# green4c

### BACKGROUND REPORT FOR THE EU BLUEPRINT ON GREEN CARE

NATURE FOR HEALTH, WELL-BEING AND SOCIAL INCLUSION: ANALYSING FACTORS INFLUENCING INNOVATION IN GREEN CARE

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### GREEN IS CARING. BE PART OF A GREENER AND HEALTHIER FUTURE.



BACKGROUND REPORT FOR THE EU BLUEPRINT ON GREEN CARE

**Project Title:** Green4C. Alliance on Interdisciplinary Learning and Entrepreneurial skills in Green for Health and Social Inclusion.

WP3 Research and assessment of needs WP 3.3 - EU Blueprint on Green Care. Nature for Health, Well-Being and Social Inclusion: Analysing Factors Influencing Innovation in Green Care

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### THE GREEN4C PROJECT

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. The focus of the project is to foster innovation and entrepreneurship by integrating health and social care with the use of nature and natural resources and ecosystems in both rural and urban areas.

At the foundations of the alliance is the Green4C consortium made up of expert universities, research institutes, businesses and international organisations 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 Braşov (UNITBV), Istituto Superiore di Sanità (ISS), Meath Partnership, Bundesforschungszentrum für Wald (BFW), the European Forest Institute (EFI), Wageningen University and Research (WUR), Forest Design, the University of British Columbia (UBC) and University College Dublin (UCD).

With the planned activities and expected impacts, this project aims to contribute to diverse UN Sustainable Development Goals (UN SDGs) including SDG 3 (Good health and well-being), SDG 8 (Decent work and economic growth), SDG 9 (Industry, innovation and infrastructure), SDG 10 (Reduced inequalities), SDG 11 (Sustainable cities and communities), SDG 13 (Climate action), SDG 15 (Life on land) and SDG 17 (Partnerships for the goals).



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For more information on the case studies, the fact sheets referred in the analysis of this report can be found at: <a href="http://www.greenforcare.eu/case-studies">www.greenforcare.eu/case-studies</a>

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### ABBREVIATIONS

ANFT - Association of Nature and Forest Therapy ART - Attention Restoration Theory BFW - Bundesforschungszentrum für Wald (Austrian research institute for forests) CAP - Common agricultural policy COST - European Cooperation in Science and Technology CES - Cultural ecosystem services CSO - Civil Society Organisations DAFM - Department of Agriculture, Food and the Marine EDF - European Disability Forum EAFRD - European Agricultural Fund for Rural Development EDEN - European destinations of excellence EESC - European Economic and Social Committee EFI - European Forest Institute EIP - European Innovation Partnerships ENAT - European Network for Accessible Tourism ERDF - European Regional Development Fund ES - Ecosystem services ESF - European Social Fund ESIF - The European Structural and Investment Fund EU - European Union EUPATI European Patients' Academy on Therapeutic Innovation FAO - Food and Agriculture Organization FTI - Forest Therapy Institute GC - Green Care GSTC - Global Sustainable Tourism Council HEI - Higher Education Institution HSE - Health and Safety Environment IPBES - The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services ISS - Istituto Superiore di Sanità ISG - Instituto de Salud Global IUCN - International Union of Conservation for Nature LOHAS - Lifestyles of Health and Sustainability MEA - Millennium Ecosystem Assessment MFA - Multifunctional Agriculture Nbl - Nature-based innovation NbS - Nature-based solutions NCD - Non-communicable diseases NGO - Non-government Organisation OECD - Organisation for Economic Co-operation and Development SDG - Sustainable Development Goal SES - Socio-ecological systems SFM - Sustainable Forest Management SI - Social Innovation SIMRA - Social Innovation in Marginalised and Rural Areas SME - Small Medium-sized Enterprises SRT - Stress Reduction Theory TEM - Traditional European Medicine TNA - Training Needs Assessment UBC - University of British Columbia UCD - University College Dublin UNITBV - Universitatea Transilvania din Brașov UNIPD - University of Padua UNWTO - United Nations World Tourism Organization **UN – United Nations** UNECE - United Nations Economic Commission for Europe **UNEP – United Nations Environment Programme** UNFCCC - United Nations Framework Convention on Climate Change VOC - Volatile Organic Compound WHO - World Health Organisation

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The Green4C (GreenforCare) project, co-funded by the Erasmus+ Programme of the European Union, is a three-year project that aims at increasing Europe's innovation capacity among universities and businesses to promote technical, social and nature-based innovation 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 care sectors and the sectors related to the use of natural resources and ecosystems in both rural and urban areas.

The focus of the project is to develop and support Green Care 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, Landscape Architecture, and Environmental Management as well as Medical Sciences, Psychology and Social Work, and more broadly business owners and practitioners from these different fields.

The Green4C "Background Report for the EU Blueprint on Green Care" describes the results of data collected and analysed for Deliverable 3.3 of Working Package 3 on Research and Assessment of Needs in the Green4C project. The report is a first attempt at portraying the complex picture of innovation in entrepreneurship activities in Green Care. Relying on grey and scientific literature and the analysis of twenty selected case studies, the report presents a framework – the Green Care Innovation System Framework – for understanding the systems and innovation processes in the Green Care sector. It applies the framework to four Green4C thematic sectors to describe the status of innovation in these sectors and highlights the key factors for success and challenges as a way to draw lessons and to provide recommendations for future actions.

Chapter 1 introduces the four Green Care thematic sectors and provides an initial overview on the state of the art. Chapter 2 outlines the methodology for the selection of case studies, data collection and analysis using the Green Care Innovation System Framework. Chapter 3 details the theoretical background, outlining the environmental and societal challenges which drive Green Care initiatives and contextualising it within health, well-being and social inclusion. Chapter 4 describes the innovation and entrepreneurship models which apply to Green Care initiatives. In Chapter 5, the Green Care Innovation System Framework is presented, and the results of the analysis of the selected case studies is outlined according to the different categories of the framework. Chapter 6 highlights five emerging issues, while Chapter 7 provides a set of recommendations for policy makers, service providers, professionals, land managers, funders, supporters, researchers and scientists in Europe.

### I INTRODUCTION TO GREEN CARE AND FOUR THEMATIC SECTORS

The concept of Green Care is adopted by Green4C to describe the centrality of nature to human health and wellbeing. Green Care is an emerging concept referring to "....a range of activities that promotes physical, mental and [social] health and well-being through contact with nature" (Sempik *et al.*, 2010, p.121). This research has identified four thematic sectors in Green Care based on the geographical spaces where Green Care initiatives and activities take place (*i.e.*, forests, agricultural land, urban areas), and on their specific focus in promoting human health, well-being and social inclusion.

The following sections present the thematic sectors explaining their focus and providing preliminary definitions.



### FOREST-BASED CARE

refers to all organised interventions in forest areas that embed "aspects of healthcare, social inclusion and rehabilitation, health prevention with clinical assistance to broaden wellness and relaxation, education ranging from pedagogy to opportunities for disaffected people, spiritual and inspirational values, employment, and livelihood" (Doimo *et al.*, 2021, p.3).

### SOCIAL AGRICULTURE

or social farming can be defined as "an innovative, inclusive, participatory and generative model of agricultural practices that delivers recreational, educational and assistance services. It aims at the social and labour inclusion of disadvantaged people, who through social agricultural practices are able to contribute to food and agricultural production" (Di lacovo and O' Connor, 2009, p.11).



### **URBAN GREEN CARE**

describes the range of projects, initiatives and/or actors and organisations promoting urban and peri-urban green spaces and explicitly incorporating human health and well-being in their strategies and activities.

### **GREEN CARE TOURISM**

refers to a wide range of organised tourism experiences and products that rely on nature and wild spaces for tourists in search of health, wellbeing and regeneration.

### 1.1 Forest-based care

The contribution of forest exposure to human health and well-being is increasingly well-understood in the scientific community (Tyrväinen et al., 2014; Grilli and Sacchelli, 2020; Wolf et al., 2020). Beyond the ecological services provided by forests, that are directly linked to our health and safety (*i.e.*, biodiversity, water regulation, air quality), spending time in contact with forests has direct physiological, psychological and social well-being impacts (Doimo et al., 2020). According to Markevych et al. (2017), these benefits can be grouped into three domains: reducing harm (e.g., air pollution, noise and heat), restoring capacities (e.g. attention restoration) and building capacities (e.g. encouraging physical activity). It is therefore no surprise that services and initiatives related to forest experiences are growing both as an answer to the increasing demand for nature and as an integrated solution of public health (Gallis and Shin, 2020). Initiatives and interventions in Forest-based care in Europe are relatively young, developed with different levels of intensity and characteristics.

There is no widely accepted definition of the sector and consequently its boundaries are still being defined and not supported by an adequate amount of scientific literature. Nevertheless, starting from available scientific and grey literature, and the experience of Green4C partners, it is possible to draft a description of Forestbased care initiatives. Organised interventions and activities that make use of benefits originating from peoples' contact with forests fall under a sector that can be described with the umbrella term Forest-based care. These interventions range from single stand-alone or individual initiatives to projects organised by collectives and to national health programs, and involve both forprofit and not-for-profit activities. In the definition below, provided by Doimo et al. (2021), the term care is borrowed from the Green Care literature, which integrates with the concept of well-being provided by the World Health Organisation (WHO). Therefore, Forest-based care refers to all organised interventions in forests that embed, "aspects of healthcare, social inclusion and rehabilitation, health prevention with clinical assistance to broaden wellness and relaxation, education ranging from pedagogy to opportunities for disaffected people, spiritual and inspirational values, employment, and livelihood" (Doimo et al., 2021, p.3).

Courtesy Forest Theraphy Institute



#### Areas of application of Forest-based care

The forest environment has proven positive effects on physical, mental and social health as well as individual wellbeing. The benefits can be of both indirect and direct in nature and are generally found to lead to both shortterm and long-term health improvements (Hansen *et al.*, 2017; Kotera *et al.*, 2020). The scope of Forest-based care ranges from promoting health issues, to focusing on different mental, physical, emotional or behavioural problems to conducting subliminal activities interlinked to well-being, such as education, recreation, social inclusion, tourism, and spiritual, artistic, cultural inspiration, depending on the respective target (Marušáková *et al.*, 2019). Forest-based care interventions and activities thus generate direct and indirect health benefits, working in synergy with other sectors such as tourism and recreation. A prominent work to better define Forest-based care is the report from Forest Europe (Marušáková *et al.*, 2019) which details the typologies of initiatives in

- a) health promotion and disease prevention,
- b) therapy and rehabilitation,
- c) educational and social interventions and activities,
- d) recreation and tourism.
- Further, Doimo et al. (2021) grouped the typologies into three macro categories of initiatives:
- a) treatment and rehabilitation,
- b) prevention and promotion of health, and
- c) synergic initiatives providing other benefits involving education, art and recreation.

Given its alignment with the objectives and methodology of the Green4C project, the categorisation by Doimo *et al.* (2021) is applied and discussed in more detail below.

#### Forest-based care in treatment and rehabilitation

The term forest therapy includes therapeutic measures or interventions in forests for existing psychological or physical illnesses. This approach encompasses clinical interventions in forests, and it is therefore necessary that such services are carried out by appropriately trained medical personnel (Schuh and Immich, 2019). Such interventions often emerge in close collaboration with health professionals to develop ad hoc treatments, rehabilitation interventions and integrative therapies tailored to specific physical and mental health conditions (Doimo et al. 2021). It is illustrative that the Japanese government decided to activate a project for collecting evidence-based medicine data to assess the psychological and physiological effects of Shinrin-voku (i.e. forest bathing), the traditional practice of taking slow walks in the forest activating all the senses. In this way, it was possible to pass from the intuition that forest bathing is good for our health, to the science of forest therapy. Indeed, in Japan specific protocols have been developed for practicing "forest therapy", where specific trails are identified and their effects on people tested and then certified, guides and therapist are trained and certified themselves. In this research we distinguish forest bathing and forest therapy, referring to the first as "a health promoting, salutogenic, nature connection practice that aims to enhance well-being, relieve stress, and encourage relaxation" and to the second as "forest bathing operationalised as a nature-based intervention that targets specific mental health and physical health difficulties" (FTI, 2021). Forestbased therapies and rehabilitation practices are generally targeted on the needs of small groups of people with homogeneous characteristics and are structured in multiple sessions. Forest-based therapies are addressed to people with pre-existing and chronic diseases and disorders, such as chronic respiratory diseases, severe depression, insomnia, diabetes and metabolic disorders, and as maintenance therapy for diseases such as dementia, Parkinson's or Alzheimer. Further, specific programmes are developed for psychosocial rehabilitation of people with addictions, post-traumatic stress disorders, mental and physical disabilities.

#### Forest-based care for disease prevention and promotion of health

Initiatives that promote forests as a resource for social welfare provide a wide range of positive benefits on health and well-being for a wide target of people and therefore play an important role in health promotion and disease prevention. Indeed, forest settings are one or the regenerative natural environments that can function as a source for both mental and physical stress-relief, as stated in the Attention Restoration Theory (ART) (Kaplan and Kaplan, 1989) and the Stress Reduction Theory (SRT) (Ulrich *et al.*, 1991). Forest visits have a positive effect on the emotional state, increasing positive thoughts and decreasing subjective stress and negative emotions such as depression, anxiety, fatigue and tension (Morita *et al.*, 2007; Martens and Bauer, 2013; O'Brien *et al.*, 2014; Tyrväinen *et al.*, 2014). Both ART and SRT together with the concept of Nature Therapy mainstreamed through *Shinrin-Yoku*, build the basis by which forest experiences can be an effective instrument to prevent chronic stress and related diseases. It is well-established that stress, together with modern lifestyles, nutrition and environmental factors, are among the main risk factors for a wide number of non-communicable diseases. Indeed, *Shinrin-yoku* in Japan started to be promoted in national parks and forests in 1982 by the Japanese Forest Service to prevent stress among workers and urban citizens. As mentioned, forest bathing is a synonym of *Shinrin-Yoku* and thanks to the scientific research started in Japan, this practice was mainstreamed first in other parts of Asia, and then worldwide. Tsunetsugu *et al.*, (2010) interprets forest bathing *Shinrin-Yoku* as an approach whereby the effects of forests on physical and mental health are promoted and their targeted use is facilitated.

Health benefits can already be achieved to a certain degree by simply viewing a forest or a single tree, or by making forest areas widely accessible for recreation; this includes the creation of forest paths and trails for regeneration and wellness or healing trails and the offer of mindfulness walks and forest bathing (Marušáková *et al.*, 2019). Selected forest trails or organised programs can be created to develop green prescriptions for people with specific health conditions to prevent future diseases (*e.g.*, anxiety, hypertension), or to alleviate symptoms (*e.g.*, insomnia, chronic respiratory diseases). Furthermore, increased accessibility can promote active lifestyles by organising walks in the forest for the general public, to counter inactivity, and address inequality of access to high-quality green space (WHO, 2017; Zandieh *et al.*, 2019). Such activities respond also to an increased need of people to experience quality time in well-maintained forest environments and be able to re-connect with Nature.

Further, natural as well as forest settings facilitate social contact and permit an exchange between different user groups (Cervinka *et al.*, 2014). Forests enable different user groups to be challenged, experience adventure, learn new skills, but also feel free from social conditioning and judgement. Programmes carried out in forests or woodlands have the potential to positively impact vulnerable groups such as children, low-income groups, people with disabilities or with a migratory background (O'Brien *et al.*, 2014), by supporting better social integration.

Target users for this typology of Forest-based care initiatives vary from general population, to more restricted targets of users sharing well-being needs (*e.g.*, inactive population, post-menopausal women, children, people with risk of obesity or hypertension, elderly, socially isolated people). These initiatives can be targeted to the general population or more specifically to people interested in wellness and regenerative experiences, and can be organised as programmes but also as single experiential activities delivered to visitors in touristic destinations (see connections to Green care tourism).

#### Forest-based care synergic initiatives providing other benefits

Forests can host a wide range of other activities that are not directly aimed at reaching health targets, but nonetheless benefit the socio-cultural dimensions of well-being while providing "collateral" physiological and psychological benefits (Doimo *et al.*, 2021). These initiatives can be called synergic as they activate synergies with sectors other than forestry and health, for example education, tourism, recreation, art, urban planning and others. Educational and didactic activities using the forest both in a "passive" (as a scenery or classroom) and "active" way as the object of the activities, recognise the forest as a stimulating environment to foster direct experience of natural cycles, free play, discovery and adventure. Such initiatives are spreading in Europe. Some examples of these include forest kindergartens, forest schools, didactic forests and forest education programmes such as workshops and camps.

#### **Delimitation and interrelations**

While forest bathing should be offered to healthy people as an activity of health promotion and well-being, forest therapy should follow specific protocols when targeting people with ailments. Nevertheless, these practices mix the offers of the areas outlined above and often merge into each other. Forest-based care for health promotion and disease prevention has been growing recently and is becoming more attractive for the tourism industry. The forest is being discovered as a resource, but the sector still lacks proper regulation, capacity and quality standards for forest health trainers or forest health coaches. Furthermore, growing interest gives rise to new silvicultural requirements such as creation of accessible pathways, which should be adapted to the target group, the intervention and the objectives as well as to the ecological conditions. In most European countries, the right of access to forests is free and, for this reason, different uses may be in conflict (*e.g.* cycling routes and slow walks) and the possibility of overcrowding arises. Furthermore, accessibility to forest areas varies according to the willingness and consent of forest owners.

### 1.2 Social agriculture

Over the past few decades, the targeted inclusion of disadvantaged people, or those with physical, intellectual, mental health or social challenges, into agriculture production and diversification of agricultural activities (multifunctional agriculture) has become known as Social agriculture. Social agriculture strongly builds upon the concept of a more inclusive agriculture and in some countries is often connected to more sustainable modes of production such as organic and biodynamic agriculture (Di lacovo, 2020).

Numerous concepts have been used to describe care activities that are offered on farm locations: Social agriculture (Foti et al., 2013); social farming (Di lacovo and O'Connor, 2009); care farming (Hine et al., 2008); green care (Sempik and Bragg, 2016) and farming for health (Hassink and Van Dijk, 2006; Farstad et al, 2021). Irrespective of the different names, all of the activities referred to above share a number of important common elements. All are based around the utilisation of farm settings to engage in physical activities and tasks related to farm production or maintenance of the landscape and the provision of services to promote mental and physical health. These are provided to a diverse range of client groups who live with different social, physical, mental health or learning challenges (Elings and Hassink, 2006; Steigen et al., 2016). The services are regarded as appealing because of the green environment, the informal atmosphere and the opportunity to participate in diverse activities and be part of a community (Hassink et al., 2011; Elings, 2012; Farstad et al., 2021).

More specifically, Social agriculture (or social farming) can be defined as "an innovative, inclusive, participatory and generative model of agricultural practices that delivers recreational, educational and assistance services. It aims at the social and labour inclusion of disadvantaged people, who through social agricultural practices are able to contribute to food and agricultural production" (Di lacovo and O' Connor, 2009). It also addresses "...the integration of people with 'low contractual capacity' (*i.e.*, intellectual and physical disabilities, convicts, those with drug addiction, minors, migrants) but also provides support services in rural areas for specific target groups such as children and the elderly" (Di lacovo and O' Connor, 2009).

Another aspect of the diversity that exists in Social agriculture in Europe relates to how it is "framed" (*i.e.*, communicated, organised and practiced) in different countries. The literature suggests that three main frames are evident when comparing different practices across Europe. These are:

(a) a multifunctional agriculture (MFA) frame, within which Social agriculture activities are one of many onfarm activities that support the economic and social sustainability of the farm;

(b) the frame of public health, within which activities are primarily concerned with providing health promotion, rehabilitation and therapy, and

(c) the frame of social inclusion which focuses on the re-integration of socially excluded people in society through the contribution of on-farm labour. Arguably, these different "frames" map how Social agriculture is organised and practiced in different European countries, with Social agriculture in Germany, Austria and the UK tending towards a public health framing, while a social inclusion frame more accurately captures the operation of activities in Ireland and Italy, and the multifunctional agriculture framing predominates in countries such as the Netherlands, Belgium and Norway (Dessein *et al.*, 2013).

Despite the differences in organisational, legal, regulatory and institutional frameworks across Europe, social farming across different countries promotes innovation and entrepreneurial attitudes among farmers who seek to have positive social impacts as part of their business enterprise while generating an extension to their existing activities.



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### 1.3 Urban green care

In general, Urban green care captures well-known but also innovative and constantly evolving uses of ecosystem-based approaches in urban settings that aim to influence human health directly by improving climate resilience, increasing biodiversity, and by providing more direct and immediate benefits for health and wellbeing. The foci of the activities in this sector are diverse: introducing Nature-based Solutions (green roofs, vertical gardens, sustainable urban drainage systems, etc.) as innovative engineering solutions to urban challenges; using urban green spaces for social cohesion and inclusion e.g., urban farming and community gardens; or actively managing and increasing the area of green spaces such as city parks or urban forests for health promotion and disease prevention purposes. Urban green care is a concept introduced by the Green4C project to address activities that take place in green spaces located in urban and peri-urban settings and that have positive health and well-being outcomes. Urban green care still needs to be officially defined. In Green4C, Urban green care describes the range of specific projects, initiatives and/or actors and organisations promoting urban and peri-urban green spaces and explicitly incorporating human health and well-being in their strategies and activities.

The division between Urban green care and other thematic sectors of the project is conditional, as activities in this sector might involve community and/or city gardens thus closely linking them to Social agriculture and other care farming activities. Urban green care activities may involve organised walks and forest bathing and therapy-based activities in urban and peri-urban forests and parks, thus closely linking them to the definition of Forest-based care and generating similar care benefits. Urban green care can, for the purposes of the Green4C project, be differentiated from Social agriculture and Forest-based care by its connectivity, proximity, and application to the urban and peri-urban context in terms of its design, focus, and use. Finally, as with the interconnectivity within the other aforementioned thematic sectors, Green care tourism (explained in the next section) activities can also occur within urban green and natural space settings. Thus, it is not the specific activity of Urban green care projects, initiatives, and/or organisations that define this thematic sector, more the connection that these activities have with a designated urban and peri-urban space, promoting health and well-being for city-dwellers.

Urban green care is rooted in regional, municipal, and urban design and planning and aims at promoting green spaces as places for health and well-being through pathways such as recreational activities and social cohesion, as well as through ecosystem services such as cooling and air pollution removal (van den Bosch and Sang, 2017). Increasingly, it is also considered strategic for climate change mitigation and adaptation. Urban green spaces can include everything from small neighbourhood gardens to urban forests with a biodiversity conservation focus (*e.g.* the growing-in-popularity Miyawaki forests) (Lewis, 2020). Urban and peri-urban green spaces are generally consciously acquired or publicly regulated to serve biodiversity conservation, natural buffering and urban shaping and planning functions, *etc.* in addition to providing recreational opportunities (Myers, 1975).

Research shows that exposure and access to urban and peri-urban green spaces contribute to a number of health benefits, including reduced mortality and prevalence and severity of chronic diseases, improvements in mental health and well-being, and reductions in populationwide health impacts from climate change (Alcock et al., 2014; Wood et al., 2017; Kingsley, 2019; Wolf et al., 2020). These health benefits likely stem from recreational opportunities, such as physical activity, stress relief, and social contacts, but also from urban green spaces impact on cooling of the environment, through shading and evapotranspiration, and by decreasing air pollution, producing oxygen, and absorbing CO<sub>2</sub> (Rizwan et al., 2008; Shishegar, 2013) all necessary contributions to healthy living. These so-called regulating services, have an indirect effect on human health by reducing harmful exposure and mitigating climate change.

Activities on the ground are often supported by policies but not always specifically codified in law. In relation to their design, Urban green care projects, initiatives, and/ or organisations can incorporate an official municipality or council-related planning design. This process should be participatory and inclusive of the full range of stakeholders. Urban green care projects, initiatives, and/or organisations should have a clear health and well-being focus, aiming to counter negative impacts of living in urban and peri-urban areas and promote healthy lifestyles. This health focus should be complemented by the sustainable and inclusive use of public urban and peri-urban green spaces. The health goal can also be achieved by incorporating other Green Care activities within urban and peri-urban green spaces (such as those of the other thematic sectors) and can be actively promoted.

Important aspects for Urban green care are to encourage more sensorial experiences in nature, to design inclusive spaces and activities, and more generally, to create activities that can help change the attitudes to nature by stimulating nature connectedness and Studies have shown pro-environmental behaviours. that increased contact and connectedness to nature has positive associations with health, well-being and pro-environmental behaviour (Martin et al., 2020). This is particularly important in cities where the urban environment is increasingly disconnecting people from nature. It is important to consider perceptions of safety and security to guarantee inclusive access and contribute to success of the initiatives in urban contexts. Perception about safety might differ depending on whether it is an urban forest or a city park (Lee and Maheswaran,

2011). Urban green spaces also need to be open and welcoming for everyone, independent of age, gender and ethnicity, in order to contribute to a sense of well-being and community.

As with their design, within this thematic sector complex socio-political settings exist that highly depend on the continuous engagement and participation of municipalities, regional development agencies, hospitals, universities, research centres, citizens and civil society organisations in their sustainability. The benefits of urban green spaces need to be researched and communicated more widely and systematically, so that multiple benefits can be valued when planning for construction of grey and private, often car-dominated infrastructure (i.e., highways, parking lots).

Courtesy NHS Greenspace & GEP



### 1.3 Green care tourism

There is a clear recognition of the role that tourism can play for local and regional development, through provision of new services, products, infrastructure, connection of diverse sectors and creation of new entrepreneurial opportunities. Over the past 20 years, topics such as sustainable, responsible, green, eco and nature-based tourism have come to the fora. While these terms differ in scope, they all share an approach - to enhance the benefits of tourism for the community and address the negative impacts on the environment. One of the means is through a coherent offer of higher quality tourism products and services that are based on the destination's natural, cultural, historical and spiritual resources (See Box 1).

Box 1 Definitions of types of tourism

**Sustainable tourism** is "Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities" (UNWTO, 2005). Responsible tourism minimises negative social, economic and environmental impacts and generates greater economic benefits for local people. According to its definition, **Responsible Tourism** is about making "better places for people to live in and better places for people to visit", it is also synonymous with ethical travel, responsible travel and impact travel. The World Tourism Organisation defines **green tourism** as "tourism activities that can be maintained, or sustained, indefinitely in their social, economic, cultural and environmental contexts" (UNWTO, 2012, p.1). **Nature-based tourism** is any type of tourism that relies on experiences directly related to natural attractions and includes ecotourism, adventure tourism, extractive tourism, wildlife tourism and nature retreats. It also refers to leisure travel undertaken largely or solely for the purpose of enjoying natural attractions and engaging in a variety of outdoor activities. Bird watching, hiking, fishing, and beachcombing are all examples of nature-based tourism. Specifically, ecotourism refers to "Responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education" (International Ecotourism Society).

More recently, also spurred by the Covid-19 pandemic, demand has been growing with more visitors interested in experiences that enhance health and well-being in natural areas. Green care tourism builds on the concepts of sustainable, responsible, green and nature-based tourism by specifically including health and well-being as an overarching part of the core tourism products and services offered in a destination. Wellness tourism refers to the provision of Green Care activities such as "trips aiming at a state of health featuring the harmony of the body, mind and spirit, self-responsibility, physical fitness, beauty care, healthy nutrition, relaxation, meditation, mental activity, education, environmental sensitivity and social contact" (Smith and Puczkó, 2014, as cited in Plzáková and Crespo Stupková, 2019). Health tourism is "associated with travel to health spas or resort destinations where the primary purpose is to improve the traveler's physical [and mental] well-being" (Rulle, 2008, as cited in Plzáková and Crespo Stupková, 2019). The main difference between the two is that health tourism is developed in close collaboration with the health sector and ranges from clinical interventions to practices assisted by a physician or specialised medical staff, while for wellness tourism there is no need of medical staff as they are not clinical interventions.

Historically, many tourism localities have been developed in places providing natural resources known for their healing power, as in Abano Terme<sup>1</sup> in northern Italy, Bath<sup>2</sup> in England and Banff<sup>3</sup>, Canada. Centred on the use of sulphuric muds, waters, mineral springs for helping dermatological issues, rheumatism and rehabilitation, these places often require a doctor in place that can monitor the visitors' conditions. While these areas developed around the core provision of health promotion, prevention and rehabilitation services - and visitors spent a number of weeks attending to their health in spas - tourism demand has evolved, with visitors connecting more diverse experiences in a destination<sup>4</sup> rather than in the spa alone, as in the case of the Balneo-climatic resorts of Romania which "capitalise on natural factors of cure and climatic resources and associated natural or anthropic tourist resources" by providing experiences in natural areas.

<sup>&</sup>lt;sup>1</sup> https://www.comune.abanoterme.pd.it/

<sup>&</sup>lt;sup>2</sup> https://visitbath.co.uk/

<sup>&</sup>lt;sup>3</sup> https://www.pc.gc.ca/en/pn-np/ab/banff

<sup>&</sup>lt;sup>4</sup> A destination is a geographical area consisting of all the services and infrastructure necessary for the stay of a specific tourist or tourism segment.

Green care tourism is included in Wellness and Health Tourism, but it specifically relies on nature and natural resources as the main source and tool for delivering health and well-being benefits. This can be done through medical interventions (forest-based therapy, rehabilitation), regenerative activities (Kneipp, forest bathing and healing), and holistic wellness programmes linking outdoor activities with sustainable life-styles and nutrition. Thus, Green care tourism responds to an increasing demand for nature, accentuated by the Covid-19 pandemic and by emerging themes such as: proximity, safety, health, safe origins, authenticity and nature. Green Care is therefore a topic of growing interest for destinations and operators, because it provides an opportunity to develop new entrepreneurial activities and to regenerate destinations, as new quality services enhance the attractiveness of territories with high quality environments and landscapes and gives value to their natural areas.

In Green4C, Green care tourism refers to a wide range of organised tourism experiences and products that rely on nature and wild spaces for tourists in search of health, well-being and regeneration. These are often connected to related needs for safe and wild foods, sport activities and nature-based cultural events. In this sector, new professionals and tourism operators are working towards excellence, sustainability and social interaction. The catalogues of specialised operators offer experiences of forest therapy, forest bathing, mindfulness and meditation in the forest, psychophysical rehabilitation and other activities (*e.g.*, pilates, yoga), whose benefits are enhanced by the quality of

Courtesy Go Jauntly



the natural environments. But they may also include activities such as visiting spiritual and "magical" places, as opportunities for regeneration, awareness building and cultural connection.

Green care tourism is of interest to operators in a destination. Operators in holistic or nature-based activities, such as holistic doctors, nature guides, and tourism operators, can innovate their products and provide new and innovative experiences. New businesses, such as guided forest bathing experiences, can be developed. And finally, operators can develop new services around regenerative experiences in natural areas, and give value to offers such as a "free-from-wifi" hotel. Services may be provided by individuals for their clients, or a larger group of businesses may develop a series of connected services to secure a product that is guaranteed and certified for guality. These new arrangements include partners outside of the tourism sector, such as local farmers and forest managers who may be asked to manage natural areas and trails to enhance the regenerative effects of these spaces. These connections may also extend to social inclusion and provide for accessible experiences that support additional social relations and cohesion.

Growing demand for Green care tourism provides an opportunity for destinations to diversify and innovate tourism products for health and well-being, and at the same time give value to their natural resources and areas. Such demand can lead to investments in infrastructure – design of accessible pathways and resting areas, design of sensorial experiences; investments in training for new professional figures (*i.e.*, forest bathing or meditation guides); investments in research (*i.e.*, locating the areas most adapted to new Green care tourism activities, identifying suitable activities and monitoring effects on health and well-being). It can also lead to increased cross-sectoral partnerships and seek to adhere to standards and certification of quality.

Green care tourism can build synergies to other three thematic sectors, however, a specific connection is to Forest-based care. Initiatives in the latter have been increasingly integrated into tourism offers, both in mountain regions and rural areas. Forest bathing and wellness activities in the forest (*e.g.* barefoot walks) are often complementary to summer sports, thermal tourism, classic excursion programmes, yoga and meditation retreats. In Alpine regions, the concept of forest bathing is becoming more widespread and a recurrent theme in destination management marketing – as in the case of South Tyrol which has evolved the concept of health, to encompass activities in the forest.

While this market segment is still developing with little data available, Green Care tourism experiences may create opportunities for new human-nature connectedness and spur emotional bonds with the destination. Visitors who have been engaged at a deeper level in a natural surrounding may stay longer or come back to repeat the experience.

### 2 THE METHODOLOGY FOR THE BLUEPRINT REPORT

This research is the first attempt to describe the innovation processes around the newly emerging sector of Green Care in Europe. The methodology employed for the analysis of this report entails a stepwise and iterative approach (Figure 1). We started by reviewing available literature on Green Care. Based on existing conceptualisations and approaches presented in the literature, we adopted operational definitions on health, well-being, social inclusion and Green Care, as well as on innovation and entrepreneurship. This helped us to develop a preliminary framework that guided us through the data collection process. This framework was further developed into the Green Care System Innovation Framework presented in Section 5.

Figure 1. The methodological approach for the Green4C innovation assessment



Together with project partners we identified 20 case studies in the four thematic sectors of the project (Appendix 1). A combination of cases received through previous work on stakeholder analysis (T3.1), contribution from partners, online search and literature review helped identify a list of potential case studies. The following seven criteria were adopted to select five case studies per thematic sector for in-depth interviews and surveys:

**a)** Focus on health, well-being, and social inclusion as a primary purpose of the initiative;

b) Presence of a defined business model;

**c)** Use of nature and ecosystems (forests, agricultural and rural areas, urban green spaces);

**d)** Defined target beneficiary (general population, vulnerable groups and people with disabilities);

**e)** Diversity (in business models, geographically, within thematic sectors);

**f)** Consolidated case studies with established business models and networks;

g) Respectful of the environment.

By **case study** we refer to an in-depth study of an initiative of a single individual, their networks, community or organisation. A case study may also include good practices or a business model. **Good practices** refer to a procedure that has been shown by research and experience to produce positive results and that has been proposed as a standard suitable for widespread adoption (Merriam-Webster Dictionary). A **business model** describes the rationale of how an organisation creates, delivers, and captures value, in economic, social, cultural or other contexts (Geissdoerfer *et al.*, 2017).

In total, 20 cases from ten European countries (Austria, the Netherlands, Romania, Italy, Sweden, Belgium, Finland, Ireland, Great Britain, Spain), the USA and Chile, were analysed. In-depth interviews with the main representatives of the selected cases focused on the stage of development of the initiatives; the actors involved (*e.g.*, innovators, followers, their networks); the triggers behind the start of the initiative; the main goals, their activities, their perceived and measured impact as well as their vision for the future. A technical survey was sent to the respondents following the interview and focused on more detailed questions of the organisation and business model, governance, resources, revenue and future strategies.

The primary data collected through in-depth interviews and technical surveys were analysed in two steps. First, the data was used to draft fact sheets that provide a birdeye's view on the innovation processes and business models of each of the 20 case studies.

The fact sheets (see <u>https://www.greenforcare.eu/</u> <u>case-studies</u>) were later confirmed by the respondents. Second, we developed a framework to analyse the case studies and to understand the system supporting innovation in Green Care and in the four thematic sectors of Green4C. We present the framework in Section 5. We then compare the cases across the dimensions of the framework and draw lessons on emerging issues in Green Care. Through a round of discussions with project partners, we provide recommendations, by stakeholder category, for enabling and overcoming barriers for innovation and entrepreneurship in this sector.

### 3 THEORETICAL BACKGROUND

In this section, we introduce the major environmental and societal challenges building the justification for our project and the recommendations, while defining the theoretical background and the conceptual framework of the study.

### 3.1 Environmental challenges and Nature-based Solutions

Human societies, economies and cultures are embedded in nature. Natural processes shape human lives and economies and correspondingly, humans also transform nature locally and globally and with different degrees of intensity. These mutual interactions form **socioecological systems** (SES) (Petrosillo *et al.*, 2015). This concept helps to move away from the idea of humannature duality and is based on the concept that humans are a part of nature, instead of being apart from it. The studies on SES relate to topics such as interconnection of social and environmental justice or planetary health as a basis for human health and well-being. These studies and understandings have paved the way for concepts such as sustainable development, ecosystem services, or One-Health<sup>5</sup> (WHO, 2017b; Mackenzie and Jeggo, 2019).

The Millennium Ecosystem Assessment (MEA, 2005) mainstreamed the concept of ecosystem services (ES) as all the benefits that people obtain from ecosystems, where ecosystems are intended as "a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit" (UN, 1992). In this conceptualisation, ES are categorised into provisioning, regulating and cultural services and they create the basis for livelihoods and human well-being, while supporting services (e.g., soil formation and nutrient cycling) maintain and ensure the flow of those services. The concept of ES puts focus on the dependence of human well-being on Earth's natural systems and environmental health (Figure 2).

Figure 2. Linkages between Ecosystem Services and Human Well-being. Source: MEA, 2005



<sup>&</sup>lt;sup>5</sup> One-health concept was introduced at the beginning of the 2000s. It summarises an idea that human health and animal health are interdependent and bound to the health of the ecosystems in which they exist.

Indeed, negative changes in environmental conditions (e.g., drought, deforestation, ozone layer depletion, loss of biodiversity) deeply affect human health, well-being and social inequalities even though "causal links between environmental change and human health are complex because they are often indirect, displaced in space and time, and dependent on a number of modifying forces" (MEA, 2005a, p.2). These changes, increasingly referred to as crises, lead to hardship of individuals, families and communities and increasingly hamper the ability of ecosystems to respond (UNEP, 2021). In addition, most impacts are felt in the localities and by the communities that contributed least to these trends bringing up the topic of environmental and social justice to the fora. It is estimated that extreme weather conditions and events such as floods, storms, droughts will drive poverty and unequal access to natural resources, will be felt more acutely by vulnerable populations and lead to increased migration to and around Europe. Finally, the frequency and intensity of these changes are also expected to increase in the future shifting the burden of environmental change towards future generations and affecting intergenerational justice. These changes also directly impact on cultural ecosystem services (CES), as damaged or eroded landscapes no longer exist or are accessible, species of cultural, symbolic and iconic value disappear, physical and mental health as well as social cohesion, are deeply hampered.

One of the important services provided by ecosystems is the disease regulation of vectors, pests, and pathogens, and protection against viruses that can spread as the result of human-wildlife interface (WHO, 2020). Significant direct impacts on livelihoods and human health can occur if ecosystems are eroded and can no longer provide these services. There is a growing area of research that connects climate change, erosion of wild landscapes, loss of biodiversity, illegal wildlife trade and increased human contact with the pathogens to the increase in vectors borne (*e.g.*, dengue, zika), including zoonotic diseases such as SARS-CoV-2 (COVID-19). This specific service of natural and wild habitats reinforces the thesis of direct dependence of human health and wellbeing on ecosystem health (WHO, 2017a; UNEP, 2021).

"The pandemic is a reminder of the intimate and delicate relationship between people and planet. Any efforts to make our world safer are doomed to fail unless they address the critical interface between people and pathogens, and the existential threat of climate change, that is making our Earth less habitable." (Director-General Dr Tedros Adhanom Ghebreyesus, in WHO, 2020a).

Given these patterns of interdependence between humans and nature, there is the growing recognition of the need and effectiveness of working with ecosystems to tackle environmental challenges. These ecosystem-based approaches are commonly known as **Nature-based Solutions (NbS)**, as those that are inspired, supported by or copied from nature (Eggermont *et al.*, 2015; EC, 2015).

"[NbS] are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions. Nature-based Solutions must benefit biodiversity and support the delivery of a range of ecosystem services." (Bulkeley, 2020, p.4).

Recent studies show that NbS are providing costeffective and efficient ways to reduce the negative effects of some growing megatrends such as strong urbanisation processes, unhealthy lifestyles together with air pollution and climate change threatening human health and the resilience (MEA 2005; Rook, 2013; van den Bosch and Sang, 2017; Kondo et al., 2018; Hunter et al., 2019). The main goal of NbS is to ensure sustainable urbanisation, restoration of degraded ecosystems, adaptation and mitigation to climate change and enhance risk management while benefitting biodiversity and supporting the delivery of multiple ES (Somarakis et al., 2019; Bulkeley, 2020). Given the definition, NbS for societal challenges can range from passive use of nature or ecosystems for human well-being (i.e. nature trails in national parks), to active managing or restoring of ecosystems for maximizing the benefits or services (i.e., landscape restoration to improve air quality and water availability in an area), to creating new ecosystems sometimes in combination with advanced engineering or technical solutions for new benefits previously absent (*i.e.*, creating green roofs or walls in urban context) (Cohen-Shacham et al., 2016).

It is criticised that both the concepts of ES and NbS are recognised to be anthropocentric where ecology and economics-related sciences became the prevailing approaches reflecting a concept that is typical of western countries and separates culture from nature (Díaz et al., 2015, Fraser et al., 2016; Milcu et al., 2013). In this narrative of the contributions of ecosystems to human well-being, cultural ecosystem services (CES) are marginalised for their difficulties of being quantified and monetised, leading to a reductionist perspective where cultural ecosystem services seem to be a spontaneous mono-directional flow from ecosystem to humans (Doimo, 2021a). It is with the idea of socioecological systems, SES (Petrosillo et al., 2015) and cogeneration of ecosystem benefits that the human-nature relationship is understood as a process that changes over time, and nature's contribution to people can be perceived as beneficial or not depending on cultural, socioeconomic, temporal and spatial context (Díaz et al., 2015; Díaz et al., 2018). CES refer to "all the non-material, and normally non-rival and non-consumptive, outputs of ecosystems (biotic and abiotic) that affect physical and mental states of people" (Haines-Young and Potschin, 2018, p.10, see figure 2 above). CES are understood as deeply linked to places they rise from, social processes involved, and the cultural backgrounds of the people experiencing them, which reflects the values, heritage and practices of the people engaging with places they inhabit (Fish et al., 2016). Well-being and cultural benefits arise from complex cognitive, non-cognitive and embedded interactions between people and ecosystems (Fish *et al.*, 2016). It is clear that well-being and cultural benefits are not a purely ecological phenomena such as other ES, and the complexity of their interrelations are among the cause of poor integration into policies and ES

frameworks. This gap is apparently in contradiction with the growing awareness of the central role of cultural and well-being benefits of natural ecosystems for our health and well-being.

#### Courtesy L'Olivera



### 3.2 Societal challenges and nature for health, well-being and social inclusion

There is a growing recognition that the interaction with natural environment has positive benefits on stressrelated, chronic and psychological diseases increased by urbanisation processes, modern lifestyle and working conditions (Frumkin et al., 2017; Hansen et al., 2017). According to the EU Biodiversity Strategy 2030, "we need nature in our lives" to improve our psycho-physical health and that of the Planet (European Commission, 2020). Indeed, besides the above-mentioned environmental challenges, projected mega trends of development also create significant risks for human and societal well-being globally.

It is estimated that globally by 2030 two-thirds of the world population will live in urban areas. Urban lifestyles are often connected to higher crime rates, inequality, unemployment, lower air quality, as well as deteriorated social connections, while rural outmigration leads to a decrease in services and employment opportunities, loss of social ties and abandonment of landscapes. At an individual level, more unhealthy and sedentary lifestyles, together with a higher use of technological devices, are leading to increased loneliness, depression, anxiety and stress (Hoorens et al., 2013; ESPAS, 2020). Along with hypertension and obesity, these are the main risk factors for non-communicable diseases (NCD). According to the Global Burden of Diseases Report, NCD are the main causes of mortality and morbidity worldwide, with cardiovascular, cancer, mental disorder, respiratory and neurological disorders at the top (James et al., 2018). NCD, including cardiovascular disease, neurodegenerative diseases, depressive disorder, substance abuse, are among the principal causes of an increase in years lived with disabilities worldwide. For example, Alzheimer's Disease is recognised as a health priority since current estimates suggest that about 44 million people worldwide live with dementia, and no treatment currently exists (Alzheimer's Disease International, 2019). In the same way, depression is one of the leading causes of disability worldwide, but it is highly under-diagnosed and under-treated, and often treatments fail to decrease symptoms with a significant margin (McPherson et al., 2005; Salomon et al., 2018). Further, 46% of the Europeans report they never exercise or play sports (Eurobarometer, 2020) and low physical activity accounted for almost 152,000 deaths and more than 2.1 million Disability-Adjusted Life Years (DALYs) (GBD results tool) in 2017 (James et al., 2018).

The incidence of NCD coupled with the current and expected ageing of the population of Europe, makes it clear that private and public expenditure for health and long-term care will drastically increase. Therefore, health prevention and promotion strategies are an international priority (Jamison *et al.*, 2006; World Health Organisation, 2018, 2018a).

Given the above-mentioned challenges natural spaces are increasingly recognised as an opportunity for alternative and preventive health benefits (Nilsson et al., 2011; Frumkin et al., 2017; Kabisch et al., 2017). The recognition of these benefits is especially amplified within the context of the challenges brought by the Covid-19 pandemic. Numerous theories account for the benefits of exposure to nature, from Attention Restoration Theory (ART) claiming that natural settings can restore our direct attention (Kaplan and Kaplan, 1989) to Stress Reduction Theory (SRT) reporting that natural environments not only relax our minds but also have a stress reduction effect on our physiological parameters which is a process triggered by emotions and affection for nature (Ulrich et al., 1991). More recently, Song et al. (2016) explained how interactions with natural ecosystems induce a psychophysical relaxation which can strengthen our immune system. Connecting with nature also helps to regulate our emotions, decreasing rumination and increasing positive thoughts, inspiring calmness, and vitality (Bratman et al., 2015; Richardson et al., 2016; Farrow and Washburn, 2019). Frequent visits to nature are linked to strong social cohesion and the closeness of green areas and trees increase attention, performance at school and stimulate physical activity (Shanahan et al., 2016; The passive and active interaction with forest and agricultural spaces is reported to be beneficial for people with mental diseases and disabilities. People with high levels of mental stress and anxiety tend to avoid places of intense social interaction and external demand, and nature provides space to rest and feel quiet (Hartig et al., 2003; Morita et al., 2007; Sonntag-Öström et al., 2015). Natural spaces stimulate cooperative behaviours, improve self-awareness and reflection and facilitate coping mechanisms for social pressure and healing (Nordh et al., 2009; Sonntag-Öström et al., 2015; Salomon et al., 2018). The combination of different nature-based rehabilitation approaches seems to decrease healthcare on intense medical care (Pálsdóttir et al., 2014; Währborg et al., 2014).

### 3.3 Health, well-being and social inclusion

In the search for treatments and activities that are costeffective, fitting into people's needs and beliefs with low or acceptable side-effects supporting healthy lifestyles, Green Care has grown. **Green Care refers to "...a range** of activities that promotes physical, mental and [social] health and well-being through contact with nature" (Sempik *et al.*, 2010, p.121).

The concept of Green Care includes many nuances as it connects nature and ecology-related disciplines with those of health and well-being. The concept can be discussed in terms of **width** and **depth**. The starting point for the discussion on **width** is the concept of **care** itself. It can be understood as a conventional health care system, or include much broader topics such as social inclusion, education and employment (Sempik *et al.*, 2010). In this report, we focus on **health**, **well-being**, and **social inclusion** as primary objectives of Green Care activities (Box 2). The related concepts are captured by the definitions of these three main concepts.

In terms of **depth**, Green Care can be viewed as an umbrella term summarising a wide range of activities and targeted beneficiaries, ranging from health and wellbeing promotion (targeted to the wider population) to 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; Shanahan *et al.*, 2019; Marušáková *et al.*, 2019; Doimo *et al.*, 2021). For the purpose of this report, we focus on the following activities:

#### **Health promotion**

"Health promotion is the process of empowering people to increase control over their health and its determinants through health literacy efforts and multisectoral action to increase healthy behaviours" (WHO, 2020a). Health promotion is a salutogenic<sup>6</sup> approach, applicable to individual (promoting healthy behaviour) as well as population (providing opportunities for healthy behaviours and environments) level. The focus is on addressing the determinants that contribute to health maintenance rather than on diseases (WHO, 1986).

#### **Disease prevention**

"Specific, population-based and individual-based interventions for primary and secondary (early detection) prevention, aiming to minimize the burden of diseases and associated risk factors" (WHO, 2020b). Activities under this category are preventive and help to address a priori a negative incident or help vulnerable individuals to cope with their *e.g.*, disability or illness. When compared to health intervention activities, the presence of a therapist is not required, while the engagement of an instructor, teacher, mentor or trainer might be needed.

### Health intervention and rehabilitation

WHO defines a health intervention as "an act performed for, with or on behalf of a person or population whose purpose is to assess, improve, maintain, promote or modify health, functioning or health conditions." "Rehabilitation is a set of interventions needed when a person is experiencing or is likely to experience limitations in everyday functioning due to ageing or a health condition, including chronic diseases or disorders, injuries or traumas" (WHO, 2019). Within the context of this project, these two concepts are defined as therapeutic and rehabilitation interventions provided for a segment of the population with special needs, as determined by physical, mental, or social health conditions. The activities are supervised or delivered by trained/qualified practitioners. The activities under this category are mainly reactive and a-posteriori to an event, incident or morbidity connected to a disability or that led to an illness.

Box 2 Defining health, well-being, social inclusion and quality of life

According to WHO, **health** is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1948). We incorporate 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.

**Well-being** 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 well-being. We interpret health holistically and includes well-being as part of the health concept in each of the following subgroups:

**Physical health and well-being**: Physical health and well-being are defined as "the condition of the body, taking into consideration everything from the absence of disease to fitness level" (EUPATI, 2015). Physical health and well-being include components of, for example, physical activity, diet, substance use, self-care and sleep quality.

**Mental health and well-being:** Mental health and well-being are defined as "a state of well-being in which [an] individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (WHO, 2014). Conceived in this way, mental health encompasses (i) the absence of mental illness and (ii) the presence of psychological and emotional health and well-being. We incorporate psychological and emotional health and well-being in the definition of mental health.

**Social health and well-being:** Social health and well-being are defined as the "dimension of an individual's well-being that concerns how s/he gets along with other people, how other people react to her/him, and how s/he interacts with social institutions and social mores" (Russell, 1973). Social health generally focuses on social activities, social well-being, social network quality, interpersonal communication, social support, and social role participation and satisfaction (Castel et al., 2008).

**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).

**Quality of Life (QoL)** is defined as "an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept, incorporating in a complex way a person's physical health, psychological state, level of independence, social relationships, personal beliefs and relationship to salient features of the environment" (WHO, 1997, p.1).

### 3.4 Green Care as an opportunity

Green Care interventions are traditionally categorised in Horticulture Therapy, Animal Assisted Interventions, Care Farming, Green Exercise and Wilderness therapy (Sempik et al., 2010). In the last decades, the practices and initiatives using green spaces for health and wellbeing are growing and spreading worldwide. Such initiatives may range from urban interventions for example expanding green spaces in urban areas for improving local air quality, mediating the effects of heat islands or providing space for social interactions and active lifestyle; to harnessing the positive effects of forest environments on people with respiratory conditions and providing evidence-based services. Further, many initiatives are developed to enhance positive attitudes toward nature and health giving an answer to the increasing need and societal demands for nature. Urban societies increasingly experience disconnection from nature, with a consequent need to find meaningful and safe opportunities to experience nature. This is reflected in increasing trends for wellness tourism and natural destinations, as well as for exercising outdoors which is the preferred choice for 40% of the Europeans (Eurobarometer, 2020).

While we recognise that Green Care may not have the same effects in all individual cases and might also carry certain risks (*e.g.*, individuals affected by allergies, volatile organic compounds [VOC] emitted by trees, accidents by falling trees and branches, hosting animals carrying vector-borne diseases), through careful management and precautionary measures, these initiatives can be tools to simultaneously tackle some health challenges while creating new and diversified sources of income, new entrepreneurial activities, new job opportunities and active citizenship (Karjalainen *et al.*, 2010). However, rarely the impacts and multifaceted opportunities of Green Care are taken into consideration with a systematic and organic approach.

In this report, we advocate for public recognition of a new sector that cuts through many previously established economic sectors and connects the ideas, activities, processes, employment opportunities, financial streams, actors, organisations (including businesses), their networks and governance linked to the concept of Green Care, as a separate sector – the **Green Care sector**.

Courtesy GO Jauntly



### 4 INNOVATION AND ENTREPRENEURSHIP PROCESSES IN GREEN CARE

In this section, we discuss the concepts of innovation and entrepreneurship through their existing classifications. By applying the definitions of these concepts to the Green Care sector, we attempt to understand the typology of innovation in this sector and the processes that surround it.

### 4.1 Typologies of innovation and their characteristics

The concept of innovation can be generally described as an idea, practice, or object that is perceived as novel by the public. There are many ways to approach the concept of innovation. First, it can be understood in terms of degree or intensity. The degree of innovation refers to incremental, complementary, radical, or disruptive innovation (Schumpeter, 1942; Rametsteiner and Weiss, 2006; Norman and Vergnati, 2014). **Incremental** innovation involves small changes *e.g.*, in inputs, processes or outputs, with an aim for continuous improvement. **Complementary** innovation is the one that paves the way for major innovation in other sectors or fields (*e.g.* innovative solutions for a part making it possible to change a product). **Radical** innovation involves major changes to the outputs or development of totally new products or services (*e.g.* next generation). **Disruptive** innovation are game-changing breakthroughs that disrupt the existing markets and create new ones, and question existing structures, approaches and attitudes.

Second, depending on the scope, its configuration and actors involved, innovation is usually categorised as technological, organisational (including business), institutional and social, elaborated in the following text.

**Technological innovation** mainly deals with **product** and **process** innovation. "A technological product innovation is the implementation/commercialisation of a product with new or improved performance characteristics. A technological process innovation is the implementation/adoption of new or significantly improved production or delivery methods" (OECD, 2005). When TI is discussed within business or entrepreneurship context, it also includes service, marketing, communication, branding and innovation in business practice.

**Organisational innovation** "is the introduction of new organisational methods for business management in the workplace and/or in the relationship between a company and external agents" (OECD, 2005). Recently the concept evolved to include organisational attitudes and values as well.

In the discussion about innovations in larger systems, institutional and social innovation are differentiated. Bromley (1989; 2006) understands institutions as social rules that define social individual or group behaviour. **Institutional innovation** can be understood as redefining the rationale of institutions and relationships. Innovation can also be enabled, promoted and financed by certain institutions (e.g., public authorities/decision making bodies which define rules for regulating social behaviours and interactions among groups and/or individuals) acting as agents of innovation. In this sense, institutional innovation supported by institutional actors may provide the enabling framework conditions also for social innovation.

In the specific field of natural resources and rural areas, **Social innovation (SI)** can be understood as "the reconfiguring of social practices - that emerge in terms of new attitudes and values, new networks and new governance arrangements in response to societal challenges, which seeks to enhance outcomes on societal well-being and necessarily includes the engagement of civil society actors" (Polman *et al.* 2017, p.12). SI can emerge to address social, economic, institutional and environmental challenges. No matter its outcome or impact, SI is social in its design or configuration as it brings about new forms of social interaction and attitudes, in an attempt to address those challenges. This makes SI different from other forms of innovation that can also have a social impact (but are not based on the engagement of and behavioural changes within civil society).

#### 4.1.1 Introducing Nature-based Innovation

Based on the in-depth analysis of the case studies reviewed for this report, it is necessary to discuss an emerging category of innovation – **Nature-based Innovation (Nbl)**. The concept focuses on the ecological or intrinsic values of nature and "embodies the perspective of nature with people, rather than nature for people" (Randrup *et al.*, 2020, p.926). We consider this to be different from the previous classification and be particularly useful for understanding and disentangling Green Care initiatives. We believe the initiatives in the Green Care sector also result in a kind of innovation that is different from technological, organisational and social innovation because it is deeply rooted in the intrinsic values of nature and human-nature connectedness (Díaz *et al.*, 2015).

Nbl can be contextualised when compared to similar concepts: Nbl is linked to Nature-based Solutions (NbS) but refers to different phenomena. While in public debates NbS are described as actions "inspired and supported by nature" (Bulkeley, 2020) and encourage the re-integration of nature-human solutions for environmental and societal challenges, they still remain either a technological innovation (*e.g.*, green walls, vegetated drainage basins) or a backdrop tool for institutional or social innovation (*i.e.* a community developing new social arrangements for addressing river water pollution). Much like the concept of ecosystem services, NbS largely maintains an anthropocentric perspective and focuses on the instrumental value of nature for humans rather than on its intrinsic value (Díaz *et al.*, 2015).

It is important to note that NbI should be differentiated from SI. Both of them focus on reconfiguring relationships and attitudes. However, while SI focuses on the process of reconfiguring social interactions among humans - which can have impacts on nature and use natural resources -Nbl expands reconfiguration to socio-ecological systems and explicitly embeds the concept of human-nature relations and connections in its definition. Nbl can be considered a result of "nature-based thinking", a concept coined by Randrup et al. (2020). Thus, NbI focuses on human-nature connectedness by finding ways to change attitudes, relationships, everyday practices and interactions with nature and through that, to increase awareness and consciousness towards **nature.** For example, some case studies reviewed in this report emphasise the "rights of nature" by acknowledging its intrinsic value. In other words, the intended outcome of Nbl is re-configured human-nature relations<sup>7</sup>. The impact of these re-configuration and re-connection processes can be beneficial for the natural environment as it can lead to increased awareness of the importance of nature and adoption of more environmentally aware behaviour. Experiencing nature or learning from nature can lead to better protection of environment. Reconnection with nature is also beneficial for humans as some of the direct benefits are in the form of health, well-being and social inclusion. It must be noted that the positive impact on nature has an indirect feedback loop on human well-being as well (Charles et al., 2018; Mackay and Schmitt, 2019).

Courtesy FTI



<sup>&</sup>lt;sup>7</sup> The intended outcomes of SI is re-configured social practices that improve societal well-being, and the intended outcomes of NbS is improved benefits for humans deriving from smart and sustainable use of nature.

### 4.2 Innovation processes in Green Care

The process of innovation in the Green Care sector follows a process and storyline similar to the one discussed in SI and in the entrepreneurship literature (Secco *et al.*, 2019). A societal challenge expressed in the form of mental health, depression, anxiety, obesity or drug addiction, may lead to an innovative idea as a response. The **trigger** can be an event or accumulation of events that makes the status-quo no-longer acceptable, but it can also be altruism, love or passion for one's own work. As Figure 3 shows, the trigger activates an **innovator** (or group of innovators) (Step 1), to come up with **a new response or idea** to the challenge (Step 2). The innovator(s) may then try to find followers or champions for the innovative idea helping with capacity building, dissemination of the idea, initial investment or lobbying. They help the innovator(s) design and implement the **activities** considered in the initial idea and through that process also help reconceptualise and reshape the innovation qualitatively (Step 4). Innovation activities or processes bring about an **outcome/product** (*i.e.*, newly established urban green space, emergence of the concept for "nature prescriptions") (Step 5) that help **adopters** join in, use, and disseminate the idea (Step 6). The outcome brings an **impact** (Step 7) in the form of improved health, well-being and social inclusion for beneficiaries (Step 8). The innovation process happens within a **system** which is described in the proposed Green Care Innovation System Framework (Section 5).

Figure 3. Innovation process in Green Care. Source: Adapted from Secco et al., 2019



**ECOSYSTEMS & SPACES** 

### 4.3 Entrepreneurship in Green Care

Innovation and entrepreneurship are interlinked, whether we consider innovation to be an outcome of the act of entrepreneurial activities and behaviour (Dees, 1998; Bruyat and Julien, 2001), or a core element and "specific tool" of entrepreneurship (Schumpeter, 1942; Drucker, 1985). In both cases, the entrepreneur is fundamental to the innovation process as an agent of innovation. Entrepreneurship is driven by the creation of (new) value or organisations (Say, 1971 (revisited), Drucker, 1985; Gartner, 1990) as well as by the individual entrepreneur. In the latter case, psychological and social aspects such as resourcefulness, risk-prone behaviour or the social values of the entrepreneur, define entrepreneurship (Palmer, 1971; Dees, 1998; Tan *et al.*, 2005).

The social, economic and even environmental context, and the associated interests of the entrepreneur, also define different types of entrepreneurship. In the evolution of the term, entrepreneurship is often compounded to its context and availability of resources; while intrapreneurship is defined as creating an innovation of any kind within an organisation (Pinchot, 1985). Social entrepreneurship is defined as aiming 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). Finally, environmental "eco" entrepreneurship is defined as "an innovative, market-oriented and personality-driven form of value creation through sustainable environmental innovations in products and services exceeding the start-up phase of a company" (Schaltegger, 2002, p.48). In the light of increased public discussions on NbS in Europe, Kooijman et al. (2021) also discuss nature-based entrepreneurship.

Green Care entrepreneurship is also compounded to its context. Its entrepreneurs are the founders, creators, enablers, pioneers, practitioners, therapists, educators and implementors of Green Care initiatives. For entrepreneurship to take place, these entrepreneurs should have availability of resources, be relational in and to nature, but also be relational and inclusive of people, networks and communities, with social and emotional values and finally with a focus on health, well-being, and social inclusion as an objective of the care activity (Antadze and McGowan, 2017; Moriggi, 2020).

Resource availability and supplementary sources of livelihood, and lack thereof (Schmithuesen *et al.*, 2007), can enable innovative forms of entrepreneurship in Green Care (Moriggi, 2020). From the definition of Green Care (Sempik *et al.*, 2010, p.121), the entrepreneur can connect to the health (and well-being) context, and to nature, without the two being mutually exclusive. Both contexts define different nature-related themes and

associated thematic sectors within which Green Care innovation can develop. In this report, we refer to Forestbased care, Social agriculture, Urban green care and Green care tourism as thematic sectors that can occur in a rural, urban and/or community setting (see Section 5.1).

Despite the lack of literature on entrepreneurs and entrepreneurship in Green Care, the entrepreneur and its relations to its context should be considered together to define what entrepreneurship means in this sector. For example, care farming and Social agriculture suggest that Green Care "social" entrepreneurs are "pioneers" of Green Care (Elings and Hassink, 2006; Johansen, 2014) and the farms themselves become a Green Care initiative. Green Care entrepreneurs can also be considered as enablers and practitioners of activities in other Green Care thematic sectors such as nature-tourism (Moriggi, 2020) and involve Green care activities taking place in green spaces and forests in urban and rural areas. In many cases, the entrepreneurial initiatives in Green Care aim to re-invest their resources for social causes or for advancing the innovative ideas to societal challenges. They prefer using the term beneficiaries or participants to the individuals involved in their Green Care activities. However, despite benefits to participants, there is very little literature currently looking at entrepreneurship or the entrepreneur within these thematic sectors.

Health, well-being and social inclusion are strongly determined by socioeconomic factors, such as income and education, which can cement societal inequalities. Entrepreneurship in Green Care and resulting initiatives also address these challenges by identifying new ways to work in conjunction with social services. As a result, some of the new and existing initiatives work in close cooperation with the public sector to improve health promotion, prevention and treatment, or to provide social services. It is likely that services that cater to disadvantaged or vulnerable people rely on public sources of funding or support, while services that cater to the general population may be based on paid services and directly cater to private clients.

With this in mind, we define Green Care entrepreneurship as processes and outcomes of innovative value creation that harness health and well-being benefits of nature, and result in transformed human-nature attitudes, interactions and relationships. Green Care entrepreneurs are agents of innovation and change and are involved in Green Care initiatives for a purpose rather than a profit.

These agents are the founders, creators, enablers, pioneers, practitioners, therapists, educators, implementors and social champions, founding and running Green Care initiatives for a purpose rather than a profit.

### **GREEN CARE INNOVATION SYSTEM FRAMEWORK**

Given that innovation cannot occur in a vacuum, it should be discussed in the context of systems. Innovation systems can be understood as "systems supporting innovations in a sector or region [...], and consisting of institutions, actors and their interrelations" (Weiss *et al.*, 2017, p.121). Innovation needs a system that enables it, supports the innovation process and helps to diffuse it. The system can be understood in terms of different dimensions that together create the context and fertile ground for innovation to happen. Borrowing from different innovation system frameworks discussed in the literature (Carlsson and Stankiewicz, 1991; Bergek *et al.*, 2008; van der Jagt *et al.*, 2020), we present a framework to help conceptualise and contextualise dimensions and interactions for innovation in Green Care.

The proposed Green Care Innovation System Framework

shows key aspects grouped into two categories of dimensions (Figure 4):

**1. the environmental dimension:** Ecosystems and spaces (both natural and built infrastructure) that act as foundational basis for innovation processes and activities in Green Care;

**2. the social dimensions** - a) Beneficiaries and their needs; b) Institutions and norms (formal and informal); c) Policy context d) Governance arrangements, e) Public discourses and vision; f) Collaborative arrangements; g) Collaborative learning; h) Champions and frontrunners; i) Resources (natural, human, infrastructure, financial and social capital).

In the following sections we describe the dimensions in each category in more detail.



GREEN CARE TOURISM

Figure 4. Green Care Innovation System Framework

### 5.1 The environmental dimension of the Green Care Innovation System Framework

As human societies and cultures are embedded in nature, innovation in Green Care is also conditioned on access to, and use of, natural environments and ecosystems. For the purposes of this report, we accept that definitions and classifications of ecosystems vary based on geographic scale (*e.g.* global to local), human interference (*i.e.* natural vs. human-made) and biotic and abiotic features (terrestrial, aquatic), and focus on geographical spaces as the context where the social

dimensions of the innovation system are embedded.

The most recent classification of cities and rural areas by the EC differentiates three categories and provides definitions for (1) cities, (2) towns and suburbs and (3) rural areas (Dijkstra and Poleman, 2014). In this classification, (1) cities and (2) towns and suburbs are referred to as urban areas (Table 1).

Table 1. Classification of urbanisation. Source: Dijkstra and Poleman, 2014

	Density	Inhabitants per km <sup>2</sup>	Population
City	≥ 50% (living in high- density clusters (urban centres)	500	≥ 50,000
Towns and suburbs	<ul> <li>≤ 50% (living in rural grid cells and in a high-density clusters)</li> </ul>	100	≥ 50,000
Rural areas	≥ 50% (living in rural grid cells)	150	≤ 50,000

In this report, we focus on:

**a)** forests and other natural and semi-natural rural spaces;

b) agricultural lands, and

**c)** urban and suburban green spaces as the geographical spaces where Green Care activities are or can be carried out. These spaces are defined on the basis of the degree

of urbanisation, demographic characteristics described in Table 1 and land-use characteristics. The spaces considered within the Green Care Innovation System Framework include both natural and built infrastructure. The first two spaces fall under the definition of rural areas, and the last one under urban area as per the EC classification.

### **Rural spaces**

Rural areas include natural and semi-natural spaces such as forests, forest plantations, meadows and pasture, savannah, wetlands, as well as agricultural lands. In areas such as the European continent, where human presence has heavily modified nature and landscapes, and population densities vary among countries, differentiating between natural, semi-natural and cultural rural spaces is a challenge and will not be a focus of the report (Cervinka *et al.*, 2014).

### Forests and other natural or semi-natural rural spaces

The United Nations Food and Agriculture Organisation (FAO) defines a forest as an area of >0.5 ha, with >10% tree canopy cover, and with trees capable of growing >5 m tall (FAO, 2001). It also differentiates between closed (> 40 % canopy cover) and open canopy (10-40 % canopy cover). The definition adopted by the Framework Convention on Climate Change (UNFCCC) is similar: a minimum area of 0.05 -1.0 ha, tree crown cover of 10-30%, and a minimum height of a tree ranging between 2 and 5 m (UNFCCC, 2006).

These official definitions of forest, currently in use, have received significant criticism:

a) for not differentiating natural or old-growth forests from plantations (Sasaki and Putz, 2009);

**b)** for disregarding a certain level of forest degradation – changes in the quality of the forests and consequently its ecosystem services (Van Noordwijk and Minang, 2009; Chazdon *et al.*, 2016); and

c) for not comprising the entire spectrum of forms that global forests can take (Randrup et al., 2005).

However, following Cervinka *et al.* (2014), in this report we use **'forest' as a meta-term that covers many different forms of landscapes across countries** (including plantations, natural forests and semi-natural forests), rather than trying to define it in ecological terms.

#### **Agricultural lands**

Agricultural lands are devoted to the rearing of livestock and production of crops—to produce food for humans or fodder for cattle. Agricultural systems exist in different natural settings and range from large to small scale operations, from intensive to agroforestry systems<sup>8</sup>, and from conventional to organic and regenerative farming.

#### Urban and peri-urban green spaces

Green Care activities are also carried out in urban and peri-urban areas. Urban areas are towns, suburbs, and cities characterised by higher population densities, settlements and built environments. Urban areas contain green spaces which can be mainly categorised as:

a) private gardens;

b) public green areas such as gardens, zoos, parks, castle parks, community gardens;

c) suburban natural areas that have become, and are managed as, urban parks;

d) forests in urban contexts protected for conservation or public use;

e) forests or green areas extending from the surroundings into urban areas are mapped as green urban areas when at least two sides are bordered by urban areas and structures, and traces of recreational use are visible (EC, 2016). Urban and peri-urban green spaces are part of green infrastructure in the urban areas which also include green roofs and walls and street trees and are often adjacent to grey infrastructure.

#### Courtesy Boscoincittà



<sup>&</sup>lt;sup>8</sup> Agroforestry is understood as "both traditional and modern land-use systems in which trees are managed together with crops and/or animal production systems in agricultural settings" (FAO, 2013).

### 5.2 The social dimensions of the Green Care Innovation System Framework

The social dimensions included and described below are:

- a) Beneficiaries and their needs;
- **b)** Institutions and norms (formal and informal);
- c) Policy context
- d) Governance arrangements,
- e) Public discourses and vision;
- f) Collaborative arrangements;
- g) Collaborative learning;
- h) Champions and frontrunners;

**i)** Resources (natural, human, infrastructure, financial and social).

Innovation processes in Green Care also happen as a response to challenges for individual or collective health, well-being and social inclusion. Green Care activities can be addressed to the general population (citizens), *at-risk groups or vulnerable groups and people with special needs*, as **beneficiaries** of these activities (Figure 5). The at-risk groups or vulnerable groups refer to individuals or groups at greater risk of negative mental and physical health outcomes (i.e., those under exposure of chronic stress, inactive people, elderly, women and youth victims of violence) or at greater risk of social exclusion. The latter includes those discriminated by gender, nationality, or ethnicity as well as people released from prison or people who face barriers for societal participation, such as the unemployed, or people with low financial status or living in poverty. People with special needs includes people with physical or mental disabilities, illnesses, or addictions. As previously mentioned, Green Care therapeutic intervention activities are services provided for a segment of the population with special needs (physical or mental) which are expected to see a clinical or behavioural change. These services require the presence of a therapist that can assist during the activities and track a participant's behavioural change over time.

Green Care is expected to have physical or mental positive effects (or no negative effect) that can be, or are, measured for the therapist to follow improvements and show evidence of the benefits of participating in the activity. These activities can be carried out as part of a country's health system and thus with public funds or can be paid by the end-users. The activities that fall under Green care tourism can be organised in both rural and urban (inc. peri-urban) green spaces, with a specific focus on tourists as target beneficiaries. In this case, services would involve costs that are covered either directly by customers or by public or private social insurance systems.

Figure 5. Target beneficiary categories and the Green Care activities designed for their needs



Both private (business, civil society or hybrid organisations<sup>9</sup>) and public actors operate within the context of complex institutional and legal frameworks. These include **formal institutions** such as laws and regulations (*e.g.*, land tenure, public health, safety, commerce and labour) and **informal institutions** (*e.g.*, societal norms of behaviour, traditions, religious norms and cultural mindset). Formal and informal institutions provide the framework for human interaction and reduce uncertainty by establishing an agreed-upon structure and "rules of the game". These structures can change and evolve gradually (North, 1990; Casson *et al.*, 2010) and existing institutions often dictate the direction of innovation processes in Green Care. During the application of the framework, it is important to understand that formal and informal institutions define, to a greater and lesser extent, the rules of behaviour and interaction. Conversely, it is important to note that through their novelty, Green Care activities can also bring innovation to these institutional frameworks.

**Policy** refers to a program, course of action, regulatory measures or funding priority and it mostly involves resource allocation (Bacchi, 2009). Public policy is promulgated by the government and its entities at different levels. In the Green Care Innovation System Framework, a **policy context** is understood as the context surrounding the innovation processes and includes the complex picture of policies and programmes that reinforce or hinder Green Care initiatives. The policy context can be both a driver and an inhibitor for innovation and entrepreneurship. As Green Care initiatives cut across many policy domains (*i.e.*, health, social care, enterprise and rural development), policy fragmentation may inhibit coherent policy and regulatory frameworks for the development of Green Care initiatives.

**Governance** generally refers to the way in which a policy process is organised (or governed) (Arnouts *et al.*, 2012). Governance arrangements refer to how private and public actors interact. **Governance arrangements** can be understood as "a set of ideas, rules and relationships among actors that shape and steer the decision-making process in a given policy field" (Sergent *et al.*, 2018, p.969). It also directly influences the development of new entrepreneurship ideas, through the interrelation among actors, power distribution, tasks and roles assigned as well as how decision-making processes are designed and implemented (Arts and Goverde, 2006). In the proposed Green Care Innovation System Framework, we refer to governance arrangements as interactions, relationships and the distribution of roles and responsibilities among diverse actors (public and private) in the relevant policy field. The existing governance arrangements and its characteristics (*i.e.*, hierarchical vs. delegated governing) can create space for, or hinder, innovation in Green Care. Innovative governance arrangements can also become a product of innovation processes in this sector. The definition of governance in this case should be differentiated from organisational governance, which can be understood as "...all mechanisms within an organisation that broadly determine how organisational resources are used to move the organisation forward and resolve conflicts between its various stakeholders" and is explored within the discussion of organisational models of reviewed case studies (Mair *et al.*, 2015, p.716).

Discourse is "an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices" (Hajer and Versteeg, 2005, p.175). Public discourse is the discourse of, and among, the public (Scollon, 2008) which can also be interpreted as the discourse of public agencies. **Public discourses** about nature and its impact on health, well-being and social inclusion can act as important enablers or barriers for innovation in Green Care. For example, if the dominant narrative views city parks as unsafe spaces, then their promotion as a solution to urban challenges such as poor air quality or social inclusion can be slow. In the Green Care Innovation System Framework, **public vision** can be understood as an inspirational image of the future, collectively shared by a community or by public decision-makers. This can involve, for example, a public process of vision sharing to transform dense urban centres into green hubs. Developed as a collective goal, this process can give strength to the communication of such new innovative ideas and ultimately, to their implementation on the ground. Public vision can influence which policies are placed on the agenda and which are being implemented. Inclusive and participatory processes for co-designing public vision are essential for the vision to become commonly shared.

<sup>&</sup>lt;sup>9</sup> The hybrid organisations are those that have alleviation of a particular social or environmental issue as their primary purpose (Holt and Littlewood, 2015). They are discussed in detail in section 6.5
**Collaborative arrangements** involve public, private and public-private partnerships, science-business interactions, knowledge hubs, grassroot innovation exhibits and platforms for interaction, and act as enabling environments for innovation in Green care. These arrangements can become a direct outcome of the innovation as well. Activities in Green Care are complex and require partnerships and new types of formal and informal relationships. Quite often, collaborative arrangements rely on the role of intermediaries, one of the areas where we find innovation, 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 out services to professionals, such as health professionals and therapists, nature guides, or pet therapy experts. Initiatives also work in conjunction with the public sector to provide healthcare and social services. These collaborative arrangements can be loosely linked in some cases, while in others be contractually obliging. In the cases of hybrid organisations, these collaborative arrangements can be even analysed as the organisational governance of an initiative (Ménard, 2004; Haigh *et al.*, 2015).

**Collaborative learning** involves a situation where actors come together in an attempt to solve a problem or learn from a phenomenon, and they capitalise on each other's resources and skills (Laal and Ghodsi, 2012). Knowledge co-creation, peer learning, capacity building and knowledge transfer are important ways for how collaborative learning takes place, supporting the innovation idea and dissemination in Green Care. This participatory process involves people with local and traditional knowledge along with those who have "expert" knowledge on ecosystems, healthcare, technology and the economy. Continuous experimentation and monitoring and evaluation of the results can support sharing evidence of good practices. technology and the economy. Continuous experimentation and monitoring and evaluation of the results can support sharing evidence of good practices.

<sup>&</sup>quot;Idea **champions** are individuals within organisations who support the use of a novel idea or technology" (Mullins *et al.*, 2008, p.452). Champions or change agents are not responsible for the innovative idea they endorse but refer to individuals or organisations that embrace the idea from the beginning, advocate for it through available platforms and political channels, help its development and dissemination and maintain a long-term commitment. Finding advocates among key decision-makers can help scale up the application of the Green Care innovation idea. For example, a mayor of a city can become a major advocate for the application of green roofs and help with the technology uptake; an investor can find forest-based therapy interventions promising and help a start-up with the crucial initial investment, or a civil society organisation can support the innovative idea by disseminating it among its networks and by providing necessary training to an innovator.

Finally, innovation in Green Care largely depends on the availability and access to resources. Key resources refer to what the initiatives in Green Care use to deliver their value and include natural, infrastructural, financial, technological, human and social resources (Secco et al., 2019). Access to natural resources such as forests, agricultural lands and urban parks define the foundation for innovative ideas in Green Care. These ecosystems become resources for Green Care initiatives when they are utilised in configuration with the innovative idea. Infrastructural resources in the Green Care Innovation System Framework refer to the physical and built-in infrastructure such as hospitals, residential buildings, roads, hotels, community centres, machinery and equipment. Financial resources refer to funds, investments, loans, insurance and other financial and economic capital available for implementing an innovative idea. Technological resources refer to technologies and know-how that support the idea and helps to carry it out. Human resources can be described as the skills, knowledge and experiences of each involved individual, as well as the quality that emerges from their combination within an organisation or initiative. Social resources can be understood as social capital in the form of shared norms, trust, reciprocity, networks, collaboration attitudes, cooperation, solidarity and empathy and they create the basis for human collaboration, which activates and facilitates innovation in Green Care (Christoforou and Pisani, 2016). Understanding access to different forms of resources also facilitates the development of different models and helps to deliver activities and services for health promotion, disease prevention and therapeutic interventions. The availability of these resources can set the direction, time of emergence or longterm maintenance of innovation. Likewise, the nature of the innovative idea and the business model of the initiatives can define the priority of certain resources over others.

#### 5.3 Green care innovation in the four thematic sectors of Green4C

This section aims to describe the state of the art of innovation in the four thematic sectors of the Green4C project. We discuss the status of innovation in each sector, guided by the proposed Green Care Innovation System Framework and using the example of 20 case studies. These case studies are considered innovative and help describe the innovation system that supports them. The fact sheets created for each case study highlight the innovation processes based on the conceptualisation provided in Section 5.1. The fact sheets show how the case studies bring about specific innovation on technological, organisational, social and nature-based or as a result of their synergies. We also describe the factors leading to success and their challenges for innovation in each thematic sector drawing results based on the responses reported by these case studies. We conclude by analysing common features and drawing lessons applicable for all thematic sectors.

#### 5.3.1 The innovation system in Forest-based care in Europe

The following sections present the discussion on the innovation system in Forest-based care in Europe by analysing the case studies presented in Table 2. The fact sheets on each case study present more detailed information about the initiatives and their innovative ideas.

#### Table 2. Selected case studies in Forest-based care

Name	Description	Country	Sector	Stage of development
Ecowellness Consulting	Ecowellness Consulting Ltd. (Formerly Nature, Health & Wellbeing Ireland) is a "Profit for Purpose" business with a strong focus on achieving social, community and environmental benefits.	Ireland	Private	Incorporated
<u>Metsämieli or</u> <u>Forestmind</u> (in English)	Metsämieli is a program of exercises of mind skills designed to utilise and intensify the natural healing effects of forests and is ideal for promoting self-awareness, relaxation, stress relief, refreshment, and invigoration.	Finland	Private and voluntary	Project
<u>The Forest</u> <u>Therapy</u> Institute (FTI)	The Forest Therapy Institute (FTI) is a "profit for purpose" institute whose mission is to achieve social and environmental benefits. Its training is the combination of the latest cutting- edge research on forests and human health, international nature connection practices, science and ancient wisdom traditions.	International, Europe-based	Private	Incorporated
<u>NatureMinded</u>	NatureMinded is a research and consultancy cooperation that aims to make people and companies mindful about nature's positive effects on health and psychology – at home, in public spaces, and at work.	Belgium	Private	Prototype
<u>Valli del</u> <u>Natisone</u> <u>Forest Therapy</u> <u>Station</u>	Valli del Natisone Forest Therapy Station was the first initiative in Italy for forest therapy. Focusing on evidence-based research, it uses healing properties of trees and forests for therapeutic purposes with a specific focus on people with asthmatic conditions.	Italy	Public and voluntary	Prototype (pilot project)

<sup>&</sup>lt;sup>9</sup> The hybrid organisations are those that have alleviation of a particular social or environmental issue as their primary purpose (Holt and Littlewood, 2015). They are discussed in detail in section 6.5

#### Ecosystems and spaces (both natural and built infrastructure)

Initiatives in Forest-based care in Europe use both urban and rural forest areas and green spaces for the activities that rely on direct experience in forest ecosystem immersion in nature. These can include public parks, botanical gardens, nature reserves, national parks, public and private forests, etc. The choice of the forest environment depends a lot on its functional suitability based on ecological, aesthetical and accessibility design characteristics, for an intended type of activity and mainly according to beneficiary needs. Indeed, the typology of beneficiary targeted, and their needs, are pivotal for the choice of the forest area especially for those initiatives tackling the requests of small and homogeneous groups of beneficiaries such as people with physical disabilities or people with depressive symptoms. In general, the more specific the health objectives of the Forest-based Care intervention are, the more we can assume the beneficiaries' needs are homogenous and therefore the natural area might be selected on specific criteria (Marušáková et al., 2019; Doimo et al., 2021). Such criteria can be strictly linked to evidence-based medicine, therefore it is important to verify the effectiveness of a specific forest trail and its positive affect on certain given physiological and psychological parameters; or verify the absence of high pollen concentration as for **Valli del Natisone Forest Therapy Station** in Italy, which is focused on mitigating the symptoms of chronic respiratory diseases.

"The important thing is not who owns the forest, but whether the forest works or not for our activities. It is important to use forests based on the functional effectiveness of each path, organic compounds, etc. Forest therapy contains the word "therapy", so evidence is very important. Each path has different possibilities, and they can be used as functional tools" (Personal Communication, Maurizio Droli, 6 November, 2020).

Other criteria can be the accessibility of the area, the absence of difficulties or slopes in the trails, the aesthetic pleasantness, the presence of specific tree species for their ability to produce beneficial terpenes and monoterpenes. The degree of intervention on a given ecosystem can also differ: the majority of the activities are designed around passive and non-extractive use of nature with minimal intervention in terms of forest management or setting up of infrastructure. Some activities require a certain level of management to maximise benefits (*i.e.*, selection of tree species, creating specific settings) or the creation of infrastructure to maximise the accessibility and fruition (*e.g.* bridges, wooden platforms, benches, restrooms, indoor space). Another difference can be in initiatives selecting and testing existing trails and spaces, with other initiatives that would design and create new trails and spaces according to specific criteria or approaches (*e.g.*, biophilic design, bioenergetic landscapes). Selecting suitable trails or organising off-trail activities make the careful choice and prior safety examination of the forests necessary (in most cases, it is the guide or instructor carrying the liability for safety of the participants). The initiatives that focus on forest therapy among those that we reviewed prefer more isolated intact forest areas with specific ecological specifications (*e.g.* Valli del Natisone Forest Therapy Station in Italy).

Forest areas used by the initiatives can be further categorised into private and public. Access to public forest areas can be negotiated with the public authority for long-term access beforehand or for each organised activity individually. Depending on the country and public authority where the initiative is based, an annual fee can be asked from a practitioner for accessing public forests regularly. In addition to the fee, a practitioner may need to obtain a special permit of access, *e.g.*, for national parks and wildlife refuges. The permit for access and for conducting activities can be linked to the public liability insurance and needs to be obtained beforehand. These conditions change based on the typology of the ownership of the forest areas, and whether or not the public is permitted to access private forests for non-extractive activities in a given country. In Finland, for example, where public access to all forest areas is permitted by "Everyman's rights"<sup>12</sup>, initiatives have more opportunities to explore suitable areas, and fewer costs related to organising the activities.

Access to private forests also have differences depending on the country and history of the forest sector. In countries such as Ireland, where private land ownership prevails and the "right of way" mentality dominates, innovative activities may be discouraged due to high related costs. In Spain, private forest owners are very interested in hosting Forest-based care activities (Personal Communication, Gorka Altuna, 11 June, 2020) and tend to collaborate with individual guides and instructors to provide a suitable space for forest-based activities.

A long-term motivation of private forest owners for engaging in this field, is the public recognition of the services they provide and the possibility to receive continuous public incentives such as payment for ecosystem services (i.e., health and well-being ES). This of course, depends on the recognition, valuation and public promotion of these

activities as leading to health and well-being, and of these outcomes as a separate ecosystem service category provided by forests (and other ecosystems) (Filipova *et al.*, 2020).

#### Beneficiaries and their needs

Initiatives in Forest-based care in Europe cater to all direct beneficiary categories described in Section 5.2. The activities involve participants who declare no prior illness or disorder and simply want to capture the benefits of time spent in nature; those who can be described as "at risk" or vulnerable groups; and those with special needs. The needs of the first group can be described as "general health promotion", including promotion of healthy lifestyles, experiencing and reconnecting with nature, enhancing self-esteem and relaxation, as well as providing occasions for meaningful social relationships. Activities include, for example, cycling on forest trails, yoga and mindfulness activities in the forest, forest spa, sensory experiences, organised programmes of group walks to stimulate physical activity, educational and cultural experiences within selected forests.

The needs of the second group tackle more specific illness and disease prevention and for this reason are generally homogeneous within each group of clients. Therefore, activities vary greatly according to the target and objectives. Interventions and activities developed for this target group have more specific health objectives but still are not considered clinical interventions. Some examples can be forest-based initiatives for occupational stress reduction and burnout prevention, vocational nature-based trainings for depression and anxiety in youngsters, for asylum seekers and vulnerable or marginal groups, as well as programmes for social inclusion. Forest-based care initiatives addressing specific illnesses, diseases and/or disabilities performing health intervention and rehabilitation need to adapt activities, objectives and methodologies to the specific needs of people. Such initiatives need to be assisted by trained physicians, social assistants and health specialists. The needs of these target groups might be linked to treatment, rehabilitation and management of physical illnesses and chronic conditions and disabilities (e.g., physical disabilities, asthma, Chronic Obstructive Pulmonary Disease, Insufficient Respiratory Syndrome, cancer and diabetes mellitus), psychological diseases, neurodegenerative diseases and mental disabilities. In general, initiatives addressing the general public have a higher number of users/clients and can provide single experiences, while initiatives working with beneficiaries with special needs are more likely to have small groups of users and activities organised in programmes (Marušáková et al., 2019; Doimo et al., 2021). One of the problems of dealing with people with disabilities and diagnosed diseases reported by our case studies is insurance to cover the associated risks. The case studies reported little engagement with people with mental disabilities, citing safety considerations as a limiting factor for arranging such an activity.

Further, another growing category of beneficiaries consists of the people looking for training as guides or therapists for forest-based care. This is of course a hybrid approach, since they are not driven by health needs rather by educational and vocational needs to which some forest-based care initiatives are trying to answer with certified and standardised trainings (*e.g.*, Forest Therapy Institute, Forestmind). Prospective guides have wide backgrounds, including professionals from healthcare and the social service sector, research and education, eco-tourism and sports tourism, as well as professionals interested in environmental protection, corporate well-being and other sectors. With this, the initiatives try to standardise and benchmark the quality of the many different offers available on the market, and coordinate the promotion of Forest-based care as a valid healthcare practice.

#### Institutions and norms (formal and informal)

Initiatives in Forest-based care operate within established institutional frameworks. The initiatives can often have an impact and even innovate these frameworks through the registration and declaration of their activities. When it comes to formal institutions, differences and complexity of tax and compliance legislation for entrepreneurship in diverse European countries are considered an important hurdle. Regulation and legal frameworks in healthcare, land ownership and liabilities are also relevant and impact innovation processes in this sector. Forest-based care practices do not have a shared conceptual definition at the EU level, and there is a lack of formal recognition, even if local exceptions might exist. Thus, informal norms and "rules of the game" play a great role in self-regulating this sector. One of the crucial informal rules is the differentiation between prevention and treatment and rehabilitation interventions and ethical considerations for practitioners involved in these respective practices. This differentiation is also based on the legislative definition and regulation of "therapy" in EU member countries<sup>13</sup>. However, in practice

<sup>&</sup>lt;sup>12</sup> The general public's right allows an access to anyone living in or visiting Finland the freedom to roam the countryside, forage, fish with a line and rod, and enjoy the recreational use of natural areas. https://www.visitfinland.com/article/everymans-rights/#ca1be8d9

there is still widespread overlapping and misunderstanding for example between forest bathing and forest therapy which are used often interchangeably, even if the first is a traditional practice that can be done with or without a guide, and the second an evidence-based medicine practice that needs to be developed and guided by a trained physician or health expert. Background checks and specific requirements for individuals who would like to be involved in therapy, rehabilitation and recovery practices, requiring medical knowledge and professional skills. Private organisations such as the Forest Therapy Institute aim to develop a certification scheme that can have wide visibility and acknowledgement as a way to standardise the approach and be recognisable by beneficiaries and policy-makers among the complex landscape of individual initiatives and approaches in Europe. Even though they seek to ensure that Forest-based care practices are considered effective by the public at large, at present a monitoring and assessment system of the effects is missing (*e.g.*, ex-ante evidence-based medicine studies developed in the Japanese model).

#### **Policy context**

Forest-based care initiatives operate within a complex network of European and national policies and priorities on public health, social care, social inclusion, innovation, forest, environmental protection, biodiversity conservation, tourism, rural and urban development and employment. Different research and action projects within the EU's Rural Development Policy, Horizon 2020, Cost Action, Erasmus+ and other programmes have helped to channel funding and research to this sector. As with other Green Care practices, currently opportunities presented by Forest-based care are catching the attention of policymakers, especially given the societal challenges brought globally by the SARS-CoV-2 pandemic (Kopsieker *et al.*, 2021; SfEP, 2021). The European Green Deal (EC, 2020) as the Commission's action plan for a sustainable green transition by 2050, and its related key initiatives such as a new EU Biodiversity Strategy for 2030 and the EU Adaptation Strategy (in 2021), further push for innovating with nature, ecosystem use and nature-based solutions and help to promote Forest-based care practices as valid approaches to address pressing public health and environmental challenges.

The topic of public health is within exclusive jurisdiction of national governments and regions in EU countries. Common European policies such as the European Framework for Action on Mental Health and Well-being (EC, 2016a) provides complementary support to the national policies and healthcare systems. Globally, the UN Sustainable Development Goals, and strategies for promoting green jobs, provide the necessary framework, direction and motivation for innovative processes in Forest-based care as well.

More specifically in the forest policy arena, the Vienna Resolutions (Forest Europe, 2021) acknowledge that economic viability through income generated from marketable and non-marketable goods and services is a condition to improve sustainable forest management and deliver a wide range of cultural, social and environmental values to society. To do so, the commitments of the Resolution are inter-alia, to create suitable policy and legal frameworks to encourage investments and businesses in the forest sector. As highlighted also in this analysis, this is possible by creating enabling conditions for market-based provision of a diversified suit of non-wood goods and services, removing impediments, and promoting inter-sectorial collaboration of those sectors relevant for an economic viable management of forests (Doimo, 2021). This vision is in line with the one described in Rovaniemi Action Plan where forest-based care initiatives can contribute to fostering a green economy with the provision of services increasing human well-being and creating revenue and livelihoods in the forest sector, while managing natural resources sustainably (UNECE/FAO, 2014). The green economy is creating new job opportunities in a wide variety of areas, among which are those supported by forest-based care initiatives such as recreation, education, forest burials, forest wellness, that will attract marginalised groups (i.e., young, women and rural population) while helping to retain jobs in small and medium-sized forest enterprises (UNECE, 2018). Green Jobs are defined as decent jobs that minimise the adverse impacts of enterprises and unsustainable consumption patterns, by preserving or restoring the environment complying with principles of sustainable forest management (SFM) (UNECE, 2018).

#### **Governance arrangements**

Understanding governance arrangements in Forest-based care is not an easy process, as it cuts through diverse sectors and markets such as education, research, healthcare, social protection, employment, corporate well-being, forestry, environmental protection, tourism and rural development. Roles, responsibilities and cross-sectoral linkages of public and private actors are still flexible according to different countries, regions, and sectors involved, since the field is evolving and is not consolidated. Based on our observation, in Europe, as opposed to Japanese and Korean models of forest therapy and forest healing, Forest-based care can be described as a sector characterised by a bottom-up approach, where private initiatives self-organise, scale up and in some cases seek to impact on relevant policies. Given the early stages of development and the cross-sectorial nature of these initiatives, governance schemes vary according to the core activities proposed by the Forest-based Care initiative and adapt to the local

situation. For example, if an initiative aims to present Forest-based care practices as a tourism product, then the most relevant actors for that initiative are within the tourism and local development sector. If the services are offered to address occupational stress and corporate well-being, then the private sector actors gain priority.

However, public actors remain important for supporting the initiative son the ground, enlarging beneficiary base, monitoring and providing protocols especially for health interventions and trained staff. As an important aim of Forest-based care initiatives is to integrate these practices as valid, science and evidence-based interventions for healthcare and health promotion, public health authorities will define the future direction in this field. Other than healthcare, national agencies in other fields such as forestry and education are also involved: Forest Therapy Institute and Ecowellness Consulting partner with Scottish Forestry (the Scottish Government agency responsible for forestry policy, support and regulation) to train guides all over Scotland. Besides national government organisations, regional and local governments can also play an important role in helping initiatives test their approaches and develop pilot projects. For example, NatureMinded coordinates their work and collaborates with the Province of Flanders in Belgium. The regional government of Friuli-Venezia Giulia in Italy works closely with the University of Udine to carry out research focused on the impacts of ES on human health, specifically on forest therapy, since 2017, and allows collaboration among different hospitals in the region and in the Valli del Natisone Forest Therapy station (Personal Communication, Maurizio Droli, 6 November, 2020). Also, private and individual actors are pivotal for supporting these initiatives, such as private insurance companies that recommend forest bathing and therapy to their clients and medical doctors that prescribe nature and forest therapy to their patients are also important actors within the governance of this sector.

#### Public discourses and vision

Public awareness about promotion, prevention, treatment and rehabilitation practices in forest-based activities is still low and messages are still confused. Ideas that previously would have been dismissed as those representing marginalised philosophies such as deep ecology (*e.g.* with nature having an inherent value regardless of its use for humans) or practices assigned to people representing social and ecological movements are slowly being mainstreamed. In recent years, public discourses on human-nature connectedness have gained a positive and progressive tone thanks to the continuous efforts of practitioners and evidence-based research (Hansen *et al.*, 2017; Haasova *et al.*, 2020). Nevertheless, coupling therapy with such informal and radical approaches feed an atmosphere of prejudice about the whole forest-based care practices (Doimo, 2021). A clear framing and a more systematic approach in communication and dissemination is needed to avoid misunderstanding between the different objectives and approaches of forest-based care practices.

#### **Collaborative arrangements**

In our reviewed case studies we observe two types of collaborative arrangements: a) those with contractual obligations for continuous collaboration, acting and communicating with the external world as a unified entity; and b) those who enter into collaborations with others on a project and task basis, but always keep the network active. Collaborative arrangements in the first category can also be understood as synonymous to the organisational structure of an initiative, as described by Ménard (2004). In Figure 6, we present a summary of the different models for collaborative arrangements emerged as the result of our analysis of the case studies. The representation is based on individual responses to the organisational structure and partnerships of the initiative rather than on a thorough network analysis. In Figure 6, collaborative arrangements with contractual obligations (a) are in bold, those developed on a project and task basis (b) in dashed arrows.

#### **Collaborative learning**

Depending on the objective and the business model of an initiative, collaborative learning can take many different forms in this sector. The methodology developed by Forestmind, for example, relies on continuous evolvement and co-designing through its application, with educators and professors contributing to the methodology while teaching and using it. Collaborative learning can also be achieved through platforms such as the International Forest Therapy Days organised by NatureMinded and its collaborators, where practitioners, scientists and those who wish to learn about the healing effects of nature, come together on an annual basis to share knowledge, learn from each other and experience different forest therapy practices. In the case of the Forest Therapy Institute, peer learning and experimentation takes place on a more continuous basis, as this aspect has been one of the main reasons for starting the initiative. Valli del Natisone relies on continuous knowledge exchange with research institutes in the area and feedback collected in-field by the direct applications of forest-based care practices.

Figure 6. Forest-based care case study collaborative arrangements. (1) Ecowellness Consulting and NatureMinded, (2) Forestmind and Forest Therapy Institute, (3) Valli del Natisone. Collaborative arrangements with contractual obligations



#### **Champions and frontrunners**

For this novel cross-cutting sector, in many cases the For this novel cross-cutting sector, in many cases the presence of one committed actor with motivation, ideas and resources are crucial for triggering the process. As most initiatives in this sector are started by individual entrepreneurs with limited resources, most of them found advocates in civil society organisations, associations and research institutes who provided the initial support and help with the ideation and prototyping of the innovative idea. In case of Ecowellness Consulting, for example, Social Entrepreneurs Ireland – a civil society organisation and Local Enterprise Office in Dublin – undertook the important role of mentoring and advising. NatureMinded on the other hand, found support in the form of access to network and capacity building with Bos+, an environmental organisation. The individuals who go through the training of already established network organisations such as the Forest Therapy Institute, find the initial specialised mentoring and network support already there, as one of the main goals of these organisations is to help the trainees to become self-reliant and economically sustainable through their own business models.

#### Resources (natural, human, social, infrastructure, financial)

The cases studies selected in Forest-based care are for the most part small and tend to be run by individual entrepreneurs (i.e., forest bathing guides or forest therapy instructors). Both to scale up and to maintain wellestablished initiatives, human capital is considered a crucial asset. Human capital is mostly needed in terms of skills and knowledge necessary for research, implementation of new approaches, for evidence gathering on the effectiveness of the suggested approaches and for helping with the continuous search for funding. When it comes to specific skills and attitudes, the initiatives tend to value passion, motivation, authenticity, a critical and entrepreneurial mindset, positivity, love for nature, concern for the world (drive), experience in their key fields, good connection, social skills, empathy, volunteering, groupwork and facilitation skills. The Finnish initiative Forestmind differentiates its preference for those who would like to become instructors and guides. For guides, it is important to be able to facilitate groups, understand the basics of the methodology, have social skills in terms of empathy and gratitude. For instructors, the background check and experience level requirements are much stricter as their training also requires a higher level of engagement. Initiatives in Forest-based care rely heavily on existing well-established networks and mutual support circles, as part of social capital. These circles help to spread the word about the initiative and build trust on the professionalism of an innovator. Among others, financial resources were considered important for the reviewed case studies. Initiatives in Forest-based care tend to rely mostly on private funds, donations, association fees and payments for services by clients/beneficiaries. Public funds are scarce, viable opportunities pursued by our case studies are to be part of a European or a national project (for which social capital is required) and to collaborate with public research institutes and Universities. Forest-based care tend to rely mostly on private funds, donations, association fees and payments for services by clients/beneficiaries.

<sup>14</sup> https://socialentrepreneurs.ie/

<sup>&</sup>lt;sup>15</sup> https://www.bosplus.be/en/

#### 5.3.2 The innovation system in Social agriculture in Europe

The following sections present the discussion on the innovation system in Social agriculture in Europe by analysing the case studies presented in Table 3. The

fact sheets on each case study present more detailed information about the initiatives and their innovative ideas.

Table 3. Case studies in Social agriculture

Name	Description	Country	Sector	Stage of development
Green Care - Wo Menschen Aufblühen Association Green Care Austria	Green Care - Wo Menschen aufblühen (Where people flourish) is a registered brand of Association Green Care Austria. It forms the competence network for the development and implementation of innovative green care services on active family farms in Austria.	Austria	Private public	Incorporated
<u>Orti E.T.I.C.I.</u>	The "Orti E.T.I.C.I." project aims at promoting responsible innovation and sharing in the field of quality agricultural production and social inclusion policies.	Italy	Private and public	Incorporated
<u>The Federation</u> of Care Farmers	The Federation of Care Farmers in the Netherlands is the national organisation representing and supporting 15 regional member organisations that represent 853 Care farms in the Netherlands. It provides a national quality system, a national clients' centre, national knowledge exchange and advocacy on a national level.	The Netherlands	Public	Incorporated
<u>L'olivera</u> Cooperativa	L'Olivera aims at supporting the integration of people with mental or psychiatric disabilities into society, with specific attention to those in disadvantaged social situations; and developing a productive economy based on local values.	Spain	Voluntary	Incorporated
<u>Social Farming</u> Ireland (SoFI)	Social Farming Ireland (SoFI) supports the development of a national Social Farming network in collaboration with three other Local Development Companies where regional hubs are based.	Ireland	Voluntary	Project

#### Ecosystems and spaces (both natural and built infrastructure)

In this study for Social agriculture practices, we focus on innovative initiatives within the context of rural areas<sup>16</sup>. The ecosystems utilised by the initiatives in this thematic sector are existing agricultural lands mostly in community, family, and small farm settings. Although agricultural lands are usually characterised as intensely managed areas, in the case studies selected, the degree of management or intervention depends on the ecosystem characteristics of a given area or biome. For example, initiatives such as L'Olivera that are located in Mediterranean drylands with little water availability, require both technological applications, along with traditional knowledge of the farmers, to guarantee sustainable and continuous production. These lands traditionally provide low yield but high-quality food. The transfer of know-how applied in similar landscapes of the Mediterranean, *i.e.*, in the South of Italy or Israel, can help improve agricultural practices and ensure continuity given additional challenges brought by climate change. Often, the concept of Social agriculture is closely linked to organic and biodynamic agriculture and short value chains, "0 km", local and seasonal production processes. This usually entails a special relationship with the land and soil, allowing natural processes to shape the direction of the production. In this sense, social farmers are also important change agents re-defining human and society's relationship with the land and allowing a kind of relationship with nature that creates space for new social interactions and connections. Quietness, physical experience with nature and interaction with farm animals are also important elements of Social agriculture that enhance social interactions (Di lacovo and O'Connor, 2009).

<sup>&</sup>lt;sup>16</sup> Social farming practices in urban and peri-urban areas are considered the domain of Urban green care in this project.

Access to farms and agricultural land by participants or beneficiaries depends on the organisational or business model of an initiative. For example, in Austria, green care farms can choose to operate under different models:

a) the cooperative model – where farms invest in the necessary infrastructure (the conditions of which are regulated by state laws) and enter into long term (5-10 years) collaborative contracts with social care centres that "rent" the farmland to carry out their services;

b) the private market model - where farms invest in the infrastructure and receive private clients;

**c)** the legal entity model (very rare) – Farms become a legal entity and a social agency themselves and provide social services within their farms. While network initiatives such as Social Farming Ireland and Green Care Austria focus on existing and active farms, individual farm level initiatives can start from reclaiming abandoned farmland or lands without ownership (*e.g.*, L'Olivera and Orti E.T.I.C.I.).

#### Beneficiaries and their needs

Depending on the purpose, direct beneficiaries of innovative initiatives in Social agriculture can differ: they can be care farms themselves or those who depend on care services provided by those farms. The initiatives that connect individual farms by establishing associations, federations or other types of network organisations treat individual care farms as their primary target beneficiaries and focus mostly on their needs. These organisations specialise in providing capacity building and educational training, acting as a networking platform for peer farms and with external stakeholders such as local governments and healthcare centres, promoting care farming practices and helping farmers diversify their income sources, re-connecting farmers with their community, lobbying, improving awareness and presenting the added socio-economic value of care farming, consulting farmers on the legal requirements and business model and creating and implementing the quality process (*e.g.*, Social Farming Ireland, Federation of Care Farmers The Netherlands, Green Care Austria).

At the individual care farm level, the main beneficiaries are those who use the care services and can be classified as *vulnerable groups* and those with special needs. The reviewed initiatives described working with homeless people, former inmates, youth at risk of alcohol and drug dependency, refugees and asylum seekers, as well as long-term unemployed. Beneficiaries with special needs include adults and children suffering from mental disabilities and needing family support, autism, dementia and those with physical disabilities. Among the reviewed initiatives, L'Olivera and Orti E.T.I.C.I. cater directly for the needs of these beneficiaries. The initiatives in Social agriculture are especially attentive to include people with mental disabilities as one of the primary beneficiary categories which makes their focus different from those in Forest-based care. In the cooperative model in the initiatives in this sector, direct beneficiaries are also members and employees of a farm.

Besides direct beneficiaries, these initiatives address a societal need and thus work in close cooperation with local and national government agencies, local governments, public healthcare agencies, social care centres, university students and volunteers, to provide opportunities for employment, space for social engagement and by contributing to rural development and stemming of outmigration from rural areas.

#### Institutions and norms (formal and informal)

- **a)** National and territorial level legislation on Social agriculture (*e.g.*, the Italian National Law No. 141 of 2015 on Provisions relating to Social agriculture; state legislations in Lombardy, Umbria, Sardinia and the Veneto regions);
- **b)** Codes of ethics in dealing with people with disabilities (*e.g.*, UN Convention on the Rights of Persons with Disabilities, European Disability Forum (EDF)<sup>17</sup> statutes and Codes of Ethics, as major guiding frameworks;

e) General quality standards for food production at the EU level.

Informal norms and institutions can be characterised as those ethical and context-specific norms that are not reflected in formal legislation but have important roles in defining social interactions, especially around employment of people with disabilities, inclusion and capacity building, fair compensation and retribution.

Institutions in Social agriculture can be described as formal and informal. Formal institutions include:

**c)** Quality standards for care farming developed and overseen by major associations (*e.g.* Green Care Austria) and federations (Federation of Care Farmers the Netherlands) in different EU member countries;

**d)** National or state level regulations on requirements for adequate infrastructure, knowledge background and becoming a care farm;

<sup>&</sup>lt;sup>17</sup> https://www.edf-feph.org/code-of-conduct/

#### **Policy context**

At the European Union level, the policy context of social agriculture refers to a complex set of policies, programmes and strategies dealing with welfare, regional development, rural development, social inclusion, labour market, innovation, health and social care. The main goals of the policies, programmes and strategies are provision of funding opportunities, awareness raising, space for networking and support for acceleration. Unlike Forest-based care, currently there are policy instruments that directly address the topic of Social agriculture, especially within the Common Agricultural Policy (CAP)<sup>18</sup>. The CAP works through seven year-long rural development programmes' cycles. The EU Rural Development Programme (RDP) is an EU-policy tool and funding mechanism used by Member States for implementing EU rural development policy at the national or regional level. Social inclusion, poverty reduction and economic development were among six specific rural development objectives and priorities within the 2014-2020 programmes and are planned also for the 2021- 2027 period. Specific attention to Social agriculture in EU policies is the result of continuous lobbying efforts by initiatives at a national level and on the ground bottom-up processes (Genova *et al.*, 2020).

Other major policy instruments and programmes relevant for the case of Social agriculture in Europe can be considered the following:

**1.** The European Structural and Investment Fund (ESIF) and its programmes: a) the European Social Fund (ESF); b) the European Regional Development Fund (ERDF); c) the European Agricultural Fund for Rural Development (EAFRD) (set up mostly to finance CAP national and regional RDPs).

2. The European Innovation Partnerships (EIPs), a policy tools for the development of research and innovation actions.3. INTERREG comprises a set of five main programmes which aim to stimulate cooperation among regions in the European Union.

**4.** The procedure by the European Economic and Social Committee (EESC), Section on Agriculture, Rural Development and Environment, with the official name of "Social farming: green care and social and health policies" that was started in 2013.

**5.** COST (European Cooperation in Science and Technology) is a funding organisation for research and innovation networks and COST Action 866 Green Care in Agriculture was one of the first attempts to increase scientific knowledge of Green Care.

**6.** From Farm to Fork strategy 2020-2030<sup>19</sup>, within the EU Green Deal, aims at healthier and more sustainable food systems in EU.

#### **Governance arrangements**

Governance arrangements depend on the model of Social agriculture historically developed within certain regions and countries in Europe. The first care farm activities in Europe can be traced back to the 1960s and since then, different models have emerged in different regions. These models can be characterised as: a) care-oriented; b) labour (employment)-oriented, and c) education or pedagogic-oriented (Di lacovo and O'Connor, 2009). Depending on the given focus, governance arrangements and the role of actors from different policy fields can change. For example, a positive match between policy and priorities in the Netherlands, both ministries of Agriculture and Health Care financially supported the creation of a National Support Centre for care farms. The NSC became a predecessor of the national federation of care farmers. In Austria however, a careful decision was made to include the Green Care Association as part of the Ministry Agriculture.

Governance arrangements in the sector can also depend on who is the innovator or promoter of the initiative. There are three main known typologies: a) third sector, b) private, and c) institutional (Di Iacovo and O'Connor, 2009). In Italy and France, the initiatives are mainly organised by third sector, non-profit or educational organisations, in the Netherlands and Belgium mainly by the private sector, and in Germany and Ireland by public bodies.

#### Public discourses and vision

Initiatives in Social agriculture historically, but also currently, emerge within the context of discursive views on nature connection, fair food production, and inclusive societies. In the 1950's, in the context of industrialisation processes, farms in Europe started specialising on certain products and production processes but also loosing connection with nature, society and the community. This trend was felt at an early stage by many farmers who decided to change

<sup>&</sup>lt;sup>18</sup> Social farming practices in urban and peri-urban areas are considered the domain of Urban green care in this project.

<sup>&</sup>lt;sup>19</sup> https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/farm-fork\_en

course. We see similar trends nowadays. Parallelly, in the 1970s in Europe, civil society was getting organised to help people with disabilities feel part of society. This led to families and pedagogical movements coming together for social inclusion in schools and for guaranteeing the right to work. An overarching goal and vision of initiatives in Social agriculture is to achieve a barrier and stigma-free society and promote a conceptual shift from a medical care model to a social care model, where the passion and interest of people are effectively aligned with their needs for more meaningful and fulfilling life regardless of their physical and mental challenges, age, gender or economic status.

When it comes to societal acceptance of care farms as meaningful players in the economy, prejudice often remains. Whether an initiative is economically self-sustained or receives continuous support from public funds, Social agriculture can be economically beneficial for society at large. First, direct costs decrease when people with disabilities and special needs are active in a farm, rather than being placed in care centres with continuous need for medicines and professional support. Second, care farms also create other positive externalities such as more meaningful social bonds, cultural heritage and quality food production – in other words, there is a social return on investment – a term explored and explained by the research group involved in Orti E.T.I.C.I. Not everyone recognises these values and may approach social farming as an external cost. Yet, awareness about the important role that care farms can play in society needs a more systematic approach, one that can start by monitoring and evaluating the outcomes and impacts of pilot and established projects, and then by approaching policymakers with recommendations from practical examples.

#### **Collaborative arrangements**

The organisational structure of farms engaged in Social agriculture varies widely across Europe. Enterprises range from small-scale family farms, practicing extensive agriculture, and undertaking Social agriculture as a diversification opportunity, to more intensive enterprises operating commercial farm activities producing crops or animal breeding. We also see examples of institutional care farms in which the farm is part of a health or social care institution, where health care professionals are on the payroll of that organisation. In addition, there are many examples of so called social agricultural enterprises in which the agricultural activities and land is owned and managed by a group of social entrepreneurs or in some cases local community organisations.

Social agriculture activities and related business models can differ based on the context and institutional welfare models 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 offering care and extension support to diverse private participants (the Dutch model), or as a social inclusion model where responsibility lays with the public authorities (Italian model) (Di Iacovo and O'Connor, 2009).

In Figure 7, we present the diverse models that we observe for collaborative arrangements in Social agriculture. In this sector, collaborative efforts are at the core of the initiatives, and can thus be taken as synonymous to the organisational structure of the initiatives as well. Figure 7 demonstrates the variety of individual farm level arrangements on the left and network initiatives on the right.



Courtesy HTH

Figure 7. Social agriculture case study collaborative arrangements. (1), (2) and (4) are based on the information shared by the case studies. 3) L'Olivera, (5) Green Care Austria and The Federation of Care Farmers in the Netherlands, (6) Orti E.T.I.C.I., (7) Social Farming Ireland. Farm level arrangements are on the left, network level arrangements are on the right



#### **Collaborative learning**

Collaborative learning processes surrounding the initiatives in Social agriculture can be institutionalised or can occur on an 'ad-hoc' voluntary basis. Providing space for peer learning, capacity building, training of farmers in work and safety regulations and the obliged risk inventory and evaluation on their farm, are important mandates and areas of activities for some initiatives that we have reviewed such as the Federation of Care Farmers the Netherlands, Social Farming Ireland, and the Green Care Austria.

Some of initiatives have also emerged as the result of knowledge sharing and co-design by people coming from different disciplines and having different resources. For example, Orti E.T.I.C.I. identifies itself as a collaboration platform for different stakeholders to integrate their skills for promoting social integration through food production.

Each partner brought their own skill to the group: the social cooperative took charge of work placements and social therapy as well as keeping relationships with the social services agency; the University granted access to their property, provided machinery and technical support, and conducted research, while BioColombini supported cultivation of the land and marketing strategy (Personal Communication, Francesco di Iacovo, 6 November 2020).

Some initiatives develop long term collaboration with research institutes and universities. This helps them to collect and promote scientific evidence on Social agriculture. For example, the Federation of Care Farmers the Netherlands closely collaborates with the University of Wageningen in the Netherland, Social Farming Ireland with the University College Dublin (UCD) and Orti E.T.I.C.I. with the University of Pisa in Italy for conducting research, gathering data and implementing research results. Some initiatives such as Green Care Austria facilitate institutional learning, by connecting the world of health and social care institutions with the field of agriculture and forestry. They bring actors from different fields together to have a dialogue and to implement solutions based on their respective needs. Peer learning can also happen at an individual farm level, e.g., among participants of a community farm or between a farmer (who is usually responsible for farming practices) and his wife (who is usually responsible for the organisation of care services) in family farms. Initiatives such as L'Olivera focus on promoting collective leadership where participants take an active role in decision-making and in deciding the future of the initiative, in learning and gaining new skills on the way.

#### **Champions and frontrunners**

As the initiatives in this sector have developed through collective efforts and farmer movements from the very beginning, in most of the cases it is hard to assign the idea to a single person and identify the champions who joined in later to significantly affect the development of the innovative idea or supported the project from a distance. However, when considering the individual stories of the initiatives, some trends emerge. The first is the importance of gaining meaningful partners who stay even after public funding is finished and helped to re-define the project idea. For example, the Leitrim Development Co. joined Social Farming Ireland for the INTERREG Social Farming across Borders (SOFAB) Project in 2011-2014, and has since continued to be part of the group. The second relates to new leadership that joins the project after a certain period of development and gives the project renewed support to evolve and consolidate. In the case of L'Olivera, President Ahumada has led L'Olivera for the last 25 years. Also, academics and universities help them gain more validity and access to networks provide valuable leadership. For example, "Enrico Avanzi" Agro-Environmental Research Center - CiRAA of Pisa University joined the Orti E.T.I.C.I initiative by investing in horticulture and progressively taking over production management. They are also currently working on a training accreditation system. In different countries, support from the Ministries of Agriculture and Social Care and Healthcare shows buy-in of the idea by individual decision-makers who then help promote it, gain access to EU funds and institutionalise it. In some cases (e.g. in Austria), mayors in remote areas have become the advocates for care farming as it helps them address several challenges such as unemployment, outmigration of young people and aging population characteristics to these rural regions.

#### Resources (natural, human, social, infrastructure, financial)

At the farm level, human resources require knowledge and skills related to farming on the one hand, and care farming, social work, social care, psychology on the other. Competences and interpersonal skills include kindness, empathy, ability to work at people's pace and level of understanding, flexibility, adaptability and willingness to change. Larger initiatives that connect individual farms require skills in fundraising, project management and marketing. People who are multi skilled but are able to work with different organisations and with a wide range of people are especially valued.

When it comes to financial resources and their sources, network organisations are not for profit and receive almost all their funding from national funds or EU funds such as those from the Rural Development Programme. They can also have sponsoring partners and membership fees that cover some of the essential costs. At the individual community, family or private small farm level, income for care farming activities can come from fees paid by participants, from government budgets through Social Care centres that "rent" the farm infrastructure or from the services of the farm. Funding is also raised through small investors who receive their return on investment in the form of agricultural products or financial return. Farms that focus on quality food production and economic sustainability, receive income also through the sale of their products. Infrastructural capital in the farm settings but also accessibility of the buildings and road connections, often rely on funding measures from the Rural Development Programme.

There are differences in the way health care and rural development are financed in different EU countries and these differences impact on the way in which social farming is supported and financed. For instance, in the Netherlands, social farmers that offer day-based activities to people with learning difficulties are paid by municipalities from the general health care budget. In Belgium, farmers who offer the same services are paid by the Ministry of Agriculture. In Italy, where social farms are often in the form of social enterprises, it is not the farmers who are paid but the participants that work on the farm. In Germany, most of the social farms are health care institutions and for this reason, payment comes from health care budgets. In Ireland, a National Social Farming Office, funded by the Agriculture Ministry, facilitates commissioning arrangements between social/health care providers and farmers as well as providing training and support.

As collective initiatives, innovative cases in Social agriculture very much depend on society and community's social capital as a vital source. The reviewed initiatives listed important aspects leading to the success of the initiatives:

- a) the high reputational power of the involved partners, their commitment and shared vision;
- b) the ability to find a common language for dialogue;

c) trust and cooperation;

d) a strong desire to contribute to the community and the common good;

e) a belief that the economy is built on cooperation, not competition and that one needs their neighbour to prosper and to create a land brand so that the land is known for producing high value products.

#### 5.3.3 The innovation system in Urban green care in Europe and Americas

The following sections present the discussion on the innovation system in Urban green care in Europe and the Americas by analysing the case studies presented in Table 4. The fact sheets on each case study present more detailed information about the initiatives and their ideas.

Table 4. Selected	case studies	in Urban	green care
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Name	Description	Country	Sector	Stage of development
<u>Boscoincittà</u>	Boscoincittà is developing and renewing a network of green spaces in the Municipality of Milan to give its citizens back the contact and health benefits associated with nature.	Italy	Voluntary	Project
<u>Park Rx</u> <u>America</u>	Park Rx America, has developed an online facilitation and information hub to educate and train a diverse group of health care professionals and practitioners to incorporate nature as a therapeutic intervention.	USA	Voluntary	Legally incorporated in 2017 as a charitable 501(c)(3) non-profit NGO
<u>Ciudad</u> Emergente	Ciudad Emergente is building more sustainable cities collectively, through its lab of tools and tactics. It achieves this through the management of information platforms and the creation of "high impact" participatory projects.	Chile	Private	Legally registered organisation
<u>Green Rehab</u>	Green Rehab (the English translation for Gröna Rehab) offers rehabilitation services to burnt-out public employees in a natural setting.	Sweden	Public	A permanent part of the Botanical Garden in Gothenburg, Sweden
<u>Green Exercise</u> <u>Partnership</u> ( <u>GEP)</u>	The 'Green Exercise Partnership' (GEP) came together as a result of the growing evidence of public health benefits from engaging with the natural environment, and recognition of the need to improve links between the health and environment sectors to deliver sustainable health outcomes.	Scotland (UK)	Public	Project

#### Ecosystems and spaces (both natural and built infrastructure)

Green spaces in urban setting have been gaining increased attention above all given the demographic megatrends and global population growth mainly in cities, and more recently because of restriction to access of green spaces during strictly imposed lockdowns as a measure to reduce the spread of the global pandemic caused by Coronavirus disease (COVID-19). In the EU, specific policies and funding mechanisms (discussed in later sections) that are more and more specific to these growing megatrends confirm that these spaces are viewed as important naturebased solutions for climate resilience, biodiversity conservation, social cohesion and human well-being. Most of the assessed initiatives in this sector put emphasis on "near nature" that is close to where individuals live, work, shop, or go to school and include , for example, local parks or community gardens. All of the initiatives assessed have incorporated a diverse range of ecosystems into their core ideas. In addition, the green spaces and their interaction with blue, brown spaces and grey infrastructure in urban areas make up the semi-natural environments for these initiatives. Indeed, given their often publicly owned locations and public administration/jurisdiction, these spaces only exist in specific urban zones, where specific activities can take place often through a formal request or application for the use of that space.

Within urban contexts, green spaces usually require some level of active management. Initiatives in the Urban green care sector utilise and enhance ecosystems and their services to deliver services such as the provision of clean air, reduction of PM levels, reduction of heat island effects, regulation of microclimates and increase in local biodiversity.

The design of green spaces and their impact on human well-being and social interactions is a field of study that is being developed further through its applications in cities. Designing parks, community gardens, or orchards appropriate for providing shelter and shield to reduce heat, space for walking and cycling, encouraging people to have more active and healthy lifestyles, eating healthy and locally grown food, being part of social interactions in more natural environments, recovering in peaceful green spaces, or escaping clinical environments are important elements to consider.

Urban and peri-urban green spaces provide numerous human health benefits through different pathways, including regulating and cultural ecosystem services (MEA 2005; van den Bosch and Sang, 2017). Urban trees and other vegetation cool the environment through shade and evapotranspiration, which reduce the impact of the urban heat island and thereby contribute to lower prevalence of heat related morbidity and mortality. Urban vegetation may also improve air quality by reducing the impact of air pollutants, which improves respiratory health and reduces mortality. Open areas in cities, such as parks, gardens, playgrounds and cemeteries, are spaces that improve infiltration during extreme precipitation events providing water regulating functions. When it comes cultural ecosystem services, they include "environmental settings, locations or situations that give rise to changes in the physical or mental states of people, where the character of those settings is fundamentally dependent on living processes; they can involve individual species, habitats and whole ecosystems," can be semi-natural as well as natural settings and are enabled by the interaction of people and living and non-living systems both directly and indirectly (Haines-Young and Potschin, 2018, p.10). As a result, cultural ecosystem services provide opportunities for physical activities, social interactions, and stress relief in urban and peri-urban green spaces.

#### Beneficiaries and their needs

Initiatives in Urban green care generally cater to the needs of the *general population* (mostly urban) and engage in physical and mental health and well-being promotion and disease prevention. Some of the initiatives assessed respond to the needs of more specific target groups. Green Exercise Partnership in Scotland, for example, aims to increase the availability of green spaces around hospitals and care centres and considers the hospital personnel across the country (up to 156,000) and their patients as the prime beneficiaries of the NHS Greenspace project. In addition, green spaces also benefit visitors to hospitals and their facilities, locals and the surrounding community, that derive indirect benefits from availability of green spaces in the neighbourhood. Green Rehab in Sweden has a similar target: employees from the country council, many from the health care sector (most on sick leave due to burnout and occupational stress), are major target groups for organising stress relief and rehabilitation activities.

Park RX America also views healthcare professionals as an important target group of their activities. By providing a facilitation and information platform for green prescriptions and helping to integrate it into mainstream healthcare practices, the initiative also aims to create a more favourable working environment for healthcare providers. In addition, patients and the wider public, nature therapists, park authorities and public land managers and researchers are also considered important groups benefiting from the initiative. It has a wider focus on promotion of mental, physical, and social health benefits of activities in nature leading to wide-spread acknowledgement of the deficit of access and interaction with nature as a valid condition for feeling unwell.

Initiatives such Ciudad Emergente in Santiago, Chile and Boscoincittà in Milan, Italy aim at changing the dynamics of nature-society interactions in their respective cities and help communities reimagine their relationship with nature in highly urbanised centres such as Santiago and Milan. Thus, their target groups are wider. Ciudad Emergente aims to give land back to the citizens by using tactical urbanism<sup>20</sup>, strengthening social cohesion and interpersonal trust, promoting citizen participation, mitigating climate change, planning for sustainable mobility (*e.g.* cycling), recovering and adapting of public spaces as well as promoting local development. Boscoincittà is developing and renewing a network of green spaces in the Municipality of Milan to give its citizens the contact and health benefits associated with nature and empowering them through the process. It also targets specific groups such as scout groups, physically challenged citizens, families, schools and volunteer workers. Promoting citizen participation and engagement is also a key process for Boscoincitta.

<sup>&</sup>lt;sup>20</sup> Initiated about a decade ago by the so-called Next Generation of New Urbanism, led by the Street Plans Collaborative, tactical urbanism uses short-term actions to leverage long-term changes. Tactical urbanism offers an innovative and inclusive method to integrate local communities into the transformation of streetscapes and the revitalisation of public spaces.

Read more here: https://www.urbanet.info/equitable-public-spaces-in-latin-america-a-how-to/

#### Institutions and norms (formal and informal)

The norms and institutions that can be considered important for the initiatives in this sector are related to technical topics such as urban mobility, safety, building, road and green space management and maintenance at the city or municipality level. The "rules of the game" regarding citizen engagement, public participation, democratic arrangements, labour rights and access to nature rights are also important. In Scotland and Sweden there are so called "Right to access legislation", which prohibit charging for access to the green spaces outdoors. Besides, the healthcare professionals who use the services provided by innovative initiatives such as the platform offered by Park RX are obliged to follow the rules protecting the health information privacy of their patients. The themes of air pollution levels, avoiding harm to nature or illicit cuttings of trees, waste disposal, ecological gardening, are also important for understanding the complex net of norms and institutions surrounding these initiatives.

#### **Policy context**

The policy context for Urban green care is also multifaceted and cuts through health care, public health, research, park management, urban forestry, landscape management, recreation, education, environmental justice, sustainable mobility, city maintenance and other sectors. The most relevant policy instruments for the initiatives in this sector that are listed below mostly focus on creating funding opportunities, raising awareness about nature-based solutions in urban context, and supporting innovation processes.

**1.** UN Sustainable Development Goals in general, SDG 3 - "Good Health and Well-being", SDG 9- "Industry, Innovation and Infrastructure" and SDG 11 "Sustainable cities and communities" provide necessary direction and framework for relevant policies;

**2.** "One Health" concept proposed by WHO (2017b) as "an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes";

**3.** The EU research and innovation policy on nature-based solutions<sup>21</sup> and its programmes, projects and funding mechanisms. The ambition of the policy is "to position the EU as leader in innovating with nature to achieve more sustainable and resilient societies" (EC, 2021). The funding mechanisms for projects within this policy are Horizon 2020/Europe, Life+ Climate Action, COST Action, European Structural and Investment Funds.

**4.** Horizon 2020 is the biggest EU Research and Innovation programme and it has funded projects on nature-based solutions (NBS) and re-naturing cities such as NATURVATION, Nature4Cities, GrowGreen, OPPLA, GoGreenRoutes, Connecting Nature and the most recent Clever Cities project, it has been replaced by Horizon Europe where there is an even stronger focus on urban resilience.

**5.** The EU has also promoted the topic through for European Green Capital Award<sup>22</sup> that recognises local efforts in cities to improve the environment and the quality of life and the Covenant of Mayors<sup>23</sup> that brings together local governments committed to implementing EU climate and energy objectives to achieve more sustainable and resilient cities.

**6.** The EU Green Deal, and its related key initiatives such as a new EU Biodiversity Strategy for 2030 and EU Adaptation Strategy are new policy instruments that will oversee developments in this direction for the next decade. The EU Biodiversity Strategy for 2030 includes a commitment that all European cities (of at least 200,000 inhabitants) develop Urban Greening Plans by 2030 by employing biodiverse urban forests, parks and gardens, urban farms, green roofs, green walls, and tree-lined streets. The EU Greening Platform<sup>24</sup> new project will help to broaden expertise among professionals in Europe on these topics.

#### **Governance arrangements**

Governance arrangements in Urban green care often see EU institutions, national governments and city councils define priority direction of the relevant health and infrastructure related policies and put mechanisms in place in order to administer and execute them. On the other hand, the trend on enhancing urban green and natural spaces and experimenting with nature-based solutions has also brought to the forefront democratic movements, citizen engagement, activated civil society and non-governmental organisations, academic circles, communities and cooperatives to actively participate in finding solutions to pressing challenges in neighbourhoods and cities. By focusing on "giving land back to the people" some initiatives also re-define the governance arrangements through empowering ordinary citizens and their associations and unions, giving them tools to become protagonists of their cities' future and promoting their stewardship of public lands. This form of distributed governance and empowerment can also be described as a process whereby local governments, municipality and city councils have gained renewed mandate and power to plan, experiment and act on their individual strategies for making cities more resilient and sustainable.

<sup>&</sup>lt;sup>21</sup> https://ec.europa.eu/info/research-and-innovation/research-area/environment/nature-based-solutions\_en

For the initiatives that focus on integrating the use of nature in public health provision, different arrangements of healthcare systems in a given country can either bring benefits or challenges. In Scotland and Italy, for example, the healthcare system is predominantly public and could hypothetically help with the uptake of the innovative ideas and their strategic and coordinated application, through strong will by public authorities or champions in important decision-making bodies. In the US where healthcare is predominantly private and based on private health insurance and premiums, the uptake and spread of ideas such as use of green prescriptions are mostly left to individual healthcare practitioners and doctors. Convincing private healthcare and insurance providers both in Europe and overseas to buy into benefits of nature can be done by demonstrating savings brought from the approach. In all cases, more research needs to be done in this area to show the financial benefits to private insurance, and even public health sectors.

#### Public discourses and vision

Most of the initiatives in this sector aim at embedding and mainstreaming the use of nature in health care. Currently, the majority of healthcare professionals are either unaware or view it as 'nice-to-have' instead of a 'must-have'. Green Exercise Partnership for example, aims in the long-term to make it part of the national healthcare policy, rather than focusing only on increasing green cover around individual hospitals. The idea is to include as many hospitals across the country as possible, demonstrating the positive impacts of pilot projects with strong scientific evidence, expanding to other territories, and finding strong support from policy makers and healthcare professionals on the way. Despite the major differences in the national healthcare sectors in the USA and the UK (predominantly private *vs.* public) this is a vision similar to that of Park RX - to mainstream green prescriptions. Increasing awareness, and changing attitude and public discourse for giving unused space to organisations that can manage lands (*i.e.* non-profits) and connect across different sectors and different institutions is important over the long-term.

The COVID-19 pandemic has increasingly highlighted the importance of forests for public health. A study shows that visitor numbers in urban green spaces and forests have increased and novel user groups have visited the forest after countries around the globe implemented lockdowns in early 2020 (Derks, Giessen, Winkel, 2020). *Nature deficit and green prescriptions* are also slowly becoming mainstream in public discourse exacerbated by strictly imposed lock-downs in urban spaces. The current context with global pandemics has also brought to the forefront long standing issues such as *unequal access to nature* as the main contributor to mental health problems within poor neighbourhoods or highly urbanised areas. This helps policy-makers focus on benefits provided by green spaces and urban forests for addressing these societal challenges.

#### **Collaborative arrangements**

The initiatives in this thematic sector also rely on strategic networks and partnerships, through contractual obligations or more informally (Figure 8). Sole entrepreneurs rely on networks through accelerator programs, investors, clientele, and engaged citizens to promote their innovative ideas (1). Some initiatives have already developed into consolidated partnerships and platforms that include partners with strategic, long-term investments and involvement (2 and 3). Others can be considered project-based partnerships at different stages of development, that gather around a plethora of partners and stakeholders (4 and 5). Figure 8 helps to capture the diversity in collaborative arrangements developed by initiatives in Urban green care.

<sup>&</sup>lt;sup>22</sup> https://ec.europa.eu/environment/europeangreencapital/

<sup>23</sup> https://www.covenantofmayors.eu/

<sup>&</sup>lt;sup>24</sup> https://europea.org/new-projet-urban-greening/

Figure 8. Urban green care case study collaborative arrangements



#### **Collaborative learning**

By bringing together experts and volunteers in forestry, botany, horticulture, architecture, mental and physical healthcare, zoology and accounting, Boscoincittà contributes to collaborative and participatory learning, where everyone brings their own competence and expertise and helps to co-create and co-design its projects and services. In addition, Boscoincittà through urban green space and forest management contributes to learning processes by providing green spaces suitable for school classes, group visits, extracurricular activities such as naturalistic aspects, first aid and outdoor teaching. Ciudad Emergente carries out open calls to invite and motivate citizen participation in design and implementation stages of their projects. In both cases, through citizen participation methodologies, reflection is promoted, and capacities are provided to people so that eventually they can replicate or scale the experience independently. It also offers specific trainings on tactical urbanism, where its knowledge is transferred. Park RX contributes to the capacity building process of medical professionals by providing a platform to learn from, apply, experiment with green prescriptions and to connect with peer practitioners.

Green Rehab in Sweden teaches gardening skills to the participants as part of their therapy and empowerment – a skill that participants can use in the future also for their own health benefits. By bridging the forestry and healthcare sectors, Green Exercise Partnership in Scotland contributes to knowledge transfer between sectors and co-creation of strategies and projects by using state-of-the-art knowledge and evidence from ecology, forestry, climate science, behavioural science, psychology and public health.

#### **Champions and frontrunners**

Green Exercise Partnership found its champions among decision-makers in the public administration of Scottish Forestry, NHS Health Scotland, NHS National Services Scotland and Scottish Natural Heritage, who believed in the idea and contributed to the development of the partnership. Despite changes in political affiliation, the Municipality of Milan and its grant aid has helped Boscoincittà offer its services to citizens free of charge. In the case of Green Rehab, the Swedish University of Agricultural Sciences, the country council and the Botanical garden Gothenburg were among the activators supporting the idea of the urban rehabilitation garden.

For Green Exercise Partnership, champions are also the healthcare professionals themselves – senior health care managers who take the topic seriously and create space for the implementation of innovative activities. In each facility, the so-called Green Care for Health officers engage with staff, patients and the community to facilitate the uptake of the approach. Park RX convened people with expertise and competence in different fields and authority to its Advisory Board, to become the advocates of the innovative idea, help to provide scientific evidence and spread the word through their own professional circles.

Startup accelerator programmes and incubators, such as Startup Chile and New York Designs for Ciudad Emergente, are widely recognised and accepted as being catalysts for innovation and support to nascent ventures, also in their access to the initial grants and developing the project idea into a viable business model.

#### Resources (natural, human, social, infrastructure, financial)

Human resources and their diverse skills either as volunteers or paid employees are highly rated by initiatives in this sector. The skills and competences valued by the initiatives are background in psychiatric care, tactical urban planning, citizen participation, architecture, and ability to conduct research to verify hypotheses about the therapeutic health benefits of nature exposure (*e.g.* what "doses" of nature are most beneficial) and to expand practical knowledge.

Professional networks with public and private stakeholders are most valued, as are partnerships with park and land managers to collect and verify information on park assets, and with public health agencies, hospitals, and clinics to promote the ideas in their jurisdictions. Recognition, endorsement, and support from the medical community (including health care delivery systems and medical/public health societies) are also needed to continue to grow the initiatives.

Financial resources are particularly important also, as initiatives in this sector tended to find it more difficult to fundraise or sustain their models economically. Public funds comprise most of the financial capital invested in Urban green care initiatives in Europe. However, given the stated difficulty in accessing funds for most of these initiatives some of them have turned to fundraising activities from multiple sources, including charities, calls for tenders, and new and adapted services for payment. In the US and Chile, access to public funding is much more challenging. As initiatives in this sector need to consider built-up environments or grey infrastructure along with the green ones, infrastructural capital in terms of buildings, roads, piazzas also become important design elements. This also includes the application of available technologies for nature-based solutions or for developing them further.

Finally, initiatives assessed in Urban green care in most cases have models that are dependent on the natural resources of the designated natural and green space areas that they incorporate into their models. This was particularly the case for Boscoincitta, Ciudad Emergente and Green Rehab. Given the delicate and predominantly public administration and institution jurisdiction that their natural and green spaces are under, continued access and use of these areas is fundamental to their sustainability.

#### 5.3.4 The innovation system in Green care tourism in Europe

The following sections present the discussion on the innovation system in Green care tourism in Europe by analysing the case studies presented in Table 5. The fact sheets on each case study present more detailed information about the initiatives and their innovative ideas.

Table 5 Selected case studies in Green care tourism

Name	Description	Country	Sector	Stage of development
<u>Sano Touring</u>	Sano Touring is a Romanian tour-operator, specialised in inbound tourism and promoting accessible tourism for all by offering opportunities to discover Romania.	Romania	Private	Incorporated
<u>Go Jauntly</u>	Go Jauntly is a free walking app for everyday outdoor adventures that allows you discover walks and connect with nature in your immediate surrounding.	UK	Private	Incorporated
<u>Hohe Tauern</u> <u>Health</u> <u>Association</u>	Hohe Tauern Health Association offers health packages for people suffering from allergy and asthma using natural aerosol inhalation therapy at the local Krimml Waterfall.	Austria	Public	Incorporated
<u>Miramonti</u> Boutique Hotel	Miramonti hotel is located in front of a majestic mountain scenery, where nature is really at the centre of wellbeing; it is the right place to offer the possibility of forest bathing to regain balance and energy.	Italy	Private	Incorporated
<u>Waldness</u>	WALDNESS® is a trademark meaning retreat, relaxation and recharging your batteries. WALDNESS® enables a holiday with specially developed WALDNESS® experiences and under the guidance of coaches.	Austria	Public- private	Prototype and incorporated

#### Ecosystems and spaces (both natural and built infrastructure)

Initiatives in Green care tourism are diverse in their focus and use the natural environment for health and well-being benefits of nature differently. In Green care tourism, natural and semi-natural areas are well suited to the creation of tourism products that aim at enhancing health and well-being through self-organised and organised services and activities. These activities connect visitors to nature, with the aim of enhancing health and well-being, either by providing healthcare services in natural settings, or by offering tourism experiences and products based on the healing capacity of nature.

Access to natural ecosystems such as forests and other green spaces is a relevant topic for initiatives to develop their business idea. For example, the case study Waldness, located in Almtal, Austria, is surrounded by private forests and large landholdings. As the tourism product is built upon the beneficial effects of their uniquely developed interventions and access to the whole landscape in the area (lake, river, creeks, mountains, valley), they try to utilise open-access hiking tracks but also establish contracts with private owners to use those spaces. Miramonti Hotel in South Tyrol, Italy, has solved the access problem for the forest-bathing activities they offer to their guests by becoming owners of the pristine forest areas surrounding the hotel. Hohe Tauern Health in Krimml, Austria, offers evidence-based health tourism packages based on the healing effects of the waterfall in the area. Access to the waterfall and the surrounding green space is ensured by having local partners such as the major of the city and the local tourism board. Sano Touring also promotes accessible tourism in rural areas combining the elements of ecotourism and partnering with local providers. Go Jauntly on the other hand, invites users to travel deeper within their existing locations, and it focuses on nearby and everyday nature by making beneficiaries aware and mindful of the possibilities of nature trails within their neighbourhoods.

#### Beneficiaries and their needs

The reviewed case studies in Green care tourism cater to the needs of all three categories of beneficiaries discussed before: *general population* (as ordinary tourists and local residents), *"at-risk" groups* and *people with disabilities*. Go Jauntly provides services to the general public for everyday outdoor adventures. Beneficiaries are both individuals and organisations (B2C and B2B) and main app users are adults - Gen X and Millennials - with or without kids. Many initiatives in Europe offer forest bathing to tourists as well. Waldness brings together the elements of "Shinrin-Yoku" with Traditional European Medicine (TEM) to create their own unique approach to forest bathing linked to the local landscape. Their beneficiaries are tourists coming mainly from German speaking areas (Austria, Germany, Switzerland) and wanting to experience nature for relaxation and stress reduction purposes. Miramonti offers forest bathing to international guests of their hotel who are mostly adults, although some children, senior citizens and teenagers also participate.

Hohe Tauern Health offer a side-effect-free therapy option based on a unique inhalable aerosol produced by the Krimml Waterfalls to people with allergies and asthma. As non-communicable diseases like allergies and asthma are on the rise, new therapy options can counter overuse of medicines. Their main users are tourists coming from German speaking countries. 99% of beneficiaries of Sano Touring are also represented by foreign tourists, but with disabilities and special needs, willing to visit Romania. By advocating for "tourism for all" rights, they focus on providing accessible tourism for seniors and to travellers with special needs (*e.g.*, slow walkers, wheelchair users or blind and low-vision travellers). Green care tourism can thus lead to the creation of tourism products that are beneficial to other sectors of the locality as well as to the community.

#### Institutions and norms (formal and informal)

The most relevant norms and regulatory frameworks in Green care tourism refer to environmental protection and sustainability, ethical considerations regarding treatment with the beneficiaries, health and safety, tourism and insurance, tourism taxation, and SME support. Specific regulations for the sector can also be developed, ruling processes connected to license acquisition (*e.g.* tour operator) and legal insurance policy. The initiatives whose tourism offer depends on the use of nearby forests and national parks have to follow country or regional forest and park regulations and best management practices. If the tourism offer is based on the concepts of ecological, nature or sustainable tourism, the rules and norms (both formal and informal) for human behaviour based on those concepts apply to minimise the negative impact on nature during the activities. Standards on sustainable travel and tourism overseen by the Global Sustainable Tourism Council (GSTC) can serve as example for this kind of norms. The EU Ecolabel is a voluntary label promoting environmental excellence and it also covers tourist accommodation that complies with Ecolabel rules and can be used to identify environmentally friendly venues. Likewise, in local and community levels, the informal norms of interaction and doing business in a particular community and locality apply.

#### **Policy context**

At EU level, the policy context of Green care tourism is based on the interaction of policies and strategies from different sectors, dealing with regional development, rural development, environmental protection, cultural heritage, transport, employment, consumer rights, food quality and safety, health and social care, support to small and medium-sized enterprises (SMEs), etc. Despite the tourism sector representing the third largest economic activity in the EU after trade and construction, a vigorous tourism policy at EU level is still lacking and the sector is mostly regulated by national and regional policies. In 2010, the EU started a communication called "Europe, the world's No 1 tourist destination – a new political framework for tourism in Europe"<sup>25</sup> and called for public consultation. The communication identified several priorities for the tourism sector in Europe such as stimulating competitiveness in the European tourism sector, promoting the development of sustainable, responsible and high-quality tourism, consolidating the image and profile of Europe as a collection of sustainable and high-quality destinations, and maximising the potential of EU financial policies and instruments for developing tourism.

There have been several initiatives with the aim to bring the focus to the tourism industry in EU and revive the small businesses and sustainable destinations. The European destinations of excellence (EDEN)<sup>26</sup> aims at promoting sustainable tourism (the theme of the 9<sup>th</sup> edition in 2019 of EDEN was health and well-being tourism). The European Capitals of Culture<sup>27</sup> celebrates local cultures and destinations. The European Cycle Route Network (Eurovelo) aims to promote cycling tourism and sustainable transport. A guide on EU funding for the tourism sector (2014-2020) was published to facilitate access to funding through different EU programmes, such as those related to European Structural and Investment Funds (ESIF) (EC, 2016b). Based on the lessons learned from tourism related projects co-

<sup>&</sup>lt;sup>25</sup> https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52010DC0352

<sup>&</sup>lt;sup>26</sup> https://ec.europa.eu/growth/sectors/tourism/eden/about\_en

<sup>&</sup>lt;sup>27</sup> https://ec.europa.eu/programmes/creative-europe/actions/capitals-culture\_en

financed by ESIF during the 2012-2018, a new study by the EC suggests to consider a couple of new priorities in the next programming period (2021-2027):

(1) tourism related projects should support green and digital transition;

(2) the spill-over effects of tourism into other sectors should be considered in the generation of future projects; (3) the opportunities for transnational, interregional, and cross-border cooperation in the tourism sector should be maintained (Nigohosyan *et al.*, 2020).

Besides, general EU policies on passenger rights<sup>28</sup>, health and insurance, consumer protection, people with special and reduced mobility needs<sup>29</sup> are very relevant policy frames for innovative initiatives in Green care tourism. National and regional policies aimed at destination management, promotion, funding opportunities, insurance policies need to be considered more closely for initiatives in each country. For example, at EU level, European Health Insurance cards and other related policies, allow for mobility among different EU countries for health reasons. However, nature therapies and Forest-based care practices are not accounted for in all national insurance policies, *e.g.* German tourists visiting Hohe Tauern Health at Krimml waterfalls can claim some payments back from insurance companies, while the Austrian tourists cannot due to the differences in the systems (Personal Communication, Johanna Freidl, 26 November, 2021).

#### **Governance arrangements**

Within a given country, regional governments, regional tourism councils and Destination Management Organisations (DMO) are the most active players in deciding the tourism strategy of a region, connecting different stakeholders together and creating partnerships. For example, in Salzburg, Austria there is a big initiative to promote health tourism, Salzburgland. The Alpine Health Region combines eight health regions and businesses - from spa hotels to modern health centres. The aim is the promote the region as an important destination for nature therapies. South Tyrol region in Italy also started to actively promote forest bathing practices in the region with the aim of capturing the benefits from the growing market and consolidating its place as a destination for Forest-based care activities<sup>30</sup>. National, regional and local Tourism Boards are also very important actors in terms of governing taxation in tourism. For example, the Upper Austria Regional Tourist Board oversees 20 local tourist boards, while itself being regulated by the national board (Österreich Werbung). 10% of paid tourist tax stays with the Upper Austria Regional board while 90% is returned to local boards as public funds.

#### Public discourses and vision

As environmental awareness increases among the general public in Europe, so does the desire to travel responsibly and visit eco-friendly destinations. The share of nature travel, cycling, backpacking, camping, other outdoor and wilderness activities is also growing in tourism market in Europe. There is also increasing awareness about nature therapies and mindfulness activities in nature, thanks to small initiatives and projects that bring the topics to public discussion. Everyday lifestyles, characterised by increased exposure to urban infrastructure, noise and polluted air, occupational stress and fatigue, increased screen time for work and entertainment are leading to a search for quieter and remote places.

These trends and discourses create a positive ground for initiatives in Green care tourism to emerge and consolidate. For example, Go Jauntly emerged out of frustration for not having options to go for a walk after a workday. Miramonti capitalises on these trends and sentiments to offer a unique tourism product anchored in nature connectedness. Waldness has created a tourism product that fosters local development and economic growth and brings added value to the local area in a sustainable way. Sano Touring raised awareness about inclusion and accessibility within the country to promote Romania abroad as a sustainable and accessible tourism destination, and out of frustration due to the lack of national level policies.

#### Collaborative arrangements

Green care tourism initiatives can be described through their hybrid arrangements (Figure 9). Some initiatives were started by individuals or by a group of friends as a social business and have recently developed project-based partnerships with other actors (1 and 2). Some were born out of the collective design of a project idea either to create an association (4), or as an extension of a private business in collaboration with an NGO or public tourism board (3 and 5). Collaborative arrangements for these initiatives characterise their organisational structure. Some initiatives

<sup>&</sup>lt;sup>30</sup> https://www.suedtirol.info/storiesfromsouthtyrol/forest-bathing

are also strictly connected to a destination, its ecosystems and the unique health and well-being ecosystem services they provide, while others promote the concept and the innovative idea regardless of the destination. In any case, the collaborative arrangements with local governments and tourism boards/councils are considered important for the success of the initiatives.



Figure 9. Green care tourism case study collaborative arrangements

#### **Collaborative learning**

Collaborative learning processes in Green care tourism are mostly observed in terms of knowledge exchange and collaboration among research centres, and the initiatives themselves. For example, Go Jauntly collaborates with the team of psychologists and researchers on green prescriptions from the University of Derby and also with the public health team of the local district council. They also work with the Centre for Sustainable Healthcare in Oxford to understand how their services could help the patients of the centre. Hohe Tauern Health in Austria has worked with Paracelsus Private Medical University to create evidence-based health tourism products. Waldness has been collaborating with Curhaus Marienschwestern GmbH, a well-known centre for Traditional European Medicine (TEM), the University of Vienna and the Austrian Research Center for Forests (BFW) on different research projects.

Sano Touring has increased their knowledge about accessible tourism by participating in EU projects, and through training in the collaborative learning platform – European Network for Accessible Tourism. They also transfer it to the tourist venues and hotels to increase the availability of the hotels suitable for accessible tourism, and educate owners to reflect on how to be more inclusive in their offers. Miramonti, on the other hand, promotes and increases the knowledge on Forest-based care practices by offering forest bathing to its guests.

#### **Champions and frontrunners**

Initiatives in Green care tourism have found their support through different platforms such as CSO, investors, accelerator hubs, individual supports and early partnerships. Besides the network and educational support through ENAT, Sano Touring and its founders found support from staff attracted by the vision of making Romania an accessible tourism destination. Continuous knowledge exchange and feedback from the founder was important to build on the learned lessons and to assure continuity of Sano Touring.

Go Jauntly received a beginner support grant from Geovation (a big mapping company in the UK) and a chance to participate in their accelerator program. They invested the grant to make a prototype which led to further product developments and visibility. They also won a competition called VESTD.com through which they managed to attract talents by offering them 50% in micro equity. The attracted team members helped to develop the idea and incorporate the company.

The owners of the Miramonti hotel found initial support for their idea of promoting Forest-based care practices by partnering with forest bathing guides in the South Tyrol, who helped to offer a quality tourism product to the guests. Waldness initially partnered with researchers from BFW who carried out field research in the area and the Behavioural Research - Core Facility Konrad Lorenz. Hohe Tauern Health received important support from touristic partners, represented by 9-10 local hotels in the Krimml region who joined in the scientific partners, took the ownership for the project idea and helped to create a new tourism product.

#### Resources (natural, human, social, infrastructure, financial)

Human resources with competences in marketing (incl. online), communications, press relations, fundraising, proposal writing are considered important by the initiatives in this sector. Multi-skilled people – those who help with research, evidence gathering, ensuring high quality delivery – and at the same time have an entrepreneurial mindset and understand the opportunities that tourism can bring to the area, are valued. Most initiatives are also engaged in continuous training of their staff on sustainability, the philosophy behind the initiatives, and tourism management. In terms of social capital, the initiatives rely on dedication, trust, interest in continuous learning, trusting the vision, intergenerational dialogue and common vision for an area, inclusive attitude and inclusion of disadvantaged people.

Infrastructural capital is important to initiatives such as Sano Touring to continue promotion of Romania as an accessible tourism destination. Also Hohe Tauern Health and Waldness rely on therapy spots and collective infrastructure outdoors that need constant attention and maintenance through different seasons. While these initiatives are geared at generating revenue to be financially sustainable, access to financial resources such as grants, EU funds through the Leader and INTERREG projects, tourist taxes and direct business earnings support investments in the innovation of these initiatives.

#### Courtesy Waldness



#### 5.4 Summary of the identified success factors and challenges

To represent the current performance of the Green Care Innovation System dimensions in Europe, we assess responses from the case studies when asked to list three main success factors and challenges (Appendices 2 and 3), we summarise and report the detailed quotes on success and challenge factors mentioned by the case studies by coding them according to system dimension. Appendix 2 shows the results of the count analysis for each system dimension - it shows how often elements of any dimension were named respectively as a success factor or as a challenge and helps to understand the areas where interventions are necessary for the promotion of Green Care. While Further analysis of the responses with follow up interviews of each case study would be needed to fully understand why these dimensions were considered success and challenge factors for the initiative.

The dimension on Resources received the highest count (15) but not all types of resources have contributed equally to the success of the case studies. Social capital in terms of collaborative attitudes, trust, collective action; human capital in terms of dedicated people and their hard work; financial capital in terms of much needed initial public funding and investments by private funds or investors through accelerator programs are regarded as most important resource factors leading to success for almost all initiatives. Collaborative arrangements (in terms of formal and informal networks) and related collaborative learning (bringing together people with different backgrounds and mindsets to work on solutions from different perspectives) received high counts respectively (9 and 6 respectively). Likewise, Public discourses in terms of changing attitudes in public and among decision makers and public vision in terms of putting forward long-term visions and preparation of strategies for more sustainable, inclusive communities and green cities also helped with success (8). Responding and adapting to *beneficiary needs* on time with quality services is also mentioned repeatedly as a success factor (7). On the other hand, Institutions and norms, Policy context and Governance arrangements related factors were mentioned least as success factors, which confirms the idea that these dimensions need to be improved to be recognised as important by Green Care initiatives.

Figure 10. Green Care Innovation System dimensions enabling success or creating challenges for Green4C case studies



The challenges for Green Care initiatives are reported in Appendix 3. Policy context received the highest count (16) due to constantly changing priorities in public funding depending on the political affiliation of the elected politicians, events and emergencies (e.g. Covid-19 pandemic); outdated insurance policies; and fragmented policy making processes. Public discourses and vision (11) related factors also hamper innovation in Green Care due to the lack of public awareness on, and recognition of, the a) importance of mental and social well-being in public health; b) the social and economic value of a sector such as Social agriculture; c) the role of urban green spaces for addressing social needs and wellbeing in cities, and in general, on d) the role of nature in addressing societal and environmental challenges. Lack of recognition can lead to sudden budget cuts at the

onset of more pressing issues. While in many countries the pandemic has changed attitudes to nature and in some cases spurred outmigration to natural settingssuburban and rural areas, it is too early to describe this as a long-lasting trend. Institutions and norms (9) in terms of diverse tax regulations and insurance systems, restrictive rules of public access to green spaces, lack of standards to benchmark different Green Care practices are mentioned as important challenges. Climate change, changes in ecosystem composition and flow of ecosystem services received the next highest count (8). Challenges for Collaborative learning (6) in terms of increasing competition, lack of interest from healthcare professionals to integrate the green care practices and consequently insufficient evidence, impact assessment and monitoring to convince policy makers.

### 6 EMERGING ISSUES IN GREEN CARE

This section presents the discussion that builds upon different theoretical parts of the report with the purpose of linking it to the results obtained from the data analysis. We provide a focused discussion on five topics that emerged through the analysis and that lead to the recommendations in Chapter 7.

#### 6.1 Health and well-being as a focus for policy and management of ecosystem services

Scientific and grey literature agrees on ecosystem services being essential for human existence and consider health and well-being as outcomes of a synergistic flow of these services (see Section 3.1). This analysis of innovation in Green Care initiatives, shows that the healing potential of nature and ecosystems could be harnessed more systematically, be used for creating opportunities and processing into services (public or private) that address the needs of different types of beneficiaries. Although nature is being increasingly recognised as a costeffective and efficient solution for health and well-being challenges (among many other societal challenges), nowadays we are still a long way from wide recognition and communication of these benefits to beneficiaries and funding to support the providers.

First, despite the wide recognition of the contribution to health of experiences in natural settings, there is still a lack of integration or recommendation of such practices as disease prevention or management by health and social care practitioners (Oh *et al.*, 2017). In general terms treatment and clinical interventions have more attention and dedicated funding than holistic preventive ones. Secondly, general underfunding of mental health care means that it is difficult to experiment with naturebased interventions, even though they were used in the past (*i.e.*, hospital orchards for mental health patients) (Filipova, *et al.*, 2020). Third, the monetary value of health and well-being ES is "virtual", in that they refer to avoided costs instead of real income, and decision-makers find it difficult to assign funding bases on avoided costs. Finally, we need more research to understand the causal connections between specific management and health effects, or between different natural elements and health effects, a connection which hinders full integration into policy and practice (Doimo *et al.*, 2021).

As new Horizon Europe and other funds are becoming available on the topics such as nature therapy, increasing interest from researchers and greater focus by funding programmes (and their institutions) in 2021-2027 programming period, may help inform policy and regulations.

#### 6.2 Green Care as a new sector for entrepreneurship and innovative professions

Despite the complex conceptual and theoretical relationship between health, well-being, social inclusion and ecosystem services, as well as the lack of legal clarity on its practices in most European countries, we observe Green Care emerging as a new sector. Practises on the ground are leading to cross-fertilisation among established economic sectors and connect the ideas, activities, processes, employment opportunities, financial streams, actors, organisations (including businesses), their networks and governance. The analysed cases show a rich and diverse world where both for-profit and not-for-profit interact with the public sector in ways that support innovative business models and create positive impacts on health and well-being.

In addition, the growing number of people wishing to reconnect with nature (*e.g.* due to increased urbanisation and the 2020 pandemic induced lockdowns), increasing interest by the public sector and emphasis by city planners/municipalities on green spaces, and the emergence of new professions and occupations related to Green Care indicate a growing demand for green care services. Evident examples for Green Care-related occupations are forest bathing guides or instructors in ecotherapy, ecopsychology and coaching, that are sometimes different from nature guides or from employees in the wellness industry and sometimes represent a career development in response to market demand. These new occupations also translate into the emergence of new training needs, as identified in the 2020 Green4C Training Needs Assessment (Mammadova et al., 2020). Service providers and entrepreneurs in Green Care create synergies among the disciplines of medicine, forestry, education, and tourism and bring together skills and backgrounds from diverse disciplines, to "to speak the language" of many of them. So, while the innovative processes and activities in this sector remain fully recognised and reflected in public debates and policy documents, much is happening on the ground that will warrant increasing attention not only from research but also from a training and continuing education perspective.

#### 6.3 Innovation in Green Care

As an emerging sector, Green Care leads to different types of innovation. While we observe more than one element of technological, organisational/business, institutional and social innovation in most initiatives, the characteristics of innovation processes in Green Care necessitates the introduction of a new category of innovation, Nature-based Innovation. As discussed in detail in Section 4.1.1., the concept focuses on the ecological or intrinsic values of nature (Randrup *et al.*, 2020), which is a value on which all four sectors rely. The classification of innovation types presented below is purely theoretical as in practise, we observe the initiatives being agents of multiple innovations at the same time.

 Initiatives in Forest-based care involve the creation of new occupations and revenue streams while enhancing the access to forests for a wide variety of beneficiaries. The primary focus is on human-nature connectedness as part of nature-based innovation and, in most of the cases, their approach requires conservation and minimal interventions to nature. Forest-based care also supports the development of new business models (organisational innovation) and create new networks and arrangements (social innovation).

• Social agriculture is mostly focused on benefitting the most vulnerable and involves active management of ecosystems (in this case farmlands) or the creation of new ones (e.g. starting a new farm in abandoned land). Social agriculture is mostly characterised by the creation of new public-private relations (social innovation) but also relies on the creation of new business models (organisational innovation). Social agriculture relies on personal motivation and a deep interest for social and collective well-being which is reflected in a holistic and relational approach to nature (nature-based innovation).

 Innovation in Urban green care can be characterised by access to and local authority and citizen engagement in urban green spaces. It can also be characterised by technological innovations, able to open and redefine new markets and often involving active management of existing ecosystems or the design of a completely new one. Innovations in this sector tend towards naturebased solutions to environmental and societal challenges in urban and peri-urban areas. However, some of the initiatives that we reviewed also actively engage in social and nature-based innovation by creating spaces for reconfigured social interactions and new attitudes to nature.

• Green care tourism often develops products and services associated with Urban green care, Forest-based care and Social agriculture. Innovation in this sector is mostly social, nature-based, and marketing innovation. Green care tourism relies on new partnerships in the destination, minimal intervention and preservation of ecosystems (*i.e.*, accessible trails, access to areas known for their health and well-being benefits), as well as innovative marketing approaches.

It is worth mentioning that the description of innovation processes in each thematic sector is highly conditional upon the study of the 20 case studies and first testing of this framework, and a first attempt of analysing the case studies with the Green Care Innovation System Framework. Thus, it should be taken as a starting point for assessing sectors that are evolving and opening space for innovation.

#### 6.4 Green Care: from individual to social, economic and environmental impacts

One of the important characteristics of the initiatives in the four thematic sectors is given by their multifunctionality and the diversity of the impacts, starting from individual and leading to societal, environmental and economic impacts. Besides the positive contributions for health, well-being and social inclusion as primary objectives of the Green Care initiatives, they can also bring additional positive impacts. Table 6 presents the list of potential additional positive impacts brought by Green Care initiatives. Table 6. Expected impacts of Green4C project

#### Social

stress-reduced homes, communities and workplaces;

better gender representation (e.g., improving representation of women in the forestry sector by providing space for new professions of interest to women, or creating additional income sources in farms thanks to care services provided by the "farmer's wife");

changing societal attitudes towards people with disabilities or immigrants and reducing societal fragmentation;

active citizenship and democratic participation;

changed attitudes towards parks and forests in urban contexts- claiming back the public spaces and improving the sense of security and safety in a community;

addressing social inequality of access to green spaces – in urban contexts, better-managed green spaces can be concentrated in richer neighbourhoods, excluding others from the health and well-being benefits brought by nature;

#### Economic

decreased public health costs due to increased focus on preventive approaches;

food safety in urban areas and addressing the challenge of food deserts (i.e. an area characterised by high concentration of unhealthy and processed food options, as opposed to affordable, nutritious and fresh fruits and vegetables) in highly urbanised contexts;

#### Environmental

healthier green areas, with greater attention to allowing nature to "express" itself in urban contexts;

improving urban biodiversity by maintaining bird and insect-friendly green spaces;

more accessible forest and natural areas;

more sustainable tourism destinations, by changing the seasonality of tourism flows and creating a year-round demand for destination.

Green Care impacts can be measured using quantifiable and qualitative indicators. Positive impacts, as well as the recognition of potential negative impacts and trade-offs are important discussion points in the context of impacts of Green Care initiatives. First of all, even small initiatives can lead to positive impacts. Most of the initiatives analysed in this sector prefer staying small and keeping their organisational flexibility. However, even in small businesses, impacts can be large, thanks to the dissemination of ideas, and making intellectual properties open access (e.g. Forestmind) or the replication of similar initiatives in some other locations (e.g. Ciudad Emergente). Small initiatives can also bring positive impacts by changing the discourse and impacting policies. This can be done by creating space for dialogue, by inspiring others, and by creating critical mass to change the policy field. Thus, scaling in the case of Green Care initiatives is not necessarily understood as growing in size and annual turnover, but often follows the patterns described by Moore et al. (2015):

**a)** scaling up (vertical- impacting laws and policy and institutions);

b) scaling out (horizontal- impacting a greater number of people through replication and dissemination and increasing the number of people or communities impacted);
c) scaling deep (Impacting cultural roots, changing relationships, cultural values and beliefs, 'hearts and minds').

Secondly, understanding both positive and negative impacts and trade-offs is very important for the success of the initiatives in this sector. While being very certain about their positive impacts, most of the reviewed initiatives do not conduct systematic assessment of their impacts and lack monitoring tools and methodologies. This affects their lobbying power and confidence in communicating with the scientific sector and decision-makers. In most of the cases, the impact assessment and monitoring methods include so-called "soft-methods", *e.g.*, understanding the impact on awareness through the number of media coverage, organised events, number of participants, number of overnight stays, etc. (*e.g.*, NatureMinded, Sano Touring). Some distribute surveys to participants of the activities to understand satisfaction levels and aspects for improvement (*e.g.*, Forestmind, Ecowellness). Those that are clear about their expected impacts and have integrated rigorous impact assessment in their business models (*e.g.*, Hohe Tauern Health, GEP Scotland, Green Care Austria), show more visibility, continuity and economic sustainability.

Some of the challenges for estimating the impacts are:

• These initiatives aim to create positive social and sometimes environmental impact, and yet, methodologies for monitoring and evaluation are still applied on a case-bycase basis, and need to be developed to estimate different impacts on the ground (to the individual, as well as to society).

 It is not always easy to monitor and evaluate the impacts as initiatives do not often apply standardised approaches to their practices. While forest bathing may be a standardised service, social agriculture practices may prefer to address the needs of their clients or participants on an individual basis.

• Initiatives are sometimes too small to be able to allocate resources to monitoring.

• Evaluation of both positive and negative impacts can help to develop new solutions and integrate them into management and planning.

#### 6.5 Green Care initiatives as hybrid organisations

One way to conceptualise the development of Green Care initiatives from project to business is through the lens of hybrid organisations, characterised as organisations aiming to reduce or alleviate a particular social or environmental issue as their primary purpose (Holt and Littlewood, 2015), by combining qualities of both forprofit and not-for-profit: *Hybrid Organisation* is a loosely defined umbrella term bringing together all diversity in the field of entrepreneurship and including social enterprises as a subcategory (Doherty *et al.*, 2014). "By incorporating elements from multiple economic sectors into their business models and everyday operations, hybrids often exhibit qualities of both non-profit and forprofit enterprises" (CMR, 2015). Enterprise refers to an entity engaged in economic activity, irrespective of its legal form in which economic activity is defined as the sale of products or services at a given price, on a given market (EC, 2015a). Social enterprises are understood as those with double purpose, economic sustainability and creating social impact.

Based on the available literature, and on the typology of organisational forms that hybrid organisation can take (Ménard, 2004; Haigh *et al.*, 2015; Holt and Littlewood, 2015; CMR, 2015), the results of the analysis of the organisational structures and collaborative arrangements of the case studies<sup>31</sup> show that Green Care initiatives are hybrid in nature due to the following indicators:

a) Connecting profit-generation to a social and environmental mission: The initiatives analysed challenge the idea that the primary goal of a business is profit-making. They put the focus on societal and environmental goals and view profit-making as an important tool to achieve those goals. Those that identify themselves as for-profit limit profit distribution and reinvest a portion of their profit shares for social and environmental purposes (*e.g.*, L'Olivera, Forest Therapy Institute).

**b)** Lacking institutional and legal clarity – many of the initiatives lack clarity on their legal status and sometimes change from one to another depending on the opportunities that emerge (*e.g.*, Forestmind, NatureMinded). Indeed, the case studies reviewed for this report remained "fuzzy" about their legal registration status as the categories that precisely describe their status may be absent in some countries, or little known to most people. In the US, it is possible to register as a Benefit Corporation, a Benefit LLC, a Flexible Purpose Corporation, or a Low-Profit Limited Liability Company (L3C) (Haigh *et al.*, 2015a). Flexibility in the legal status (moving from profit to non-profit or vice-versa) might also allow the organisations to strategically apply to the funds intended for non-profit, but also capitalise on impact investments coming from the private sector (Haigh *et al.*, 2015a).

**c)** Operating across diverse economic sectors - The Green Care sector is not a well-defined and a publicly recognised sector, yet the initiatives connect different well-consolidated economic sectors through their activities and value proposition (*e.g.*, tourism and healthcare). Green Care initiatives can be considered to serve a growing market segment, called LOHAS (Lifestyles of Health and Sustainability)<sup>32</sup> and provide goods and services focused on health, the environment, social justice and sustainable living (CMR, 2015). For example, in Green care tourism, these include Go Jauntly and Sano Touring.

**d) Operating in niche markets** - Hybrid organisations usually emerge as a response to government and market failures to address certain challenges. In that sense, hybrid organisations share important characteristics associated with civil society organisations and NGOs. They emerge in places where the policies and markets leave gaps as the result of serving the needs of masses. Hybrid organisations in Green Care (for example, such as those operating in Social Agriculture) focus on neglected population segments (*e.g.* people with disabilities), overlooked aspects of sustainability (*e.g.* citizen engagement) and underserved areas of human health and well-being (*e.g.* mental health). The difference from pure CSO and NGO in this case, is the ability to harness the power of markets and create social value through capitalist "rules of the game".

e) Having diverse organisational structures and collaborative arrangements - Hybrid organisations in Green Care can emerge in many forms, including but not limited to: individual enterprises, spin-off businesses, cooperatives, associations, partnerships, alliances, federations or informal networks. The new forms can emerge also as a product of innovation in Green Care.

<sup>&</sup>lt;sup>31</sup> https://www.greenforcare.eu/case-studies/

<sup>&</sup>lt;sup>32</sup> The relationship between Green care sector and LOHAS is a topic for exploration in Market Outlooks of Green4C project.

### RECOMMENDATIONS

The following recommendations aim to centre policy on the role of ecosystem services for health, wellbeing and social inclusion. These recommendations are provided for different stakeholders such as policy makers, service providers, professionals, land managers, funders, supporters, researchers and scientists involved or interested in Green Care.

#### For policy makers:

## a) Institutional and legal clarity on the role and responsibilities of Green Care providers (both non-profit and for-profit) should be made.

Greater clarity should be sought to:

1) define the sector of Green Care and the duties and responsibilities of the involved actors;

2) understand the needs of these actors to secure their sustainability over time while addressing individual health, well-being and social inclusion, as well as larger societal, environmental and economic benefits;

3) address the legal registration status of new for-profit and non-profit enterprises so that fiscal advantages can be obtained.

# b) Health and well-being ecosystem services provided by nature should be supported through adequate funding, technical assistance and research programs, and their impacts should be evaluated and communicated.

Policy makers and large institutions such as the European Commission can:

1) ensure funding and investment opportunities for Green Care initiatives, through diverse means and based on the avoided costs of prevention;

2) support designated research and sharing of science-based results;

3) provide guidelines on the management of ecosystems for health and well-being (*e.g.*, accessibility, selection of species, spacing, protection of monumental trees and other single land values); and

4) create systems of indicators, monitoring and communication services, including those related to the economic assessment and accounts on the benefits and costs of Green Care activities.

# c) Structural funds such as those connected to the implementation of Community-Led Local Development can support Green Care initiatives and make them more easily accessible to wider cooperation groups of beneficiaries at local level. It must be clear that not all Green Care activities rely on market demand and can be financially sustainable through beneficiaries' payments alone.

This is evident in Austria, where Green Care was identified as a special component of the Rural Development Program and could be replicated in other regions and countries. Funding instruments could also be secured through innovative partnerships with private funders and investors, or through innovative instruments such as the health budgets, which can support access to funds over a longer-term basis. Health budgets make public funds available to alternative health care and social inclusion programmes, managed by organisations with new ideas and means. Policy makers can also support innovative payment mechanisms such as payments for ecosystem services.

## d) Policy makers should give more visibility to the health, well-being and social inclusion benefits provided by nature to achieve healthier, more inclusive and more resilient communities.

Disseminating and communicating the importance of these benefits to the public would help to make the multiple positive impacts of Green Care initiatives visible and open space for promoting diverse funding and financial mechanisms. Improving evidence on cost saving can help the public and private health and insurance sectors invest in Green Care.

# e) Policy and regulations should facilitate access to public as well as private resources (i.e., land, natural resources, infrastructures) recognising the role of managing green spaces and ecosystem services for health, well-being and social inclusion.

Access for Green Care activities should be provided in both public lands (*e.g.*, land managed by State Forest Enterprises, protected areas and parks) and in private lands. For this, the example of the "right of access" in Scandinavian countries can be followed. For example, allocating unused green spaces in cities for Green Care activities could represent a win-win solution for decision- makers and local level organisations involved in health, well-being and social inclusion practices.

#### f) Local governments should support the identification and management of green spaces in urban and periurban areas, with special attention of unused/abandoned and brownfield sites.

Green Care initiatives can be also understood as investments for meeting national and EU regulatory framework targets on biodiversity protection, climate change mitigation and adaptation and rural development. Local governments that invest in Green Care activities may also gain a competitive advantage in meeting those requirements. The co-benefits in health, well-being and social inclusion of Green Care activities can help in building more resilient communities in urban and peri-urban areas.

#### g) The involvement of the public sector in Green Care should aim to achieve impacts at larger scales.

Collaboration of local municipalities can:

1) drive new opportunities in sectors such as Urban green care (*i.e.*, access and infrastructure investments), Social agriculture (*i.e.*, health and social services, funding), Forest-based care (*i.e.*, health service, use of public lands) and Green care tourism (*i.e.*, management of green areas, infrastructure investments); 2) support ongoing research and evidence-gathering; and

3) help to distribute the positive impacts at a larger scale in a more systematic way.

# h) Collaborative arrangements and interdisciplinary learning among the Green Care service providers and the conventional health care sector should be stimulated for gathering evidence on the effectiveness of Green Care approaches.

Policy makers should aim to facilitate these processes by providing platforms for promoting knowledge transfer within and among initiatives, sharing good practice and evidence of impacts across initiatives, as well as enabling continuous experimentation, monitoring and evaluation of the results. These platforms should support greater networking opportunities at different levels and across sectors.

#### i) Social innovation and citizen participation in Green Care initiatives should be encouraged.

This ranges from access and active use of green spaces by citizens to direct involvement in green space management (*e.g.*, park and community garden management, trail maintenance), citizen science (*e.g.*, bird watching, recognition and reporting of invasive species), open-source nature trails or biodiversity and database development. Citizen engagement enhances good governance and empowers a wider target group and can also enable creative ways to monitor the impacts with new and inclusive approaches.





#### For funders and supporters:

## a) Innovation and entrepreneurship in Green Care should be facilitated and nurtured through knowledge hubs and innovation accelerator programmes.

In Green Care, champions are key, yet often innovators lack skills on how to develop business plans, gain broader skillsets and enlarge networks to build social capital. There is a need to create innovative environments and settings that support prototyping, development, implementation and evaluation of the proposed Green Care activities. Knowledge hubs, incubators and accelerator programmes focussing on fostering innovation and entrepreneurship capacity provide access to learning, grants and mentorship as well as opportunities for initial investments in Green Care initiatives.

## b) Civil society organisations, no-profit and charity initiatives can support the application of responsible or ethical finance and socially responsible investments.

Thanks to their unique perspective, civil society organisations can play a key role in ensuring that the provision of services by providers abides to the conditions of responsible or ethical finance and socially responsible investments, and that these tools can be applied to both no-profit and for-profit organisations. They can also ensure that their value creation is recognised for both their direct and indirect impacts.

#### c) Innovative funding mechanisms should be developed by private healthcare and insurance companies.

Besides public actors, private healthcare and insurance companies can promote the application of Green Care approaches by recommending them to their clients and actively collaborating with service providers and practitioners to develop innovative collaborative arrangements. Private healthcare and insurance providers can buy into and promote the benefits of nature by demonstrated savings brought from the approach (i.e., reduced health problems and insurance claims).

#### For research and academic community:

## a) The health, well-being and social inclusion-related impacts of Green Care initiatives should be scientifically evaluated and documented for comparative analysis.

Scientists can support practitioners by developing robust methodologies and user-friendly impact assessment tools to collect data and monitor their impacts. In addition to health, well-being and social inclusion, environmental, social and economic impacts of Green Care initiatives can also be studied to help recognise the multifunctionality of these initiatives. Green Care initiatives in cities, municipalities and rural areas that have been actively investing in green spaces for health, well-being and social inclusion can be analysed through in-depth studies to better inform policy lead to the uptake and replication of similar approaches and lead to the recognition of the contributions and positive impacts of Green Care initiatives in achieving international targets, including the Sustainable Development Goals, on both environmental and social dimensions.

## b) Trade-offs, possible conflicts as well as synergies between traditional land uses and Green Care activities need to be identified, analysed and addressed to improve land use management and planning.

For example, in forestry possible land use conflicts can arise between Green Care activities and traditional timber logging, while synergies with other activities such as the collection of wild forest products and biodiversity protection may be possible. It is important that innovative arrangements enable the creation and recognition of new values, and that there are mechanisms in place for compensating land managers when there is economic loss.

## c) The development of common quality standards and protocols for clinical interventions using nature needs to be accompanied by quality assurance.

Common quality standards and systems of quality assurance need to be defined and periodically revised to ensure quality of the service providers and of the Green Care services. Mechanisms such as third-party audits help to prevent unreliable claims and ensure scientific rigour and credibility of the approaches adopted. Standards and protocols have to be developed through consultation with different parties to avoid stifling innovation processes, support the emergence of innovative ideas, and to help communicate the validity of Green Care approaches to the broader public.

These recommendations assume a special value in light of the post-Covid-19 recovery and transition. Sciencebased evidence should guide policies and strategies on Nature-based Solutions linked to Green Care initiatives. The importance of inclusive and accessible quality green spaces, in the light of possible strategies to prevent the spread of COVID-19 and similar diseases is widely acknowledged. Green outdoor spaces are not only considered less risky than indoor spaces for transmission of virus, they also provide a way to cope with stress and mental fatigue induced by the uncertainties and challenges of this particular period. The need for access and use of green spaces has been increasing and changing dramatically given the strict lockdown measures imposed by many governments to tackle the global pandemic. At the time of writing, this assessment did not have the specific data from the initiatives to analyse the change in use as a result of lockdown in their specific areas. Regardless, strategies need to be scientifically sound, supporting the activities in natural environments that have proven to be effective and sustainable in their responses to the diversified new and emerging needs of urban and rural society. As Henry David Thoreau wrote, "our village life would stagnate if it were not for the unexplored forests and meadows which surround it. We need the tonic of wildness [...] We can never have enough of Nature."

#### **GREEN CARE**

Citizens and beneficiaries Actively participate in and demand for Green Care initiatives

#### **Policy makers**

Institutional and legal clarity

Structural funding, technical assistance and research programs

Monitoring and evaluation of impacts and benefits of well-being ecosystem services

Visibility and communication

Support identification, access and management of suitable natural areas

Facilitate collaborative arrangements, learning, social innovation and citizen engagement Service providers and professionals in Green Care

Engage in cross-sectorial collaborations and experiment

Engage in continuous learning, training, knowledge and improve soft skills

#### **Funders and supporters**

Provide initial investments and continuous funding through knowledge hubs and accelerator programmes

Support ethical finance and sustainable investments

Develop innovative funding mechanisms

#### Research and academic community

Support with evidence gathering, research and development of quality standards

Investigate trade-offs, conflicts and synergies to inform sustainable management of natural areas

Figure 11. Summary of recommendations by Green Care stakeholder category



### **APPENDIX 1: List of respondents**

FOREST-BASED CARE				
Name and Surname	Country	Organisation	Interview date	
Sirpa Arvonen an Erja Järveläd	Finland	Forestmind	November 12, 2020	
Shirley Gleeson	Ireland	Ecowellness Consulting	November 3, 2020	
Alex Gesse and Shirley Gleeson	Europe	Forest Therapy Institute	November 3, 2020	
Katriina Kilpi	Belgium	NatureMinded	October 29, 2020	
Maurizio Droli	Italy	Valli del Natisone	November 6, 2020	
	SOCIAL AG	RICULTURE		
Francesco Di Jacovo	Italy	E.T.I.C.I	November 6, 2020	
Maarten Fischer	The Netherlands	Federation of Care Far- mers	November 6, 2002	
Aisling Moroney	Ireland	Social Farming Ireland	October 30, 2020	
Nicole Prop	Austria	Green Care Association	November 13, 2020	
Pau Moraga Bouyat	Spain	L'Olivera Cooperative	October 27, 2020	
	URBAN GF	REEN CARE		
Kevin Lafferty	Scotland	Green Exercise Partner- ship	October 29, 2020	
Robert Zarr, John Hender- son and Courtney Schultz	The US	Park RX America	November 3, 2020	
Silvio Anderloni	Italy	Boscoincittà	October 30, 2020	
Javier Vergara Petrescu	Chile	Ciudad Emergente	October 29, 2020	
Eva-Lena Larsson	Sweden	Green Rehab	Written submission	
GREEN CARE TOURISM				
Cristina C <b>ă</b> luianu	Romania	Sanotouring	November 4, 2020	
Stefan Schimpl	Austria	Waldness	November 10, 2020	
Johanna Freidl	Austria	Hohe Tauern Health	November 26, 2020	
Annalena Messner	Italy	Miramonti Hotel	October 13, 2020	
Hana Sutch	UK	Go Jauntly	November 23, 2020	

### APPENDIX 2: Success factors identified by case studies

Dimensions	Quotes	Case study
Ecosystems and spaces	We are surrounded by pristine forests right outside of the hotel helping us to have forest bathing activities and protect it	Miramonti
	The idea was demand driven, it took off organically and not by pitching it. We receive a lot of feedback filled with gratitude.	Forestmind
	Being at the right place at the right time "to prepare the field", going after what was available at that time and seeing what comes next intuitively by listening to the people	NatureMinded
	We keep people at the centre of what we are doing and respond to their needs.	SoFI
Beneficiaries and their needs	Develop high quality products with the people that were left behind by society and prove that you can add value to the economy and society	L'Olivera
	The ability to be "right in time" for our participants	Green Rehab
	We did this on the basis of volunteer work- it is a sign that it is work based on love and the idea of improving the society	Park RX America
	We get good feedback from the visitors - it always helps to keep us going on the right track and keep the quality high, while offering limited places	Miramonti
Institutions and norms	Legal clarity - we worked together to achieve this from the beginning	Green Care Austria
Policy context	We are in tune with policy priorities and impact the direction of the policy. Compared to the past, community based/ individual farming is now appreciated and government supports us because we are answering policy objectives in health and social care, but also in agriculture and rural development.	SoFi
	Accessibility is becoming a major issue due to demographic change; the policies focus on the topic which means there is also a big market opportunity and we have a competitive advantage in terms of knowledge of an innovator	Sano Touring
	The benefit of being in the private sector- you can move faster and	FTI
Governance	adopt innovation faster.	
arrangements	Willingness to have a holistic approach and involve diverse stakeholders from different fields	Green Care Austria
	Integration of health system and land management	GEP Scotland
Collaborative arrangement	Not having too much to risk – ability to diversify, engage in business activity but also in research, organise events such as	NatureMinded
	International Forest Therapy Day <b>s</b>	
	Physiatrists joining in and helping to do the therapies when needed	Ecowellness
	Being collective of very small farmers – stronger together	Federation of Care Farmers
	Doing as little as possible to make sure that farmers remain independent	Federation of Care Farmers
	Community involvement in the projects that we do	Boscoincittà
	Networks - bringing together powerful minds to work on the different issues of the solutions	Ciudad Emergente

Dimensions	Quotes	Case study
	A wide range of rehabilitation services offered in one place	Green Rehab
Collaborative arrangement	People involved (e.g. coaches) are successful, well-educated and authentic	Waldness
	Active networking with other project partners	Waldness
	The methodology is simple and easily adaptable to everyday life, people like it.	Forestmind
	Scientific evidence was/is strong - 10 years of research by hospitals and practioners of Udine helped to build a valid initiative	Valli del Natisone
	Being open-minded and generous - sharing your project ideas, workload to balance the egos and learn mutually	Ciudad Emergente
Collaborative learning	Pilots for taking patients outdoors and demonstrating the evidence that encourages	GEP Scotland
	Simplicity of the use of prescriptions and adapting it to everyday work	Park RX America
	Improvement in spirometry: better understanding of the health impact of our approaches	Hohe Tauern Health
	Media discourse works in our favour and helps to drive visibility and public engagement by talking about these topics.	NatureMinded FTI
	By offering forest therapy services we are changing and improving the tourism image of the mountains and that brings good visibility	Valli del Natisone
	Telling the public the story of social farming from the perspective of participants, through e.g filming is powerful but challenging	SoFI
Public discourses and vision	Master plan approach- long term vision on how we want to have healthcare facilities, instead of randomly adding trees. When refurbishing existing hospitals, we bring in these ideas to the design	GEP Scotland
	Creating the sense of legitimacy- people recognise the importance of the work we do and role we play	Park RX America
	During Covid-19 walking became more popular - evidence shows that nature connection is important, so it feels like we do the right thing at the right time	Go Jauntly
Champions	Social entrepreneurs Ireland championing the work	Ecowellness
and frontrunners	External good advisors helping to start with the idea	FTI
	Working with mix of skills, people with different backgrounds - social workers, psychologists, cultural background, foresters, botanists. We managed to bring them together and find common language.	Ecowellness FTI
	We generate cash flows even off-season, in November and January, for hotels, B&Bs, nature guides, etc. This helps to keep economic sustainability	Valli del Natisone
Resources (natural.	Background in social work, and ability to connect with different background people, speak the language of the different people	Ecowellness
human, infrastructure, financial and social	Collective feeling- your self-interest is best served when you do the work with others through trust, understanding and participation.	Federation of care farmers
capital)	Investment of time and resources we put on building a brand, working on the tone for communication and a website	L'Olivera
	Strong leadership- In the past individual leadership with long-term vision and attention to details /to individuals, at the moment we are building collective leadership - working groups, and directive council.	L'Olivera
	Resources dedicated to the coordination, research and business development	Orti E.T.I.C.I.
	More budget dedicated for internal resources	Boscoincittà
Dimensions	Quotes	Case study
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Resources (natural, human, infrastructure, financial and social capital)	Being persistent and consistent to keep financing flowing constantly and not having too much time gaps in between	Ciudad Emergente
	Well educated and experienced staff	Green Rehab
	Support from the financers	Green Rehab
	Being self- funded - managed to get 175 000 downloads with hardly any marketing budget, being able to hire new people and pay ourselves a small salary	GO Jauntly
	We incorporated many professionals in our team with very diversified skills and offered jobs to highly educated people in rural environment.	Hohe Tauern Health
	Deep involvement, learning and determination of the team to continue and not give up despite the financial difficulties.	Sano Touring

## APPENDIX 3: Challenge factors identified by case studies

Dimensions	Quotes	Case study
Ecosystems and spaces	Climate change, weather variability (e.g. less snow in winter), increased frequency of natural hazards (e.g. forest fires in summer), environmental pollution and loss of habitats create risk for activities.	Miramonti
	Availability of infrastructure.	Valli del Natisone
	Urban green spaces are difficult to manage – illegal use of woods, drug use, contested use interests, etc.	Bosco in Citta
Beneficiaries and their needs	Not being able to get clients when prices are raised, so economic sustainability is compromised.	NatureMinded
	People do not spend enough time outside and are not aware of the vast forest areas and their benefits.	Valli del Natisone
	Demographic trends create more demand for care services. Target audience is increasing (more clients with dementia, children needing special education, growing number of elderly people) while funds are going down or stay the same.	Federation of Care Farmers Green Care Austria
Institutions and norms	Property rights and non-availability of public access to private forests.	
	Diverse tax systems in different countries. Tax systems discriminating against people with disabilities.	FTI Sano Touring
	Providers that offer non-professional practices put credibility of the practice under the risk. So, we try to create the standards of the practice. When you work with vulnerable groups you know that there must be some standards.	FTI
	Rules in agricultural sector have been made for mainstream large providers and farms, and do not fit the needs for mixed and small entities that operate in between sectors.	Federation of Care farmers
	Differences in national insurance systems creating imbalances in terms of use ability of people to use the services as investment in their health.	FTI Hohe Tauern health
	Overregulation of certain aspects of life or economic sectors does not allow flexibility that businesses need.	Waldness
	No penalty or punishment for not following the provisions of the law on Accessible tourism.	Sano Touring

Dimensions	Quotes	Case study
Policy context	Covid-19 pandemic rules do not allow for organizing lectures and group walks at the moment, travelling abroad for networking or for conferences, and make us postpone plans that were important for improving the business. It brings insecurity, makes us improvise on the go and adopt new methods of engagement.	NatureMinded Forestmind FTI Ciudad Emergente Miramonti Go Jauntly Waldness
	Due to tax cuts and people getting sickness funds only when they reach a high degree of disability or sickness, they cannot really be active in farms, which also requires more specialised knowledge or expertise from farmers.	Federation of Care Farmers
	The separation of local policies from national and global policies.	Orti E.T.I.C.I.
	Before Covid-19, everyone was leaving for major cities, now there is a different trend. But that means mayors of municipalities need funds to invest in social services. And unless you do intensive lobbying, the funding is not guaranteed.	Green Care Austria
	Constant evaluation of the lessons learned from research and embedding it into policy at national level.	GEP Scotland
	Lack of national healthcare system.	Park RX America
	Parks and recreation considered of very low priority of societal need, and social and mental well-being not being the focus of public policies, result in funds being cut for both when crises occur.	Park RX America
	Lack of interest in promoting accessible tourism by the national government.	Sano Touring
Governance arrangements	Local public administrations take long time to adopt new practices, decide and act.	Go Jauntly
	Differences in national insurance systems creating imbalances in terms of ability of people to use the services as investment in their health and make use of the insurance mobility scheme.	Hohe Tauern Health
Collaborative arrangement	Lack of valid and long-lasting partnerships both at national and international levels.	Valli del Natisone
Collaborative learning	There are a lot of initiatives focusing on the topic, and even though we work together for the same goal, which is a good thing, it can create competition and impact the revenues for some initiatives.	Forestmind
	Growing competition, replicated services creates challenges but also helps to differentiate and innovate constantly.	Ciudad Emergente Go Jauntly
	Hard evidence on the effectiveness of the approaches is still growing, but not enough at the moment to convince decision-makers.	Ecowellness FTI
	Use of green spaces by healthcare professionals is still considered something "nice to do", instead of "must do".	GEP Scotland
Public discourses and vision	Readiness of the market is still a challenge- the forest-based practices still need to be recognised as valid approaches.	Ecowellness NatureMinded Valli del Natisone
	The need for new environmental consciousness and a reminder of nature destruction as a cost, clean air as a human right. Maintenance of it as a public cost to which nature is a very cost-effective solution.	L'Olivera

Dimensions	Quotes	Case study
Public discourses and vision	Some people avoid being in nature for many reasons, e.g. tick and lime disease. Sometimes media also supports the narrative and tel- ls people to stay indoors to avoid the diseases. Even park rangers lack the awareness about the link between nature & well-being, and are more aware of the negative aspects of being in nature, than positive (mosquitoes, bugs, sun burn, etc.).	Forestmind Park RX America
	Better food culture and reconnection with the sources and provi- ders of food we eat.	L'Olivera
	Challenges related to social inclusion and welcoming of people different than you, either as a tourist or member of a community.	L'Olivera Waldness
	Need for more balanced view of land, territory and human deve- lopment and natural resource management.	L'Olivera
	Need for policies at community level involving the resources of the community itself.	L'Olivera
Champions and frontrunners	Success depends on the attitudes of the involved people who be- lieve in the idea, make plans and carry out experiments. If this fails, the structure collapses.	Orti E.T.I.C.I.
	Although very important, a very small number of professionals adopt the methodologies as pioneers and champions.	GEP Scotland
	Burnout and fatigue of healthcare workers - they feel overwhelmed and do not want to be involved in anything additional.	Park RX Ame- rica
Resources (natural, human, infrastructure, financial and social capital)	Constant support to promote social farming and provide training to farmers.	SoFI
	Availability of reliable public funds.	SoFI Hohe Tauern Health
	Growing population means need for more infrastructure which requires financial resources.	Ciaudad Emergente
	Funds needed to scale up the initiative to a national level.	GEP Scotland

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