Chapter 1
Social Innovation and Co-design for Climate Neutrality: The NetZeroCities Project

The complex and urgent challenge of reaching carbon neutrality requires systemic changes of our current systems. Starting from the acknowledgment that technological solutions alone are not enough to reach climate neutrality at the required speed, social innovation becomes a crucial lever for accelerating systemic transformation. Several projects and scientific evidence outline the benefits of a people-centred and co-design approaches to transitions. Yet, public administrators, policy makers and urban transition teams have limited guidance on how to embed social innovations in their cities' action plans, and on how to assess the progresses, outcomes and impacts of social innovation initiatives at urban level. Based on the work developed within the EU-funded project NetZeroCities, the book presents a framework for categorization of social innovation solutions for climate neutrality at city level, and a clustered catalogue of indicators, which can be utilized by cities' public administrators to monitor and evaluate social innovation action plans to support people-centred, collaborative solutions to lower carbon emissions.

1.1 The NetZeroCities Project

The NetZeroCities EU-funded project[1] is the biggest climate neutrality experiment on earth, aiming to support European cities to drastically cut down greenhouse gas emissions through climate action to achieve *climate neutrality*, one of the biggest challenges our societies face today. NetZeroCities (NZC) recognises the need for cities to develop specific strategies that are tailored to suit local and regional contexts, supporting them with coaching and by developing and promoting new and existing tools, resources, and expertise into a One-Stop-Shop platform accessible to all cities through an online portal. Specific objectives of the NetZeroCities project are the

[1] https://netzerocities.eu/

S. Bresciani et al., *Assessment Framework for People-Centred Solutions to Carbon Neutrality*, PoliMI SpringerBriefs, https://doi.org/10.1007/978-3-031-53111-8_1

following: (1) Develop an approach to support climate-neutral transformation in cities; (2) Help cities build capabilities and ways of working to advance systemic change using innovation; (3) Forge a platform for cities to use for all services and expertise critical to climate neutrality; (4) Facilitate a pipeline of cities accelerating towards climate neutrality,

A core element of reaching climate neutrality lies in the elaboration of Climate-neutral City Contracts. To this end, it is crucial to be able to assess the progress made on path to climate neutrality, analyse achievements and enable learning for all local stakeholders as well as for other cities, by mean of monitoring and evaluating performance. Specifically, it is important to design and develop an evaluation framework for the social innovation components of the Climate-neutral City Contracts, and the stemming social innovation initiatives. To provide cities' transition teams' and public administrators with a comprehensive set of social innovation actions and related indicators, in this book we describe a social innovation impact assessment framework at urban level, which is currently utilized by within the NetZeroCities project.

Within the book, the following key questions are discussed:

- What are the foreseen activities and results of social innovation actions of climate city contracts and action plans?
- Which are suitable evaluation criteria to assess the impact of social innovations included in cities' action plans and the stemming social innovation initiatives?
- What indicators are relevant to be measured in order to operationalise the evaluation criteria across cities' intervention logic?

1.2 Methodology

With the purpose to develop an impact assessment framework of social innovation for supporting climate neutrality at city level, a triangulation methodology is deployed, combining bottom-up knowledge derived from case studies of social innovation initiatives and policies that lead to reduce GHG, with a systematic analysis of scientific literature, frameworks and funded-project on the topic of social innovation for decarbonization. The knowledge gained from these complementary approaches is combined to derive categories, and resulted in ten categories, according to which intervention logics for social innovation are derived and presented in Chap. 2. Specific indicators for each of the 10 categories will be presented in Chap. 3. Finally, we provide a core set of indicators based on NZC pilot cities' feedback. These selected indicators are integrated into the NZC comprehensive indicators set,[2] which includes GHG emissions indicators, economic indicators, co-benefits and other levels of change including democracy and participation.

[2] https://netzerocities.eu/results-publications/

1.3 Structure of the Book

The book provides firstly the rationale of deploying social innovation to support urban transitions (Chap. 2), followed by the impact framework (Chap. 3) and related indicators that cities can utilize for monitoring their effort. Implications for theory and practice, and discussion of future developments, conclude the book (Chap. 4). In more details, an overview of the content of each chapter is provided below.

This Chapter The first chapter provides an overview of the purpose of the book, a presentation of the NetZeroCities project, and the explanation of the methodology. Next, it outlines key insights from scientific literature concerning the relationship between social innovation initiatives and environmental sustainability. Finally, 37 case studies are briefly presented to provide readers with real life examples of the relevance of social innovations for reaching climate neutrality at urban and reginal level Which provide the grounding for the bottom-up categorization of social innovations, from which the evaluation framework is derived.

Chapter 2 This second chapter presents the proposed assessment framework of social innovation for climate neutrality at urban level. The framework is composed of ten categories derived from the analysis of social innovation action plans deployed worldwide, scientific literature, case studies insights and the impact pathways developed in the NetZeroCities project.

The general intervention logic—a first step in setting up an impact assessment framework—is described, followed by the specific intervention logics for each category, which link actions to impact. By defining the project objectives and inputs with respect to the expected results in terms of outputs, outcomes and impacts, the intervention logics form the basis with regards to what the impact assessment methodology aims to measure.

Chapter 3 The third chapter provides a broad list of indicators of social innovation to assess cities' action plans in terms of social innovation for climate neutrality. The general intervention logic of the NetZeroCities social innovation component of action plans and of specific initiatives is implemented in indicators clustered according to the categories of the framework. For each of the ten categories, a specific list of indicators is provided. In total, over one thousand indicators are presented, clustered by category and evaluation criteria (effectiveness, efficiency, relevance, replicability, and scalability).

Chapter 4 In the fourth chapter, implications for practice and for theory development are discussed. Firstly, guidelines for the implementation of the framework in the cities are provided to support city administrators in defining steps they need to follow in order to apply the indicators to their local case. Specifically, it presents the methodologies and tools for the data collection and analysis. Next, the theoretical implications

of the framework and of the indicators are outlined, in particular for supporting evidence-based design. In terms of practical implications, policy makers, designers, politicians, and civil servants can utilize the presented assessment framework and select indicators for the assessment of cities' social innovation action plans for supporting climate neutrality.

1.4 The Relevance of Social Innovation

Social innovation is defined by the European Union as "new ideas (products, services and processes) which simultaneously satisfy social needs more efficiently than existing ones and create new and long-lasting social relationships and collaborations (Rizzo et al., 2020). Not only are these innovations good for society, but they also improve its ability to act." (Hubert et al., 2014). In addition, social innovation is characterized by "prototyping and quick experimentation to produce new products, services or production models that generate both social and economic value, improving community wellbeing and prosperity" (Lumbreras et al., 2022, p. 6). Social innovation practices can become levers of change toward system innovation to generate holistic solutions to societal challenges and create responsive ecosystems for social change (see NetZeroCities Quick Read[3] for a more detailed explanation and examples). Such systemic changes are developed through inclusive and collaborative processes for generating people-centred projects and solutions to lower GHG emissions. Cities that supporting the emergence and strengthening of social innovation initiatives in cities, build citizens' and stakeholder capacity to address decarbonisation challenges, such as through the creation of new business models or novel cross-sector partnerships, creating engagement platforms for multiple actors to co-design and co-produce solutions contributing to decarbonisation, and supporting positive behavioural changes by responding to specific local needs and acting within cultural contexts (Lumbreras et al., 2022).

According to scientific literature there are multiple reasons for considering social innovation a relevant lever for decarbonization, which can be grouped in five progressive categories: from the most basic and necessary levels of (a) acceptance and (b) behaviour change, to (c) the systemic changes of socio-technical systems and (d) empowerment, which (e) influence wellbeing (Bresciani et al., 2023).

At the most basic level, the literature shows that if there is no acceptance by local governments, citizens, organizations and the various actors, energy transitions will fail (Gregg et al., 2020; Nakano et al., 2018). Social innovations can provide a relevant contribution for climate neutrality by initiating and fostering *behavioural change* toward more sustainable practices (Grottera et al., 2020; Loyarte-López et al., 2020; Mukai et al., 2022; Schanes et al., 2016). Schanes et al., (2016, p. 1033) report that "[t]he mitigation report of the Intergovernmental Panel on Climate Change (IPCC) states that behaviour, lifestyle, and culture have a considerable influence on

[3] https://netzerocities.app/QR-Social.

energy use and associated emissions and that stabilizing or lowering consumption, transitioning towards a sharing economy and adopting other behavioural changes have a high mitigation potential" (Edenhofer et al., 2014, p. 20).

Thirdly, a relevant number of scientific articles discussed how socio-technical systems can be disrupted by niche innovations that can reconfigure the system. In fact, "[s]uch transitions not only entail new technologies, but also changes in markets, user practices, policy and cultural discourses, and governing institutions" (Geels et al., 2008, p. 521). In a highly cited paper published on Science, Geels et al. (2017) discuss socio-technical transitions for decarbonization, offering an overall framework which takes into account technical and social aspects, including people behaviour and the relevance of framing the discourse, based on the case reported by Rosenbloom et al. (2016, p. 1275) that discuss and analyse solar electricity in Ontario through a "discursive approach to understanding multi-dimensional interactions within socio-technical transitions" with a new analytic approach that connects discourses and storylines to transitions.

The most discussed reason for paying attention to social innovation when addressing carbon neutrality seems to be found in its ability of supporting actors' *empowerment* to take actions to tackle climate issues. Diepenmaat et al. (2020) published a theoretical paper with the eloquent tile "Why sustainable development requires societal innovation and cannot be achieved without this" in which they describe the business perspective on transitions and discusses societal innovation as a distinctive innovation type, by proposing an "innovation cube" and discussing the "need for broader partnerships for societal innovation based on multiple value creation" (p. 1270). They outline that sustainable development needs collective action for creating new systems, which in turn requires social innovation. Citizens need to take up a new role for finding and sustaining new business models for a circular economy (Diepenmaat et al., 2020). Wuebben et al., (2020, p. 567) conducted a systematic review of "Citizen Science and Citizen Energy Communities" for Sustainable Development Goals (SDGs) and call for citizen science to supplement typical citizen participation formats in energy communities, as it engages citizens in research and increases their literacy regarding energy systems. Proving concrete examples through the case of Scotland's journey to decarbonization, Ostfeld and Reiner (2020) report on the effects of citizens' juries and focus groups. Agarwal et al. (2012), based on an analysis of climate adaptation policies in 47 least developed countries, provide key lessons for adapting such plans to local needs, such as increasing local autonomy, creating "mechanisms for information sharing among decision makers across sectors and levels of decision making; and (4) improve accountability of local decision makers to their constituents" (p. 565).

Finally, three recent papers focus on wellbeing, since it is (or should be) the final goal of all social and technological innovations. Engelbrecht (2018) highlights the need to consider wellbeing when assessing technological and social innovations because we cannot assume that innovations are desirable per se. We should rather keep focused on the final desired societal outcome. Hoppe and De Vries (2019) focus their work on wellbeing, arguing that "[i]n the context of energy transition social innovation can be defined as empowerment and social goals pertaining to the

general wellbeing of communities" (p. 141). Creutzig et al. (2022) demonstrate that demand-side solutions for climate change mitigation are not only useful to support decarbonization but also to increase levels of well-being. Specifically, they propose a classification of three "mitigation potential of demand-side options: avoid, shift, improve" (p. 36) which seem relevant for classifying social innovations, in particular for the context of the circular economy.

A systematic literature review on the topic has been conducted by the authors (Bresciani et al., 2023), in which the reviewed papers are clustered and visualized and into a comprehensive map, utilizing the well-established logic model (Knowlton & Phillips, 2012) as the underpinning structure, with the newest labelling adopted by the European Commission for Horizon projects: results, output and impacts. The systemic literature review on the topic of social innovation for climate neutrality provides a complex and multi-faceted overview of the topic and surfaced the diversity of levels and perspectives adopted by researches in different fields. The framework provides guidance to be aware of the many levels of complexity, and the potential impact of deliberately designing the emergence and scaling of social innovations in cities for the wellbeing of communities (Hoppe & De Vries, 2019) and provides the scientific bases for the assessment framework developed in the next chapters.

1.5 Social Innovation Case Studies

In this section we provide an overview of 37 case studies that show how social innovation projects can foster climate neutrality, developed and analysed within the NetZeroCities project (Deliverable 9.1,[4] Lumbreras et al., 2022). We present a brief explanation of each case and links to the related page on the NetZeroCities platform where further information for each case can be found. These cases provide the grounding for the bottom-up clustering of social innovation categories to build the evaluation framework, presented in the following chapters.

Citizens Engagement

Project:	**SONNET—Mannheim City Lab**
Location:	Mannheim, Germany
Key concept:	City Lab on Social Innovation in Energy Transitions (SONNET) in Mannheim is a living lab for the development of a neighbourhood with migration background.
Abstract:	The city of Mannheim developed and implemented a city lab, following the "living lab" approach, to activate citizens for the development of the neighbourhood Neckarstadt-West. The neighbourhood is characterized by residents with migration background. Language

[4] https://netzerocities.eu/results-publications/

barriers posed a challenge to engage with citizens for energy transition efforts. The city lab includes mobile participation opportunities, specific apps for a gamification approach. It explored measures for the neighbourhood such as energy role model flats and a neighbourhood fund (crowdfunding) for energy efficiency measures.

Link: https://netzerocities.app/resource-2758

Project: **PentaHelix**

Location: Zagreb, Croatia

Key concept: Establishment of regional task forces to empower local and regional authorities to develop and implement actions for energy and climate neutrality.

Abstract: The PentaHelix project aims at empowering local and regional authorities to find innovative and cost-effective approaches to develop, finance, implement and improve sustainable energy and climate action plans (SECAP) that contribute to reaching national and European climate and energy goals and policies. The main objective was to develop an innovative *pentahelix*-based method and use this to engage and support authorities on multiple levels together with other key stakeholders in different sectors for increased SECAP development and implementation. PentaHelix stands for integrated development and focuses on five different stakeholder groups: (1) Public authorities, (2) Industry, (3) Academia, (4) NGOs and (5) Citizens.

Link: https://netzerocities.app/resource-2623

Project: **Better Reykjavik**

Location: Reykjavik, Island

Key concept: Innovative online platform to crowdsource solutions of urban challenges; the platform has multiple democratic function and functions as an umbrella for several city programs.

Abstract: Better Reykjavik is an online platform for the crowdsourcing of solutions to urban challenges launched in May 2010. It is a co-creation project of the Citizens Foundation, Reykjavik City and its citizens that connects them and improves trust and policy.

In practice, it is a platform for crowdsourcing solutions to urban challenges. It fullfils multiple democratic functions: agenda setting, participatory budgeting and policymaking. The platform incorporates several innovations: a debating system, a crowd-sourcing function, the submission of multimedia content and extensive use of AI to improve the user experience and submitted content. Better Reykjavik is an umbrella for several programs, including the city's participatory budgeting platform called "My Neighborhood" and the City Council's participatory lawmaking project "Your Voice". The platform is used by over 20% of city population (with over 27,000 registered users, primarily for participatory budgeting).

Link: https://netzerocities.app/resource-3883

Project: **Nappi Naapuri (Nifty Neighbour)**
Location: Finland
Key concept: Social web service to increase the neighbourhood social wellbeing and participation to the city's initiatives.
Abstract: Nifty Neighbour is a non-profit, map and location based social web service. It aims to create contemporary neighbourhood where citizens can meet people living near them, ask and get help, employ each other and create projects together. The Nappi Naapuri project aims at increase social wellbeing and participation in the society.
Link: https://netzerocities.app/resource-4005

Project: **You Decide participatory budgeting**
Location: Braga, Portugal
Key concept: A participatory budgeting initiative for youth and project development support.
Abstract: You Decide [Tu Decides] is a participatory budget for youth. It allows young people to propose, develop and vote for projects they would like to see completed in their city. The young proposers of the winning initiatives are supported for the implementation of the proposed projects under the supervision and support of the municipality.
Link: https://netzerocities.app/resource-2851

Project: **Zagreb renewal of Blok 19**
Location: Zagreb, Croatia
Key concept: A collaborative initiative for the complete renewal of Blok 19 in Zagreb.
Abstract: It is a collaborative city initiative to conduct studies for an inclusive and climate-friendly renovation of the historical centre of the city of Zagreb. The programme for a comprehensive renewal of the historical centre of Zagreb was a pilot project that focused on an area of Zagreb called "Blok 19". The idea came after the devastating earthquake that hit the City of Zagreb: while it was clear that a renovation was necessary and urgent, the City of Zagreb aimed at making the renovation inclusive, including measures for climate change mitigation and adaptation. Twelve sectorial studies were conducted and lead to the opening of a process of public consultation. The mayor invited experts and citizens to participate in the development of the final document.
Link: https://netzerocities.app/resource-2443

Project: **Bologna's Citizen Collaboration Pacts**
Location: Bologna, Italy
Key concept: A participatory approach to policymaking to create a collaborative city, based on a platform to co-design projects for urban development.

Abstract: The participatory budget initiatives in Bologna provides a platform for citizens to co-design community projects through collaborative pacts for urban development. It is the result of a political process that involved bottom-up and top-down measures with the aim of creating a collaborative city. A design for services approach was deployed which provided the context for interaction and relationship-building between different actors and for the gradual adoption by the government of a citizen- centred perspective of public value creation.
Link: https://netzerocities.app/resource-2457

Project: **Brainport Smart District.**
Location: Helmond, the Netherlands.
Key concept: Participatory building of a smart city district with 8 programs lines aimed at improving the quality of life.
Abstract: Brainport Smart District is a smart city district in the city of Helmond, the Netherlands. The mixed-use district, set on 380 acres, makes use of technology to create an environmentally and socially sustainable community. It has eight different program lines: Circular district, Participation, Social and safe district, Healthy district, Digital district, Mobile district, District with Energy and District with water. The district will be developed in response to the needs and habits of its 4,500 future residents and what is learned along the way through a living lab. Data sharing can improve residents' quality of life. For example, energy and food consumption habits can be tracked, leading to adjustments in supply and disposable income savings.
Link: https://netzerocities.app/resource-3887

Project: **City Studio Program in Spanish Cities**
Location: Spain
Key concept: Students are given scholarships to design solutions for sustainable urban transformation as part of their thesis.
Abstract: City Studio is a scientific collaboration programme between cities and universities. The aim is that students (and universities) work together with cities to design solutions that contribute to sustainable urban transformation through final master's and bachelor's degree thesis. Each student receives a scholarship and is assigned a civil servant as a thesis tutor in addition to an academic thesis supervisor.
Link: https://netzerocities.app/resource-3097

Energy

Project: **KLIK (Križevci Climate Innovation Laboratory)**
Location: Križevci, Croatia
Key concept: A cooperative to engage citizens in the energy transition, implementing actions and helping make the city energy sufficient.

Abstract: The energy cooperative KLIK (Križevci Climate Innovation Laboratory), was established in 2020 to help make Križevci an energy self-sufficient city, but above all to engage citizens in energy transition. KLIK works on identifying the needs of the local community, implementing technology in the social environment, empowering the local community through cooperation, joint creation and capacity building.
Link: https://netzerocities.app/resource-2619

Project: **Valencia Local Energy Communities**
Location: Valencia, Spain
Key concept: Valencia promotes Local Energy Communities.
Abstract: The Valencia City Council promotes local energy communities by giving legal advice to citizens and communities and providing different private and public experiments guarantee the inclusive access.

Local energy communities promoted by the City Council guarantee the energy access to the most vulnerable people working together with Social Services of the City. It provides template of legal form and facilitation workshops to create energy communities.
Link: https://netzerocities.app/resource-3110

Project: **Zklaster**
Location: Poland
Key concept: Establishment of energy clusters to build an independent, local energy market and accelerate the energy transition in the region.
Abstract: The cluster is widely regarded as one of Poland's most successful energy clusters. It aims at setting up a regional Renewable Energy System (RES), to replace the brown coal mining in the region. Representatives of local authorities from the area of the Zgorzelec Cluster for the Development of Renewable Energy Sources and Energy Efficiency (ZKlaster) signed an agreement on the basis of which the Committee for the Transformation of the Turoszów Region was established.
Link: https://netzerocities.app/resource-2762

Project: **SONNET—The Bristol City Lab**
Location: Bristol, UK
Key concept: Crowdfunding to collectively raise capital to install energy efficiency measures in local community buildings engaging building managers.
Abstract: Bristol City Council, for the SONNET City Lab, deployed crowdfunding as an investment activity to collectively raise capital to install energy efficiency measures in local community buildings. The Bristol municipality engaged building managers, working with the Bristol Energy Network, to assess the costs and energy-related savings associated with energy efficiency works in community buildings. They

explored the possibility of using a Community Municipal Bond (CMB) mechanism to provide finance for the initiative and conducted a survey to assess interest in this type of investment.
Link: https://netzerocities.app/resource-2627

Project: **Elektrizitätswerke Schönau (EWS)**
Location: Germany
Key concept: Nuclear- and coal-free energy supply belonging to citizens.
Abstract: Originally born out of a group of committed citizens decided to become active together in their community in the Black Forest and create a nuclear- and coal-free energy supply belonging to citizens, Elektrizitätswerke Schönau (EWS) today supplies citizens throughout Germany with green power and eco-gas and conducts multiple initiatives for climate neutrality.
Link: https://netzerocities.app/resource-3907

Project: **Entrepatios—Las Carolinas**
Location: Madrid, Spain
Key concept: Co-design and co-management of a nearly zero energy residential building.
Abstract: Entrepatios—Las Carolinas is a nearly zero energy residential building consists of 17 climate neutral houses. It is a non-profit project with funds from ethical banking, as well as loans and donations from those seeking to promote a new housing model. The cohousing Carbon Footprint is offset by reforestation programmes. It is the first ecological cohousing built in Madrid, owned by a cooperative.
Link: https://netzerocities.app/resource-3101

Behavioral Change

Project: **1.5 degree lifestyles**
Location: Finland
Key concept: App to calculate individuals' carbon footprint and suggest behaviour changes for more sustainable living.
Abstract: Finnish cities have been experimenting with a vision of sustainable living. With the goal was to achieve a significant drop in the participants' carbon footprint, the tool "1.5-degree lifestyles puzzle" was used to make the results and implications of the required changes approachable and understandable to both households and other stakeholders. Individual carbon footprints are calculated at the project start and the development is monitored over time.
Link: https://netzerocities.app/resource-3866

Project: **Climate Meal**
Location: Helsinki, Finland

Key concept: App for restaurants for calculating and communicating carbon footprint of meals, with a label to help consumers identify low carbon meals.

Abstract: Restaurants were invited to join the initiative which provided them with the Climate Meal label, including tools for calculating the carbon footprint of their dishes, and tools for communication about their commitment. The Climate Meal label helps customers identify meals from the menu that have a smaller-than-average carbon footprint. The initiative was run through a project under Forum Virium which is an innovation company owned by the city of Helsinki. The city of Helsinki canteens and several restaurants of the city took part to these initiatives.

Link: https://netzerocities.app/resource-2847

Project: **Play!UC (Playing with Urban Complexity)**

Location: Netherlands, Belgium, Austria

Key concept: An engaging game that raises awareness on urban carbon footprint and helps trigger behavioural change in young adults.

Abstract: Playing with Urban Complexity is a co-located serious games aimed at reducing the urban carbon footprint among young adults. The purpose of the initiative is to foster the understanding of complex urban problems by combining participatory processes with serious games in a co-located setting investigating both existing games and novel game-based approaches.

Link: https://netzerocities.app/resource-3923

Project: **Children ride sharing service**

Location: Helsinki, Finland

Key concept: Ride sharing initiative from school to football training.

Abstract: School children get a minibus transport from school to football training right after school. This saves time and reduces the number of trips. Lower price of early practice hours compensates the transportation costs. This ride sharing service initiated by a local football club started from a pilot project and became a permanent activity in the club.

Link: https://netzerocities.app/resource-3927

Training and Education

Project: **Ecohouse Antwerp**

Location: Antwerp, Belgium

Key concept: An advice and demonstration centre for sustainable building and living run by the city of Antwerp.

Abstract: Ecohouse offers workshops and advice on energy retrofitting, as well as both short- and long-term solutions for saving energy and money. It is a demonstration centre that bringing together climate action and social cohesion. It is open to the general public, with a substantive part of its work focused on more vulnerable groups, energy reduction and using renewable energy.
Link: https://netzerocities.app/resource-2813

Project: **Agroecology**
Location: France
Key concept: Promotion and training on agroecology and its application to support the transition to more sustainable farming practices and change in production model.
Abstract: The association Terre & Humanisme promotes agroecology as an approach and trains people in its application in order to support the transition to more sustainable farming practices. It aims to change production models to achieve higher combined economic, social and environmental production based on the founding principles of Agroecology. The association operates on three fundamental pillars: raising awareness, training modules and internships, network and community support (with a network of ambassadors).
Link: https://netzerocities.app/resource-3871

Project: **EVA—maakt het plantaardig**
Location: Ghent, Belgium
Key concept: Cooking and awareness activities to promote plant-based diets.
Abstract: EVA is a bottom-up initiative aimed at advocating for the adoption of plant-based diets through cooking and awareness. The initiative works on a larger scale with company restaurants, hospitals and schools through guidance at institutional kitchens for large-scale impact. Activities are not only about information but about tasting, discovering and cooking.
Link: https://netzerocities.app/resource-3911

Project: **Real Junk Food Berlin**
Location: Berlin, Germany
Key concept: Workshops and courses to raise awareness on food waste and new sustainable food systems.
Abstract: The international organization The Junk Food Project has the goal to raise awareness around the topic of food waste and new sustainable food systems. Activities include the use of food that would otherwise be wasted and the conduction of workshops and courses sharing ways to avoid food waste.
Link: https://netzerocities.app/resource-3931

Project: **Smart House Training Program**

Location: Tartu, Estonia
Key concept: Training programs to initiate behavioural change for smart house and smart city living.
Abstract: The core premise of the project is the acknowledgement that smart solutions alone are not enough but need cultivating smart citizens. The training program aims at encouraging citizens in the pilot project areas to learn from each other by training *ambassadors* in every pilot area. Ambassadors are citizens that are able to help and support their neighbours in various aspects of smart house and smart city living.
Link: https://netzerocities.app/resource-4009

Project: **Applause**
Location: Ljubljana, Slovenia
Key concept: Collaborative, educational and awareness-raising project to find solutions to invasive alien plant species in cities with circular economy principles.
Abstract: Applause is a project led by the city of Ljubljana (Slovenia) to tackle the issue of invasive harmful alien plant species, applying a zero-waste and circular economy principle. Ljubljana is moving from a linear model for managing invasive harmful alien plant species to a circular one that is valuable for the entire ecosystem. This process involves six steps: plant identification, biomass harvest, processing and storage, value recovery, final production, and new products and services to market. Through a variety of educational and awareness-raising actions, citizens are encouraged to participate in different stages of the model.
Link: https://netzerocities.app/resource-3875

Platforms

Project: **El Día Después (EDD)**
Location: Spain
Key concept: A multistakeholder platform for action toward climate neutrality—creating collectives who develop ideas and plans (workshops, co-lab) to address the SDGs,
Abstract: El día después is a multi-stakeholder platform for creating networks to address the sustainable development goals, specifically SDG 17 (partnership for the goals). Four main communities take part to this project: environment and health, cooperation and global governance, city transformation, and inequality and new economic model. Within these communities, experts and professionals from the field collaborate to create different services that they believe will create useful change. Through these collectives, lessons can be drawn that can catalyse and accelerate the transition towards models and systems that support cities, the environment, and global governance.

Link: https://netzerocities.app/resource-3899

Project: **Just transition listening platform.**
Location: Lada and Velilla, Spain.
Key concept: An open innovation platform to visualize the impact of municipalities in a mining region, map initiatives of green economy transformation, and co-design a portfolio of actions.
Abstract: The goal of the Just Transition listening platform is to transform the process of closing the coal-fired power plants into new green economy opportunities. This open innovation platform fosters territorial transformation in the mining region of northern Spain (Lada and Velilla towns) into green economy and just transition European strategy. The elements of the platform include the ecosystem based on social innovation approach (new forms of diagnosis, co-creation, sense-making, prototypes), and an interconnected portfolio of initiatives.
Link: https://netzerocities.app/resource-3106

Project: **SynAthina platform**
Location: Athens, Greece
Key concept: City social innovation platform to collect and support execution of citizen ideas and projects for better city life.
Abstract: The synAthina platform is the social innovation platform of the city of Athens for engaging citizens in problem-solving and reform. Citizens and community groups can submit innovative ideas on how to improve life in the city and are then connected to the relevant government representatives, non-governmental organisations, and private businesses that can support their efforts.
Link: https://netzerocities.app/resource-2856

Scaling

Project: **Clean Cities ClimAccelerator**
Location: Vienna, Austria and Madrid, Spain
Key concept: An accelerator program for high impact and high growth cleantech startups that help cities achieve climate neutrality through system-level innovations.
Abstract: Clean Cities ClimAcclerator is a 9-month accelerator program that targets startups that help cities achieve climate neutrality, through commercialisation of clean technology. The program is focused on system-level innovations and is demand-led, matching startups in an early phase with challenge-owners. The accelerator is run by Impact Hub Vienna and Universidad Politécnica de Madrid. It has three stages: (1) explore, (2) validate and collaborate, and (3) scale.
Link: https://netzerocities.app/resource-2726

Project: **Viable Cities**
Location: Sweden
Key concept: A massive innovation program building infrastructure to support new forms of governance, citizen engagement, cooperation and policy development to accelerate the climate transition.
Abstract: Viable Cities is a Swedish strategic innovation programme focusing on the transition to climate-neutral and sustainable cities. Viable Cities aims to create transformative system change based on the mission Climate Neutral Cities 2030 with a good life for everyone within the planetary boundaries. The programme attempts to fulfil the vision that Sweden has a leading role in the energy and climate transition through climate-neutral and sustainable cities, through co-creation and learning with cities and actors in other countries and at international level.
Link: https://netzerocities.app/resource-4013

Project: **City Experiment Fund**
Location: Europe and Central Asia
Key concept: City councils applying systems thinking to explore new approaches for urban transformation.
Abstract: Five cities from across the South-Eastern European and Central Asian region jointly explored new approach to problem solving through the methodology of systems thinking. The respective city councils began designing systems thinking portfolios for urban transformation with the support of UNDP Europe and Central Asia.
Link: https://netzerocities.app/resource-3891

Project: **Oslo public procurement**
Location: Oslo, Norway
Key concept: Using procurement as a strategic tool to drive a transition to more sustainable production and consumption.
Abstract: Oslo's commitment to a sustainable procurement strategy is integrated at the top management level in all fifty agencies of the city, and it is reflected in their local action plans for the procurement activities. They city of Oslo spends approximately around 5% of the national public procurement budget and aims to use this market power to generate innovation and create markets for more sustainable products and services. Responsible public procurement is one of the six sub-goals of the procurement strategy of the city.
Link: https://netzerocities.app/resource-25

Systemic Urban Planning Approaches

Project: **Cloughjordan Ecovillage**
Location: Ireland

Key concept: Co-building of an ecovillage for ecological, economic and social sustainability.
Abstract: The Cloughjordan Ecovillage started as a plan to create a community of dedicated environmentalists. A present, the ecovillage is demonstrating different ways to achieve ecological, economic, and social sustainability, being Ireland's lowest ecological footprint district. It has 55 low-carbon homes, a carbon–neutral district heating system, a community farm, a green enterprise centre, a planned reed-bed treatment plant, and a photovoltaic power plant.
Link: https://netzerocities.app/resource-2522

Project: **Paris: 15-minute city**
Location: Paris, France
Key concept: Daily necessities can be accomplished in 15 mins walking/cycling
Abstract: A popular urban planning concept (developed by the city administration) in which most daily necessities can be accomplished by either walking or cycling from residents' homes in 15 minutes maximum.
Link: https://netzerocities.app/resource-3919

Project: **Climate Quarter Project**
Location: Krakow, Poland
Key concept: Co-creation of a residential quarter where essential services are within 15-min reach for low-carbon mobility.
Abstract: The purpose of the project is to create a residential quarter that prevents the necessity to travel more than 15 min to get the most essential goods and services, and therefore reduces the amount of carbon emissions related to transport. The planning and implementation involves citizens and the active cooperation of all parties (city units) to discuss issues and vision for the quarter and its future developments.
Link: https://netzerocities.app/resource-3895

Project: **Superblocks (Vitoria-Gasteiz)**
Location: Vitoria-Gasteiz, Spain
Key concept: Participatory approach to reorganize the city into superblocks, car-free areas that maximise public space for new social uses.
Abstract: The concept of "Superblocks" is an urban innovation that aims at low-carbon mobility following a participatory approach at the city and neighbourhood level. The city is reorganised into superblocks, car-free areas that maximise public space for new social uses and keep road traffic outside the neighbourhoods, redesigning the inner streets for use by pedestrians.
Link: https://netzerocities.app/resource-2766

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