Erasmus+ learning and exchange project that aims to contribute to the development of Green Care entrepreneurial opportunities that focus on health, wellbeing and social inclusion through nature-based solutions.

Specifically, Green4C focuses on four thematic sectors:
- Forest-based care
- Social Agriculture
- Urban Green Care
- Green Care Tourism

www.greenforcare.eu

* Required

The personal data collected in this questionnaire are processed by Etifor SRL in compliance with the GDPR (http://bit.ly/policy-eng) and will be kept exclusively for the organization of the activities of the"Green4C" project for the duration of the project itself. The data maybe transferred to the project partners for organizational and information purposes only for the activities related to the project. Respondents can exercise their rights under Articles 15 to 22 of EU Regulation 679/2016, where applicable, by sending an email to privacy@etifor.com or by clicking on the link to unsubscribe contained in all newsletters. The project leader is the University of Padua. *

○ I have read and accepted the above conditions

Next

Page 1 of 8

PART 1: PERSONAL INFO AND BACKGROUND

1.1 Age

- ○ Below 18
- ○ 18-24
- ○ 25-34
- ○ 35-44
- ○ 45-54
- ○ 55-64
- ○ 65 and above

1.2 Gender

- ○ Female
- ○ Male
- ○ Prefer not to say
- ○ Other: _____

1.3 Nationality (Please indicate the country of your nationality)

Your answer

1.4 Country (Please indicate the country of your residence)

Your answer

1.5 What is your educational background?

Your answer

1.6 Position (Please select the category or categories that best represent your position) *

- [ ] Vocational trainee
- [ ] Bachelor student
- [ ] Master student
- [ ] PhD student
- [ ] Researcher
- [ ] Professor
- [ ] Public Health Provider
- [ ] Social Service Provider
- [ ] Consultant/ External expert
- [ ] Manager (farm, forest, company, etc.)
- [ ] Entrepreneur/self-employed
- [ ] Employee
- [ ] Other:

Back Next Page 2 of 8

PART 2: GREEN CARE

In Green4C, we refer to Green Care as an emerging concept referring to "...a range of activities that promote physical and mental health and well-being through contact with nature" (Sempik et al., 2010). We focus on green care activities in 4 main thematic sectors: a) Forest-based Care – promotion of health through the use of forest areas, e.g. forest therapy; b) Social Agriculture – promotion of social inclusion through agricultural activities; c) Urban Green Care – improving mental health, reducing stress, fostering social capital, etc. through the use of urban green spaces, and d) Green Care Tourism – promotion of health and well-being through the use of green tourism destinations.

Sempik, J., Hine, R. Wilcox, D. eds. (2010) Green Care: A Conceptual Framework, A Report of the Working Group on the Health Benefits of Green Care, COST Action 866, Green Care in Agriculture, Loughborough: Centre for Child and Family Research, Loughborough University.

2.1 Based on your experience, would you add or change anything in the provided definition of Green Care? If yes, please provide your answer

Your answer

2.2 To what extent do you CURRENTLY deal with the following thematic sectors of Green4C? (Please select one option for each row, 0 = not at all 4 = to a very great extent)

	0	1	2	3	4
Forest-based Care	○	○	○	○	○
Social Agriculture	○	○	○	○	○
Urban Green Care	○	○	○	○	○
Green Care Tourism	○	○	○	○	○

2.3 To what extent do you expect to deal with the following thematic sectors of Green4C in the FUTURE? (Please select one option for each row, 0 = not at all 4 = to a very great extent)

	0	1	2	3	4
Forest-based Care	○	○	○	○	○
Social Agriculture	○	○	○	○	○
Urban Green Care	○	○	○	○	○
Green Care Tourism	○	○	○	○	○

2.4 Based on your education and experience, which SKILLS and KNOWLEDGE related to Green Care do you CURRENTLY have? (Feel free to add other skills and knowledge related to Green Care) *

- ☐ forest management
- ☐ farming
- ☐ urban design and planning
- ☐ tourism management
- ☐ medical knowledge and clinical skills
- ☐ psychiatry
- ☐ psychology and psychotherapeutic techniques
- ☐ disability and social inclusion management
- ☐ social work
- ☐ human resources management
- ☐ assessment of nature-based solutions for health, wellbeing and social inclusion
- ☐ marketing and promotion of nature-based solutions
- ☐ enhancement of ecosystem service provision through active management of urban or rural areas
- ☐ development/management of accounting system for ecosystem services
- ☐ systems thinking (ability to see overall structures and patterns in a given system, recognize interrelations and feedback loops among different elements)
- ☐ facilitation of complex multi-stakeholder processes for service development
- ☐ Other: _____

2.5 What kind of specific SKILLS and KNOWLEDGE would you like to acquire for your current or future career in Green Care? (Feel free to add other skills and knowledge related to Green Care)

- [ ] forest management
- [ ] farming
- [ ] urban design and planning
- [ ] tourism management
- [ ] medical knowledge and clinical skills
- [ ] psychiatry
- [ ] psychology and psychotherapeutic techniques
- [ ] disability and social inclusion management
- [ ] social work
- [ ] human resources management
- [ ] assessment of nature-based solutions for health, wellbeing and social inclusion
- [ ] marketing and promotion of nature-based solutions
- [ ] enhancement of ecosystem service provision through active management of urban or rural areas
- [ ] development/management of accounting system for ecosystem services
- [ ] systems thinking (ability to see overall structures and patterns in a given system, recognize interrelations and feedback loops among different elements)
- [ ] facilitation of complex multi-stakeholder processes for service development
- [ ] Other: _____

2.6 Have you ever attended any TRAINING COURSES on the following broad themes? Please indicate one or more choices if applicable.

- [ ] Forestry
- [ ] Agriculture
- [ ] Urban design and planning
- [ ] Tourism
- [ ] Health, well-being and social inclusion

- [ ] Ecosystems and Resource Management
- [ ] Policy, governance and regulatory issues
- [ ] Entrepreneurship, Innovation and Business
- [ ] Green Care

2.7 Are you aware of any training courses or practical applications such as best practices, business models, case studies specifically in Green Care? *

- ( ) Yes
- ( ) No

Back Next Page 3 of 8

PART 2b. TRAINING COURSES AND PRACTICAL APPLICATIONS IN GREEN CARE

2b.1 If you are aware of TRAINING COURSES in Green Care, please indicate the names. Include the organizing institution and if possible the website.

Your answer

2b.2 If you are aware of PRACTICAL APPLICATIONS (best practices, business models, case studies) in Green Care, please indicate the names. Include the organizing institution and if possible the website.

Your answer

2b.3 Can you suggest any other STAKEHOLDERS that could be interested in participating in the project Green4C and in its outputs? If yes, please provide their names.

Your answer

Back Next Page 4 of 8

PART 3: SOCIAL INNOVATION and ENTREPRENEURSHIP

In our project, we define an entrepreneur as the innovator who implements changes through new products, processes, markets, and sources, by exploring new opportunities and creating new organizations and relations.

3.1 Based on your education and experience, which ENTREPRENEURSHIP SKILLS and KNOWLEDGE do you CURRENTLY have? Feel free to add other options.

- [ ] Leadership skills
- [ ] Human resources management
- [ ] Business management skills
- [ ] Business strategy/Operations
- [ ] Networking skills
- [ ] Budget and financing
- [ ] Critical thinking
- [ ] Creativity
- [ ] Planning and Development skills
- [ ] Innovative idea development
- [ ] Value Proposition
- [ ] Impact investment
- [ ] Communication
- [ ] Knowledge and application of cutting-edge technology
- [ ] Other: _____

3.2 What kind of specific ENTREPRENEURSHIP SKILLS and KNOWLEDGE would you like to acquire for your current or future career? Feel free to add other options. *

- [ ] Leadership skills
- [ ] Human resources management
- [ ] Business management skills
- [ ] Business strategy/Operations
- [ ] Networking skills
- [ ] Budget and financing

- [ ] Critical thinking
- [ ] Creativity
- [ ] Planning and Development skills
- [ ] Innovative idea development
- [ ] Value Proposition
- [ ] Impact investment
- [ ] Communication
- [ ] Knowledge and application of cutting-edge technology
- [ ] Other: _____

In our project we refer to SOCIAL INNOVATION and ENTREPRENEURSHIP as those that "..aim to provide innovative solutions to unsolved social problems, putting social value creation at the heart of their mission in order to improve individuals' and communities' lives and increase their well-being" (OECD, 2010).

OECD. (2010). Social Entrepreneurship and Social Innovation. SMEs, Entrepreneurship and Innovation. Available at: http://ec.europa.eu/DocsRoom/documents/14506/attachments/22/translations/en/renditions/native

3.3 Based on your experience, would you add or change anything in the definitions of social innovation and entrepreneurship provided above? If yes, please provide your answer

Your answer

3.4 Have you ever attended any TRAINING COURSES on social innovation and entrepreneurship in Green Care? *

- ○ Yes
- ○ No

Back Next Page 5 of 8

PART 3b. TRAINING COURSES ON SOCIAL INNOVATION AND ENTREPRENEURSHIP IN GREEN CARE

3b.1 Could you please indicate the name of the MOST RELEVANT course you attended in the field of SOCIAL INNOVATION and ENTREPRENEURSHIP in Green Care, the organizing institution, and if possible the website?

Your answer

3b.2 It was a...

- ○ Bachelor course
- ○ Master course
- ○ Post-graduation course
- ○ PhD course
- ○ Professional course
- ○ Certificate program
- ○ Other:

3b.3 The activities included: (feel free to add other activities if relevant)

- ☐ Seminars by academic and non-academic experts
- ☐ Field visits and analysis of case studies
- ☐ Development of your own case study/projects with tutoring by experts
- ☐ Participation in conferences/events/exhibitions
- ☐ Group work
- ☐ No courses attended
- ☐ Other:

Back Next Page 6 of 8

PART 4. GREEN4C TRAINING COURSE

Green4C aims to bring together different interdisciplinary knowledge systems - from health to resource management and tourism - and will support different actors in the development of new business opportunities that are both innovative and financially sound.

In this section we would like to know which are the sectoral and cross-cutting areas where Green4C can add value to knowledge and opportunities already available.

4.1 In case you could attend a Green4C training course, which topics would you like to study? The topics are divided into categories. Please choose your preferred options and indicate additional ones you believe are relevant.

Forest Management

- [ ] Forest Management and Planning
- [ ] Sustainable Forest Management (SFM)
- [ ] Forest Therapy
- [ ] Social Forestry
- [ ] Community Forestry
- [ ] Reforestation
- [ ] Other: _____

Agriculture

- [ ] Agricultural land management
- [ ] Social agriculture
- [ ] Agroforestry
- [ ] Organic agriculture
- [ ] Horticulture
- [ ] Animal Husbandry
- [ ] Garden management
- [ ] Production techniques (e.g., irrigation management, recommended nitrogen inputs)
- [ ] Other: _____

Urban green design and planning

- [ ] Urban ecosystem management
- [ ] Urban green infrastructure
- [ ] Urban park management
- [ ] Urban community gardens
- [ ] Green roofs and walls
- [ ] Sustainable transport
- [ ] Cycling and pedestrian road management
- [ ] Other: _____

Tourism Management

- [ ] Cultural and recreational ecosystem services
- [ ] Cultural Tourism
- [ ] Wellness Tourism
- [ ] Health Tourism
- [ ] Sustainable and Accessible Tourism
- [ ] Tourism Education and Awareness-building
- [ ] Tourism Planning. Management and Marketing
- [ ] Other: _____

Health, Well-being and Social Inclusion

- [ ] Health and wellbeing education and awareness building
- [ ] Environmental education and awareness building
- [ ] Social Inclusion
- [ ] Green Care for healthy lifestyle promotion
- [ ] Green Care for disease prevention
- [ ] Green Care for curing or rehabilitating people with specific needs
- [ ] Nutrition
- [ ] Other: _____

Ecosystems and Resource management

- [ ] Ecosystem services mapping/assessment
- [ ] The role of ecosystems in human health and well-being
- [ ] Sustainable Land Use and Resource Management
- [ ] Landscape Management / Architecture
- [ ] Other_____

Policy, Governance and Regulatory issues

- [ ] Forest Policy and Governance
- [ ] Agricultural Policy and Governance
- [ ] Urban Planning Policy and Governance
- [ ] Tourism Policy and Governance
- [ ] Public Health Policy
- [ ] Natural Resource Governance
- [ ] Environmental and forestry legislation
- [ ] Climate change and adaptation policies/tools
- [ ] Business legislation and administration
- [ ] Other: _____

Entrepreneurship, Innovation and Business Management

- [ ] Business development and planning
- [ ] Project development and management
- [ ] Marketing and communication
- [ ] Financial management
- [ ] Fundraising
- [ ] Corporate Social Responsibility
- [ ] Environmental Management Systems
- [ ] Innovation and Entrepreneurship
- [ ] Social Innovation and Entrepreneurship
- [ ] Other: _____

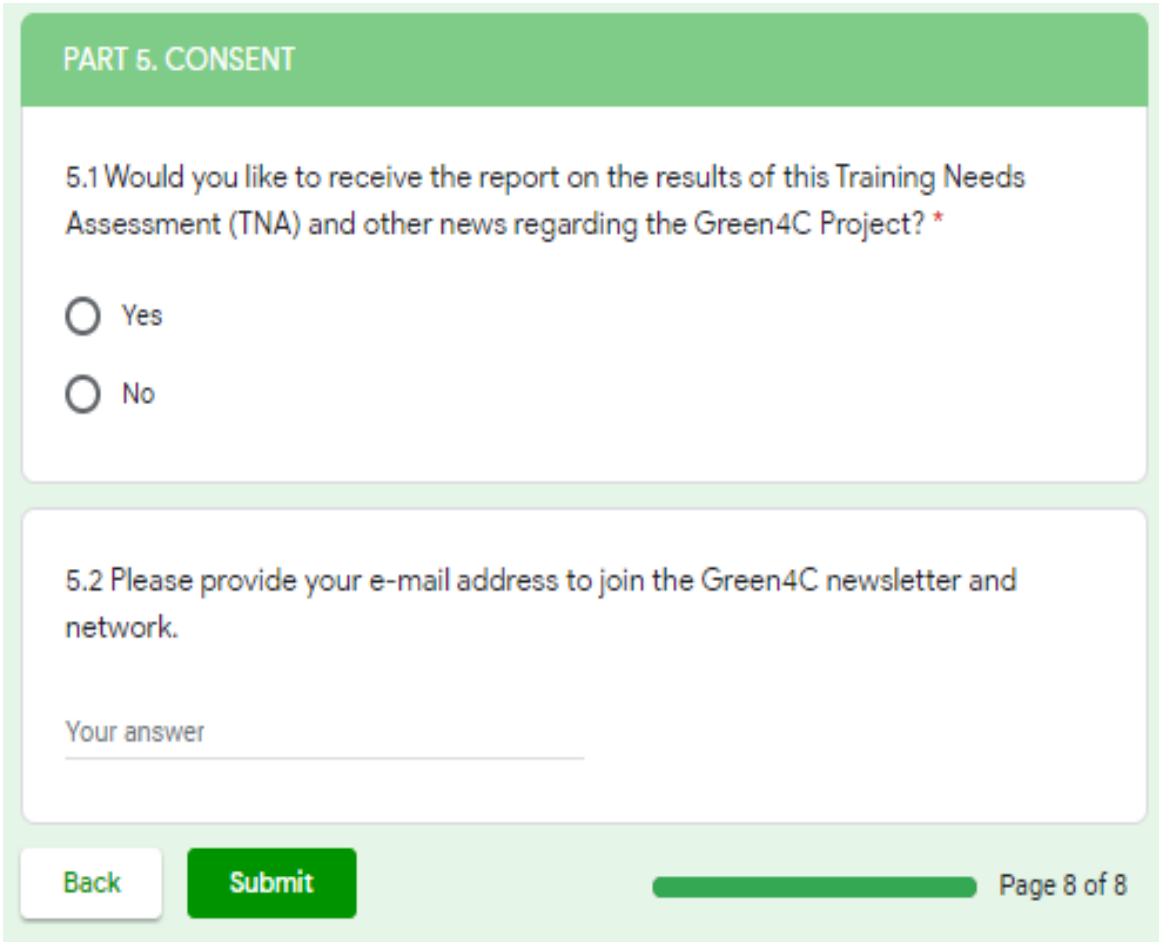
4.2 In the case you could attend a entrepreneurship and innovation training course in Green Care, which format would you prefer? (Please choose one or more options) *

- [ ] Full academic online course
- [ ] Full non-academic online course
- [ ] Full academic face-to-face course
- [ ] Full non-academic face-to-face course
- [ ] Full academic blended course (online + face to face)
- [ ] Full non-academic blended course (online+ face to face)
- [ ] Short (i.e. max 1 week) intensive online course
- [ ] Short (i.e. max 1 week) intensive face-to-face course
- [ ] A number of specific webinars/seminars by academic and non-academic experts
- [ ] Field visits and analysis of case studies
- [ ] Development of your own case studies/projects with tutoring by experts
- [ ] Participation to conferences/events/exhibitions
- [ ] Internship program
- [ ] Other: _____

4.3 Please provide any additional information or comments that you believe might be useful or relevant to the development of new training resources and opportunities in Green4C.

Your answer

Back Next Page 7 of 8



PART 5. CONSENT

5.1 Would you like to receive the report on the results of this Training Needs Assessment (TNA) and other news regarding the Green4C Project? *

- Yes
- No

5.2 Please provide your e-mail address to join the Green4C newsletter and network.

Your answer

Back Submit Page 8 of 8

green4c

Co-funded by the
Erasmus+ Programme
of the European Union

The Green4C project, co-funded by the Erasmus+ Programme by the European Union, aims at increasing Europe's innovation capacity among universities and businesses to promote green and natural approaches to health and social care.

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