INHERIT

Creating Triple-Wins for Health, Equity and Environmental Sustainability:

Elements of Good Practice Based on Learning from the INHERIT Case Studies

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Preface

Around the world, people are becoming increasingly aware that climate change and environmental degradation pose unprecedented threats to human health and wellbeing. All too often, poorer communities suffer the most from the widespread consequences of these mega-problems and benefit the least from measures taken to address them.

Aligning with the imperatives for action to address these challenges, the EU HORIZON 2020 INHERIT project (2016–19) focuses on working across sectors to achieve a triple-win: improvement to health, equity and environmental sustainability.

This report draws out dimensions of good practice for building this triple-win, based on learning from the INHERIT project's 15 case studies. In the context of the project, good practice refers to ways that support changing contexts and create conditions to enable behaviour change to reach the triple-win. This report summarises key information for consideration by governmental and non-governmental policy-makers and practitioners planning to work across sectors to achieve the triple-win through behaviour change at every level.

INHERIT researchers have focused their evaluations of the 15 INHERIT case studies on implementation, intersectoral cooperation, impacts and cost benefits, reported in detail elsewhere (Anthun *et al.,* 2019; Bell *et al.,* 2019a; García de Jalón *et al.,* 2019; van der Vliet *et al.,* 2019). The researchers have taken dimensions of good practice from INHERIT research to be those elements that appear to be promising or necessary in the contexts in which the INHERIT cases studies are implemented. The extent to which these elements of good practice can be generalised to other contexts merits consideration in developing future initiatives towards creating synergies across sectors.

INHERIT researchers have drawn out lessons learned from information gathered in evaluations about triggers for the initiatives, key elements for implementation, success factors in intersectoral cooperation, what could have been done better, what should be done in the future, and the most important learnings from the evaluation of outcomes, costs and benefits.

From a global perspective, the INHERIT case studies are relatively small-scale initiatives that address big issues of health, equity and environmental sustainability. Yet they do speak to wider policy. Shifting social norms, those shared beliefs about what constitutes typical and appropriate behaviour, requires wider policy action and a groundswell of local initiatives – the metaphorical 'nutcracker' effect (Baum, 2007).[1] These smaller projects resonate with people's daily lives and, taken together, many of these initiatives can bring about the changes that are needed. This is already happening around us. Thousands of initiatives are contributing to change and shifting social norms.

1 The 'nutcracker' effect is the effect of top-down political commitment and policy action combined with bottom-up action from communities and civil society groups to crack a societal problem (Baum, 2007).

CHAPTER 1
INTRODUCTION

The interconnected influence of social, economic, environmental, political and cultural factors in shaping health and equity is long recognised. In response, the World Health Organisation (WHO) Commission on Social Determinants of Health (CSDH) (2005–08) set out a global agenda to support countries in tackling these interconnected determinants of ill health and health inequities (Marmot *et al.,* 2008). Subsequent reviews have examined social determinants in different regional and national contexts and made proposals for action (Marmot *et al.,* 2010; Marmot *et al.,* 2012; Pan American Health Organization, 2018).

The inherent complexity of the interconnected nature of social, economic, environmental, political and cultural determinants of health lies at the core of the public health agenda but is now overlaid and exacerbated by anthropogenic damage to global systems and processes. The UN Sustainable Development Goals (SDGs) represent a global response and call for action on these issues (United Nations, 2015).

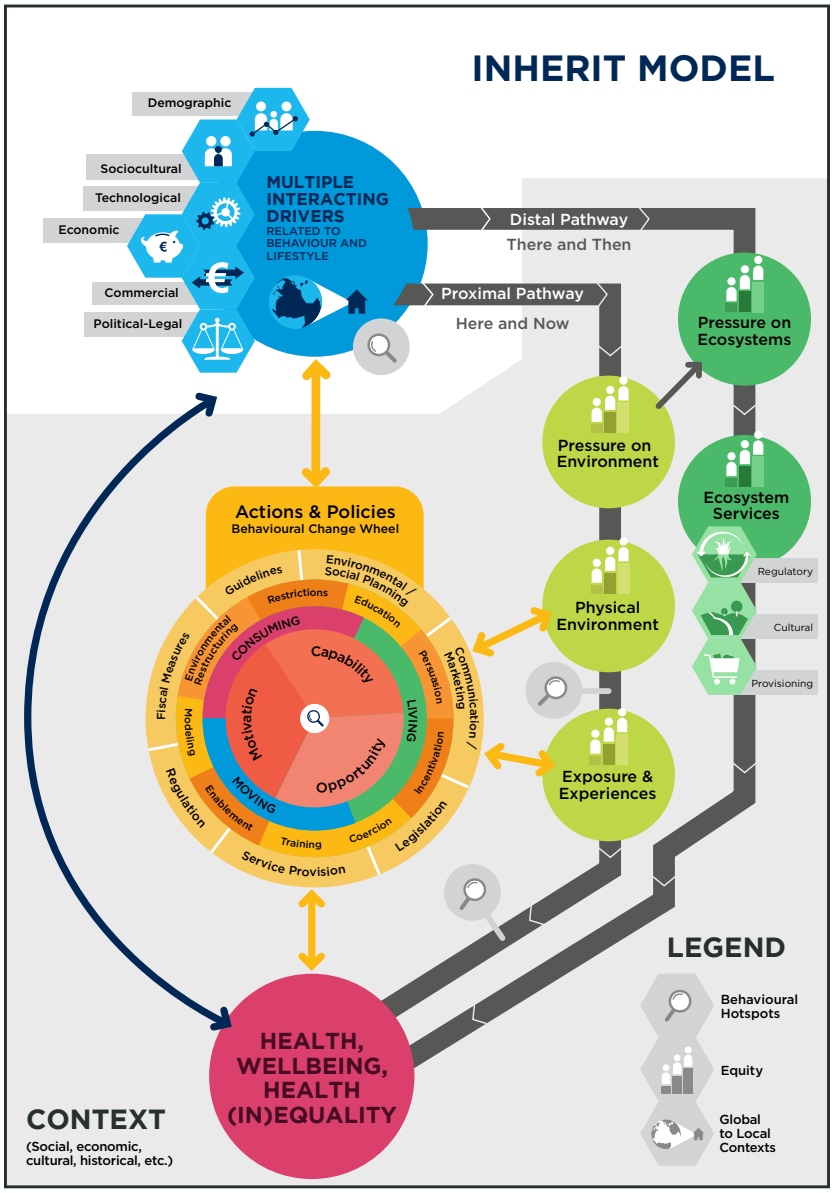
For many, it is now simply inconceivable that health, wellbeing or equity can be delivered in the medium to longer term without placing concern for the natural environment at the core of all policies. Viewing this multifaceted challenge through the prism of public health, INHERIT focuses on identifying and evaluating initiatives that have the potential to generate a 'triple-win' of enhanced health and wellbeing, greater equity and improved environmental sustainability. A critical defining feature of INHERIT is its emphasis on the role of human behaviour and its determinants in shaping the challenges and delivering the solutions.

The INHERIT project operates in the domains of **Living** with a focus on green spaces and energy-efficient housing, **Moving** with a focus on active transport (especially walking and cycling), and **Consuming** with a focus on the sustainable production and consumption of healthy food. Ultimately, the INHERIT project wants to contribute to creating policies and measures to enable people to change behaviours in ways that have the potential to improve health, health equity and environmental sustainability, through creating conditions that enable all people in society to live more healthily and more sustainably.

1.1 INHERIT's Common Analytical Framework

At the heart of the INHERIT project is the Common Analytical Framework comprising the versatile INHERIT model at its core (Figure 1) and the Logic Model (Section 2). The INHERIT model depicts the relationships between a range of variables and may be populated with generic challenges in the areas of living, moving and consuming (van der Vliet *et al.,* 2018).

Figure 1. The INHERIT Model



The INHERIT model is the latest in a series of developments of the earlier DPSEEA model (also a relational model).[2] The DPSEEA model (Corvalán, Briggs and Kjellstrom, 1996) is a simple depiction of the pathway leading from the multiple interacting **Driving Forces** that create **Pressures** on environmental **State**(s) (called 'physical environment' in the INHERIT model), which, in turn, can result in **Exposures** to aspects of the environment for populations or sub-populations. These **Exposures** have the potential to generate health **Effects** in exposed persons (called 'health, wellbeing, health (in)equality in the INHERIT model). This pathway can be either positive or negative (for example, actions on the drivers can result in less green space but also in more green space, depending on what the actions are).

The DPSEEA model and its derivatives mDPSEEA (Morris *et al.,* 2006), eDPSEEA (Reis *et al.,* 2015) and the INHERIT model (van der Vliet *et al.,* 2018) also have strong policy relevance because they represent **Actions** that have the potential to improve an unsatisfactory situation. The Actions may be directed towards different parts of the models, including stages on the DPSEEA pathway.

It is useful to see all models based on DPSEEA as frameworks for integrating Environmental Impact Assessments and Health Impact Assessments. Furthermore, mDPSEEA, eDPSEEA and the INHERIT model can additionally support Health Equity Impact Assessments (see below). When populated for a specific issue, every model in the DPSEEA 'family' can be used to identify indicators enabling quantification (including the cost benefit analysis of policies and **Actions**). By incorporating a second ('distal') pathway leading from multiple interacting drivers to health and wellbeing, which represents the pressure on the Earth's ecosystems and the services they provide, both eDPSEEA and the INHERIT model encourage us to think about the triple-win in the communities in which we live ('here and now') but also to think on the vastly extended temporal and spatial scale (the 'there and then'), as we now so urgently need to do.

The INHERIT model is a particularly useful tool for thinking about health inequalities. This is firstly because the distribution of environmental states conducive to health and wellbeing varies between locations, as a result of differences in the interacting **Driving Forces**. Secondly, there is variation between locations and their populations in terms of the contextual factors that influence exposure and vulnerability. In practical terms, the complexity of the interaction between coexisting factors in a location defies simplification. For this reason, within the INHERIT project the impact of a specific policy or initiative on inequalities must be more in the nature of an interpretation of evidence from a variety of sources and can rarely, if ever, be conclusively demonstrated. Similarly, the impact of local policies and initiatives on global ecosystems and the services they confer (represented in the model's distal pathway) also must be based largely on the interpretation of evidence from the wider literature. However, the INHERIT model can help to organise existing evidence and to enhance the visibility of the linkages and interrelatedness between health and environmental sustainability challenges.

INHERIT's focus on behaviour change recognises the autonomy of the individual while at the same time understanding that behaviour is constrained or enabled by contextual factors, including economic, social, environmental and cultural factors. These factors support or hinder key determinants of behaviour change: capability, opportunity and motivation (as depicted in the COM-B model) (Michie, van Stralen and West, 2011). This approach aligns with evidence to show that changes in the wider policy environment are necessary to support individual behaviour change (Capewell and Capewell, 2018). INHERIT's common analytical model incorporates the Behaviour Change Wheel (Michie, Atkins and West, 2014), which provides a model for developing all kinds of policies, programmes and interventions to influence determinants of behaviour change among individuals, groups and populations, as well as among decision-makers at all levels. For an example of how the INHERIT model can be applied to the case of food consumption see van der Vliet *et al.,* 2018.

2 DPSEEA stands for Driving Force, Pressure, State, Exposure, Effect.

1.2 Envisioning a healthier, more equitable and sustainable future through four scenarios

INHERIT partners developed four future positive scenarios: *My life between realities; Less is more to me; One for all, all for one* and *Our circular community.* These scenarios represent four possible ways of moving towards European societies that in 2040 are healthier, more equitable and sustainable (Guillen-Hanson, Strube and Xhelili, 2018). The four scenarios represent four different routes to the INHERIT triple-win according to four contrasting ways in which societies could be organised: either predominantly individualistically or collectively, and with the driving sector being either predominantly public or private. The scenarios set out to answer the question: "What can healthier and more sustainable lifestyles, as well as greater health equity, look like in Europe in the year 2040?"

The INHERIT future scenarios are highly optimistic visions, created in a time when major global challenges are threatening and the future for many looks grim. But optimism fuels creativity and spurs actions that are essential in building a better future for all.

Evaluations of citizens' perspectives on these scenarios, carried out based on focus group discussions in five European countries – Czech Republic, Germany, North Macedonia, Spain and the United Kingdom – revealed that the *One for all, all for one* scenario was the most appealing scenario overall (Grossi, Strube and Xhelili 2018). This suggests that people may want a stronger focus on locality, communality and mutual support in everyday activities.

The INHERIT scenarios also featured as prompts for questions in the INHERIT Five Country Survey, conducted in five countries: Czech Republic, Latvia, Portugal, Spain and the United Kingdom (Zvěřinová, Ščasný and Máca, 2018). Interesting results were found for each of the INHERIT domains (Living – green space and energy-efficient homes, Moving – active transport, Consuming – health and sustainable food production and consumption). Regarding green spaces, real green spaces (as put forth in *Our circular economy*) were preferred over augmented reality, whereby experience is enhanced by technology (presented in *My life between realities*). In contrast, *My life between realities* was among the most preferred scenarios for the future of active mobility. For energy-efficient housing, the preferred model for all respondents except those from Latvia was a switch to renewable energy, achieved through collaboration between energy companies, the public sector and citizens (presented in '*Our circular economy*'). For sustainable food production, the scenario of self-grown and seasonal food represented by *One for all, and all for one* was most preferred in all countries except Spain, where it was the second most preferred. The preference for self-grown and seasonal food seems to indicate an interest in consuming 'local' food which may vary among EU countries.

Although the majority of respondents to the INHERIT Five Country Survey could imagine that they would be living a healthier and more sustainable lifestyle in the year 2040, the act of making changes to their lifestyles might not be so easy. For example, most respondents said they preferred to keep eating meat, even though we informed them that plant-based diets are recognised as nutritionally sufficient and can contribute to reducing the risk of many chronic illnesses, as well as being better for the environment and climate. However, reducing meat may be more acceptable in some circumstances. To facilitate these dietary changes various policies, programmes and interventions need to be introduced. In all surveyed countries, respondents agreed that eating a healthy and sustainable diet would be easier for them if the prices of vegetables and fruit were lower, the prices of foods high in sugar and salt were higher, and if fresh vegetables and fruit were more easily available in stores, restaurants and public places. These findings, along with further insights from the INHERIT Five Country Survey, will provide a broader context for the overall findings from the case study evaluation, and help guide thinking about what kinds of actions can lead to a healthier, more equitable and sustainable future.

Scaling-up and transferring promising innovations

INHERIT's 15 case studies in the domains of living, moving and consuming provide examples of measures that can be implemented to contribute to achieving the positive scenarios developed in the INHERIT project. These initiatives sit within a broad range of possible measures. The 15 case studies were drawn from the INHERIT database of around 100 'promising practices' (INHERIT, 2019). Many of these promising practices represent efforts made by, inter alia, citizens, schools, community-based organisations, non-governmental organisations, small enterprises and municipalities. Learning from the INHERIT cases studies is useful and relevant not only to the scaling-up of actions but also to transferring promising actions to new contexts and introducing further innovative approaches towards a healthier, more equitable and sustainable future for Europe. Indeed, an individual action multiplied across society, stimulated by many small initiatives as well as national policy tools (such as subsidised fruit and vegetables for those on lower incomes), and municipal initiatives (such as sustainable food in state nursery schools) and new business models can shift social norms.

1.3 Aim and themes of the report

This report summarises key findings from evaluations of the INHERIT case studies and presents overarching suggestions for how initiatives can be implemented across different contexts. The aim is to support policy-makers, civil society actors and others who can help design policies and make investment decisions to facilitate scale-up and wider actions.

The report groups the INHERIT case studies by the following themes, which capture and combine elements of the INHERIT domains of living, moving and consuming:

- **Community-based initiatives around food.** Case studies: De Voedseltuin, PROVE, STOEMP.
- **School-based initiatives.** Case studies: GemüseAckerdemie, Gardening with Green Gym and Meat Free Monday, Sustainable Food in Public Schools.
- **Open/green space initiatives.** Case studies: Malvik Path, Restructuring Green Spaces, Restructuring Residential Outdoor Areas, Thinking Fadura.
- **Energy efficiency in homes.** Case studies: Eco Inclusion, Energy Efficient Investments.
- **Mobile phone applications around moving.** Case studies: UrbanCyclers (active transport) and Lifestyle-coaching (physical activity).
- **Participatory governance approaches towards the triple-win.** Case study: Place Standard.

This section of the report (Chapter 1) sets out the basis of the INHERIT project and the Common Analytic Framework that guides INHERIT's work and introduces the 15 case studies that inform the elements of good practice presented in this report.

The rest of the report is arranged in the following way.

- **Chapter 2** describes the methodologies used to monitor and evaluate the case studies.
- **Chapter 3** draws out lessons learned from the implementation of case studies, and the qualitative process evaluations focusing on intersectoral cooperation in case studies.
- **Chapter 4** draws out lessons learned from quantitative and mixed-method evaluations of outcomes, and cost benefit analysis of case studies.
- **Chapter 5** concludes with elements of good practice.

CHAPTER 2
EVALUATION OF CASE STUDIES

This section briefly describes INHERIT's methodological approaches to studies on the implementation process, intersectoral cooperation, impacts and benefits, and economic aspects of the 15 INHERIT cases studies. Full details are reported elsewhere (in Anthun *et al.,* 2019; van der Vliet *et al.,* 2019; Bell *et al.,* 2019a; García de Jalón *et al.,* 2019 respectively).

The INHERIT partners selected all of the 15 initiatives for their theoretical potential to make the triple-win: improvements to health, equity and environmental sustainability. Thus, it was possible for INHERIT partners to think through how each specific initiative is linked to stages in the INHERIT model with the potential to create conditions that would support behavioural changes that in turn would contribute to the triple-win through proximate and distal pathways.

INHERIT partners used the generic INHERIT logic model, derived from the overall INHERIT model, to develop specific logic models for each of the cases studies. The generic INHERIT logic model is a planning tool to enable partners to identify key aspects of the intervention in preparation for the initiative, the kinds of inputs and resources required to enable the intervention functions (staff, money, evidence base, equipment, technology, partners), expected outputs and activities (including multiple strategies, intersectoral cooperation, stakeholder engagement, citizen/community participation, behavioural change of policy-makers), and outcomes. The generic logic model describes outcomes and proposed indicators to be assessed in four temporal divisions:

- **Short-term outcomes:** behavioural determinants in the domains of capability, motivation, opportunity
- **Intermediate-term outcomes:** changes in behaviours, health and wellbeing, environmental change, and behaviours of decision-/policy-makers and influencers
- **Long-term or end outcomes:** INHERIT triple-win impacts on health and wellbeing, quality of life, material conditions, social conditions, environment and inequalities
- **Distal effects:** INHERIT triple-win impacts on population health and wellbeing, environmental sustainability and health inequity

The logic model and associated indicators guided partners in identifying which outcomes could be evaluated within the frame of the conceptual model, and which intermediate, longer-term and distal outcomes might be inferred or interpreted from the model and evidence from wider literature.

INHERIT partners monitored the process of implementation, evaluated intersectoral cooperation, benefits and impacts, and conducted cost benefit analyses of selected case studies. Table 2 shows the specific evaluation methodology applied to each case study.

It is important to note that INHERIT case studies took different forms: some were pre-existing initiatives and others were created, implemented and evaluated during the INHERIT project. In this way, the case studies are one of four types:

a) A new element that was added to an already implemented intervention

b) A case study that transferred one or more elements from one promising practice to another

c) An aspect of a promising practice that had yet to be assessed

d) A case study that introduced a promising practice into a new context

2.1 Implementation process

INHERIT partners monitored the implementation process of case studies. To do so, the research team at the Norwegian University of Science and Technology (NTNU) collected information about the implementation process from INHERIT partners in close collaboration with local implementers (Anthun *et al.,* 2019). Information collected included details on key activities for implementation, including activities related to communication with target groups and other audiences, meetings with stakeholders and local implementers, and standardised templates recording important aspects including unforeseen events during the implementation process, as well as key barriers and facilitators within the implementation process.

2.2 Intersectoral cooperation

INHERIT partners conducted qualitative research using focus groups (one focus group per case study) on 12 case studies in 10 European countries (van der Vliet *et al.,* 2019). INHERIT researchers at the Netherlands National Institute for Public Health and the Environment (RIVM) developed a methodology based on the 'appreciative inquiry' approach. This was used with stakeholders that represented different sectors involved in implementing each case study to gain insights into the factors that helped ensure successful implementation of the initiative. Appreciative inquiry is an asset-based approach used to understand what works and what more could be done in the future. Focus group topics were centred on three phases of intersectoral cooperation: the start and development of the cooperation, core (success) factors of the cooperation, namely barriers and challenges and what was missing, and the future of the cooperation. As a wrap-up question, participants were asked what was most important to them out of all the points discussed (van der Vliet *et al.,* 2019).

2.3 Impacts and benefits

The focus of the quantitative and mixed methods evaluations was on short-term and intermediate outcomes on the proximate and distal pathways to the potential or theoretical INHERIT triple-win, based on the INHERIT model. For each case study, specific research questions were identified that were related to the overall INHERIT aims.

INHERIT researchers at University College London (UCL) developed an evaluation framework to suit the range of case studies examined for impacts and benefits, the case-specific logic models developed and the research questions identified (Bell *et al.,* 2019a). The UCL team identified validated tools from the research literature and proposed a set of tools that would be suitable. The final selection of tools was based on the following criteria: it should be a standardised tool, available in multiple languages, available for and tested with different age groups, and tested for reliability and validity. The burden on

study participants was also taken into account, by ensuring that the surveys would not be too long. The resource requirements (costs and personnel) needed to use the tool were also taken into consideration.

The selected tools were used to assess levels of physical activity, food preferences and mental wellbeing, while an observation tool was used to assess use of green or open spaces in relation to features of the green space, and survey items used to assess aspects of demographics and socioeconomic position.

Table 1: Tools for impact evaluation of INHERIT case studies

	Measures	Instrument
Part 1	Introductory questions	Demographic and socioeconomic information
Part 2	Physical activity	International Physical Activity Questionnaire (short form) (IPAQ-SF)
		System for Observing Play and Recreation in Communities (iSOPARC)
		Accelerometry
	Healthy eating	Short Food Frequency Questionnaire (SFFFQ)
		Modified Child Nutrition Questionnaire (MCNQ)
		Knowledge of Nutrition and Plant Science (for children) (NKK)
	Mental wellbeing	Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWB)
		Stirling Children's Mental Wellbeing Scale
Part 3	Additional questions in survey	Environmental opportunities, programme evaluation

INHERIT partners designed surveys using the instruments described in Table 1 where they were appropriate for their study, and in some cases identified other suitable tools from the research literature. Details are provided in the case study chapters in Bell et al. (2019a) and in articles to be published in peer-reviewed journals by INHERIT partners leading specific cases study evaluations. See, for example, the International Journal of Environmental Research and Public Health Special Issue 'A more sustainable and healthier future for all: what works?'

2.4 Economic aspects (cost and benefits)

Cost benefit analysis (CBA) is a recognised analytical tool of economic analysis for decision-making. Four INHERIT case studies were analysed using a CBA methodology (García de Jalón *et al.,* 2019). CBA intends to include multiple benefits and costs to local communities and society as a whole in the analysis. It takes into account the perspectives of all social actors or stakeholders affected by the implementation of the project itself and it is also known as economic appraisal. Ideally it should consider all tangible and more intangible impacts in terms of costs and benefits and convert them into monetary values using a variety of methodological approaches, depending on the type of impact.

In the case of INHERIT, the analysis was informed by the INHERIT Model. It included environmental and social costs and benefits that can be reasonably quantified, using methodologies for the non-market valuation. In practice, it is hard to value all intangible impacts and so only those for which reasonable non-market values are available are usually considered. To inform the analysis, literature reviews were conducted separately on the benefits of green spaces and the benefits of healthy diets.

One vital aspect of the CBA proposed for the INHERIT case studies was the involvement of the local agents responsible for the implementation of the initiative in the evaluation process. Local agents were involved in all major methodological steps:

- Identification of status quo and policy change
- Identification of affected and vulnerable groups, and related categories of impacts (costs and benefits)
- Data on implementation costs
- Time horizon for the evaluation of the intervention impacts
- Quantitative evaluation of key items in the CBA, as well as inputs in the construction of the citizens' surveys and stakeholders' workshops
- Consideration of qualitative aspects in the interpretation of results (e.g. social justice, participatory processes)

Stakeholder participatory processes in the form of meetings and citizen surveys were conducted as necessary, to gather specific information for the evaluation of quantitative aspects. Details of these and the methodological steps taken to perform the CBA on the four case studies are reported in INHERIT Report 5.3: Cost-benefit analysis of four INHERIT case studies (García de Jalón *et al.,* 2019).

2.5 The 15 INHERIT case studies

Table 2 provides a summary of all 15 case studies, listed by theme, and the methodology used to evaluate each one, as well as key findings from the evaluations. The table provides a context for the remaining sections of the report, which draw out the principal learnings from the case studies that INHERIT partners think are important and relevant for policy and practice in creating the INHERIT triple-win through intersectoral action.

Table 2: 15 case studies by theme: Description, type, evaluation methodology and key findings

NAME	LOCATION	NATURE OF INTERVENTION	TYPE OF CASE STUDY	QUALITATIVE/ INTERSECTORAL COOPERATION		QUANTITATIVE/MIXED METHODS		COST BENEFIT ANALYSIS	
				Meth-ods	Key findings	Methods	Key findings	Meth-ods	Key findings
COMMUNITY-BASED INITIATIVES AROUND FOOD									
The Food Garden (De Voedseltuin)	NL	An urban community gardening initiative	C	✔	Facilitators to intersectoral cooperation were having mutual trust and respect, being open, with confidence and trust in other parties, having long-term vision and patience. Also, having common goals, municipality support who was an equal cooperation partner and meeting up and sharing stories and results. Barriers were the lack of more structural subsidies, scepticism from outsiders towards social entrepreneurship, short-term rental contracts for food garden area. Future wishes included a pilot to expand and test hybrid business model (with funds from public, private and collective sources).	✘	-	✘	-

NAME	LOCATION	NATURE OF INTERVENTION	TYPE OF CASE STUDY	QUALITATIVE/ INTERSECTORAL COOPERATION		QUANTITATIVE/MIXED METHODS		COST BENEFIT ANALYSIS	
				Meth-ods	Key findings	Methods	Key findings	Meth-ods	Key findings
PROVE	PT	Sustainable farming practices creating closer links among producers and consumers	C	✔	Facilitators of intersectoral cooperation were the visibility of the project, trust between consumers and producers and between cooperation partners who saw necessity, mutual benefits. Meeting up was important A barrier was the inadequate funding at this stage of the project which requires the development of financial independence of producers Future wishes included more marketing, improvement of management platform, and more cooperation strategies to increase publicity and brand consolidation	Quasi-experiment, post study design with mixed methods Farmers and consumer studies INHERIT Five country survey*, consumers questionnaire, European Social Survey, farmers questionnaire, focus groups impact questions (farmers and consumers)	Comparative studies indicated high levels of personal empowerment and wellbeing among PROVE farmers and healthier and more sustainable diet options among PROVE consumers. Stakeholders identify in the focus group economic (economic empowerment), environmental and production quality gains in PROVE farming practices. Additionally, PROVE influence in eating habits was addressed mentioning the increase in frequency and variety in fruit and vegetables intake.	✘	-
STOEMP (Ghent en garde)	BE	Local food initiatives	C	✔	Facilitators of intersectoral cooperation were having the right, open people who listen, have clear agreements and goals, and meet up, have regular reflection and adjustments moment, with active contribution of the city. Barriers were the political elements which created some struggles (e.g., political agenda) Future wishes were related to growth and expansion (to include for-profit sector), more visibility and awareness of the project by outsiders.	✘	-	✘	-

* Zvěřinová I., Ščasný M., & Máca V. (2018). INHERIT: Barriers and Potential for Adopting Healthier, More Equitable and Environmentally Friendly Solutions Identified in a Five-Country Survey. Charles University Environment Centre. Available at https://www.inherit.eu/five-country-survey/.

NAME	LOCATION	NATURE OF INTERVENTION	TYPE OF CASE STUDY	QUALITATIVE/ INTERSECTORAL COOPERATION		QUANTITATIVE/MIXED METHODS		COST BENEFIT ANALYSIS	
				Meth-ods	Key findings	Methods	Key findings	Meth-ods	Key findings
SCHOOL-BASED INITIATIVES									
Gemüse Ackerdemie (Vegetable Academy)	DE	Increasing volunteers to support vegetable academy programs for school aged children to connect with nature and origins of food	A	✔	Facilitators of cooperation were sitting together and having regular reflection, short-way personal communication. Also the supporting role of Ackerdemia and having motivated and enthusiastic partners Barriers were remaining long-term engagement and co-ordinators (among teachers and mentors at this specific school) Future wishes specific to school studied in focus group were that the project would be carried outwards, better (beforehand) communication and kick-off meeting, and involving older people as mentors (intergenerational idea)	✘	-	✘	-
Gardening with Green Gym and Meat Free Monday	UK	Gardening activities with children in a primary school and promotion of a meat free day/week	B	✔	Facilitator of intersectoral cooperation were understanding of everybody's goals, shared motivation regarding benefits for children, positivity of project, seeing success. Meeting up. Barriers were a lack of time, unclear understanding at start of expectations, communication between the research and the facilitation sides Future wishes were that Green Gyms is taken up in every school and taken up in school curricula	Mixed methods Accelerometers, questionnaire survey, focus groups with children, structured questionnaire with teachers and instructors, participant observation	Findings indicate reduced sedentary behaviour and increased light and moderate to vigorous activity, increased consumption of fruit, improved knowledge of nutrition, connection with nature, social relations and perceived wellbeing among children.	✘	-

NAME	LOCATION	NATURE OF INTERVENTION	TYPE OF CASE STUDY	QUALITATIVE/ INTERSECTORAL COOPERATION		QUANTITATIVE/MIXED METHODS		COST BENEFIT ANALYSIS	
				Meth-ods	Key findings	Methods	Key findings	Meth-ods	Key findings
Sustainable food in public (nursery) schools	ES	Introducing sustainable foods at public nurseries in Madrid	C	✔	Facilitators were having the right people, who were highly involved and had shared goals (regarding infant development and health) and existing familiarity who see the necessity of cooperation, and have a holistic view on food, who have the opportunity to exchange experiences. Support by municipality and support for learning about healthy sustainable food Barriers to cooperation were difficult dialogues with politicians, low staff and uncertain budgets. Future wishes include more long-term planning, involve and motivate all stakeholders.	✘	-	✔	The economic analysis showed that economic benefits may be substantially greater than costs. For every euro invested an economic return of 5.8 to 8 euros was estimated. Whilst the present value of the benefits was around €40.6 million the present value of the costs was almost €5.2 million in a 30 years horizon.
OPEN/GREEN SPACE INITIATIVES									
Malvik Path	NO	Construction of a recreational path connecting two communities	C	✘	-	Mixed methods Population survey' Observation of use and activity level in two seasons, Structured onsite interviews, short on-site survey and digital counter	Significant increase in use of the path from 2015 (before the official opening) to 2018. Contextual matters such as location and design were identified as important determinants for using the path. The path is used regardless of belonging to any particular socio-economic group.	✔	The Malvik Path project is considered as economically feasible and profitable from a societal perspective.

NAME	LOCATION	NATURE OF INTERVENTION	TYPE OF CASE STUDY	QUALITATIVE/ INTERSECTORAL COOPERATION		QUANTITATIVE/MIXED METHODS		COST BENEFIT ANALYSIS	
				Meth-ods	Key findings	Methods	Key findings	Meth-ods	Key findings
Restructuring Residential Outdoor Areas	SE	Regeneration of and improved access to an open space	A	✔	Facilitators of intersectoral cooperation included having clear shared goals and agreements, an assigned leader, applying for funds together, looking over property borders (seeing the area as a whole), long-term cooperation thus familiarity. For citizen involvement, seeing its value, having direct conversations, using existing contacts. Barriers were funding and municipality capability to co-operate with property owners. Contacts and communication should have taken place earlier Future wishes included creation of ownership, continued cooperation, remaining priority and funding.	Case control/pre-post Survey and Observation of use and activity level Dialogue with residents	Results from quantitative methods are inconclusive. Qualitative results indicate an improved sense of safety, more opportunities for children, less for younger ones, reduced access of traffic. More consultations with residents during design development were expected.	✘	-
Restructuring Green Space	NL	Restructuring of an open green space	A	✔	Facilitators of intersectoral cooperation were having enthusiastic partners, long-term cooperation so familiarity, having a common vision, long-term breath, open attitudes and dialogue. Taking citizens seriously. Large investments in citizen engagement/ reaching them. Barriers were creating and maintaining ownership among residents. Future wishes included plans to create more ownership among residents (plans included neighbourhood events, more communication, management group of residents).	Observation of use and activity level	Variety in use and users of the park has increased after restructuring- different age groups, genders, and ethnicities use the park	✘	-
Thinking Fadura	ES	Providing restricted access of green spaces to the general public	A	✘	✘	Observation of use and activity level Stakeholder workshop 2 face-to-face surveys: Fadura green space users and citizens in the municipality	Whilst the CBA allowed comparing the profitability against the status-quo scenario the participatory evaluation contributed to identify potential co-benefits of greenspaces in terms of improved ecosystem services and human health through population exposure and contextual factors.	✔	Based on CBA results, the Thinking Fadura project is considered as economically profitable and beneficial from a societal perspective. It could serve as a reference in the decision-making process and the CBA could be replicated in numerous European case studies.

NAME	LOCATION	NATURE OF INTERVENTION	TYPE OF CASE STUDY	QUALITATIVE/ INTERSECTORAL COOPERATION		QUANTITATIVE/MIXED METHODS		COST BENEFIT ANALYSIS	
				Meth-ods	Key findings	Methods	Key findings	Meth-ods	Key findings
ENERGY EFFICIENCY IN HOMES									
Eco Inclusion	DE	Capacity building and awareness program on energy efficiency in housing	A	✔	Facilitators of intersectoral cooperation included trustworthy cooperation with good personal relationships and familiarity, trust and reliability. Flexibility of project to adjust to local needs. Appreciation and satisfaction of stakeholders who share common goals and are committed. Involving partners that know the target group (peer-based approach) Barriers: time, resources (now limited due to project framework) Future: more time, multipliers with an official link to institutions they represent. Involvement of additional partners, reaching out to children/young people	survey of knowledge transfer	Findings from knowledge transfer show not consistent, mixed results across topics and sub-groups of refugees (according to sex, education, duration of stay and type of accommodation). In general, knowledge transfer is higher among refugees with longer duration of stay. Topic of ventilation was less well understood. Evaluation process shows need to adapt/ refine evaluation methods to specific characteristics of refugee population (e.g. low education, partly illiteracy, unstable residence status).	✘	-
Retrospective Analysis of Energy Efficiency Investments	UK	Energy efficiency investments including Double-glazing, insulation and improved heating systems	C	✘	-	✘	-	✔	Reductions in carbon and energy use are significant over time – so the environmental effects are unambiguously positive. The health impacts are mixed – for draught proofing and loft insulation these are negative, whereas for double glazing and replacement boilers, hospital admissions are reduced.

NAME	LOCATION	NATURE OF INTERVENTION	TYPE OF CASE STUDY	QUALITATIVE/ INTERSECTORAL COOPERATION		QUANTITATIVE/MIXED METHODS		COST BENEFIT ANALYSIS	
				Meth-ods	Key findings	Methods	Key findings	Meth-ods	Key findings
MOBILE PHONE APPLICATIONS AROUND PHYSICAL ACTIVITY									
Lifestyle e-coaching	NL and GR	A lifestyle change application	A	✘	-	Randomised control pre-post study design, questionnaire survey	Findings indicate increased physical activity and well-being levels over the course of this experiment, especially for people with sedentary behaviours, and demonstrate effectiveness of lifestyle e-coaching for people with lower socioeconomic status.	✘	-
UrbanCyclers	CZ	Biking intervention using UrbanCyclers app	A	✔	Facilitators of intersectoral cooperation were having the right people who were open, thought broadly about the topic of transport, had common values and mutually beneficial goals, and existing familiarity Barriers were that some partners did not give priority to cooperation, some difficulties to find mutual benefits among application developers, political/legal contexts, and stakeholders who were protective of own work or did not acknowledge each other properly Future wishes included more cooperation through technical possibilities, boost mutual cooperation, meeting- up with partners. Disseminate results more.	Randomised control study pre-post design questionnaire survey, data from mobile app	Preliminary analysis on data from about 400 participants suggests that people can be effectively motivated to more frequent commuter cycling with small financial rewards embedded in smartphone apps, such as UrbanCyclers.	✘	-

NAME	LOCATION	NATURE OF INTERVENTION	TYPE OF CASE STUDY	QUALITATIVE/ INTERSECTORAL COOPERATION		QUANTITATIVE/MIXED METHODS		COST BENEFIT ANALYSIS	
				Meth-ods	Key findings	Methods	Key findings	Meth-ods	Key findings
PARTICIPATORY GOVERNANCE APPROACHES TOWARDS THE TRIPLE-WIN									
Place Standard (Latvia)	LV	Implementation of Place Standard Tool: a framework to structure conversations about place and community	D	✔	Facilitators of cooperation was the tool itself to promote intersectoral work and thinking. In addition, presenting results generated interest in tool in municipality Barriers included engaging citizens more and their under-standing of PST was limited Future wishes included usage of results, implement tool elsewhere, involving and activating citizens.	✘	-	✘	-
Place Standard (Macedonia)	MK	Implementation of Place Standard Tool: a framework to structure conversations about place and community	D	✔	Facilitators included interested and committed major and municipality and project coordinator, the compatibility of project and municipality program, results and success of implementation Barriers/Future wishes included that activity should be better planned beforehand (and not during summer), awareness should be raised on importance of tool, and municipality needs to increase communication and meet-ing with citizens (to generate trust)	✘	-	✘	-

CHAPTER 3
INITIATING AND IMPLEMENTING CHANGE THROUGH INTERSECTORAL COOPERATION

This section draws out lessons learned from the implementation of the case studies (Anthun *et al.,* 2019) and the qualitative process evaluations, focusing on intersectoral cooperation in the case studies (van der Vliet *et al.,* 2019). Additional insights are provided based on input from the INHERIT partners who led research on the case studies.

We describe processes, events, ideas, evidence and contextual factors (including geographical, cultural, social, health, economic, policy environment) that inspired and/or facilitated the initiatives that are the focus of INHERIT's case studies. The section draws out the main enabling or facilitating factors and considers barriers to implementation and how they can be overcome. In addition, we extract lessons for future development. Each subheading represents a learning point, and the subsequent text provides explanatory information and examples from the case studies.

3.1. Community-based initiatives around food [STOEMP, PROVE, De Voedseltuin]

3.1.1 Facilitating Factors

SUPPORTIVE CONTEXTS: INTERNATIONAL AGREEMENTS, NATIONAL AND LOCAL POLICIES AND PRIORITIES

International frameworks create supportive contexts for intersectoral initiatives. In particular, the UN Sustainable Development Goals (SDGs), a set of 17 goals and 189 targets agreed in 2015 by 194 UN member states to guide their development to 2030, established a touchstone for action across multiple sectors and intersectoral activities (United Nations, 2015). The SDGs set out a globally-shared vision for a more sustainable, equitable and healthier future, emphasising, inter alia, climate change mitigation and adaptation, sustainable production and consumption in all areas of economic activity, health for all, social inclusion and reduced inequalities. It is widely recognised that achieving progress towards the SDGs requires navigating trade-offs and creating synergies across sectors.

The SDGs created impetus for initiatives all over the world. An example is the Milan Urban Food Policy Pact (MUFP, 2016), instigated by the mayor of Milan and developed by C40 Cities, a coalition of 94 cities around the world connected by their intention to take bold climate action. The Pact is a voluntary agreement signed in 2015 by more than 100 cities that sets out a framework of action that cities can implement, and a set of indicators to track progress towards developing sustainable food systems and healthy diets for citizens. It has been instrumental in driving change in cities around the world, including through the Gent en Garde food policy in Ghent, Belgium, which sparked a network of initiatives for promoting sustainable food (and is also anchored in the SDGs). STOEMP is a component of Gent en Garde, and comprises organisations and people focusing on what can be done to ensure people in vulnerable situations also have access to good food. PROVE, a national programme in Portugal to mobilise small-scale

farmers in organised local networks, was inspired by international experiences (not linked to MUFP) and was created with EU funding (through the EQUAL and PRODER programmes).

Support from within municipal government was an important facilitator for implementing STOEMP and also De Voedseltuin ('Food Garden'), in the Netherlands. De Voedseltuin, an urban community gardening initiative, was partly made feasible following a shift in the political context towards prevention and health promotion, legislation enabling decentralisation that encourages participatory processes at the city level, and increased recognition by local government of adding social value to city initiatives. For PROVE, successful implementation was dependent on leadership from the regional rural development organisation.

PERSONAL COMMITMENT FROM KEY ACTORS

A key motivating force in all of the community-based INHERIT initiatives is the personal commitment and will of individuals. This is true for PROVE, STOEMP and De Voedseltuin: individuals who are able to inspire others, combined with the enthusiasm and motivation of different partners to work together to create social value, enhancing aspects of economic, social and environmental wellbeing, are important elements of all three initiatives.

DIFFERENT GROUPS WITH COMMON INTEREST

In STOEMP, PROVE and De Voedseltuin, different groups merged around areas of common interest. However, such merging of interest groups is not a given: it has to be made to happen by active individuals. This can be enabled by bringing together groups to discuss issues of common interest. For example, PROVE was triggered by discussions at a social forum on local sustainable development at which local agriculture was discussed. Several factors coalesced, including a steep rise in unemployment in the aftermath of the global economic crisis, the decline of the traditional small farming sector in Portugal, and awareness of the desirability of shorter food chains, creating an obvious need for a new approach, in the shape of PROVE.

PROVE works as a partnership between the public sector organisation, ADREPES, overseeing rural development in the Setubal Peninsula, and farmers operating small private enterprises. This public–private partnership is mutually beneficial, since farmers benefit from being in the programme, and ADREPES achieves its core aims of supporting rural development. PROVE's customers benefit from receiving a regular supply of fresh, locally sourced fruit and vegetables and menu ideas. Connections between farmers and the rural development organisation, and farmers and consumers are made feasible by information technology. Having a clear brand identity associated with shared values has been important. More fundamentally, good relationships in public–private partnerships are based on trust, and this is true for PROVE too.

STOEMP grew out of discussions between two working groups under the auspices of the city of Ghent's Gent en Garde food policy. One group was the Food Council of Gent en Garde, whose focus was on increasing the social value of local food initiatives, and the other group comprised local community health centres that wanted to help to improve access to healthy food for everyone, especially those facing socioeconomic disadvantage. Despite the fact that every organisation has its own agenda and outcomes they need to achieve, they joined together around the table with a mutual sense of an existing big need to do something about the issue. All partners engaged with shared values and perspectives to combat the problem of healthy and sustainable foods not being accessible for everyone. Horizontal

intersectoral policy cooperation across sectors and vertical cooperation with municipal level government are crucial to implementing STOEMP initiatives.

De Voedseltuin was initiated by an individual who set up the food garden as a way of growing fresh vegetables to supplement food packages prepared at a local food bank in Rotterdam. At the same time, many users of the food bank were unemployed, and could work as volunteers in the food garden. This created a win-win across many domains. The cooperation chain of green social initiatives exists in Rotterdam because Individual initiatives actively sought to cooperate, realizing that together they could have a bigger impact on the city than they could individually.

FUNDING MODELS

Funding from central or local government sources is important, but initiatives find that to be more flexible and resistant to policy change, it is beneficial to find alternative funding models in addition to government funding. For example, in the case of De Voedseltuin the land used for the food garden is owned by the city. Having a hybrid business model with funding from different (private, collective and public) sources meant less dependency on the municipality, who could then be a more equal cooperation partner.

MARKETING AND BRANDING

Marketing and branding are important for the scaling-up and replication of initiatives. PROVE, STOEMP and De Voedseltuin are active in ensuring their activities and models of cooperation are highly visible in the local area. A strong brand emphasising social value also engenders a sense of doing something worthwhile among volunteers and stakeholders, contributing to motivation to maintain and develop the initiative.

COMMUNITY ENGAGEMENT: VOLUNTEERS

Personal commitment also extends to volunteers who are critical to the success of several INHERIT initiatives, including De Voedseltuin. In order to recruit and retain volunteers, a well organised system of support is needed.

3.1.2 Barriers to Implementation

FUNDING

For De Voedseltuin and PROVE, securing long-term funding has proven difficult. For De Voedseltuin, whose benefits accrue across sectors (for example health, welfare, and employment), combining budgets from sectors for integral funding is a promising approach. For PROVE, an evident priority is to restructure its funding mechanism to ensure brand consolidation and continue technical support to farmers.

3.1.3 Proposals for future developments

The major observation is that these types of initiatives need to be afforded 'pilot status' so that they can experiment, grow and be given space and time to become established and create added social value. The process establishing and growing the initiative is supported by expanding the knowledge base and learning from what works. For example, in the case of STOEMP it was noted that in order to scale up, information needs to be joined up across the whole chain, from production to consumption.

An overarching message is the need to agree key operational goals, steps to achieve them and indicators to monitor progress.

COMMUNITY-BASED INITIATIVES AROUND FOOD: KEY POINTS

- Ensure (inter)national/regional/local strategies are in place that can spark action
- Anchor initiatives to international/national/local priorities
- Bring together different sectors around common interests
- Establish a system of support and training for staff and volunteers
- Establish a sustainable funding model from more than one source
- Create a strong brand identity and marketing strategy

3.2 School-based initiatives [Sustainable Food in Public Nursery Schools, Gardening with Green Gyms and Meat Free Monday, GemüseAckerdemie]

3.2.1 Facilitating Factors

STARTING EARLY IN LIFE

School-based initiatives are anchored in evidence that shows that experiences in early life have a reach right across a lifetime. Among these effects, experiences in early life lay the foundation for future attitudes to eating a healthy diet and being physically active, for respecting and protecting the natural

environment and for cooperative social behaviour. Additional societal benefits accrue because children influence their parents' and peers' attitudes and behaviours.

SUPPORTIVE CONTEXTS: INTERNATIONAL AGREEMENTS, NATIONAL AND LOCAL POLICIES AND PRIORITIES

Sustainable Food in Public Nursery Schools, Madrid, Spain, is anchored in the Milan Urban Food Policy Pact (described above); Madrid was a signatory to this voluntary agreement to foster food security and healthy diets among citizens. Being a city-led initiative was a clear advantage as it meant that the initiative became embedded in the overarching policy that regulated catering in nursery schools.

By contrast, the Gardening with Green Gym (GG) and Meat Free Monday (MFM) case study, from the UK, was initiated by INHERIT partners based at UCL working together with partners in the Conservation Volunteers (TCV), the Meat Free Monday campaign and a primary school in London. This initiative, through its gardening activities with primary school children and promotion of a meat-free day per week, addresses multiple societal challenges recognised in the UK: high levels of childhood overweight and obesity, and sub-optimal levels of fruit and vegetable consumption and physical activity, exacerbated by socioeconomic inequalities.

The municipal council of Madrid during the period 2015–19 showed a high concern for environmental sustainability and growing inequities in health, which led to a change in municipal priorities and subsequently resulted in a set of new policies and measures. Sustainable Food in Public Nursery Schools is one of 12 measures the municipal council designed in the context of its adherence to the Milan Urban Food Policy Pact. The implementation process for Sustainable Food in Public Nursery Schools owed its success to the high degree of involvement of the participating team. The main link uniting stakeholders was the municipal administration team in charge of public schools, which participated in the development of the initiative. Members of this teams helped to design and implement the intervention, facilitated communication among different parties and put considerable effort into ensuring the correct development of the project, even at early stages. Implementation of the initiative benefited from the strength of horizontal links as well as vertical links with the municipality and the global network of cities.

Having a supportive context within schools and supportive teachers was clearly a necessary element in all three of the INHERIT school-based projects. This was greatly facilitated in the case of Sustainable Food in Public Nursery Schools, where the initiative was grounded in a citywide initiative. Importantly, the initiative counted on kitchen staff, who needed to attend training workshops in their free time (outside working hours) and often had to travel a long distance (one hour each way) to attend. The passion and care of these workers was also critical.

In GemüseAckerdemie (Vegetable Academy), Germany, which aimed to increase the number of volunteers to support vegetable academy programmes in deprived areas for school-aged children to help them connect with nature and the origins of food, the supportive framework was provided by Ackerdemia, the organisation behind the programme. Ackerdemia supported the creation of gardens and provided the young plants and guidance on the gardening, harvesting and dishes to prepare with the food, as well as educational materials.

In Gardening with GG and MFM the primary school welcomed the initiative, and that attitude was crucial to implementation.

PERSONAL COMMITMENT FROM KEY ACTORS

GemüseAckerdemie was founded in 2013 by a social entrepreneur who grew up on a farm and wanted to teach children how food is grown and where their food comes from. It has grown into a programme with over 400 participating schools and kindergartens in Germany, Austria and Switzerland. The programme involves training for teachers, as well as lessons for children about growing food, and hands-on experience for children in vegetable gardens run by the schools and kindergartens with practical support from the GemüseAckerdemie organisation. The INHERIT case study focused on the process of establishing a volunteer programme to support the local activities in schools in deprived areas or with children in the need of additional care.

Personal commitment of all stakeholders was the connective tissue that internally bound each of these school-based initiatives. Gardening with GG and MFM was piloted in just one school, and depended on the enthusiasm and motivation of all stakeholders, who were doing it for a common goal: to benefit the children. Indeed, witnessing the excitement of the children, the joy they found in finding a worm or a spider, and the cooperative way in which they worked together in the garden was an important motivating factor. The children themselves demonstrated commitment and shared responsibility for the project.

In Sustainable Food in Public Nursery Schools, personal commitment was notable among the kitchen staff who, as described above, met outside working hours to learn how to cook healthier meals with sustainably produced ingredients. For them, initial doubts about the changes brought about by the new regulations transformed as they learned about the benefits for the children.

Personal commitment of all stakeholders was also crucial to implementation of GemüseAckerdemie.

3.2.2 Barriers to implementation

THE NEED FOR NATIONAL AND REGIONAL ANCHORING

Links with policy-makers, especially regarding development of school curricula, were identified as a necessary step for embedding practical and theoretical knowledge about food production and care for the environment into the education systems in question. Both GemüseAckerdemie and Gardening with GG and MFM would like to influence school curricula, but have not yet done so.

Stakeholders felt that GemüseAckerdemie needed to be anchored into core regional (Bundesländer) policy sectors that influence the school curriculum.

Similarly, stakeholders in Gardening with GG and MFM felt that, in the UK context, anchoring in the national curriculum would be a necessary strategy for realising potential benefits of the initiative at scale.

BUILDING COOPERATIVE NETWORKS TAKES TIME

Stakeholders in Gardening with GG and MFM felt that the most important barrier was a lack of time for planning and discussion from the beginning; this time is necessary to engender a shared understanding of the aims of the work and to enable closer links between what the children were learning outside with

Gardening with GG and MFM and the lessons that are part of the school curriculum. While the school welcomed the Gardening with GG and MFM initiative, insufficient staff time was available to enable it to become embedded within the curriculum.

TRUST

In order to build strong networks to support intersectoral action, trust needs to be created between partners. This can be facilitated by sharing knowledge. For example, in Sustainable Food in Public Nursery Schools some partners and families were concerned about reducing meat protein in school menus. These fears were allayed somewhat by a nutritionist's report that showed the benefits of a plant-based diet. In addition, the learning community that was created as part of the project empowered kitchen staff and built their trust in the new approach.

FUNDING

Security of adequate resources was identified as a limitation in Sustainable Food in Public Nursery Schools, particularly in terms of procurement of healthy ingredients for the new menus in the local area.

In the case of Gardening with GG and MFM, a sustainable funding model would need to be developed in order to retain, extend and develop the initiative.

VOLUNTEERS

GemüseAckerdemie aims to work with volunteers to increase the quality of its programmes, especially to further improve the equity perspective of its work. However, not only finding, but also engaging, volunteers over an extended period posed some challenges, especially as commitment was needed in the daytime during the week.

3.2.3 Proposals for future developments

Key observations for the future emphasised long-term planning, multi-sectoral and horizontal cooperation (e.g. within the schools) and, in the case of Sustainable Food in Public Nursery Schools and Gardening with GG and MFM, budgeting.

For Gardening with GG and MFM to grow into a national programme in every school in the UK, it would need to be anchored in local, regional and national plans, such as the National Curriculum, guidelines for school caterers and overarching education policies.

GemüseAckerdemie also has long-term ambitions to become embedded in the school curriculum. To progress the initiative, its volunteers need to be supported and recognised. The idea of involving older people as mentors to build an intergenerational bridge was also suggested.

SCHOOL-BASED INITIATIVES: KEY POINTS

- Ensure (inter)national/regional/local strategies are in place that can spark action.
- Start early and plan early, involving teachers, taking into account their time and available funding.
- Integrate outdoor learning and growing in the school curriculum.
- Anchor initiatives in local, regional and national plans.
- Take the initiative to be part of a national/global network that can support the implementation process.
- Personal commitment and passion are crucial even where there is a lack of time; an open and flexible attitude, enthusiastic, knowledgeable and motivated stakeholders are also key.
- Having common goals is important and in the case of schools it is the benefits for the children that motivate stakeholders.
- Volunteers can play a key part in school-based initiatives but supportive organisational infrastructure needs to be developed to actively search for new volunteers and retain existing volunteers.

3.3 Open/green space initiatives [Malvik Path, Restructuring Green Space Breda, Restructuring Residential Outdoor Areas, Thinking Fadura]

3.3.1 Facilitators

SUPPORTIVE CONTEXTS: INTERNATIONAL AGREEMENTS, NATIONAL AND LOCAL POLICIES AND PRIORITIES

For green space initiatives, having the political will and support at both national and local levels is an important trigger and facilitator for implementation and intersectoral cooperation.

For example, a supportive national policy context facilitated the Restructuring Residential Outdoor Areas initiative – regenerating and improving access to an open space in Stockholm: in Sweden there is political will and generally relatively high awareness of integration, social cohesion and equity issues. The National Board of Housing, Building and Planning provided financial support of 50% for the restructuring that was contingent on the property owners involving residents in the planning process.

In this case, tied funding incentivised the development of processes to enable residents to participate in the planning process.

Municipal authorities provided support in the development of the Malvik Path (Norway), Restructuring Green Space (Netherlands) and Thinking Fadura (Spain). In Restructuring Green Space, the initiative to restructure a green space in a deprived neighbourhood fitted into the wider approach of the municipality of Breda to involve residents in neighbourhood plans. It was also linked to the national JOGG programme – designed to encourage young people to take more physical exercise – and to several health and social programmes in the neighbourhood. In the Restructuring Green Space case study, starting with social activities to empower local residents before restructuring the green space appeared to be an effective strategy.

REPURPOSING EXISTING OPEN/GREEN SPACE

Malvik Path – the construction of a recreational path connecting two communities – provides an example of an initiative by a municipality in which an abandoned space, in this case a former railway line, was redeveloped to create a well-used public amenity. In the case of Thinking Fadura in Bilbao, Spain, prior to the initiative only members of Fadura's Municipal Sports Centre could use and enjoy the green areas; the Thinking Fadura initiative was introduced by the municipality to open the gates and develop the space for free access by the general public. The intention was to create a new public space where sporting facilities coexist with a natural park and a river to promote healthier lifestyles. In Restructuring Residential Outdoor Areas in Stockholm, the initiative was taken by the developer to redevelop an open space within a disadvantaged residential area for the benefit of the residents, who are mostly migrants. Similarly, Restructuring Green Space in Breda, NL, transformed a little used open green space in a residential area into an attractive park with amenities for relaxation, play and recreation.

RESPONDING TO LOCAL NEEDS AND CONTEXT

Initiatives to make green spaces more widely accessible respond to local needs and local availability of suitable land. A prerequisite, therefore, is to engage with local residents to find out what they want in their communities. For example, impetus for the Malvik Path was driven by a combination of three main factors: findings from a population survey showed that residents wanted to have more readily accessible and affordable arenas for physical activities and social interaction in the community; researchers and the municipality identified scope to improve the health and wellbeing of the population; and land was available in the form of a disused railway line along the coastline connecting two communities.

In the case of Restructuring Residential Outdoor Areas, participatory processes embedded in the planning phase provided a forum for local residents to identify problems in the area near their homes that was to be restructured.

In Restructuring Green Space, the local municipality and local organisations identified the need to address structural issues in the deprived neighbourhood of Breda to improve its quality, and wanted to use the green space for this goal. The idea was to create a place where people could meet, play and join in sports, and to provide water drainage. The initiative involved residents in the redesign process to turn an under-utilised green space between housing blocks into a functional neighbourhood park to meet their needs.

Another example of restructuring green space in the Netherlands – in Rotterdam[3] – provides important learning points here. There are stark contrasts in the success of the Breda case study compared with the Rotterdam case study. Both included resident participation but in Rotterdam the condition of the indoor environment and social problems in the neighbourhood, which residents found to be more important than the outdoor space, were not prioritised. Only a few residents participated in the redesigning process and the subsequent restructuring of the outdoor space did not meet all the residents' needs. Residents were expected to help in the maintenance of the green space but this did not work out as expected, partly due to unclear communication from the municipality and the housing corporation that owned the green space to residents about what was expected from them, but also because no budget was reserved for maintenance. The success of co-creation can vary – addressing the actual needs of residents is critical.

LINKS WITH OTHER SECTORS: ACTIVE STAKEHOLDERS

All the green space initiatives engaged groups from different sectors, including public, private and third sectors. For example, engagement of landscape architects facilitated the restructuring in the case of Restructuring Residential Outdoor Areas in Stockholm and Restructuring Green Space in Breda.

Typically, series of meetings were held in a local community centre. For example, in Breda the municipality, together with an external process manager, organised meetings with landscape architects, residents, sport coaches, municipal health services and others in the local community centre and in the park. In Thinking Fadura, Getxo Kirolak – a public association that promotes physical activity in Getxo, the municipality of Getxo, staff from Fadura sporting club, the Thinking Fadura main office, the Water Authority in the Basque Country (URA), researchers, volunteers and citizens were active partners.

In Malvik Path, the municipal administration established both an intersectoral project group and a steering group that were assigned the tasks of facilitating a participatory process in the planning and creating the path.

SHARED INTERESTS

Having active stakeholders from multiple sectors is key to the initiation and implementation of green space interventions. In the case study initiatives, the motivation for action was a shared interest in social integration, as well as an understanding of the benefits of access to green spaces for activities, relaxation, health and wellbeing.

PRIVATE–PUBLIC PARTNERSHIPS

Public and private sectors working together appears to be an important element of good practice in many circumstances. Shared ownership and participation may be important in creating a sustainable open/green. For example, in Restructuring Residential Outdoor Areas the restructuring was driven by a funding programme, administered by the National Board of Housing, Building and Planning, that gave

3 Restructuring Green Space in Rotterdam is not formally an INHERIT study, but it was studied by RIVM outside the remit of INHERIT and included for comparison.

priority to initiatives that involved multiple stakeholders as well as dialogue with residents. Therefore the private owner of the property was incentivised to work with multiple stakeholders, including the local authority planning adviser and a private urban planning company.

A caveat here is that participatory processes need to be more than a tick-box exercise – sufficient investment in participatory processes, including time and resources, needs to be made to ensure that residents can be actively engaged, the wishes of residents are realised and their needs are met.

FROM CONSULTATION TO CO-PRODUCTION

Community or resident support and participation facilitates the implementation of green space initiatives that are actually used. The way the case study initiatives were implemented was partly down to residents' wishes and needs. Residents were consulted about what they wanted, and participated in the planning phase of all these green space initiatives. In Breda the young people that were involved felt taken seriously, which may lead to further positive social attitudes and their further involvement in the neighbourhood community.

CREATING AN IDENTITY

In discussing elements of good practice in the green space initiatives for this report, INHERIT partners considered that creating an identity and associated branding was helpful in promoting initiatives, including through social media. Part of this is having a short, memorable name, as in 'Malvik Path' and 'Thinking Fadura'. A strong identity supports public participation and co-creation of green space initiatives.

FEELING OF OWNERSHIP

Community participation in planning engenders a sense of ownership that encourages use of the spaces and helps residents connect with each other. Further, it helps in making links with municipal and other organisations.

3.3.2 Barriers to implementation

MAINTENANCE

One concern raised in the focus group in Breda was about how to maintain the sense of ownership created during the development and planning phase over a longer period. This is important because where residents have a strong sense of ownership, they are more likely to take care of the space, to take litter home or throw it in the designated rubbish bins, and join in community-organised maintenance/gardening events. The importance of communication with residents concerning, for example, expectations with regard to maintenance, is relevant here. The example from Rotterdam, mentioned above, highlights the importance of maintaining clear and open channels of communication between developers and residents to ensure that the expectations of both are understood.

There is also the more general question about maintenance of the physical space in the longer term (cleaning, repairing, replanting, weeding, watering the green spaces). Responsibility for maintenance of public green and open spaces lies generally with the owners (public or private), who commission service providers. Ensuring secure and adequate funding for maintenance can be a barrier to the provision of attractive green spaces that are accessible to all. In addition, many restructuring projects depend on national funding (as was the case in Restructuring Residential Outdoor Areas), which can dry up in the long term, limiting scope for introducing similar restructuring initiatives in the future unless alternative funding can be secured.

Viewed holistically, the costs of maintaining green space are relatively low compared with the total costs and the potential benefits, as noted in the cost benefit analyses of Thinking Fadura and Malvik Path (García de Jalón *et al.,* 2019). However, weather-related events such as droughts, floods or storms can create the need for unanticipated repairs that can create short-term budgeting problems. We know that climate change is linked to atypical weather patterns and weather extremes (Masson-Delmotte, Pörtner and Skea, 2018), so such risks to green space infrastructure can be anticipated and appropriate mitigation plans can be prepared and embedded in forward-planning and budgeting.

LACK OF COORDINATION

Stakeholders generally reported that good coordination across partners facilitates the process of improving accessibility and the use of the green space. However, where a key partner is missing, this can be a barrier. For example, in Restructuring Residential Outdoor Areas, undertaken by the property owner, it was apparent that the local district authorities were working more often in parallel instead of in cooperation, and that a more consistent 'whole system' approach could have been achieved if earlier contact and communication had been made with all potential partners.

CULTURE AND LANGUAGE BARRIERS

The case studies showed that cultural and language barriers can create difficulties with user involvement; this highlighted the need for better communication strategies, for example as noted in the case of Restructuring Residential Outdoor Areas and Restructuring Green Space. This links to previous observations that building trust and open communication cannot be assumed and takes time.

LACK OF MEANINGFUL PARTICIPATION

Lack of meaningful participation by residents/community in the development of open/green spaces can result in dissatisfaction. Meaningful participation refers to consultation at all levels of design and development and taking on board residents' needs and comments during the design phases. The opportunity to comment on drawings and have a say on the design can contribute to a sense of ownership and satisfaction among residents. In contrast, in Restructuring Residential Outdoor Areas, while residents were involved during the initial phase, no intermittent dialogues took place between the initial meeting and the presentation of the final design.

3.3.3 Proposals for future developments

IMPROVE INTERSECTORAL COOPERATION

A key learning point for future work is to take steps to improve intersectoral cooperation to improve availability and access to green spaces in a way that links with the INHERIT triple-win of improving health, equity and environmental sustainability. This applies to the green space initiatives researched by INHERIT as well, to take forward this type of initiative in the future. In particular, this means involving all levels, from 'top' to 'bottom': that is, to distribute the power of decision-making more evenly between those who experience the green areas and those who generally regulate policy regarding green areas or who are instrumental in creating green areas and facilitating their use. For the whole-system approach to work, both horizontal cooperation – between groups with more or less equal power – and vertical cooperation between those with differing levels of power, are needed.

BETTER COMMUNICATION STRATEGIES

Related to improving intersectoral cooperation is the need for more frequent dialogues with residents and other stakeholders, and being clear on what is expected from each other. Rather than feeding residents' needs to designers after the consultation, it is important to involve landscape architects during the whole process for a design that takes on board residents' needs.

DESIGNING A PARK IS A CONTINUING PROCESS

Planning, designing and creating more usable and accessible green space is not the end but the beginning of a continuing process of development. There is a need to check that the park fulfils the wants and needs of the community in a way that is inclusive and benefits all, to work on a sense of collective ownership, collective maintenance and continuous improvements. To maintain trust, partners would need to involve residents and community members in finding ways to adapt or make further changes if necessary.

OPEN/GREEN SPACE: KEY POINTS

- Ensure (inter)national/regional/local strategies are in place that can spark action.
- Organise good intersectoral cooperation and build trust with residents; attract an external process manager to facilitate the process.
- Inform other parties (e.g. health professionals) on the available green space and the potential to use it for their activities; involve them in the design.
- Engage citizens and enable their participation in or co-production of changes to green spaces in a meaningful way for creating a sense of ownership; be clear on what they can expect and what is expected from them.

- Conduct a situation analysis of what citizens want and of what their needs are for better planning, designing and implementing changes to green spaces; recognise that there may be other issues in the neighbourhood (e.g. social problems, decent housing) that need to be tackled first, before working on green space.

- Present the drawings/design to residents and community members at different stages of design so that their comments and feedback can feed into the design and are reflected in the final design outputs.

- Monitor the effects of changes to green spaces and evaluate the use and perception of green space to check that the changes fulfil residents' expectations. It takes time before the effect of the intervention is visible – be patient and take the time. Interact with residents in case signs of negative developments in the green space (e.g. vandalism) occur.

- To maintain trust, partners would need to involve residents in finding ways to make further changes to the green/open space to suit the needs of the community, if necessary.

- To keep green spaces thriving and maintain them in good condition it is important to continue to organise events and activities in the area and reserve budget for the maintenance; involving residents in the maintenance and organisation of activities requires motivation and provision of support with personnel/knowledge/funding.

3.4 Energy efficiency in homes [Eco Inclusion and Energy Efficient Investments]

Two INHERIT cases studies looked at energy efficiency in homes, from two very different perspectives. The Energy Efficient Investments case study was a retrospective analysis of the costs and benefits of household energy efficiency investments in the UK and therefore was not included in the studies on intersectoral cooperation. Eco Inclusion in Germany developed and introduced peer training about household energy saving and waste disposal strategies among refugees in the city of Pforzheim.

The Energy Efficient Investments case study methodology did not include a focus group for qualitative analysis on intersectoral cooperation. Information about facilitating factors and barriers in implementing this case study was provided by INHERIT partners.

3.4.1 Facilitators

SUPPORTIVE CONTEXTS: INTERNATIONAL AGREEMENTS, NATIONAL AND LOCAL POLICIES AND PRIORITIES

There are strong regulatory incentives in European countries that support the drive to household energy efficiency. In the UK, many investments have been based around the energy companies' obligations to reduce greenhouse gas emissions (arising from policies including those under the UK Climate Change Act of 2008). In addition, funding available through energy company obligations reduced the cost burden for groups facing socioeconomic disadvantage.

MUNICIPAL SUPPORT

In Pforzheim, Germany, specific challenges generated by the housing situation of registered refugees in the city triggered the decision of the local municipal authorities to implement the Eco Inclusion intervention. These challenges derived from the behaviours of refugee households not adapted to new contexts – behaviours around energy consumption, heating and ventilation use – leading to high expenses for energy use, and hampering their social integration.

The remaining points are from the Pforzheim Eco Inclusion case study.

COOPERATION BUILT ON TRUST

It was evident that cooperation between implementing partners in the Eco Inclusion case study required having good contacts and reliable, stable partners.

A strategy involving all implementing partners (the municipality and two other co-partners) during the planning phase was described as an important facilitator. This planning strategy promoted a common understanding of the project's objectives, which served as a main driver for continuous commitment and motivation, and led to a beneficial clarification of roles and responsibilities among stakeholders from the beginning.

COMMUNITY ENGAGEMENT

Involving members of the refugee community as active partners as volunteers in peer training was a key element in the Eco Inclusion case study. It was important to motivate volunteers by providing training and ensuring that they benefited from volunteering.

3.4.2 Barriers to implementation

ENGAGEMENT OF VOLUNTEERS

The case study depended on volunteers but engagement of residents as volunteers was hampered by various factors, including the question of how volunteers balance this role with other responsibilities.

CULTURAL AND LANGUAGE BARRIERS

Barriers linked to the knowledge level of the host country's language and to culturally-motivated differences in gender roles restricted the opportunities to engage women as peer trainers and engage them into training. This highlights the importance of adapting peer-based training strategies to issues of gender diversity and cultural sensitivity.

3.4.3 Proposals for future development

Ideas for future development include creating a more supportive framework for volunteers, which might include payments, further skills-building training, and official recognition of their roles within the programme.

Further developing Eco Inclusion would benefit from involving a wider network of stakeholders including, for example, landlords' associations, job centre administration and welfare associations, and religious/faith communities, and from potential cooperation with local schools to better reach children and young people.

ENERGY EFFICIENCY IN HOMES: KEY POINTS

- Anchor to national and local contexts
- Ensure obligations on energy companies to reduce greenhouse gas emissions.
- Seek and ensure involvement and cooperation of stakeholders from different sectors.
- Engage communities from the beginning and ensure incentives are in place for volunteers, particularly for volunteers from minority low socioeconomic status groups.
- Take into account gender differences and cultural diversity and sensitivity for design, implementation and evaluation of interventions.

3.5 Mobile phone applications to facilitate active transport and physical activity [Lifestyle e-coaching, UrbanCyclers]

UrbanCyclers is a smartphone application (or 'app') that combines a route planner with turn-by-turn navigation (capable of coupling cycling with public transport) and route tracking linked to a system of badges, challenges and rewards as well as community experience-sharing. This case study, conducted in Prague and other Czech cities, aimed to improve effectiveness of the UrbanCyclers app by evaluating various motivational features.

Lifestyle e-coaching investigated the effectiveness of a lifestyle e-coaching app in encouraging people to engage in healthier and more active lifestyles over the course of 19 weeks. The study was conducted in the Netherlands and Greece among people facing socioeconomic disadvantage and impacts on physical activity levels and wellbeing were evaluated.

The Lifestyle e-coaching methodology did not include a focus group for qualitative analysis on intersectoral cooperation. Information about facilitating factors and barriers in implementing the Lifestyle e-coaching case study was provided by INHERIT partners.

3.5.1 Facilitating Factors

SUPPORTIVE CONTEXTS: INTERNATIONAL AGREEMENTS, NATIONAL AND LOCAL POLICIES AND PRIORITIES

Only 1–2% of commuting in Prague and other cities in the Czech Republic is currently done by bike. This is partly because supportive biking infrastructure (such as cycle paths) is currently limited in Czech cities. However, many municipalities now recognise the potential of behavioural incentives to promote commuter cycling, and provide support to a diverse set of enablers, be it a bike-to-work campaign, bike-sharing scheme or smartphone app like UrbanCyclers. The UrbanCyclers app allows evaluation of the bike-to-work campaign, and helps users to find a bike within a bike-sharing scheme, with encouragement through smart gamification[4] and rewards. The initiative has led to intersectoral cooperation between the municipality, an NGO and the private sector. A previously missing element – evaluation of the app-based incentives – led to a collaboration between the INHERIT project and the Czech Technical University start-up Umotional, with the aim of improving the behavioural change capability of the app.

Lifestyle e-coaching is potentially an easy-to-implement solution that supports people in changing their behaviours in a direction they wish to achieve. The enabling context was the INHERIT project itself. The idea behind conducting the research within the INHERIT project was to address a research question for

4 Smart gamification is the integration of elements into the smart phone application that make using the app more enjoyable.

which there was limited evidence in the research literature: that is, the efficacy of lifestyle e-coaching among lower socioeconomic groups.

OPEN ATTITUDES, INTERSECTORAL THINKING, COMMON GOALS

In common with other INHERIT case studies, intersectoral cooperation depended on open attitudes and working towards common goals. In the case of UrbanCyclers, partners already knew each other. In the lifestyle e-coaching case study, partners came to know each other quickly, encouraged by mutual interests and common goals, through multiple online meetings and a site visit. In both case studies, communication ran smoothly and responsibilities, tasks and deadlines were clearly specified.

BUILDING ON EXISTING TECHNOLOGY

For UrbanCyclers it was very important that the app already existed and had many users, and that it was possible to modify it for the study. This is because customised platforms for experimenting are frequently used for research instead of commercial applications, as the latter may introduce bias into the results of such experiments (Pajarito and Gould, 2017).

In the case of Lifestyle e-coaching, it was essential that the technology was easy to use. The technology, worn on the wrist, tracks activity levels unobtrusively and continuously, while the mobile app motivates the user by comparing activity patterns with other users and shows improvement over time.

3.5.2 Barriers to implementation

The following barriers were reported by UrbanCyclers (the Lifestyle e-coaching methodology did not include a focus group for qualitative analysis on intersectoral cooperation).

RECRUITMENT OF PARTICIPANTS IN THE INHERIT EXPERIMENT

This takes time, and requires proactive communication and recruitment strategies.

ADAPTING THE APP

The time needed to adapt the app was under-estimated, which is often the case in ICT projects.

AMBIVALENT POLITICAL CLIMATE

This was both a facilitator and a barrier: people were being stimulated and incentivised to cycle through the bike-to-work campaign but at the same time adequate cycling infrastructure was lacking.

3.5.3 Proposals for future development

Information and communication technology is constantly developing and there is great potential to boost technological solutions for social innovations and behavioural change. But to do this, there is a need to develop business models for local/national governments, insurance companies or other private companies to provide applications that promote physical activity, including active transport, for those who cannot afford this.

To promote cycling among all social groups there is a need to stimulate the development of technology that provides a combination of services, such as finding an available bike in a bike sharing scheme, optimizing the route, and tracking activity levels, to invest in cycling infrastructure and provide bicycles /training to disadvantaged groups.

MOBILE PHONE APPLICATIONS TO FACILITATE ACTIVE TRANSPORT AND PHYSICAL ACTIVITY: KEY POINTS

- Factor in sufficient time for developing a mobile phone-based app or to adapt/improve an existing app
- Behaviour-tracking technologies are easy to implement and applicable for large-scale usage
- Providers of these technologies can add social value by collaborating with the public sector

3.6 Participatory governance approaches towards the triple-win [Place Standard]

The Place Standard Tool (PST) brings public health and placemaking theory into a simple-to-use tool that can assist professionals and communities in identifying what works well and what needs improving in a local community. The tool was developed in Scotland, facilitated by the Scottish Government (Scottish Government, NHS Health Scotland and Architecture and Design Scotland, 2019) and applied in Latvia and North Macedonia (within the remit of the INHERIT project) to test its applicability in these contexts.

3.6.1 Facilitating Factors

SUPPORTIVE CONTEXTS: INTERNATIONAL AGREEMENTS, NATIONAL AND LOCAL POLICIES AND PRIORITIES

The INHERIT project stimulated the use of PST in both North Macedonia and Latvia. Involving citizens in decision-making in a participatory way is not a typical practice in all European countries. However, the municipality of Riga committed to using the tool for the first time in Latvia.

While the law in North Macedonia calls for municipal leaders to consult with citizens, in practice this does not happen very often. The tool was applied in the Karposh District of Skopje, the capital of North Macedonia. The Mayor of Karposh fully supported the use of PST.

COMMON GOALS, MUTUAL INTERESTS

Cooperation between different partners grew around mutual interests and shared goals. In addition, inclusive planning and common understanding of the process were important.

POSITIVE FEEDBACK LOOPS

Presenting results of the PST workshops generated interest by the municipality, reinforcing the value of contributing to the workshops and creating positive feedback loops.

COMMUNITY ENGAGEMENT

PST provides an opportunity for citizens to meet to discuss, which is a key part of the process. Riga used a system of incentives (gift cards) to encourage people to participate but still had difficulties engaging them. It may take time and innovative strategies to engage citizens.

3.6.2 Barriers to implementation

PRACTICAL MATTERS

Practical considerations such as timing to avoid the summer holidays when fewer people are available to attend meetings, need to be taken into account in planning.

DIFFERING ATTITUDES

Differing attitudes among participants in Place Standard workshops can present difficulties, which may require communication strategies to develop mutual understanding of the tool or to encourage participation from groups that are initially reluctant to engage.

3.6.3 Potential for future development

Participation in PST workshops raises expectation among participants that something will be done to improve the places they live in. It is important to show participants what is being done with their input, in order to enhance and maintain trust and avoid disappointment and disengagement. Therefore, using the results of the PST in a visible way is important.

In North Macedonia, the tool is being promoted in other municipalities in the country that have expressed interest in including it in their annual programmes. However, adequate financial resources would first need to be put in place to enable PST to be used more widely.

Evaluation of the PST by means of a follow-up focus group affirms that it is an effective engagement tool in new contexts, but that the tool might also help to create places where people could live in a way that improves sustainability. For example, North Macedonia identified different key indicators (air quality, waste, water quality) that may imply wider sustainability goals. The 14 parameters within the PST were distilled from public consultation in Scotland, but in planning to use the PST in other parts of Europe there is capacity to introduce other elements including around sustainability and global impact. This would strengthen the PST as a tool to guide thinking and planning for a triple-win for health, equity and environmental sustainability.

PARTICIPATORY GOVERNANCE APPROACHES: KEY POINTS

- Using a participatory planning tool such as Place Standard is a promising way to engage people in discussions about how to improve places. To achieve tangible improvements, steps need to be put in place to ensure ideas generated are fed into the planning processes
- To generate trust, citizens need to see that results are implemented
- There is an opportunity to modify the PST for use in planning the health/equity/environmental sustainability triple-win

CHAPTER 4
DISCUSSION OF FINDINGS FROM EVALUATIONS OF OUTCOMES, IMPACTS AND ECONOMIC ASPECTS

This section draws out lessons learned from the quantitative and mixed method evaluations of INHERIT case studies in relation to the triple-win impacts and from the evaluations of costs and benefits. INHERIT's interests lie in how changing contexts can change behaviours to promote health, equity and environmental sustainability, and this has informed INHERIT's research. We aimed to learn about whether and how INHERIT initiatives support change in health-related behaviours (and health outcomes where possible), pro-environmental behaviours (and environmental outcomes in some cases), as well as how they might impact equity.

In this section we use the same thematic groupings of case studies as in Section 3. Under each theme we describe actual and inferred findings (clearly distinguishing these from one another) regarding health-related, equity and environmental aspects. An additional section under each thematic heading describes wider considerations related to the impacts and cost benefit analyses.

Given the varied nature of the INHERIT case studies, it is difficult to make generalised conclusions about the interventions and the evaluation results. Nevertheless, the following account aims to provide an overview of the impacts identified.

It should be understood that among the initiatives, many did not set out to change behaviours with the INHERIT triple-win in mind. Therefore, we can speculate that if developers and implementers of initiatives recognise how they can play a role in a broader pathway to change adverse environmental factors, they could then strengthen their impacts.

There are limitations, of course, as explained in Section 1, in our understanding of the extent to which the findings of particular case studies are specific to the context. In addition, we are cautious in extrapolating from small-scale projects to population-wide and distal effects, because of the complexity of causes of health outcomes and health inequities, and the complexity of the interactions between health, equity and environmental sustainability.

All INHERIT case studies have the potential to enable behaviours that have the potential to improve health, equity and environmental sustainability. In some cases the limited duration of the intervention meant that results were inconclusive; this indicates the necessity of longer intervention periods with long-term evaluation plans and multiple follow-ups. INHERIT's studies show the challenges inherent in quantifying all the potential impacts of the INHERIT case studies, and demonstrate the importance of working within the INHERIT conceptual framework (the INHERIT model) and grounding evaluations in the wider literature.

Information from different sources was gathered and used in quantitative evaluation and where possible a mixed methods approach was applied (as described in Section 2). It is worth emphasising that in evaluating complex programmes in real life settings it is necessary to gather information from different sources with both quantitative and qualitative methodologies. At the same time, it is necessary to understand the limitations imposed by complexity on the level of certainty that can be achieved in undertaking evaluations of real-world activities.

Several limitations have been identified that are particularly relevant to the impact evaluations. These variously include, depending on the case study:

- Short intervention period: Due to the limited INHERIT timescale, the intervention and evaluation period was kept short.

- Insufficient time to build trust: In some cases the short intervention period meant there was limited time to work on building trust with the community.

- Recruiting participants: In some case the partners faced problems in recruiting participants.
- Low response rate: For some studies the response rate was particularly low.
- Short-term evaluation plan: In most cases short-term interventions might not yield measurable impacts. Long-term evaluation plans are really important for understanding the long-term impacts and sustainability of the initiatives, hence follow-up studies are recommended on the INHERIT case studies.

Full details of the evaluations, their strengths and limitations are reported in the INHERIT report by Bell et al. (2019a).

Notwithstanding the limitations outlined above and detailed in the individual reports of evaluations (Bell *et al.,* 2019a), the INHERIT impact evaluations demonstrate positive impacts in a number of cases, and the potential for positive impacts in others. Clearly, more research is needed to build on INHERIT's findings. Overall, the research contributes to the case for investing in interventions for a triple-win, since even small steps can lead to significant impacts.

4.1 Community-based initiatives around food [PROVE]

Of the three case studies under the theme of community-based initiatives around food (De Voedseltuin, PROVE, STOEMP), PROVE is the only one on which INHERIT conducted quantitative and qualitative evaluations for impacts and benefits (Bell *et al.,* 2019a). That combined evaluation enables discussion of multiple findings related to the INHERIT model. While the quantitative results are indicative, they do not provide evidence of causation because no information is available about consumers' diets or about farmers' wellbeing before they joined PROVE. However, the overall findings from the quantitative studies are strengthened by the findings from a focus group discussion on perceptions of impacts.

Aspects related to health and wellbeing

PROVE farmers had higher levels of wellbeing and a greater sense of empowerment than the matched comparison group of respondents to the European Social Survey. PROVE enables participating farmers to make a living, which is instrumental to improving health and wellbeing.

PROVE consumers were more likely to eat five or more portions of fruit and vegetables a day than a matched sample of Portuguese people; a subscription to receive fruit and vegetables facilitates the opportunity to eat these foods regularly, promoting the establishment of healthy habits. Being a PROVE consumer also increased the likelihood of consuming no more than two portions of red meat a week but to a lesser degree than the effect on fruit and vegetable consumption. A key finding is that the high level of fruit and vegetable consumption among PROVE subscribers is largely due to changing habits after meals – as this is when they are often eaten – and is mediated by the availability of fruit and vegetables in households.

Equity aspects

PROVE farmers are small-scale farmers and support from the PROVE network contributed to their high levels of personal empowerment and wellbeing. Since not much support is available for small-scale farming in Portugal, PROVE has contributed to promoting equity in the group of producers. However, since PROVE consumers are mostly women with high levels of qualifications and income, it is not possible to infer that PROVE has the potential to contribute to health equity among consumers.

Environmental aspects

While environmental impacts were not quantified within the PROVE evaluation, qualitative analysis of stakeholders' perceptions has reported environmental gains. These include reducing waste from unsold crops, re-cultivation of fields previously abandoned to farming (which helps prevent fires), reducing the length of the food transport chain and the need for food conservation (thus saving energy), and promoting biodiversity (for example by reintroducing local varieties of crops and supporting wildlife such as insects). The environmental benefits of organic food production are supported by a large evidence base (FAO, nd; Poore and Nemecek, 2018)

Wider considerations

Putting the findings from PROVE into a wider context provides interesting points for discussion. Findings from the INHERIT household survey indicate that the majority of respondents in all the case study countries (Portugal, Spain, Czech Republic, Latvia and the United Kingdom) eat fewer than the recommended five portions of fruit and vegetables a day. As is the case among other European countries, in Portugal there is a social gradient in fruit and vegetable consumption: people with tertiary education are more likely to eat at least five portions of fruit and vegetables daily than those with lower education attainment (Eurostat, 2019). Evidence from other studies shows that low consumption of fruits and vegetables is associated with low affordability and availability (Miller *et al.,* 2016), and price is the most important perceived barrier to the purchase of organic food (Aschemann-Witzel and Zielke, 2017). Clearly, a range of policy initiatives are needed to improve affordability and availability of fruit and vegetables, especially of the organic variety. Within the PROVE initiative, to contribute to enhancing health equity PROVE farmers would need to extend their market reach to lower socioeconomic groups, through marketing and pricing. One opportunity to widen the reach of PROVE among consumers is already being considered, by piloting a PROVE subscription by a school.

It is interesting to note that in the INHERIT Five Country Survey people from all five of the surveyed countries showed the greatest support for the introduction of subsidies for fruit and vegetable production compared with five other policy instruments, namely a tax on meat, stop subsidising meat production, a sugar tax on soft drinks, subsidies for pulse production, and subsidies for biking and walking (Zvěřinová, Ščasný and Máca, 2018). The strongest support for subsidies for fruit and vegetable production was found in Portugal (69% of respondents), compared with 56% in Spain and the Czech Republic, 55% in Latvia and 51%in the UK. Reflecting on these findings in the light of the PROVE initiative, it seems that support exists for a government policy to provide subsidies for fruit and vegetables in Portugal. Political support for organic and local food has grown in many European countries. In Germany, with the largest market for local and organic food in Europe, the growth in demand for organic foods follows politically supported subsidies for organic farming.

Opinions on the provision of vouchers for fruit and vegetables were also examined within the INHERIT Five Country Survey. Vouchers for fruit and vegetables with a co-payment rate in the vicinity of 60% seem to be most promising, while vouchers for fruit and vegetables with local origin need not work better or worse than vouchers for produce imported into an area. However, among the survey respondents, the likelihood of applying for the vouchers decreases when vouchers are provided only for organic fruit and vegetables (Zvěřinová, Ščasný and Máca, 2018). This perhaps indicates that further promotion is needed about the environmental benefits of local and organically grown fruit and vegetables.

4.2 School-based initiatives [Gardening with Green Gym and Meat Free Monday, Sustainable Food in Public Nursery Schools]

Gardening with Green Gym and Meat Free Monday was evaluated for impact using quantitative and qualitative methods; a cost benefits analysis was conducted for Sustainable Food in Public Nursery Schools.

Both INHERIT school-based interventions are complex, and have multiple potential impacts.

Aspects related to health and wellbeing

The qualitative findings on Gardening with Green Gyms and Meat Free Monday indicate some improvement in children's physical activity levels. There are indicative findings that children's wellbeing improved. The project also exposed children to and made them interested in vegetables and fruit: there was some improvement in children's knowledge of plants and nutrition, and children were more likely to want to eat vegetables and fruit after four months of intervention.

Qualitative findings also demonstrated improvement in social interactions and making friends with other pupils that might have contributed to improved wellbeing.

Environmental aspects

The findings from Gardening with Green Gyms and Meat Free Monday also indicated that the children had more opportunities for contact with nature and to take care of their surroundings, with children showing more friendliness to the wildlife in the garden and overcoming their fears of insects in many instances. This pro-environmental behaviour also extended beyond the school gates – with children reporting that they made conscious efforts to connect with nature in their home gardens and in public open spaces with their families.

Equity aspects

Gardening with Green Gyms and Meat Free Mondays was piloted in a London primary school with an intake from a range of socioeconomic backgrounds and including several children with learning difficulties. While the evaluation did not address aspects of equity in this case, the qualitative findings indicate that the initiative helped build confidence among children with learning difficulties and underachieving children who were struggling in the classroom in particular.

Cost benefit analysis of Sustainable Food in Public Nursery Schools

The economic evaluation of Sustainable Food in Public Nursery Schools found that for every Euro invested in training and intervention activities for the awareness of healthy habits, the economic return is between 5.8 and 8 Euro in terms of modelled health and environmental benefits.

However, achieving potential environmental benefits may be challenging in reality. One of the aims of Sustainable Food in Public Nursery Schools is to provide meals made with locally grown organic foods, with a food chain from farmer to consumer of just two intermediaries. However, organic food production in the area local to Madrid is not at the scale needed to supply Madrid's nursery schools, and a short food chain can still mean that the food has travelled a long distance from farm to plate. Therefore, there are potential trade-offs to be made with transport costs. Those contemplating action on the triple-win in consuming need to be cautious as these interactions may make assessment of unambiguously positive environmental outcomes difficult.

Wider considerations

Experiences in the early years lay foundations for pro-health and pro-environmental behaviours in later life, as discussed in Section 3. In addition, school-based interventions have a wider reach beyond the children themselves, to teachers, families and potentially to the wider community. Initiatives that adhere to a 'whole school approach' rather than focusing on piecemeal aspects are likely to be more successful and benefit children and the wider community. As a result, school-based interventions that include both educational and environmental components are more effective (Appleton *et al.,* 2016) than those that may include just one of these.

Gaining acceptance of changes in schools among the school community is critical to achieving positive outcomes. In the case of Sustainable Food in Public Nursery Schools, promotion of awareness and acceptability of the new menus shifted perceptions among families, school staff and cooks towards more positive attitudes to the introduction of changes to the school menus. This is an important element of good practice within a school setting since gaining acceptability among the wider school community is critical to the initiation, success and sustainability of an intervention. Furthermore, it helps to make the intervention economically viable.

While children and adults are often cautious towards new behaviours, in general fun or pleasure can be a good motivator. For example, in the case of Gardening with Green Gyms and Meat Free Monday, children thoroughly enjoyed the activities and showed interest in tasting new vegetables such as Brussels sprouts, as well as fascination with insects – or 'mini beasts', as they called them.

For cooks involved in Sustainable Food in Public Nursery Schools, enjoyment experienced in shared social activities combined with satisfaction associated with altruism, gained through taking part in workshops outside of normal working hours for the benefit of the children.

4.3 Open/green space initiatives [Malvik Path, Restructuring Green Space, Restructuring Residential Outdoor Areas, Thinking Fadura]

Aspects related to health and wellbeing

Well-designed open/green spaces that take account of people's needs and voices create opportunities for multiple activities – physical (running, cycling, walking) and social (sitting, relaxing, picnicking), and also for enjoying nature. This is supported by evidence that use of open/green/blue spaces can increase physical activity, reduce stress and improve wellbeing for people of different ages, gender and socioeconomic conditions (Ward Thompson *et al.,* 2012; Cohen *et al.,* 2014; Schultz *et al.,* 2017; Roe *et al.,* 2019). Having a larger amount of green space has been associated with an increase in social contact, lower levels of stress, better self-perceived health, better cognitive function, and less obesity, cardiovascular morbidity and mortality. Urban green space or green corridors can make cycling, walking and physical activity attractive and thereby encourage and support new environmentally-friendly behaviours. It should be noted that urban green space can also be related to negative health outcomes, such as allergic reactions, vector-borne diseases and increased risk of injuries during physical activity, particularly among children. However, these negative effects may be addressed through adequate design, maintenance and management of urban green spaces and species selection (Hartig *et al.,* 2014; WHO, 2016; van der Vliet *et al.,* 2019; Kruize *et al.,* 2019; Staatsen *et al.,* 2017).

There was an estimated increase in the usage of the open/green spaces following the initiatives in Fadura, Breda and Malvik. Observational data on the use of INHERIT's open/green space initiatives reveals how people use features within the spaces for different activities. Providing a range of features suitable for different activities encourages use of green/open space for different activities, including walking, running, cycling on paths, playing on equipment or in designated playing fields, relaxing in seating areas and generally enjoying social interactions in the open air – all of which are associated with positive health outcomes.

To go deeper into understanding why people use open/green spaces and the benefits they derive from doing so requires both qualitative and quantitative research. In the case of Malvik Path, the evaluation found that contextual factors, including the availability and quality of the path, were more important in influencing use of the path than factors associated with individual users (such as age). Providing accessible, attractive, well-maintained green space with room for socialization, and where people feel safe, may increase the opportunity and motivation of people to use it more often. Informing and educating people and organizing activities may increase capability (and motivation) to use green space (Kruize

et al., 2019). Since the use of green space depends on life stage, lifestyle factors and individual values, it is important to involve potential users in its design.

Reflecting on these findings, a case can be made in all open/greenspace initiatives for follow-up in participatory activities to find out the level of satisfaction with the space once changes have been made, what kind of further changes or events might be needed to increase satisfaction among users, and to encourage new users. It is important for the sake of maintaining trust in the process that developers are responsive to the outcomes of these discussions and take steps to implement proposals. Indeed, true co-creation implies working towards collective ownership of initiatives, including the processes of planning, implementation, as well as outcomes.

Restructuring Residential Outdoor Areas provided an opportunity to conduct a quasi-experimental case control, as well as before and after evaluation, because the restructuring was carried out during the INHERIT project. The INHERIT project used a household survey, including validated tools for self-reporting physical activity and mental wellbeing. However, the response rate to the survey was low, and the post-intervention data were collected shortly after the intervention had completed and hence it was not possible to draw conclusions based on the low impacts yielded in the evaluation. However, an informal dialogue with residents organised by the property owners in collaboration with an urban development company provided some insights on how it had impacted the residents' perception and expectations about the development of the area. While the renovation of the formerly dilapidated and damaged area has certainly improved the quality of the outdoor space in the intervention area, the residents do not yet feel connected with it, and were disappointed as they were only presented with the final design output rather than consulted on the final plan before renovation. In addition, the restructuring has not drastically changed the opportunities for different activities compared with the control area, offering similar opportunities for children's physical play, sand play and seating. As a result, a significant change in people's use of the area for different physical activities may not be observed. In addition, Sweden ensures people's access to nature by law and there are other green spaces nearby that people can access easily. However, in improving the area consulting with the residents was important and this created some form of trust between property owners and residents that can be built upon in future renovation projects.

Environmental aspects

With reference to the INHERIT model, each of the open/green space initiatives has the potential to positively impact health, equity and the environment in ways that can be substantiated by the wider literature (Kruize *et al.,* 2019; Staatsen *et al.,* 2017; García de Jalón *et al.,* 2019). However, such impacts are difficult to quantify, not least because of the complexity of the causal model (Kruize *et al.,* 2019, van der Vliet *et al.,* 2018). Proximal environmental impacts are inherent to many green space design initiatives where there is a view to conserving and protecting the environment through making parks and green spaces part of the green infrastructure and contributing to mitigation of the impacts of climate change (Brown *et al.,* 2015; Pitman, Daniels and Ely, 2015). This is increasingly a priority for planners and urban designers (Norton *et al.,* 2015; Sanesi *et al.,* 2017). For example, Restructuring Green Space in Breda included a pond to provide drainage and encourage biodiversity, as well as trees and plants. Features introduced in all the spaces encourage use of the space, and use of green space encourages pro-environmental behaviour, which is essential for achieving longer-term societal aims of securing environmental sustainability (Jennings, Larson and Yun, 2016).

Equity aspects

Potential impacts on equity can also be inferred from the literature. Disadvantaged areas in cities generally have fewer and lower quality green spaces than more advantaged areas – although this does not appear to be the case in Stockholm, where urban planning ensured that green areas were maintained in new suburbs. Nevertheless, in some cities improving open and green areas in deprived areas would reduce environmental inequity. People on lower incomes are less likely to use green space, but those that do benefit more by using them than wealthier groups (Kruize *et al.,* 2019, Staatsen *et al.,* 2017). Both the Restructuring Residential Outdoor Areas and Restructuring Green Space initiatives are located in relatively disadvantaged areas that are home to communities with a high proportion of ethnic minorities and low-income households. After restructuring in Breda, the green space was used by a wide variety of users (different age groups, genders and cultural groups). With reference to the INHERIT model, there is potential for equity gains by focusing on more disadvantaged areas in this targeted way.

Thinking Fadura and Malvik Path are not located in deprived areas but both initiatives are designed to be of universal benefit: that is, they enable and encourage use by all social and age groups. This was demonstrated in the evaluation of Malvik Path, where the highest proportion of very frequent users of the path came from the lower income group. The design of Malvik Path also makes it accessible for elderly people, people in wheelchairs and families with children in pushchairs or prams. As had been planned in developing the path, using a participatory process, the Malvik Path is socially inclusive and people from all social groups use the path for various types of activities. It is interesting to note that people from households with lower incomes reported the least satisfaction with both the availability and quality of the path while, as noted above, having the highest proportion of very frequent users. It may be that for this group the path provides the most affordable and accessible option for outdoor activities.

Cost benefits analyses

The economic evaluation of Malvik Path based on actual costs, and benefits imputed from the wider literature, showed that the investment in creating the path is highly beneficial from a societal perspective.

The economic evaluation of Thinking Fadura also demonstrated environmental and social pay-offs for investment, with a benefit: cost ratio of at least 1.6. In other words for every Euro spent, benefits are estimated to value Euro 1.6.

Wider considerations

To capture health, equity and environmental sustainability perspectives for the INHERIT triple-win, involvement of multiple sectors in participatory processes is beneficial, as noted in the Thinking Fadura cost benefit evaluation. The economic evaluation of Thinking Fadura used a participatory methodology to derive a set of potential positive and negative impacts. INHERIT partners organised a workshop involving stakeholders and experts from the public and private sectors to discuss the social, environmental and economic impacts of the opening of the Fadura park. This is essentially a way of conducting a health impact assessment and an environmental impact assessment at the same time. This is an important element of good practice because it provides a way of cutting across environment and health domains from the perspectives of both public health and environmental sustainability, enabling fresh insights that would not necessarily be achieved if only health experts or only environmental experts are present. For the same reason, bringing together the public and private sector in discussions provides wider and deeper insights into potential positive impacts as well as potential adverse impacts of initiatives.

This approach to public engagement is relevant to the evaluation of Restructuring Residential Outdoor Areas , where there was a low response rate to the household survey. INHERIT partners speculate that intensive efforts to engage residents in identifying potential impacts for the evaluation might have encouraged a sense of ownership that would have helped to build trust and encouraged higher response rates.

Building on this point about evaluation, an important element of good practice in general for these kinds of interventions is to engage residents and community members not only in planning and design of open/green space restructuring programmes, but also in identifying potential impacts (positive and negative) that could guide aspects of the design implementation but also any planned evaluation.

Cost benefit analyses are useful but should not be the only basis for decision-making. INHERIT partners found that cost benefit evaluation raises further interesting questions about which potential impacts can be quantified for cost benefit analysis. Specifically, the stakeholder workshop to identify potential positive and negative impacts of Thinking Fadura raised discussion about eight categories of impacts: environment, living place, community and society, safety and comfort, employment and economy, food, mobility and physical activity. However, not all the identified benefits can be quantified. Those that can be include benefits related to people using cars less (assuming the opening of Fadura encouraged use of the pedestrian pathway instead of cars), benefits arising from increased property value, and health benefits from physical activity and recreation. Impacts that could not be quantified include the risk of social conflicts and safety. The stakeholder workshop also aimed to inform two surveys, one for citizens and one for users of the Fadura area before opening to the public.

Conducting citizen surveys is important because they provide a wider range of opinions from different social groups than would be possible at a stakeholder meeting. In Thinking Fadura, while some impacts identified by the stakeholder workshop could not be quantified, the surveys could give citizens' perceptions of impact based on a Likert scale.[5] Most citizens give high importance to health, physical activity and recreation. Interestingly, the potential increase in value of housing identified by the stakeholder workshop as a benefit can be quantified but may not be perceived as a benefit by all citizens, as it can potentially lead to gentrification, pricing some people out. Perceptions of citizens are therefore influenced by who they are – higher house prices might benefit some, but would not be perceived as a benefit for local people wishing to get on the housing ladder for the first time.

Ideally, in conducting a cost benefit analysis it would be important to quantify all costs and benefits but this will not be possible. There is a risk of underestimating the benefits or costs of a measure if a narrow cost benefit analysis is conducted. However, it is important to know about those impacts that are perceived by citizens as important so that these can be taken into account by policy-makers, even if they cannot be included in the economic evaluation.

An additional benefit of conducting a multisectoral workshop is that it creates time and space for stakeholders to talk, particularly about gaps in considering potential impacts and what can be quantified. In bringing together the views of multiple stakeholders, the effect of the combined effort is more than the sum of the individual contributions.

Furthermore, the participatory methods deployed by Thinking Fadura can provide additional inputs into how the space is designed and used. With follow-up, the municipality could do work to improve the design of the space to enhance the positive impacts or mitigate adverse effects.

5 A Likert scale is numerical scale (e.g.1-5) used to quantify people's attitudes to a topic.

4.4 Energy efficiency in homes [Eco Inclusion and Energy Efficient Investments]

Eco Inclusion and Energy Efficient Investments are two distinct approaches to improving energy efficiency in homes. Eco Inclusion is a tightly targeted initiative set up to support refugee families living in Germany through peer training. Energy Efficient Investments examined costs and benefits of four energy-efficient measures in the UK to improve energy efficiency in the home: boiler replacement, loft insulation, draft proofing and double glazing.

Aspects related to health and wellbeing

Cold and damp housing are a significant risk to health. The costs of maintaining a warm home may contribute to fuel poverty, where residents may need to choose between heating their home or eating a healthy diet or other basic needs (IHE, 2014). Therefore improvements in home energy efficiency that increase levels of indoor thermal comfort and improve indoor air quality may lead to improvements in health (Staatsen *et al.,* 2017).

In the case of Energy Efficient Investments, the picture shown for assessment of health benefits in the analysis of costs and benefits is mixed. There is some evidence that sealing of properties to reduce or prevent draughts by installing loft insulation and double glazing may reduce indoor air quality, resulting in risks to health, associated with higher hospital admissions.

Eco Inclusion reported a good level of knowledge after the peer training for refugees about measures they can take to maintain thermal comfort in the home in an energy-efficient way.

Environmental aspects

Household energy consumption makes a large contribution to greenhouse gas emissions and improving energy efficiency in homes is clearly vital for environmental sustainability. The modelled environmental benefits in Energy Efficient Investments demonstrate that the impact is likely to be unambiguously positive for the environment, due to energy and carbon savings.

Equity aspects

In the case of Energy Efficient Investments, where these target lower socioeconomic groups and those in social housing, there is a risk that they may contribute to health inequalities. To counter negative consequences, a holistic approach can be taken that increases energy efficiency in homes but maintains indoor air quality. Measures to improve and maintain indoor air quality include providing information and training for residents and adequate ventilation (Sharpe *et al.,* 2018).

Regarding initiatives targeted at particular groups, cultural sensitivity is required to avoid a sense of stigmatisation and to build trust. Eco Inclusion used peer training as a means of mitigating this risk

and of enabling low-threshold access to knowledge about efficient use of energy in the home to the target refugee population. In addition, the evaluation highlighted the need for sensitivity in conducting future evaluations to take into account low education and language barriers, including illiteracy, and the necessity for innovative evaluation methods taking into account the specific characteristics of the target group (such as unstable residency status).

Wider considerations

Peer training has been used and evaluated among migrant and refugees in the context of primary care (Kieft *et al.,* 2008) and in health promotion (Laverack, 2018). Peer training seems a promising approach for raising awareness and increasing knowledge among refugees about energy consumption. However, within the INHERIT project, the evaluation was limited to looking at knowledge after the workshop, therefore it is difficult to conclude that the peer training engenders environmental inclusion because no information is available from before the peer training. While knowledge and awareness are elements in creating capability for pro-environmental behaviours, follow-up research would be needed to find out if those who received peer-to-peer training changed their behaviour. In view of a potential transfer or scaling-up of Eco Inclusion, experiences made in the implementation of peer training in health care and health promotion interventions could be used to further develop or adapt the process, methodology and content of the training sessions on energy efficiency.

4.5 Mobile phone applications for active transport and physical activity [Lifestyle e-coaching, UrbanCyclers]

Both the Lifestyle e-coaching and UrbanCyclers case studies were designed as randomised control studies, the most rigorous evaluation methodology.

Aspects related to health and wellbeing

Technologies that allow individuals to track their activities and provide feedback can motivate behavioural change; however, such changes may take time, and questions remain about whether the behavioural changes are maintained.

The lifestyle e-coaching case study used a wrist-worn tracker that communicated with a smartphone app and found increased physical activity levels among the user group compared with the control group. These effects became more evident after a three-month follow-up period. Notably, both the user group and control group comprised only people with relatively low socioeconomic status.[6] While

6 Defined as having a score lower than 45 according to the International Socio-Economic Index.

financial incentives were paid to participants to complete the study, online community formation via the app and the ability to compare performance with others were used to encourage increased physical activity. The case study effectively dispels two myths – that it is only the well-off who can engage with lifestyle apps, and that more active people gain most from apps to motivate physical activity. Among the user group in the study, the least active people gained most in physical activity improvement. Also, underlying behaviour motivations such as attitudes and intentions increased significantly more in the user group than in the control group, as did improvements to mental wellbeing.

Lifestyle e-coaching found that the user group showed higher odds of improving both physical activity and wellbeing in the third measurement, at the end of the 19 week period. Allowing time for behaviour change is an important element of good practice. Short-term initiatives may not show any beneficial impacts. It would also be important to follow up after one year to find out whether the behaviour change has been sustained.

The UrbanCyclers case study demonstrates that a smartphone app could motivate people to cycle more for their commute. The study found that the app motivated more frequent commuter cycling. Based on the randomised control trial, the study empirically tested the effectiveness of different rewards and found that financial rewards on their own seem to be more effective than smart gamification, but a combination of the two – financial rewards and smart gamification – may work the same or slightly better.[7]

Environmental aspects

Uptake of commuter cycling, as a replacement to commuting by car, is known to support environmental sustainability (Staatsen *et al.,* 2017). The UrbanCyclers app, among other features, helps users to find a safe or convenient route and gives turn-by-turn navigation in order to support people in taking up cycling in cities, potentially reducing car use.

Interventions to increase physical activity levels may be beneficial for the environment if they result in a shift to more active transport, including walking, cycling and use of energy efficient public transport (Staatsen *et al.,* 2017). In the Lifestyle e-coaching case study participants in the intervention group reported walking for longer durations than before, but the study has no information about whether this reflects a personal choice to walk instead of using their car for transport, or to walk in addition to using their car.

Equity aspects

The results from the Lifestyle e-coaching case study indicate that the use of lifestyle apps may help increase physical activity levels among groups that have lower levels of physical activity and among groups with low socioeconomic position. The extent of market penetration of smart phones among social groups in society will affect equity aspects, since not everyone will be able to afford fitness trackers and smart phones. Even if people have smartphones, financial incentives may be needed to encourage the download and use of apps for lifestyle coaching for a long enough time to achieve benefits.

7 Results based on preliminary analysis of data.

Wider considerations

The private sector can create apps, but these need the support of public policy around infrastructure (to create and maintain walkable neighbourhoods and cycling infrastructure). Innovation often comes from small and medium sized enterprises (SMEs), and complementing action among SMEs in this area with supportive infrastructure or urban policies may be fruitful in leading to economic and health benefits for society. Public sector support for SMEs in this sector to innovate would be beneficial, as new SMEs often struggle when they are establishing themselves and some do not survive.

The opportunity exists for novel products to use gamification and other incentive-based tools to encourage active transport and physical activity. UrbanCyclers demonstrated that academics working with companies developing apps could help in shaping apps that provide differentiated support to people at different stages of behaviour change to encourage them towards more frequent commuter cycling.

In terms of making lifestyle e-coaching more widely available to encourage people to increase physical activity, there is a debate to be had about whether governments should be willing to use economic incentives targeted at individuals to improve public health. The possibility to link to businesses is there – for example, to insurance companies and models of self-incentives. It might be an option for local/national governments or insurance companies to provide such a lifestyle e-coaching system to those who cannot afford it.

The shortcoming of using an app to encourage commuter cycling is that although it can give motivation and to an extent capability there is still a deficit in opportunity in places where the context and infrastructure are not conducive to cycling. Nevertheless, the UrbanCyclers randomised control trial demonstrates that small financial rewards embedded in the app can encourage people to cycle more even with underdeveloped cycling infrastructure. With more commuter cycling on the roads, the incentive will be there for cities to improve cycling infrastructure, creating a positive feedback loop. Likewise, having an activity tracker and being motivated to walk more might encourage people to seek out green space and tree-lined roads. Building a need among people for more green space and pleasanter environments for cycling and walking should be an incentive for municipalities to give higher priority to restructuring areas to create more usable green spaces. Recalling INHERIT's cost benefit analyses of the Malvik Path and Thinking Fadura case studies, there is good evidence that creating usable green spaces is beneficial to health and environmental sustainability and gives positive economic returns on investments (García de Jalón *et al.,* 2019).

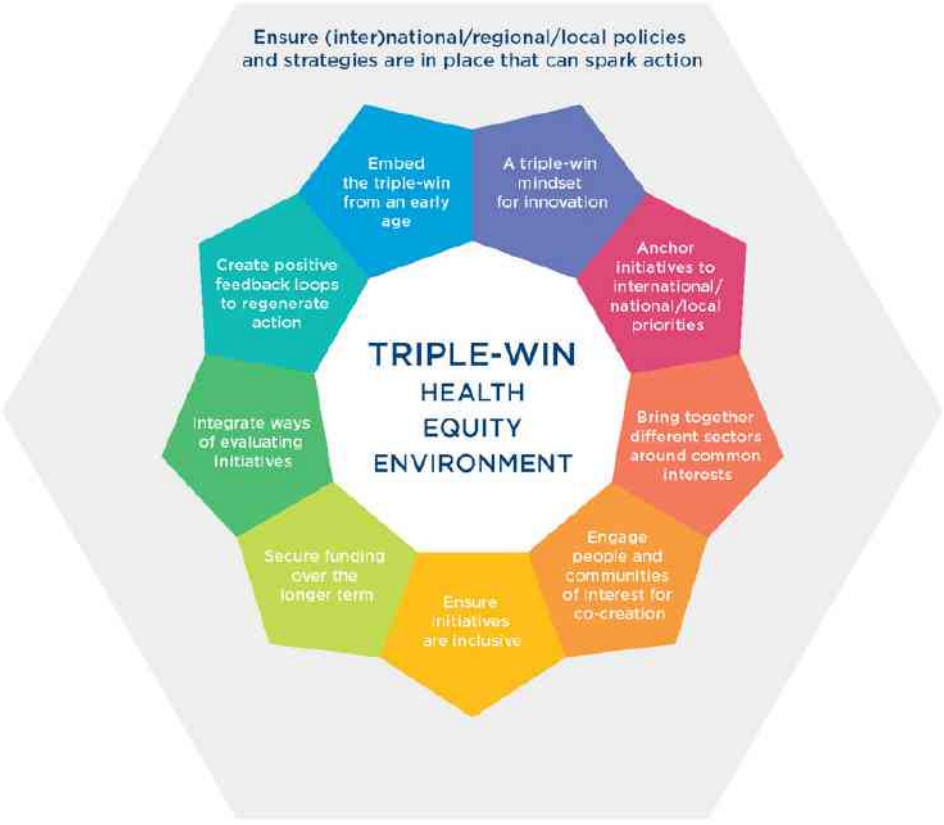
CHAPTER 5
CONCLUSIONS AND SUGGESTIONS FOR MODELS OF GOOD PRACTICE

From the outset, a key aim of INHERIT was to identify successful initiatives in the areas of living, moving and consuming that can be effectively rolled out across Europe, in a cost-efficient way, and that will impact positively on health, equity and environmental sustainability.

This section is intended to provide a non-exhaustive summary of the elements identified from INHERIT case studies that are key to creating a triple-win for health, equity and environmental sustainability. We provide an overview of the principal elements of good practice gathered from evaluations of INHERIT's 15 case studies, all of which have potential to modify behaviours by changing contexts in which people live, move and consume. The elements of good practice are relevant to potential scale up of triple-win initiatives, to transferring an initiative to a new context, and to developing and implementing further innovative triple-win initiatives. Our aim is to inspire others to develop and adapt initiatives to help create a movement for the triple-win.

5.1 Overarching elements of good practice

Figure 3. Overarching elements of good practice for INHERIT triple-win



Source: Figure 3 and related text from: *Bell et al.* (2019b) 'Ten lessons for good practice for the INHERIT triple win: Health, Equity, and Environmental Sustainability' Int. J. Environ. Res. Public Health, 16(22), 4546. https://doi.org/10.3390/ijerph16224546.

A triple-win mindset for innovation

All case INHERIT case studies are considered to be triple-win initiatives. Yet the potential for a triple-win was not explicit in the original objectives of all interventions. Only through engagement in INHERIT did they recognise their potential to have multiple societal benefits. Taking an example from what might traditionally be thought of as a health intervention, the activity tracker and associated app used in the Lifestyle e-coaching case study can exist as a stand-alone product to support individuals in tracking their activity levels. Yet thinking about how this technology can support a triple-win opens out wider questions such as: is the technology effective among all social groups and those with low activity level (the basis of the INHERIT research on this case study), and, if so, how can it be made more widely available? Taking the environment into account leads to further questions, for example: are there usable parks and safe areas for people to be more active near their homes? Such questions contribute to systems thinking that is fundamental for creating conditions for behaviour change for a triple-win.

As another example, the Place Standard Tool was designed to guide discussions about what needs to be targeted to improve a place, but applying it with a triple-win mindset in North Macedonia identified different key indicators (air quality, waste, water quality) that could be included that would strengthen the PST as a tool to guide thinking and planning for a triple-win for health, equity and environmental sustainability.

Triple-win thinking, and the direct sense of those engaged that they are contributing to the health and well-being of community members as well as broader ambitions related to the urgent climate crisis, can strengthen commitment and motivation for action of those involved.

Bringing a triple-win mindset to the table demands creative thinking and discussions to plan the necessary steps to bring different sectors together to make a triple-win happen. Yet, as evidenced in several INHERIT case studies, impacts of interventions may not always be unambiguously positive, and there may be trade-offs as well as synergies across sectors. For example, as noted in the case of Sustainable Food in Nursery Schools, organic food production in the area local to Madrid is not at the scale needed to supply Madrid's nursery schools, therefore a trade-off needs to be made between providing organic food and the environmental cost of transport. In the case of Energy Efficient Investments, while the environmental benefits are likely to be positive due to energy and carbon savings, the targeting of lower socioeconomic groups and those in social housing for energy efficiency investments may exacerbate health inequalities, unless the measures put in place are appropriately designed to avoid the sealing of properties and the negative health impacts associated with this. Identification of trade-offs and adverse consequences, as well as potential positive impacts, gives extra weight to the imperative for applying triple-win thinking to a broad range of initiatives such as those investigated in the INHERIT project.

Ensure (inter)national/regional/local strategies are in place that can spark action

The UN Sustainable Development Goals are a useful framework to work within because they set out an internationally agreed direction for development that requires action across multiple sectors towards multiple goals, with health, equity and environmental sustainability foremost among these. As reported in Section 3, regional European, national, and local strategies provide enabling and supportive environments in which the kinds of initiatives that are needed can flourish. For example, the STOEMP network, is part of Gent en Garde, the municipality's response to the Milan Urban Food Policy Pact (MUFP) which aims to develop sustainable food systems and healthy diets for citizens.

However, governments can do more to provide a facilitating policy environment in which small scale initiatives can thrive. Individuals and organisations have a role in advocating for the kinds of international, regional, national and local strategies that stimulate or regulate for the kinds of action needed for a triple-win. In turn, governments at all levels have a role in involving a wide range of stakeholders in the development of policies and strategies that facilitate triple-win initiatives.

In this context, impacts of school-based initiatives such as Gardening with GG and MfM in the UK would be boosted if outdoor learning were to be institutionalized by integrating it within the national curriculum. Furthermore, national public procurement regulations could be used to support healthier and more sustainable food in schools. This would support the shift to more sustainable farming practices, and consumption of less meat and more plant-based food, called for by the International Panel on Climate Change.

Anchor initiative to international/national/local priorities

Individuals and communities wishing to develop local level action for a triple-win can pick up steam by linking the initiative to higher level priorities of improving health, reducing inequalities and promoting environmental sustainability. This depends on the existence of (inter)national/regional/local policies and strategies that enable triple-win initiatives. International, national and local priorities help support powerful arguments that can bring together diverse sectors around common interests. For example, an idea for a new initiative, such as a food garden in a disadvantaged area in Ghent, can gain traction by arguing that it contributes to the aims of STOEMP in reaching disadvantaged groups, the overall Gent en Garde objectives, and the MUFP for healthier and more sustainable food. As another example, in the context of the England, where prevalence of child obesity (ages 10/11) was 20% in 2017/18 (NHS Digital, 2019), the National Childhood Obesity Strategy recognises that schools have a fundamental part to play in supporting healthy lifestyles for children (Department of Health and Social Care, 2018), and provided an anchor for the Gardening with GG and MfM pilot initiative. Nevertheless, for this practice to be maintained and potentially scaled up nationally would require integration of the outdoor learning in the national curriculum, as raised previously.

Anchoring initiatives to international, national and local priorities can help embed local level initiatives in a whole systems approach that is necessary to address complex challenges.

Bring together different sectors around common interests; allow sufficient time to build rapport and trust among stakeholders

We have noted previously, in the context of developing green and open spaces, that an effective whole-system approach requires both horizontal cooperation – between groups with more or less equal power – as well as vertical linkages between those with differing levels of power (which can include anchoring in higher level priorities).

The importance of multisectoral action and intersectoral cooperation to achieve common goals is widely accepted but difficult to do in practice. Common interest was a pronounced theme in INHERIT initiatives and is related to personal commitment. One of the success factors was a common goal of people from different sectors. While common interest can bring people together, lack of coordination can affect the success of the intervention. Bringing people together at an early stage to identify areas

of common interest and to develop common goals is a crucial part of the process. However, it can take time to build up the necessary rapport and trust between stakeholders to facilitate cooperation; trust must be nurtured as a valuable resource.

In INHERIT's experience, using the INHERIT model as a tool in stakeholder workshops has proved highly influential in opening up discussions among stakeholders about the opportunities for multiple benefits of initiatives of various kinds that enable behaviour change. As discussed in Chapter 1, the INHERIT model combines environmental impact assessment with health impact assessment and equity impact assessment in a way that enables people and stakeholders from multiple sectors to identify potential impacts and risks for any particular initiative. The use of an adapted form of the INHERIT model to inform the participatory methodology to derive a set of potential positive and negative impacts for cost benefit analysis in the Thinking Fadura initiative provides a good example of how this way of thinking can contribute to cooperation across sectors. It is crucial that this step is carried out before going on to think about how potential impacts and risks can be quantified or evaluated.

The INHERIT model as a tool for health, environment and equity impact assessment provides a way of identifying potential positive as well as adverse impacts and therefore diverges from standard regulatory environmental impact assessments, used, for example, in infrastructure development projects, and designed to identify environmental risks to health.

Engage people and communities of interest for co-creation

Engaging people and communities with the mindset of co-creation is a key theme across many of the initiatives. This is important because people need to be involved in the decisions that affect their lives, and it is fundamental to participatory governance models at the local level that aim to ensure social inclusion. In addition, being involved in decisions that affect one's life is a core element of empowerment, positioned by the WHO Commission on Social Determinants of Health as key to enabling people to live healthy and flourishing lives (Marmot *et al.,* 2008). Not only that, but being involved in decision-making gives people a vested interest in the success of the initiatives and encourages active participation in a way that creates a positive feedback loop. We see that in INHERIT initiatives such as Restructuring Green Space and Malvik Path, where involving people in a meaningful way in planning and developing processes creates places that local people actually use in ways that improve their lives and creates more engaged residents who want to protect and enhance the places they use.

We also see that it is not always easy to engage people. INHERIT has learned some fundamental requirements in this respect, and proposes possible solutions. It is important to engage the community from the inception of an intervention and the engagement should be continued throughout the process. Co-creation is also important for creating a sense of ownership among participants but that will only happen when the participation is meaningful and not tokenistic. The level of success of co-creation depends on addressing the actual needs of residents and the extent to which communities are engaged in processes of design and implementation. How much the community participates also depends on creating rapport and trust. It takes a long time to build trust and a very short time to lose it.

Every kind of community engagement requires some kind of commitment from those involved. The extent of commitment varies along a sliding scale, from attending meetings to share opinions to volunteering labour, as, for example, in De Voedseltuin (Food Garden). It is important, then, that those wishing to engage residents provide a good rationale for people to be engaged. Incentives can vary from providing refreshments and a welcoming environment at meetings to providing more official recognition of roles. Local campaigns, news coverage, events and creating a brand identity (as in Malvik Path) can raise the profile of initiatives and give recognition to engaged communities. Furthermore, such campaigns may

provide sources of information that inform people about what is happening and how they can become involved and give them confidence to join in with new initiatives. In some cases, there may be a need to develop participatory skills in the communities, for instance through educational programmes.

Several case studies have worked with volunteers based on the notion that volunteers are crucial for maintaining the project longer term. However, recruiting volunteers can be challenging: some practices found it difficult to recruit volunteers, as in the case of the GemüseAckerdemie where volunteers were needed in the daytime during the week. Furthermore, recruitment of volunteers from across the social spectrum can be difficult where the benefit is not inherent or built within the project. It is important to avoid the act of volunteering being a luxury, affordable only by the more advantaged in society. Some initiatives are intrinsically beneficial for volunteers, for example De Voedseltuin where volunteers receive training and produce from the food garden, and for others there are benefits of volunteering that might not be apparent or visible in the short term, such as enhanced wellbeing (Brown, Hoye and Nicholson, 2012). However the association between volunteering and wellbeing may not always be causal (Whillans *et al.,* 2016).

Supporting volunteers includes developing infrastructures that facilitate capacity-building through knowledge exchange. For example, training can be video recorded and widely distributed, online courses can be developed, existing teaching programmes for volunteers can be replicated. Volunteers are key to peer delivered interventions in public health (O'Mara-Eves *et al.,* 2013), and are fundamental to other kinds of peer training too, such as the operating model of Eco Inclusion. Further scale-up or transfer of the peer training model to other areas should learn from existing peer training models developed in the area of public health (Laverack, 2018). Experiences from INHERIT show that training that helps volunteers develop transferable life skills is beneficial. For example, De Voedseltuin offers workshops to volunteers that also help them reintegrate into the job market.

Ensure initiatives are inclusive

Initiatives should be inclusive so that everyone can potentially benefit. This aligns with the concept of 'proportional universalism' used in discussing how to combat social inequalities in health; it means actions or initiatives should benefit everyone across the social scale and be deployed at a scale and intensity that are proportionate to the level of disadvantage (Marmot *et al.,* 2010).

Therefore, to gain the greatest benefits, interventions for the INHERIT triple-win may need to take into account the specific needs of groups facing different disadvantages (e.g. older people, refugees), which are not homogeneous in themselves, so differentiated action may be needed. For example, it is important to pay attention to age, gender and cultural diversity and sensitivity for implementation and evaluation of intervention approaches. This was demonstrated to good effect in the Restructuring Green Space case study in which an underused green space was restructured using inclusive participatory methods into an attractive green space widely used by all members of a diverse community.

INHERIT case studies reflected that interventions that have a positive impact on health and the environment that take a settings approach (e.g. schools, green spaces) are effective ways of also addressing health equity. More targeted approaches may also be needed, as reflected in the STOEMP case study, and Eco Inclusion. In such cases it is crucial not to stereotype or stigmatise people, placing an additional burden on people suffering from relative deprivation.

Secure funding over the longer term

Of course, no initiative can operate in the absence of funding, from inception through to maintenance and sustainability of interventions. In this regard, government funding for local initiatives is vital, and should be built in to national and local government strategies linked with achieving the SDGs, population health, social inclusion, and environmental sustainability.

That said, local initiatives that gain funding from national or local government schemes are at risk in the event that other funding priorities emerge. Alternative funding sources should be explored. One solution for financial sustainability of community-based initiatives might be, therefore, to have a hybrid business model, with diverse funding partners, including public, private and collective sources.

Cost benefit analyses of initiatives can support decisions regarding investing in initiatives, however as discussed previously (Chapter 4), while these analyses are useful, they should not be the only basis for decision-making, bearing in mind that not all potential benefits and risks can be quantified, and that some perceived benefits might not be beneficial across the social spectrum. As demonstrated in the case of Thinking Fadura, cost benefit analyses can provide an intersectoral engagement process to help identify potential positive impacts as well as adverse consequences of initiatives, which can be valuable inputs to planning and development.

Integrate ways of evaluating initiatives

Evaluation of initiatives is all too often seen as an optional extra, or something that is done as an academic exercise. INHERIT's experience is that evaluation of initiatives not only helps to understand the processes of implementation, intersectoral cooperation, impacts and benefits, but also to learn about what could be done better to build synergies across sectors and to enhance outcomes. Evaluations are both summative and formative.

Evaluation of projects and programmes in real world settings is challenging and time-consuming – the evaluation methodology can be improved in a scenario with more time and resources. For example, in PROVE a combination of longitudinal quantitative and qualitative data collections, following consumers after baseline measurements, would allow better understanding of how PROVE influences behaviour, critical moments for change, or even the interplay of different determinants at the different stages of behaviour change.

Researchers also need to take into account the demands made by the research on stakeholders and survey respondents. It is important to take time to engage stakeholders, and to explain the purpose and potential benefits of the research to participants invited to respond to surveys.[8]

Despite the inherent challenges of real world evaluations, they are highly valuable to project and programme managers, not least because they bring out important issues for reflection that can influence further developments and improvements. To enable this to happen it is important that researchers report results of evaluations to project partners and stakeholders. Indeed, PROVE partners and implementers have already developed an idea to extend the PROVE initiative to schools, which may help to promote consumption of fruit and vegetables across a wider range of social groups.

8 All research on INHERIT case studies complies with ethical and legal standards.

Long-term evaluation plans should be in place with plans for maintenance and sustainability of each initiative. Interventions that might be successful in the short term might not work out longer term; again, short-term evaluation might not yield measurable outcomes. INHERIT's impact report is written based on short-term evaluation but our experience is that it is important to conduct long-term evaluation.

Create positive feedback loops to regenerate action

We have noted previously that INHERIT initiatives can create positive feedback loops that can regenerate action or stimulate further action. A case in point is UrbanCyclers which supports more commuter cycling on the roads. More urban cycling creates incentives for cities to improve cycling infrastructure, which encourages more commuter cycling, creating a positive feedback loop. Similarly, having an activity tracker and being motivated to walk more might encourage people to seek out green space and tree-lined roads. Building a need among people for more green space and pleasanter environments for cycling and walking should be an incentive for municipalities to give higher priority to restructuring areas to create more usable green spaces. Again, as discussed above, engaging people and communities in planning and development of settings-based interventions, as in Malvik Path and Restructuring Green Space, as well as more broadly in applying the Place Standard Tool can reinforce the value of participating in community development processes. It is important, however, to demonstrate to people and communities that their engagement is worthwhile and results in tangible changes to settings that support behaviour change in ways that improves lives.

Embed the triple-win from an early age

Giving children the best start in life has been identified as crucial for improving health and reducing health inequalities across the life course (Marmot *et al.,* 2010). Several INHERIT case studies demonstrate how it is possible to embed the triple-win at an early age by working with children in school-based or community based settings. Involving children and young people in such initiatives is important in creating positive feedback loops across generations as a way of embedding environmental sustainability, intergenerational equity and future population health. As previously noted, experiences in early life lay the foundation for future attitudes to eating a healthy diet and being physically active, for respecting and protecting the natural environment and for cooperative social behaviour. Additional societal benefits accrue because children influence their parents' and peers' attitudes and behaviours. Therefore, initiatives that involve children and young people in school and community settings can have long term benefits towards the triple-win.

The involvement of parents in school based programme is also perceived as important by teachers (Huys *et al.,* 2017). In the case of Gardening with GG and MfM, there are several ways to involve parents, for example- sending newsletters, homework tasks for parents and children and involving them in the maintenance of gardening during holidays (Huys 2019). There is evidence that linking with the wider community is a success factor for school-based interventions (Ohly et al 2016) and local organisations can take care of the school garden out of school hours (Huys et all 2017).

Links between school and community can go both ways. Discussion among stakeholders can provide opportunities to look out for the possibility of achieving an extra win if they consider children and young people. For example, in discussions about PROVE, partners and stakeholders discussed the possibility of piloting a subscription to PROVE in a school, which would simultaneously widen the market reach of PROVE farmers, increase availability of fresh local fruit and vegetables to children in a school setting, and make the initiative more socially inclusive.

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ANNEX: INHERIT CASE STUDIES

This annex includes summary description of all INHERIT case studies. Information for these descriptions was sourced from INHERIT reports: Anthun et al. 2019, van der Vliet, N. et al. (2019) Bell et al. 2019a, and García de Jalón, S. et al. (2019).

1. De Voedseltuin (The Food Garden)

The Netherlands

Description

The Food Garden is located at a former industrial harbour area in Rotterdam. The aim of the Food Garden is, through the help of volunteers (n=59 in 2018), to produce organic vegetables and fruit for lower income families that are connected to the Dutch Food bank. The Food Garden offers work for volunteers, amongst others through participation 'spots' to reactivate unemployed people with a large distance to the job market. The Food Garden covers 7,000 m^2 of land and produces organic fruit and vegetables using permaculture principles. It has gradually developed from a food garden with a social function, to a food park with multiple functions (production garden, learn/work garden, urban garden and breeding ground for innovation and development).

Target groups

The target groups of the Food Garden initiative are disadvantaged families who receive food packages from the Rotterdam Food Bank, and other vulnerable population groups, including volunteers who are disconnected from the job market.

What inspired the creation of The Food Garden?

Initiated in 2010, The Food Garden is a way to grow vegetables to supplement food packages (which were short on vegetables at the time) for the local food bank in Rotterdam. At the same time, many users of the food bank were unemployed at home, and could work as volunteers in the food garden.

Success factors

The high availability of volunteers, the support from the municipality and the location near the Food Bank have all been important factors for the successful operation of this initiative. Another central facilitator has been the availability of a green space area that could be allotted for the Food Garden. Having a hybrid business model, with funding from different (private, collective and public) sources, meant less dependency on the municipality (who could be a more equal cooperation partner). Municipality

stakeholders went into the city and looked across sectors and facilitated small initiatives. Setting the agenda, so being active in reaching and engaging policymakers instead of merely reacting on policy (and also being policy resistant, for example by having enough resources to continue when subsidies stop or decrease). Involved cooperation stakeholders were motivated, driven and like-minded, and actively sought cooperation (they formed a chain of green-social initiatives). They also knew each other's worlds, trusted and respected each other, and were willing to share ideas.

Outcomes and Impact

No quantitative or cost-benefit evaluation was conducted. However, the Food Garden has a societal impact through multiple routes: healthy and sustainable food, work activation and garden education opportunities for vulnerable populations, and increased green space in an urban area.

Further development

The societal value and impact of the cooperation chain must be made more visible, better acknowledged and rewarded financially. Financing should change from fragmented small sources to integral funding. Also needed is a pilot experiment to test, develop and grow the business model and cooperation chain, with time, energy and space for the municipality to support the initiatives and develop the hybrid business model further. Finally, development of green social work as a new transdisciplinary education.

INHERIT highlights The Food Garden demonstrates the importance of chain cooperation between small-scale initiatives (e.g. a food garden, catering organization, work activation centre) and the importance of municipality support. In the future, there should be more time and space for these type of initiatives to test, develop and grow.

2. PROVE

Portugal

Description

PROVE is a national programme that provides tools, training and partnerships to empower small-scale farmers in organised local networks (or PROVE groups) to directly sell their seasonal fruits and vegetables locally, through collaborative work and an online platform. Citizens, associations or municipalities can approach PROVE partners to trigger the implementation of new PROVE groups. It was created by a consortium of partners led by ADREPES (Association for Rural Development of the Península de Setúbal) in 2004. In 2018 there were 108 active PROVE groups across Portugal.

Target group

Small-scale farmers, local consumers, local promotors (municipalities, non-governmental organisations, groups of citizens).

What inspired the creation of PROVE?

PROVE was triggered at a social forum on local sustainable development in which the local agriculture sector was discussed. The programme was inspired by international experiences in short food chains and was created with EU funding (through the EQUAL and PRODER programs) by an intersectoral team led by ADREPES.

Success factors

According to stakeholders' perceptions, the PROVE methodology allows farmers to self-manage their own unit and create an income source that is valid in contexts of economic downturn and disinvestment in the agricultural sector. Its success is based on building relations of proximity and trust and reinforced by investments in the brand identity and group activities (visits, national meetings).

Outcomes and impact

Farmers perceived their life circumstances to be improved by PROVE, and reported higher levels of personal empowerment and wellbeing when compared with a matched national sample that were not part of PROVE. For consumers, having a PROVE subscription appears to enable higher consumption of fruits and vegetables by making them more readily available in the household.

Further development

PROVE implementers argue that PROVE needs to restructure its funding to ensure brand consolidation and further technical support to farmers. The project could grow if strategies are put in place to attract more people to work in sustainable agriculture and to diversify PROVE access points. The evaluation suggests that in the future, the triple-win (improving health, equity and environmental sustainability) can be fostered by reaching out to consumers from lower socioeconomic groups and by promoting more alternatives to animal protein.

INHERIT highlights

PROVE illustrates the importance of citizens' participation and network collaboration to foster the empowerment of consumers and farmers in local food production. The promotion of local production and consumption networks can help consumers to make choices that contribute simultaneously to health, environmental sustainability and social equity.

3. Gent en Garde: The STOEMP initiative

Description

STOEMP is a network that brings together initiatives around good food – food that is healthy, nutritious, local, and good for the environment. It was launched in 2017, as part of the Gent en Garde food policy of the city of Ghent. INHERIT helped to gain insight in how different policy domains (environment, health, social welfare) and sectors work together in relation to STOEMP's objective of connecting and strengthening initiatives to make good, sustainable food available to everyone, in particular to the most disadvantaged groups.

Target group

STOEMP is a collaboration of stakeholders from education, civil society, research, social welfare and city administration. It aims to reach all parts of society but with special focus on the most disadvantaged.

What inspired the creation of STOEMP?

In addition to being anchored in the Milan Food Policy Pact and the United Nations Sustainable Development Goals, the initiative's two key partners had complementary objectives: first, the food council of Gent en Garde wanted to work more on one of its five strategic goals: "Creation of more social added value for food initiatives". Second, community health centres wanted to work towards making healthy food accessible for everyone.

Success factors

The most important success factors in implementing the STOEMP initiative, according to the participants, were the enthusiasm and motivation of the different partners as well as the shared values and perspectives on how to combat the problem despite varying goals of the involved organisations. In addition, the feeling of ownership of the partners by being actively involved in the creation and revision

of the project's goals and actions was highly important. Political support for the facilitation of a moderator and coordinator at the municipal level was also seen as vital for the initiation and functioning of this initiative.

Outcomes and impact

INHERIT has found STOEMP to be a promising implementation model in the context of a city-wide strategy. The case study demonstrates how different sectors and organisations work synergistically together to implement actions towards healthy eating, with a particular focus on those facing socioeconomic disadvantage. Research on the impact of the initiative on healthy eating among different social groups is planned but has not yet been conducted.

Further development

According to INHERIT's qualitative evaluation, a strong basis and framework for STOEMP exists. In the future, the focus could lie on enhancing the visibility of STOEMP, creating even more support from stakeholders from different sectors, further increasing the exchange of good ideas and even organising shared actions, and attracting new target groups and organisations.

INHERIT highlights

STOEMP demonstrates how policy domains and partners from different sectors can successfully work together with the goal of reaching a more sustainable, healthy and fair food system for everyone in the city.

4. GemüseAckerdemie

Description

The GemüseAckerdemie is a training and support programme for school teachers established in 2013 that enables them to give lessons to children on the theory and practice of growing food. More than 400 schools and kindergartens participated in 2019. Building on this, the INHERIT case study aimed to increase the number of volunteers supporting the GemüseAckerdemie PLUS programme, which is dedicated to schools and kindergartens that are situated in deprived areas and that have a strong focus on integration, and/or are attended by children with some form of disability. The case study was conducted over the 12 months from February 2018 to January 2019.

Target group

One target group were the volunteers, who were contacted and engaged to support the GemüseAckerdemie PLUS to work in the vegetable fields. The other target group were the school or kindergarten children from institutions situated in deprived areas that have a strong focus on integration, and/or that children with some form of disability attend.

What inspired the creation of GemüseAckerdemie?

The GemüseAckerdemie programme was started as a social enterprise with the aims of re-establishing children's contact with nature and increasing their knowledge about how to grow food and eat healthily, as the funder felt the need to address this challenge. The case study was created to improve the quality of experience for the children participating in GemüseAckerdemie PLUS.

Success factors

Having started as a pilot with one school in 2013, the number of schools and kindergartens in the overall GemüseAckerdemie programme has since increased to 400 in Germany, Austria and Switzerland, which shows the interest in the approach. From the feedback from the qualitative evaluation within the interviewed schools, it was apparent that the support of Ackerdemia, the organisation behind the programme and that brought in all the materials and advice, was an important and appreciated facilitating factor. Other important factors were the personal commitment and enthusiasm of all those involved, easy and fast communication, and meeting in person.

Outcomes and impact

No quantitative or cost benefit evaluation was conducted. However, other studies on GemüseAckerdemie conducted every year show that the initiative has a significant impact on both children's and teachers' way of thinking and acting; the children feel more involved with nature and value their food more after they have experienced how much work it can be to grow vegetables. Teachers and volunteers in the case study reported similar experiences.

Further development

Both GemüseAckerdemie in general and the case study programme could be scaled up. An interesting way to do this would be to integrate the programme with the standard school curriculum and to anchor it within regional and national policy. This way, teachers could implement the programme as part of the regular curriculum, not on top of it, and more time could be allocated to the collaboration with the other actors involved.

INHERIT highlights

The programme successfully brings together environment, health and equity aspects by giving children the chance to be outside and to grow and eat their own vegetables. The GemüseAckerdemie PLUS programme specifically supports children from deprived areas or with need for special care.

5. Gardening with Green Gym and Meat Free Monday

Description

Gardening with Green Gym (GG) and Meat Free Monday (MFM) is a collaboration between University College London, the Conservation Volunteers (TCV), the Meat Free Monday campaign and a primary school in London. The intervention designed within the INHERIT project aims at improving children's diet, physical activity and mental wellbeing through gardening activities in the school grounds along with provision of a meat-free school meal at least once a week. The intervention was designed for one school year, September 2018 to July 2019. This evaluation is based on analysis of data up to February 2019.

Target group

The target group was a group of children aged 9 to 10 years old from a socioeconomically and ethnically diverse neighbourhood in London. The target group also included children with disabilities.

What inspired the creation of Gardening with GG and MFM?

The creation of the intervention was triggered by the INHERIT aim of achieving a triple-win (of improving health, equity and environmental sustainability) and based on evidence about the benefits of complex interventions (environmental and educational) for improving children's diet, physical activity and wellbeing.

Success factors

Actively seeking involvement of the stakeholders and bringing the key actors on board, particularly finding and engaging an interested school, contributed to the successful implementation of the intervention. The mutual interest of the stakeholders and their common goals and values, and demonstration of the benefits of outdoor learning through existing evidence, were also key motivating factors.

Outcomes and impact

The mixed methods evaluation indicated some positive impact of the intervention on children's attitudes to and preferences for eating vegetables and fruit, and their physical activity levels and wellbeing.. Further data analysis will be carried out until the end of the INHERIT initiative (December 2019). Longitudinal studies with a larger sample size in future would yield stronger evidence.

Further development

More time and resources for planning with key actors ahead of time, improved communication between the stakeholders, and training of teachers can further improve the intervention. Interdisciplinary research in close collaboration with the sectors involved would also be of benefit. Integration of outdoor learning within the curriculum is crucial for scale-up and transferability across England and Europe.

INHERIT highlights

Enabling children during the school day to take part in gardening activities and access plant-based foods in the school environment has the potential to contribute to a triple-win for health, equity and the environment. Successful implementation and scaling-up require integration into the school curriculum. Co-design and planning of the intervention with children, teachers and all key actors is also important.

6. Sustainable Food in Public (Nursery) Schools

Description

This case study introduces change in the menus in 56 public municipal nursery schools in Madrid to children aged 0-3. The intervention includes reduction in meat consumption, increased consumption of fruits and vegetables, introduction of organic food, total avoidance of processed foods, and reduction of intermediates in the food procurement, among others. The municipality started the project in 2017 in 2 schools and it was expanded in 2018 to the rest of the schools with the contribution of INHERIT project and other parallel funding sources. Other key aspects of the case study included supporting the entire school community during the process of change, including training the kitchen staff to develop healthier menus without sacrificing the good taste of the dishes. To facilitate this, stakeholders created 'motor change groups' in each school including families, educators, management and kitchen staff, where the new menus were discussed with a nutritionist.

Target group

Children 0-3 years old and the whole school community, to encourage acceptance of the new approach, and participation in the process of change. The target schools are public and some of them are located in particularly disadvantaged areas in Madrid.

What inspired the creation of Sustainable food in public schools?

The project arose as a response of the municipality of Madrid to the Milan Urban Food Policy Pact.

Success factors

The project was immediately appropriated by the educational community and in particular by the group of cooks. So much so, that a very high percentage of the school cooks participate voluntarily in parallel related initiatives (i.e. a learning community that emerged from the project community). The empowerment of the school cooks proved to be a very important engine of change. The change could not have been achieved without their support, since the intervention includes a significant amount of additional work for them (such as cutting and cooking fresh vegetables, making homemade sponge cakes without sugar except for fruit, peeling fruits or squeezing juices) and new training.

Outcomes and Impacts

The main achievements have been the change of children's menus with little confrontation, with a high level of acceptance by children and the whole school community. The economic evaluation of the intervention has showed that the potential benefits exceed the costs in a ratio of approximately six to one, so the intervention is highly beneficial in the long run.

Further development

One of the challenges of the project has been the difficulties in procuring organic products from the local area, since the local production is not enough to supply the increased demand created by the initiative. To promote this type of initiative at a larger scale, it must be accompanied by public policies that support the production side. Otherwise, the environmental cost of transport may be high (in the assessment of the pilot, an increase in CO2 emissions has been reported).

INHERIT highlights

This case study demonstrates that investing in an initiative to provide healthy food for children aged 0-3 in nursery schools has the potential to create benefits that outweigh costs at the ratio of 6 to 1. In addition, the initiative was welcomed by catering staff in the nursery schools who were motivated by the initiative to adopt and develop healthy menus. Engagement with catering staff and families is important in changing perceptions and encouraging behavioural changes among those responsible for healthy infant feeding.

Over the long term, if diets high in plant based foods encouraged in nursery school become embedded in families and later school environments this is likely to encourage healthy eating, with consequent health benefits, and to reduce the carbon footprint of diets, provided the supply chain and distance from the farm are short enough to reduce transport costs.

7. Malvik Path (Norway)

Description

The Malvik Path is a green space area with a three-kilometre-long path along the coast in the municipality of Malvik, outside the city of Trondheim. Built along a disused railway track, it was opened to the public in June 2016. The activities carried out as part of the INHERIT project have been related to evaluation of the use of the path and the potential positive effects on health, wellbeing and the environment from this use.

Target group

The path has been designed according to the principles for universal design so that it can be accessed and used by all people, regardless of their age, size, ability or disability.

What inspired the creation of Malvik Path?

The population of Malvik expressed in a population survey that they wanted to have accessible areas free of cost for physical activities and social interaction in the community. They also wanted to gain better access to the coast. This inspired the idea of a path, which was further developed through a type of brainstorming session, called Search Conference, in which several local stakeholders participated, including citizens from various age and social groups.

Success factors

Data from the municipality on population health and wellbeing, and feedback from inhabitants on what needed improvement in the municipality, were important factors facilitating the development of the path. Involvement of citizens in the planning and implementation of the initiative led to a quick realisation of the path and a strong sense of ownership and commitment across all stakeholders, turning it into a whole-community initiative. It was also an important success factor that the municipal project group upgraded their project management skills (Anthun *et al.,* 2019).

Outcomes and impact

The evaluations show a significant increase in use of the path from 2015 (just before the official opening) to 2018. People are satisfied with the path. Contextual matters such as location and design were identified as important determinants for using the path. The path is used by all socioeconomic groups and thus is perceived as inclusive. The estimations of costs and benefits show that the path is economically feasible and profitable from a societal perspective.

Further development

Community planners and policy-makers should improve opportunities for participation and community involvement in public health initiatives and find ways to include all groups. The Malvik Path is an example of how an abandoned area, if recovered and transformed into an accessible open/green space, can be beneficial for health, social inclusion and physical activity for all citizens in a community.

INHERIT highlights

The Malvik Path is used by a broad range of local residents, including people facing socioeconomic disadvantage, and might thereby contribute to closing the gap in health between different socioeconomic groups by offering a fitting, easy opportunity for physical activity, social interaction and contact with nature.

8. Restructuring Residential Outdoor Areas

Description

Restructuring residential outdoor areas (RRO) aimed to create attractive and functional environments in deprived areas for social cohesion. The initiative included the redevelopment of a courtyard in a residential area in one of the most deprived areas of Stockholm by redesigning the playground, adding more seating and activity areas to stimulate social interaction, improving the lighting and making the area more pedestrian-friendly by reducing vehicle access. The aim of the INHERIT evaluation was to understand the impacts and benefits of restructuring an outdoor area in a deprived neighbourhood.

Target group

The intervention was targeted at the residents living in the apartments surrounding the restructured courtyard and in the neighbourhood more widely. The development was a collaboration between the public and private sector. Specific stakeholders included property owners, urban planners, architects, district administrators of the municipality, and residents living in deprived areas.

What inspired the creation of RRO?

Growing awareness of and the political will and desire to act on issues like integration, social inclusion and equity facilitated the process. Half of the financial support coming from the National Board of Housing, Building and Planning, and consultation with an urban development company, were also important factors.

Success factors

Many of the stakeholders involved had experiences of collaborative projects. The residents were consulted in a dialogue in a trusted environment where they felt safe and encouraged to participate. The dialogue with residents was also of great value for building trust and creating a sense of ownership.

Outcomes and impact

The outdoor area was improved taking into account the views of residents, although residents felt there should have been opportunities for commenting on the design before it was finalised. The property owner felt encouraged to continue working with the residents and other stakeholders.

The INHERIT evaluation (based on data collected in summer and winter 2018) of impacts and benefits of RRO on residents' physical activity and wellbeing is inconclusive but it does indicate some improvement in residents' perception of safety in the area. A follow-up evaluation in summer 2020 may be needed to ascertain measurable outcomes.

Further development

Meaningful participation of residents at all stages of design and development and more frequent consultations with residents during the design development phase are important for the success of the intervention and also for managing residents' expectations. Evaluation of the project should be planned early on and integrated well with the conception and implementation of the project. Use of qualitative methods at follow-up one year on can provide insights on the quality of the design and whether any changes are necessary.

INHERIT highlights

Restructuring residential outdoor spaces in more deprived areas aims to reduce environmental inequalities in the built environment. It has the potential to improve the living conditions of more disadvantaged groups through the design of more attractive and accessible areas that can encourage use, more physical activity and social interaction among residents of different ethnic backgrounds, gender and ages. The initiative has the potential to contribute to social inclusion.

9. Restructuring Green Space

The Netherlands

Description

The Breda case study uses a co-production approach to planning and executing the restructuring of green space in a residential area. Its original main aim was to improve the quality of a neighbourhood in the municipality of Breda and to encourage residents to make more use of the green space into the future. The initiative also aimed to promote healthy lifestyles by creating the infrastructure to support physical activity, social interaction, relaxation and community cohesion. The restructuring took place between spring 2015 and spring 2017 and efforts to establish a variety of uses for the space are ongoing. The professionals first worked on empowering people in the neighbourhood, before restructuring the park area.

Target group

The main target group of this intervention is the residents of the neighbourhood, who are a culturally diverse group with a large proportion from relatively poor socioeconomic backgrounds; many are unemployed.

What inspired the creation of Restructuring Green Space?

The initiative can be linked to (but is not part of) a broader national integrated 'health-in-all-policies' approach for disadvantaged neighbourhoods in the Netherlands. It is also consistent with a desire by the municipality of Breda to involve residents in the development of neighbourhood plans. Moreover, the case study supports several health and social programmes in the neighbourhood and the national 'JOGG' programme,[9] which encourages young people to take more physical exercise.

9 www.jongerenopgezondgewicht.nl

Success factors

The key determinants of success for this initiative lie in its use of a co-production approach and the enthusiasm and continued long-term engagement and collaboration of the different partners. A sense of shared vision among participants and the openness and flexibility of the facilitators have also been important. Investing first in empowerment of the residential community before investing in restructuring of the park was also crucial to success.

Outcomes and impact

Data gathered to date indicate that the initiative is already fulfilling a key objective: to increase the ways in which people use the green space. The neighbourhood health and environmental professionals were also satisfied with the design of the park and the possibilities it provides for the users and have indicated that the park is now used by a range of residents. Observational data show a wide variety of people using the area in terms of age, gender and ethnicity, but the main users are children of Western, Moroccan or Turkish background. Restructuring Green Space Breda is already delivering on some of INHERIT's triple-win goals. First, it is opening up the area to a variety of people, consistent with increasing equity. Second, the observation of increased use and higher activity levels supports the notion that the intervention increases healthy lifestyles. Third, provision of green space, including a pond designed for water drainage, contributes to climate change adaptation.

Further development

Restructuring green spaces could be scaled up to represent part of EU-funded nature-based programmes, as a dimension of integrated national or local policies targeting health inequalities and as a contribution to climate change adaptation and resilience measures.

INHERIT highlights

This case study has shown that restructuring urban green space can increase community involvement in making environmental improvements, enhance disadvantaged neighbourhoods and increase social cohesion, in turn creating more ownership and empowering people within their own local areas. By encouraging healthy outdoor use by a variety of people, restructuring green space can enhance opportunities for positive neighbourhood social interactions and the inclusion of ethnic or other minorities. It also offers a place for relaxation. In all of these ways it has a positive impact on people's physical and mental health. The action might also contribute to environmental sustainability through climate change adaptation.

10. Thinking Fadura

Description

The Thinking Fadura initiative provides the general public with free access to an area of green space in the town of Getxo, in the Basque country. It will open up the green areas of Fadura's Municipal Sports Center (FMSC), which in the past were only accessible to people who were registered and paid an annual fee. FMSC's facilities occupy around 20 hectares along the Gobela River, and include green spaces. The initiative will not only allow the general public to access and enjoy the green areas surrounding Fadura, but also opens a way to cross and connect the city, like a green belt.

Target group

The initiative is inclusive of all population groups. However, low-income groups will gain a greater benefit because for them the annual fee represented a greater economic barrier than for the rest of the population.

What inspired the creation of Thinking Fadura?

The initiative is the result of a consultation process based on a participatory design methodology carried out in 2017 with participants including Getxo citizens and members of different departments of the municipality, such as social welfare, equality, multiculturalism, development cooperation, environment, urban planning, housing, civil protection, economic promotion and health, and the Fadura sporting area.

Success factors

The success of Thinking Fadura can be measured through the number of new visitors in the green spaces. The participatory process in the design of Thinking Fadura was very successful, increasing people's awareness of the green spaces available to the general public. The financial support from the municipality was also very important. Social media was used to inform and engage citizens.

Outcomes and impact

Findings from INHERIT's cost benefit analysis (CBA) demonstrate that Thinking Fadura was economically beneficial from a societal perspective. The CBA showed a net profitability of around Euro 1.2 million. The greatest benefits come from the increased property value (around Euro 1.5 million) and recreation value (around Euro 1.1 million). These benefits are classified as economic and social benefits, respectively. The highest cost was for land adjustment (building and landscaping costs), including parking (around Euro 0.8 million). The internal rate of return, which indicates the discount rate at which the total present value of costs equals the total present value of the benefits, was 11.7 %, the payback period 10.6 years and the benefit to cost ratio around 1.63, which indicates that for every Euro spent, about Euro 1.63 accrues in benefits. Most scenarios show a positive net present value (52 of the 54 scenarios produced), a benefit to cost ratio greater than 1, and an internal rate of return greater than 4 %.

Further development

The economic evaluation of Thinking Fadura could serve as a reference in the decision-making process in numerous European case studies. Firstly, there are numerous green urban areas in Europe where use is restricted to some sections of the population, as was the case in the sporting area of Fadura. Furthermore, the Fadura case study exemplifies how public sporting clubs can remove their fences and become accessible to the general public in order to increase societal use of urban green areas. Thus the CBA presented here could be used to show the feasibility and profitability from a societal perspective of opening up restricted green areas to the general public.

INHERIT highlights

Thinking Fadura has covered the INHERIT triple-win goals of health, equity and environmental sustainability by providing possibilities for outdoor physical activities and social interaction in an area that formerly was open only to paying visitors. It also has demonstrated that the pilot implementation is clearly beneficial for society from an economic perspective. One key learning point could be the fact that the usage of green areas strongly depends on their accessibility: better access will increase the likelihood of people visiting. This could have a positive impact on equity; in the case of Fadura, the economic cost of entering the green space before the intervention was a barrier for many people living in poor socioeconomic circumstances. Another key learning point is the fact that green paths and corridors are usually preferred by visitors over relatively small green areas.

11. Eco Inclusion

Description

Description Eco Inclusion consists of a peer-based training programme for around 200 refugees in the city of Pforzheim, on responsible, environmentally-friendly and health-friendly behaviours associated with housing. Implemented between August 2018 and March 2019, it involved recruiting and training a pool of nine refugees as peer trainers. With support from the city's Integration Management the trainers then organised and conducted awareness-raising meetings for their peers in various settings and languages. Eco Inclusion aims to decrease the costs of energy use while promoting healthy lifestyles by reducing exposure to health risks related to poor heating and ventilation use in refugee communities. It also supports integration of refugees by reducing potential social conflicts linked to some groups using a lot of energy and disposing of waste inappropriately.

Target group

Eco Inclusion targets the population of registered refugees living in the city of Pforzheim in the frame of a collaboration between stakeholders from the local public administration, and the non-profit and private sectors.

What inspired the creation of Eco Inclusion?

Local decision-makers decided to implement the intervention in recognition of specific challenges generated by the housing situation of refugees who had made their home in Pforzheim: these challenges included in particular: high energy consumption not adapted to local housing standards, inadequate heating and ventilation causing high humidity levels and mould growth, and inappropriate waste disposal, which was leading to an unclean environment and conflicts with neighbours and landlords.

Success factors

A major success factor was the existence of previous and trustful relationships between involved stakeholders, based on past joint cooperation involving other target groups. This was critical in ensuring a common understanding and in establishing both ownership of and availability of support for the intervention. The peer-based approach that allocated a key role to refugees and the pre-existence of structures that could be used by Integration Management, the body responsible for social integration of refugees in the city, also facilitated access to refugee communities.

Outcomes and impact

Findings from the quantitative evaluation of the knowledge transfer seem to indicate that peer-to-peer training is a promising approach for raising awareness about energy-efficient and responsible housing among refugees. Further research is needed, however, to measure the effects of such interventions and adapt evaluation methods to the specificities of the target group.

Further development

Assuming the availability of time and financial resources, Eco Inclusion would benefit from involvement of a wider network of stakeholders, including, for example, landlords' associations, job centres, welfare associations and religious/faith communities, and from potential cooperation with local schools to better reach children and young people. Further exchange with similar peer-based interventions from other sectors (e.g. the health sector) targeting migrants might prove beneficial for transfer and scale-up.

INHERIT highlights

The Eco Inclusion initiative, with its emphasis on peer learning, provides an example of how strong commitment from municipal decision-makers, together with involvement of experienced stakeholders and active participation of the resident community, can take steps to create a more energy-efficient and healthier housing environment for refugee populations.

12. Retrospective analysis of energy efficiency measures

UNITED KINGDOM

Description

Energy efficiency improvements may offer potential 'triple-wins' (in terms of environment, health and health equity) – in part because measures put in place to encourage them have often been targeted at those in poorer groups or living in social housing. They may also offer 'quadruple wins' – in terms of being economically viable and yielding net social or financial benefits – as energy and carbon savings may offset the financial cost of the measures put in place. In this case a retrospective cost benefit analysis was conducted of several different measures: double glazing, new boilers, draught proofing and loft insulation. We combined information around health impacts from previous analysis of health data and energy efficiency actions at a large scale.

Target group

Many actions to improve energy efficiency have been targeted towards those with lower socioeconomic status, including those in social housing.

What inspired the investment in energy efficiency?

Many investments have been based around the energy companies' obligations to reduce greenhouse gas emissions (arising from policies including those under the UK Climate Change Act of 2008).

Success factors

Most investments show a positive net present value, suggesting that the options are economically viable. However, the impact when including health is mixed, as some show negative health impacts (in terms of asthma, Chronic Obstructive Pulmonary Disease [COPD] and cardiovascular disease) due to sealing affecting air quality. In terms of the environment, the benefit through mitigating carbon

emissions is clear. Funding availability through energy company obligations reduces the cost burden for lower socioeconomic groups.

Outcomes and impact

Reductions in carbon and energy use are significant over time – so the environmental effects are unambiguously positive. The health impacts are mixed – for draught proofing and loft insulation these are negative (see above), whereas for double glazing and replacement boilers, hospital admissions are reduced. The need for energy efficiency actions to consider whole-house solutions is clear, taking into account ventilation needs.

Further development

Considering the wider health impacts of energy efficiency, such as the impacts on mortality (the potential to decrease the number of excess winter deaths), may change the picture somewhat. Measurement of indoor environmental quality in houses with different energy efficiency measures may also yield interesting insights.

INHERIT highlights

Overall, the cost benefit analysis shows that investments in energy efficiency yield economic benefits – with internal rates of return of between 4 % (for boilers) and 26 % (for loft insulation). However, our analysis shows that it is by no means certain that energy efficiency investments lead to a 'triple-win': in terms of the environment the impact is likely to be unambiguously positive due to energy and carbon savings, though we do not consider lifecycle impacts, including construction and disposal. For health, the picture shown here is mixed. In terms of health equity, the targeting of lower socioeconomic groups and those in social housing for energy efficiency investments may lead to health inequalities unless the measures put in place are appropriately designed to avoid the sealing of properties and the negative health impacts associated with this.

13. Lifestyle e-coaching

Description

This INHERIT case study, conducted in the Netherlands and Greece, investigated the effectiveness of a lifestyle e-coaching application in encouraging people facing socioeconomic disadvantages (low SES), to engage in healthier and more active lifestyles over the course of a 19- week period. Based on recording and analysis of daily activities, the app prompted users to become more physically active.

Target group

The direct target group were people facing socioeconomic disadvantages who engaged in an estimated amount of less than 210 minutes of light activity per week.

What inspired the creation of the lifestyle e-coaching case study?

The case study was triggered by the parallel facts that no information is currently available on the impact of lifestyle e-coaching on people facing socioeconomic disadvantages and being unable to buy such devices, as well as, that they may also be less health conscious. Whilst it is true that previous studies mostly targeted at (motivated) people in the general public show that social, economic and environmental factors shape health and wellbeing, lifestyle e-coaching applications have the potential to successfully change people's lifestyles, behaviour and improve their health, with different effects on different groups of people.

Success factors

Lifestyle e-coaching applications can have a personalized approach by giving insights into users' behaviours and can trigger changes in behaviour, while they also motivate users by comparing activity patterns with others and showing improvement over time. In addition to that, the wearable technology by tracking behaviours unobtrusively and continuously, helps people to better monitor their health status for self-health tracking at a daily basis.

Outcomes and Impact

This lifestyle e-coaching application can be considered as a triple-win given the identifiable effects on health, equity and the environment. Starting with health, over the course of 19 weeks, both the people become more physically active, and their well-being significantly improved, with the first one being more evident among people with sedentary lifestyles. In addition, the system proved to be effective for people facing socioeconomic disadvantages. This highlights that access to such devices and applications improving lifestyle factors detrimental to health, is especially relevant given that other similar services may be less accessible for these individuals. Finally, because of the increased levels of physical activity, it is possible to speculate that users were stimulated to use active transport instead of motorized options, benefiting the environment.

Further development

Based on the present findings, and in order to reduce health inequalities, local/national governments and/or insurance companies could consider providing lifestyle e-coaching systems to those who cannot afford them. It would be important to carefully consider the ethics of such initiatives, particularly if lifestyle e-coaching applications are part of insurance schemes and jeopardize access to personal data.

INHERIT highlights

Lifestyle e-coaching applications can improve health, wellbeing and foster environmental benefits, while they are also effective promoting behaviour change of people in lower SES.

14. UrbanCyclers

Description

UrbanCyclers (recently shortened to 'Cyclers') is a smartphone app that combines cycling maps, a route planner and turn-by-turn navigation, with smart gamification features. UrbanCyclers aims to promote urban cycling as a regular transport mode by supporting and motivating self-regulated behavioural change. This case study aimed to improve effectiveness of the UrbanCyclers app by evaluating various motivational features in a pilot study conducted in Prague and other Czech cities during summer/autumn 2018 and spring/summer 2019.

Target group

The UrbanCyclers app is freely available for download from Google Play and Apple AppStore. Participants in the experiment were recruited among those who installed the Czech version of the app from Google Play (new users of the app). Each participant who agreed to participate was randomly assigned to either one of four different motivational treatments (smart gamification, two different schemes of financial rewards, and smart gamification and financial rewards combined) or a control group (no specific motivation).

What inspired the creation of the UrbanCyclers experiment?

The inspiration for this experiment came from an earlier idea of intersectoral collaboration with UrbanCyclers' developers to combine knowledge of IT and social sciences to nudge users into regular commuter cycling in Prague and other Czech cities. In the Czech Republic, commuter cycling accounts for only 1 to 2% of intra-city daily journeys, in spite of the huge popularity of cycling for leisure.

Success factors

A well-designed and functioning state-of-the-art smartphone app that helps to overcome barriers for less-experienced cyclers and provides motivation/entertainment for experienced ones was the key success factor of the experiment. It allowed for a seamless integration of the experiment into the app's features and spurred a stimulating collaboration between the private sector and academia.

Outcomes and impact

The preliminary analysis using data from around 400 participants suggests that people can be effectively motivated to cycle for their commute more frequently with the help of the smartphone app. Offering small financial rewards seems to be more effective than smart gamification. A combination of both, smart gamification and financial rewards, may work to the same extent or slightly better than financial rewards.

Further development

If these preliminary results are confirmed by further analysis, it would be appropriate to devise a tool for municipalities wishing to promote commuter cycling that can be put in place easily and quickly, even before cycling infrastructure is fully developed. Data collected by the app from real behaviour can help urban planners in improving overall cyclability of their city.

INHERIT highlights

We demonstrate that small financial rewards embedded in smartphone apps like UrbanCyclers can be effective in nudging people to commute by bike more often. Thanks to the ubiquity of, and people's attachment to, smartphones (particularly among younger people), it is easy to transfer and scale-up such apps to other cities and countries. Thus, smart solutions can effectively help to redesign urban transport systems into healthy, carbon-free and affordable ones by exploiting behavioural responses to tailored incentives.

15. Place Standard Tool

Description

The Place Standard Tool was tested in work developed and conducted by Riga City Council in Grizinkalns. The Place Standard Tool brings public health and place-making theory into a simple-to-use tool that can assist professionals and communities in identifying what works well and what needs improving in a local community. On average it took two to three months to plan and one month to recruit respondents, conduct citizen focus groups and interviews, prepare the research report, conduct a qualitative evaluation group, translate focus group transcripts and summarise the results.

Target group

Participants were of different genders, ages and employment status (including those in work, unemployed and retired people), and included parents and people with disabilities.

What inspired the creation of the Place Standard Tool?

The tool has been popularised in international meetings and workshops, and representatives from Riga were inspired to implement this tool for the first time in Latvia. Another crucial factor was interest in the tool and its outcomes from other project partners.

Success factors

The main facilitator was the communication and collaboration between partners from research and from the municipal administration.

Outcomes and impact

In this study, a participatory governance method has been tested in a novel context. It is too early to assess the impact of this on practice in Riga, but the engagement of people in the process was encouraging.

Further development

The findings of the results provide a good basis for implementing the tool on a wider scale, involving and activating citizens. Adequate financial resources would need to be put in place to enable this to happen.

INHERIT highlights

It is very important to involve local people in expressing their opinion and to give them a platform to influence decision-making. The Place Standard Tool is a good way to garner public opinion about the locality in which they live. During the discussion time citizens have a chance to meet with neighbours and discuss common problems. There may be co-benefits in terms of fostering social cohesion and providing a space for social engagement.

16. Place Standard Tool

North Macedonia

Description

The Place Standard Tool (PST) was developed in Scotland as a simple framework to enable people to think about and discuss, in a methodical way, the place in which they live, its assets, as well as what needs improvement. It is about introducing an inclusive approach in planning the development of urban places and implementing healthy living approaches through intensive and open discussion among different stakeholders towards creating a better place to live for all. The PST enriches the knowledge and skills among stakeholders for maximising the potential of the physical and social environment to support health, wellbeing and a good quality of life. One of the INHERIT case studies involved piloting the PST in the municipality of Karposh in Skopje, North Macedonia.

Target groups

Various groups of citizens were involved (according to socioeconomic status, ethnicity, urban and rural, parents of schoolchildren, and disabled persons), along with employees of the municipality and elected members of the local council.

What inspired use of the PST?

While the law in North Macedonia calls for municipal leaders to consult with citizens, this is not applied in practice very often. The main idea, introduced by the Institute of Public Health (an INHERIT partner), was to understand how the PST can be implemented across local settings in North Macedonia among different stakeholders and to share learning for future use of the tool.

Success factors

Besides the full support of the top-level management in the municipality, the most important factors were good preparation, full transparency and clear promotion and communication of the case study from the very start. The project team was involved from the start in terms of the initial concept of

implementing the PST, and the citizens were informed through social media. The use of the PST resulted in a very productive discussion among all stakeholders and extremely useful comments that will be considered in the further work of the municipality.

Outcomes and impact

Citizens were surprised and pleased that with the use of the PST their views were being solicited in a way that was not superficial, and that this happened just before an election period. The reflections on the citizens' priorities and suggested actions are still to be monitored.

Further development

The municipality included the continuation of the use of the PST in its annual plan of 2019. The focus will be on extending the number of participants among all targeted groups. The City of Skopje included the use of the PST across the whole city as a part of the health profile preparation activities in the scope of the WHO Healthy Cities Network process. The tool has also been promoted in several other municipalities in the country that were interested to include it in their annual programmes.

INHERIT highlights

The outcomes of the PST and the level of cooperation and enthusiasm among different stakeholders in the initiative provide an excellent starting point for changing behaviour and for designing policies towards the sustainable development of residential areas. In the future, the INHERIT triple-win can be fostered by engaging with hard-to-reach groups, including those in vulnerable and less politically engaged groups.