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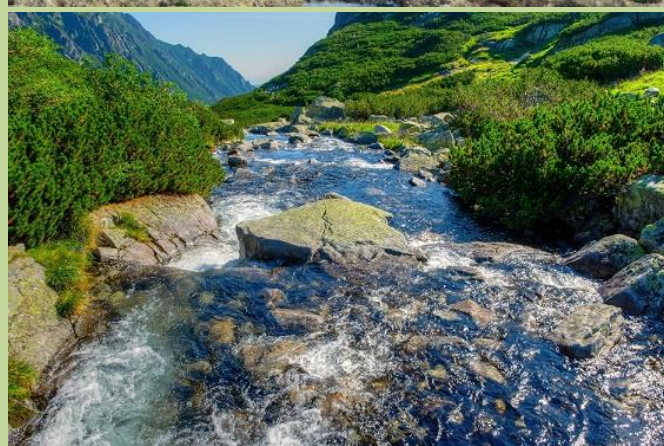
The Health and Social Benefits of Nature and Biodiversity Protection

Annex 1

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20 Case Studies

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TERRA – Centre for Ecological Learning

Eicherfeld, Luxembourg

Started in 2014, TERRA (Transition and Education for a Resilient and Regenerative Agriculture) is Luxembourg's first Community Supported Agriculture initiative. This locally based, grass roots, and community orientated model for the production of food provides opportunities for employment, volunteering, and participatory learning. It contributes to social cohesion, public well-being, and biodiversity.



TERRA is based in Eicherfeld, a 1.5 hectare fruit orchard just 3 km north of the centre of Luxembourg City. It is located between two Natura 2000 sites, Vallée de la Mamer et de l'Eisch (LU0001018) and Grunewald (LU0001022). Between the rows of fruit trees, TERRA are using permaculture to grow vegetables, flowers and herbs.

TERRA are re-evaluating how people can produce, distribute and consume food in Luxembourg. Food systems in Europe are highly intensive in resources, carbon and pollutants; they are also dependent on public subsidies to ensure their economic viability. In Luxembourg, where at least 80% of vegetables are imported, most produce travels long distances before it reaches the consumer (iFoam 2015). It is widely agreed that urban populations are increasingly physically and emotionally disconnected with the production of food. This has implications for society in terms of diets and a demand for cheap and convenient food. In this way, both the agro-industry and the environment are increasingly threatened by unsustainable practices (Ingram, Ericksen, & Liverman, 2010). Grass-roots urban agricultural projects present alternative perspectives to how food can not only be produced but also distributed, consumed and reimagined as a cultural as well as a market phenomenon. Close to the centre of Luxembourg City, TERRA are using permaculture and community supported agriculture (CSA) as a food system to support 150 families with food from 1.5 hectares of land, and contribute to local biodiversity. They use participatory and action based learning to support social engagement in the production of food as well as public well-being. An annual membership fee to the cooperative farm entitles its members a share of its weekly harvest, and there are also opportunities for participating in the management of the TERRA through the sale of social shares. Participation and volunteering on the farm is open to anyone, and members are encouraged to take part.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

The social benefit of TERRA stem from its ability to increase social cohesion and well-being through the community-orientated production of food and its consumption in the same community. TERRA provides employment and a salary for its core team who are employed full time. In addition, the project is supported by a variety of volunteers, including long term volunteers who are part of the European Volunteer Service, medium term volunteers for volunteer networks (such as HelpX, WWOOF, and Workaway) and short term volunteers from the local community.

Everyone who takes part in TERRA has a different experience but many report improvements in their well-being and a reduction of stress. Many people who otherwise suffer from anxiety or social exclusion find opportunities at TERRA to engage with others and increase their self-esteem. Similarly, those who work there describe a blurring of the boundary between work and play. Clearly, working the land manually is a form

of labour, but it is also recreation for those involved as they enjoy the skill learning, fulfilment and teamwork it provides. This offers a welcome break to what would often be a sedentary lifestyle in the farm's urban surroundings.

An important aspect of growing genetically diverse and unmodified food free of artificial fertilizers and pesticides is their relative nutrition to much of the food that is readily available in supermarkets (Baranski et al., 2014). The team described feeling fitter and healthier since eating the food they have produced. They see local and fresh produce as an alternative to ready meals and junk food, which contain high levels of refined sugars, salts, saturated fats and artificial flavourings – and are key drivers of poor nutritional health globally.

WHICH STAKEHOLDERS ARE INVOLVED?

TERRA was ultimately initiated by three friends; nevertheless, it has been dependent on the support of many volunteers and professionals. TERRA's links to CELL and SEED Savers have contributed to their success. The team have avoided financial support from institutions such as the state and private bank loans, as they aim to prove agriculture does not need to be dependent on subsidies. However, they have benefitted from donations of tools and even equipment, as well as the time and expertise of agriculturalists, ecologists, engineers and other experts. They also benefitted from a one-off EUR 10,000 grant after winning the Luxembourg start-up competition, "1, 2, 3, GO Social" (Fondation de Luxembourg, 2015). This also provided them with support to develop a clear business plan. Last year, ornithologists and biologists carried out a workshop to show how bird boxes can be designed to provide habitats for native birds. Recently a botanist who carried out analysis of the farm identified rare grasses and wild flowers that have been given space to propagate.

The price of the weekly baskets varies between EUR 18 to EUR 24, which are currently given to 150 families. Membership to TERRA entitles individuals to a share of the harvest, the price of the basket is based on the anticipated harvest rather than the actual content of the basket, and this reduces the risk of a failed harvest for the farm.

Biodiversity and Wider Benefits

By applying the tenets of permaculture, nature conservation goes hand in hand with the production of food at TERRA. The team are growing a number of rare and heritage seeds to preserve the resilience and genetic diversity of the agricultural sector, such as the tomato St. Pierre and the runner bean Eva. Integrated planting which gives space for non-harvested herbs, shrubs and flowers provides important habitats for key species, which also support the function of the farm, such as the bees which they keep. Similarly, efforts have been made to increase the health of the soil gradually decreasing its acidity and increasing its organic content by applying techniques from permaculture.

Moved by Nature Programme

Intervention in Kuopio, Finland

Moved by Nature's primary aim was to promote the collaboration between nature and health sectors to allow vulnerable groups to benefit from access to physical activity in green spaces. Case studies and pilots were carried out in a number of areas, working with different population groups. In Kuopio City, the project succeeded in motivating inactive overweight men, at risk of type-2 diabetes, in outdoor activities and healthier food. During the 8-month pilot programme, participants' weight reduced and their physical fitness levels improved.



Kuopio city (population ~112,000) is located in an area rich in herb-rich forests and surrounded by lakes. Puijo nature conservation area, less than 2 km from Kuopio city centre, is approximately 208 hectares. The majority of Puijo area is part of the Natura 2000 network (FI0600001).

The Moved by Nature (2013-2015) programme was coordinated by Metsähallitus, Parks & Wildlife Finland. The aim of the programme was to encourage recreation and physical activities in natural areas among different population groups with an increased health risk (e.g. new immigrants, youth at risk of social exclusion, unemployed, and obese people). The nature, health and education professionals worked innovatively together in intervention programmes. The Moved by Nature programme was funded by the European Union Social Fund (75%) and public and private organisations (Vähäsarja 2015).

The pilot project in Kuopio included men at risk of type 2 diabetes. During this project, new health promotion methods were practiced in order to motivate inactive men to become more physically active. The eight meetings in total covered different outdoor activities, lifestyle counselling, and healthy food preparation together in nature. The sixteen participants reduced their weight by an average of 3.75 kilos each (Kaasalainen et al. 2015). The preliminary results of this pilot project demonstrated a new possibility to utilise nature and urban green space in health promotion.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

The aim of the intervention program in Kuopio was to explore new lifestyle change strategies for men at risk of type 2 diabetes through participation in outdoor activities. Obesity is one of the biggest health risks in Europe, especially among men for whom central obesity is typical. In 2008, the proportion of adults (aged 18 years and over) who were considered to be overweight or obese varied between 51.0 % and 69.3 % for men and 37.0 % and 56.7 % for women among 19 EU Member States (Eurostat 2015). Usually men are more difficult to reach for lifestyle interventions (Kaasalainen et al. 2015, unpublished). The project assumed that men perceived natural spaces as a more friendly and motivating environment to exercise compared to a gym or other indoor facilities.

A local newspaper advertisement was used to invite working-age men to participate in nature and outdoor recreation-based weight maintenance groups. In total, 20 men participated in eight meetings (one meeting/month), of which two included baseline and follow-up measurements. The meetings included outdoor activities (e.g. canoeing, hiking, horse-riding, ice-fishing), and personal lifestyle counselling, covering their diet and exercise regimes. Healthy food was prepared in the camp-fire with the assistance of a dietary counsellor (Vähäsarja 2015). Sixteen out of twenty men participated in the follow-up assessments. The positive changes were found in participant's weight (group weight reduced by 60 kg in total), body mass index, activity level, body composition, visceral fat level, physical fitness classification, and oxygen uptake. The target group experienced nature as a highly motivating environment for lifestyle change (Kaasalainen et al. 2015, unpublished).

Biodiversity and Wider Benefits

Puijo ridge is one of the most popular recreation areas in Kuopio, with its numerous paths and extensive track network. Nature trails offer a chance to experience the area's diversity. Over 350 vascular plant types, including several rare and endangered species, have been found on Puijo ridge. Puijo ridge is also the most important habitat in the EU for an endangered moss species and many rare and threatened polypores (Kuopio City 2015a). According to recent visitor survey (n=388) over 80% of the respondents consider Puijo Ridge as very significant for their personal well-being; and biodiversity and old trees are considered very important of this Natura 2000 site (Kuopio City 2015b, unpublished data).

WHICH STAKEHOLDERS ARE INVOLVED?

Parks & Wildlife Finland manages 39 national parks, as well as many other state-owned protected areas in Finland. The European Social Fund (ESF) funded the Moved by Nature programme with a total budget of 348,000 €. Other funders of the whole project were Parks & Wildlife Finland, the City of Lieksa (target group immigrants and long-term unemployed), Rautavaara municipality, and Metsäkartano Wilderness and Youth Centre (social exclusion of youth). The pilot project in Kuopio was run together with Huoltoliitto Ry (a non-profit national rehabilitation and public health organization). Site managers of the Natura 2000 areas were actively engaged in project planning. The whole programme is an example of the novel multi-disciplinary approach in cooperation with many sectors and organisations that previously had not worked together. The Finnish Heart Association nominated Parks & Wildlife Finland as an organisation of the year 2014 for its heart health promotion activities especially conducted in the Moved by Nature project.

Increasing Well-being through Climate Change Adaptation

Copenhagen, Denmark

The City of Copenhagen is implementing ambitious climate change adaptation plans using green and blue approaches to increase the quality of life for its citizens. A number of challenges, such as storm water drainage, heat stress, air pollution and threats to biodiversity have led city authorities to apply green infrastructure to bring multiple benefits to the city, including new spaces for recreation. Significantly, Copenhagen's waterways are now safe for public bathing and new green spaces provide new opportunities for recreation, tourism and biodiversity.



Copenhagen's Climate Adaptation and Cloudburst Management Plan covers the city of Copenhagen and the city of Frederiksberg. There are five bathing areas in the city: Islands Brygge, Copencabana, Svanemølle, Sluseholmen and Amager Strandpark.

Over the last decade, Copenhagen has increasingly adopted green and blue approaches to addressing a changing climate. Particularly notable are the adoption of a green roof law and the implementation of soft approaches to cloudburst management. Copenhagen's Climate Adaptation Plan (City of Copenhagen, 2011) identifies a number of risks that the city will face in coming years. Risks from flooding in the city are particularly acute, with EUR 800 million of damage caused in July 2011. However, other risks such as high summer temperatures and amplified air pollution are significant. In a heat wave in 2006, surface temperatures reached 47°C (City of Copenhagen, 2011). These risks have acted as drivers for the city to invest in green infrastructure, which provide multiple benefits for its citizens. A law, which forces the implementation of green roofs introduced in 2010, has helped to slow surface run off, reduce heat stress, and improve air quality, but also provide new public spaces. Furthermore, the city's ongoing Cloudburst Management Plan (City of Copenhagen, 2012), will construct cloudburst parks, creeks and boulevards, to hold water in extreme events, on normal days these provide usable green spaces. Also, successfully reducing storm water run-off in Copenhagen has also improved harbour water quality, which now complies with bathing regulations. The city has four very popular public swimming areas to take advantage of this opportunity.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

Underpinning Copenhagen's climate adaptation strategy is the belief that green infrastructure can also increase the liveability of the city, with the aim to provide multiple health and social benefits for its citizens. Green infrastructure, such as parks and green roofs, provide further benefits to citizens, including new green oases, city cooling, and improved air quality. For example, the National Archives have a green roof of 7,200 m². This large green space provides a useful bike path, and provides views of the city's harbour. Additionally, improvements in storm water management have directly contributed to improved water quality in the city's harbour and canal network. Green and blue storm water management means that overflow channels are decreasingly used; 55 out of 93 were recently closed. Containment and separation of sewage and storm water make it hygienic to address floodwater at street level. During storms, polluted water is directed through the city's sewage system, whilst rainwater is kept separate, lowering the amounts of pathogenic bacteria in waterways.

Today, water in Copenhagen's waterways complies with EU Bathing Water Quality Directive (2006/7/EC), whereas previously the harbour was heavily polluted. There are now four public bathing areas (Islands Brygge, Copencabana, Svanemølle, Sluseholmen), as well as a large man made beach called Amager Strandpark, which all allow people to swim directly in the city waterways. The Amager Strandpark has blue flag status, which is a certification for meeting water quality, safety and environmental standards. From June to August 2013, 141,000 people visited the four bathing areas, increasing from 84,000 in the previous summer. Over 20,000 people swim in the pools in the winter period alone, when waters can be cooler than -1°C (Denmark, 2014).

WHICH STAKEHOLDERS ARE INVOLVED?

At a high level, the United Nations Climate Conference in 2009 (COP15), held in Copenhagen, led the city to explore new ways to adapt to climate change. The floods in 2011 acted as a further incentive to act and resulted in the city developing its Cloudburst Management Plan (Klimatilpasning, 2012). Infrastructure strategies across the city have engaged professional consultants, for example bathing water quality is monitored by DHI (Danish Hydraulic Institute), who have developed an integrated Bathing Water Forecast (BWF) System. This provides the city authorities with real time water quality monitoring, and allows them to close bathing areas when there are concerns over risks of water borne diseases (DHI, 2013). At the local level, individuals also play an important role, for example, by managing biodiverse green roofs on private property.

Biodiversity and Wider Benefits

In contrast to grey infrastructure, one of the further co-benefits of soft approaches to climate change adaptation is the potential to provide valuable spaces for biodiversity within the city. Some forms of green infrastructure in Copenhagen have been specifically designed to maximise their utility in this respect – for example through the use of a biodiverse green roof at Nørrebrogade 184. Copenhagen's biodiversity strategy "Plads Til Naturen" (A Space for Nature) recognises the value of green infrastructure in this respect (Klimatilpasning, 2012). Furthermore, improvements to harbour water quality also benefit marine life and waterfowl.

StadtKlima and Nature Conservation for Clean Air

Stuttgart, Germany

In Germany, the City of Stuttgart has implemented GIS mapping, zoning legislation, and investment in green infrastructure (GI), including green walls and roofs, to improve urban microclimates, as well as facilitate clean air exchange and exposure to harmful pollutants. To date, Stuttgart is the only German city with a dedicated climatology department.



StadtKlima (Stuttgart's climate atlas) and land use policies cover the whole Stuttgart Region (Baden-Württemberg, Germany). The metropolitan area includes the city of Stuttgart and five additional districts. This includes 60% green space and 3 sites under the Birds and Habitats Directive.

The City of Stuttgart and the Verband Region Stuttgart have integrated green infrastructure and the Natura 2000 network into their strategies for addressing heat stress and air quality, recognising the local benefits they can provide in mitigating heat stress and reducing exposure to pollutants. The particular geography of Stuttgart makes it susceptible to warm temperatures and air pollution. Located in a basin, with low wind speeds, a mild climate with high levels of traffic and industrial activity, Stuttgart, along the main roads, has poor air quality and will experience increasing average and extreme temperatures in response to climate change (EEA, 2012). Property developments on the city's surrounding slopes also prevented air from moving through the city, reducing air quality. The Municipality of Stuttgart adopted a strategy to use vegetation to alter the city's microclimate, change airflows and improve the city's air quality. In 2008, a strategy was developed to prevent new developments on slopes surrounding the city. In addition, a climate atlas was developed which mapped urban climatic elements, such as local climate, the distribution of air temperature, airflows and air pollution concentrations for the city. Based on this, areas of the city were placed into 8 different categories depending on their role in the city (Baden-Württemberg, 2012). For each category of space, planning measures were recommended.

Alongside conventional policies a number of GI focused strategies have been implemented to improve the climate and air quality. As well as increasing GI, in 2010 construction projects of more than 60 ha were prevented in order to preserve ventilation corridors (WWF, 2012).

Biodiversity and Wider Benefits

As a result of greening and conservation actions, 39% of Stuttgart is under conservation, a record for a German city. Green space now covers 60% of the city, 2 million m² of rooftops have been greened, as well as 40 out of 250 km of tram tracks. The StadtKlima project integrates the following Natura 2000 sites: Stuttgarter Bucht (DE7220341), Glemswald (DE7320341), Filder (DE7321341), Unteres Remstal und Backnager Bucht (DE7121341), which are important habitats for species such as the yellow belly toad and the Bechstein's bat.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

The primary benefit of Stuttgart's integrated approach to air exchange in the city is to reduce exposure to air pollution and heat stress in the region. Air pollution has significant impacts on cardiovascular and respiratory health and is responsible for around 420,000 premature deaths in Europe each year (COM, 2013). Stuttgart's approach for addressing air pollution, alongside decisive transport policies such as banning vehicles with high emissions and HGVs from the city Umweltzone ("environment zone"), is complimented with GI innovations. Particularly notable is the 2016 project to construct a three meter high and 100 meter long moss wall on Cannstatter Straße, expected to cost EUR 400,000 (Milankovic, 2015). Similarly, GI provides cooling and shade in key locations identified with heat and vulnerability mapping, and GI to reduce air pollution. A new program for 2016 and 2017 "New Green: More trees and plants in the city" will be financed with EUR 1,800,000. The project, HITWIS - Hitzewarnsystem in Stuttgart, which is a collaboration with the health department, aims to improve the availability of information on heat wave to citizens.

The city publishes climate and air quality data on its dedicated StadtKlima site (www.stadtklima-stuttgart.de). Thanks to at source policies complimented with nature based solutions, the air pollution concentrations reduced a lot. Since 2011 the annual PM10 limit value of the EU is met. The hourly limit value for NO_x reduced from more than 800 exceedances to about 60 nowadays. Nevertheless, there is still room for improvement as the measurement stations still fail to meet the EU targets along main roads. In addition, climate projections indicate that 57% of the region will experience over 30 days of heat stress a year by 2100. Additional benefits from the project include noise abatement, providing space for recreation, aesthetics, and employment.

WHICH STAKEHOLDERS ARE INVOLVED?

This case study represents an organised interaction between multiple governance levels and disciplines over many decades. StadtKlima was developed by the Urban Climatology Section in the Office for Environmental Protection, which exists since 1938 and which has 10 employees. Stuttgart is the only German city with a dedicated climatology department. The use of in-house climate experts to generate detailed surveys of air exchange in the city allows for precise planning to both improve air quality and reduce heat stress. The climatologists work together with many departments of the municipality, such as the planning department, health department, traffic department and others. They are also in close communication with local politicians and other decision makers. The city itself has led a number of green infrastructure projects, such as the financing of green roofs and an "adopt a tree" campaign. The moss wall project will be supported by research at the Natural history Museum Museum Löwentor. Legal aspects in relation to land use drew widely on German national and state (Baden-Württemberg) legislation, creating a mandate for strict land use legislation at the local level. This includes the conservation of green spaces around the city, including Natura 2000 sites covering 6.6% of the region (Amt für Umweltschutz, 2009). Within the city area of Stuttgart about 40 % of the land is taken up by protected landscapes and nature conservation areas. Hardly any of the city's inhabitants live further than 300 metres from a green space. Even in the city centre, areas of natural vegetation are visible from practically everywhere.

Medvednica Nature Park

Zagreb, Croatia

Medvednica Nature Park is a protected area on the border of the city of Zagreb, Croatia's capital, and offers residents and an increasing number of tourists a chance to escape the urban environment and enjoy nature through activities such as walking and hiking, cycling, different interpretative and educational programs, as well as winter sports. The area is rich in flora and fauna and became a Nature Park in 1981.



The Medvednica Nature Park (HR2000583, Habitat Directive) consists of 17,938 hectares and has an altitude varying from 120 to 1,035 metres. Protected assets within the Park are 8 special reserves of forest vegetation, 1 protected landscape and natural monuments: 1 geomorphological, 3 rare specimens of trees and 2 park architecture monuments.

Medvednica Nature Park is a protected area located on the Medvednica mountain, which is located in the north-west of Croatia and is part of the capital, Zagreb. Annually it attracts around one million visitors, and since Croatia's accession to the European Union it has become a part of the Natura 2000 network. The park is managed by a Public Institution financed by the national government. Medvednica is accessible to everyone and provides leisure opportunities such as hiking, skiing, cycling and educational programmes. Furthermore, it offers tourism facilities and has diverse cultural heritage, such as medieval cities, castles and chapels. Additionally, the Park is rich in biodiversity, as it is the habitat of many different protected and endangered species of flora and fauna. Approximately 81% of the Park area is covered with forest vegetation.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

Medvednica, or "bear mountain", with its Nature Park is the most accessible large protected area for 1.2 million citizens of Zagreb and Parks surroundings. The Park, which is reachable from the city by public transport, provides visitors with opportunities for leisure, recreation, sport and education in rich biodiverse surroundings. The Park is popular for hiking, climbing, cycling and its winter sports centre (with four kilometres of ski slopes). Biggest tourist attractions in the Park are Veternica cave, Zrinski mine and Medvedgrad Castle. In 2013, nine new cycling trails were opened with a total length of 150 km.

During the summer months the Park also offers relief from heat waves. Zagreb is normally 1.5°C warmer than surrounding areas due to urban heat island effect (Zaninović, K., Gajić-Čapka, M., Perčec Tadić, M. et al, 2008). In 2014, the Park together with stakeholders developed the "Strategy and Action Plan of Sustainable Tourism" (Medvednica Nature Park Public Institution, 2014), reflecting that it is an increasingly popular tourist destination.

Within an immediate vicinity of the city of Zagreb and in order to promote and preserve natural and historical heritage of the Medvednica Nature Park, besides regular tourist programs that encompass guided visits to natural and cultural heritage of the Park, Medvednica Nature Park Public Institution also organizes numerous traditional manifestations/events such as "Fantastic Film Festival on Medvedgrad", "Medvedgrad Music nights", "European bat night", "Medieval days on Medvednica", "Fairy tale summer on Medvednica". In 2015, nearly 30,000 people participated in above mentioned programmes and events in the Park.

Nevertheless, the Park continues to face a number of challenges, such as securing management funding for the future, reducing vehicle congestion in busy periods, illegal waste disposal in former quarries, and property and legal issues. Also, during 2013-2014 period nine big thunderstorms affected Medvednica which have caused serious damage, not only in forests but also in visitor infrastructure. Better understanding how Medvednica provides health and social benefits to citizens will help to preserve this important protected area in the future.

Biodiversity and Wider Benefits

There are 27 registered habitat types according to the National Habitat Classification in Medvednica Nature Park. Seven of them have been declared Natura 2000 Habitats and one additional which is only partially located in the Park. The Park records 1,205 flora species, which account for 23% of all existing vascular plants in Croatia. Of these plants, 91 are strictly protected species. Furthermore, various animals live in the Park, such as wild cat, wild boar, roe deer and marten, including protected species. Notable, are the diverse bat colonies, with 23 species recorded. A study in 2000 researched the lichen flora in Medvednica Nature Park and the potential impact of the city and its inhabitants. The study concluded that the air quality in Medvednica is improving, which was based on the reappearance of some sensitive lichen species, such as *Usneas*.

WHICH STAKEHOLDERS ARE INVOLVED?

The Croatian government took the initiative to set up a Medvednica Nature Park Public Institution (MNPPI) that is responsible for the maintenance and protection of the Park. The aim of the MNPPI, which falls under the Ministry of Environment and Nature Protection of the Republic of Croatia, is to protect and preserve the authenticity of nature in the Park. Medvednica Nature Park Public institution conducts continuously since 2003 research and monitoring of flora, fauna and habitats. Results have not only contributed to increasing knowledge about the species and habitats but also to recommended guidelines for further management and education. In order to develop and improve sustainability of the Park resources use and more efficient management, it is very important to raise public awareness and knowledge about ecological and cultural values of Medvednica, especially of Natura 2000 habitat and species.

Including park revenues, the MNPPI has an annual budget of around three million Croatian kunas. In 2011, the Republic of Croatia received EUR 20.8 million in loans from the International Bank for Reconstruction and Development (IBRD) to support the integration of Croatia's protected areas with the Natura 2000 network (Croatian Ministry of Environmental and Nature Protection, 2014). In 2012 and 2015 two information centres were built due to this arrangement with the Ministry. The MNPPI is currently in the process of developing Medvedgrad project Visitor centre, which will be the first modern and appropriate Visitor centre in the Park, and will benefit from EU structural funds. Medvednica is also part of WWF's Dinaric Arc Parks programme, which aims to preserve the protected areas of South-Eastern Europe by examining whole set of benefits and opportunities which they provide.

As part of Dinaric Arc Parks Programmes, "Stakeholders Forum of the Park" was established in 2013 and up until now more than 170 participants participated in Forum activities. Participants come from varying backgrounds, including nature protection, tourism, culture, sport, local communities, public services, NGO's and also private sector. During 2013- 2015 a total of 15 meetings of the Forum were held, and one of the biggest results of the Forum is developing of Strategy of sustainable tourism in Medvednica Nature Park.



Alnarp Rehabilitation Garden

Alnarp, Sweden

The Alnarp Rehabilitation Garden was established as a research and development project involving nature-based rehabilitation (NBR), with a special focus on the role of nature in improving the mental health of patients. Based on the preliminary evaluation results, NBR is being integrated as a form of treatment in local health care provisions.



The Alnarp Rehabilitation Garden belongs to the Swedish University of Agricultural Sciences (SLU), department of Work Science, Business Economics and Environmental Psychology. The garden is situated outside Malmö in southern Sweden, Alnarp campus.

Alnarp Rehabilitation Garden was established with the initiative of Professor Patrik Grahn, and supported by strategic funding from SLU (the Swedish University of Agricultural Sciences). The hypothesis was that nature-based rehabilitation would work better than regular rehabilitation for stress-related mental illness, and possibly also for other physical and mental illnesses. The NBR was investigated in several phases: between 2002-2008 and 2008-2012 concerning stress-related mental disorder, and between 2012-2014 concerning post-stroke rehabilitation. Current exploratory studies are for Syrian refugees with war neuroses, such as post-traumatic stress disorder. Based on the research and development in the original Alnarp Rehabilitation Garden, the Region Skåne has initiated 10 further nature based rehabilitation programs at peri-urban agricultural businesses with gardens. Thus far NBR initiatives seem to provide an effective alternative to more traditional methods.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

Theories exploring the link between nature and rehabilitation describe the importance of eight characteristics, or perceived sensory dimensions (PSDs). PSDs include: Serene (audible tranquillity as well visible, where nothing disturbs order and harmony), Refuge (to find a safe, embracing place), Prospect (views), Space (to get into «another world»), Culture (the cultural dimension in the garden) and Social (to participate in activities with others). Each PSD has a role to play, and in designing rehabilitation garden in Alnarp PSDs provide a framework to explore the health benefits which green infrastructure can have on a patient as they interact with the space in both passive and active ways.

The garden is subdivided, each section designed with properties for restoration and supportive environments to meet the needs of the participants during the rehabilitation process. There are also three glass buildings in the garden because of the necessity to prolong the season of daylight and moderate temperature in this geographical location (Pálsdóttir, 2014). The garden was established based on the evidence-based health design (EBHD) (see Stigsdotter and Grahn, 2003).

At Alnarp, patients suffering from severe stress and/or mild to moderate depression have been shown to reduce their reliance on conventional health care provisions when participating in NBR. The main changes were a reduction in outpatient visits to primary

healthcare and a reduction in inpatient psychiatric care. One year after rehabilitation, the costs for primary care had dropped by 28% for the intervention group in Alnarp (8% for controls receiving rehabilitation as usual), and in terms of days spent in hospital, they had fallen by 64% (controls 23%)(Währborg et al, 2014). The participants experienced improvements in their daily function, general health, as well as reduced stress symptoms and a heightened sense of coherence (Pálsdóttir et al 2014).

WHICH STAKEHOLDERS ARE INVOLVED?

The Rehabilitation Garden at Alnarp is the result of the collaborative effort of researchers, designers, and rehabilitation staff who are in charge of its daily operations and the development of the wider NBR concept. NBR is now being practiced at 10 additional sites, initiated by Region Skåne. This project was financially supported mainly by Region Skåne and the European Social Fund, as well as the Swedish Social Insurance Agency, the Federation of Swedish Farmers and the Swedish Public Employment Service. For this project, SEK 12 million per year has been invested to provide for a capacity of 250 – 300 patients per year. The follow up data from these 10 farms will be published soon. (Pálsdóttir et al. 2015a). The farms that offer NBR are continually evaluated.

Biodiversity and Wider Benefits

In addition to those other PSDs mentioned, 2 additional factors are also important in the development of NBR: Biodiversity (or species richness) and Nature (contact with the rhythm of nature, seasons, and unpredictability). These factors have been integrated into the 2 hectare Alnarp Rehabilitation Garden, which is divided into two major areas - an informal non-cultivated biodiverse area and a cultivation and gardening area. The garden contains evergreen and deciduous trees, shrubs and vast variety of perennials and annuals. The size, height, form, texture and fragrance of plants differ in order to stimulate and awaken the different senses, with an emphasis on seasonal variation (Grahn et al., 2010). In this way biodiverse and nature conservation are key elements of NBR.



Lake Hévíz - Hungary's Unique Medicinal Lake

Hévíz, Hungary

Lake Hévíz is a peat bottom thermal lake located in West Hungary within the Lake Hévíz Nature Protection Area. Its healing effects, which are primarily linked to its sulphur content and sulphur bacteria living in the water, are used for the treatment of rheumatic and locomotor diseases.



The Lake Hévíz is located in West Hungary, close to the city of Hévíz, which is near to the western end of Lake Balaton. The lake and its surrounding areas – 60 hectares in total - form the Lake Hévíz Nature Protection Area, which is linked to the Balaton Uplands National Park. The area is not a Nature 2000 site but part of the national nature conservation system.

Lake Hévíz, with an extent of 4.4 hectares, is the world's second largest thermal lake. Due to its unique hydrological characteristics, primarily linked to the water's sulphur content, the lake has been used as a medicinal lake since the 19th century. The Saint Andrew Rheumatism Hospital, located next to the lake and with over 780,000 patients in 2014, carries out medical treatments, which are mainly applicable for rheumatic and locomotor diseases (Interview with Gy. Németh). As well as the direct health benefits of these therapies the lake also provides recreational benefits to its visitors. The lake and the surrounding protection area are managed by the Hévíz Spa and St. Andrew Rheumatism Hospital. The hospital actively cooperates with the Balaton Uplands National Park. Rangers of the national park are consulted before every infrastructural investment in the area. Furthermore, educational events are jointly organised by the hospital and the national park.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

Lake Hévíz's water rises from two springs, with temperatures of 40°C and 17°C, which keep the waters at around 30°C throughout the year. The water has a sulphuric, fluoridic quality. Its uniqueness lies in the fact that the sulphuric content of the water is combined by the peat layer at the bottom of the lake and the sulphur bacteria living on the peat (Green Capital Zrt. 2008). The lake water's curative effects are linked to its sulphur content and are used to treat rheumatic and locomotor diseases primarily, and are also used for the treatment of dermatological and chronic inflamed pelvis diseases (Green Capital Zrt. 2008). Swimming in the water gives patients access to these benefits as well as a valuable opportunity for recreation. The Saint Andrew Rheumatism Hospital also uses the lake's water indoors for various medical treatments, using the warm spring water sourced from various wells within the protected area; a special medicinal mud is also utilised for a number of treatments. In 2014, in total there were 956 inpatients and 784,598 outpatients in the hospital (Interview with Gy. Németh).

In addition to the hospital's medical treatments, the Hotel Spa Hévíz, a spa hotel located next to the lake, also provides recreational benefits and contributes to the area's wellness and health-tourism. Within the hotel, similar medical treatments as in the hospital are available for paying guests. The daily number of guests enjoying the lake in the high season varies between 2,900 and 3,500 (Interview with Gy. Németh). Finally, as part of the cooperation between the manager of the protected area and the national park, there are also educational benefits (see below).

WHICH STAKEHOLDERS ARE INVOLVED?

During the 1970-80s, various factors, including bauxite mining in the underground watershed area, led to the risk of groundwater overexploitation of the karstic reservoir. Recognising the need to protect the lake and its reservoir, the hospital initiated a process to enhance protection and in 1993, the lake and its surrounding areas were delineated as the Lake Hévíz Nature Protection Area. The Lake Hévíz Nature Protection Area, covering the lake, is managed by the Hévíz Spa and St. Andrew Rheumatism Hospital, a complex healthcare service provider institution (Spa Hévíz Website). At the same time, there is a close cooperation between the hospital and the Balaton Uplands National Park in various fields. There is a consultation between the managers of the protected area and the national park; the rangers are informed and consulted prior to every infrastructural investment. Rangers of the national park provide guided tours within the protected area and each year there is a jointly organised competition for high-school students, where the pupil's knowledge about the protected area is assessed (Interview with V. Csiszár). Finally, the hospital also created the 'Foundation for the protection of the underground catchment area of the Hévíz thermal lake', which monitors changes to the lake. The foundation includes representatives from the national park.

Biodiversity and Wider Benefits

The Hévíz Spa and St. Andrew Rheumatism Hospital's mission statement indicates that environment and nature protection plays an important role for the institute. The hydrogeological characteristics of the lake make the area unique. The protected forest zone next to the lake helps to maintain the special microclimate around the lake and also under conservation. Actions relate to the preservation of the protective belt of Hévíz Thermal Lake and the surrounding protected area – for which biomonitoring is undertaken – as well as the monitoring of the thermal water system. The status of the spring cave, 38 m below the water level, is checked and monitored every 3 months by divers (Interview with Gy. Németh). The protection of the area is ensured by various legislations and interventions by the environmental department of the hospital.

Quinta do Pisão - Sintra-Cascais Natural Park

Cascais, Portugal

Quinta do Pisão is part of the Sintra-Cascais Natural Park, which belongs to the Natura 2000 network. The Quinta do Pisão is the redevelopment of abandoned agricultural land into a working farm and large public park offering walking and cycling paths, as well as a range of events based around sustainable tourism. Since the changes were made to Quinta do Pisão, local biodiversity has increased, and local people as well as visitors, primarily from Lisbon, increasingly use the space for recreation.



Cascais is a coastal town in Portugal, 30 kilometres west of Lisbon. A third of the surface of Cascais is covered by the National Park of Sintra-Cascais, of which Quinta do Pisão is one part at the base of the Sintra Mountain, and part of the Serra da Sintra, a UNESCO World Cultrual Heritage Lanscape. The total area of Quinta do Pisão is 380 hectares.

Quinta do Pisão is part of the Sintra-Cascais Park, and was transformed in 2007 from an abandoned and vandalised agricultural land into an attractive park for residents and visitors, as well as a working farm. It currently attracts around 2000 people each month, mostly from Lisbon and surrounding areas. This provides citizens from the Portuguese capital with an accessible playground delivering multiple health and social benefits.

Cascais Ambiente, the public body that advises Cascais municipality on environmental issues, is responsible for the management of the park. The key objective for Cascais Ambiente is to identify opportunities for ecological restoration, to restore those places, and facilitate people to visit these areas in an organised way in order to create and improve public awareness of the value and benefits of nature. Cascais Ambiente organises several activities in Quinta do Pisão, such as a wild plants workshop, birdwatching, a donkey trail, and a high ropes trail.

Following the transformation of Quinta do Pisão, 124 species by 11 orders have been identified in the park, including three threatened butterflies (*Nymphalis polychloros*, *Polyommatus bellargus* and *Zerynthia rumina*) and one in danger of extinction (*Tomares ballus*), suggesting an increase in biodiversity and improvement in managing the site. Moreover, due to the creation of walking and cycle paths, the park provides visitors with a new resource for recreation, education and a heightened well-being at a site which would otherwise have had poor public access.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

A monitoring study is currently being carried out, involving interviews with people who visited the Quinta do Pisão Park and asking them about their physical activity rates. In 44 questionnaires, more than 61% of visitors are very satisfied with the site in General. And about 71% of visitors are very satisfied with the experience. Of the more than 19,000 people who visited between January and September 2015 it is expected that many local people benefited in terms of more opportunities for physical recreation and organised activities.

Visitors can pick and purchase home grown seasonal organic produce in the park's farm, with the aim to encourage people to eat more healthily and to raise their awareness on the value of food.

Social benefits of the improved park are an increased awareness, interaction and contact with nature and an increase subjective safety when people are in the park. Also, the educational programs and activities organised in the park promote social inclusion as they are available to anyone (and often offered for free). A nature workshop program concerning activities like bird watching, mushroom and wild plant identification, donkey trails and many other activities had 974 participants in 2015.

The redevelopment of the Quinta do Pisão also involved the restoration of a number of architectural heritage sites, including a 16th century chapel Casal de Porto Côvo, as well as some infrastructure to support the farm such as stables, wells and watermills. Panels in the park provide visitors with information on the natural and cultural heritage of the park, guided tours are also available.

WHICH STAKEHOLDERS ARE INVOLVED?

Cascais Ambiente is responsible for the management of all green infrastructure in the Cascais Municipality. They initiated the Quinta do Pisão transformation project and are responsible for activities organised in the park. When a specific project or activity concerning nature conservation involves privately owned land, the landowners are contacted to ask for their authorization to use their property.

Together with the Institute for Nature Conservation and Biodiversity (Instituto de Conservação da Natureza e da Biodiversidade) and the Municipal Council of Cascais (Câmara Municipal de Cascais), Cascais Ambiente set up a Visitation and Interpretation Plan. The aim of this plan is to increase the accessibility of the Sintra-Cascais Park, improve environmental awareness among visitors and increase their appreciation of the landscape. The plan includes action points for the management of the park. The main conservation actions include: combating invasive species, conversion of forest patches, requalification of ripicolous galleries and conservation actions for target species.

Since 2007 the park has been supported by over 1,750 volunteers – who have aided with vigilance against forest fires, control of invasive plants, seed collection and maintenance of walking routes. The park also promotes green jobs for local people without work. This project involved 55 unemployed people organized into brigades, one forestry and two agricultural Brigades who support the management of the Park.

Biodiversity and Wider Benefits

Quinta do Pisão is located within the Sintra-Cascais Park which is part of the Natura 2000 network (PTCON0008, Habitats Directive). Intervention in the Quinta do Pisão has helped to provide new habitats and ecological niches. Since its renovation, the number and variety of species living in the park has increased - including the *armeria pseudarmeria* and the *dianthus cintranus*, two plant species endemic to the area and on the IUCN redlist of threatened species. There are currently more than 200 species of vertebrates, 33 mammal species, more than 160 bird species, 12 amphibian species, 20 reptilian species and 9 sweet water fish species. A number of conservation actions exist for specific species in the park, such as providing artificial shelters for wild rabbit (*Oryctolagus cuniculus*).

Land of the Bison and Primeval Forest Nordic Walking Park

Hajnówka, Poland

In 2011, a network of Nordic walking trails opened in Hajnówka county in Eastern Poland. The trails spread across the Białowieża Forest, a UNESCO World Heritage site fully covered by Natura 2000 protected areas. It is a pioneering initiative aiming at: engaging the local rural community, promoting health through outdoor physical activity, and increasing environmental awareness. The 7 trails, covering 100km, are in growing demand and host annual national championships in Nordic walking.



The Nordic walking trails are located in the primeval Białowieża Forest in Eastern Poland. Seven trails, of different length and difficulty, are marked out with information boards. All trails are situated on the Natura 2000 Birds and Habitats Site (Białowieża Forest, PLC200004).

The benefits of the Land of the Bison and Primeval Forest Nordic Walking Park link to the health and physiological benefits of exercising in a protected area. Simultaneously, the trails allow walkers to observe the natural heritage of the region. What attracts the local inhabitants and the tourists to the Park is (i) the unique setting within the Białowieża Forest – a UNESCO World Heritage site and (ii) a network of trails of combined length of 100 km. The trails have been designed to enable users to modify their length and difficulty in response to their needs. As well as Nordic walkers, the trails are also used by cyclists, hikers and cross country skiers.

Description of all of the 7 trails in the informative and promotional brochures link to the natural features of each trail such as an “educational path of Royal Oaks and Lithuanian Grand Dukes” or “trees over 100 years old” (Hajnówka County, 2015). The health and social benefits of the Park stem from the understanding, that natural landscapes entice people to exercise more frequently “may be one of their most important contributions to people’s health” (Wolf & Wohlfart, 2014).

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

The main health benefits associated with the initiative link to the pulmonary, cardiovascular, cognitive, and systemic health benefits of physical exercise in a clean environment without the effects of air pollution. Nordic walking is considered a safe form of endurance training, “which exerts a panoply of beneficial effects in a wide range of people with various diseases and the healthy” (Tschentscher et al. 2013). Physical inactivity increases risks of developing heart disease, type 2 diabetes mellitus, cancer and stroke (Giles et al. 2014). Nordic walking “is a useful exercise strategy for improving walking distance, cardiovascular fitness, and quality of life (...)”. Moreover Nordic walking may have positive effects on chronic diseases such as diabetes or obesity (WHO, 2010). There is also evidence that exercising in woodlands has positive effects on mental health and general well-being. Some studies suggest that the therapeutic value of forests increases proportionally to the age and size of the trees (Townsend & Weerasuriya, 2010); making the Białowieża Forest one of the optimal settings in this respect.

In terms of social benefits, the initiative aims at promoting rural development by more pro-active approaches of the community. The Nordic walking trails attract many local inhabitants as well as tourists and prove to be a good platform for social integration and preserving local natural and cultural heritage. Moreover, the activities organised in parallel of the championship, such as workshops, bike shows or bonfire celebrations, add a positive social dimension to the initiative.

There are no estimates of the number of visitors coming to the Land of the Bison and Primeval Forest Nordic Walking Park every year, but an increase in its popularity is observed based on the growing number of participants of the national Nordic walking championships. The number of registered participants doubled since the first championship held in the Park in 2012 to reach the record high of 750 in 2015 (czasstart24.pl, 2015).

Biodiversity and Wider Benefits

Białowieża Forest has a diverse and rich wildlife including 59 mammal, over 250 bird, 13 amphibian, 7 reptile and over 12,000 invertebrate species. The iconic symbol of the Forest is the European Bison (Czajkowski et al. 2009). Bisons can be encountered by the Nordic walkers, alongside other fauna and flora of protected forest ecosystems in Białowieża Forest, which is one of the last remaining parts of a primeval forest that stretched across the European Plain. Some spillover effects triggered by the success of the Nordic walking park can be noted, too. For example, in 2013, a first outdoor gym opened in the Hajnówka county upon the initiative of a local cultural centre.

WHICH STAKEHOLDERS ARE INVOLVED?

The park has been developed thanks to a collaborative effort of multiple stakeholders involved in the Białowieża National Park management as well as finance from EU and national sources. The demarcation of trails was initiated in 2011 by the Hajnówka County Office and co-financed from the European Agricultural Fund for Rural Development (EAFRD) aiming at increasing the social potential of rural areas (pfnw.eu, 2015). The cost of this element of the initiative was ~EUR 8,500, including over EUR 4,500 from EAFRD. Further stakeholders include: Hajnówka County Office, the State Forests Regional Directorate, two local forest managers (Hajnówka and Białowieża), and local tourism organisations. As all trails are situated on a Natura 2000 area (Białowieża Forest), the Regional Directorate for Environmental Protection in Białystok was involved in demarcating trails. Local forest managers also supported this process, ensuring the routes avoided wetlands and other fragile habitats. The Nordic walking championship itself has also received funding from the Infrastructure and Environment Operational Programme for 2007-2013, co-funded from the European Fund for Regional Development. There is also wide involvement in each event, including, Polish Federation of Nordic Walking and media sponsors (local newspapers and television).

Le Parc des Hautes Bruyères

Villejuif, France

South of Paris, the Council of Val de Marne converted a brownfield site into 23 hectares of public park with the purpose of reducing noise from a motorway, as well as providing a valuable community resource. The park houses a number of public allotments, spaces for recreation, education and biodiversity. A green buffer, a hill, and an amphitheatre function as effective noise barriers to nearby residents.



Villejuif is a Southern suburb of Paris (France). It consists of 23 hectares urban park located next to the A6 motorway.

A former industrial zone in Villejuif, Le Parc Départemental des Hautes-Bruyères, presents itself as a garden of gardens, containing children's play areas, sports pitches, educational spaces, a medicinal garden, archaeological adventures and a garden of silence. The development was initiated by the Council of Val de Marne. The first phase of the project started in 1984 and the second stage began in 2000, when the green infrastructure was developed including a number of noise barriers.

The park is located between the busy A6 motorway and a residential area. A large green buffer (60m) and a green hill (7m high) along the motorway act as noise barriers to reduce noise for residents living close-by. Furthermore, a quiet area of one hectare at 12m depth in the shape of an amphitheatre was created in the park to provide an additional space for recreation and rest. This deeper part of the green area already existed before the park was created, as there used to be a quarry. As a result of this conversion of the area, noise level reductions of 20 dB have been measured in the park and inhabitants located at the east side of the park are now exposed to a noise level below 55dB. These noise reduction measures taken and the park in general are expected to enhance the quality of life of the residents by enhancing their mental, social, and physical health. Finally, the biodiversity of the area is improved due to the increase in variation of plants.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

Prior to the renovation project, noise levels of up to 75 to 80 dB were measured at the site. The noise mitigation measures put in place have led to a reduction of up to 20 dB in the area where the park is located (DRIEA, 2011). The quietest places can be found at the deepest points of the park, in the amphitheatre, where noise levels are, on average, between 42.5 and 48.8 dB. This is almost two times lower than the sound levels at the motorway, which is 80 dB. In the residential area located at the east side of the park, noise levels of 55dB have been measured. The park also offers a relaxation area, which is used by both the residents and the patients from a nearby hospital and Europe's leading cancer research centre - Institut Gustave Roussy. Having access to this green infrastructure could contribute to the rehabilitation process of the patients. Additionally, the park promotes walking, sports, gardening and recreational and educational activities, which all contribute to better physical, mental and social health. The park includes 85 allotment plots, each with a small shelter designed by Renzo Piano. These vegetable gardens are reserved for residents of the communes. Two of the plots are kept as spaces for educational programmes run by the local council,

mostly focusing on sustainable agriculture. The web page for the park provides an annually updated calendar of free events within the park as well as the map and guide for two adventure walks within the park. Each year, around 5,000 children participate in events in the park organised by the municipality (Val de Marne, 2015).

WHICH STAKEHOLDERS ARE INVOLVED?

Biodiversity and Wider Benefits

The area has been transformed from an industrial zone to a green park, which resulted in an increase of green infrastructure. The park includes a medicinal garden, consisting of around 900 plants of 85 different species. In 2014, a canal in the park was restored to in order to increase the biodiversity of the site. The study had a total budget of EUR 1 million. The project, supported by an ecological study, aims to create a wet meadow, a brook, and two ponds with the aim to support native species, such as the natterjack toad.

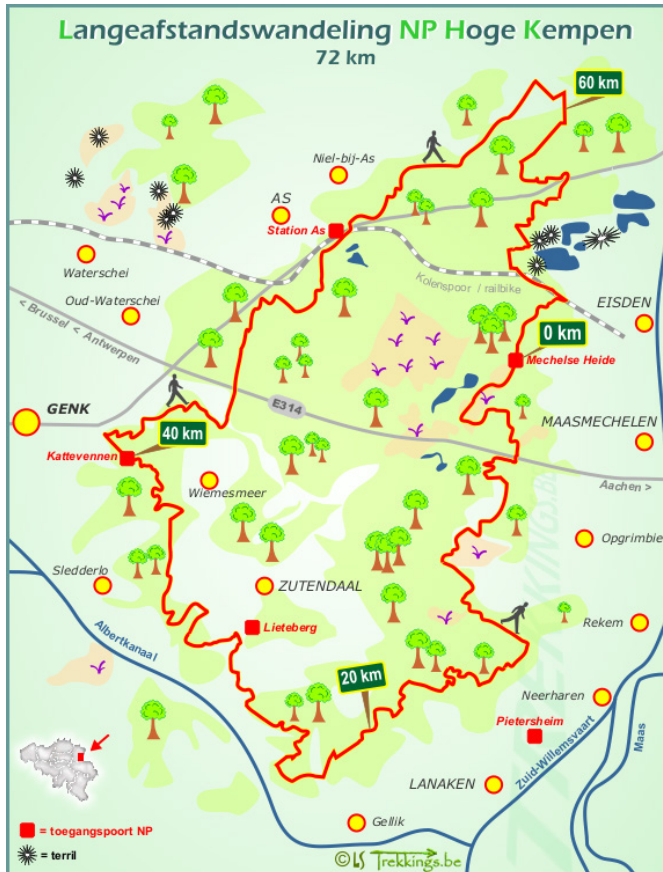
The Council of Val de Marne initiated the renovation project of this site. Landscaper Daniel Jarry designed the layout. The Federal level was mainly involved during the negotiation phase focusing on how to use the land and the placement of the hill. Much of the garden is supported by the input and maintenance of local residents. The cancer research department of the Institut Gustave Roussy, that also uses this garden for studies, maintains the medicinal garden. The vegetable gardens are managed by the La Fédération nationale des Jardins Familiaux (the French national federation for allotments). The budget of the ongoing project to restore the canal and wetlands in the park is supported by EUR 300,000 in green bonds from the region Ile-de-France.



Hoge Kempen National Park

Province of Limburg, Belgium

Hoge Kempen National Park is Belgium's only national park. It contributes to the social cohesion and regeneration of a former coal mining region that was at risk of economic decline. Innovative approaches to developing the park's infrastructure have helped balance economic and biodiversity objectives, providing 400 jobs and direct annual economic benefits of EUR 20 million. Today, a heightened sense of public ownership and political appreciation of the value of the park represent the success of the project.



The Hoge Kempen National Park is in the province of Limburg, within the Kempen and Maasland region. The Park covers an area of almost 6,000 ha (Field Research Center, 2010) and involves several Natura 2000 sites.

When the last Belgian coalmines in the Limburg region closed in 1991, the environmental NGO Regional Landschap Kempen en Maasland (RLKM) developed a plan to relaunch the economy of the area preserving its natural conditions. This project proved to be a success in particular thanks to the development of a local bike network. After that, the RLKM took a further step and in 2006, after a decade of lobbying leading to significant investments in green infrastructure and trust earned with the development of the local bike network, the Hoge Kempen National Park was opened (Van Den Bosh, 2012). The park has been noted for its (Re)connection model, which aims to connect nature with society, business, and policy. A key strategy in these ambitions was locating six unique visitor centres or "gateways" within surrounding towns rather than in the boundaries of the park itself. In addition, applying the methodology of The Economics of Ecosystems and Biodiversity (TEEB) to Hoge Kempen has been an important tool in communicating the benefits of the park beyond environmental stakeholders and gaining the trust of investors (Schops, 2011).

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

At a regional level, Hoge Kempen contributes to the social cohesion of the former coal mining area. The closure of seven coal-mining sites at the end of the last century left 40,000 people unemployed, and vast industrial areas were threatened with decline. The National Park contributes to the regeneration of the region. Direct and indirect employment derived from the park is about 400 jobs, with direct economic benefits of around EUR 20 million per year (Van den Bosh, 2012). In addition, the park is used for recreation, such as hiking, cycling and horse riding on 200 km of marked routes. A charitable walk for breast cancer, organized by the association Think-Pink Limburg, takes place every year in the park. In 2015, 62 women took part in the event (Walk for Think-Pink). Air quality data from a measuring station located within the park and analysed by the Flemish Environment Ministry (VMM) shows that the park provides a comparative oasis of clean air relative to the surrounding region. Special attention is given to people with disabilities, for whom specific activities and itineraries have been created. Vakantiehuis Fabiola, a nursing home located close to the Mechelse Heide gateway, cites the benefits of the calm and relaxing surroundings for its patients (Vakantiehuis Fabiola). At this location a special and highly appreciated path was developed ("zandloper pad") to give access to disabled people and to provide them with a new and direct experience with nature. The park is now exploring the potential to carry out an assessment of the health benefits of the park with the University of Hasselt in order to communicate these to stakeholders and the wider public.

Biodiversity and Wider Benefits

Biodiversity is a key aspect of the National Park, that has been created to preserve it and to create a bridge between conservation and human beings. The Hoge Kempen National Park hosts several Natura 2000 sites (BE 2200035; BE 2200043; BE 2200727). Some notable species that can be found in the park are: Moor Frog, Natterjack Toad, and Viviparous Lizard (IUCN, 2013). The Flemish Agency for Nature and Forestry is responsible for managing the parks conservation objectives.

WHICH STAKEHOLDERS ARE INVOLVED?

The Hoge Kempen National Park was conceived and launched by RLKM. Key to the initial success of the park was the ability of RLKM to access economic regeneration funds, as well as conservation funding. In total EUR 128 million have been invested in the park since its inception, compared to an annual indirect revenue creation of EUR 191 million. The funds that supported the park's development came from several donors, such as the European Union (ERDF and Interreg), the Government of Flanders, Limburg Sterk Merk (LSM), as well as local and private investors. Local, regional and provincial departments of tourism, as well as nature and environmental organizations, are involved in the project too. The work of all of the actors is coordinated by a single agency for the national park. In addition, the park has become a national symbol that gathers different actors active in the public arena, including local communities, politicians and the Belgian royal family. The Flemish Government, the IUCN and EUROPARC Federation also recognise the site.

Zmeeva Dupka Eco-Trail: Engaging Children in Nature

Tryavna, Bulgaria

The construction of an eco-trail in the Natura 2000 site Zmeeva Dupka cave has helped different social groups to discover nature and develop a healthier lifestyle while deterring illegal and exploitative nature use. The project was led by a local child care charity, to enable its children and others to benefit from and support their local ecological assets.



The Zmeeva Dupka eco trail connects the village of Hitretsi near the town of Tryavna in Central Bulgaria with the “Zmeeva dupka” cave, the whole area being part of Natura 2000 site Bŭlgarka, Sliven (BG0000164).

“Zmeeva Dupka” (Bulgarian for “Dragon’s Holt”) stands for a cave with a subterranean river spring and stream in a Natura 2000 area. The place is known within local legends and for the discovery of new animal and plant species. The local branch of the international NGO, SOS Children’s Village Tryavna, constructed an eco-trail, barbecue area and information boards to improve the accessibility of the track and to create opportunity for learning and physical exercise for the children supported by SOS Children’s Village facilities, citizens of Tryavna, and for tourists visiting the region. The implementation of the project involved children of the Village and a group of Hong Kong students, fostering international cooperation. Local carpenters and other craftsmen carried out the construction work; the municipality also contributed to the costs. Since the construction of the route in 2011, the cave has become one of the most popular nature destinations in the region, particularly for students, who can enjoy recreation opportunities in the pleasant environment, which is regularly maintained by SOS Children’s Villages. Rather than suffering from increasing visitor numbers, the site benefits from improved waste facilities and a reduction in the misuse of the protected area.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

Before the construction of the eco-trail, the area was only known to local people and cave explorers, some of whom came unprepared, resulting in accidents. It is now regularly used for school trips by student and kindergarten groups from Tryavna and other parts of Bulgaria. 76% of 6 to 19 year old Bulgarian children are less physically active than the WHO-recommended 60 minutes per day. 17,5% suffer from overweight and 12,7% from obesity (National Centre for Public Health and Analyses, Bulgaria, 2010-2011). Eco-trails promote recreation and sport in a non-intrusive way that attracts young people who are motivated by their interest in exploring nature. Creating a pleasant environment, accessible and safe routes make mountain hiking easy as well as enjoyable even for people who are not necessarily accustomed to it. An additional benefit of the project is the joint work of the children from the Village with a group of Hong Kong students, an intercultural exchange between different social groups that was much appreciated by both groups.

WHICH STAKEHOLDERS ARE INVOLVED?

There are two SOS Children’s Villages in Bulgaria, which were set up in 1990 in agreement with the Bulgarian Health Ministry. SOS Children’s Village organise individualised childcare in foster families, rather than child homes provided by the state. It was the idea of the director of the Tryavna SOS Children’s Village to involve the children supported by the community in the construction of the eco-trail. With the help of a magazine, he found a group of Hong Kong students willing to support the cause by raising 80% of the costs of the project (approximately 2.500 EUR) via donations. Students and children contributed voluntarily to collect litter, cleaning the terrain and varnishing the wood used in the installations. The mayor of the municipality supported the project by permitting the construction of two bridges and securing the spring in the protected area. Also involved were local carpenters that trained the children in working with wood and assembled the bridges. Local hotels, guesthouses and tourist information desks have included the route in their tourist information material. The ecological health of the area is regularly monitored and has not deteriorated in spite of growing visitor numbers. Maintenance of the trail is organised and executed with SOS Children’s Village resources. The new park management plan to be approved in the near future includes a methodology to register and control the inflow of tourists in the Nature Park and the route to Zmeeva Dupka.

Biodiversity and Wider Benefits

A recent survey shows that Nature Park visitors are mainly attracted by its rich flora and fauna. Increased public awareness and visitor numbers driven by the eco-trail deter unauthorised cave explorers and hunters, thus contribute to the good ecological status of the area. Regular garbage collection reduces littering and its ecological impacts. New animal and plant species discovered here in the 20th century can still be found in the region. An information board that was constructed along with the eco-trail introduces protected species and the benefits of their protection to all visitors.

Barcelona Green Infrastructure and Biodiversity Plan 2020

Municipality of Barcelona, Spain

The “Barcelona green infrastructure and biodiversity plan 2020”, launched in early 2013, sets the environmental goals that the Municipality intends to achieve by 2020 in order to become a city where natural and urban spaces interact and enhance one another. The plan aims at addressing major urban challenges related to climate change adaptation, demographic change, human health and well-being.



The Municipality of Barcelona is the capital city of Catalonia's autonomous region and is the second largest city in Spain with 1.6 million inhabitants (4.6 million inhabitants, including the wider metropolitan area). The Municipality occupies an area of about 100km², with a large variety of natural spaces: the plain, two rivers mouths each with a river delta, the coastline with the Montjuïc hill, and the mountain range of Serra de Collserola (Natura 2000 site ES5110024).

Barcelona's “Green Infrastructure and Biodiversity Plan 2020” has at its core the principle that a greener city is both a healthier and more liveable city. The plan is based on 5 key aims and 10 strategic lines. Towards 2020, efforts are being made to address a number of health issues: reduce air and noise pollution and encourage outdoor physical recreation. Likewise, social aspects will be considered, such as inequalities in the access and distribution of recreation spaces, and the need to foster positive interactions between different age groups. The municipality is implementing plans to increase the green spaces particularly through the creation of a network of six green corridors (further developing the existing one), and generating additional opportunities for outdoor activities.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

The citizens of Barcelona already benefit from the green spaces in the city on a daily basis and demand is increasing. One aim of the plan is “to maximise the environmental and social services from green and biodiversity and to enhance the value which society assigns to them”. The plan assesses the contributions of 13 different forms of green infrastructure in reference to different variables, including health considerations such as “acoustic comfort”, “climate comfort” and “air quality”. This provides the bases for the development of the plan. It has been estimated that, in 2008, trees were responsible for removing some 5,000 net tonnes of CO₂ from the atmosphere. They eliminated more than 305 tonnes of pollutants: 166t of PM10, 72.6t of O₃, 54.6t of NO₂, 6.8t of SO₂ and 5.6t of CO. Additionally, street trees help to reduce the noise reaching the inside of buildings and members of the public walking along the pavements. Parks and gardens are also areas where noise can be reduced to less than 45 decibels. Elsewhere in the city, noise pollution can exceed 75 decibels, an important health threshold for long-term exposure. In order to tackle the increasing demand for green spaces and to reduce pressures on existing ones, the plan aims at increasing the number of square meters of green space per inhabitant (18m² in 2014), and increasing street-tree numbers (200,000 in 2014). It also encourages better use of its programme of Horts Urbans (urban gardens), which provides 15 gardens with over 396 plots between 25 – 40 m² for growing organic vegetables, herbs and seasonal flowers. The programme is free

and open to local residents who are over 65 (Barcelona City Council, 2015). Further objectives include an improvement in recreational facilities in parks, the promotion of the use of private gardens, an increased application of green roofs and walls, and improved public access to underused green spaces. Efforts are also being made to increase the number of outdoor events organised in the city – currently over 1,500 public events take place in the city each year, but they are focused on just ten parks.

Biodiversity and Wider Benefits

The headline aim of the project is to preserve natural heritage and prevent the loss of species and habitats. The Barcelona metropolitan area contains a vast array of habitats, including croplands, dry lands, scrubs, maquis shrubland, pine forests, holm-oak woods, and coastal vegetation, including dunes. A major part of actions planned are closely linked (both directly and indirectly) to biodiversity conservation. Among the main objectives included in the plan are in fact: preserving the natural heritage, including both flora and fauna, of the city (preventing indigenous species to disappear and exotic and invasive ones to spread among the territory), increasing the amount of green spaces and diversify trees species, implementing measures in order to avoid that human activities in public spaces have impacts on biodiversity.



WHICH STAKEHOLDERS ARE INVOLVED?

The plan has been developed by the City Council and it involved a wide range of stakeholders, including local technicians and representatives from political groups, institutions, companies and organisations. Participatory processes have been carried out through several meetings. The plan builds upon the work previously done by the Municipality through Agenda 21, which supported the adoption of the “Citizen Commitment to Sustainability 2012-2020” (Barcelona City Council, 2012). The Charter is an additional instrument to further support the plan: it has a signatory network of 800 companies and various organizations, which, at different levels, demonstrate their involvement with the project. The plan takes into account the entire territory of the Municipality, including the Park of Collserola, which is a part of the Natura 2000 network. Collaboration with the site managers is foreseen especially with regard to the aim of reconnecting the park with the various urban green corridors that are already crossing the city. Increasingly, the city is exploring how to engage local stakeholders in developing plans for the use of green space. For example, the project “Pla BUIITS” enables temporary use for approved activities at vacant urban plots. This allows NGOs to use council-owned property at a very low cost to the city and to users. Similarly, “Apropa't als Parcs” (come to the park) is encouraging schools to use public parks as a space for education.



Secovlje Salina Nature Park and Lepa Vida Spa

Secovlje Salina Nature Park, Slovenia

The Natura 2000 area Salina Nature Park generates 90 local jobs in the tourism and health sectors while maintaining biodiversity values of the area. A public private concession programme has supported the improved conservation status of this habitat for migratory birds as well as providing public access, for 50,000 visitors per year, to this culturally and economically significant site.



The Sečovlje Salina Nature Park covers an area of 593 ha including part of the Piran Salinas (salt flat lands) which comprise the still active Strunjan Salina and abandoned Lucija Salina. It is situated on the Adriatic coast, at the mouth of the Dragonja River.

Sečovlje Salina Nature Park (SSNP) is comprised of state owned and privately managed salt pans. The site is an important source of employment and social cohesion for the region as well as providing proven health benefits as a natural spa. Visitors are attracted by opportunities of bird watching, medicinal treatments based on salt production, a Museum of Salt Making, a multimedia visitor center, and for purchasing salt products. These services have turned SSNP into a major local employer that also generates indirect work opportunities within the region. In addition, prolonged salt-production within the area dating from the 14th century has created a unique habitat for plants that only live in salty soil as well as for rare animal species and migrating birds. To maintain biodiversity values and a good conservation status, the park attracts funding from multiple sources and applies joint management for development of sustainable tourism.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

SSNP contributes to the local economy and is an important socio-cultural landmark. The park has approximately 50,000 annual visitors, increasing from 8,000 in 2002, and employs about 90 local staff for nature management, up from 16 in 2002. Around 80% of visitors go to the Museum of Salt; 20% attend the guided tours. As the largest local employer, the park is appreciated by the community and promoted in local media. Economic spill-overs outside the park include restaurants and hotels, which provide further indirect employment and revenue.

Besides selling merchandise and salt products in the gift shop, the Nature Park provides health related services in its recently opened outdoor spa Lepa Vida, which applies salt production side-products as natural remedies for people suffering from rheumatic, skin, and urological diseases (salt-pan mud and brine are recognized by the Ministry of Health as natural healing substances). The SSNP offers various programmes, such as anti-rheumatic, anti-cellulite, detoxification, and treatments against psoriasis.

WHICH STAKEHOLDERS ARE INVOLVED?

The Sečovlje Salina Nature Park is the first state-designated protected area in Slovenia where the management concession has been given to a private entity. Soon after the designation of the Sečovlje Salina as a Nature Park, the Republic of Slovenia gave the rights and obligations for management of the park, and thus for the salt production to the business Soline d.o.o, owned by the mobile company Mobitel that benefits from community appreciation, indirect marketing and PR. Through the concession, the company is responsible for the management of the state designated Nature Park and use of its natural resources. In return, the Republic of Slovenia provides partial funding for the management of the protected area. The rest of the funding is provided through a significant annual contribution from Mobitel; additional funding is generated from visitor revenues. Mobitel has to pay a minimal contribution to the park's management, set by the government according to an approved management plan. It has the right to share the profit from tourism and salt production and to use the images from the area for promotion. According to the concession contract, all the assets and investments in the park's infrastructure remain property of the Republic of Slovenia; the concession contract expires in 2023.

Biodiversity and Wider Benefits

The Secovlje salt-pans have created a unique habitat for salt-loving plant species, rare Mediterranean mammals, reptiles and 288 species of migrating birds, to whom the park presents refuge and ideal living conditions. Therefore, the salt-pans need to be constantly maintained to retain the biodiversity values of this Ramsar (no. 586) and Natura 2000 site (SI500018). Biodiversity conservation aims are paramount for the management of the park as the salt-pans play a nationally important role in the breeding, wintering and migration of birds. The area was designated Nature Park by the Government of Slovenia in 2001, visitors are limited to 300 per day, and must follow codes of conduct in order to minimise disruption to nesting sites.

Green Routes without Obstacles

Rāzna National Park, Latvia

The aim of “Green Routes without Obstacles” is to increase the availability of nature based tourism for disabled people at three protected areas in Latvia, Lithuania and Belarus. At the Rāzna National Park in Latvia, efforts have been made to provide equal opportunities and access to this protected area, particularly with the provision of infrastructure and services for wheelchair users. A cross-border wheelchair marathon was carried out between the project sites in order to promote active living for the disabled.



Rāzna National Park (RNP) is a “Natura 2000” territory located in Rēzekne, Dagda and Ludza regions. The park occupies an area of 59,615 ha.

In 2014, work started in Rāzna National Park to provide equal opportunities in nature tourism. This included a nature path (adjusted to the needs for accessibility of wheelchairs) and a specialised boat quayside to ensure nature accessibility for people with reduced mobility. This work was part of the EU funded Cross Border Cooperation Programme 2007–2013 and implemented by Latvian, Lithuania and Belarusian government institutions. In addition to construction work, the tasks engaged with disabilities and provided training for 110 tourism service providers in Latvia, Lithuania and Belarus. This was established with the aim of allowing professionals from the nature tourism industry to gain knowledge of how to work with people who have a physical disability and to make tourism services more accessible. The initiative established multiple cross-border nature tourism routes for people with mobility disabilities that are planned for 2 to 3 day long travel. Since 2014, a cross-border marathon has been organised using the available infrastructure. These routes were also included in the Green Routes tourism booklet available in Latvian, Lithuanian, Belarusian and English and can be found in tourism centres, and online.

Biodiversity and Wider Benefits

The project has been implemented in the Natura 2000 site Razna National Park (Code: LV0303400), which was established in 2007 to preserve the biodiversity of Rāzna Lake. The park comprises 14 EU habitats including four European significance grassland habitat types and significant oak forest territories (Nature Conservation Agency, 2015). Improved access to protected areas helps to engage more people in the appreciation of nature and its preservation. This is one of the objectives of Green Routes without Obstacles project.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

The immediate benefit of the project activities has been to offer infrastructure and services to provide disabled people with opportunities for nature tourism. After the installation of infrastructure (parking space, ramps, toilets, path components, information availability, lighting, campsites, boat quayside) the park territory collaboratively hosted a 300 kilometres-long cross-border marathon where 32 people in motorized wheelchairs took part. This tested the infrastructure and promoted the project whilst demonstrating that people with disabilities can be active in the environment.

The tours, booklets and information are publicly available on partners’ websites. This project has enabled these groups to engage in nature exploration improving disabled people’s physical health and mental well-being, as well as enhancing integration and family solidarity. An additional indirect benefit for social cohesion is a growth in understanding towards people with disabilities.

The Latvian border region is rich in natural parks, lakes and forests. These natural resources are typically adapted for tourist needs (walking paths, information signs, accommodation, parking etc.). However, the infrastructure for people with disabilities is rarely present. Recent years have seen an increasing number of people with all types of disabilities in Latvia (approx. 150,000 in 2011) and this has led to greater demand for accessibility provision (Sustento, 2015).

WHICH STAKEHOLDERS ARE INVOLVED?

The project involved both local and national level authorities as well as international partners from neighbouring Lithuania and Belarus. The Nature Conservation Agency and Grazute Regional Park Administration (Lithuania) initiated it in cooperation with Dagdas’ fraternity of disabled people, «Nema» (Latvia) and Vilnius association of disabled people (Lithuania). The total budget amounted to EUR 172,000, of which EUR 155,000 of European Union funding.

The motivation behind the project was the existing work in environmental education, including people with disabilities in Latvia. This work has shown the lack of opportunities for disabled people to access nature, particularly the special areas of conservation, being a major factor in causing low levels of environmental participation.

The institution leading the project, Nature Conservation Agency of Latvia, is the administrative authority of the Rāzna National Park territory. The local NGO, Dagda Fraternity of the Disabled People «Nema», provided the expertise concerning environmental accessibility for people with reduced mobility (Anča et al. 2014). “Nema” has been part of the core project partner’s team. Dagda County Council was supportive of the implementation of specific activities that focus on environmental services and improving access for people with disabilities.

Walkability in Pembrokeshire Coast National Park

Pembrokeshire Coast National Park, Wales / United Kingdom

The Walkability Project started in 2011 and is a partnership between Pembrokeshire Coast National Park, the Welsh Government and the Hywel Dda Local Health Board. The project has encouraged and supported local individuals with higher health risks to walk in and around the National Park. The project has resulted in self-reported physical and mental health benefits and created a sense of companionship for participants.



Pembrokeshire Coast National Park, Wales is a large designated area (629 km²) in a primarily rural part of west Wales. The National Park is protected in recognition of its spectacular coastline. There are a number of Natura 2000 sites in the National Park.

The Walkability Project started in July 2011 and aims to improve the health and well-being of local people, particularly those with a higher risk of poor health, by encouraging and supporting them to use walking routes in the Pembrokeshire Coast National Park. Many of the participants are referred to the project through their clinicians through the National Exercise Referral Scheme (NERS).

The project is managed by the National Park and funded through the national Lets Walk Cymru scheme which is funded through the Welsh Government. The project includes a fully funded and qualified Project Coordinator whose role is to plan, organise and lead guided walking activities. This includes identifying routes which are interesting and challenging (depending on ability) and allowing participants to explore parts of the coast and countryside that are new to them. The project also maintains and improves access to walking routes for those with reduced mobility.

Outside of the guided walks, the Coordinator encourages participants to walk regularly to gradually increase their cardio-respiratory fitness and to consider the mental health benefits of walking in the environment. Participants are shown how to access walks using public transport and are supported in developing route finding and social skills so they have the confidence to run their own walking sessions.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

Between 2011 and 2014, Walkability has provided more than 600 guided walks with an average of around 12 participants per walk. In total, 2,000 individuals have engaged in walks as part of the scheme, many of these individuals have done so multiple times. The project has also increased the confidence and skills of local community members to lead their own walks. Participation is focussed on locals who are at higher risks of physical and mental health issues, participants include:

- Local community members (open to all-comers)
- Pupils with special needs
- Army Family Welfare Teams
- Palliative care and disabled groups
- Mental health day care patients
- Hospital rehabilitation day care patients and staff
- Cycle mobility for people with special physical and learning needs
- Cardiac rehabilitation patients referred by their Doctor

A review of the Walkability Project was undertaken in 2014 (unpublished). In that review participants of the project stated that they had experienced improvements to their physical and mental health. Physical health benefits included improved cardiovascular fitness, the ability (and confidence) to walk further and increased levels of physical activity away from the guided walks. Mental health benefits included feeling relaxed on the walks but also being inspired by their local environment. There were also social cohesion benefits as participants reported greater companionship between participants. Video testimonies from individuals can be found on the website provided at the end of this case study.

Biodiversity and Wider Benefits

The project covers multiple Natura 2000 sites: Pembrokeshire Marine pSCI (UK0013116), Castlemartin Coast SPA (UK91014061), Stokholm and Skomer SPA (UK1914051), Ramsey and Peninsula St Davids Coast SPA (UK9014062), North West Pembroekshir Commons pSCI (UK0030229). Walking routes utilise the paths and high quality environment that are part of the Natura 2000 designation. The Project Coordinator provides participants with information about the biodiversity of the National Park, what makes the coastline special and what management activities of the park are ongoing.

WHICH STAKEHOLDERS ARE INVOLVED?

Total funding between April 2011 and March 2015 was GBP 63,000 (EUR 85,000). The project is funded through the Welsh Government via Lets Walk Cymru grants. The Project and Project Coordinator are hosted by Pembrokeshire Coast National Park and the Hywel Dda Local Health Board who support the Project by providing access to capital grant funding, for access improvements, as well as promoting the project with clinicians. These organisations work together through a steering group.

Some participants are referred to Walkability by their doctors through the National Exercise Referral Schemes (NERS). Other participants have accessed the walks independently or come as part of the project's work with local groups and organisations. The project presents a good example of inter-working between health and environmental sectors. It was felt that effective inter-working was based on the fact that this project benefits both sectors.

Slow Food Presidia Project

Italy

The Slow Food Presidia project aims to sustain traditional agricultural products and processing methods at risk of extinction, and to protect unique regions and ecosystems. To set up a Slow Food Presidium, producers have to guarantee the preservation of biodiversity and workers' access to fundamental services (safety, health, education) and welfare conditions.



The Presidia Project originated in 2000 in Italy, which is also the first country that introduced an identifying trademark for the labels of Presidia products. There are currently more than 450 Presidia, of which the majority are in Italy (255). A wide range of protected areas is covered by the project.

The Slow Food movement was established in Italy in 1986 as a challenge to fast food and a perceived degradation of the relationship between food and nutrition, the planet, people, politics and culture. Today, it represents a global network involving thousands of projects and millions of people in over 160 countries. As well as celebrating gastronomy, the movement has clear socio-environmental motives. Its definition of good food, as outlined in the Slow Food Manifesto, calls for a food system (including consumption), which "protects ecosystems and biodiversity, safeguarding the health of the consumer and the producer" (Slow Food, 1989). It also calls for social justice in food systems, with solidarity, respect and balanced global economies (Slow Food, 2015). The Presidia Project is a key part of the Slow Food ongoing initiatives. It works with small-scale producers to preserve food and agricultural biodiversity. The objective is to save native breeds, vegetable varieties and artisanal products at risk of disappearing. Presidia strengthen producer organisations, promote the local area, preserve traditional methods and knowledge, and support sustainable practices.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

The Presidia Project brings together communities of producers who are interested in collaborating to protect traditional products, production practices or rural landscapes or ecosystems at risk of extinction. It has helped hundreds of small scale producers continue using local traditional techniques, preserving cultural links between food, society and nature. Presidia safeguard different aspects of the production process, including the quality of the product, the health and welfare conditions of producers, and communication between producers and consumers. Furthermore, it gives consumers access to healthy, nutritious food challenging markets flooded with highly industrial, processed and ultimately unhealthy alternatives. Slow Food is responsible for the technical coordination and evaluation of requests for new Presidia projects. Each product that belongs to a Slow Food Presidium is regularly evaluated based on over 50 indicators, to assess the sustainability of the product on three levels:

- Socio-cultural: possibilities to create and develop synergies both within and outside the producers' community of origin; protecting traditional production processes;
- Agro-environmental: good practices in the maintenance and management of non-renewable resources;
- Economic: impact of the Presidium on both producers and consumers.

Examples of registered Presidia in Italy include: the Alpagota Lamb, a protected species of just 2,000 sheep farmed in Veneto; the Portonovo Wild Mussel, which is harvested in small quantities by divers threatened by industrial activities; and the Albegna Violet Asparagus, a rare coloured cultivar with 40 chromosomes instead of 20.

Biodiversity and Wider Benefits

By supporting small-scale traditional productions at risk of extinction and recovering professions and processing techniques, the Presidia project helps biodiversity by saving native breeds and fruit and vegetable varieties from disappearing. In Italy, the 255 Presidia have effectively contributed to saving numerous animal breeds and plant species at risk of extinction. The Sicilian Black Bee, for instance was at risk of extinction without conservation efforts supported by Slow Food. In this way, Slow Food Presidia safeguard rural landscapes and ecosystems. Several Presidia exist within Natura 2000 sites.

WHICH STAKEHOLDERS ARE INVOLVED?

Slow Food is a not-for-profit international organisation funded in 1986 in Italy (Arcignola, Piemonte) by Slowro Petrini whose main goal was to defend biodiversity and the quality of food products. The Presidia Project started in 2000 in Piemonte and is coordinated by Slow Food Italy with technical and scientific support by the Slow Food Foundation for Biodiversity. The University of Turin and University of Padua have developed the 50 indicators used to evaluate Presidia's sustainability.

In Italy, supporters, sponsors, businesses and national or international public bodies mobilised by Slow Food national associations (assisted by Slow Food International and the Slow Food Foundation for Biodiversity) cover costs on a voluntary basis. All donors are published on the website and in its annual Social Report. Slow Food Foundation for Biodiversity coordinates and promotes Slow Food's projects, including Presidia, by providing technical assistance, training, producer exchanges and communication. For instance, in 2012, Slow Food founder Carlo Petrini spoke at the "Global Food Security and Nutrition Dialogue" at the UN Rio+20 Conference.

Neighbourhood Gardens

Vienna, Austria

Caritas Austria has initiated 3 neighbourhood gardens where residents of their care homes work together with volunteers. The residents are elderly people that need care, disabled people and underage refugees separated from their parents. Gardening brings these people closer together; the garden provides a common ground that enables new social interactions and learning from each other.



The project is located in Vienna, in three social facilities of the Caritas. Two facilities host elderly people, and the third one, young refugees. The gardens are all part of the property, but are very different in terms of size and setting. One of them in an inner yard of a residential house and consists of a couple of raised beds, the other is a big spacious garden of a former monastery.

The Neighbourhood Gardens project was started in May 2013 and now comprises three gardens at social facilities of Caritas in Vienna. Two facilities are nursing homes for elderly people (Haus Klosterneuburg and Casa Kagran) and one is a shared apartment for young refugees who have been separated from their parents (St. Gabriel).

In the gardens, the residents work together with volunteers and do everything from the planning of the garden and maintaining of the plants to harvesting the crops, which are shared equally between volunteers and residents. The cooperative gardening season starts with a kick-off workshop, where participants get to know each other and start making plans for the garden. During the gardening season, they collaborate at least once a week for about 2-4 hours. During the garden work, everybody does as much as they are able to do, they spend time together and they learn about the effort and care that is needed to manage a garden. Setbacks and successes in the garden help participants to form relationships. In the end of a season, they celebrate their achievements together, also during the winter they also regularly meet to exchange and plan the upcoming season. The garden is the common ground that unites volunteers and residents; it is clear that this project provides important meeting and communication spaces for those involved.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

The project coordinator explained that the participants at the Caritas Neighbourhood Gardens all face different health and social challenges, but one thing they have in common is that “the garden work makes them happy and proud”, “everybody contributes as much as they can and often teamwork between volunteers and residents is needed for certain tasks” including planting, maintaining and watering plants. It fosters social interactions between people who would have probably never have met without this initiative, e.g. one volunteer, a student of landscape planning, very interested in garden work, and has never had contact with refugees before. The project aims to be inclusive, and is open to anyone who volunteers and for all residents of the care homes. While working in the garden, the participants talk about garden related issues, but they also share much more than that. They talk about their lives; about what they have gone through, they share opinions and visions about contemporary issues such as the refugee crises. The garden provides the common ground for their social interaction.

The young refugees involved in the Neighbourhood Garden project mainly come from Africa or the Middle East, having arrived in Vienna without their families. Caritas supports them in setting up a new life in the city and the garden work is one activity which encourages them to interact with local people. The gardening work, and working with nature, has a special influence on the well-being of these people. To retain the interest of these young people, gardening is also complimented with other activities such as repairing bikes which also allow them to interact with each other and skilled volunteers.

WHICH STAKEHOLDERS ARE INVOLVED?

Caritas Austria belongs to the global confederation Caritas Internationalis that consists of 165 Catholic relief, development and social service organisations around the world. In Austria, Caritas is a key stakeholder in the social sector, having about 13,880 staff members and about 40,000 volunteers supporting their engagement. The project was initiated by a staff member who was looking for a mechanism to create a bridge between the Caritas clients that are living in the social homes and local people, with the aim to lower social barriers and create opportunities for community integration. The project was taken over by the Caritas Volunteers coordinator Theresa Wirth in 2014. Each garden involves 5 to 10 volunteers and residents respectively. Representatives from each social home as well as a Caritas staff are also part of the garden working groups. The project is open for everybody, volunteers and residents. There are no other external people involved such as representatives from the political level or other civil society organisations, and no professional gardeners have been hired to support the work.

The plants used in the garden are mostly donations from businesses and companies, mostly related to organic or regional food production. The project is relatively inexpensive, with an overall budget of about 5000€ per year, the main expenses are for the coordination work and the workshops at the beginning and the end of each season. Some equipment and some additional plants have also been purchased. The project gets its financial support from an external foundation.

Biodiversity and Wider Benefits

The plants used in the garden are chosen with care, mostly organic or rare species are planted. For common vegetables such as cucumbers or tomatoes heritage varieties are used. One of the donors of seeds to the project is an association called “Arche Noah”, who have the mission of protecting horticultural genetic diversity by reproducing seeds of rare species and selling plants of these rare species.

Chrudim – Zdrave mesto (Healthy City)

Chrudim, Czech Republic

In 2001, the city of Chrudim joined the WHO Healthy Cities Project. Since then, the city has implemented a “Plan of Municipal Greenery Maintenance” and has invested in new areas of green infrastructure. This has been supported through the organisation of voluntary programmes, citizen engagement, and awareness raising campaigns to promote healthy living and biodiversity. The overarching objective of the “Zdrave mesto” (healthy city) project is to increase the health and well-being of the people of Chrudim while respecting the principles of sustainable development.



Chrudim is located in the Eastern part of the Czech Republic. The total area of Chrudim is 3.320 ha, of which 15% is covered by forests and greenery (470 ha). Two thirds of Chrudim's inhabitants are living in close proximity to a park (300m) and 87% can easily reach a green area.

Chrudim has been part of the WHO Healthy Cities Project now for more than a decade. In this period, it has implemented a wide range of activities and changes, including investments in green infrastructure, to promote sustainable living in a healthy city.

As part of its status as a healthy city, Chrudim has run a programme of greening to deliver health benefits to its citizens and visitors. Notable activities include investing in arborists to care for city trees, developing new public parks, greening housing estates, and providing new opportunities for outdoor recreation. A number of voluntary activities support the work, for example the replanting of 500 trees that were lost following heavy storms in 2008. Around 1000 people participate in voluntary projects organised by the city each year. Furthermore, Chrudim has a number of ongoing campaigns to promote healthy lifestyles and the links with biodiversity.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

The main health and social benefits of the Zdrave mesto project are related to citizen engagement and the provision of new recreation spaces. The residents of Chrudim are actively involved in decision-making processes concerning the planning and development of the town. Around 20 meetings take place each year, during which citizens, including young people and senior citizens, gather to discuss planning proposals. For example, the initiative “Enhancement of the Natural and Built Landscapes” involves residents in the urban planning of green infrastructure, such as parks and playgrounds, as well as the organisation of events in these spaces.

The town has developed a Plan of Municipal Greenery Maintenance. The plan included the regeneration of the Pod Zbrojnicí recreational area, providing an additional 11,000 m² of green space. This project had a total cost of EUR 24,000, funded by the City of Chrudim and a grant from the LivCom awards. The work was part of the wider regeneration of an estate which houses 6,000 people. Three public meetings were

held before the project was implemented (ReNewTown, 2015). Citizens have indicated that they are cycling more and make active use of the cycling paths (1.8 km) that were built in the town. The new recreational forest in Podhůra provides open an open air gym for adults and children.

Chrudim continues to promote healthy living, for example with its “Health Plan 2015-2018”, which aims to address several issues such as active ageing, non-infectious diseases, and reducing alcohol-, drug- and tobacco-related harm. The Health Plan is based on data and statistics on the current health status of the citizens of Chrudim. This is supported by a number of health/biodiversity promoting campaigns ongoing, as the “Days of Health”, the “Day of the Earth” and the “Bio-market”.

Biodiversity and Wider Benefits

Chrudim has created various biocenters and areas, including ponds, wetlands, coppices and meadows, as well as preserving the Chrudimka river as a biocorridor. The town also maintains the Natural Reserve Habrov, which is a protected site due to the growth of oak and hornbeam forests on a marl base and the existence of rare thermophile flora. Moreover, Chrudim has a heritage site, which is called “Bird Islands” within the park Střelnice. This is a protected area to support the nesting of the protected Common Rook and other rare bird species.

WHICH STAKEHOLDERS ARE INVOLVED?

Chrudim City Council leads most of the activities under Zdrave mesto and the initiative involves a number of other partners. These include schools, NGOs involved in the promotion of healthy lifestyles or advocating for the health and well-being of disadvantaged people, libraries, the private sector and a water treatment company. The public are engaged in the development of the town, for example through planning meetings, public debates, polls, and consultations. As part of the WHO Healthy Cities Project, Chrudim is a member of the Network of Healthy Towns and Cities in the Czech Republic. In 2013, Chrudim was awarded the highest category (A) of the “Local Agenda 21”, which is a voluntary process of local community consultation that aims to promote and establish small scale programmes that work towards achieving sustainable development. Chrudim is the first town in the Czech Republic to be awarded this title. Chrudim distributes grants to external organisations, initiatives or citizens who participate in fulfilling the sustainable development objectives of the town (e.g. in 2013 Chrudim awarded over EUR 6,300 to various organisations). Zdrave mesto is mainly funded through the town's own budget. It occasionally receives grants such as the LivCom bursary awarded in 2009 for the regeneration of the Pod Zbrojnicí recreational area.



Slí na Sláinte – Path to Health

Ireland

The Irish Heart Foundation has set up the Slí na Sláinte project in 1996 which aims to promote regular walking among the population as it has numerous health benefits, including cardiovascular, pulmonary and articular benefits. Local authorities and local communities are encouraged to work together and start a health path in their area.



There are around 200 walking routes across Ireland. All kinds of areas such as parks, woods, and seafront are visited during the walking routes.

Slí na Sláinte is a health promotion programme initiated by the Irish Heart Foundation in 1996. The aim of the programme is to encourage people of all ages and with all abilities to walk more often, as walking has numerous proven health effects. Moreover, as a group or tourist activity it has multiple social benefits and can contribute to the local economy. The project consists of two parts. First, Slí na Sláinte walking routes were mapped, providing information for people on where to find the routes and details on their distance. Now over 200 routes are situated all over Ireland and communities have the opportunity to propose new routes at new locations. Some of the walking paths involve Natura 2000 sites, for example the Mountmellick path (IE0002162, Habitats Directive). The paths provide signs every kilometre so that people are aware of the distance they have walked. Secondly, a training was provided for people who were interested in becoming 'walking leaders', and to guide walking groups in their own communities.

WHAT ARE THE OBSERVED HEALTH & SOCIAL BENEFITS?

Walking is a physical activity that can be done by anyone regardless of age or ability and is free of access. Walking at a speed that raises the heart rate, albeit a moderate rise is beneficial for the heart, lungs, and blood vessels and prevents heart attacks, strokes, lung diseases and high blood pressure. Moreover, it has a low injury risk and is beneficial for joint mobility, bone strength, muscles, and weight management and it increases energy levels. Finally, walking can improve mental health.

Walking can also have social benefits as it provides a way to meet new people and maintain existing friendships. At some health paths, community walks are organised that promote walking with, for example, people from your community or from the workplace. Furthermore, walking tourism can bring multiple economic benefits. A study on walking in West Cork, which has at least six Slí na Sláinte routes (including Bere Island, Glengarriff, Kilbrittain, Kinsale, Rosscarberry, Skibbereen), estimated that walking tourism contributes at least 14 million Euros to the local economy and provides around 353 full time equivalent jobs (West Cork Development Partnership, 2012).

Biodiversity and Wider Benefits

When people are encouraged to walk through nature areas, it is likely that they will be more aware of the importance of nature protection and nature in general. Moreover, the organised and guided walks by the 'walking leaders' educate people about nature.

The health path created in Mountmellick (see above), which is a Natura 2000 site and an important habitat for the endangered Desmoulin's whorl snail, involved an assessment of the risk of impact on nature in order to guarantee the protection of the site.

WHICH STAKEHOLDERS ARE INVOLVED?

The Irish Heart Foundation (IHF) initiated the national program and it is supported by the Health Service Executive (HSE), Irish Sport Council, Healthy Ireland and Get Ireland Walking.

Whenever a new path needs to be built, the IHF requires that there is a team available of two to five people, including at least one representative from the local authority and local community. Moreover, other team members can consist of representatives from local sports partnerships, vocational education committees, offices of Public Works, regional tourism organisations, regional health boards or local development agencies.

Local authorities or other sponsors provide funding for the local paths. Once a path has been developed, it has to be approved by a local engineer as well as the local authority, which must approve its location for safety and insurance purposes. In case the new path crosses a Natura 2000 site, an assessment has to be carried out during the design and development phases of the path. For example, the path in Mountmellick went through a Habitats Directive Assessment to safeguard the special area of conservation.

The approach of Slí na Sláinte is unique as it involves a variety of stakeholders from different sectors and levels. It is initiated at the national level and implemented at the local level. Moreover, it is a project that is initiated by the health sector that involves stakeholders from the environmental sector and local communities itself.



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