



European cities leading in urban food systems transformation:

connecting Milan & FOOD 2030

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European cities leading in urban food systems transformation: connecting Milan & FOOD 2030

European Commission
Directorate-General for Research and Innovation
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Edited by Andrea Magarini and Elisa Porreca (Milan Food Policy Office)

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Foreword – City of Milan

The City of Milan is playing a particular role in the spreading of urban food policies. Milan has pursued new forms of city diplomacy thanks to its innovative approach to food-system issues, sharing experiences and involving cities from all over the world. This publication aims to facilitate debate, discussions, dissemination, mutual learning and the exchange of best practices among stakeholders in relation to food-policy issues.

The City of Milan has occupied a privileged position in the Milan Urban Food Policy Pact creation process from the very beginning, because it is aware of the complex dynamics in food policy development, and has a clear view of the ongoing debate over the issues relating to food, food policy and circularity that characterise the EU. This is why Milan can provide an overview of the practices relating to the food system and food policies that have been spreading all over Europe since 2014.

This publication is meant to support everyone who is interested in learning more about the ongoing actions and debates over European food policies at the urban level. It aims to lay out a road map for anyone who is already working on food policies, to enhance and enrich already-existing tools and also to help orient, within a clear framework, those who are approaching this topic for the first time. Having explored this topic for quite some time, Milan has learned about the different ways in which cities and citizens can develop their approaches to food.

In this publication Milan has brought together various practices and activities relating to urban food policies in Europe. We decided to organise them in accordance with the main framework of Food 2030, and then to provide some general recommendations. These recommendations include one that we feel we must mention here, and that we consider essential to the success of any initiatives, which has to do with the direct and significant engagement of local authorities and policymakers. They indeed represent a *conditio sine qua non* to achieve success.

Local authorities have committed themselves strongly to transforming their approach to food in recent years, producing advancements and supporting the success of existing experiences. The role of political commitment is crucial in order to both reinforce food-system sustainability and implement meaningful food governance.

European cities are becoming living laboratories for the originators and facilitators of innovative policies. Local authorities, acting as urban leaders, are catalysing changes by supporting the transformation towards inclusive, future-proof food systems, engaging a wide range of actors for the co-creation of breakthrough food-policy solutions. Food has always occupied a central role in our societies and lives, and approaching the topic from the policy perspective represents a relatively new way to look at the matter.

Anna Scavuzzo

Vice-Mayor of Milan
in charge of Food Policy



Comune di
Milano



Foreword – Directorate-General Research & Innovation

The European Union's 'Green New Deal' sets out a farm-to-fork food-system approach. Farming practices will need to adapt to a changing world; we eat less healthily than we should, and we need to prepare the food system for climate change. EU citizens are demanding sustainable food systems that guarantee food security and health, that support growth and jobs in the food chain and that sustain our rich and diverse European food culture. Research and innovation are key to helping redesign food systems and maximising co-benefits such as nutrition, food safety, the climate, circularity, the environment, social equity, etc. The European Commission's Food 2030 initiative has been pivotal in putting food systems on the agenda by helping to structure and align research and innovation efforts across the EU. It promotes a systems approach to complex problems that delivers real impact (and co-benefits) from research and innovation in the four priority areas of nutrition and health, climate and sustainability, circularity and resource efficiency, and community empowerment and jobs.

One of the major global challenges we are facing is unprecedented urban growth, where over half of the global population is urban and where by 2050 an additional 2.5 billion people are expected to live in urban areas. Urban areas currently consume over 70 % of the global food supply. We do not know enough about balancing this urban-rural interface. In 2017 the Food 2030 Expert Group proposed and defined cities as a new type of food-system partner, which can act as a multi-objective and multi-actor facilitator. In this respect, the 2015 Milan Urban Food Policy Pact was identified as a pioneer municipal project, which has since been strongly supported and followed up by different Food 2030 actions.

We therefore welcome this timely study from the Milan group, which provides a useful outline of the diverse and complex urban food-policy actions and dynamics going on at the European level. It provides a clear view of the ongoing debate over the issues relating to food, food policy and circularity, and an overview of the practices relating to the food system and food policies. It identifies the correct stakeholders and players, and provides a useful road map and framework for other cities that wish to follow similar routes. In addition, accelerators, facilitators and living laboratories will become key tools in helping to identify and push for innovation and progress under the Horizon Europe programme. This study supplies working examples of their successful deployment at different scales.

All urban actors need to be more cooperative and flexible towards meeting common goals. In Horizon Europe this could be facilitated through a food-system partnership, which can bring diverse communities together to create cohesion and a common understanding with a view to future calls for proposals and the broader political implications. Such a partnership can also assist policy and system science (and tools) in support of decision-making, behavioural change and policy options; in engaging youth in finding solutions throughout the research and innovation process; and in promoting food-systems education and awareness at all levels.

John Bell

Director, DG Research and Innovation — 'Healthy Planet & Clean Planet'

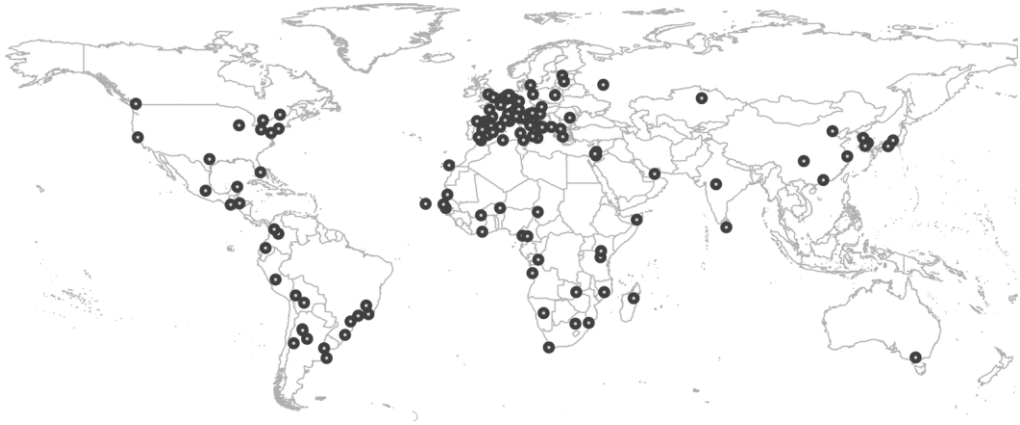


Figure 1. MUFPP signatory cities (City of Milan, 2018).

1. The role of Milan in shaping a new framework for action on urban food policies in the global arena

Since 2014 Milan has been at the centre of a comprehensive initiative of city diplomacy in the realm of urban food policies, and has capitalised on both the experience of bidding to hold the 2015 Universal Exposition (2006-2008) and the work relating to the content of Expo 2015 itself (2008-2015).

The initiative revolves around four main pillars: urban networking; the involvement of international bodies; seeding food topics in the existing international discussion; and project design.

The Milan Urban Food Policy Pact (MUFPP) was signed on 15 October 2015 in Milan by 113 mayors, and was presented the following day to the UN Secretary General, Ban Ki-Moon, on the occasion of the World Food Day celebration. It represents one of the most important legacies of the Milan Universal Exposition 2015 'Feeding the Planet'. By signing the pact, mayors from all over the world voluntarily commit to working together so that their citizens can benefit from local food systems that are more sustainable, fair, climate friendly, safe, diverse, resilient, inclusive and able to provide healthy and affordable food to all people, within a human-rights-based framework.

With the intention of leading the MUFPP, the City of Milan started to define its own local food policy in order to improve the sustainability of its food system and test the most inspirational practices from around the world.

1.1. Milan Urban Food Policy Pact

The MUFPP is a voluntary agreement among mayors who are committed to making urban food systems more sustainable, resilient and equitable. The announcement of the initiative was made in 2014 at the C40 Summit in Johannesburg, when the Mayor of Milan launched the proposal for signing the pact at the Universal Expo 2015. An initial group of 46 cities took on the preliminary content-drafting activities, guided by a scientific advisory group of organisations committed to the sustainability of the food system.

The MUFPP is a global commitment by mayors from 200 cities around the world (October 2019) that considers food to be an entry point into the sustainable

development of growing cities. It represents the main framework for cities and international stakeholders that are active in the definition of innovative urban food policies for the management and governance of local food systems. Today, the pact is a new arena of debate and cooperation among cities and metropolitan and regional authorities.

The framework for action of the MUFPP is made up of 37 recommended actions structured into six integrated categories:

- Governance;
- Sustainable Diets and Nutrition;
- Social and Economic Equity;
- Food Production and Urban–Rural Linkages;
- Food Supply and Distribution;
- Food Waste Reduction and Management.

Cities choose specific actions to develop, and whether and how to adapt them to their specific contexts. The overall objective of the pact is to develop urban food systems that are sustainable, inclusive, resilient, safe and diverse, and that provide healthy and affordable food to all people within a human-rights-based framework. This ambitious goal can be achieved through urban food policies built on a comprehensive and integrated approach.

Signatory cities gather once a year, at an event that is held in a different Milan Pact city every year. It is an opportunity to meet, exchange knowledge and practices, participate in technical workshops, share progress and build partnerships. Mayors meet each other and get inspired by innovative solutions implemented in other cities.

The MUFPP works in synergy with several international areas of debate, such as the New Urban Agenda, the Paris Declaration on Climate Change and the World Urban Forum, with existing urban networks, such as C40, Eurocities and WHO Healthy Cities, and with UN bodies, such as the Food and Agriculture Organisation (FAO), UN-Habitat and SDSN Youth, to connect with the global agenda for sustainable development.

The Milan Pact brings together cities belonging to different contexts, from North to global South. Since 2016, on the basis of various forms of regionalisation, these cities have worked together to overcome challenges, adding value and content to existing regional networks.

1.1.1. Timeline of milestones

- **February 2014.** Mayor of Milan launches the idea of a mayors' pact on food.
- **September 2015.** Start of content definition by 46 cities.
- **October 2015.** Signature ceremony of the MUFPP involving 113 cities worldwide, and presentation to the UN Secretary General.
- **September 2016.** African signatory cities meeting in Dakar (Senegal).
- **October 2016.** Second Annual Gathering and Mayors' Summit of signatory cities in Rome (Italy) at the FAO headquarters, and first edition of the Milan Pact Awards (MPAs).
- **February 2017.** European signatory cities' meeting in Birmingham (United Kingdom).

- **October 2017.** Third Annual Gathering and Mayors' Summit of signatory cities hosted by the City of Valencia (Spain), and launch of the MUFPP monitoring framework.
- **September 2018.** Fourth Annual Gathering and Mayors' Summit of signatory cities hosted by the City of Tel Aviv (Israel).
- **May 2019.** Latin American signatory cities' meeting in Rio de Janeiro (Brazil).
- **October 2019.** Fifth Annual Gathering and Mayors' Summit of signatory cities hosted by the City of Montpellier (France).

1.2. How to recognise cities' advancements on food policies through the Milan Pact Awards

The MPAs were launched for the first time in 2016. The initiative was promoted by the City of Milan and the Cariplo Foundation. The goal of the prizes has always been to foster the sharing of knowledge between cities all around the world and to develop an urban accountability tool. Over the four editions of the MPAs so far (2016, 2017, 2018 and 2019) we have collected 261 practices relating to urban food policies.

The philosophy behind the MPAs requires winning cities to invest the prize in city-to-city initiatives that are implemented in order to share their knowledge with another city participating in the MUFPP. Every year the MPAs assign two monetary prizes (EUR 15 000 each) and six special mentions. The MPAs have the ambition of becoming a reference framework for knowledge sharing in the coming years.

With the MPAs, cities are invited to start cooperating and exchanging knowledge among themselves and sharing tangible solutions. Since 2015 the experiences that have been exchanged have helped to define the added value of decentralised cooperation.

In the last four editions of the awards, 116 food practices and policies were gathered from European cities (out of 261 practices worldwide), and 10 cities won prizes or special mentions.

MPA EDITION	Winning city	Category	Practice
2016	Riga	Food Waste	From food waste to healthy off-season food
2016	Birmingham	Sustainable Diets and Nutrition	Public health
2017	Ede	Governance	Political commitment for integrated food governance: the success story of Ede
2017	Copenhagen	Sustainable Diets and Nutrition	Organic conversion project 2002-2017
2017	Ljubljana	Food Supply and Distribution	Short food-supply chains in the city municipality of Ljubljana
2017	Bruges	Food Waste	Food-waste prevention and reduction

2018	Ghent	Food Waste	Foodsavers Ghent
2018	Parma	Sustainable Diets and Nutrition	Giocampus project, fostering the well-being of future generation
2018	Turin	Food Waste	Towards circular markets
2019	Montpellier	Food Supply and Distribution	Structuring the sustainable supply

1.3. A joint initiative to monitor the progress of the urban food system: the FAO–MUFPP monitoring framework

In early 2016 the MUFPP Secretariat and the FAO started developing a monitoring framework that reflects the six categories of the Milan Pact Framework of Action. Two surveys were circulated among the pact’s signatory cities to assess their priorities and the availability of data.

A first set of indicators was presented on 19 October 2017 at the third MUFPP Annual Gathering in Valencia, and further discussed with signatory cities and their networks.

In November 2017 a refined list of 44 quantitative and qualitative indicators was released by the FAO’s team of experts. A methodological guide to help cities and partners in collecting and analysing the right data for the indicators is being drafted. For each indicator the guide contains information such as an explanation of the types of data required and the level of data aggregation; a definition of samples; and examples of how some cities have already implemented the indicator. The guide will also highlight the connections with the sustainable development goals (SDGs) and targets.

1.3.1. The complete set of 44 indicators

Governance

1. Presence of an active municipal interdepartmental government body for advisory and decision making of food policies and programmes.
2. Presence of an active multi-stakeholder food policy and planning structure.
3. Presence of a municipal urban food policy or strategy and/or action plans.
4. Presence of an inventory of local food initiatives and practices to guide development and expansion of municipal urban food policy and programmes.
5. Presence of a mechanism for assembling and analysing urban food system data to monitor/evaluate and inform municipal policy making on urban food policies.
6. Existence of a food supply emergency/food resilience management plan for the municipality (in response to disasters; vulnerabilities in food production, transport, access; socio economic shocks, etc.) based on vulnerability assessment.

Sustainable Diets and Nutrition

7. Minimum dietary diversity for women of reproductive age.
8. Number of households living in 'food deserts'.
9. Costs of a nutritious food basket at city/community level.
10. Individual average daily consumption of meat.
11. Number of adults with type 2 diabetes.
12. Prevalence of stunting for children under 5 years.
13. Prevalence of overweight or obesity among adults, youth and children.
14. Number of city-led or supported activities to promote sustainable diets.
15. Existence of policies/programmes that address sugar, salt and fat consumption in relation to specific target groups.
16. Presence of programmes/policies that promote the availability of nutritious and diversified foods in public facilities.
17. Percentage of population with access to safe drinking water and adequate sanitation.

Social and Economic Equity

18. Percentage of food insecure households based on the Food Insecurity Experience Scale (FIES).
19. Percentage of people supported by food and/or social assistance programmes.
20. Percentage of children and youth (under 18 years) benefitting from school feeding programmes.
21. Number of formal jobs related to urban food system that pay at least the national minimum or living wage.
22. Number of community-based food assets in the city.
23. Presence of food-related policies and targets with a specific focus on socially vulnerable groups.
24. Number of opportunities for food system-related learning and skill development in i) food and nutrition literacy, ii) employment training and iii) leadership.

Food Production

25. Number of city residents within the municipal boundary with access to an (urban) agriculture garden.
26. Presence of municipal policies and regulations that allow and promote agriculture production and processing in the municipal area.
27. Surface area of (potential) agricultural spaces within the municipal boundary.
28. Proportion of total agricultural population — within the municipal boundaries — with ownership or secure rights over agricultural land for food production, by sex.

29. Proportion of agricultural land in the municipal area under sustainable agriculture.
30. Number of urban and peri-urban food producers that benefited from technical training and assistance in the past 12 months.
31. Number of municipal food processing and distribution infrastructures available to food producers in the municipal area.
32. Proportion of local/regional food producers that sell their products to public markets in the city.
33. Annual proportion of urban organic waste collected that is re-used in agricultural production taking place within municipal boundaries.

Food Supply and Distribution

34. Existence of policies/programmes that address the reduction of GHG emissions in different parts of the food supply chain.
35. Presence of a development plan to strengthen resilience and efficiency of local food supply chains logistics.
36. Number of fresh fruit and vegetable outlets per 1 000 inhabitants (markets and shops) supported by the municipality.
37. Annual municipal investment in food markets or retail outlets providing fresh food to city residents, as a proportion of total (investment) budget.
38. Proportion of food procurement expenditure by public institutions on food from sustainable, ethical sources and shorter (local/regional) supply chains.
39. Presence of food safety legislation and implementation and enforcement procedures.
40. Existence of support services for the informal food sector providing business planning, finance and development advice.

Food Waste

41. Total annual volume of food losses & waste.
42. Annual number of events and campaigns aimed at decreasing food loss and waste.
43. Presence of policies or regulations that address food waste prevention, recovery and redistribution.
44. Total annual volume of surplus food recovered and redistributed for direct human consumption.

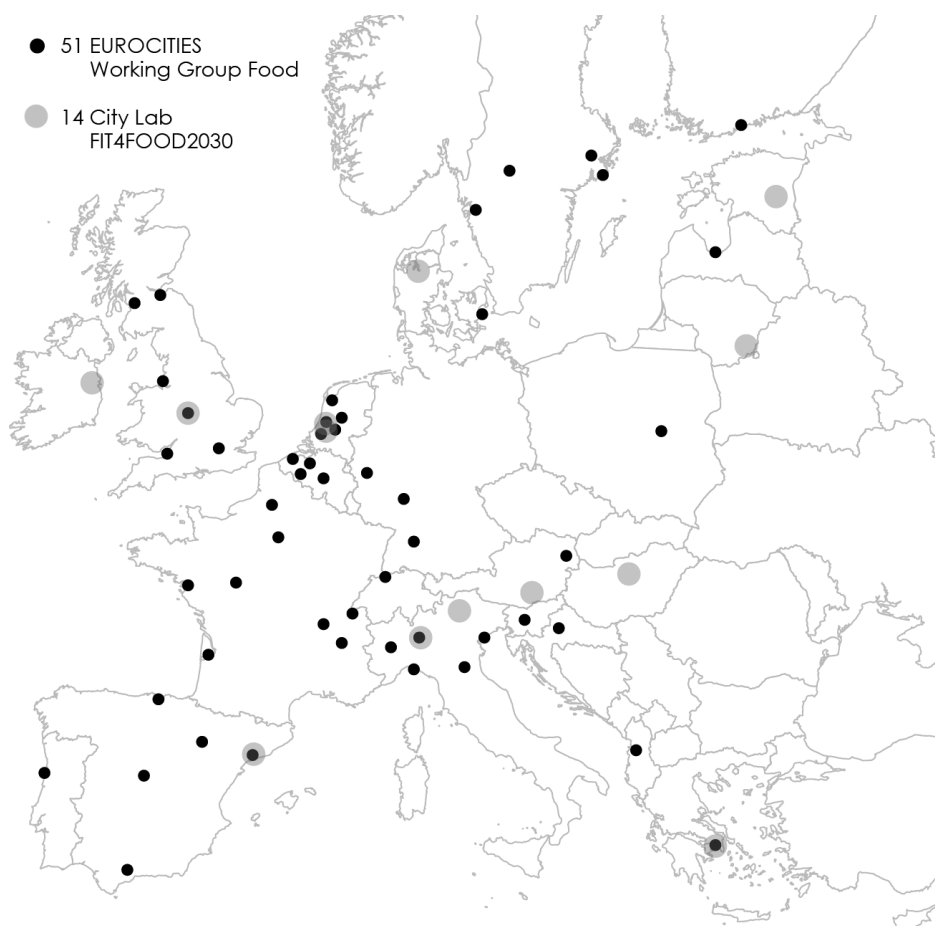


Figure 2. European cities that are members of the Eurocities Working Group Food (City of Milan, 2019).

2. European regionalisation of the process to raise awareness of urban food policies

The European interest in the MUFPP also becomes clear due to the advisory role the European Commission and the European Committee of the Regions had, in 2015, in the process of defining the content and international dissemination. The relevance of the MUFPP in Europe, through the active role of the City of Milan, also increased interactions with different European spaces and the most innovative European food projects, including TRiFOCAL with WRAP; Fit4Food2030 with Amsterdam University; the 'Food in cities' tender for the Commission's Directorate-General (DG) for Research and Innovation; membership of DG Health and Food Safety's EU Platform for Food Losses and Waste; and the 'Towards a common food policy' project on the future of the common agricultural policy with the International Panel of Experts on Sustainable Food Systems and DG Regional and Urban Policy. The European Commission's Food 2030 Expert Group has defined cities as being a new kind of actor that can make a difference in food-system transformation, and has proposed cities as an innovative partner for Europe in defining a multi-

objective and multi-actor drive for responsible innovation across the food system.

In this chapter of the report the European regionalisation process of the MUFPP will be presented within the frame of reference of Food 2030.

2.1. Eurocities Working Group Food

The Eurocities Working Group Food aims to become a creative hub of food-policy knowledge, where information, ideas and best practices are shared and innovative solutions for urban food challenges are shaped. The working group was launched in 2016 as the European regionalisation structure of the MUFPP.

It represents the starting point for setting up a European framework to consolidate the effort of Eurocities members and MUFPP cities. The network organises European advocacy actions, common EU projects and training sessions for food-policy officers on specific topics for food-policy implementation.

Eurocities members are food-system leaders. Many cities have established an urban food policy, enhancing the participation of stakeholders to make a more sustainable food system. Also, European cities are often more ambitious than their national governments. With 75 % of Europeans living in urban areas, cities can generate a significant impact on their food system using their institutional power.

Some pioneer cities of the Eurocities Working Group Food are creating innovative food-policy actions based around several main actions, as listed below.

1. Sustainable diets. Relevant education, health promotion and communication programmes, and developing sustainable dietary guidelines.
2. Public procurement. Reorienting school feeding programmes and other institutional food services to provide food that is healthy, locally or regionally sourced, seasonal and sustainably produced.
3. Urban agriculture. Local food production, strengthening urban and peri-urban food production, supporting short food-supply chains.
4. Food Waste Prevention. Saving food by facilitating recovery and redistribution for human consumption of food donation.

Since its foundation the Eurocities Working Group Food has organised the following meetings.

- 2017 — **Birmingham**, on urban innovation.
- 2017 — **Valencia**, during the third MUFPP Annual Gathering.
- 2018 — **Amsterdam**, on food waste.
- 2018 — **Lyon**, on urban agriculture.
- 2019 — **Ghent**, on climate change.
- 2019 — **Montpellier**, on political commitment during the fifth MUFPP Annual Gathering.

2.1.1. European map of cities, networks and projects

This map was developed to outline the European geography of cities, networks and projects that are contributing to making the food system more sustainable. The multilayer map allows the clear geolocation of cities that are members of the Eurocities Working Group Food, and provides information on the main European projects they are involved in. It also provides the opportunity to generally keep track of European activities on food-related topics. Being a very visual tool that can also incorporate data on each project and city, the map will provide significant support to cities that are interested in implementing food-policy actions. The map is available at: <https://bit.ly/2mQNsR5>

2.2. The European Commission's Food 2030 framework

Food 2030 was launched after the 2015 Milan World Expo, when the European Commissioner for Research and Innovation, Carlos Moedas, announced his intention to launch a food research area by World Food Day 2016. Food 2030 is a research and innovation (R & I) policy framework of the European Commission, deployed under its multiannual framework programmes. The transformation of the food system is not only about production and consumption, but is also something that requires a broader approach. Furthermore, everyone is a stakeholder in the necessary food-system transformation: researchers, Member States, industry, regions, cities and citizens.

The Food 2030 initiative is developing a framework geared towards highlighting priorities and creating efficient investments. In this initiative the European Commission has recognised the challenge of making our food system future-proof. Several publications and conferences have been dedicated to the need for a food-systems approach with improved governance. To take further steps towards implementing Food 2030, DG Research and Innovation has established a group of experts to appraise the current research landscape relevant to food systems and to formulate missions that can direct future research and innovation actions in Europe.

2.2.1. Food 2030 priorities

- **Nutrition for sustainable and healthy diets.** Ensuring that nutritious food and water is available, accessible and affordable for all. It involves reducing hunger and malnutrition, ensuring high levels of food safety and traceability, reducing the incidence of non-communicable diet-related diseases and helping all citizens and consumers adopt sustainable and healthy diets for good health and well-being.
- **Climate-smart and environmentally sustainable food systems.** Building climate-smart food systems adaptive to climate change, conserving natural resources and contributing to climate-change mitigation. It seeks to support healthy, productive and biodiverse ecosystems. Ensuring diversity in food systems (including production, processing, distribution and logistics) including in terms of cultural and environmental diversity. Natural resources (water, soil, land and sea) are used sustainably within the planetary boundaries and available to future generations.

- **Circularity and resource efficiency of food systems.** Implementing resource-efficient circular-economy principles across the whole food system while reducing its environmental footprint. Circularity is applied for sustainable and resource-efficient food systems, and food losses and waste are minimised throughout.
- **Innovation and empowerment of communities.** Boosting innovation and investment, while empowering communities. A broad innovation ecosystem leading to new business models and value-added products, goods and services, meeting the needs, values and expectations of society in a responsible and ethical way. More and better jobs across the EU, fostering thriving urban, rural and coastal economies and communities. Through closer partnerships with industry and food producers, markets that function in a responsible manner thereby fostering fair trade and pricing, inclusiveness and sustainability. Scientific evidence and knowledge from a wide diversity of actors underpinning the development and implementation of FNS (food and nutrition security)-relevant policies, at all geographical scales (local to global).

2.2.2. Implementation tools

'Food 2030 uses several tools in its research and implementation activities. The Food 2030 Independent Expert Group gathers experts from around Europe who are able to bring background knowledge and personal insights to the implementation of the policy. Eurocities, the City of Milan and Cardiff University produced the 'Food in Cities' study on innovation for the sustainable and healthy production, delivery and consumption of food in cities, based on a tender from DG Research and Innovation, mapping cities that were active on food policy issues in 2016. The EU's Horizon 2020 framework programme and the upcoming Horizon Europe are the key programmes for fostering food-system transformation.

2.2.3. Food 2030 High-Level Event held in Plovdiv (Bulgaria)

The City of Milan, as chair of the Eurocities Working Group Food, and the consortium of the European Fit4Food2030 project organised the **side event 'Sustainable Food System for European Cities'** at the invitation of the European Commission. The event was designed to be a workshop about cities' experiences in the field of food-system transformation. The fruitful debate involved European Commission officers, researchers and city officers. During the discussion participants were invited to work with the main tools used to define the elements of success of food-policy actions and to assess the content of these actions. The tools were defined by the Fit4Food2030 consortium as a set of criteria with which to assess city cases, and they were linked to the six MUFPP categories.

Among the participants at the **High-Level Event** held in Plovdiv in June 2018, a delegation from Milan (city and Cariplo Foundation) was there to advocate on the added value of cities as game changers when talking about food-system transformation. For the first time at EU level, cities were mentioned as being a new kind of actor that should have a stronger role in Europe, integrated into a higher institutional level within the EU along with the Commission and the

Member States. This innovative role emerged from the conclusions of the expert groups, in the declaration and in the call for action.

The **Food 2030 Expert Group** defined cities as a new kind of stakeholder that can make a difference in the transformation of the food system and proposed them as an innovative partner for Europe in the definition of a multi-objective and multi-actor drive for responsible innovation across the food system. Cities and other local authorities need to introduce a proactive and evidence-based food policy that creates healthy, sustainable urban environments to make healthy and sustainable choices appealing to consumers. Cities should make sure that their neighbourhoods are connected to the surrounding peri-urban areas for a healthy lifestyle. It was also highlighted that multiparty innovation should be an important part of urban food policies.

The **Food 2030 Plovdiv Declaration** promotes, together with the European Commission and Member States, an agenda for future-proof food systems that will have important positive effects on Europeans in terms of healthier lives, cultural and societal benefits for urban and rural communities, a cleaner environment, more sustainable production and consumption, lower import dependency and more vibrant enterprises. The transformation of our food systems is an opportunity to build new and stronger partnerships and to develop improved approaches, technologies and business models that concurrently place environmental sustainability, health and inclusion at their centre. This can be achieved by fostering place-based innovative food systems in rural and urban areas that provide job opportunities, enhance prosperity and wellbeing and empower communities. Cities are also quoted in the seventh point of the call for action to 'stimulate European regions and cities to implement novel solutions and showcase good practices'.

2.2.4. 'People's food — people's health' conference and Food 2030 Workshop

The conference 'People's Food — People's Health: Towards healthy and sustainable European food systems' was organised under the Austrian Presidency of the Council of the European Union and held in Vienna (Austria) in November 2018. It was the occasion for the workshop 'Food 2030: Research and innovation driving food systems for health', co-organised by DG Research and Innovation and DG Health and Food Safety. The main focus of the conference was to develop a dialogue on concrete solutions to make a healthy and sustainable diet available, affordable, acceptable and appealing for all.

Along the same lines, the **Food 2030 Workshop** aimed at gathering stakeholders to discuss the role of R & I in driving food-system transformation, with a particular focus on nutrition for sustainable and healthy diets. The City of Milan was present at the event, represented by the Vice-Mayor in charge of Food Policy, to give the benefit of its experience as a municipality and to highlight the momentum of the MUFPP. A major outcome of the discussion was the recognition of the role of public procurement in addressing healthy diets and nutrition, focusing on the need for innovative ways of provision and consumption to develop nutrition-sensitive food systems. Cities can play a strategic role in shaping the consumption habits of large numbers of people

through their public procurement, from school canteens to care homes for the elderly.

2.2.5. Food 2030 at the High-Level Conference in Bucharest (Romania)

The High-Level Event held during the Romanian Presidency of the Council explored 'Circularity and Resource Efficiency in Food Systems'. Within this framework Food 2030 set up a workshop to create a supportive environment for establishing new collaborations in the field of agri-food research. The occasion was used to strengthen collaboration with Eastern Europe and other regions in order to build up an efficient and effective European food system.

The main aims of the event were to raise awareness about sustainable production and consumption, to minimise food waste and to transform agri-food by-products and residues into new raw materials for various purposes using an environment-friendly approach. The City of Milan participated in the event, with its food-policy coordinator presenting Milan's experience.

2.3. Urban experimentation: the Fit4Food2030 city labs

The Fit4Food2030 project (2017-2020) is a Horizon 2020-funded project that supports the European Commission in implementing the Food 2030 policy framework.

The project aims to establish a sustainable, multistakeholder, multilevel platform — the Food 2030 Platform — made up of three interlinked structures:

- 14 city labs (also referred to as food labs), built around science centres, museums and science shops that develop and implement hands-on (in)formal training sessions to build the competences of students and professionals, bringing a wide variety of actors together in the process;
- 11 national policy labs that mobilise food-system stakeholders in order to align R & I policies and investment schemes; and
- an EU think tank that links project activities with the European Commission and shapes the field via policy briefs.

The project is built around two main ideas: a holistic food-systems approach and responsible research and innovation (RRI).

In line with the increased recognition that traditional models that focus purely on food production or linear models such as food-supply or value chains are not appropriate to represent the full complexity of the food system, the project works with the notion of adaptive food systems. This implies taking into account their complex dynamics, their multifunctional and multi-actor character and the multitude of problem perceptions, knowledge gaps, values and visions for future-proofing food systems. The concept of RRI can help tackle this, as its processes and requirements aim to align the wide range of actors (consumers, citizens, farmers, policymakers, businesses) and activities involved in R & I processes for more desirable, sustainable and acceptable future outcomes. This section zooms in on the model of urban experimentation that currently informs the actions of 14 city labs across the European Union.

2.3.1. City-lab trajectories

Adopting the food-system approach and RRI, the city labs are tackling the challenge of implementing bottom-up transformation. This approach requires a high level of experimentation and the delivery of three intermediary objectives:

- building sustainable multistakeholder networks;
- developing a common vision while acknowledging different perspectives; and
- ensuring a learning process that is broad and reflexive.

While the trajectories of individual labs reflect the diversity of conditions found across cities and regions, all activities are based on continuous engagement of stakeholders and face-to-face multistakeholder workshops, along a shared timeline.

2.3.2. Actors and visions

City labs started with an iterative actor analysis to understand which food-related actors are active in their contexts, including an estimation of food actors' levels of power and interest, and special attention for groups that are under-represented in the existing networks and initiatives. Mobilising the actors required tailored communication strategies and sufficient incentives for participation.

One of the first endeavours in the labs was a process of shared vision development, chosen as it can both generate compelling statements of preferred futures and act as a starting point for thinking about concrete recommendations and transformations. Multistakeholder dialogues focused on: (1) visions of a future-proof food system; (2) visions of the role of R & I towards a future-proof food system; and (3) visions on the competences (knowledge, attitude and skills) required for individuals engaged in R & I processes for a future-proof food system.

2.3.3. Understanding the food system

Fit4Food2030 has adapted tools to support the city labs and the broader Food 2030 platform in the analysis of the food system and to identify leverage points where the current state of things can be transformed. The model is built around the following three concepts, used during lab workshops to co-develop local food-system knowledge and understanding.

- Trends. Large-scale developments influencing food-systems R & I.
- Showcases. R & I initiatives or funding programmes that have contributed, or are contributing, to food-systems R & I developments.
- Breakthroughs. Significant R & I developments in the field of food and nutrition security, potentially resulting in structural changes in food systems, making them more sustainable and resilient.

2.3.4. Facilitating learning between the labs

With 14 city labs and 11 policy labs, a central goal of Fit4Food2030 is to make sure that their efforts continue after the project and inspire new initiatives. To that end, a special emphasis is placed on stimulating shared and interactive learning between individual cities and labs so that a community of practice can be established across Europe. Learning is fostered at regular in-person meetings and training sessions that equip lab coordinators with materials and resources to use locally. In addition, regular virtual meetings inspired by the dynamic learning agenda methodology allow each individual lab coordinator to present current challenges and barriers in their lab activities and benefit from a supportive community – a space where they can be open about the planning process in their city or region.

2.3.5. Action planning for transformation

To focus activities around a concrete output and ensure meaningful results that could strengthen the community, all city labs focused on at least one contribution with the potential to accelerate transformation: the co-development of a set of educational modules to stimulate competence development, which is crucial for real transformative change. Both current professionals (such as researchers, social entrepreneurs and journalists), professionals-to-be (students of all levels) and citizens at large are the targets of this action, and 17 modules are currently under development based on visioning results, local knowledge and lab-specific expertise. Competences tackled include systems, futures, values, strategic thinking, collaboration, and problem-solving.

The reconnection of local food-system actors in the city labs is also taking place around other concrete actions such as R & I agendas and support for food-policy processes, action plans and partnership building in several different ways.

The first group of seven city labs has already been supplemented by seven new recruits, the experiences of which will strengthen the potential of project tools. The project is streamlining its understanding of learning, replication and scaling up, and will launch its resources after this extensive pilot process.



Figure 3. European cities presented in this chapter (City of Milan, 2019).

3. European cities' actions

European cities are key actors in prompting changes towards a more sustainable food system under the international frameworks of the MUFPP, SDGs and Food 2030. They can exploit their institutional power to drive innovation in food systems thanks to their direct competences, with municipal bodies and urban actors being involved in all stages of the food system (production, transformation, logistics, distributions, consumption and waste). Europe is the most active region in the world in this regard due to its close partnership with an existing network of European cities that have decided to establish a dedicated working group on food policy. In this part of the report we will provide a general overview of all the cases gathered between 2015 and 2018, a description of eight best practices and an in-depth analysis of the case of Milan as a food-policy trendsetter. All of the analyses are organised under the framework of the four priorities of Food 2030.

3.1. Overview of 101 urban food practices

The basket from which the practices were selected is global and takes into consideration the experiences gathered over the last 4 years (2015-2018): 68 by the City of Milan and the Cariplo Foundation through the MPAs (first three editions) and 33 by Eurocities through the call for practices from different Working Group Food meetings. This overview was explored during a workshop involving 15 selected officers of the City of Milan (Food Policy Office, MUFPP Secretariat and EU Affairs Unit) and the Cariplo Foundation (research, social and environmental areas) who are engaged with food-policy actions on a day-to-day basis. In the workshop the basket of 101 practices was analysed: on the one hand the potential for impacts on each Food 2030 priority was evaluated (with a range from 1 to 5), on the other hand the shift towards stakeholder engagement, co-creation processes, citizen-science interest, business model definition and circular-economy potentiality was analysed (with an estimation of the potential expressed by 'yes' or 'no'). The main results of this exercise are presented here, along with the considerations gathered from the participants.

Overall, we can say that up to now the majority of practices in the EU that are associated with urban food-policy issues deal with topics such as food waste, sustainable diets and nutrition, and governance. The latter is a cross-cutting element that encompasses three out of four of the Food 2030 priorities. In addition, our analysis indicates that circular practices tend to relate strictly to food waste, whereas practices that come under the nutrition category relates strictly to diets. The practices associated with climate are more diverse in terms of topics. More specifically, the following can be noted.

Stakeholder Eng.	CIR	CLI	INN	NUT	tot
NO	9	2		1	12
YES	26	4	21	17	68
NO DATA	6	11	2	2	21
Co-Creation	CIR	CLI	INN	NUT	tot
NO	13	5	9	12	39
YES	22	1	12	6	41
NO DATA	6	11	2	2	21
Citizen Science	CIR	CLI	INN	NUT	tot
NO	30	6	15	11	62
YES	5		6	2	13
NO DATA	6	11	2	7	26
Business Model	CIR	CLI	INN	NUT	tot
NO	24	2	13	2	41
YES	11	4	7		22
NO DATA	6	11	3	18	38
Circular Economy	CIR	CLI	INN	NUT	tot
NO	3	3	11	1	18
YES	32	3	10	1	46
NO DATA	6	11	2	18	37

- The practices relating to **circularity** have, since the beginning, tended to engage different stakeholders, and are well equipped in terms of co-creation. These experiences tend to be weaker in terms of citizen science and replicability (business model). Circular practices are not surprisingly the most important in terms of a circular-economy approach.
- Practices associated with **climate** are not observed very frequently, nonetheless from what we could see they are lacking in terms of both citizen science and co-creation.
- Practices relating to **innovation**, which were the second most numerous after the topic of circularity, perform well in terms of stakeholder engagement and co-creation, while in line with the climate topic these practices are weak in terms of citizen science and replicability (business model). These practices are also interesting because of the attention they pay to circularity.

- Finally, with regard to **nutrition** practices we once again saw strong engagement on the part of stakeholders in parallel with not particularly high levels of co-creation, citizen science and replicability. In this case, the circular approach also seems to be rather weak.

In conclusion, food-policy practices tend to include stakeholders and are quite active in terms of co-creation and the implementation of a circular-economy approach. Importantly, they are not constructed to be replicated but tend to be strictly attached to the context and specificity of local circumstances. Finally, we noted widespread difficulties in valuing citizen science. This is noticeable especially considering the great efforts made by the EU over the past several decades to give new impetus to engagement and citizen science.

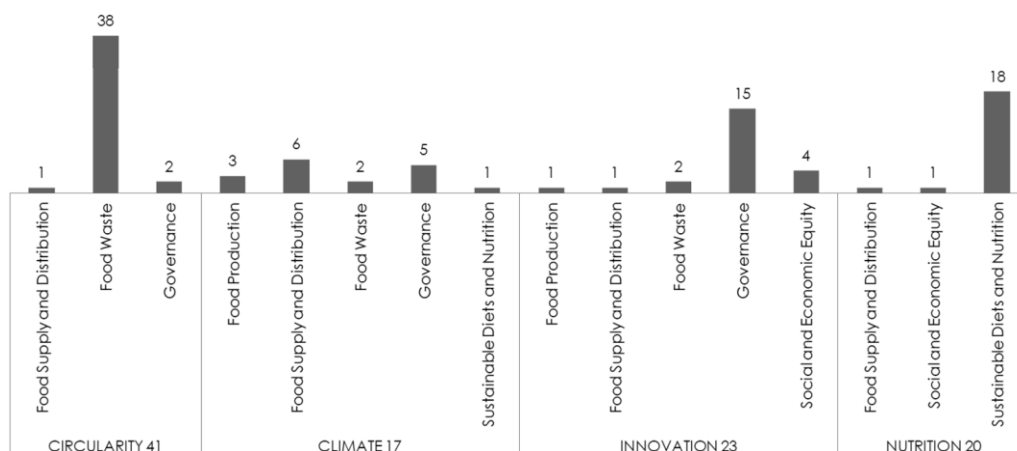


Figure 4. Relationships among the MUFPP categories with the four Food 2030 priorities (City of Milan 2019).

This is a preliminary set of recommendations and we still need to complete, discuss and improve them. They are aimed at city officers throughout the world, and in particular at EU cities and authorities, including the European Commission.

1. In order to have an impact and to be effective, food-policy practices require the engagement of local authorities.
2. Food-policy practices are still perceived as a contingent experience and are not yet associated with an easily replicable business model.
3. Food-policy practices engage different stakeholders, however in light of the lack of attention towards citizen science it seems possible to argue that they might not value each stakeholder in the same way.
4. A large variety of food topics in cities can be connected to other European drivers (national governments, EU policies, urban networks) to increase their impact.

3.1.1. Table of cities' analysed actions

N	City	Country	Source	Year	Food 2030	Cat	Title
1	Amsterdam	Netherlands	MPAs	2017	Circularity	GOV	Online platform for mapping Amsterdam food system stakeholders
2	Amsterdam	Netherlands	WG	2018	Circularity	FW	Instock initiative
3	Athens	Greece	WG	2018	Circularity	FW	Athens biowaste programme
4	Barcelona	Spain	WG	2018	Circularity	FW	Waste prevention plan
5	Bari	Italy	MPAs	2017	Circularity	FW	Avanzi Popolo 2.0 / People's leftovers 2.0
6	Bologna	Italy	WG	2018	Circularity	FW	Community fridges
7	Bordeaux	France	WG	2018	Circularity	FW	Collection of biowaste in Bordeaux hotels by Les Détritviores
8	Bruges	Belgium	MPAs	2017	Circularity	FW	Food-waste prevention, reduction and management
9	Burgas	Bulgaria	WG	2018	Circularity	FW	Biowaste collection in supermarkets and hotels
10	Dublin	Ireland	WG	2018	Circularity	FW	Eastern-Midlands regional waste management plan 2015-2021
11	Edinburgh	UK	WG	2018	Circularity	FW	Zero waste policy food kitchens
12	Genova	Italy	MPAs	2018	Circularity	FW	Ricibo network as a smart food policy best practice
14	Ghent	Belgium	MPAs	2018	Circularity	FSD	Platform for short supply chain products
13	Ghent	Belgium	MPAs	2018	Circularity	FW	Foodsavers Ghent
15	Göteborg	Sweden	WG	2018	Circularity	FW	Model for reduced food waste
16	Helsinki	Sweden	WG	2018	Circularity	FW	Biowaste collection to produce compost and energy
17	Katowice	Poland	WG	2018	Circularity	FW	Redistribution of food surpluses
18	Linköping	Sweden	WG	2018	Circularity	FW	Waste-to-energy (WTE) plant
19	Ljubljana	Slovenia	WG	2018	Circularity	FW	Raise your voice against food waste
20	London	UK	WG	2018	Circularity	FW	FoodSave programme
21	Lyon	France	WG	2018	Circularity	FW	Small retailers food waste recovery
22	Malmö	Sweden	WG	2018	Circularity	FW	Bio-waste for bio fuel of public transportation Awareness Biogas
23	Milan	Italy	WG	2018	Circularity	FW	Experiences on food losses and waste management
24	Milan	Italy	MPAs	2018	Circularity	FW	A comprehensive food policy to tackle food waste
25	Modena	Italy	MPAs	2018	Circularity	FW	Modena community projects against food waste
26	Oslo	Norway	WG	2018	Circularity	FW	Raising awareness campaigns
27	Oss	Netherlands	MPAs	2018	Circularity	FW	Fight against food waste
28	Paris	France	WG	2018	Circularity	FW	Recovery and redistribution of safe and nutritious food to people in need
29	Prague	Czech Republic	WG	2018	Circularity	FW	Biowaste collection for biogas and compost
30	Riga	Latvia	MPAs	2016	Circularity	FW	From food waste to healthy, off-season food
32	s-Hertoghenbosh	Netherlands	MPAs	2018	Circularity	FW	Agreement to reduce food waste
31	s-Hertoghenbosh	Netherlands	MPAs	2018	Circularity	S	Big data for better food
33	Sofia	Bulgaria	WG	2018	Circularity	FW	Separate collection and treatment of biowaste
34	Stavanger	Norway	WG	2018	Circularity	FW	Restevonn campaign
35	The Hague	Netherlands	WG	2018	Circularity	FW	Community composting
36	Tilburg	Netherlands	WG	2018	Circularity	FW	ZuiderZwam
37	Toulouse	France	WG	2018	Circularity	FW	Recovery of food losses at Rio Loco music festival
39	Turin	Italy	MPAs	2017	Circularity	FW	Porta Palazzo organic project
38	Turin	Italy	MPAs	2018	Circularity	FW	POPP (Progetto Organico Porta Palazzo): towards circular markets
40	Utrecht	Netherlands	WG	2018	Circularity	FW	Reusing coffee waste for growing oyster mushrooms
41	Venice	Italy	MPAs	2017	Circularity	FW	Progetto R.E.S.A.

42	Amsterdam	Netherlands	MPAs	2018	Climate	FSD	Mapping the food system: Last mile distribution local hotel and catering industry
43	Basel	Switzerland	WG	2018	Climate	FW	Living lab
44	Bordeaux	France	MPAs	2016	Climate	FP	Système Alimentaire Territorial social
45	Copenhagen	Denmark	MPAs	2017	Climate	SDN	Organic conversion project 2002-2017
46	Frankfurt	Germany	MPAs	2017	Climate	GOV	Klimagourmet Network
47	Ljubljana	Slovenia	MPAs	2016	Climate	FSD	Bee path
48	Ljubljana	Slovenia	MPAs	2016	Climate	FSD	Short food supply chains in the City of Ljubljana
49	Ljubljana	Slovenia	WG	2017	Climate	FP	Attention to rural development and urban gardens
50	Lyon	France	MPAs	2018	Climate	GOV	Increased supply of organic food to local restaurants
51	Madrid	Spain	MPAs	2017	Climate	GOV	Urban community gardens network: School of food citizenship
52	Molfetta	Italy	MPAs	2016	Climate	FSD	Fish all days
53	Nantes Métropole	France	MPAs	2018	Climate	FP	Turning wastelands into productive lands
54	Tirana	Albania	MPAs	2017	Climate	GOV	Improving our citizens' lives and food security
55	Valencia	Spain	MPAs	2018	Climate	FSD	Políticas de revitalización de la tira de contar
56	Valencia	Spain	MPAs	2018	Climate	GOV	An observatory to defend the green belt
57	Venice	Italy	MPAs	2018	Climate	FW	Agreement for testing new green fuel for public transport
58	Vienna	Austria	MPAs	2018	Climate	FSD	Ecological public procurement
61	Almere	Netherlands	MPAs	2017	Innovation	FW	Coalition extraordinary Almere
59	Almere	Netherlands	MPAs	2017	Innovation	GOV	Oosterwold: urban agriculture
60	Almere	Netherlands	MPAs	2017	Innovation	SEE	Onze-(Our) allotment under glass
62	Bordeaux	France	MPAs	2018	Innovation	GOV	Conseil consultatif de gouvernance alimentaire durable
64	Bruges	Belgium	MPAs	2016	Innovation	GOV	Food lab
63	Bruges	Belgium	MPAs	2017	Innovation	GOV	Guidelines on sustainable food on events
66	Ede	Netherlands	MPAs	2017	Innovation	GOV	Political commitment for integrated food governance: the success story of Ede
65	Ede	Netherlands	MPAs	2018	Innovation	GOV	Measuring change: how Ede municipality developed a tool to monitor improvement in its local food system.
67	Ghent	Belgium	MPAs	2018	Innovation	GOV	A co-creative governance approach
68	Gothenburg	Sweden	WG	2017	Innovation	GOV	Environmental considerations driving a comprehensive food strategy
69	Ljubljana	Slovenia	MPAs	2016	Innovation	GOV	Strategy for rural development of the Municipality of Ljubljana 2014-2020
70	Lyon	France	MPAs	2016	Innovation	GOV	Sustainable food for all
71	Milan	Italy	WG	2017	Innovation	GOV	Seeking cooperation across department and stakeholders' involvement
72	Nantes Métropole	France	MPAs	2017	Innovation	FP	Territorial food project of the Nantes Metropolis
73	Parma	Italy	MPAs	2018	Innovation	SEE	Youth in action for a sustainable and creative gastronomy
74	Rotterdam	Netherlands	WG	2017	Innovation	FSD	A strong focus on economic development
75	s-Hertogenbosh	Netherlands	MPAs	2016	Innovation	GOV	Agrifood capital triple helix
76	s-Hertogenbosh	Netherlands	MPAs	2016	Innovation	GOV	Grow campus
77	Turin	Italy	MPAs	2016	Innovation	GOV	The right to food in the statute of the City of Turin
78	Utrecht	Netherlands	MPAs	2018	Innovation	SEE	Food as a means of reducing inequalities
79	Valladolid	Spain	WG	2018	Innovation	FSD	City food policy
80	Venice	Italy	MPAs	2017	Innovation	GOV	'Citizens In...deed!' project
81	Venice	Italy	MPAs	2017	Innovation	SEE	Off-course map project
82	Amsterdam	Netherlands	MPAs	2016	Nutrition	SDN	Healthy lifestyles
83	Basel	Switzerland	MPAs	2016	Nutrition	SDN	Sustainable catering at the University of Basel
84	Basel	Switzerland	MPAs	2016	Nutrition	SDN	A healthy bodyweight for children and youths
86	Birmingham	UK	MPAs	2016	Nutrition	SDN	Public health

85	Birmingham	UK	MPAs	2017	Nutrition	SDN	Nutrition smart cities: a Birmingham–India initiative (BINDI)
87	Cremona	Italy	MPAs	2017	Nutrition	SDN	Cremona: a model for a new sustainable school canteen
88	Dénia	Spain	MPAs	2018	Nutrition	SDN	Strengthening of the local food ecosystem through healthy nutrition and sustainable gastronomy
89	Ghent	Belgium	MPAs	2017	Nutrition	SDN	A multifaceted approach to sustainable school meals
90	Lisbon	Portugal	WG	2017	Nutrition	SDN	Healthy food and social considerations
91	Oss	Netherlands	MPAs	2018	Nutrition	SDN	De Wereldburger
92	Pamplona	Spain	MPAs	2018	Nutrition	SDN	Direct purchase for improved diets in schools
94	Parma	Italy	MPAs	2016	Nutrition	SDN	Food app — family daily meal planning assistant for healthy, nutritious and tasty ideas for good and sustainable meals
93	Parma	Italy	MPAs	2018	Nutrition	SDN	Giocampus project: fostering the well-being of future generations
95	Riga	Latvia	MPAs	2018	Nutrition	SDN	Riga Central Market — a place for developing healthy eating habits
96	s-Hertogenbosh	Netherlands	MPAs	2016	Nutrition	FSD	Kitchen heroes
97	Tirana	Albania	MPAs	2018	Nutrition	SDN	Change of food menu in kindergartens and nurseries of Tirana
99	Turin	Italy	MPAs	2016	Nutrition	SEE	Soup kitchens
98	Turin	Italy	MPAs	2016	Nutrition	SDN	I made the menu
100	Torres Vedras	Portugal	MPAs	2018	Nutrition	SDN	Sustainability programme school feeding
101	Villanueva de la Cañada	Spain	MPAs	2017	Nutrition	SDN	Healthy and sustainable feeding in the school menus in Villanueva

3.2. Best practices by European cities

Connected to each Food 2030 priority are several Milan Pact recommended actions that European cities are now designing and implementing. For each priority, two cases were selected as the contribution by eight cities to the localisation of this European framework. In the following pages we selected eight European best practices coming from cities that were awarded monetary prizes or special mentions in any of the editions of the MPAs. The aim is to provide a significant overview of how cities are able to put into practice different approaches to food-system issues and implement the Food 2030 framework as an accountability tool to assess urban food practices.

- **Nutrition — Birmingham and Copenhagen.** A shift in diets (involving a rising demand for protein, staple foods sometimes shipped from remote locations, malnutrition and hunger from macro/micronutrient shortages), an increase in obesity and a rise in non-communicable diseases from unhealthy diets make up the current global picture for nutrition.
- **Climate — Ljubljana and Riga.** Building climate-smart food systems that are adaptive to climate change, conserving natural resources and contributing to climate-change mitigation, particularly developing a disaster risk reduction strategy.
- **Circularity — Bruges and Ghent.** Implementing resource-efficient circular-economy principles across the whole food system while reducing its environmental footprint. Circularity is applied to sustainable and resource-efficient food systems, and food losses and waste are minimised throughout.
- **Innovation — Ede and Bordeaux.** Boosting innovation and investment, while empowering communities. A wide-ranging innovation ecosystem leading to new business models and added-value products, goods and

services, meeting the needs, values and expectations of society in a responsible and ethical way.

During the Food 2030 side event 'Sustainable Food System for European Cities' in Plovdiv, the experts participating in the workshop examined the eight city cases, providing an in-depth analysis of the level to which they matched the Food 2030 priorities and other criteria, i.e. sustainability dimensions, actors involved, generic impact and scale.

3.2.1. Nutrition – Birmingham: Public health against obesity

In Birmingham 25 % of children are obese by the time they leave primary school. The Birmingham Childhood Obesity Partnership is leading a coordinated effort to impact on childhood obesity at all levels. The project includes policy change, partnerships, communications and specific interventions. Since signing the Milan Pact, Birmingham has been exploring and implementing innovative approaches to tackle childhood obesity, improve health and tackle health inequality.

Birmingham City Council is involved in several initiatives to tackle childhood obesity through work focusing on the food environment rather than the individual. This work includes the following steps.

1. Implementing an action plan to increase the usage of Healthy Start vouchers. These vouchers are for pregnant women and low-income families with children aged 0-4, and are redeemed in shops for milk, fruit and/or vegetables. Current uptake is 70-75 %. The plan is to increase registration and usage to 85 % as way of tackling health inequality.
2. Hosting a Birmingham University National Institute for Health Research fellow who is coordinating action with local retailers to promote the purchase of fruit and vegetables, focusing efforts in the most deprived communities; and working with schools to measure the impact of physical-activity interventions and food choice in school canteens.
3. Working with the innovative social enterprise Shift to create healthier food environments. Poorer families are turning to hot, pre-prepared food more often as it provides the perfect solution to putting a meal on the table with the life pressures they experience. But this food is currently high in fat, sugar and salt, comes in large portions and was designed as an occasional treat. Shift and Birmingham City Council are piloting 'No more same old takeaway, proper dinner for you and the kids, delivered to your door' to provide a healthier alternative.
4. Engaging in the national 'Peas Please' campaign led by the Food Foundation. Birmingham City Council and partners have committed to several pledges to increase the availability of vegetables, including increasing the number of portions in school meals.
5. Taking part in a Smart Cities initiative called BINDI. The Food Foundation is facilitating a Nutrition Smart Cities initiative that involves the development of policies and practices through a learning partnership between Birmingham, United Kingdom and Pune, India to tackle all forms of malnutrition.
6. Commissioning a crowdfunding campaign to support and fund innovative community-based health and well-being projects.

7. Working with commissioning and procurement officers to encourage healthier, more sustainable public procurement relating to food.

The systemic response to childhood obesity set up by the municipality presents several learning points: through a partnership approach, the group brought together a range of organisations that had not worked together previously; crowdfunding demonstrated how it is possible to raise funds and amplify public-sector funds for social, health and well-being projects; the food projects/pilots take place in areas of multiple deprivation/need to address social and economic equity.

3.2.2. Nutrition – Copenhagen: 90 % organic food procurement

Since 2002 the Municipality of Copenhagen has had a food strategy that aims to use 90 % organic ingredients in the meals of the whole city's public food system. An average rate of 88 % was reached in 2016. The 90 % organic strategy has been a dual effort of both training and upskilling kitchen staff, and simultaneously restructuring the methods of procurement to ensure the supply of quality organic ingredients.

The organic conversion of approximately 900 kitchens across the city has been undertaken by departments within the municipality, with the help of various consultants and trainers. The main idea behind the strategy is to train kitchen staff in cooking techniques so that they are able to plan their menus sustainably and cook food from scratch, as opposed to using processed and pre-prepared food. The city has invested EUR 5.5 million in knowledge, education and counselling to facilitate the change (1.6 % of the total food-procurement budget). The task was to carry out this conversion within the existing budgets.

The city has put a great deal of effort into ensuring that the organic transition in the kitchens will be supported by quality organic procurement and tenders that encourage the market to develop the organic and sustainable parts of their product ranges. Copenhagen organises four 'market dialogue' meetings annually prior to tender, to ensure supply and gain knowledge of possibilities in the market, at which officers discuss visions, upcoming political developments and future demands. As a direct result, there has been a professionalisation of the organic supply lines for canteens, schools, hospitals and nursing homes, and increased diversity in the products offered.

The organic conversion can be done by adapting consumption and production in the kitchen. This process of change will entail a variation in the produce and the nutritional composition. In Copenhagen they call it a 'conversion of heads and saucepans'.

In 2007 the City of Copenhagen established the Copenhagen House of Food, an independent, non-commercial foundation to improve the quality of meals offered by the city to its citizens and create a healthy, happy and sustainable public food culture.

Data on the school canteen service
80 000 daily meals, 40 000 daily dinners
7 375 tonnes of food procurement, 142 tonnes weekly

1 100 kitchens in 925 locations, 1 700 kitchen staff
EUR 40 300 000

3.2.3. Climate — Ljubljana: Bee path for urban biodiversity

Two thirds of the total surface area of the Municipality of Ljubljana are the so-called rural areas, which include 826 active farms, each covering approximately 7 hectares. In its rural development strategy for 2014-2020, the Municipality of Ljubljana set as its first and most fundamental objective the premise to 'ensure quality agriculture and forestry goods from a preserved environment, with the aim of self-sufficiency of Ljubljana'. By doing so, the municipality ensures food sovereignty and unburdens the environment by using short food-supply chains, while enhancing the food security of the urban population.

To ensure self-sufficiency, the city recognised the importance of pollinators and their connection with food producers. This action is particularly relevant for the Municipality of Ljubljana, which accounts for 3 % of all Slovenian beekeepers, managing 4 500 bee colonies. In 2015, Ljubljana decided to involve the beekeepers of the city in the Bee Path project, with the aim of highlighting their key role in food production and self-sufficiency.

The Bee Path was designed and opened in 2015. The path was realised with an interdisciplinary approach, presenting beekeeping from different perspectives. Visitors learn about the importance of bees for human survival and for food security, and the importance of honey in the daily diet. The project also provides visitors with a historical perspective, presenting the heritage of beekeeping in the city. The route involves various stakeholders, including educational and cultural institutions, institutions related to health, businesses, non-governmental organisations (NGOs) and, of course, beekeepers. Their main task is to ensure that their activities associated with the Bee Path raise awareness and inform city residents about the importance of bees in the city.

Ljubljana protects the environment in a way that is friendly to bees, for example by planting honey plants in public spaces and promoting the activities of beekeepers' associations. Additionally, Ljubljana has prepared educational programmes for children in primary school and kindergarten, emphasising the importance of education for youngsters. The content was developed by each of the 30 stakeholders that are included in the path, creating a shared vision on beekeeping for self-sufficiency.

The municipality has taken over the role of developer and facilitator. Special attention is also paid to the elderly, who are involved in various educational activities, field trips and lectures where experts teach about the importance of honey and bee products for their health. Four members of the Bee Path have completed a course in apitherapy and are passing their knowledge to the younger generation. Moreover, the Bee Path is an extremely interesting tourist product, which promotes local tourism and the consumption of the locally produced honey.

3.2.4. Climate — Riga: Biomass heat for greenhouse production

Getliņi EKO is an environmentally friendly, high-technology ecological waste management company, majority-owned by the Municipality of Riga, that operates the Getliņi waste landfill site. It is responsible for the collection and ecological management of waste within the Riga waste-management area. About 50 % of all waste produced in Latvia, or 300 000 tonnes of waste annually, is transported to Getliņi.

Food waste forms 41 50 % of waste biomass. The efficient use of this waste has been an issue for the municipality for many years, because food waste accounts for a huge amount of the waste that is deposited. For reasons involving environmental safety and the well-being of surrounding areas, and because of limited opportunities to grow territorially, this growth had to be limited. Food waste, when disposed of, creates landfill gas that should be properly gathered and used, otherwise it has a very negative impact on the environment and the soil. The practice plan for the landfill is based on two main pillars: operational practice and social education.

Food waste is deposited in environmentally safe biodegradable cells. The landfill gas that forms in the cells is channelled to the Getliņi power unit and transformed into energy. The impact of waste on the environment is reduced to a minimum. The gas is transformed into energy. Getliņi ecological landfill is one of the largest producers of green energy in Latvia (in 2015, 33 718 200 kWh). The by-product of energy production is heat (in 2015, 21 336 800 kWh). The heat is used by the greenhouses that are located in the territory of the landfill and operated by Getliņi EKO.

The greenhouse team grows tomatoes during the local vegetable off-season, and supplies Riga's citizens via the largest supermarket chains. The possibility of having vegetables is an important aspect, since Latvia as a Nordic country experiences insufficient vegetable supplies during winter and spring. Only organic solutions and natural organisms are used to grow tomatoes, meaning that they are healthy and valuable products. Some 390 tonnes are produced during the off-season.

The quality and the nutrition value of the products are higher than those of imported tomatoes. This ecological management practice has created a chain of benefits: food waste turned into green energy and nutritious food, with a huge positive impact on the environment. Due to Riga's practices our atmosphere is protected from 2 000 m³ of environmentally harmful gases per hour. Intensive educational work is carried out to educate society about the life cycle of household waste, recycling and food-waste reduction.

The company organises free field trips to the landfill, along with visiting seminars. The field trips are available for pre-schools, schools, universities, companies, groups of environmental activists, etc.

3.2.5. Circularity — Bruges: Food-waste reduction in healthcare

In 2015, the City of Bruges facilitated a bottom-up process to build a sustainable food policy focused on food-waste reduction in public organisations. Recent research shows that food waste is a major problem in the healthcare sector, and could reach up to 40 % of total waste. The health sector faces unique challenges: healthcare structures create personalised dietary options based on the health status of patients, and they frequently serve non-voluntary consumers and unpredictable numbers of clients. On top of that, it is often not straightforward to bring together the different stakeholders along the food chain of healthcare institutions. This makes food-waste reduction a complicated effort. To tackle this issue, the Municipality of Bruges coordinated an immersive, participatory process of measurement, ideation, evaluation and refinement of food-waste-reduction approaches in the healthcare sector.

The overall objective was to find solutions to reduce food waste in healthcare institutions through a participatory approach. Bruges has 19 healthcare institutions, four of which are actively involved in the project that started in 2017 (three centres with a total of 1 479 patients and a catering operator linked to six care institutions).

The first step in the process was to measure and analyse current food waste and its economic impact in the four selected healthcare institutions. The next step was to support them in reducing food waste by coaching employees, developing successful methodologies to reduce food waste in healthcare institutions. The personnel of the healthcare structures were trained in measuring food waste and were actively involved in an innovative process to find specific solutions.

Furthermore, surveys were conducted among personnel, patients and visitors to gain information on the quality, quantity, choice and timing of meals and the way they were being served. The solutions were transferred to other healthcare institutions in Bruges and the region of Flanders through a manual. Besides healthcare institutions, FoodWIN (the European Food Waste Innovation Network, which supports European cities in reducing food waste) and the Food Lab of Bruges were involved in the innovation process.

Results and lessons learned. Food waste can be reduced by 27 652 kg per year, which results in a saving of 88 487 kg CO₂ equivalent per year. Besides prevention, the project also focuses on the valorisation of food waste through donations to local food banks. Beyond quantifiable results, the main innovation introduced by this practice lies in its participatory approach, which was fundamental in addressing the complexity of tackling food waste in the healthcare sector. Nurses, nutritionists and kitchen staff are in key positions to create tailored solutions.

3.2.6. *Circularity – Ghent: Foodsavers*

At the city level there are significant volumes of leftover food available through classic wholesale distribution and retail systems. At the same time, cities are trying to tackle food poverty and malnourishment within their urban context. In Ghent the municipality noticed that there was a larger amount of leftover food available than was being recovered and redistributed by social organisations. The City of Ghent and the social welfare department built scenarios with the stakeholders involved and decided to launch a logistics platform to better match the available amount of and the demand for leftover food. This process took about 2 years of discussions and research.

In March 2017 the Foodsavers platform was launched. It brings together leftover food from the wholesale market and local retailers and redistributes it to social organisations in Ghent. The organisations are a mix of food banks, social restaurants and social supermarkets. The goal is threefold, as explained below.

- **Climate target.** By preventing food from being wasted, CO₂ emissions are decreased. According to the FAO, decreasing food waste in Ghent by 100 tonnes would be equivalent to preventing 254 tonnes of CO₂ emissions. The goal was to prevent at least 100 tonnes of food from being wasted in 2017.
- **Social employment.** The Foodsavers platform is being operated by people who have been in long-term unemployment. The project trains them in logistical skills and prepares them for the regular labour market. The goal was to employ 10 to 12 long-term unemployed people for whom access to the labour market was difficult.
- **Fighting poverty.** The leftover food is distributed to people living in poverty. It focuses on fresh, healthy food and should thus increase access to healthy food for people in that group. Nevertheless, the project is not considered to be a structural way of fighting poverty because it does not tackle the causes of food poverty. The whole topic of food poverty and determining the causes of a lack of access to healthy, sustainable food is being looked at in another project.

After 10 months the results are overwhelming. Some 300 tonnes of food have been recovered and redistributed. That equals savings of about 762 tonnes of CO₂ emissions. Most of the leftovers are fruit and vegetables. A total of 172 000 portions have been redistributed to about 19 000 people, both as food packs for families in need and as individual meals in social restaurants. Nineteen formerly unemployed people have already been given work through Foodsavers.

Leftovers are being distributed through 58 social organisations, and 24 retailers, one wholesale market, two retail distribution centres, one organic farm and one company have provided leftovers. The project has been very successful, and has received a lot of study visits from other cities, both locally and internationally. It has already received three awards.

3.2.7. Innovation — Ede: Political commitment for food governance

The City of Ede adopted its first integrated food strategy in 2015. A careful process followed in which many different stakeholders from society were consulted to create a bottom-up food policy. Whereas many municipalities develop their strategy as a voluntary tool that provides guidance, Ede's food strategy was officially adopted by the city council, which gives it very significant status. The city council showed that the strategy would not remain only on paper by allocating a large budget upon adoption. Through this integrated food strategy, Ede works to ensure that healthy and sustainable food is available to all of its citizens by focusing on improving and strengthening both the economic and the social conditions in Ede.

Ede is the first municipality in the Netherlands to truly achieve a food governance shift towards healthy and sustainable food for all its citizens. Through its integrated food strategy, food issues are addressed in a systemic and coherent way. Ede goes even further by having a food programme to operationalise this strategy, a budget to implement it, a municipal food team of five full-time staff and the first municipal food councillor in the Netherlands with food as the primary subject in his portfolio. This political and administrative commitment is in fact rooted in the municipal organisation, which works closely together with a wide range of societal actors.

The Municipality of Ede is also in close contact with other cities (through the project 'City deal: Food on the urban agenda'), the province of Gelderland (regional level) and the Ministry of Economic Affairs and Internal Affairs (national level). Together with these partners, the city is integrating its own role as a local government within the food system, in coordination with the province and the national government.

Results and lessons learned. By using an integrated food strategy Ede connects several elements of the food system: food education, public health, food waste, short food chains, sustainable and innovative food production and integrated governance. Ede applies a multilevel approach, focused on territorial and social inclusion. The best example of this is the 'FoodFloor', a concept developed by several citizens' groups. Citizens can pitch an idea for healthy/sustainable food in Ede and apply for a small subsidy to take their project to the next level.

The subsidies are provided by the municipality. FoodFloor is hence a nice example of an innovative collaboration between societal groups and the municipality for a modern way of assisting food initiatives. Getting food issues on the political agenda is a complex journey, for which a specific food team can be an important catalyst.

3.2.8. Innovation — Bordeaux: Metropolitan food council

In 2011, the Quévremont report, commissioned by the Urban Community of Bordeaux, revealed the causes of the disappearance of the urban greenbelt of the agglomeration and stressed the limit of its food self-sufficiency: only 1 day. The territorial diagnosis of Bordeaux Métropole and the mapping of actors, both carried out in 2014 by the International Urban Food Network, made it possible to put a spotlight on these territorial problems (urban sprawl, increasing distance between producers and consumers, public health issues), while at the same time identifying the many initiatives taking place relating to food.

In this context, a need was felt to invent a new mechanism for the governance of territorial initiatives that could articulate the actions of public and private actors and civil society at different scales. Moreover, the theme of sustainable food has become subject to national and territorial questions with the promotion of Territorial Food Projects, a mechanism promoted by the Ministry of Food and Agriculture.

Bordeaux Métropole is also a pilot territory of the GouTer (Gouvernance territoriale des systèmes alimentaires) project (by the International Urban Food Network, the Institute for Research and Debate on Governance and the RUA Foundation). The project aims to strengthen territorial authorities' capacities in local governance of food systems. Against this background, and strengthened by the experience that it has acquired over the last several years, Bordeaux Métropole decided to bring the subject of food governance to its 28 municipalities, in parallel and in strict correlation with the topic of agriculture, while investing in partnerships with neighbouring territories. The metropolis represents the right level for the steering of this food-governance body because of its consumption pool, its broadened powers and its links with rural territories.

On 19 May 2017, the Bordeaux Metropolitan Council approved the creation of the Consultative Council for Sustainable Food Governance in Bordeaux Métropole (CCGAD), enabling the metropolis to pool its competences in relation to sustainable food in a single body. Thus, the objective of the council is to offer communities and actors in the territories the means to create original initiatives, new tools and innovative methodologies for the relocation of the food system. Its main aim is to ensure that the issue of sustainable food is highlighted in the metropolitan strategy, following a participatory approach.

The Council will also address the issues of sustainable food at the suprametropolitan level, while assessing the impact of actions taken to work towards an ecological transition. The Council aims to include the territory's various 'actors', divided into five colleges. These actors will be represented in the four thematic workshops, which will integrate all six thematic areas of the MUFPP.

3.3. Milan as a living laboratory: learning from global knowledge to shape Milan's food policy as a beta tester and trendsetter

The City of Milan, during **Expo Milan 2015** 'Feeding the Planet, Energy for Life', adopted one of the most innovative urban food policies in Europe. In 2014 Milan started an action-research process that produced an analysis of its food system, articulated through 10 main issues. After that, the city launched a public consultation engaging its different departments, universities, civil-society organisations, start-ups and the private sector.

The Milan food policy was the first innovative step the municipality took to move forward in making its food system more sustainable, resilient and equal. The policy, first of its kind in Italy, is the result of a growing awareness among different actors on pressing environmental issues and on the need for the responsible management of food assets. The Milan food policy was created thanks to the partnership between the municipality and the Cariplo Foundation. In July 2014, the partners signed a memorandum of understanding to promote and implement the initiative.

The Cariplo Foundation further committed itself to allocating funds for the technical support of the food policy, provided by an independent research centre. In 2014, a preliminary local food-system study was defined, and the active involvement of citizens and all those operating in the city as part of the food system was sought in order to capitalise on the different resources (ideas, skills, investment, planning, etc.) able to trigger a multiplier effect. The food policy became a reference initiative ready to pay attention to the city's needs.

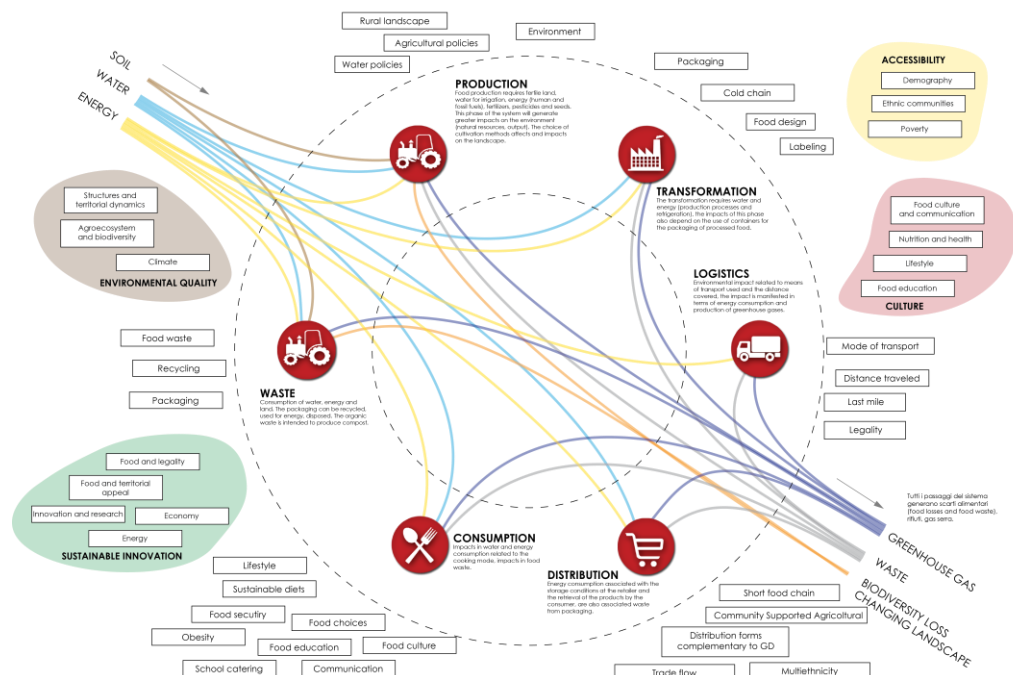


Figure 5. Diagram showing the Milan food system's main elements (Andrea Magarini, 2015).

The process ended in 2015 with a vote in the city council on five priorities encompassing different themes with an integrated approach, 16 guidelines and 48 actions for the Milan food policy. These five priorities were:

1. ensuring healthy food and water for all citizens;
2. promoting the sustainability of the food system;
3. promoting food education;
4. fighting against food waste;
5. supporting scientific research in the agri-food sector.

From 2016 the City of Milan, within the framework of its food policy, implemented several actions relating to the target areas of multilevel governance; local public procurement and innovative peri-urban agriculture; food losses and waste management; and healthy diets. In 2017 a Vice-Mayor for Milan Food Policy was designated by the mayor, with coordination role and with the technical support of the newly established Food Policy Office.

Milan is committed to including choices that directly or indirectly affect food and water in the framework of its institutional prerogatives and in the activities of its subsidiary companies, in order to improve people’s quality of life and the quality of its territory, and also to play an innovation role at the national and international levels.

The food policy is gradually reaching different areas around the city; the map below shows how the initiative has spread. The markers refer to short-supply-chain project partners, local food waste hubs, associations and businesses that are active against food waste, schools with food policy projects, significant institutions and food policy hubs. As an integrated but also innovative action, being able to reach the majority of the city is a primary goal of the food policy and proves its ability to involve a wide range of stakeholders.

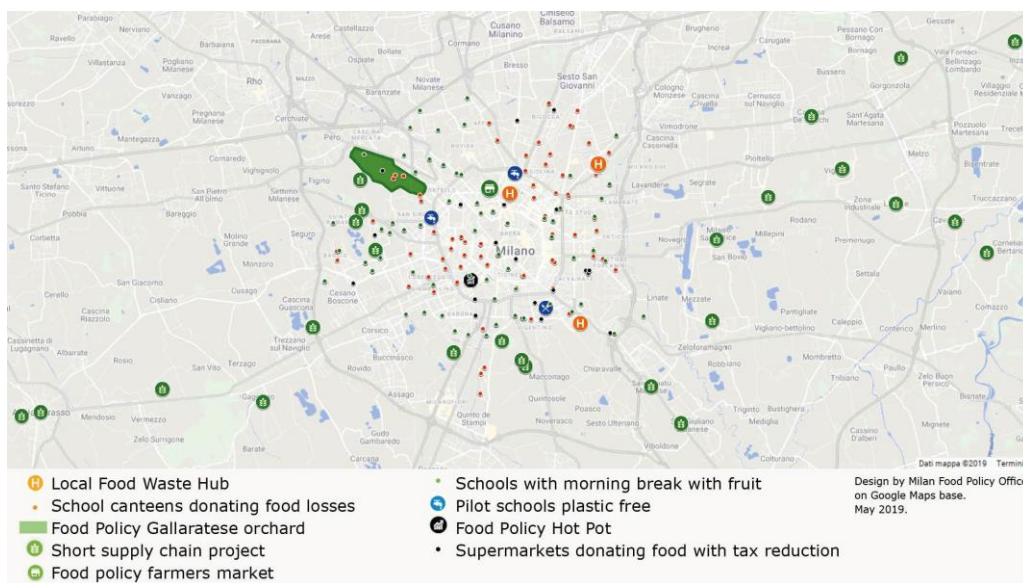


Figure 6. Geolocalisation of the Milan food policy actions (City of Milan, 2019).

3.3.1. The responsible research and innovation approach at the base of the preliminary study for the Milan food policy

RRI is a cross-cutting issue in Horizon 2020, the EU's 2014-2020 programme for research and innovation. RRI means engaging society in science and innovation very early in the process of R & I in order to align its outcomes with the values of society. It connects different aspects of the relationship between R & I and society: public engagement, open access, gender equality, science education, ethics and governance. RRI entails engaging all actors (researchers, policymakers, educators, business and industry innovators, civil-society organisations) through inclusive, participatory methodologies in all stages of the R & I process and at all levels of R & I governance (from agenda setting to design, implementation and evaluation). This in turn will help R & I tackle societal challenges and align with the values, needs and expectations of a wider public. Not only is this ethically and societally worthwhile, but it also produces better science, making research agendas more diverse and taking better account of real-world complexities.

During the starting phase of the food policy, what immediately became clear was the complexity of food as an issue and its natural engagement with multiple stakeholders and different views, values, needs, desires and opinions.

To tackle this complexity, the collaboration between the Cariplo Foundation and the City of Milan brought looked at the RRI methodological approach as a tool to explore the fluid panorama of Milan's food system. The choice to implement the RRI approach is rooted in the values of responsibility, openness and inclusion that inspire the method, as well as its robustness.

Clearly, any method requires adaptation in order to be applied efficiently in a specific context, along with a certain level of flexibility. The journey of the Milan food policy began in 2014, with the memorandum of understanding signed between the Cariplo Foundation and the City of Milan to promote and implement a comprehensive strategy on food for the City of Milan. From the very beginning, the aim was to develop a policy for and of citizens as a legacy of Expo 2015. This necessitated a dialogue bringing together citizens, entrepreneurs, researchers and policymakers, which occurred in May 2015 at an open public debate hosted by the City of Milan at City Hall. A long period of preparatory work, supported by the Cariplo Foundation, created a comprehensive map of the current state of affairs in relation to the local food system, in terms of research, private actors and projects. The preparatory work encouraged the debate on food-system issues and allowed a picture of the Milan context to be put together.

The next step in the process was the approval of Milan food-policy guidelines in October 2015 that reflected the indications and insights that had emerged from the preparatory work and the public debate. The high level of engagement of the local municipality in this initiative was evident from the very beginning, and after the approval of the food-policy guidelines it made the decision to establish a Milan Food Policy Office within the municipality. This choice had significant practical consequences. More specifically, it led to the development, support and launch of a number of initiatives, projects and events that have permeated the local food system since 2017. The governance of the food policy required

the direct engagement of important figures such as Milan's vice-mayor, the delegate for the municipality and the head of the Cariplo Foundation's Science and Research Area. Together they make up the Milan Food Policy Advisory Board, shaping the office, identifying the timeline and priorities and guaranteeing that the activities are closely aligned with the Milan food-policy guidelines.

The Milan food policy is still thriving. This experience allowed the RRI approach — a method the Cariplo Foundation participated in building on through its engagement in the 'RRI tools' project (seventh framework programme grant No 612393) — to be put into practice. As an approach, RRI works well in tackling complex issues such as food, food systems and other food-related issues (e.g. social inclusion, mitigation of food poverty, climate change, etc.). Nonetheless, as with everything, it comes with a cost that in this case is in terms of both time and money. It should be noted that the participation of a body such as the Cariplo Foundation (which is synonymous with reliability) and the strong engagement of policymakers were crucial ingredients for the success of the Milan food policy. In this context, all the relevant stakeholders participating in Milan's food system were willing to participate in bringing to the debate different visions, values and opinions. This hybridisation of perspectives guaranteed the development of innovative ideas and initiatives that together represent the uniqueness of the Milan food policy.

3.3.2. The sustainable development goals in the city's agenda

The holistic approach of urban food policies makes them compliant with the SDGs of Agenda 2030. Milan, thanks to the support of an independent research centre, explored the synergy between its food-policy priorities, the MUFPP monitoring framework and the SDGs' targets. The result was an instrument that could provide permanent monitoring of the policy advancements with both qualitative and quantitative indicators. The process will lead to the development of a tool for the accountability of Milan towards its citizens in sharing priorities and assessing the results in comparison with other global cities. It could also become a participation tool for citizens within an international framework.

3.3.3. Stakeholder engagement as a paradigm to work with urban actors

The Milan food policy was launched after a large-scale consultation among local actors, involving citizens, universities, NGOs and the private sector. During the implementation of the policy a large number of stakeholders were involved at different levels. NGOs and citizens are engaged through thematic workshops that are organised on a yearly basis. Strong partnerships with academia and the private sector contribute to the implementation of the policy at the local level.

To maintain a constant level of engagement since 2015 the municipality has established institutional relations, through letters of intent and memoranda of understanding, with the main public players of the Milan system. These actors have become the main stakeholders of the municipality in implementing the food policy.

Year	Actor	Topic
2015	Cariplo Foundation	Joint deal to develop the food policy
2016	Assolombarda (private-sector union) Politecnico di Milano (*) (University School of Management)	Defining a model against food waste in the different city neighbourhoods' local food waste hubs
2017	Regional Health Agency (*)	Developing joint actions on healthy diets
2018	Milan Agricultural Park (*) Slow Food Italy	Promoting local agriculture
2019	Ellen MacArthur Foundation	Support for the circular economy
2019	Metropolitan Authority* ATO (*) (metropolitan agency of municipalities for water) Regional School Office (*)	Promoting the circular economy and the food policy in local schools

(*) Public bodies

In parallel with these actors, the municipality can count on the constant engagement of its own municipal agencies, with direct effects on the food system. Among these we note:

- Milano Ristorazione — Municipal Agency for School Canteens,
- AMSA — Municipal Agency for Waste Management,
- AMAT — Municipal Agency for Environmental Accountability,
- MM — Municipal Agency for Water Management,
- Sogemi — Municipal Agency for General Food Market.

3.3.4. Nutrition

'Morning break with fruit' is an initiative developed by Milano Ristorazione within the scope of the Milan food policy. This initiative aims to improve school children's diets by supporting the consumption of fruit as a snack in the morning. 'Morning break with fruit' was developed to fight obesity among children, a growing issue over the last 20 years, promoting healthy habits and lifestyles. At the same time, the consumption of fruit in the morning allows food waste to be reduced at lunchtime, further contributing to the sustainability of the whole food system. Finally, the distribution of fruit as a snack allows financial pressure to be reduced on vulnerable families, who might struggle to provide healthy food to their children.

A first pilot scheme was launched in June 2016, involving approximately 30 primary schools and 4 000 children. The project has now become a standard practice in approximately 50 primary schools within the city, specifically targeting vulnerable neighbourhoods. The added value of the project lies in its integration within the school system, which allows a constantly growing number of children to be reached. Two years after the launch of 'Morning break with fruit' it was found that eating fruit instead of other food in mid morning increases the enjoyment of lunch by 11 %, and also leads to a drop in the amount of food waste, quantified in a decrease of 17 %.

Milano Ristorazione has also started a process of sensitisation of children and parents by introducing changes to the school menu. The municipal agency has completely eliminated **added salt** from kindergarten menus and food preparation. This project has been under way since 2017, and the aim is to follow children over the years and over their school experience so that as they grow and go to primary school, the programme will follow them. Similarly, but for different reasons, Milano Ristorazione significantly **cut the presence of red meat** in primary school menus. The menu has been suitably adapted by replacing red meat with other protein sources. In this case the aim is to educate children on food variety and reduce CO₂ emissions due to animal farming.

The City of Milan is also active in defining a map of the **school gardens** that are active in Milan. The idea is to provide every school with a handbook that explains the best way to start a school garden, choose the correct cultivars and grow them to be consumed by children and families. The municipality also aims to increase the number of school gardens to enhance Milan's production of healthy food.

3.3.5. Climate

The food policy has connected public procurement for school canteens in Milan with the rice supply chain through Milan's agricultural district (180 000 kg/year, to the value of EUR 300 000/year). The know-how provided by this experience now acts as the grounds for further scalability by making available **19 horticultural supply chains for school canteens'** public procurement. With co-financing from the EU's common agricultural policy managed by the regional authority, an integrated area plan was created with 31 partners in Milan reorienting investments in agricultural farms to the value of EUR 4 million. Under this plan the funds are invested in the conversion of cultures concerning local organic horticultural supply chains.

The municipality, together with the Municipal Agency for Waste Management and the energy provider, has launched a project called **#AmbienteaScuola** (environment at school). The initiative began in 2018, and aims to introduce separate waste collection in all of the city's schools, along with environmental education, contributing to the implementation of the SDGs. The project is developing a pilot scheme in 2019 to create plastic-free schools. Two high schools planned to become the first to completely eliminate bottled water from their buildings, distributing steel bottles and installing free water distributors.

The City of Milan is lead of the development education and awareness raising project '**Food wave – empowering urban youth for climate action**'. The

project's overall objective is that EU citizens will increase their knowledge of, awareness of and engagement on sustainable patterns of food consumption and production for climate-change mitigation and adaptation. In order to contribute to this wider goal, the project will attempt to ensure that young people in 16 EU Member States are committed to changing their food consumption behaviour and actively promote the shift towards ecological and inclusive urban food systems, contributing to the EU's efforts to mitigate and adapt to climate change. In fact, the main expected results of the projects are that it will raise awareness of the importance of climate-friendly food consumption (i.e. behaviours, policies and food-system models) and have an impact on policies and food-system models through the development of content and the dissemination of media materials to sensitise young people to climate-change issues.

3.3.6. *Circularity*

The city council approved a **reduction in the waste tax** in 2018. This reduced the tax on waste by a maximum of 20 % in favour of food businesses that donate their food losses to charities. The action is coordinated by different departments of the municipality (fiscal, environmental, food policy) as part of a multisectoral working group. The measure further supports the mapping, strengthening and dissemination of food donation initiatives in the city, mainly led by non-profit organisations. According to the preliminary review of participation, it will lead to the recovery of over 600 tonnes of food. At the same time, the action is a structural variation on the tax rules, enabling food-policy initiatives to be consolidated and local players to become permanently involved as it moves forward. For the first-year pilot scheme, the waste tax allowed the engagement of about 50 supermarkets from six different companies, five big retailers from the general markets, six small retailers and 106 school canteens.

In order to support food recovery by small, local players, the municipality has developed an agreement with a university lab at the Politecnico di Milano (to design a model and data analysis for food losses and waste management), the private-sector union Assolombarda (representing supermarkets and companies with canteens) and the philanthropic Cariplo Foundation (which covered the infrastructure costs) to develop a pilot project to redistribute food losses in two local neighbourhoods. One of the **local food waste hubs** is hosted in a space owned by the municipality and managed by a food bank. During the course of the pilot year of implementation (2019), the incoming and outgoing flows of donations to and from the hub will be monitored and the knowledge will be passed to 35 local organisations mapped by the food policy and working on food donations. According to a preliminary analysis, each hub will gather and redistribute approximately 60 tonnes of food per year.

Thanks to a systemic approach, these hubs generate positive economic, social and environmental impacts.

- The hubs involved 15 supermarkets, four private canteens and 18 local social associations in the initiative.
- In 2018, the hubs saved and donated 60 tonnes of food losses, equivalent to 220 000 meals.

- The commercial value of the food donations is estimated at about EUR 380 000.
- About EUR 6 000 worth of waste-treatment management costs were saved.
- Those involved could benefit from the deduction of VAT and income tax, in addition to the reduction in the waste tax for companies that donate food.
- The hub saved 96 million litres of water, the quantity needed to produce the food saved.
- The hub saved food that would have required an area equivalent to 81 hectares for production.
- The equivalent of 237 tonnes of CO₂ were saved thanks to the food recovery.

These data are generated on the basis of a set of proxy coefficients defined in 2015 in the local regional context by an assessment and a life-cycle assessment organised by the regional authority.

3.3.7. Innovation

The **community orchard in the neighbourhood of Gallarate** aims to promote healthy food and health through the creation of a large-scale orchard integrated into the neighbourhood. Through the involvement of the inhabitants of the Gallarate and QT8 districts, areas will be redeveloped that are not used by citizens because they are enclosed, degraded or to be reclaimed, and they will be used for the production of fruit and vegetables, along with integrated services. Specifically, the Gallarate orchard will lead to increased social cohesion by directly involving the residents; will increase the attractiveness of the neighbourhoods by building an identity associated with healthy food; and will increase the quality of the local ecosystem through urban agriculture, green roofs and the regeneration of the soil through bioremediation.

The **Food Policy Hot Pot** is an instrument launched by Cariplo Factory to bring together businesses' innovation needs under the Milan food-policy framework and to connect them with start-up solutions. The Food Policy Hot Pot aims to empower local actors in a broad innovation ecosystem, leading to new business models and added-value products, goods and services, meeting the needs, values and expectations of actors in a responsible and ethical way. More specifically, business needs, either expressed or unexpressed, provide a basis from which can grow original proposals from various sections of society, such as independent citizens, schools, small businesses, NGOs and start-ups.

The participation of the local municipality in the Food Policy Hot Pot represents a guarantee to citizens that this platform will respect and reflect the principles of the food policy. The programme was able to involve five major food companies that are present in Milan (three large retailers, one municipal agency and the general market) and to bring together their innovation needs in the first part of 2019. The second phase of the initiative will be opened up to start-ups to be able to explore all kinds of solutions and business models.

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European cities leading in urban food systems transformation is a report of significant EU experiences of urban food policies gathered by the City of Milan, which started working on the topic in 2015 and occupies a strong role in the leadership of the topic. The main aim of the document is to facilitate debate, discussions, diffusion, mutual learning and the exchange of best practices among the stakeholders active on these issues.

The report explores two of the main frameworks on food policies: the Milan Urban Food Policy Pact and Food 2030, with a focus on the European regionalisation process carried out by Eurocities. The European Commission is greatly interested in the potentiality of urban contexts to address food-related issues, and the report therefore provides a general overview of 101 European cities' actions and eight in-depth best practices, along with a thorough analysis of Milan's experience.

Studies and reports

