



The Food System in Milan

Five priorities
for a sustainable development



Comune di
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Comune di
Milano

The City of Milan

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Other icons utilized for the creation of the infographics draw on the creative commons of the Noun Project

Date of publication
December 2018

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ISBN 9788894200379

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for a sustainable development



Comune di
Milano





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A Food Policy is an institutional initiative to act, with a vision and a systemic approach, on the components of the food system of a city: production, processing, logistics, distribution, consumption and waste.

Based on this approach, starting in 2014, the City of Milan and the Cariplo Foundation decided to foster a number of proposals for the city's political agenda on food and nutrition issues. The two Institutions jointly launched a study of the urban and metropolitan food system that involved many stakeholders and citizens in a process of public consultations that led to the drafting of several proposals, which were submitted back to the attention of the City of Milan. The City Council in October 2015 eventually approved the document containing the Milan's Food Policy.

The **Milan Charter** ("Carta di Milano") and the **Milan Urban Food Policy Pact** became the legacy of the 2015 Expo event: the Charter has been signed by millions of citizens and the Pact by over one hundred cities around the world (now over 200). Such a level of participation sanctioned the fundamental role of citizens and cities, their concrete contribution to the food policies and the ability to translate each food policy into daily actions, implemented by all citizens.

The Milan's Food Policy is composed by five priorities: ensure healthy food and water for all citizens; promote the sustainability of the food system; promote food education; fight against food waste; support scientific agri-food research.

Over the following years, the City of Milan and the Cariplo Foundation have maintained their 2015 commitments, evolving from an experimental and temporary project to a made-to-last and permanent political pillar. The Food Policy has made it possible to launch several structural initiatives and pilot projects, all coordinated by a new institutional body denominated Food Policy Office.

The report that you are about to read represents the significant progress of the research activity started in 2014 by the EStà research center and will provide you with an in-depth analysis of the city's food system. The report spans across all areas of intervention within the Municipality and will help all the players - the City of Milan, the Universities, the local communities and the private sector - to share with us the path to make this city more sustainable, inclusive and attractive.

We hope you will enjoy reading this report!

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Shared governance for a multifaceted food system

Every city routinely seeks to exercise an influence on various components of its food system through policies and actions in the sector, in accordance with its specific institutional expertise and political aims. The main innovation in urban policies on food lies in the connection, integration and direction of these actions in order both to make them more effective and explain them more clearly and to assess whether they are attaining the objectives of sustainability, resilience, equity and inclusivity. It follows that one of the most significant challenges for the characterization and implementation of the Food Policy is the **definition of forms of governance** capable of facilitating the shift from generally circumscribed actions toward more strategic approaches.

The **method that is being tried out in Milan** is progressively integrating the work of the various boards of management, the municipal corporations and urban stakeholders (**horizontal integration**), while acting at the same time on the connections with the metropolitan, regional and European authorities (**vertical integration**). These two directions of integration highlight the main ways in which the joint responsibility for the processes that make up Milan's Food Policy are expressed and emphasize the fact that it is not a "project"—understood in the sense of a thematic initiative entrusted to a sector—but primarily a complex process of governance that is going to involve, in the future, every component of the administration and all the stakeholders in the city.

The **principal components of governance** of the Food Policy inside and outside the City of Milan can be summed up as follows:

- institutional coordination in the mayor's cabinet through delegation to the deputy mayor and the setting up of a Board of Interdepartmental Coordination;
- technical support for coordination provided by the Food Policy Office;

- external support through the memorandum of understanding with Fondazione Cariplo and the scientific and technical support of ESTà;
- inclusion of other Milanese stakeholders in the Metropolitan Food Council (in course of organization);
- monitoring system (in course of organization) for analysis and evaluation of the activities of the Food Policy and the dynamics of the system.

Institutional coordination in the mayor's cabinet

When work started on defining the Food Policy for Milan, in 2014, the **political and institutional responsibilities** for the entire process were entrusted to the **mayor's cabinet**. The aim was to emphasize from the outset the fact that the Food Policy is a process involving all the components of the city's government, with overall responsibility assigned to the mayor. In March 2017 this **responsibility** was transferred to the **deputy mayor** to underline the transverse character of the process. Above and beyond the sectorial responsibilities assigned to her, the deputy mayor assists the mayor in his role of ensuring intersectoral cohesion, a role that is exercised through a team set up within the mayor's cabinet, guaranteeing in this way an adequate management of all five priorities voted by the council.

A comparison with other European cities reveals that Milan is the only one to have adopted a political and institutional responsibility of this kind in such a clear way. In other cities the predominant approach has been to place food policy in the hands of the councilors for the environment or health, acting by and large in those areas of competence. This assignment of limited institutional responsibilities has essentially been adopted even where food policies are based on principles or aim at objectives that are of a more general character.

In Milan's case, however, the deputy mayor's function is one of

connection and coordination, and thus with no decision-making powers over individual sectors, which are instead assigned to a **Board of Interdepartmental Coordination**, set up by Executive Board Resolution 1041 of May 2016, on which sit the councilors with responsibility for the Environment, Budget, Urban Economy, Education, Social Policies and City Planning.

The board is chaired by the deputy mayor and is convened in variable configurations to respond to different thematic needs and to opportune or necessary horizontal and vertical integrations.

Technical support for coordination

To ensure the effectiveness of decisions on food policy, the City of Milan has set up the **Food Policy Office** within the mayor's cabinet, **which works under the direct supervision of the deputy mayor** and in conjunction with all the council directorates, public corporations, stakeholders in the city and other levels of metropolitan and regional government.

The staff of the Food Policy Office work fulltime on the **technical coordination of the various actions under way**. The office also performs the function of an antenna for the city with respect to topics linked to food, getting involved in questions of planning and fostering cooperation among the forces at work on actions of interest to food policy.

The office acts in close connection with the secretariat of the Milan Urban Food Policy Pact (MUFPP) and, together with the European Affairs Unit of the Municipal Department of International Relations, is responsible for the **international promotion of local actions**.

Memorandum of understanding between the City of Milan and the Fondazione Cariplo

From the outset, Milan's Food Policy has been conceived and promoted by the City of Milan (mayor's cabinet) and the Fondazio-

ne Cariplo (Scientific and Technological Research Department), which in 2014 drew up a memorandum of understanding that will remain in force until 2020, covering the period of time between the Milan Expo and the one in Dubai. The memorandum was aimed at **implementation of the Milan's Food Policy** and the **creation and coordination of an international network of metropolises** to actively exchange ideas on matters connected with food policies (a network that subsequently took on concrete form with the Milan Urban Food Policy Pact).

By tradition and vocation, the Fondazione Cariplo has for years devoted attention to many of the themes and approaches on which the definition given to Milan's Food Policy is based. The **Research Department of the Cariplo Foundation** is in fact engaged on several fronts with **innovation linked to food**, diet and nutrition and promotes research into the themes of bioeconomics and the circular economy, taking an RRI (Responsible Research & Innovation) approach. In addition to these components—of content and process—the Cariplo Foundation promotes and supports a wide range of projects and initiatives on subjects that are crucial to the implementation of the Food Policy, through the engagement of all four areas in which the foundation works: Research, Social Services, Culture and Environment. So the Fondazione Cariplo is the **main partner of the Food Policy**, contributing to it on the general methodological, fact-finding, relational and financial planes.

In order to carry out its activities related to the Food Policy under the terms of the memorandum of understanding, the Fondazione Cariplo avails itself of the technical and scientific support of Research Center (Economia e Sostenibilità-ESTà) which, from the very beginning of the process, has contributed to the definition of the Food Policy through its activities of research, planning and technical-operational support.

The effectiveness of the partnership between the City of Milan and the Cariplo Foundation is guaranteed by a **Steering Committee for Implementation of the Memorandum of Understanding** which meets to examine common themes, to share information about each other's activities and to guide them.

The Metropolitan Food Council

The resolution with which Milan's Food Policy Guidelines for 2015-20 were approved envisaged, among the tools dedicated to the implementation of the Food Policy, the **setting up of a Metropolitan Food Council**. This council was intended to provide a space for the examination of problems and opportunities related to the city's food system, with the aim of helping to improve it by coming up with **ideas and policies**, and by promoting **actions**. The establishment of the council is a process that commenced in 2018 following a long period of study and dialogue with the city, carried out at various moments since 2016.

The council will represent the **common space** in which **civil society**, the **academic world**, the **private sector** and the **institutions** will be able to exchange ideas and consult one another, integrating itself with the other elements of governance (institutional delegation to the deputy mayor, Board of Interdepartmental Coordination, Food Policy Office).

The Metropolitan Food Council should not duplicate the participating institutions already in existence under various degrees of formalization, but work to integrate and complement them and to express more clearly a **systemic vision of sustainable innovation in the city's food system**, in full conformity with the formulation of the Food Policy.

In Milan there are numerous institutional and non-institutional initiatives that are making innovations in some components of the city's food system and that are an expression of a widespread demand and general interest that do not always find adequate space in forums of discussion and representation. There are some kinds of stakeholder that play a greater role than others in these innovations and that, to varying degrees, have already developed structured forms of dialogue with the city's population. So the council will be seen as a set of **activities aimed at integrating stakeholders, processes and themes** on different levels and in different ways, in relation to the whole range of parties, needs, objectives and potentialities that emerge in the city.

The **methodological process** followed up until now in order to arrive at the definition of the best structure to give the Metropolitan Food

Council included in 2016 a **phase of research into and analysis of the different models** adopted at an international level, which then provided the basis for a discussion of the question of governance with various local players within the framework of the **Local Lab organized in collaboration with IPES-Food** in January 2018. Between these two dates, the Food Policy Office was set up in 2017 and the first interdepartmental boards were put in place. This has helped to test some modes of interaction with the structures of the City of Milan, with supervisory bodies and with the various components of city life (civil society, private sector, academe).

The system for monitoring the Food Policy

The Food Policy Guidelines for 2015-20 and Resolution 1041/2016 called for the setting up of a system for monitoring the Food Policy, with the aim of carrying out **periodic analysis and assessments** both of the **actions** already under way and of their **impact** on the urban context in general. The organization of the monitoring system has been based experimentally on the **Monitoring Framework of the Milan Urban Food Policy Pact**, developed by the **FAO** (Food and Agriculture Organization) and the **RUAF (Resource Centers on Urban Agriculture and Food Security) Foundation** in collaboration with a group of cities that were signatories to the Milan Pact, including Milan itself.

This monitoring framework is composed of a **set of 44 indicators**, both quantitative and qualitative, and has been defined on the basis of three years of fieldwork carried by the FAO and RUAF in seven cities around the world and drawing on the most up-to-date technical and scientific literature on the subject. Not only does the framework make it possible to analyze the main aspects of the city's food system in a succinct manner but it will, in the future, also allow comparisons to be made with the other cities that have signed up to the Milan Urban Food Policy Pact and use the same set of indicators.

The European dimension in Milan's Food Policy

At the center of the European city network

Milan looks to Europe and often exchanges ideas with its institutions, holding a debate with other cities over common challenges faced right across the continent.

A significant number of the over 160 cities that have signed up to the Milan Urban Food Policy Pact are European and thus make reference to the common context of European institutions. For this reason, in 2016 Milan proposed a permanent working group focused on urban food policies within Eurocities, the name of the main network of European cities that operates both as a planning platform for the cities and a means of dialogue between them and the institutions of Europe. Given the name of Working Group Food, this is currently made up of 51 cities with the presidency assigned to the City of Milan.

The group provides a setting in which the representatives of cities and the food policy officers of the cities that have appointed such specialists meet periodically to promote and conduct actions of advocacy at the European Commission on questions related to urban food policies. Over the two years it has been in operation this network has been constantly reinforced both on the level of internal cooperation and the consolidation of professional competence and on that of dialogue with various European institutions. These processes of multilevel governance are important if we are going to introduce innovations into those areas of European politics that influence urban policies from above or that make possible autonomous innovation on a local scale.

In these contexts, the various actions that can be ascribed to Milan's Food Policy are increasingly being recognized as good practices that need to be taken up in other European cities and contexts, and Milan is progressively assuming a mentoring role in situations that are still developing.

**Member cities of the
Milan Urban Food Policy
Pact and the Eurocities'
Working Group Food**



The Eurocities network's Working Group Food usually meets twice a year, in spring and fall, in concomitance with the annual gathering of the Milan Urban Food Policy Pact (MUFPP). Below is a list of past meetings.

- Brussels, October 2016, founding of the Working Group Food;
- Birmingham, February 2017, workshop on school cafeterias;
- Valencia, October 2017, educational meeting in the course of the 3rd annual gathering of the MUFPP and discussion with the Directorate-General for Research and Innovation of the European Commission;
- Amsterdam, April 2018, workshop on practices for the reduction of food waste and discussion with the Directorate-General for Health and Food Safety of the European Commission;
- Plovdiv, June 2018, side event in the course of the FOOD 2030 high-level conference;
- Tel Aviv, October 2018, educational meeting in the course of the 4th annual gathering of the MUFPP;
- Lyon, November 2018, workshop on the subject of urban farming and discussion with the Directorate-General for Agriculture and Rural Development of the European Commission.

Integrating the logic of planning and advocacy

Milan carries out activities of advocacy on a range of themes together with other European cities; among these themes the ones linked to Food Policy are taking on an ever more significant role, as a means both of **guiding projects financed with European funds** and of exercising the **role of mentor** for other cities.

The **consolidation of institutional platforms of dialogue** can be further boosted by **including other Milanese stakeholders** in this process, in order to foster the international projection of the city as a whole. Including its most vital social, academic and economic forces in these practices can strengthen its international image through the transfer and exchange of the results of the Food Policy at a European level.

Thanks to this role that cities are able to assume in the implementation of EU policies, the action of food advocacy can be carried out on two levels. By acting on individual **European policies** effective up until 2020 (environment, agriculture, research, cohesion, social policies, education, health, urban development) and by **organizing actions** aimed at introducing themes related to urban food policies into other **community initiatives** and getting involved in the process of construction of the European Union's new framework of planning and funding.

Below are listed some of the European funding programs of relevance to the themes of urban food policies.

- URBACT—definition of action plans for urban policies;
- INTERREG—definition of regional policies and policies of inter-regional cooperation;
- H2020—development and implementation of projects of research and innovation;
- DEAR—actions of international cooperation and awareness raising;
- ESPON—advice on urban policies;

- PEI—networking on multisector innovation;
- LIFE+—actions and projects on the climate and the environment;
- UIA—investment in innovative actions in urban settings;
- FSE—actions on economic and social cohesion.

From Milan's Food Policy to the Food Policy for Europe

The question of a pan-European policy on food has been under discussion in Europe for some years now, with the aim of connecting up experiences and expertise scattered around the most innovative locations on the continent. The most significant of all these experiences is the one promoted by **IPES-Food**, the international panel of high-level experts (co-chaired by Olivier De Schutter, former UN Special Rapporteur on the right to food) that is working on the **definition of a Common Food Policy**, i.e. a European strategy tackling themes linked to nutrition in systemic fashion and that will be integrated with the CAP, the **Common Agricultural Policy**, focused today solely on agriculture. The process set in motion by IPES-Food has entailed a series of Policy Labs hosted by the European Parliament and a number of Local Labs, staged by four European cities (Milan, Turin, Freiburg, Montpellier), in relation to their own urban food policies.

The Local Lab in Milan, held in January 2018, saw the participation of **80 stakeholders in the Milanese food system** who discussed questions of **governance**, of the **relationship between city and countryside** and of European advocacy, with an eye to the constitution of the Metropolitan Food Council.

Another key context in which the prospect of a European food policy is being shaped is **FOOD 2030**, a strategy of research launched by the European Commission during Expo 2015 to respond to chal-

allenges linked to the sustainability of the food system. The themes on which it concentrates are four: healthy and sustainable diets (nutrition); sustainable and climate-smart food systems (climate); efficient use of resources (circularity), innovation and empowerment of communities (innovation). It is a joint initiative involving both the City of Milan and the Fondazione Cariplo, the two main partners in Milan's Food Policy. As part of this strategy, the European Commission (DG Research and Innovation) in 2016 made a call for bids for a study of innovations in the food policy of European cities. Milan, whose bid was successful along with those of Eurocities and Cardiff University, carried out the study **Food in Cities**, which has contributed to urban strategy on the themes of food within the framework of the Horizon 2020 program and has been placed at the center of the urban action of FOOD 2030.

In this context, Milan is also a partner in the European **FIT4FOOD2030** project, funded by the Horizon 2020 program, with the aim of creating a platform to connect researchers, entrepreneurs, policymakers and representatives of civil society in general in order to focus on the themes of the FOOD 2030 strategy. The aim is to raise awareness of the changes that are taking place in the food system, gather and disseminate good practices and boost the understanding of sustainable nutrition and the capacity for planning for the future.

Milan's contribution to the effort to combat food waste: the EU Platform on Food Losses and Food Waste

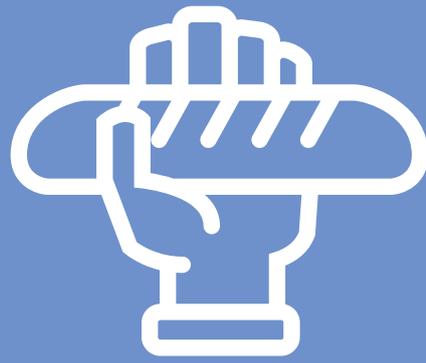
Among the five priorities of Milan's Food Policy, the one that has attracted most attention in Europe is the fight against food waste. The City of Milan has in fact drawn up a multilevel institutional strategy that works alongside local projects already under way.

Since 2017 Milan has been part of the European Platform for Food Losses and Food Waste (EU FLW Platform) set up by the Directora-

te-General for Health and Food Safety (DG SANTE). The platform is organized around three main players: the **European Commission** (under the presidency of the DG SANTE and with contributions on particular aspects from the DG Research and Innovation, DG Regional and Urban Policy, DG Environment and DG Agriculture and Rural Development), the **27 member states and private organizations**. The City of Milan, the only European local authority accredited on the platform, is promoting the role of European cities in the fight against food waste within the debate, interacting in this with the activity of the Eurocities' Working Group Food.

In addition, in 2018 Milan was included among the replication cities of the Life+ **TRIFOCAL** project. The project aims to run a communication campaign against food waste in London and to replicate some of its contents in eight European cities, including Milan. In the same year, Milan was also included in the stakeholder group of the Interreg **CircE** project, led by the regional government of Lombardy, on the circular economy associated with the reduction of food waste.

Lastly, in April 2018, Milan organized together with Eurocities a meeting of two Working Groups (Food + Waste) in Amsterdam to share the experiences of European cities on the question.



PRIORITY 1

ENSURE HEALTHY FOOD AND WATER FOR ALL CITIZENS

To ensure that all citizens have access to healthy food and to water to protect the dignity of the person and improve the quality of life.

Guidelines

1. The Municipality shall have an active direct or indirect role in providing healthy food produced in a sustainable way that caters to several categories: students, elderly people, vulnerable groups and city employees.
2. The Municipality shall ensure that in each district of the city affordable, healthy and sustainable food is available within short distances that can be covered by people with restricted mobility.
3. The Municipality shall actively work to promote and facilitate various forms of urban agriculture and horticulture, as well as the establishment and consolidation of networks and activities for creating social inclusion and providing food to the vulnerable population (community canteens, soup kitchens, forms of social aggregation for sustainable food production and consumption, etc.)



FOOD CYCLE

SDG	TARGET
1 NO POVERTY 	1.3 1.4 1.b
2 ZERO HUNGER 	2.1 2.2 2.c
6 CLEAN WATER AND SANITATION 	6.1
11 SUSTAINABLE CITIES AND COMMUNITIES 	11.7
12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	12.7



Introduction to the theme

The right to food is a fundamental human right, but one that is recognized only indirectly at the level of international law as a necessary factor for the maintenance of an “adequate standard of living.” At the national level, according to the FAO, it is recognized directly by only a few constitutions and indirectly by many, such as the Italian one, which protects it through the adherence of Italy to international treaties that guarantee it. Recently the Region of Lombardy adopted a law recognizing, protecting and promoting the right to food (no. 34 of November 6, 2015), whose field of action is limited principally to the aspects of recovery and redistribution of food surpluses.

However, the concept of food security is well defined at the international level: the commonly accepted definition is the one formulated at the World Food Summit of the FAO in 1996, which declared that food security “exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” So the definition of food security comprises a multidimensional concept of access to food, in which it is necessary to integrate the economic system of food supply not only with the socioeconomic conditions of the population, but also with themes like self-production, collective public catering, education and everything else that affects the material and immaterial conditions of access.

In Il Sole24Ore's 2017 table of the quality of life in the Italian provinces, the region of Milan came out top as far as the parameter of wealth and consumption is concerned. But the fact remains that there are growing segments of the population that are in serious economic difficulty and asking for economic or food aid (ready meals and food parcels) from public facilities and nonprofit organizations. Today this kind of poverty has a greater tendency to become endemic than in the past. The segments of the population most vulnerable to food poverty are the elderly, people of foreign origin and the homeless. Along with these, food poverty affects an ever increasing number of families and individuals that, despite

being employed, are at risk of social exclusion, the so-called working poor, who do not tend on the whole to turn to social services and are therefore difficult to reach in terms of direct aid.

The elderly are particularly at risk owing to the progressive decline in the state of their health, combined with an often precarious economic situation and a limited network of relationships. This problem is only going to increase in the future, as the population is growing older—especially in cities—and food is a fundamental factor in healthy ageing, both for the social function it performs and for the risk of malnutrition to which the elderly are particularly prone.

The increase in the elderly population, characterized by a reduction in mobility, also turns the spotlight on the spatial dimension of access to food: so-called food deserts are a matter for reflection even in a city like Milan that is in general able to rely on the presence of a widespread system of distribution which is highly differentiated from the viewpoint of the type and quality of retail formats and products, but may present some critical issues at the level of the single neighborhood.

People of foreign origin, who are more likely to live in conditions of poverty—both relative and absolute—than the native component of the population, are another segment particularly vulnerable to food poverty. The various ethnic communities, many of them well-established in the country, express needs in relation to food that are intertwined not only with their economic position, but also with the cultural roots and health of their members. At the same time, these communities enrich the range of products available both in the retail trade and in catering.

For obvious reasons, the categories at risk include the homeless, people who live under conditions of hardship and isolation and who are often difficult to reach.

The public catering services play a fundamental role in policies of access to food: the provision of school meals, for instance, stemmed historically from the need to supplement the food that children consumed at home, which for large segments of the population was (and is) not always sufficient to lead an active life and thus to get the best out of a day of study. The current debate—which is focused in particular on the quality of the meal provided, the amount of waste generated and the cost of the service—has led, especially in big cities, many families to prefer packed lunches, a choice in which they have been supported by rulings in their favor.

But achieving a balance between the affordability of the service, the palatability of the meal (something which is also influenced by factors not directly linked to the food in itself) and its educational value is not a simple matter.

Household food production and thus the practice of urban horticulture is becoming increasingly significant in terms both of access to food and of the social and therapeutic benefits that this activity brings. There are different types of vegetable gardens in the city: gardens located on public and private land, community, company, domestic, educational and therapeutic gardens and ones on squatted land.

Finally, education has a fundamental part to play in providing everyone, but a number of segments of the needy in particular, with the basic nutritional information needed to make the correct choices that allow the preparation and preservation of nourishing meals.

The key figures of access

Demography

Modes of access to food are closely tied to the demographic, socioeconomic and cultural characteristics of the population, as well as to the economic basis of the food supply.

In December 2017 the number of **residents** in Milan was 1,380,873. The **daytime population** of the city was just under 2 million, and thus almost 50% more than the number of residents: it is estimated in fact that around 850,000 people enter the city every day—for reasons of work, study, access to primary services, entertainment, shopping—while almost 270,000 leave, for similar reasons.

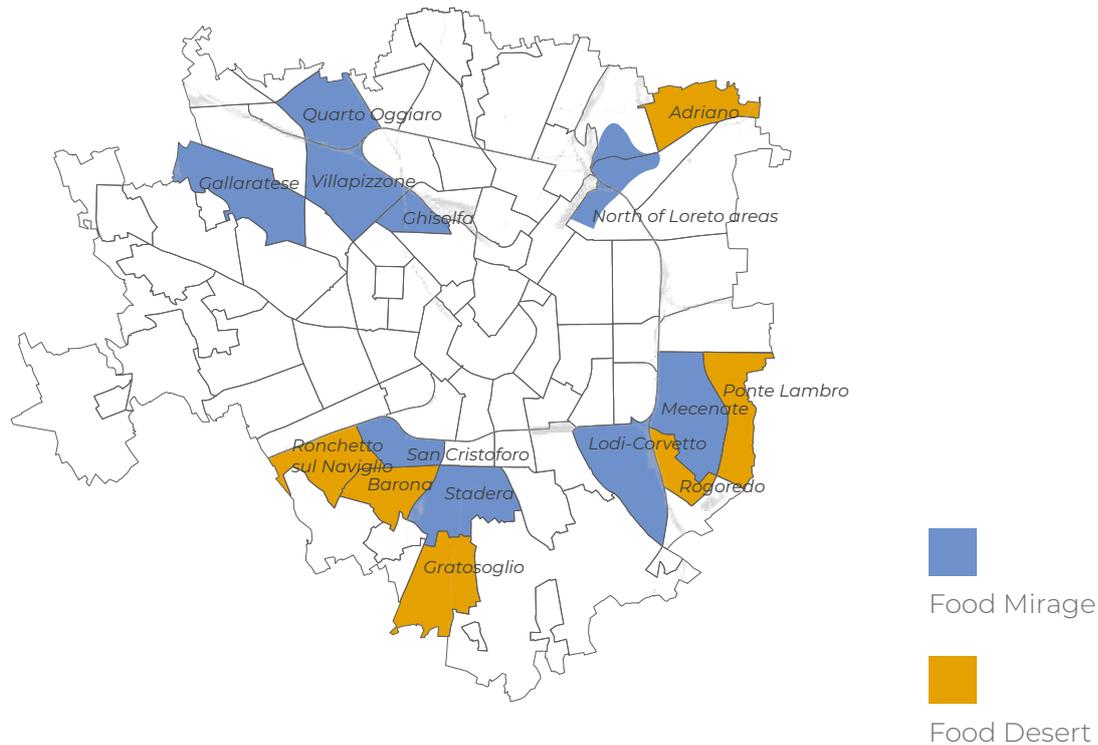
As far as the resident population is concerned, we are seeing a **progressive aging**: according to the forecasts of the City of Milan up until the year 2035, the aging index, after seeing a reduction

in the years from 2001 to 2015, has been increasing since the year 2016. In 2017 the resident population aged 65 or over comprised 318,152 people (with a predominance of females), corresponding to 23% of the total population. The most recent analysis of the subject—which makes reference to the 2012/14 Plan for the Development of Social Welfare of the City of Milan (Piano di Sviluppo del Welfare della Città di Milano 2012-2014)—found that 25% of over 60s no longer have a spouse and that about 40,000 old people are not self-sufficient, almost all of them in the over 80 age bracket. They are the ones with the greatest need for care, relying for the most part on family networks and social and health services. The numbers that reflect the sizeable presence of elderly residents also explain the growing importance of the phenomenon of the informal care market: there are around 32,000 declared and undeclared caregivers working in the Milanese area.

Although food stores are widespread in all residential areas, if we look at the **accessibility to food resources at the neighborhood level** for people aged 75 or over, we can find areas that can be classified as potential food deserts, in that they combine a scant number of food providers with a poor public transport service and low degrees of accessibility on foot (walkability). The areas of Adriano (Municipio 2), Ponte Lambro and Rogoredo (Municipio 4), Gratosoglio (Municipio 5), Barona and Ronchetto sul Naviglio (Municipio 6) constitute **potential food deserts in areas of low socioeconomic status**. It is also possible to identify potential food mirages, areas where grocery stores are plentiful and that are well served by public transport but present barriers to access owing to the low purchasing power of their inhabitants: in particular the areas to the north of Loreto (Municipio 2), and the areas of Mecenate and Lodi-Corvetto (Municipio 4), Stadera (Municipio 5), San Cristoforo (Municipio 6), Gallaratese, Quarto Oggiaro, Villapizzone and Ghisolfi (Municipio 8), all of them zones characterized by a high concentration of people aged 75 or over.

There is a very substantial presence of **residents of foreign origin** in the city of Milan, with 266,862 people, making up 19.3% of the resident population. Many residents of foreign origin have different dietary habits, for both economic and cultural reasons. It should also be acknowledged that their presence in Milan has certainly contributed to expanding the range of ethnic produce and restaurants.

Potential Food Deserts and Food Mirages

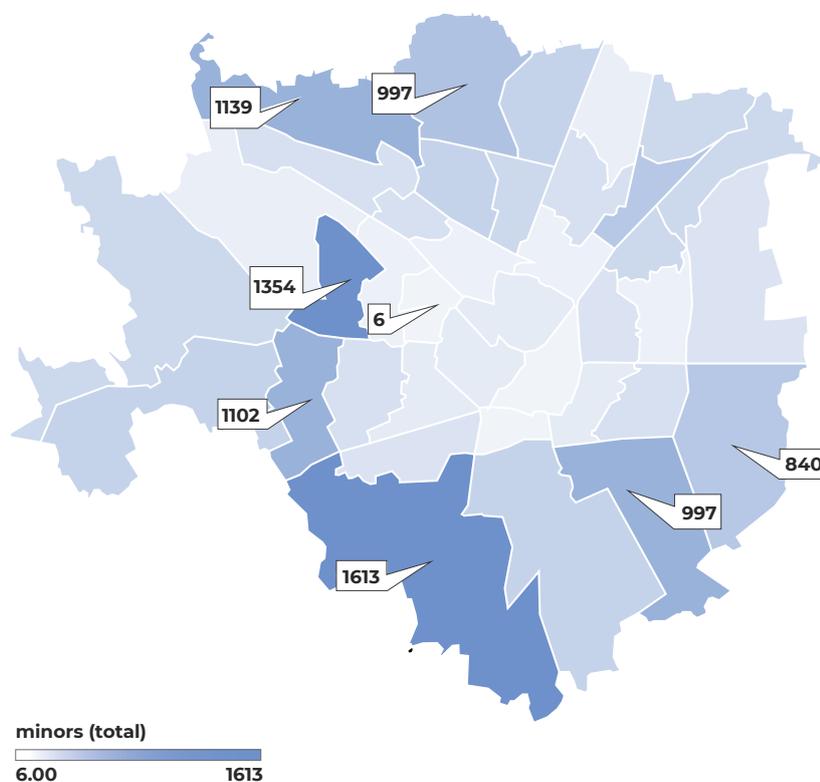


Poverty

An investigation carried out by the Fondazione Cariplo estimated that over 100,000 people in Milan—21,000 of them **minors**—live in **conditions of absolute poverty**. These figures comprise an ever increasing number of families that were not considered at risk some time ago, but find themselves today in conditions of indigence owing to the loss of employment or insufficient income (the working poor). In 2016 **income support benefits** were paid to 19,181 households, comprising a total of 54,493 individual. There were 9433 families with minors who received benefits, for a total of 19,703 minors. These families, whose mean income is €8300/year, received on average an annual subsidy of €1400. One minor in 10 in Milan cannot afford a proper diet, lives in inadequate housing and does not attend any courses during his or her free time.

The **elderly are one of the segments of the population that receives**

Territorial distribution of minors who received income support benefits (Fondazione Cariplo)



most assistance from charities operating in the city. Caritas Ambrosiana has set up a unit dedicated to assisting the elderly, fostering activities of support and in-home care. The social report of the Fratelli di San Francesco di Assisi for the year 2016 found that its beneficiaries included pensioners and old people living alone, stressing the importance of creating ad hoc forms of assistance for this category of people in order to meet their needs. For this reason, in collaboration with the City of Milan, it has developed care services to allow the elderly to remain as long as possible in their own homes. Outstanding among these services is the **home delivery of hot meals**, of which a total of 7938 were made in the year 2016. The Opera Cardinal Ferrari also sees a preponderance of elderly people making use of both the catering service and the delivery of food parcels.

In 2016 the data on poverty in Italy from ISTAT (Italian National Institute of Statistics) recorded for the regions of the north an **incidence**

of absolute poverty among families made up solely of foreigners of 25.7% as against 4.4% of families composed solely of Italians. The available studies of food consumption by residents of Milan almost all date from the years prior to 2015. A survey conducted by Ipsos in 2013 revealed that in Milan the **monthly expenditure of people of foreign origin is half that of Italian citizens**: €1485 as opposed to €3117 in 2013; although the breakdown of expenditure on food and on other goods is similar for both categories (15% alimentary, 85% non-alimentary), the nominal value of the expenditure on food by foreigners is almost half that of Italians (€218 as opposed to €442 in 2013). According to the 16th Report on Poverty (XVI Rapporto sulle Povertà) drawn up by Caritas in 2016, people of foreign origin make up 62.4% of the total number of those who made use of the centers in the sample analyzed. The foreign users of these facilities were predominantly of Moroccan, Peruvian, Romanian, Egyptian and Ukrainian nationality.

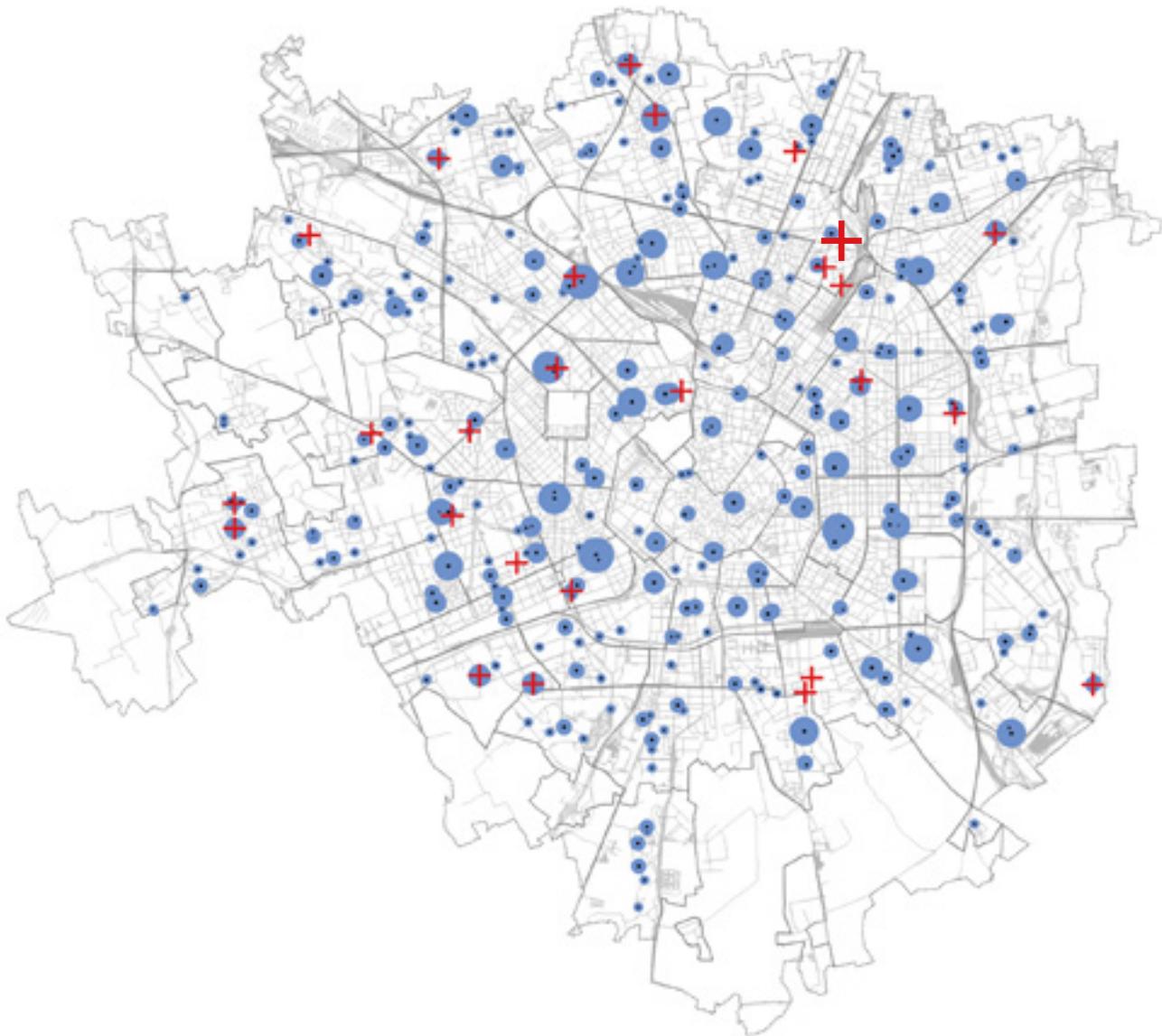
The census of the homeless—conducted by the City of Milan in collaboration with Caritas Ambrosiana, Bocconi University and the Fondazione De Benedetto on the nights from February 19 to 21, 2018—found a total of 2608 people, 587 of whom were located in the streets and 2021 at night shelters. In all, 32 night shelters for homeless people of varying capacity were covered in the census, providing 2227 beds. On average the foreigners, who made up 73% of the sample interviewed, were younger than the Italians. Women accounted for 6% of the homeless people found in the street and 17% of those in shelters. One third of the people identified were under 35.

A worrying figure is that of the number of **NEETs** (young people not in education, employment or training), which amounts to 78,000 between the ages of 15 and 29 in the city and its province.

Provision of school meals

The theme is one of great significance since the **majority of those attending school up to the age of 13/14** (which in the 2014/15 school year consisted of 32,380 students at nursery school, 58,659 at elementary school and 34,834 at secondary school) **eat scho-**

Milano Ristorazione catering centers and cafeterias that it serves (nursery, elementary and secondary schools)

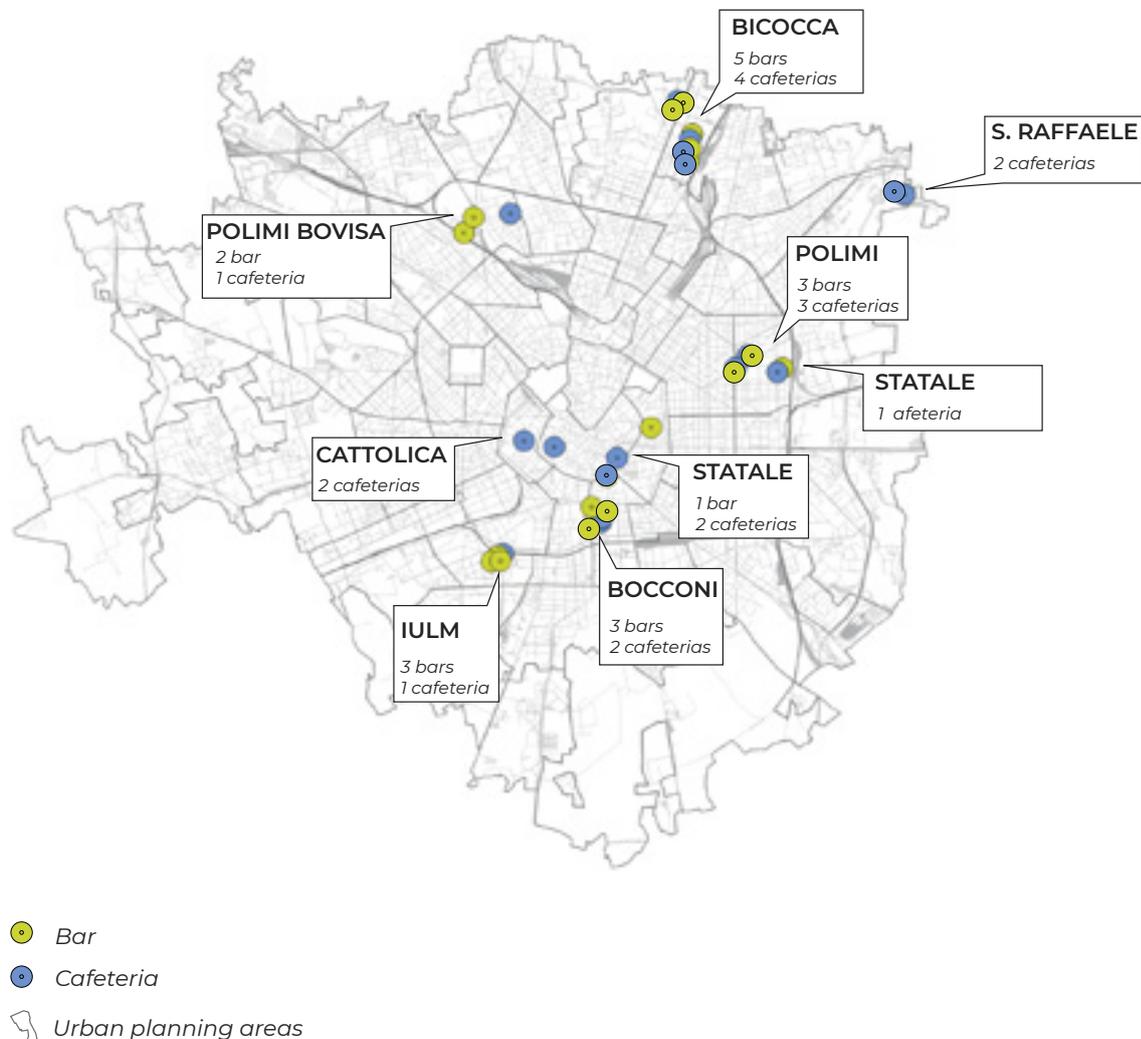


-  Sammartini Production Centre
-  Milano Ristorazione catering centers
-  9 - 187 meals/day
-  187 - 360 meals/day
-  360 - 534 meals/day
-  534 - 707 meals/day
-  707 - 880 meals/day

of lunches every day or several days a week, making use of the service provided by Milano Ristorazione (the municipality-owned company by the that is responsible for mass catering, and not just in schools).

The question of **university cafeterias** is also of great importance in Milan, given the large numbers of students enrolled: in the 2016/17 academic year, there were in fact just under 200,000 (197,438 out of a total of 272,279 in the whole of Lombardy) at the seven Mila- nese universities. A study of universities carried out by the Advisory Board of the City of Milan for Expo 2015 between December 2015

University cafeterias and bars



and June 2016 revealed that around 70% of students stay at university to eat: 64% of students bring their own food from home while 27% use the cafeteria.

Catering services: hospitals and prisons

In the metropolitan area of Milan, the number of **people hospitalized** (458,625 in 2013, for a total of 3,601,773 days) and, to a lesser extent, of **convicts** in prisons (3577 in March 2018), suggests the possibility of further developments in the field of institutional catering.

What the City of Milan does

The **right of access to healthy food** for all is something that **the municipality can help to uphold**, working to improve it in various spheres, ranging from policies on social welfare and public purchasing to those on transport, production and commerce.

The municipality of Milan, through its partly owned company Milano Ristorazione, provides a **catering service** to all the **public schools in Milan** (418, including nursery schools, elementary schools and junior highs), to 200 municipal and state **childcare centers** and 70 **reception and care centers** (rest homes, home delivery services for the elderly, daycare centers for the disabled...). It also supplies 68 private schools and six private childcare centers with foodstuffs. Every day an average of 85,000 hot meals are produced in 26 catering centers and 80 childcare kitchens. Of the 17 million meals provided over the course of the year, around 80% are served in schools. The cost of the school catering service to parents is calculated on the basis of six income brackets with an exemption for families with an ISEE (Equivalent Financial Situation Index) below 2000 euros.

On the social policy front, the municipality operates five **measures of income support**—the first four based on the composition of the family unit; the fifth for extraordinary and urgent interventions—that all have as a basic requirement of access an ISEE certificate of 6000 euros or less. The 5th measure, in addition to the disbursement of funds, may also be applied through the provision of **store credits/social vouchers**, tried out for the first time in 2016. From 2018 the REI or inclusion income will also come into effect. It consists of two parts: financial support, disbursed on a monthly basis through an electronic payment card (Carta REI) and a personalized scheme of social inclusion and work incentivization aimed at bringing people out of poverty, organized under the supervision of the social services.

A crucial role can also be played in combating food poverty by figures like the **custodi sociali** (literally “social guardians”) and, for elderly people in particular, a number of shared services, such as apartment block caregivers and—a recent experiment—nurses. The municipality, through the Winter Plan for the Homeless, which came into effect on November 15, 2017, has set up five day centers and 17 mobile night units, facilities that also provide their users with food relief.

Still in the realm of social policies, more sporadic interventions focused on food poverty include the annual subsidy of 100,000 euros made to the food collection program organized by Banco Alimentare and, at Christmas 2017, the delivery of food parcels and the preparation of Christmas dinners.

The **role of commercial activities on public land** is very important: we are talking about the system of **indoor municipal markets**—whose distribution reflects the geography of the city’s historical districts, where they have long been the main locations for the supply of fresh food—and the **open-air weekly markets**—viewed by residents as an important opportunity to buy a wide range of quality food at competitive prices. The municipality is engaged in a program of upgrading of these markets, with the goal of turning them not just into more modern retail structures but also local facilities for the encouragement of social aggregation and cohesion. As far as the theme of household food production is concerned, the **municipal districts regularly make plots of land available for use as vegetable gardens**, following criteria that give precedence to the elderly—in some cases there are fixed quotas for the over

Municipal indoor markets and open-air weekly markets



- Open-air weekly markets (86 markets georeferenced out of 93)
- Municipal indoor markets (21)

60s—and people on low incomes.

With the MiGeneration Lab-Restart project, the municipality is experimenting with new models of inclusion, acquisition of skills and social participation for NEETs, people aged between 18 and 25 years in conditions of particular vulnerability.



For additional project info, check the table at the end of the chapter

ADDITIONAL PRIORITIES AND TOOLS RELATED TO THE PROJECTS

- 1 Guaranteeing healthy food for everybody
- 2 Promote the sustainability of the food system
- 3 Understanding food
- 4 Fighting waste
- 5 Supporting and promoting scientific research in the agri-food sector

- Metropolitan Food Council
- Monitoring system

MUNICIPAL DEPARTMENTS AND OTHER AREAS OF INSTITUTIONAL RESPONSABILITY

- A Budget, Public Property Administration
- B Education
- C Transport and Environment
- D Labour policies, Manufacturing, Commerce, Human Resources
- E Social and welfare policies, Health Care, Citizen Rights
- F Digital transformation and public services
- G Urban Planning, Park administration and Agriculture
- H Deputy Mayor
- I Presidency of the City Council
- L Mayor's Cabinet

Project

- Municipally owned companies (+AMSA)
- Additional priorities and tools
- Institutional roles and bodies
- PRIORITY

MUNICIPALLY OWNED COMPANIES (+ AMSA)

- AMAT
- ★ AMSA
- ▲ Milano Ristorazione
- MM
- ◆ SoGeMi

What the civil society of Milan does: some examples

In the city of Milan there are numerous associations of various kinds that provide services and carry out activities linked to the social support and assistance of the poor and needy. According to the Regional Observatory on Social Exclusion (Osservatorio Regionale sull'Esclusione Sociale, ORES.), 38% of the 1589 bodies in Lombardy operating on poverty relief in the private social sphere are located in the metropolitan area of Milan, where they provide assistance to almost half of the users at a regional level (358,170 people). Thus the province of Milan has the highest proportion in Lombardy of beneficiaries of such services in relation to population (5.47%).

The service of **food aid** is among those most widely offered by these bodies and consists chiefly of "light" home-delivered interventions (food parcels), but also includes more structured and complex activities (soup kitchens and housing). In particular there are 11 **free soup kitchens** run by voluntary organizations, most of them in operation for many years, as well as two **food distribution centers** run by Banco Alimentare (which in 2017 supplied 258 partner organizations in Milan that in turn provided assistance to 56,000 users) and a **subsidized grocery store** run by Caritas Ambrosiana (with the objective of serving 200 families a year). These last are funded under **QuBi—a formula to fight child poverty**, a long-term 25-million-euro program promoted by the Fondazione Cariplo, with the support of the Fondazione Vismara, Intesa Sanpaolo Spa and the Fondazione Fiera Milano and in collaboration with the municipality of Milan and voluntary organizations. A number of **migrant reception centers** are also active in the city, like the one run by Progetto ARCA in the vicinity of the Stazione Centrale.

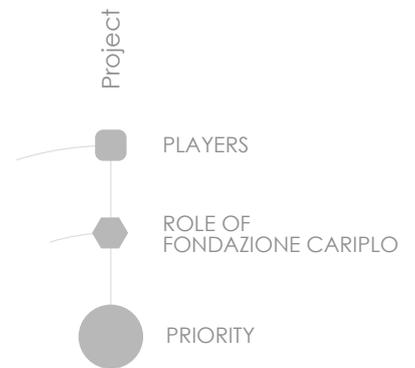


PLAYERS

- M** Private
- N** Public
- O** Nonprofit sector
- P** Nonprofit sector/
social initiatives

INVOLVEMENT OF FONDAZIONE CARIPLIO

-  Project funded by Fondazione Cariplo
-  Projects run by Fondazione Cariplo

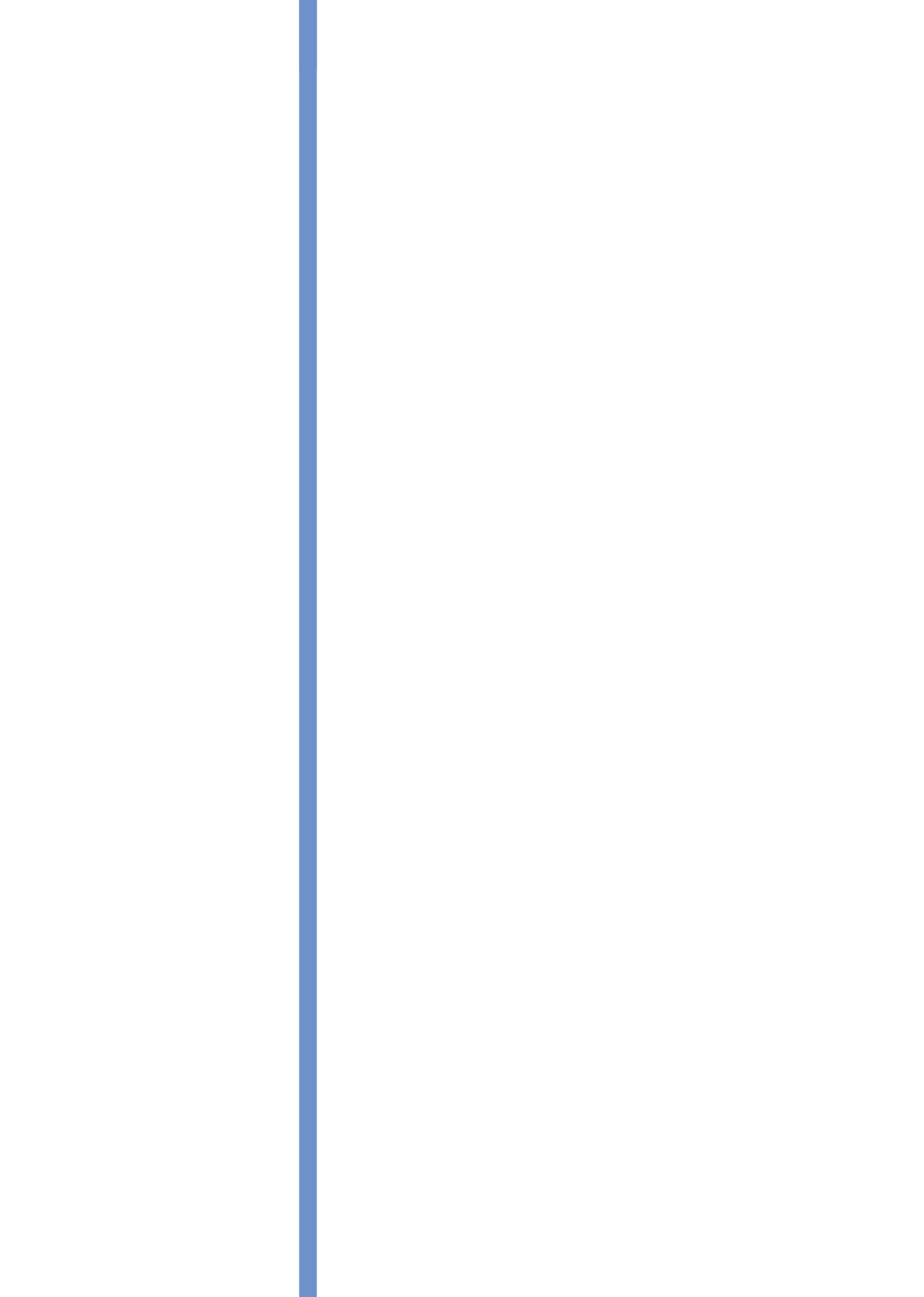


Soup kitchens



Milan City's projects

Regulation of the School Catering Committees	Planning and finalization of the activities for implementation of the Regulation of the School Catering Committees: over the course of 2017 the activities needed for the planning and finalization of the elections for the renewal of the representative body of the School Catering Committees, with a mandate of two years, will be completed. The elections, as laid down by the municipal regulations, are to be carried out by borough.
MiRi: analysis of customer satisfaction with the quality of services	Analysis of the data, following the return at the end of December 2016 of questionnaires relating to the survey of the level of customer satisfaction with the quality of services provided by the Milano Ristorazione company, operator of the school meals service, carried out in a sample of municipal elementary and nursery schools, and evaluation, on the basis of the results, of any corrective activities and actions to be carried out.
MiRi: gradual uptake of organic produce	Planning activity conducted by MiRi has revealed the possibility of reaching the goal of the CAM (Criteri Ambientali Minimi or Minimum Environmental Standards) over the course of three years, with organic produce making up around 51% of procurement in 2018. As early as the fall of 2016 the tenders for the acquisition of fruit, pasta and tomatoes from source envisaged proportions of organic produce of 52%, 98% and 48% respectively.
Custodi Sociali	Members of the community service known as Custodi Sociali (Social Guardians), issued with identification cards, contact residents of the building reached by the service, directly or through its janitor, who in addition to carrying out the activities of a traditional janitor, identifies and indicates people in need of assistance to the custode, pointing out problems regarding protection and respect for property and person.
Income support measures	All the measures have as a general requisite of access an ISEE certificate of 6000 euros or less; four measures are based on the makeup of the household, while the fifth is for extraordinary and urgent interventions (including provision of the store social vouchers). From 2018 the Inclusion Income will also come into effect: a monthly financial benefit and a personalized scheme of social inclusion and work incentivization.
Food aid	For Christmas (2017) the social services have drawn up a special plan of aid for needy families and individuals all over the city that entails the delivery of food parcels and the preparation of Christmas dinners, with the help of associations and parishes operating on the ground. In addition, the municipality makes an annual subsidy of 100,000 euros to the National Food Collection Day organized by Banco Alimentare.
Plan for the homeless	The Aid Center of the Stazione Centrale, at Via Ferrante Aporti 3, a point of reference for the homeless, will stay open every day to register and send to the city's shelters anyone who has nowhere to sleep and to coordinate the activities of the mobile night units, which go around the city looking for homeless people still on the street and offering to take them to the facility on Via Sammartini, run free of charge by the Fondazione Progetto Arca.
Shared Services (apartment block caregivers and nurses)	Apartment block caregivers: a service launched by Milan City Council aimed at trying out a model of "shared assistance" in the setting of the apartment block. It is aimed at individuals who do not require continual assistance or at families that need specific forms of support (childcare, management of household activities). Apartment block nurses: a new and experimental social and health project.
Urban vegetable gardens	The process of promotion of urban vegetable gardens continues, with a view also to the social importance of their role, especially in the city's inner and outer suburbs.
MiRi: produce of the DAM in institutional catering	The supply of rice for Milano Ristorazione has been entrusted to the Consorzio DAM, which oversees the cultivation and milling of rice on the farms of the peri-urban region, guaranteeing at the same time the area's production capacities and safeguarding the quality and the local traditions of farming.
MiGeneration Lab: Restart	The project with which Milan took part in the competition held by ANCI (National Association of Italian Municipalities) and the Cabinet Office for tackling privation in the younger generations: specific training in innovative settings, processes of co-design in fab labs, setting up of a team of young people who go to work for a period in local small and medium-sized enterprises, theatrical walks in discovery of Milan's neighborhoods.
Milan 2046/Trial of the BES program	The goal is to develop the 12 dimensions of well-being comprised in the BES (Benessere Equo Sostenibile), the indicator of "equitable and sustainable well-being" that since 2016 has been included alongside the GDP in the State Budget and makes it possible to measure the quality of the life and assess the effect of public policies on a number of fundamental social dimensions. Thus Milan will be the first city to plan its future interventions on the basis of indicators that are not just economic but equitable and sustainable.





PRIORITY 2

PROMOTE THE SUSTAINABILITY OF THE FOOD SYSTEM

Facilitate the consolidation of all the components and activities necessary to organise a sustainable food system and promote local production and consumption of quality fresh and seasonal food.

Guidelines

1. The Municipality shall facilitate access to land through its institutional instruments, the co-promotion of specific services (e.g. Mortgage credit, local land trusts, public lands, etc.) and the spread of multi-functional agriculture that contribute to the objectives set out here.
2. The Municipality shall encourage agricultural activities and wineries throughout the municipal area.
3. The Municipality shall support social, technological and organisational innovation in processing, distribution, logistics and trading activities to facilitate the transition to a sustainable food system.



FOOD
CYCLE

SDG	TARGET
1 NO POVERTY 	1.4
2 ZERO HUNGER 	2.3 2.4 2.c
8 DECENT WORK AND ECONOMIC GROWTH 	8.3
11 SUSTAINABLE CITIES AND COMMUNITIES 	11.a 11.b 11.7
12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	12.7
13 CLIMATE ACTION 	13.2
15 LIFE ON LAND 	15.5 15.9



Introduction to the theme

The multiple dimensions of sustainability and many components of the food system make analysis of the sustainability of an urban food system a complex affair.

As is well known, the theme of sustainability implies a balancing of social, economic, environmental **and institutional dimensions** that is far from simple, especially in an urban system in which the process of change is multifaceted and rapid. An example is the bicycle, increasingly used in the city for the delivery of food: it is a typically urban innovation that minimizes the environmental impact of transport while improving the service—which consumers increasingly expect to be free of charge—in terms of pervasiveness, speed and punctuality, but that currently raises many questions about respect for the dignity of workers. Or, as a contrasting example, the farmers' markets at which local farmers sell their produce directly to the public, condensing into a single format the factors of locally-sourced food and the short supply chain: their value in cultural terms and those of local development is undoubted, but equally evident are their limitations in terms of environmental sustainability in relation to the methods of cultivation of the produce sold, its transport and the means of transport utilized by the people who buy it (the so-called “last mile”).

The complexity also stems from the **variety of components in the food system**, which comprises both the **food chain** in the proper sense—production, processing, logistics, distribution, consumption and the management of surpluses, garbage and waste—and its **context of reference**—i.e. the conditions in which the chain operates. Hence assessing the sustainability of a food system signifies analyzing methods of cultivation, types and quantities of agricultural produce, processing techniques used by the food industry, packaging, storage and transport systems, provenance and seasonality of the produce, mode of sale, distribution of value along the whole chain, habits of consumption, quantity and quality of the surplus and waste produced by all the components of the chain and methods of recovery and handling of this surplus and waste. But it also means analyzing the access to adequate nutrition, de-

mographic aspects in general and ethnic ties; innovation and research, legality, working conditions and regulations; people's levels of awareness and education, choices of diet, life styles and health; the agroecosystem, biodiversity and the climatic conditions. In addition, the **food chain and its context are interdependent**. The context provides resources—material and immaterial, renewable and nonrenewable—for the food chain: raw materials, soil, biodiversity, water, energy, fish resources, ecosystem services, workforce, regulations, capital, technologies, innovations. The food chain uses these resources to produce food in a more or less efficient manner and then modifies them, creating impacts on the resources themselves and on other components of the system. This is true of both environmental resources and the others: intensive use of the soil results in its impoverishment and a reduction in its capacity to sequester CO₂, with a consequent increase in the emission of greenhouse gases into the atmosphere; exploitation of the workforce or the speculative management of land lead to ever wider social divides and illegality.

In addition, both the food chain and the reference context rest on **spatial dimensions that extend beyond the boundaries of the municipality** and can be much larger indeed. For example the city meets its needs both with food produced locally and with food that comes from national or international markets, and so involving an enormous number of different players. Some components of the food system are studied in depth at the level of the city, typically economic activities connected with the food chain, such as production, processing and distribution. Many others—food logistics for example, as well as the question of social and environmental impacts—are not tackled on an urban scale.

One of the models developed for the study of complex urban systems is that of urban metabolism, which measures inward and outward flows and internal flows of energy and material in relation to a particular system. The model presupposes that the system to be analyzed has precise boundaries and provides information on environmental and economic dynamics, but it is difficult to use it to explore social and institutional matters. The data that need to be fed into it are not always available: for instance data on the flows of food that pass through a city. To which is added the difficulty of knowing where all the food consumed in the city comes from or on the contrary where all the food produced in the city is sold and

consumed.

Moreover, a large number of **players are involved** as well as many **institutional levels**: it suffices to think of agricultural production, in which the European Union plays a part with the CAP (Common Agricultural Policy), along with the regions under the PSR (Programma di Sviluppo Rurale or Rural Development Program), and the individual municipality, which may have its own policies of rural development in place.

Lastly, in order to analyze the sustainability of an urban food system, we cannot leave out of consideration the precise objectives that a city has to set itself if it wants to monitor the impacts of its policies on the system and the progress it is making toward a situation of greater sustainability.

The key figures of the food system in Milan

Milan, which began the process of formulating a Food Policy in 2014, is working on a monitoring system that, through qualitative and quantitative indicators to be associated with precise and realistic goals, can help to measure the progress toward greater sustainability in the food system and to revise over time the setting of the priorities themselves. At present, therefore, it is not possible to provide more than a considered description of the Milanese food system that, in the specific formulation of priority number 2 of Milan's Food Policy, makes reference in particular to the phases of production, processing, logistics and commerce and to related aspects of social, technological and organizational innovation. Questions linked to the management of surpluses, garbage and waste and to themes more typically related to the reference context—such as food poverty, education or health—are tackled in the other priorities.

Agricultural production and quality of the territory

It should come as no surprise that the subject of agricultural production occupies a significant place in the analysis of the Milanese food system: 16% of the total area of the municipality—2910 hectares out of 18,180—is made up of cultivated land and the history of South Milan is above all a history of farming and of the major works of reclamation carried out in the past.

The historical development of the agricultural sector in the Metropolitan City of Milan over the last few decades (1982-2010) is in line with national trends and those of the Lombardy Region: a substantial **decline in the number of farms** (-67%)—especially those with less than 5 hectares—and **growth in the average size of farm** (+157%). The only type of farm which has seen an increase in numbers is the one with over 100 hectares of cultivated land. The average size of the farms (28 hectares per farm) is larger than that of farms in Lombardy as a whole (18.4 hectares per farm).

In 2016 the contribution of the metropolitan city's agricultural enterprises to farming in Lombardy can be summed up as follows: 7.6% in terms of the number of farms (3565 out of 46,799), 11.1% in terms of the number of workers (6853 out of 61,446), 3.5% in terms of value added at basic prices (€114 million out of €3271 million). Only 5.6% of farms are run by young people, a lower proportion than the average for Lombardy (7.1%), reflecting the scanty level of generational renewal in the sector. Of the total value of agricultural production at basic prices in the metropolitan region, 44% derives from **animal husbandry** and 34% from **cultivation**. To be more specific, 26% comes from **milk production** and 24% from herbaceous crops. Fifteen percent of the operators in the Lombard **organic farming sector** (2621) are located in the metropolitan city: a total of 393 enterprises, 214 of which have their registered office on the territory of the municipality of Milan (31 are exclusive producers, 146 exclusive processors). Between 2011 and 2017 the number of these companies increased by 88%. The **farm tourism sector** has also seen robust growth in the metropolitan area: in fact the number of such units rose from 59 in 2006 to 111 in 2016 (3% of metropolitan farms). In 2017 there were also 20 certified **educational farms**.

The Metropolitan City of Milan also stands out for the experimentation of new forms of cooperation between agribusiness ventures and the management of the rural heritage: there are in fact five

agricultural districts, each of them comprising 25 to 65 farms, one of which—the Milanese Agricultural District (Distretto Agricolo Milanese, DAM)—is made up of over 30 farms, for the most part located in the municipality of Milan, and covering a total of 1500 hectares, chiefly used to grow rice. Since 2015 and 2016 the produce of the DAM (rice, vegetables and stracchino cheese) and of the Distretto Riso e Rane (rice) has been present in supermarkets and school cafeterias.

Value added estimation: comparison between Metropolitan City and Lombardy (million Euro)

	Regional 	Metropolitan City of Milan 	Impact on the regional agricultural sector	Impact on the Milanese agricultural sector
Agricultural crops (total)	1897	117	6%	34%
Herbaceous crops	1036	83	8%	24%
Forage crops	447	26	6%	8%
Woody crops	413	8	2%	2%
Animal husbandry (total)	4059	150	3.7%	44%
Meat	2350	52	2.2%	15%
Milk	1505	90	6.0%	26%
Other animal husbandry	204	8	3.9%	2%
Additional Services	1082	75	6.9%	22%
Agricultural production (total)	7038	342	4.9%	-
Intermediate consumption	3768	229	6.1%	-
Added value (at basic prices)	3271	114	3.5%	-

Agricultural districts within the Metropolitan City of Milan

Agricultural District	Companies involved	Main territory	Main production
Distretto agricolo Milanese (DAM)	31	Comune di Milano	Rice
Distretto rurale Riso e Rane	63	PASM (e Parco Ticino)	Rice
Distretto agricolo Valle Olona	29	Ambito vallivo dell'Olona	Different products
Distretto neorurale delle tre acque di Milano - (DiNAMo)	40	Milano/Pavia	Cereals and oilseed
Distretto agricolo Adda-Martesana - D.A.M.A.	25	Adda/Martesana	Cattle breeding,

The territory of Milan also boasts one of the largest agricultural parks in Europe, the **Parco Agricolo Sud Milano**, which covers an area of 47,000 hectares (about 37,000 of which are farmed), corresponding to around 30% of the area of the Metropolitan City of Milan and comprising 61 municipalities. The trademark *Produttore di Qualità Ambientale*—Parco Agricolo Sud Milano is awarded to farms located inside the park that have shown they are capable of carrying out actions on behalf of the environment and the land (around 30 farms). In fact the park also plays an important role in the preservation of biodiversity. It still has 41 water meadows, covering 208 hectares of land, tangible testimonies to the evolution of agriculture in Lombardy.

The farms in the Milanese area find in their proximity to the city an opportunity for **direct sales**: a survey of 25 small and medium-sized farms located for the most part in the Parco Agricolo Sud Milano has found that 60% of those interviewed made on average 50% of their sales in the municipality of Milan and 90% of them sold 36% of their produce at the farm gate. Despite the growth of farmers' markets in recent years, many of those interviewed considered them not very remunerative and too time-consuming, when compared with other sales channels. On the transport and logistics front there is still only a limited availability of delivery services with costs that can be met by small-scale farmers, whose sales volumes do not always allow them to make use of a logistics operator.

Availability of farmland

The question of production cannot in any case disregard the problem of the availability of farmland and its **evolution over time**, strongly influenced by the progressive erosion of peri-urban areas devoted to agriculture.

Analyses carried out for the metropolitan area show a **reduction of 39% in agricultural areas** over the period from 1955 to 2015, with the result that they currently make up about 50% of the total. The decrease has been much more marked in the municipality of Milan where the amount of farmland has diminished over the last 60 years by 64%, at a mean annual rate of 1.1%, although the re-

duction was more accentuated in the period from 1955 to 1999. To be more precise, while in 1955 farmland covered 8948 hectares (total agricultural area, amounting to 49% of the territory), in 2015 the area had fallen to 3238 hectares, or 18% of municipal territory. However, it needs to be stressed that, in the period from 1999 to 2015, these losses consisted, in both absolute and relative terms, largely of land of medium-low agronomic-productive potential (classes 3 and 4 in the Land Capability Classification). With regard to the types of use of the farmland that has been lost, the data show above all a **reduction in the area of land used for arable crops**, i.e. for the intensive cultivation of herbaceous plants such as cereals and pulses. Other sorts of farmland that have diminished over time are **permanent pastures without trees**—i.e. exclusive cultivations of herbaceous fodder plants—and **water meadows**, which have been vanishing from the municipal territory over the course of time. Their place has been taken by different types, i.e. **wooded arable land** (areas with the same characteristics as the land used for arable crops but with the presence of trees as well), **permanent pastures with trees** and **paddy fields** that despite occupying only limited portions of the area of the municipality devoted to agriculture underwent **first a reduction** (1955-1999) and then an increase (1999-2015), reflecting a **growing appreciation of the value of peri-urban farmland from the perspective of biodiversity and landscape**. In recent years in fact the municipal administration has recognized that peri-urban agriculture plays a fundamental role in the metabolism of the city, as an activity capable not only of producing food, but also of contributing to the protection of the environment, landscape and culture.

Particular mention should be made of **rice-growing**, which constitutes a **sector of great economic and cultural importance** in the southwestern part of the Metropolitan City and the municipality of Milan, where 13-14% of the land cultivated with rice in the Lombardy Region is to be found.

Another phenomenon worthy of attention—not so much for its importance in terms of agricultural production as for the multiple functions it performs—is that of **urban horticulture**: the recent project called La Città degli Orti has estimated that there are 854 hectares of allotments in the Metropolitan City, 43% of which is actually used for the growing of vegetables. In the municipality of Milan there are 134 ha, taking up 0.75% of its area. In greater detail, 70.5 ha (52.7%) consist of allotments laid out on an irregular grid, 21.5 ha (16%) have a regular layout, while 42 ha (31.3%) are made up of fenced plots. The usable area, i.e. the land on which vegetables are grown, makes up 64% of the entire estimated area of horticultural land in the municipality, or slightly over 85 ha. Of these, 50 ha, i.e. 59%, are allotments with an irregular grid, while 17 ha (20%) have a regular grid and 18 ha (21%) consist of fenced plots. Surveys in the field have made it possible to estimate a (potential) maximum annual productivity corresponding to professional volumes of production (4.99 kg/m²) and a more realistic productivity corresponding to amateur values (2.1 kg/m²). On the basis of these figures the **annual median production of the allotments** has been estimated at somewhere between 1790 and 4253 metric tons. Assigning an average value of 1.82 €/kg to the produce (derived from

Vegetable gardens in the metropolitan area



- Allotments used for the growing of vegetables
- Allotments made up of fenced plots

the mean of the minimum and maximum prices of vegetables recorded by the observatory of prices for a whole year), and an average production cost of 0.30 €/kg, the value of the vegetables grown on land in the municipality of Milan can be estimated at €2.720.334 a year for amateur production and €6.464.031 a year for professional production.

The data on the changes in farmland could be supplemented by an estimate of the degree to which the capacity of such areas to meet the city's food requirements has altered over time, a figure which can only be calculated on a regional scale. The **overall level of self-sufficiency of agriculture in Lombardy**, i.e. its ability to satisfy the domestic demand for both human food and animal feed, is 64.5%, whereas at a national level it is 65.5%. Where calories are concerned, however, Lombardy can only maintain 60.1% of its inhabitants as opposed to 67.2% for Italy as a whole, notwithstanding the greater median productivity in terms of calories per hectare (5.9 inhabitants maintainable per ha as compared with 3.3 at a national level). In meeting its domestic food requirements Lombardy has a deficit of vegetables and a surplus of animal products.

Greenhouse gases

The amount of farmland available has an influence on the capacity of the area in the environs of the city not only to produce food, but also to **sequester carbon** and thus contribute to lowering the level of climate-damaging gases in the atmosphere. A study carried out for the regional government of Lombardy has shown that the main contribution to the amount of organic carbon in the soil, which also determines its fertility, is made by the top 30 cm, which contain 44% of the total. Although in terms of carbon storage arable land has the lowest median values (56 t/ha)—the highest values are those of wetlands (69.5 t/ha), permanent grassland (69 t/ha), and woodland (from 75 to 85 t/ha)—its loss as a result of urbanization still reduces the capacity that farmland also has to lower the concentration of greenhouse gas in the atmosphere. But it should also be remembered that agriculture itself is responsible

for the **emission of greenhouse gases**: the emissions from this sector are 0.2% of the total for the municipality of Milan and 4% for the metropolitan area. In the municipality of Milan **65% of the emissions of agricultural origin comes from the use of fertilizers**, which are therefore the main source of greenhouse gas emission. However, it is impossible to estimate on a local scale the level of emissions of greenhouse gases from other stages in the food chain, even though estimates on a national scale have attributed 45% of the emissions of greenhouse gases from the food chain to agricultural production and 19% to transport. Packaging, enteric fermentation, the treatment of manure and sewage and industrial processing would be responsible for the remaining 36%.

Processing

The territory of Milan is distinguished from the other provinces of Lombardy by the **presence of large numbers of food and drink companies**, making up 29% and 26.7% of the regional total respectively and both showing, between 2010 and the second trimester of 2017, a positive trend of increase in those numbers (by 15.5% and 9.2% respectively). These companies employ most of the workers in the food and drink processing industry in the Lombardy region, 39% and 66% respectively. The characteristics of the two sectors are very different: in 2017 the food industry comprised 1711 active businesses, most of them of small size with less than 10 employees; the drinks industry had 83 active businesses, chiefly large companies, including multinationals.

A peculiarity of the metropolitan region of Milan is the presence of 30% of the Lombard companies engaged in the **production of baked goods, bread and pastry** (1067 companies out of 3513 in Lombardy). They are small enterprises, with an average of between 4 and 6 employees. There are 6711 people working in the sector, making up 36% of the number in Lombardy and 5% of the number nationwide; if those involved in distribution are added to the figure, Milan turns out to be the Italian province with the largest number of employees in this sector, 8571 in the third trimester of 2016.

Logistics

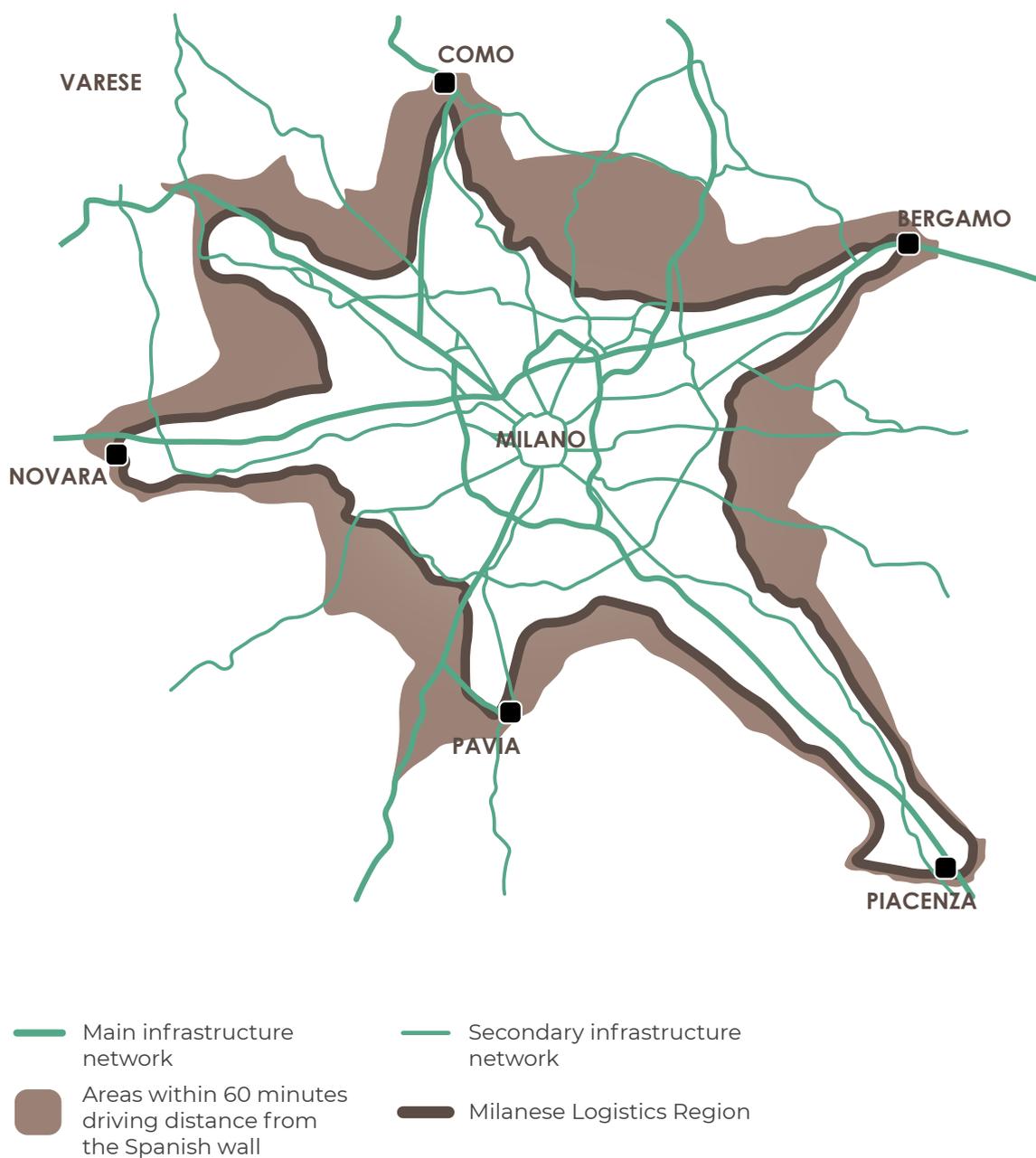
Milan is located at the center of the **Milanese Logistics Region** (Regione Logistica Milanese, RLM), which comprises the provinces of Milan, Lodi, Piacenza, Pavia, Novara, Varese, Lecco, Como and Bergamo. It is an urbanized area that is highly integrated from the economic and functional viewpoint thanks to the development of communication systems and transport infrastructures. Owing to its geographical position and the strength of its economy, the RLM is the **most important intersection in the Italian system of international economic relations**, making it a decisive link for the country's growth.

Up until the middle of the 1960s, the historic Milanese or Lombard logistics companies were mostly located within the boundaries of the metropolitan area. Their operations centers occupied much of the covered areas in the **city's railroad yards**—Milano Smistamento, Scalo Farini, Milano Porta Romana—where the goods produced by the Milanese manufacturing system arrived and, equally, those destined for the Milanese market were sorted. Increasing urban congestion, combined with the rapid fall in the amount of freight carried by the railroads, progressively induced the shipping and logistics companies to look for **locations along the main radial axes** and with a high degree of accessibility to road and rail infrastructures. The result has been a progressive sprawl of the logistics services, which are currently spread over nine provinces. The Milanese Logistics Region is one of the areas that has seen a process of concentration of logistical infrastructure over the last 20 years, to the point where it accounts for 30% of the turnover of the Italian logistics industry. In this same region, moreover, we find the greatest concentration of the managerial headquarters in this sector.

The choices of location for logistics facilities, distribution centers and intermodal terminals have been guided by **factors like the cost of land** (in some cases favoring the conversion of disused industrial areas and in others by obtaining permission to turn green-field sites into areas for logistical use) and the **proximity of transport infrastructures** (expressway tollbooths and junctions, railroad terminals), reflecting a lack of systemic vision: the result has been a high degree of dispersion of the logistics centers throughout the area of the RLM.

In the RLM it is possible to identify 30 **centers of distribution** (in 2014) that supply, on an almost daily basis, the outlets of the large retail chains present in the municipality of Milan and the metropolitan city.

Boundaries of the Milanese Logistics Region



List of distribution centres for large retail chains based in the Milanese Logistics Region

Company	Headquarter	Province	m ²	Company	Headquarter	Province	m ²
Auchan	Calcinate	BG	81,000	Esselunga	Pioltello	MI	6260
Bennet	Origgio	VA	25,000	Esselunga	Biandrate	NO	3500
Bennet	Turate	CO	n.d.	Iper	Soresina	CR	30,000
Billa Standa	Lachiarella	MI	36,100	Unes	Segrate	MI	24,000
Billa Standa	Tribiano	MI	5000	Il Gigante	Trezzo sull'Adda	MI	20,000
Billa Standa	Casorate Primo	PV	2000	Il Gigante	Basiano	MI	32,000
Billa Standa	Suno	NO	10,000	Il Gigante	Melegnano	MI	15,000
Carrefour	Cameri	NO	90,000	MD Discount	Trezzo sull'Adda	MI	23,000
Conad	Calcinate	BG	2150	MD Discount	Vignate	MI	30,000
Coop Lombardia	Pieve Emanuele	MI	39,000	MD Discount	Capriate S. Gervasio	BG	10,000
Coop Lombardia	Pieve Emanuele	MI	6260	Metro	Ottobiano	PV	33,000
Coop Lombardia	Casorate Primo	PV	22,100	Penny Market Italia	Desenzano del Garda	BS	14,000
Coop Lombardia	Siziano	PV	3000	Penny Market Italia	Arborio	VC	14,000
Coop Lombardia	Siziano	PV	10,300	Sisa	Siziano	PV	17,000
Coop Lombardia	Treviolo	BG	1946	SMA	Segrate	MI	n.d.
Coop Lombardia	Galliate	NO	10,100				

A focus on cycle delivery

The logistics of the agricultural and food industry is one of the components of the food system that are hard to analyze on an urban scale, partly due to the lack of data and publicly accessible research. Yet it is a question of great significance: an **AMAT** (Agenzia Mobilità Ambiente Territorio) survey of 2014, focusing on the logistics of food in the Lombard provincial capital, showed that **food accounts for 43% of the movement of freight**. In addition, the impact of the urban transport of goods is bound to grow, given the constant increase in e-commerce and, more specifically, food delivery, which implies the frequent carriage of smaller loads to widespread destinations on a precise schedule determined by the availability and needs of the recipients. These aspects, in combination with pedestrianization and limitations on traffic, have favored the introduction of **bikes** and **cargo bikes** into the distribution system of

various international couriers. There are around fifteen **cycle courier services** in Milan.

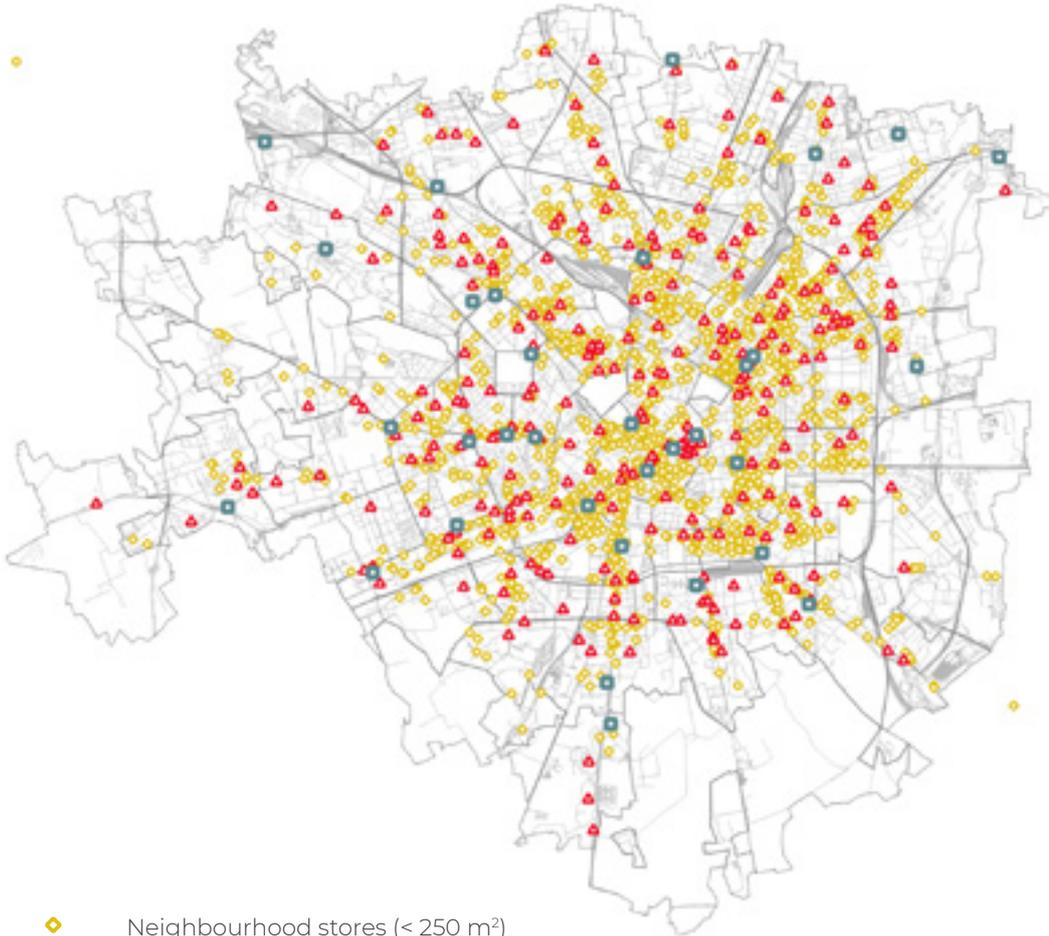
Alongside the professional operators specializing in deliveries on somebody else's behalf, the city has also seen an expansion, especially where food delivery is concerned, of services provided directly by sales outlets. Allowing for the various specializations of such services and different levels of performance, we can assume that over 200,000 deliveries are made a month (excluding the traditional mail service). Thus in a year, leaving out the month of August, the number of deliveries can be estimated at around 2,300,000, with the transport of a total of almost 7000 metric tons of goods and significant benefits in terms of reduction in the circulation of cars, vans and mopeds, especially in the city center. Such benefits, however, should not distract us from the question of the **rights and protection of the workers**, brought to the attention of the media by the recent protests staged by riders.

Distribution

The retail trade in food in the municipality of Milan is a particularly complex affair in which the coexistence and interaction of different sales formats have given rise to a **multichannel system of commerce**, characterized by the pervasive nature of the phenomenon. As far as the **fixed-location retail trade** (subdivided into neighborhood stores and ones with medium-sized and large sales areas) is concerned, the significant figure is the total number of outlets (6907) and their area (492,126 m²) authorized to sell food-related commodities in the city: the fabric of the city of Milan still accommodates a large number of commercial operations in the food sector, whose locations depend on the type of store and the context in which it is set. It is a geography that characterizes all of the city's residential zones without generating particularly marked areas of "food desertification."

To get a complete picture of the retail distribution network in the city's food sector, the role of **commercial activities on public land** needs to be considered alongside fixed-location stores. We are talking about the system of **Municipal Markets**, which employ

Neighbourhood stores, medium-sized and large stores



- ◆ Neighbourhood stores (< 250 m²)
(1898 neighbourhood stores georeferred out of 6572)
- ▲ Medium-size stores (250 m² < size < 2.500 m²)
(303 georeferred)
- Large-size stores (> 2.500 m²)
(32 georeferred)

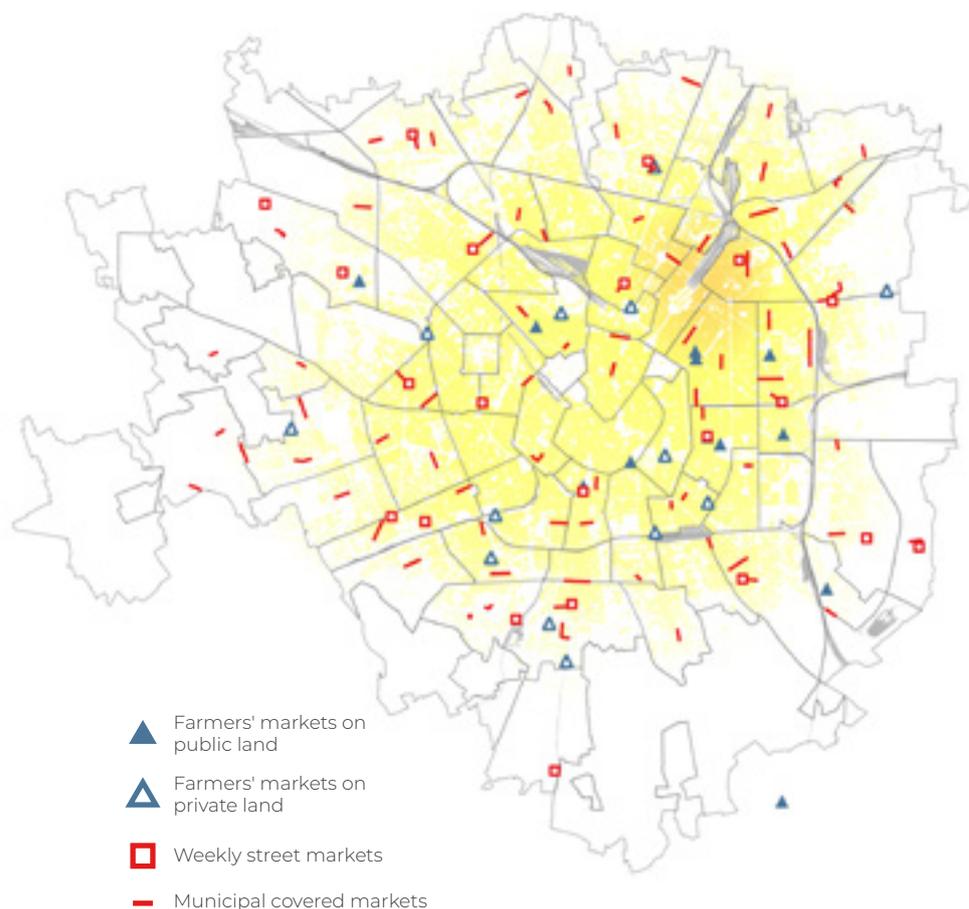
N° STORES (IN OPERATION AS OF JUNE 30, 2018)

	Groceries stores	General stores	Total
Neighbourhood stores	4208	2364	6572
Stores with medium-sized sales areas	32	271	303
Stores with large sales areas	0	32	32
Total	4240	2667	6907

SALES AREA (m²)

	Groceries stores	General stores	Total
Neighbourhood stores	127,835	143,681	271,516
Stores with medium-sized sales areas	20,684	147,782	168,466
Stores with large sales areas	0	52,144	52,144
Total	148,519	343,607	492,126

Municipal indoor markets, open-air weekly markets and farmers' markets



around 8000 people: 23 **indoor markets** (not all in operation and two of them devoted to flowers) and 93 **open-air weekly markets**. On top of these come the **farmers' markets**, at which they are able to sell their produce to the public without middlemen: in 2016 there were 10 located on public ground and 13 on private ground. A further element in this system of distribution is that of the **businesses offering food and drink** (bars, restaurants, etc.), which are seeing a progressive accumulation of new openings in certain areas with a geography that on the one hand overlaps with the ones where Milanese nightlife is concentrated and on the other is emerging in synergy with the activity of the commercial and services sector, establishing itself around public spaces and/or areas of urban transformation. Examples of this last are the Moscova-XXV

Aprile-Corso Como district, the recent opening of the CityLife shopping district on the former site of the trade fair, the neighborhood of the Darsena—where an indoor market is also located—and the progressive theming of some parts of Via Tortona and the adjoining streets, with the further arrival of activities linked to ethnic (Japanese, Spanish) or regional Italian cuisine.

The geography of the supply of **organic produce** follows patterns of location unconnected with either those of traditional commerce or those of large-scale retail trade: the overall result is that the sales outlets of the main distribution chains of organic food are concentrated in the most densely populated areas and the ones whose inhabitants have higher disposable incomes. It is no accident that the whole of the area inside the former city walls is practically excluded from this geography while there is a great density of these stores in its immediate vicinity. In addition, some concentrations

Sales outlets of the main organic food retailers



(Loreto, Piazzale Lodi, Città Studi) can only be explained through the presence of a specific demand for this type of commodity in these parts of the city.

The distribution of places linked to **ethical consumption** in the municipality sees a division between **fair-trade stores**—which follow a more traditional logic and are located in established commercial areas or, at least, ones in which the relationship between consumers and sales outlets is more direct—and the **solidarity food co-ops** known as GAS (Gruppi di Acquisto Solidale), of which there were about 80 in the city of Milan alone in 2014, which can also be found in suburban areas not particularly well served by traditional channels.

Wholesale markets

SogeMi is the corporation that runs the indoor municipal markets and the city's four **wholesale agricultural and food markets—for fruit and vegetables, fish, meat and flowers**—on behalf of the municipality of Milan, supporting and managing their spaces, internal logistics and services to suppliers and the public. The Fruit and Vegetable Market is the biggest in Italy in terms of the quantity of produce that passes through it (around 400,000 metric tons/year, 120,000 of it for export) and is visited by 9000 people a day. Altogether the four wholesale markets cover an area of 650,000 square meters, handle 450,000 metric tons of products a year and have a total turnover, including allied activities, reckoned at 2500 million euros a year, for a customer base of 3.5 million inhabitants.

Water consumption and supply

Almost all the research carried out into the food consumption and habits of the people of Milan dates from the years prior to 2015, having been conducted for the most part in preparation for the Milan Expo.

In 2016 a survey conducted by Metropolitana Milanese (MM) probed the habits of consumption of drinking water at home of a representative sample of the population of Milan: 66% of them drank mineral water, a slight drop from 2015, when the figure had been 68%.

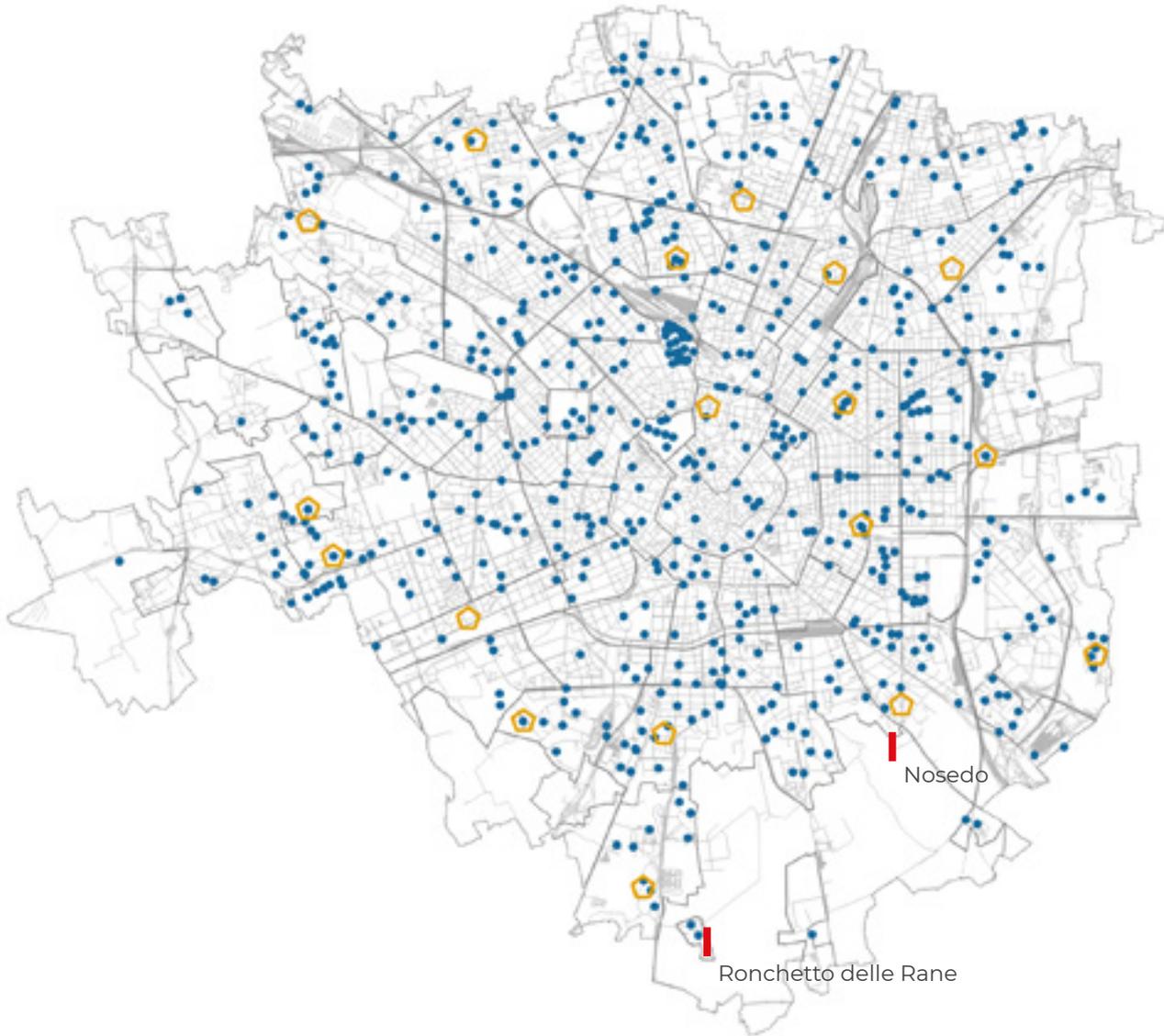
The public water system

Metropolitana Milanese is the municipality utility that also manages Milan's public water system: it is responsible for all its phases, from withdrawal from the aquifer, purification, quality control and distribution to the collection and treatment of sewage. Milan's water comes from underground aquifers, in particular from the second aquifer located between 30 and 100 meters below the surface. Of the water withdrawn 80.5% is subjected to processes of purification and then distributed around the municipality through the **network of water mains** (with a total length of 2228 km), as well as through 481 public drinking fountains and 18 **water kiosks**. The quality of the water is constantly monitored and the qualitative and microbiological indicators are made widely accessible, including to the end users. The losses from the distribution network, amounting to around 11.5% of the water fed into it, are considered very low in comparison to other Italian towns and cities.

The **purification plant** at Milano San Rocco and Milano Nosedo treat about 90% of the sewage produced in the Milanese area, a total of 237,611,909 m³, and thus constitute the backbone of the city's purification system. The remaining 10% is handled instead by the one at Peschiera Borromeo. In particular the **Nosedo** plant, whose construction and management has been entrusted in lease concession to a grouping of companies (concessionary: MilanoDepur Spa), treats 60% of the aforementioned sewage, coming from the central basin of the city, which covers an area of 69 km². The Milano **San Rocco** plant, located inside the Parco Agricolo Sud, handles the remaining 40%, coming from an area of 101.3 km² in the western part of the city.

The entire volume of water treated by the plant at Nosedo and San Rocco—the only two facilities of such a size authorized in the coun-

Water kiosks, public drinking fountains and purification plants



- fountains (682)
- 🏠 water kiosks (18)
- ▬ water purification plants (2 - Nosedo e Ronchetto delle Rane)

try—is in conformity with the very tight limits imposed by the current standards for wastewater reuse (DM 185/2003) and serves an area of over 100 km² of farmland located between Milan and Melegnano and in the southern part of the Milanese region as far as the province of Pavia. The proportion of the capacity for reutilization in agriculture with respect to the amount treated is 36.4%. Once the demand for water for use in agriculture has been met, which in the case of San Rocco happens only during the period of greatest need on the part of the farmers, the two plants discharge the rest of the water into canals on the surface: the Nosedo plant chiefly into the Roggia Vettabbia and the Cavo Redefossi; the purification plant at Milano San Rocco, on the other, discharges most of its water into the southern stretch of the Lambro River, the Roggia Pizzabrusca and the Roggia Carlesca. Another **byproduct of the process of treatment of sewage and meteoric water is sludge**. About 86% of this is used for agricultural purposes in areas adjoining the city.

What the City of Milan does

There are multiple dimensions of sustainability and they act on different levels, in terms of both scale and institutional responsibility. Likewise, the municipality's engagement with the individual components that contribute to sustainability is divided into different types of intervention. So here we will describe some of the main initiatives that have a more direct effect on improving the primary elements of the food system.

Through its active contribution to **Framework Agreements of Territorial Development** (Accordi Quadro Di Sviluppo Territoriale, AQSTs) The City of Milan has forged a connection between its agricultural, regional and environmental policies with a view to rural development as well. With the **Milano Metropoli Rurale AQST** in particular, it is pursuing the aim of fostering a sustainable urban/rural development of the Milanese metropolitan system, particularized through macro-actions such as expansion

and improvement of the irrigation system, environmental and landscape upgrading and enhancement, land improvement, innovations in production, processing and the supply chain, multifunctionality and the development and promotion of the region and rural culture. With the **AQST Contratti di Fiume** (River Contracts), the municipality and stakeholders territorially or functionally involved in the management of the basins of the Lambro, Seveso and Olona are taking steps to cut the pollution of their waters, reduce the risk of flooding and upgrade the environmental systems, landscape and settlements connected with the rivers, in part through the sharing of information and the dissemination of water awareness. These interventions include schemes for the reactivation of the resurgences to the west and south of Milan, promoted by the participants in the agricultural districts.

Milano Ristorazione has adopted purchasing policies aimed at increasing the use of organic, quality and local foods, as well as those produced with integrated pest management. In particular, the proportion of organic ingredients present in the preparation of the 2017/18 winter and summer 2018 menus for schools and preschools was 35% and 34% respectively; those with a short supply chain 65% and 58%; and locally sourced ones 30% and 28%.

In addition, through the new integrated calls for tenders of the Lombardy Region's Program of Rural Development (Measure 16, Cooperation), the municipality is using the **Mater Alimenta Urbes** project to promote the connection between institutional catering and produce grown within the city (in the Milanese Agricultural District and the Adda Martesana Agricultural District) and the metropolitan area (produce from the Parco Agricolo Sud Milano). Thus it is a follow-up to the positive experience of the use of DAM rice in school catering, extending it to 19 of **Milano Ristorazione's supply chains** and a total of around 1200 metric tons of food (about 1/8th of the company's requirements). With the signing of an agreement that will last for six years (until 2024), the partners in the project—22 farms, two rural districts, six local authorities (municipalities of Milan, Cassina de' Pecchi, Liscate, Peschiera Borromeo, Rodano and Vignate), the Milano Ristorazione company and the Department of Agrarian and Food Sciences of the University of Milan—have undertaken to develop **short supply chains for institutional catering** (in relation to fresh pasta, potatoes, squash, zucchini, beans, chickpeas, lentils, spelt and barley) through the establishment of experimental con-



For additional project info, check the table at the end of the chapter

ADDITIONAL PRIORITIES AND TOOLS RELATED TO THE PROJECTS

- 1 Guaranteeing healthy food for everybody
 - 2 Promote the sustainability of the food system
 - 3 Understanding food
 - 4 Fighting waste
 - 5 Supporting and promoting scientific research in the agri-food sector
- Metropolitan Food Council
 - Monitoring system

MUNICIPAL DEPARTMENTS AND OTHER AREAS OF INSTITUTIONAL RESPONSIBILITY

- A Budget, Public Property Administration
- B Education
- C Transport and Environment
- D Labour policies, Manufacturing, Commerce, Human Resources
- E Social and welfare policies, Health Care, Citizen Rights
- F Digital transformation and public services
- G Urban Planning, Park administration and Agriculture
- H Deputy Major
- I Presidency of the City Council
- L Mayor's Cabinet

ventions and **short supply chains for urban commerce** (large-scale retail trade, farmers' markets...) through supply contracts.

Guidelines for **revival of the indoor markets** were approved in 2017, with the aim of turning them into social and cultural centers and points of reference for local economic life, on the model of the European food markets in which the business of selling is increasingly accompanied by the serving of food and drink. Three markets have already been upgraded: Darsena, Santa Maria del Suffragio and Lorenteggio. A similar approach is being taken with the **open-air weekly markets**, for which the overall map—location, size, frequency, opening hours—needs revising with the aim of expanding their number, locating them in a more rational way, minimizing their impact on the neighborhood and ensuring that all the organizational and logistical measures required by the (evolving) regulations in relation to safety are respected.

The municipality allots spaces for **farmers' markets** and is in the course of drawing up regulations for these markets. In addition, it has granted licenses for 50 environmentally friendly vehicles offering **street food** (PDO and PGI products, ethnic cuisine) in the city. The municipality is also working with Sogemi on the **Plan of Revival of the Mercati Generali**, redefining together with the Ministry of Agricultural Policies the strategic framework of the municipal company that runs the wholesale markets and in parallel completing the process of securing their structures.

What civil society and private sector do: some examples

The projects in the city are focused to a great extent on the themes of household production, short supply chains, local sourcing and networks.

There have been many experiments with **urban vegetable gardens**—mostly run by voluntary organizations, but also by institutions and private players—that combine the **activity of growing your**

own food with educational and recreational aims and with social rehabilitation: from the Giardino degli Aromi in the grounds of the former Paolo Pini Mental Hospital to the organic vegetable garden La mia Terra at Bollate, which are both intended to help bring about the reintegration of disadvantaged people into society and employment; from the university vegetable garden on the Durando campus of Milan Polytechnic, which sees the collaboration of students, teachers and residents of the Bovisa district, to the experience of the volunteers of the Gruppo Verde who tend the educational and community vegetable garden of the Cascina Cucagna, organizing workshops on themes like urban horticulture, the cycle of bread production and beekeeping.

There are also a number of **networking projects** that are focused on **safeguarding the Parco Agricolo Sud Milano (PASM)**: the District of Rural Solidarity Economy (Distretto di Economia Solidale Rurale, DESR), which groups together food coops (GASs), farms, ethical finance operators, local authorities, time banks and fair-trade stores; the PARC, a catering scheme that promotes the products of some of the companies in the PASM that have been assigned the "Produttore di Qualità Ambientale" environmental quality standard; and Ciboprossimo, a social project that aims to build networks between producers and consumers in order to strengthen the practice of the short supply chain on a national scale. The events staged include Seeds&Chips, a series of conferences and meetings focusing on innovation in relation to food.

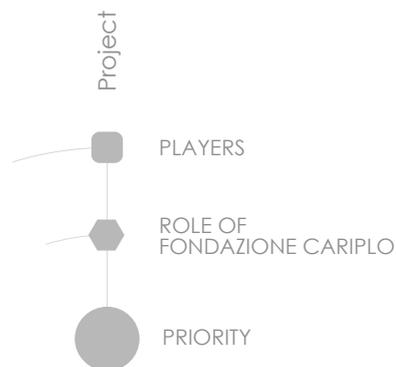


PLAYERS

- M** Private
- N** Public
- O** Nonprofit sector
- P** Nonprofit sector/social initiatives

INVOLVEMENT OF FONDAZIONE CARIPLO

- Project funded by Fondazione Cariplo
- Projects run by Fondazione Cariplo



Milan City's projects

AMAT: Plan of Action for Sustainable Energy/PAES	On joining the Covenant of Mayors (2009) the municipality of Milan undertook to reduce its emissions of CO ₂ by at least 20% (from the base year of 2005) by 2020 and to adopt a Plan of Action for Sustainable Energy (PAES) in order to identify all the actions/initiatives needed to ensure the attainment of this goal.
AQST Contratti di Fiume (reactivation of resurgences)	Framework Agreements of Territorial Development (AQSTs) signed by the municipality of Milan and all the bodies involved territorially or functionally in the Lambro, Seveso and Olona catchment basins in order to optimize actions and proposals and promote improvement of water quality in the rivers concerned. They also comprise projects for the reactivation of resurgences to the west and south of Milan promoted by the agricultural districts.
AMAT: Low Emission Zone (LEZ)	The Sustainable Urban Mobility Plan calls for the setting up of a Low Emission Zone (LEZ) in the vicinity of the municipal boundary but inside the circle of the orbital roads, with the establishment of a ZTL (Restricted Traffic Area). The "LEZ" ZTL should provide the opportunity for a revision of the municipal regulations governing the circulation of heavy industrial vehicles.
Automatic traffic control	Experimentation of technologies and systems for dynamic control of the circulation and parking of certain categories of vehicle, through systems capable of detecting the actual distances covered and routes followed, in order to pass from the current logic of control to systems that permit the implementation of rules governing the circulation of heavy vehicles with high emission levels or transporting dangerous goods.
Upgrading of indoor municipal markets	Upgrading of IMCs: entrustment by tender to a single operator (or group of operators) and medium to long-term contracts with commitments to extraordinary maintenance measures and innovative entrepreneurial initiatives. Guidelines for the revival of the IMCs: the goal is to also create spaces that make the facilities an integral part of the economic and social life of the neighborhood.
Optimization of the open-air weekly markets	It is necessary to revise the overall map of the OWMs (location, size, frequency, opening hours), minimize their impact on the host district, guarantee the organizational and logistic measures required by the safety regulations, tackle critical issues related to cleaning, parking and traffic and set up systems for the distribution of "clean" energy and the separation and collection of waste (installation of trash compactors).
Street food islands	The "street food" service has proved particularly popular with residents and tourists. The products on offer were of high quality and it has led to a growth in entrepreneurial activity among young people and women. The decision has been taken to issue a new call for tenders to make the experiment permanent: the new assignees, using environmentally friendly vehicles, will be allowed access to areas where itinerant commerce was previously forbidden.
Social use of property confiscated from the mafia	The council, in continuing to give the due priority to reutilization of confiscated property for institutional and social purposes, and in view of the large number of confiscated properties within the city limits, undertakes to evaluate and initiate processes that will also permit their reuse as rented accommodation as provided for by the regulations in force, undertaking moreover to allocate the proceeds exclusively for social purposes.
Network of major tourist attractions for sustainable development	Actions to promote exploitation of the territory for touristic purposes: coordination and development of the activities provided for in the Memorandum of Understanding between the municipalities of Milan, Rome, Naples, Venice and Florence and the province of Rimini for the creation of a network of major tourist attractions for sustainable development.
Parks and Gardens Plan and regulations for the protection of parkland	Parks and Gardens Plan: instrument to be used for the establishment of a unified control at the metropolitan level. New regulations for the protection of parkland. Approved by the City Council, these comprise innovative elements for the preservation of parks and gardens: direct involvement of residents in the management of public areas, placing of public and private parkland on an equal footing, regulation of activities permitted in parks.
Development and improvement of parkland	The process of improvement of large gardens and parks continues, with a view both to upgrading individual open spaces and the development of a system of permeability in the city. They include: Grande Parco Forlanini; Parco del Ticinello; Parco della Vettabbia; Parco delle Risaie; Parco delle Cave (with the expectation of a progressive reopening of the Cava Ongari Cerutti); PLIS (Parco Locale di Interesse Sovracomunale) Media Valle del Lambro; PLIS Martesana.

Rehabilitation of municipally owned areas	Steps will be taken to rehabilitate municipally owned areas that are unmanaged or neglected, carrying out first a basic re-greening with operations of reclamation aimed at resolving situations of decay and making the spaces usable, with minimal hard landscaping.
Participatory tending of parkland/Giardini Condivisi	Activities for the participatory tending of parkland will be stepped up further: creation of common gardens and adoption of parkland by private individuals. The "Common Gardens" project represents an innovative mode of reclamation and management of abandoned public areas, as their rehabilitation for public use is the fruit of collective activity (gardening and cultivation, meeting of different generations, cultures...).
AQST Milano Metropoli Rurale	As far as the actions within the competence of the municipality of Milan in the compass of the AQST are concerned, particular attention will be paid to the provisions regarding water (upgrading the valley areas of Roggia Vettabbia with special emphasis on the environs of Chiaravalle and Roggia Ticinello) and to moving ahead with the steps for the renewal of leases of farmland characterized by the presence of rural buildings.
Piano delle Cascine	The Piano delle Cascine or "Farmhouse Plan" consists of actions aimed at facilitating and sharing with farmers the reclamation and upgrading of the rural stock of government properties in order to help farmers put down roots in the territory. In addition to the architectural rehabilitation of structures already owned by the local government, calls will be made for bids for assignment of the management of properties that combine public functions with those of a private character.
Farmers' markets	After the launch of the experiment conducted following the public call for tenders published in 2014 and reiterated in 2015 with the updating of the locations of experimentation, the process will be concluded by the drawing up of Regulations for Farmers' Markets along the lines laid down by the Ministerial Order of November 20, 2007 (De Castro Decree), to be held in the places shown to be suitable by the experiment carried out.
Activity of improvement of the rural and/or agricultural areas/ Multifunctionality	Activity of improvement of rural and/or agricultural areas: the possibilities offered by the Legislative Decree 228/2001 regarding agricultural multifunctionality will be put into effect as a preferential tool for promoting the entrustment to agricultural companies of services and interventions of an agricultural, forestry or pastoral nature in rural areas of the city's territory (environmental upgrading of the Monluè area, completion of the reclamation of Cascina Linterno...).
Leasing of government-owned rural plots of land	Renewal of residual contracts and renewal of those nearing expiry in keeping with the guidelines of previous years. Plots of land on which no buildings stand will be renewed for 15 years, while ones where rural buildings are present will be offered renewals of leases of up to 30 years in return for structured investments proposed by the tenant.
SoGeMi: redefinition of the strategic framework, securing and maintenance	Securing and maintenance of SoGeMi: in 2017 the process of securing the operative structures of SoGeMi will be completed. Redefinition of SoGeMi's strategic framework: discussion is underway with the Ministry of Agricultural Resources to define the strategic framework of wholesale trade and of the public management of the Mercati Generali within it.
MiRi: Biodegradable tableware	The objective of solutions of "low environmental impact" in line with the goals of GPP (Green Public Procurement), consisting in the expansion of the supply of dishes for dining made of compostable and biodegradable material at every level of school has been fully achieved.
Pasto Sano	The "Healthy Meal" project stems from a collaboration between the municipality of Milan and the Azienda di Tutela della Salute (ATS, Health Protection Trust) of the Metropolitan City of Milan to promote good nutritional habits during the lunch break. Bars, delicatessens and restaurants participating in the project undertake to include in their menus dishes that adhere to the guidelines drawn up by the ATS on modes of preparation and/or the choice of ingredients.
MiRi: Mater Alimenta Urbes (short supply chains in institutional catering)	Development of a planning proposal based on the new integrated tenders of the PSR of the Lombardy Region, with the aim of establishing a connection between institutional catering and the local producers of the municipality (DAM) and the metropolitan area (PASM).
Consorzio VialedeiMille	Set up on the initiative of the Department of Labor Policies of Milan City Council, the Consorzio VialedeiMille is made up of five social cooperatives that work in the prisons of San Vittore, Opera and Bollate on facilitating the reintegration of convicts into society and work during and after their detention. Foodstuffs are also sold outside the prison.



PRIORITY 3

PROMOTE FOOD EDUCATION

Promote a culture oriented to consumer awareness of healthy, safe and culturally appropriate food that is sustainable, produced and distributed in respect of human rights and the environment.

Guidelines

1. The Municipality shall expressed its commitment to education either directly or through its subsidiaries, or through agreements with schools, other institutions and educational agencies and the industry, by promoting initiatives that increase the level of awareness of all the citizens of Milan.
2. Education and training to healthy, sustainable nutrition shall concern both the basic content for all citizens, and more specific content for operators, which are designed to accompany the sustainable innovation of all stages of the food cycle.
3. Spreading the contents and orientations of the Food Policy through the enhancement of existing experiences consistent with the principles expressed in this paper.



FOOD
CYCLE

SDGs	TARGET
2 ZERO HUNGER	2.2
3 GOOD HEALTH AND WELL-BEING	3.4
4 QUALITY EDUCATION	4.7
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12.3 12.8



Introduction to the theme

Food policies cannot disregard the question of education. The theme of fair, healthy and sustainable nutrition is by its nature so interdisciplinary and multidimensional as to constitute in and of itself a key element of citizenship education. It is a two-way connection: on the one hand the education of an aware citizenry necessarily involves what they decide to eat, and on the other it is not possible to bring about a change in food systems without encouraging the emergence of a willingness on the part of people to modify their habits of consumption.

In Italy the importance of the link between food and education was brought to the attention of institutions and the media on the occasion of the Milan Expo in 2015. The two school years that straddled the world's fair (2014-15 and 2015-16), but also the years that preceded it, were filled with public and private initiatives connected in the broad sense with the theme of food education.

The MIUR (Ministry of Education, Universities and Research) produced the first guidelines on the subject in 2011 (MIUR, 2011) and then updated them in 2015 (MIUR, 2015), on the occasion of the Expo. From this last document in particular emerge with clarity two characteristics that define the desired approach, at least on paper.

- A particular accent is placed on **everyone's right of access to healthy, nutritious and sufficient food**, something that cannot be taken at all for granted given that the right to food is recognized only indirectly in the 1948 Universal Declaration of Human Rights. In art. 25, in fact, it appears among the factors needed to maintain an adequate "standard of living," and it remains at the center of an international debate that has long been under way at many levels.
- **Food education** is viewed from a **systemic perspective** and answers a series of objectives that turn around the whole of the food chain, from production to consumption and the end of the products' life. It is a question in particular of stimulating an awareness of the importance of the relationship between food and health, so as to develop a personal and collecti-

ve understanding of the subject, in line with the indications of the competent parties and institutions; encouraging the adoption of healthy dietary habits, by applying the most suitable educational methods and paying particular attention to raising awareness of quality agricultural produce, obtained with respect for the environment, the law and ethical principles and linked to local tradition and culture; promoting knowledge of the agricultural and food industry through an understanding of the relations between systems of production and distribution, with reference to food resources, the environment and society; fostering the multidisciplinary character of education about food, in its scientific, historical, geographical, cultural, anthropological, environmental and social aspects, as well as the psychological ones linked to the personal and collective relationship with food; promoting a concept of the comprehensive sociality of food that incorporates values related to sustainability, ethics, legality, cross-cultural ties and the local community.

Thus the approach defined by the guidelines of the MIUR has also had the merit of solving the problem of the **overlap between food education and nutritional education**, which people still tend to confuse today, although the academic debate on this subject made the necessary distinctions between them back in the 1980s. Food education, while it includes an attention to the health of individuals and the inputs required for their sustenance (fundamental aspects of nutritional education), is set apart by its systemic approach, which looks at the different social, environmental and economic aspects of the whole chain of food production, fitting in perfectly with the philosophy of the Sustainable Development Goals (SDGs) of the UN's Agenda 2030, also presented in 2015.

Food education as education in sustainability and global citizenship

Now that the limelight of Expo 2015 has faded, the theme of food education has been brought back within the framework of two distinct but complementary and interconnected goals: education in sustainability and education in global citizenship. Both see food and nutrition as cardinal elements, despite dealing with them as part of a broader program of intervention.

In March 2017, within the framework of Agenda 2030, the **Ministry of the Environment** launched the **National Strategy for Sustainable Development** (Strategia Nazionale per lo Sviluppo Sostenibile, MATM, 2017), which devotes a specific area to education and includes among its objectives the establishment of “interdisciplinary and participatory processes aimed at disseminating knowledge, skills and lifestyles oriented toward sustainable development.” The reference is to all 17 SDGs of the United Nations, but in particular to goals 1, 2, 3 and 12, which propose respectively to end poverty, eliminate hunger, ensure health and well-being and guarantee sustainable models of production and consumption (it should be remembered that goal 4 is explicitly devoted to education).

On the other front, the document of reference is the **National Operational Plan 2014-20 of the MIUR** entitled **For the School, Capacities and Settings for Learning** (Programma Operativo Nazionale per la Scuola-competenze e ambienti per l'apprendimento). The plan envisages the promotion of global citizenship skills (connected with the specific objective of “Improvement of Students' Key Skills”), subdivided into five thematic areas, the first of which is: Food Education, Food and Territory. In addition, in the month of February 2018 the **National Council for Development Cooperation** (Consiglio Nazionale per la Cooperazione allo Sviluppo, CNCS) approved the **Italian Strategy for Education in Global Citizenship** (Strategia Italiana per l'Educazione alla Cittadinanza Globale), which has seen an unprecedented collaboration between the Ministries of Education, the Environment and Foreign Affairs, in order to finally include the important work carried out by associations and NGOs operating inside and outside the school in a national strategic plan.

Information, awareness and education

Precisely because of the significance of the question of education and the role that local authorities can play, it is important to make some distinctions. In the first place the one between providing information, raising awareness and education, terms—often treated as synonyms— that are utilized to describe the initiatives of non-state actors and local authorities that promote the raising of awareness among young and old on questions linked to global development, recognized at the European level by the **Development Education and Awareness Raising** (DEAR) program. Although all three are fundamental in favoring the development of critical thinking and an informed engagement, they are not in essence the same thing, indeed they answer to profoundly different logics and objectives. **Information is one-directional**: it calls attention to a message, which has on the one hand to be clear and comprehensible and on the other to be striking enough to be remembered. Its rules are **simplicity** and **appeal**. **Raising awareness** goes a step further, aiming at the **involvement of people** in problems or questions that it is presumed might be of interest to them. Its goal is not just to provide information, in a traditional or interactive manner, on a subject, but also to invite people to do something, to take action to change the status quo. Its rule is **engagement**. While **Education** is a **maieutic process** that does not aim to persuade but to provide people with the tools to form an opinion. It does not rely on the simplicity of the message but thrives on complexity. It does not seek points of common interest, but favors a multiplicity of viewpoints. If the successful outcome of an awareness-raising campaign is judged on the construction of a consensus and the motivation and participation of people, the success of an educational process has more to do with the sphere of self-construction and the transformation of capacities into skills. The rule of education is **relationship**, within a process that is open-ended by definition and whose results are therefore difficult to predict.

The second important distinction should be made between formal, non-formal and informal education: given that learning takes place through the whole course of a human being's life (a concept

known as lifelong learning), the term education necessarily applies to experiences that differ greatly from one another.

Formal education refers to a **context of learning that is organized and structured** specifically as such. It is the kind of formal learning that goes on at school, from childhood to university, and in professional training, undergone even in adulthood. Normally the process of formal education is a vertical, top-down one—there is a teacher who explains and a student who learns—and leads to some form of recognized credential.

By the term **non-formal education** is meant formative experiences that are planned and structured but **not explicitly intended as a learning process**, such as voluntary work, international exchanges funded by European programs like Erasmus Plus, as well as things like a day of brainstorming among professionals on a particular problem. Non-formal processes of education privilege a horizontal (peer to peer) relationship, participatory methodologies and a practice-oriented approach (learning by doing).

Informal education, finally, is the **unstructured** kind that takes place in the social context in which one lives or in daily life, through things like going to the movies, having a discussion with friends or interacting on social networks. While the first two are intentional from the viewpoint of the student, i.e. they presuppose a conscious choice on his or her part, informal education is not intentional, in the sense that it is not a response to a desire for learning. So when we speak of educational processes we are referring to the first two kinds, since informal education, not being organized by definition, cannot be planned or evaluated in terms of objectives, despite having a very significant impact in some cases.

The range of action of local authorities

As part of a strategic vision of their territory, local authorities have necessarily to include the theme of food education. In fact it is beholden on them to carry out a function of guidance that can lend coherence to such a varied range of formative experiences, so that it can really produce useful results in the medium to long term.

A number of administrations have already been doing this to some extent for several years now through a wide range of projects, in an attempt to make the wealth of the region's produce have a concrete impact capable of inducing change in the local food systems. After all **food has always been one of the cornerstones of democratic systems**, established to meet primary needs collectively, first and foremost that of nutrition. What is being lost is precisely the link between local policies and access to food, delegated too much in the era of factory farming to the logic of economy of scale in production and in large-scale retail chains, substantially disconnected from the territories in which they operate. At the International Symposium on Agroecology, which concluded in April 2018, the FAO too proposed a change of gear toward short food supply chains that take account of the need for the care of ecosystems and the people involved in that supply.

The divide between the conceptions of food security and food sovereignty—with the latter including the question of the sovereignty of local populations over policies and food resources—is at the heart of the relationship between food, citizenship, territory and education. In this relationship **education plays the role of the glue that holds together the various forces involved in the shift toward more sustainable food systems**; commencing with the challenge faced by local communities, which today are called on more than ever to take back possession of food policies, to introduce innovation and to ask from their members a new awareness of the importance of their choices.

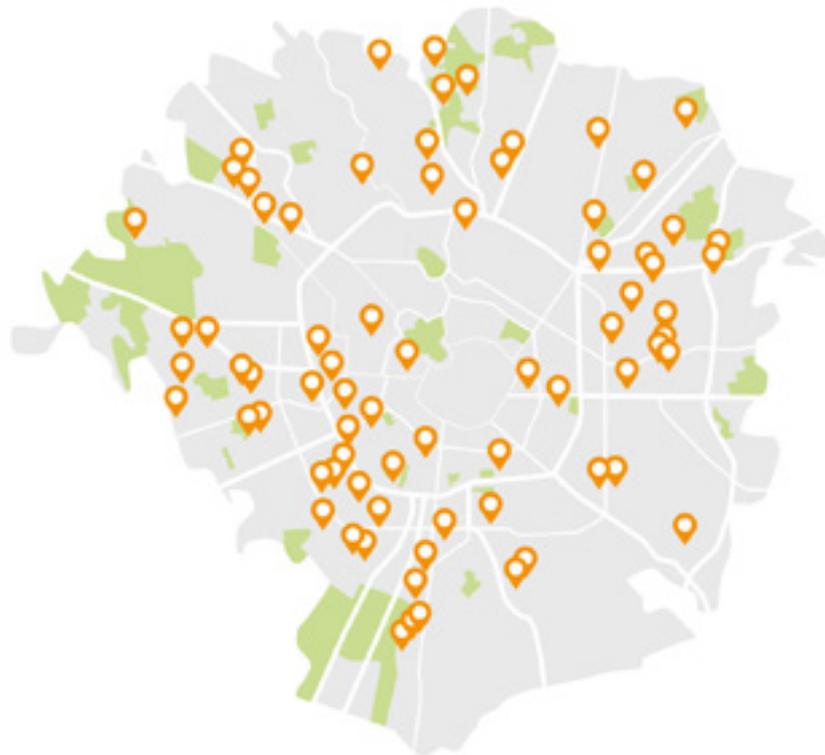
The alliance between the municipality and the city on education

Food education, considered to all effects and purposes a key element in instilling the values of global citizenship and sustainable development, is the ideal means of connecting the global dimension with the local one. Given the nature of the subject, the diversity of the stakeholders and the wide range of themes, food education (understood in the broad sense, i.e. as formal and non-formal experiences and comprising activities of informing and awareness raising as well) is also an ideal way of connecting the work of the municipal administration with that of the city as a whole, since it is an activity that is brought into play through a complex web of relations between the municipality and stakeholders in the region. The experiments under way in the city concern **structured educational interventions in schools, cultural festivals, awareness-raising campaigns, events and exhibitions, schemes of vocational and social rehabilitation, educational farms and vegetable gardens**. The organizations responsible have different perspectives: the municipality (in particular through the partly owned Milano Ristorazione and collaboration with the School Catering Committees), large-scale retailers, bodies representing the world of agriculture (trade unions, farms), foundations, NGOs and voluntary organizations working on the right to food or the reception and integration of migrants and the disadvantaged and universities. The subjects tackled range from the food chain in all its phases (production, processing, logistics, distribution, consumption and surplus and waste management) to the questions of access to sufficient, healthy and sustainable food, the exploitation and management of natural resources, the difference between food security and food sovereignty and the intercultural component—food as an example and means of integration.

The theme of collaboration, fruitful but sometimes confrontational too, between municipal administration and local organizations is particularly evident in school catering, with the experiences of the **School Catering Committees**—operating in conjunction with the school meal services associated with unified state schools and mu-

Educational vegetable gardens in nursery, elementary and secondary schools

(Master's Degree thesis of Francesca Maestri)



municipal educational units and groupings of accredited large and small childcare centers—and the **elected representatives of the committees** themselves. Both, made up of parents and teachers, are bodies that have been active in the city for years and represent a means of connection between the municipality, the operator of the service, the educational institutions and the residents/users. Their role was formalized by the city council in March 2014 with the **School Catering Committee Regulations**, drawn up on the basis of the National Guidelines for School Catering issued by the Ministry of Health and the Lombardy Region's Guidelines for School Meals. Article 3 of the regulations assigns the committees the roles of monitoring and assessment of the service, of consultation over menus, the delivery of the service and the contract of the operator, of dialogue with regard to food education programs and of connection between all these activities and the other players involved in the service (users, municipality and operator). Article 19 assigns elected representatives a role of connection and coordi-

nation of the activities of the committees in relationship to the municipality and the operator, and of consultation over the drawing up of the seasonal menu and the definition of the service as a whole; a crucial role as it even allows them to intervene preemptively on some of the policies adopted by Milano Ristorazione and not just monitor its daily activities. The city council has also prepared a training program on the subject of controls of the school meals service, in collaboration with the ATS (Agenzia di Tutela della Salute o "Health Protection Agency") and Milano Ristorazione, aimed at the members of the School Catering Committees and operators in the schools. The course was conducted by the municipality in the school year 2017/18 using modes of distance learning.

Milano Ristorazione's educational projects are aimed at stimulating virtuous behavior in users, primarily in relation to the containment of food waste, in keeping with the provisions of the company's mission, i.e. the "dissemination of a culture of control of food waste and promotion of projects of education in conscious consumption and the recovery of food surpluses." Other projects focus on different themes:

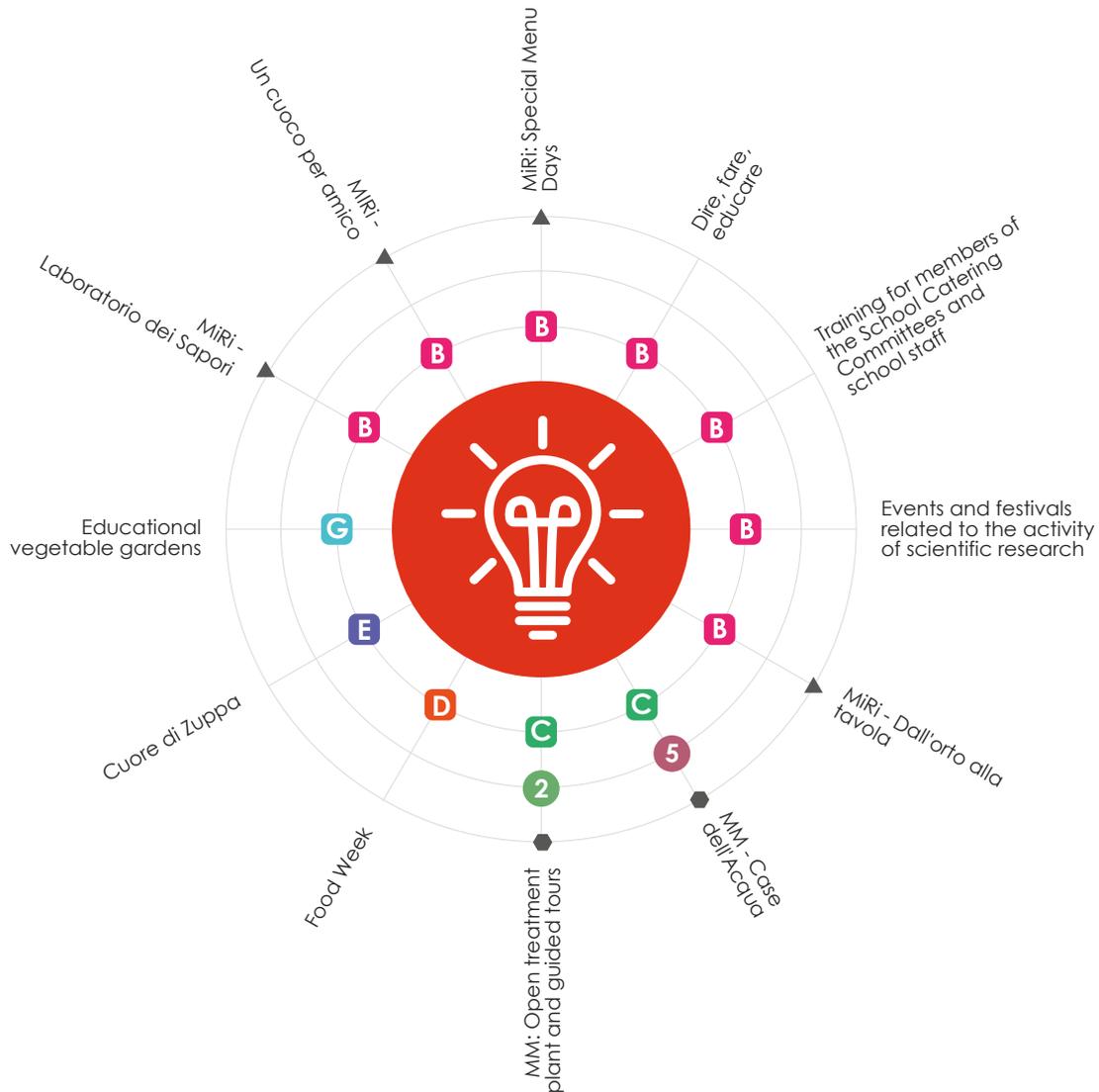
- **Un Cuoco per Amico** ("A Cook for a Friend"), now in its sixth year, brings the head cooks of all the company's catering centers to nursery and elementary schools at lunchtimes to hold a dialogue with the children and the teachers;
- **The Special Menu Days** propose menus designed to introduce and explore topical themes (such as allergies—gluten-free day—or civic engagement in the struggle against organized crime—day with the produce of land confiscated from the mafia);
- **Dall'Orto alla Tavola** ("From the Vegetable Garden to the Table") proposes meetings on the subject of cooking, on evenings devoted to families and children centering on themes related to an environmentally sustainable lifestyle, in association with the projects of educational vegetable gardens under way in about 100 of the city's schools.

The municipality's engagement in education also goes beyond the school: every year the municipally owned Metropolitana Milanese (MM) opens two of the Integrated Urban Water Management

Service's facilities—the Centrale Padova and the Depuratore di Milano San Rocco treatment plants—to the public to illustrate the handling of the water cycle in Milan. Between open days and tour bookings, MM received visits from around 800 people in 2016.

The installation of 18 **water kiosks** also has important educational aims: encouraging people to drink water from the mains supply and reducing the use of plastic bottles.

Outside the range of action of the municipal administration or, in some cases, in connection with it, many projects and initiatives of food education are under way in the city, intertwined in various ways with the themes of sustainability and the right to food. Among the most significant, the ones that combine **education and projects of job placement**, like the bread of Buoni Dentro, produced by the young inmates of the Beccaria Detention Home and that of the social cooperative In Opera, produced by the inmates of Opera Prison (and also utilized by Milano Ristorazione), or again the In Galera restaurant of Bollate Prison and the fresh pasta of the project Le Mani in Pasta, produced by people with mental health problems. Different too are the **educational projects in schools**, like the MiColtivo **vegetable gardens** of the Fondazione Catella or Slow Food's Orti in Condotta, or the classroom interventions of Banco Scuola and Sapere COOP. There are many **events** that have an explicit educational and awareness-raising intent, from Metropoli Agricole—the conference staged annually by the Fondazione Cariplo since 2013 on the sustainability of the production processes linked to food—to fairs of ethical consumerism like Fa' la Cosa Giusta and La Terra Trema and cultural events like the Food Film Festival.



For additional project info, check the table at the end of the chapter

ADDITIONAL PRIORITIES AND TOOLS RELATED TO THE PROJECTS

- 1 Guaranteeing healthy food for everybody
 - 2 Promote the sustainability of the food system
 - 3 Understanding food
 - 4 Fighting waste
 - 5 Supporting and promoting scientific research in the agri-food sector
- Metropolitan Food Council
 - Monitoring system

MUNICIPAL DEPARTMENTS AND OTHER AREAS OF INSTITUTIONAL RESPONSIBILITY

- A Budget, Public Property Administration
- B Education
- C Transport and Environment
- D Labour policies, Manufacturing, Commerce, Human Resources
- E Social and welfare policies, Health Care, Citizen Rights
- F Digital transformation and public services
- G Urban Planning, Park administration and Agriculture
- H Deputy Major
- I Presidency of the City Council
- L Mayor's Cabinet

Project

- Municipally owned companies (+AMSA)
- Additional priorities and tools
- Institutional roles and bodies
- PRIORITY

MUNICIPALLY OWNED COMPANIES (+ AMSA)

- AMAT
- ★ AMSA
- ▲ Milano Ristorazione
- MM
- ◆ SoGeMi

Milan City's projects

MiRi: Laboratorio dei Sapori	As in previous years, the "Flavor Workshops" project was organized during the 2015/16 school year. Children at elementary and secondary schools were asked to fill in a simple form in which they could express their degree of satisfaction with the meal they had been served and with the individual dishes on the menu.
MIRi: Un cuoco per amico	The 2015/16 school year saw the initiative "A Cook for a Friend" staged for the sixth time in the week from March 7 to 11, 2016. The head cooks of all of Milano Ristorazione's catering centers paid visits to nursery and elementary schools at lunchtimes to hold a dialogue with the children and teachers.
MiRi: Special Menu Days	The Special Menu "Days" propose original and unusual menus designed to introduce and explore themes already tackled in daily life but not in sufficient depth. The special days have been: "In fuga dal glutine," a day of allergies with a gluten-free menu; "A pranzo ricordando," a day with the produce of land confiscated from the mafia.
Dire Fare Educare	For the entire month of November 2017 and up until December 6 the "Saying, Doing, Educating" project returns with a program of initiatives and events dedicated to the themes of education and training in which children, teenagers, educators, teachers and families will be involved in debates, seminars, workshops and educational, cultural and play experiences.
Training for members of the School Catering Committees and school staff	Reappraisal of the plan of training on the subject of controls over the school catering service, in collaboration with ATS and Milano Ristorazione, aimed at members of the School Catering Committees and school staff. Distance learning for the School Catering Committee: the course tackles subjects connected with the management and monitoring of the school catering service through a structure of thematic units.
Events and festivals related to the activity of scientific research	Organization of events and festivals providing information on the scientific research activity carried out by the universities ("Meet Me Tonight").
Educational vegetable gardens	A graduation thesis at the School of Design of the Polytechnic has taken a census of the educational vegetable gardens present in nursery, elementary and secondary schools (both public and private), registering the presence of kitchen gardens in over 20% of schools (over 30% if only nursery and elementary schools are taken into consideration). These gardens are created either through participation in external projects (e.g. with Slow Food or the municipality of Milan), or on the initiative of individual teachers.
MiRi: Dall'orto alla tavola	The project proposes meetings on cooking at evenings dedicated to families and children. Parents take part in some phases of the preparation of the meal, observing techniques of cooking and listening to experts. In parallel, at the workshops devoted to children, the latter have experimented with the preparation of a number of recipes.
Cuore di Zuppa	A project of nutritional education financed by the municipality with funds allocated by Law 285 for the promotion of healthy lifestyles among the very young and their families. Between October 2016 and December 2017 occasions of interactive training, events and other interventions were staged free of charge for schools and families.
MM - Case dell'Acqua	To boost the utilization of mains water, encouraging its use as drinking water and reducing the pollution resulting from the reliance on plastic bottles, the municipality of Milan has installed dispensers of drinking water known as Case dell'Acqua around the city. These water kiosks have been located in all the boroughs of the city.
MM: Open treatment plant and guided tours	Every year MM opens two of the Integrated Urban Water Management Service's treatment facilities—the Centrale Padova and the Depuratore di Milano San Rocco—to the public, making its staff available to illustrate the handling of the water cycle in Milan to students of every level and individual citizens. In addition, at the website www.milanoblu.com it is possible to book a guided tour of one of the two facilities open to the public.
Food week	Milan Food Week is a container of events on the subject of food & drink staged under the Milano Food City program that involves professionals, companies operating in the sector and enthusiasts. Held for the ninth time in 2018, it saw a series of Kitchen events scattered around the city offering gourmet experiences associated with different context and lifestyles.

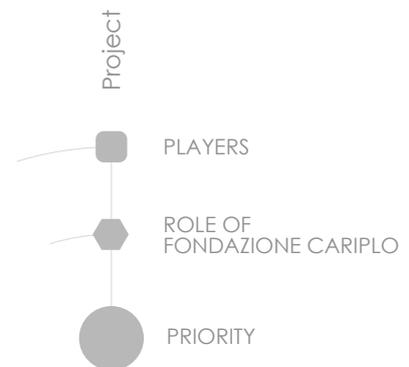


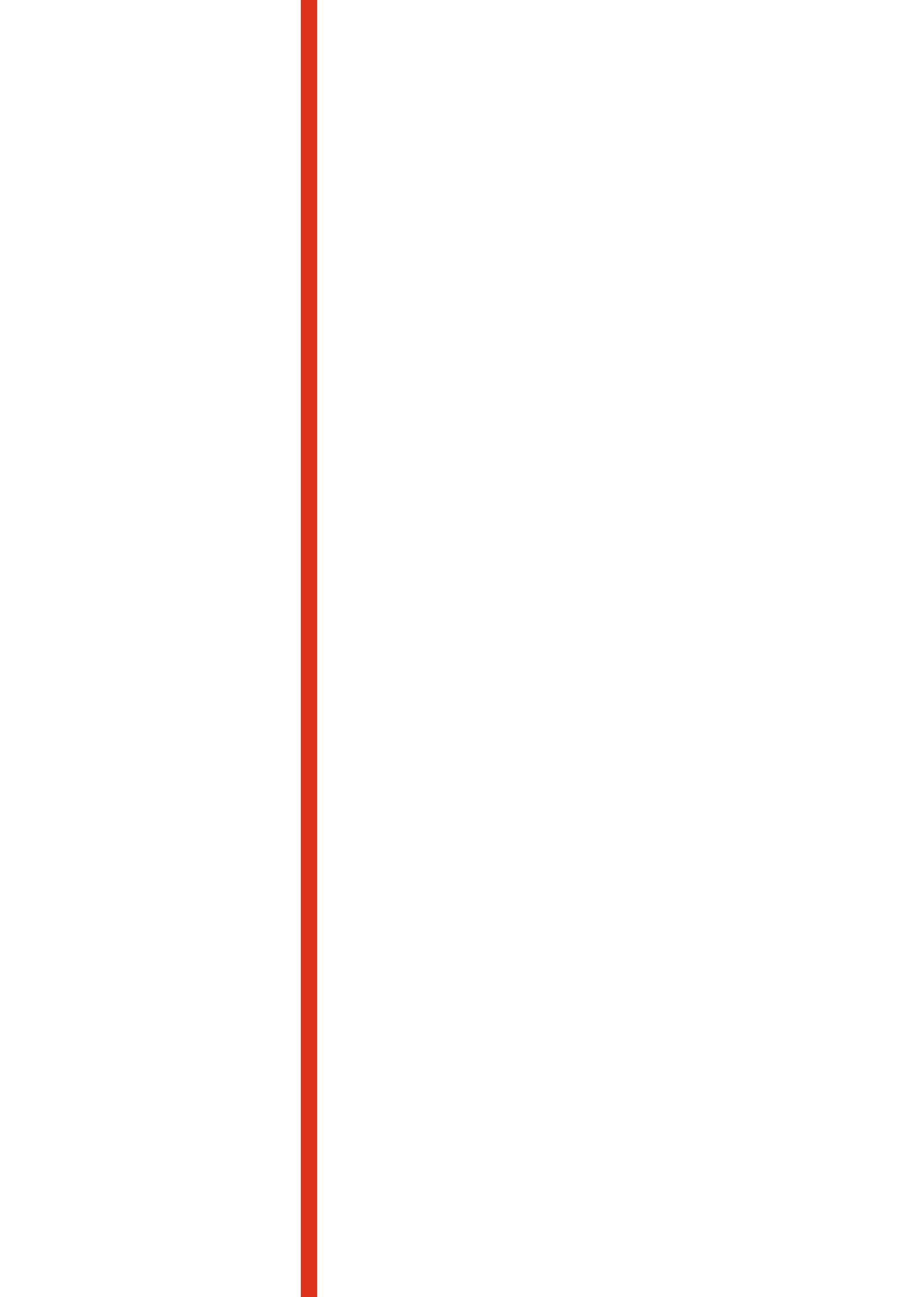
PLAYERS

- M** Private
- N** Public
- O** Nonprofit sector
- P** Nonprofit sector/
social initiatives

INVOLVEMENT OF FONDAZIONE CARIPLO

-  Project funded by Fondazione Cariplo
-  Projects run by Fondazione Cariplo







PRIORITY 4

FIGHTING AGAINST FOOD WASTE

Reduce surpluses and food waste during the different stages of the food chain as a form of preventing social and economic inequalities and as a tool for reducing the environmental impact.

Guidelines

1. The Municipality, in cooperation with the local actors, shall promote actions devoted to the citizens and operators involved in the food cycle in order to reduce surpluses and waste.
2. The Municipality, in cooperation with local actors, shall promote the recovery and redistribution of surplus food.
3. The Municipality shall promote partnerships with institutional, economic and social entities to promote the rationalisation of packaging and the reduction of waste throughout the food chain.
4. The Municipality shall apply the principles of material and energy cycle closing to the food system from a circular economy and bio-economy perspective.



SDG	TARGET
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12.3 12.5



Introduction to the theme

The wastage of food has assumed such proportions that combating it is now considered a worldwide **priority**. With the document Agenda 2030—which approved the **Sustainable Development Goals** (SDGs), regarded as representative of the global priorities for sustainable development—the global community undertook to reduce the food loss per capita that takes place at the production and processing stage and to halve the waste that occurs at the level of distribution and consumption by 2030. The reduction of food waste is also one of the priorities of the **strategy for a European circular economy**.

The absence, up until a very short time ago, of a definition of food waste adopted at an international level has represented an enormous obstacle to understanding and identifying the causes and scale of the waste, potential solutions and priorities of action, as well as to monitoring of any progress.

Depending on the definition used, not only does the magnitude of food waste change, but even the interpretation of the phenomenon varies: food waste is in fact bound up with complex economic, social and environmental questions. Precise positions are taken with regard to these questions, according to the way in which it is defined. To give just one example, it is by now common practice to indicate the number of needy people as a social impact of waste, implying that they could all be fed with the food that is instead thrown away. But associating the amount of food wasted with the number of people in a state of absolute poverty serves rather to highlight a paradox, and it is one whose solution requires the policies of combatting waste to be kept separate from those of combatting poverty.

In 2016 two protocols were issued for the quantification and reporting of food waste at the various stages of the supply chain—a global protocol and a European protocol—but their adoption has not been immediate.

The complexity of the theme does not regard just the question of definitions and standards. The phenomenon of waste affects the whole food chain, from production to the end of the products' life:

every stage in this cycle involves very different problems, organizations, products and players, which makes a **systemic approach** necessary.

For some time the scale of the phenomenon has been measured not just in terms of millions of metric tons of food wasted, but also by estimating the **environmental, social and economic impacts** of the food produced and never consumed. Recently there has also been an attempt to come up with **economic quantifications of the socio-environmental repercussions** of the wastage of food, even if they are only partial estimates, as there do not yet exist methods for quantifying all the negative externalities. For example estimates have been made at a global level both of some environmental costs—emission of greenhouse gases, scarcity of water, erosion of soil, threats to biodiversity—and of some social costs—increase in the risk of conflict and reduction in means of sustenance due to soil erosion, effects on health due to the use of pesticides. These estimates, although conservative, more or less double the economic costs associated with wasted food.

To shed light on what is commonly called food waste, we can use the **model developed by Milan Polytechnic**, particularly helpful in understanding the theme and framing it in the context of Milan's Food Policy. According to this model not all the food produced in the food chain (availability of food) is eaten: the inedible part becomes **food waste** (and in part, thanks to technological innovation, is turned into secondary raw material for other production processes), while the edible part that is not sold or eaten becomes **food surplus**. The modes of dealing with this excess have been defined by the Environmental Protection Agency of the United States of America on the basis of a precise hierarchy that, after placing reduction in the volume of surplus food generated at the top, lists the different uses to which it can be put in order of priority: feeding people, feeding animals, industrial uses (energy production), composting and landfill or incineration. According to this hierarchy, **food waste**—from a social perspective—consists of all the surplus that is not recovered for human consumption.

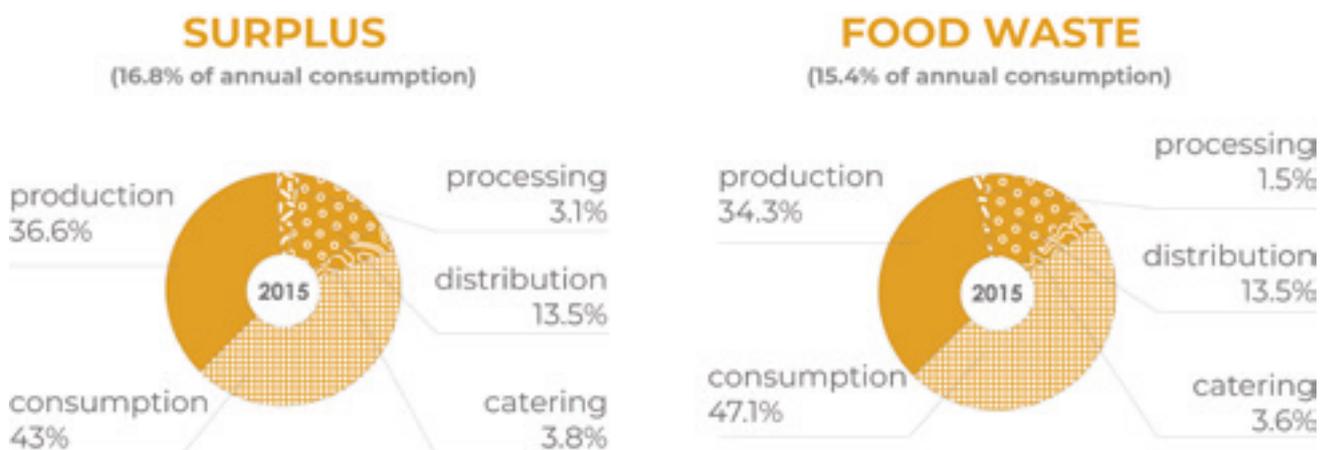
Quantification of the phenomenon

It is very rare for measurement and analysis of food waste to be carried out at an urban scale: there have been many attempts to quantify particular aspects of the phenomenon in the Milan area and just as many focused on its reduction, but at the moment there are no systemic studies that can give an idea of the scale of food waste citywide, apart from approximations that can be made on the basis of national statistical data.

An analysis of these data shows that in Italy about 5.6 million metric tons of surplus food are produced in a year, representing 16.8% of annual consumption (amounting to around 33 million metric tons if catering and home consumption are combined). In addition, 5.1 million metric tons of food are wasted every year from a social perspective (i.e. not recovered to feed people), representing 15.4% of annual consumption and 91.4% of surplus food. The food wasted is equivalent to the loss of 12.6 billion euros a year (or 210 euros per person a year), to a carbon footprint of 13 million metric tons of CO₂ emitted in its production and to the needs of 1.5 million families in a state of absolute poverty.

Food surplus and waste are generated at every stage of the food supply chain, but the stage chiefly responsible for the formation of

Contribution (percentage) of each food chain's stage to the generation of food surplus and waste in Italy



The figures of waste in Italy

Distribution (large retail only)



690,000 metric tons/year

91.4% of the food surplus

1.9 billion euro total cost

9.5 kg/year/m2 in large sales areas (> 2500 m2)

18.8 kg/year/m2 in medium-sized sales areas (600-2.500 m2)

35% could be used for human consumption

CATERING



185,000 metric tons/year

88.1% of the food surplus

2.6 billion euro total cost

29.5% of the meal in school cafeterias is thrown away

CONSUMPTION



2,405,000 metric tons/year

100% of the food surplus

6.8 billion euro total cost

84.9 kg average annual food waste per family

Food surplus and food waste generated at the different stages of the food supply

	Annual flows managed (1000 ton)	surplus (1000 ton)	ratio (annual flows/surplus)	fungibility	waste (1000 ton)	ratio (waste/surplus)
production	71,975	2045	2.8%	medium/low ++	1755	85.8%
processing	46,085	175	0.4%	medium/high +++	75	42.9%
distribution*	29,810	755	2.5%	medium/high +++	690	91.4%
catering	3280	210	6.4%	medium/low ++	185	88.1%
consumption	29,935	2405	8.0%	low +	2405	100%
TOTAL		5590			5110	91.4%

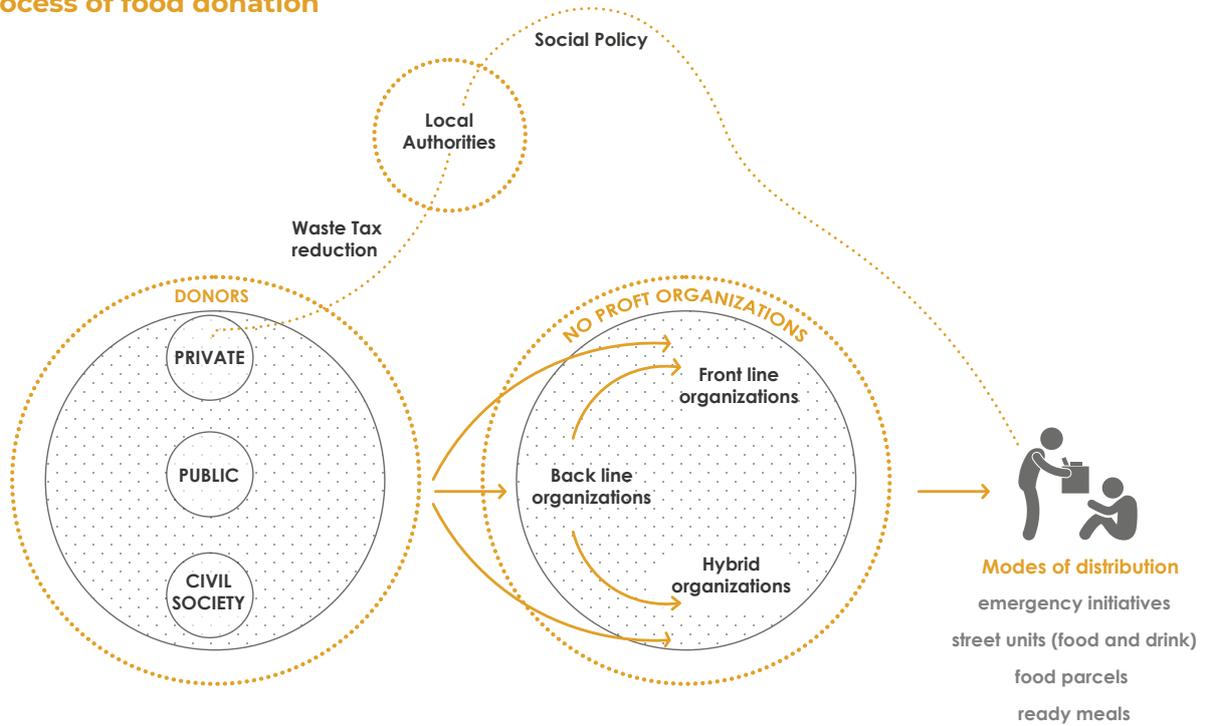
* only large retail

both surplus and waste is that of consumption; it is followed by the stages of production, distribution, catering and, lastly, processing. Each stage has ample margins for improvement, both in the reduction of surpluses and in their redistribution for purposes of social solidarity, but the choices of intervention must be based on different evaluations: annual flows involved, their economic value, types of product, the relative ease with which the food surplus can be recovered for human consumption (recoverability), capacity of those involved to receive and redistribute and much more.

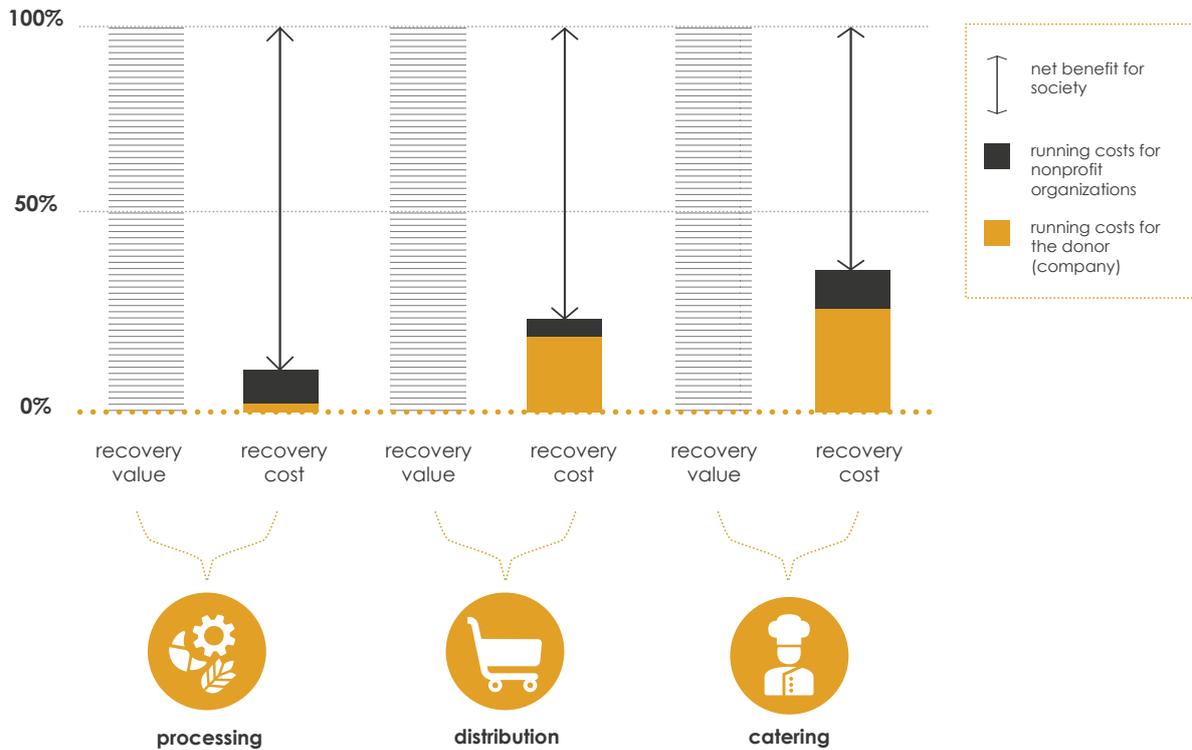
Food surplus and donations

The percentage of food surplus that is donated—at the national level—is still not very high: the recent **Gadda Law** (166/2016) was passed with the precise objective of **incentivizing the redistribution of surpluses** and unused goods for the purpose of social solidarity, allocating them to people in need. The law, which also sets out to simplify and harmonize the regulatory frame of reference that governs the donation of food surpluses, is not intended to penalize but to motivate, as it is known that it is on the whole difficult to find operators in the territory who are capable of collecting and redistributing all the surpluses that are generated, especially with regard to fresh produce, for which timing and logistics are decisive. The **urban setting favors the redistribution of surpluses**: there are in fact many voluntary organizations with deep local roots operating in the city, and thus capable of bringing together demand (the needy) and supply (the surpluses) which, in a urban context, are also very close to each other in spatial terms. These are **back-line and front-line organizations**. The former, typically food banks, have no direct contact with people in need, but have a high degree of interaction with donating companies: in fact they have considerable logistical expertise, operate on an extensive regional scale and for these reasons act as an intermediary between those who donate and those who distribute directly to the needy. Front-line

The process of food donation



Multiplier effect of food recovery at three stages of the supply chain: costs and benefits for society (Garrone, Melacini, Perego)



organizations receive produce from back-line ones and redistribute it to end users. They operate at a local level, distributing food and drink by a variety of means: **street units, food parcels for home consumption** (partly though subsidized grocery stores), **ready meals** (the soup kitchen and solidary restaurant model). Then there is a sort of **hybrid organization**, which carries out both the function of collection from donor companies and distribution to the needy: these nonprofits serve a limited set of users on a local scale with their own accreditation at large-scale retail outlets. The same organizations also collect food from back-line ones. For all of them **the capacity to network**, between themselves and with the institutions, is **fundamental**. The process of donation of food surpluses, without taking their social value into consideration, means that the **economic value of the redistributed food is greater than the cost of its recovery**, including the costs borne by the donating company and by the nonprofit organization that redistributes it (although it has to be remembered that the work of these nonprofits relies to a great extent on the massive contribution made by volunteers).

The possible radius of action of local authorities

The reduction of surplus and, consequently, of food waste is an objective that can only be achieved by combining policies in various areas, with the coordinated intervention of institutions at different levels. The question ought to be tackled not only in relation to emergencies, but as part of a structural vision that includes the relations with the environmental, economic and social aspects of food.

On the one hand people buy what is offered to them by the system of supply (and marketing), and on the other patterns of purchasing behavior can have a great influence on this system. So it is necessary for there to be interventions that are aimed in the same direction: to take just one example, a campaign to raise the

awareness of consumers on the subject of aesthetic criteria in the choice of fruit is pointless if all that can be found on the shelves of supermarkets are perfectly round apples all of the same size.

As far as actions relating to the reduction of surpluses in the phases of consumption (at home and in collective catering) are concerned, the interventions have to involve **wide-ranging information campaigns and educational initiatives** aimed at raising people's awareness, especially in relation to habits of purchasing and storage of food.

In relation to the reduction of surplus and waste in the phases of production, processing and distribution, the actions are focused principally on improving the efficiency of organizational and logistical processes and the degree of integration both between economic operators and between those operators and the nonprofits that organize the redistribution of any surplus. So it is a question of offering **training programs for operators in the various sectors and providing incentives for the setting up of innovative enterprises** on the plane of technology and of social responsibility as well as forms of **fiscal incentive**.

In particular, as far as the system of donation is concerned, local authorities have a role to play with regard both to the economic players in the food industry—through the management of waste and setting the level of charges—and to the nonprofit organizations that provide assistance to the needy—through social policies. In the first case, the Gadda Law (166/2016) has now made it possible for municipalities to make a reduction in the variable part of the TARI or refuse disposal charge.

What the City of Milan does

In November 2017 the City of Milan—the only local authority to be a member of the **European Platform on Food Losses and Food Waste**—won the fifth Living Zero Waste (Vivere a Spreco Zero) prize, awarded by Last Minute Market's Zero Waste campaign and the Reduce project of the Ministry of the Environment and the University of Bologna, for the “international significance of the projects launched in recent years, culminating through the Expo in the establishment of the Milan Urban Food Policy Pact, the international network of over 160 cities engaged in the development of sustainable food systems, starting with the institution of an urban policy in which combatting food waste is one of the main objectives.” Continuing with this commitment, the City of Milan, modifying the regulations governing refuse collection charges in February 2018, passed a resolution (no. 8 of Feb 8, 2018) providing for **a cut in the TARI to reward the donation of food**, i.e. the recovery and redistribution of the food surpluses of nondomestic users. The reduction will be determined annually (by a resolution of the council) and have a ceiling of 50% of the variable part of the TARI, with an overall “discount” for nondomestic users that, for the first year, will amount to as much as 1.8 million euros (a reduction of 20% of the variable part of the TARI).

In 2016 Assolombarda, the City of Milan and Milan Polytechnic signed the memorandum of understanding **Milano a zero sprechi: smart city e food sharing, un connubio possibile** (“Zero Waste Milan: Smart City and Food Sharing, a Possible Alliance”), to highlight the good practices of recovery and redistribution of food surpluses put in place by associated companies and to promote collaboration between enterprises and associations that operate in the same micro-district of recovery and redistribution. An unutilized space on Via Borsieri in Municipio 9 has been identified as a possible physical hub for the recovered surpluses.

Many of **Milano Ristorazione**'s projects concern the containment of food waste, in keeping with the company's mission, the “dissemination of a culture of control of food waste and promotion of projects of education in conscious consumption and the recovery of food surpluses.” With the **Sacchetto salva merenda** doggy bag,

children at the schools that have requested it can take fruit, bread, UHT puddings and baked goods not eaten during school meals home for later consumption. Since the beginning of the scheme—March 2014—25,900 bags have been distributed. The **Frutta a metà mattina** ("Morning Fruit") project has shifted the provision of the fruit usually served at the end of the school meal to midway through the morning, thereby replacing the snack consumed at school and bought by families. The scheme, which was launched experimentally in June 2016, has seen the voluntary adhesion of 76 schools, with 999 classes made up of 21,500 children, since October 2016. With the project **Adotta un nonno** ("Adopt Someone Old"), meals that are left over in school cafeterias, which cannot be taken away for reasons of preservation, are served to some elderly people—in the care of the municipal social services—who instead of eating by themselves at home are able to have their lunch in the company of children.

In collaboration with **Siticibo**—the Fondazione Banco Alimentare's program for the **recovery of fruit and bread from schools adhering to the initiative and of ready-to-eat meals from kitchens**, to be redistributed to charities and reception facilities—Milano Ristorazione in 2016 reclaimed 50,600 kg of bread, 91,710 kg of fruit and 9,099 ready meals (in schools adhering to the Frutta a metà mattina scheme, the quantity of bread and fruit collected Siticibo has diminished, showing that substitution of the mid-morning snack with fruit has led to a reduction in the wastage of food at lunchtime). Currently, out of 418 schools (nursery, elementary and secondary), 106 are taking part in projects for the recovery of surpluses: 99 in collaboration with the Banco Alimentare, three with the Associazione La Grangia, two with Caritas Ambrosiana and two with the City Angels. The municipally owned SogeMi also collaborates with the Siticibo program: in the period from August 2015 to August 2016, the **Milanese wholesale market for fruit and vegetables** gave 435 metric tons of surplus food to Banco Alimentare.

It is important to manage surplus and waste food from a circular perspective: in 2016 the amount of **trash separated for collection** in the city by AMSA (Azienda Milanese Servizi Ambientali) reached 54.2% of the total amount of urban refuse collected and the organic share was equal to 20.7% of the total. A2A's 2016 Report on Sustainability points out the possibility of setting up a new plant to exploit the organic fraction of the refuse by turning it into bio-

methane that could be used as a fuel for public and private transport in the city, in a move toward a circular economy. AMSA is engaged in the implementation of several other projects: the **collection of used cooking oil** at supermarkets and stores, with a total of 17 stations; the **separation and collection of organic waste at the weekly indoor markets**, launched in February 2016 at 15 of the city's markets and in operation since October 2017 in 24 of them, with the involvement of 2873 stallholders (1168 food stalls and 1705 others).

School cafeterias in nursery, elementary and high schools with and without projects for food surplus recovery



School cafeterias involved in recovery projects

- 14 - 190 meals/day
- 190 - 360 meals/day
- 360 - 530 meals/day
- 530 - 700 meals/day
- 700 - 880 meals/day

School cafeterias not involved in recovery projects

- 9 - 135 meals/day
- 135 - 260 meals/day
- 260 - 390 meals/day
- 390 - 500 meals/day
- 500 - 645 meals/day



For additional project info, check the table at the end of the chapter

ADDITIONAL PRIORITIES AND TOOLS RELATED TO THE PROJECTS

- 1** Guaranteeing healthy food for everybody
 - 2** Promote the sustainability of the food system
 - 3** Understanding food
 - 4** Fighting waste
 - 5** Supporting and promoting scientific research in the agri-food sector
- Metropolitan Food Council
 - Monitoring system

MUNICIPAL DEPARTMENTS AND OTHER AREAS OF INSTITUTIONAL RESPONSIBILITY

- A** Budget, Public Property Administration
- B** Education
- C** Transport and Environment
- D** Labour policies, Manufacturing, Commerce, Human Resources
- E** Social and welfare policies, Health Care, Citizen Rights
- F** Digital transformation and public services
- G** Urban Planning, Park administration and Agriculture
- H** Deputy Major
- I** Presidency of the City Council
- L** Mayor's Cabinet

Project

- Municipally owned companies (+AMSA)
- Additional priorities and tools
- Institutional roles and bodies
- PRIORITY

MUNICIPALLY OWNED COMPANIES (+AMSA)

- AMAT
- AMSA
- Milano Ristorazione
- MM
- SoGeMi

The city's commitment: solidarity networks for the fight against food waste

The effort to combat food waste is one of the challenges to which the voluntary sector has been contributing with great dedication and incisiveness for some time. The project of the Ciessevi (Voluntary Services Center) called *Io non Butto* ("I Don't Throw Away") has mapped some of the **networks of food donation active in the Metropolitan City of Milan** with the aim of giving exposure to a range of experiences of the transformation of food waste into opportunities of social cohesion and local development. Over the course of 2017, 13 mapped networks recovered 123 metric tons of food, equivalent to 246,000 meals.

These experiences concentrate on the **recovery of surpluses at different stages and with different prospects**: in the production phase, in connection with peri-urban agriculture; at local markets, with the direct participation of the beneficiaries who share out what has been recovered; in company banqueting and catering, in connection with initiatives of corporate social responsibility. In addition, they work to increase the range of products available to people in difficulties through social markets and subsidized grocery stores, or to get disadvantaged individuals to place their own skills and time at the disposal of families and individuals living in conditions of marginality, partly in connection with the municipal social services, making volunteers an invaluable link between the local administration and traders in the area for the support of vulnerable families.



Food donation network



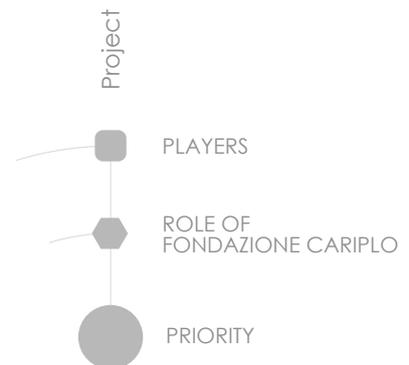


PLAYERS

- M** Private
- N** Public
- O** Nonprofit sector
- P** Nonprofit sector/
social initiatives

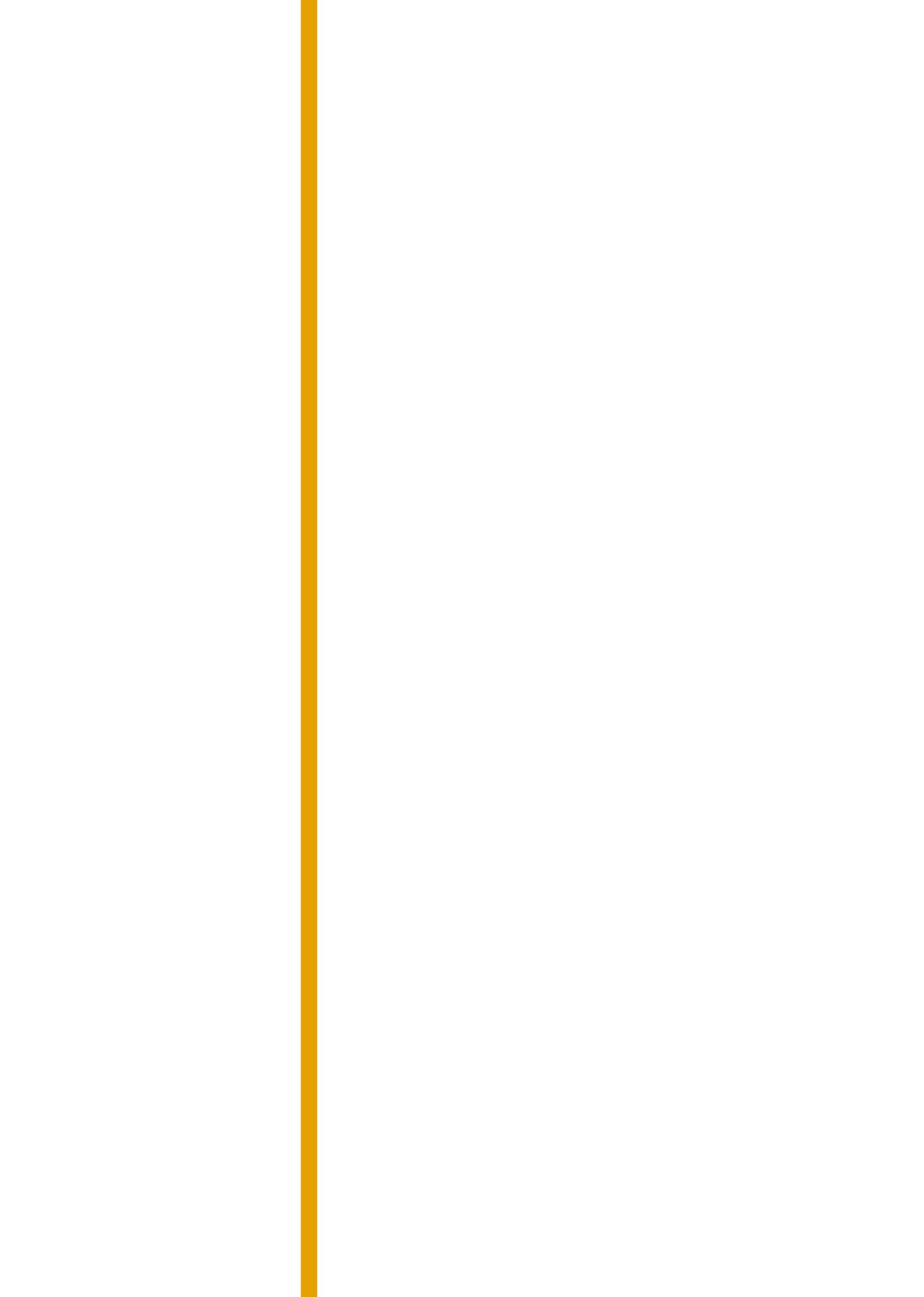
**INVOLVEMENT OF
FONDAZIONE CARIPLO**

-  Project funded by
Fondazione Cariplo
-  Projects run
by Fondazione Cariplo



Milan City's project

Milano a zero sprechi!	On May 5, 2016 Assolombarda, Milan City Council and Milan Polytechnic signed the memorandum of understanding "Zero Waste Milan: Smart City and Food Sharing, a Possible Alliance" to promote the recovery and redistribution of food surpluses, with the aim of establishing rapid means for the delivery of produce to the bodies that collect it.
MiRi: Snack saver bag/ lo non spreco	Project linked to the lo non spreco or "I Don't Waste" campaign. The Boards of Education of the elementary schools that requested it have received a doggy bag called a sacchetto anti spreco salva merenda in which the children can place for subsequent consumption any fruit, bread, UHT puddings and baked goods not eaten during school meals.
MiRi: Riciclo e coltivo, the vertical vegetable garden at school	The "Riciclo e coltivo" project has allowed children at nursery schools to make a virtuous contribution to recycling the plastic plates and cups still in use for the last year. The kit to make the vertical vegetable garden is made up of vegetable and herb seeds, a rack, a watering can and 12 pots made from the recycled plastic of the dishes and flatware used by the children at lunch.
Digitization of attendance for minors and educators	Digitization of attendance for minors and educators in all municipal nursery schools, to be extended subsequently to other types of school, based on computerized and real-time monitoring in individual classes and computerization of the daily booking of meals.
MIRi: Frutta a metà mattina	The "Morning Fruit" project aims to completely replace the snacks purchased by families and habitually consumed by children at school by shifting provision of the fruit usually served at the end of the school meal to midway through the morning.
MiRi: Adotta un Nonno/lo non Spreco	The "Adopt an elderly man" project is linked to the "I Don't Waste" campaign. The few meals that are normally left over in school cafeterias become a resource and the schools that have chosen to adhere to the project have the possibility of "adopting" some elderly people (in the care of the social services) in each neighborhood, who instead of eating by themselves at home are able to have their lunch in the company of children.
AMSA: Separation and collection of organic waste at the weekly indoor markets	In February 2016 AMSA introduced an experimental collection of organic waste at 15 of the indoor markets of the city of Milan. Compostable bags with a capacity of 70 liters were distributed for the collection of organic waste along with the related containers.
MiRi/SoGeMi: Siticibo/Banco Alimentare	Recovery from schools (that have chosen to take part in the project) of fruit and bread, recovery of the surpluses of production of ready-to-eat meals from the kitchens of Milano Ristorazione (with the necessary equipment for the preservation of cooked food destined for transport), recovery of fresh fruit and vegetables at Milan's main market. The aim is to redistribute them to charities and reception facilities.
Donation of Food	Modification of the regulations governing TARI (the charges for refuse collection) to insert a reduction in the tax for operators in the food system involved in the donation of surpluses.
AMSA: Smart Bin	AMSA, in collaboration with Cefriel, has developed a new technological solution for garbage cans that permits constant monitoring of the level of their contents. Each "smart bin" is fitted with a device for the transmission of data able to indicate periodically the degree to which it has been filled and to certify that it has been emptied.
AMSA: Collection of cooking oil	In both Milan and Bergamo campaigns have been launched for the collection of used cooking oil from large-scale retail outlets and other commercial operations.
AMSA: A2A (AMSA) agreement with Catholic University	AMSA has carried out a field study to assess the degree of sustainability of the organization of the separation and collection of garbage on the Milanese premises of the university. The proportion of separation was found to be 70%. The study completes a program of actions aimed at reaching the level of 80%, based on logistical interventions and on a joint communication plan addressed to students, teachers and staff at the university.





PRIORITY 5

SUPPORT THE SCIENTIFIC RESEARCH IN AGRIFOOD SECTORS

Fostering the development of Milanese agri-food scientific research with connotations or implications related to the urban system, aiming at improving processes and developing cutting-edge technologies.

Guidelines

1. The Municipality shall promote the development of a system of collaboration in agrifood research involving Universities, Research and Training Centres, public, private and non-profit organisations.
2. The Municipality shall promote the development of Milanese agri-food scientific research with connotations or implications related to the urban system.
3. The Municipality shall encourage the development of innovative projects in the agrifood sector.



SDG	TARGET
 2 ZERO HUNGER	2.a
 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9.5



Introduction to the theme

The relationship between the needs of the city, innovation, research and policies constitutes an important area to which the Food Policy can make a significant contribution, in part by fostering synergies between players in the quintessentially “Milanese” world of research. The general aim of this work, in fact, is to integrate the inputs of all the components of the city that can contribute to the objectives of the Food Policy.

The reference to “research in the agricultural and food sector” should be viewed within the broader picture of the systemic approach that underpins this report and the whole of the Food Policy. Moreover this approach finds a parallel in the world of “Milanese” research, where universities and research centers work in relationship with components of the food system and its associated elements.

Milan is the capital of Italian research and also occupies a position of leadership at the national level with regard to the whole range of matters directly or indirectly related to food. This condition ought in any case to be seen in relation to the natural fluidity of research, which in many aspects has no boundaries and views Milan as a place in which very different spheres of investigation involving a number of Lombard universities are intertwined with each other. And so, due both to the very nature of the worlds of research and to the specific characteristics of “Milanese” research, this last should not be regarded as something that takes place solely within the city limits of Milan.

When we speak of “research in Milan” it should be remembered that there are multisite universities and research centers scattered all over Lombardy that exchange people and resources with central locations; for example the decentralized sites of Milan's main universities that are to be found in almost all the provincial capitals of Lombardy and in Piacenza. In addition, there are universities and research centers that, by origin or through historically consolidated ties, have special relationships with Milan: for instance the Universities of Pavia and Brescia and the Polo Tecnologico Padano science park at Lodi.

In the effort to find existing or potential connections between the development of the Food Policy and “Milanese” research, the latter can be classified in different way. The most interesting lines of research from this perspective are the ones into areas directly linked with the activities carried out under the Food Policy and the ones that, even if not directly connected with possible policies or feasible actions, have the city of Milan as the specific subject of research. For example, Milan is known as a top-ranking center of research into the biomedical, pharmaceutical and genetic sciences but, even though these fields are close to the theme of food, the inherent value of these lines of research should be distinguished from their utilization in the area of Food Policy, and the same can be said for other important scientific domains.

The Municipality, Fondazione Cariplo and research outside the universities

The municipality of Milan is not itself a player in the world of research, but main of its activities are aimed at stimulating research or creating enabling conditions for it. An obvious example is that of the **incubators** and **business accelerators** promoted directly by the municipality or in partnership with other players, i.e. the two centers of Speed MI Up, Poli Hub, FabriQ, Milano LUISS Hub and BASE Milano. In these incubators new economic activities are developed that are in close contact with research facilities and, in some cases, produce prototypes and services that can help to deal with some of the problems on which local policies are focused. For instance applications that facilitate access to “food on call” for the elderly and disabled or enterprises that work on the secondary raw materials derived from food waste.

Another example of research stimulated by the City of Milan is linked to the **OpenAgri** project co-funded by the European Union as part of the UIA (Urban Innovative Action) program and focused on the area between Corvetto and Chiaravalle. This project is de-

voted to the creation of new skills and job opportunities in urban and peri-urban farming and comprises a series of objectives that implement the priorities of the Food Policy with regard to the sustainability of the food system. OpenAgri is realized in partnership with several Milanese universities and research centers that have embarked on studies both of the place of application of the project and in support of enterprise creation.

The municipality is a partner in the **FIT4FOOD2030** research project co-funded by the EU within the framework of the Horizon 2020 program and aimed at contributing to the transformation of processes of research and innovation on food and nutrition security. The municipality contributes with a City Lab subdivided into pilot projects through which to influence the local agenda on questions of nutrition; in parallel it contributes to the creation of the **European Food 2030 Platform**, within which some of the cities that have signed up to the Milan Urban Food Policy Pact (MUFPP) will work to connect research centers operating in the field of food security in various locations.

In 2017 the municipality, together with Eurocities and with scientific support from the University of Cardiff, produced a consultancy report for the European Commission (Directorate-General for Research and Innovation) on the innovations made by European cities on questions of the urbane food policy entitled **Food in Cities**. On the basis of the six thematic areas of the MUFPP, the study conducted interviews at focal points of the cities participating in Working Group Food of Eurocities and a survey conducted of the cities. The same Eurocities Working Group Food, coordinated by the City of Milan, facilitates relations between the participant cities, in part with a view to setting up research projects with various European universities.

The municipality directly and indirectly promotes research in support of its policies in part through its partly owned companies. For example **Milano Ristorazione, MM and AMSA** are the driving force behind studies and experiments linked to their activities on the questions of access to water and food, nutrition and the management of waste and refuse with regard both to the focus of those activities and to the organization of the respective services.

The **Scientific Research and Technology Transfer Area of Fondazione Cariplo** is one of the main players in Milanese and Lombard rese-

arch into various themes connected with urban food policies. The area, a partner of the municipality in Milan's Food Policy project ever since it was launched in 2014, provides technical-scientific support to the organizers of the process.

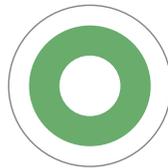
More in general, the entire foundation, through its four areas of interest (Scientific Research, Environment, Social & Human Services and Culture) promotes and supports both research into the different components of the food system and a large number of actions on the Milanese context that are in keeping with the priorities of the Food Policy. Among the many such programs in the **Scientific Research Area** it is worth singling out the EU RRI Tools project, which concerns the role of social, economic and institutional stakeholders in scientific research (in which the consultation process of the Food Policy has also been included), and the AGER Project, which involves 16 Italian foundations and an endowment of 36 million euros for research into food and agriculture. The **Environment Area** has for years supported numerous farmers, associations and local authorities that are engaged in the construction of local supply chains and systems of production and consumption of food throughout the Milanese territory (local markets, solidarity food coops, platforms of local distribution, awareness-raising initiatives, etc.), some of which constitute the focus of university research into various fields (environmental monitoring, agronomic experiments, economic models, planning of agricultural areas, etc.). The **Social & Human Services Area** supports research into the different dimensions of poverty in Milan, including food poverty, and innovation in forms of community welfare. The **Culture Area**, through the project La Città Intorno, works alongside the municipality's Piano Periferie ("Plan for the Outskirts") with a range of activities including the creation of two Community Food Hubs (Adriano and Corvetto districts) which interweave different dimensions of research and innovation linked in particular to themes of social inclusion and new entrepreneurship.

Cariplo Factory, the center run by Fondazione Cariplo that is located on the premises of the former Ansaldo factory on Via Bergognone and devoted to projects of open innovation, CSR (Corporate Social Responsibility) and the promotion of young talent, has food, health and sustainability among its most significant areas of focus. Cariplo Factory works with a range of financial, organizational and supply of expertise supports in service of the connection between

Contribution of international networks and projects (involving the City of Milan) to the Milan's Food Policy



MUFPP
Milan Urban
Food Policy Pact



C40
Food Systems
Network



EUROCITIES
Food Working Group



EU Platform
for Food Losses and
Food Waste

networks

projects



FSC4D
Food Smart Cities
for Development



TRIFOVAL
Transforming City
Food Habits for Life



TERRA



Food in cities:
mapping cities
activities in the area
of food



FIT4FOOD2030
Fostering
Integration and
Transformation for
FOOD 2030



IPES Food
Toward a European
Common Food
Policy



OpenAgri Uia
New Skills for New
Jobs in Periurban
Agriculture



CircE
INTERREG

THE 5 PRIORITIES AND TOOLS

1

Guaranteeing healthy food for everybody

4

Fighting food waste



Food Council

2

Promote the sustainability of the food system

5

Supporting and promoting scientific research in the agri-food sector



Monitoring system

research, innovation and enterprise creation, with attention to the local effects of its activities. At Cariplo Factory an **incubator for the Food Policy** is being set up, i.e. a space for the involvement of the private sector, municipal agencies, startups, innovators and social organizations, catalyzing various forms of social, economic, technological and organizational innovation. This incubator constitutes the **first action of the Food Policy specifically dedicated to the involvement of private and public companies** operating in the local food system.

Toward a working map of research for Milan

The universities of Milan carry out research into almost every component of the food system and its framework. Here we describe a selection of **activities, research centers and observatories** that, as was pointed out above, have a scientific output that can make a specific contribution to the local objectives of the Food Policy. This production is hard to map in a complete way, not only because there is no comprehensive catalogue of all the scientific output of the Milanese universities (graduation and doctoral theses, researches, papers, books, etc.) but also because only part of this output has a field of observation or application in the city of Milan or is directly related to the policies that are the subject of this report. Thus the selection that is presented here is the necessarily partial result of a wide-ranging inquiry and should be considered more as a **potential starting point for a working map of research**. This working map could be thought of as a structured space of interaction between the demand for research made by the city on the basis of the objectives of the Food Policy and the possible responses in terms of scientific contributions that the world of research, in all its aspects, could supply.

The **DeFENS** (Department of Food, Nutritional and Environmental Sciences) of the **State University of Milan** comprises four research

centers that focus from a variety of perspectives on aspects linked to nutrition and the characteristics of foodstuffs (Food Sciences and Technologies, Microbiology of Foodstuffs and Bioprocesses, Human Nutrition and Chemical and Biomolecular Sciences) and a laboratory that works on food packaging (PackLab).

The **DISAA** (Department of Agricultural and Environmental Sciences) covers many of the themes of production on the agronomic and zootechnical fronts and also has a focus on the global South thanks to the Center of Research for Cooperation in Agricultural and Environmental Development that has been set up in partnership with the Universities of Pavia and Brescia. Also operating at the DISAA is the Agrifood-LCA Lab, an interdisciplinary laboratory that carries out research into the application of Life Cycle Assessment (LCA) in the agricultural and food sector.

The same department offers the Food System PhD Program which interlaces a variety of research themes regarding the food system from a predominantly technical and technological perspective: from agro-environmental, chemical and biochemical aspects to ones linked to energy, refuse and the development of bioproducts. Questions of nutrition are also explored by **research centers that operate in a number of Milanese hospitals** and that are connected in various ways with the universities. They include the **Campus Cassina Rosa** of the Fondazione IRCCS Istituto Nazionale dei Tumori which conducts research into the relationship between diet and cancer; and the **Fondazione Sviluppo Ca' Granda** which also uses its own landed estate as a setting for research into the development of short production chains for rice and dairy products.

The Catholic University also works on aspects of production through the **ISAN** (Institute of Food and Nutritional Science) based in Piacenza. Active at the university's Department of Sociology in Milan is **OPeRA**, Observatory of Poverty and Aid Networks, which publishes annually a report on social exclusion in Lombardy and periodical research papers on poverty in Milan and on food poverty at a national level.

The **Polytechnic** has, by its nature and field of research, a long tradition of working on urban and territorial themes in collaboration with the majority of Lombard local authorities and institutions. In the **School of Architecture and Urban Planning** they are interlaced with the themes of the food system in areas such as urban vegetable gardens, the relationship between city and countryside, the food

trade and the agrarian landscape.

The **Polytechnic's School of Design** has explored an area of the design of services linked to food that focuses primarily on sales outlets as well as on services for disintermediation between production and consumption.

The Polytechnic also hosts the **Smart Agrifood Observatory** which is dedicated to digital innovations and food supply chains and the Polytechnic's School of Management has recently launched an **Observatory on Food Sustainability** connecting up research groups that have been working for years on questions of organizational innovation and on the world of the recovery and redistribution of food surpluses on a corporate scale and with investigations on a national scale.

In 2018 the **Bicocca University** set up **BEST4FOOD** (Bicocca Center for Science and Technology for Food), a research institute made up of over a hundred researchers from different departments of the Bicocca that cover very diverse subjects, ranging from aspects of biodiversity to health, social impacts, ICT, legislation and biotechnologies.

Alongside research in the proper sense of the term it is also worth mentioning the principal **master's degree courses** that deal with themes linked to food, in so far as they regularly constitute an **advanced interface between research, teaching and practical applications**. It is interesting to note how these courses, an expression of areas at the cutting edge of Milanese research, reflect some of the most established features of the city's economy and image: communication, design, management and, more recently, green economics. The IULM, in fact, offers a master's degree in Food and Wine Communication; the Polytechnic a master's in Food Design and Innovation, the Bocconi one in Food and Beverage Management and the University of Milan a master's in Bioproducts, Energy Efficiency and the Circular Economy. To these already well-established master's degrees we can add the master's in Food & Society

at the Bicocca, which is being offered for the first time in the Academic Year 2018-19.

University research, innovation and knowledge production

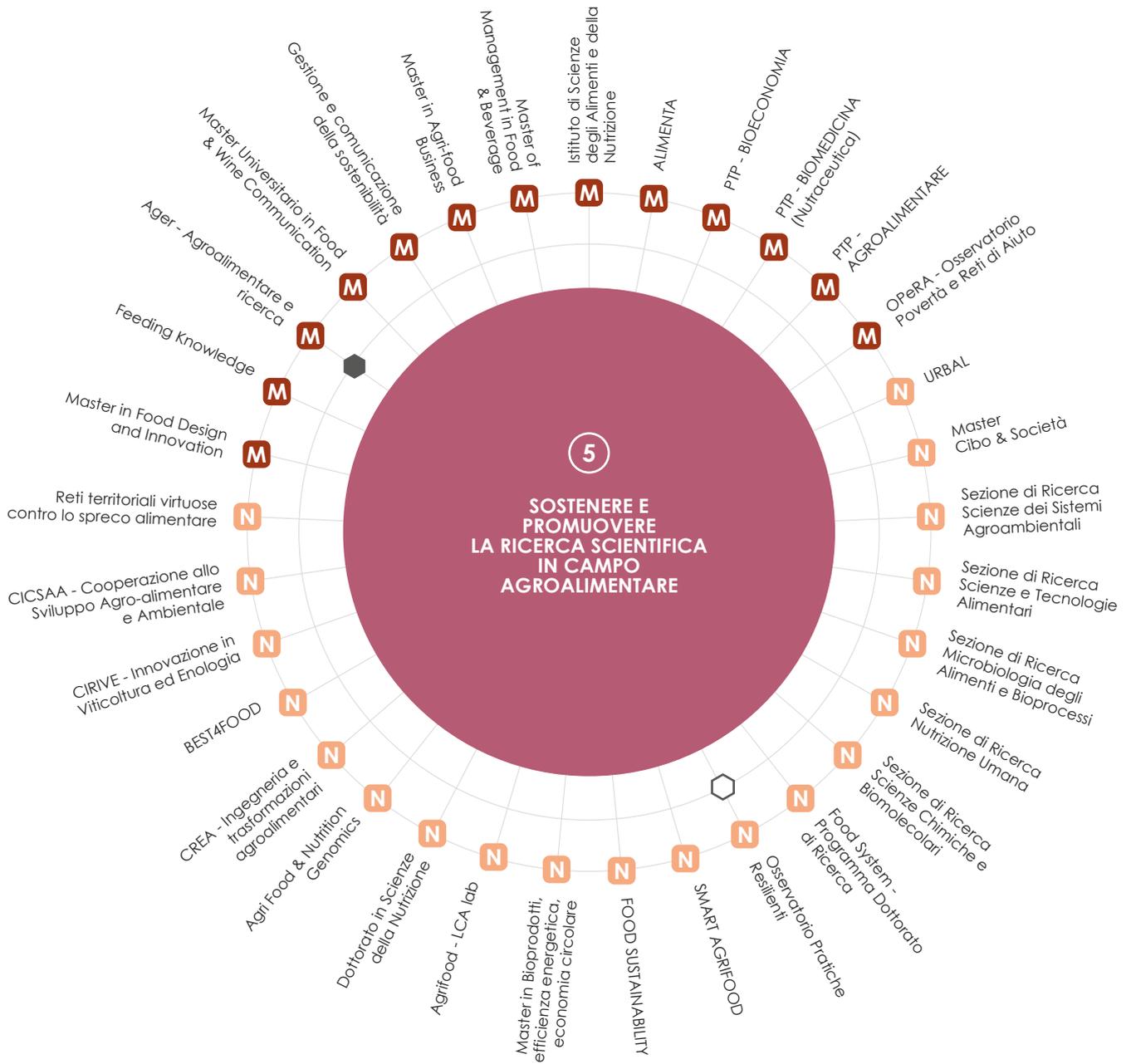
Judging by what has emerged from the broad-ranging inquiry summarized above, in the wide variety of research conducted and the research centers operating in Milan there is a **greater focus on technical and technological themes** than on social ones and those of the humanities in general. In fact, in addition to the agricultural sciences that have a deeply entrenched tradition throughout Lombardy, very well represented here are, on the one hand, the biomedical, pharmaceutical and genetic sciences and, on the other, the various aspects of the technical and technological worlds (packaging, organization, means of preservation, ICT, etc.). In contrast, with a few exceptions (such as the research into food and the elderly conducted at the Bicocca and on food and poverty at the Catholic University) much less well represented are social themes understood in the broad sense, such as those of sustainability proper and systemic approaches to food.

This background needs to be supplemented by an examination of the thousands of dissertations that are produced every year and, in part, present a different picture. In fact, while there are not many lines of research centering on themes or objectives linked to the city, it is also true that **many experimental activities and these focus on Milan as a place of application**, both in the medical field and, above all, in the humanities or in research on urban policies and the design of services. The same can be said for applied research and action research, as is the case with several projects funded by the Fondazione Cariplo that have the laboratories and research groups of a number of Milanese universities as partners. A separate consideration, and one that significantly amplifies the discourse on Milanese research into themes that are directly or in-

directly linked to food, regards **areas of innovation and knowledge production that are located outside scientific institutions** in the strict sense (the world of nonprofits, foundations, independent research, investigative journalism, innovative startups, etc.). In as broad a theme as that of food systems great attention needs to be paid to this aspect precisely because innovation—especially with regard to sustainability—takes place to a significant degree on a middle ground where the world of research, institutions and economic and social players all come together, as is expressed in the model of the quadruple helix proposed by the European Union for processes of innovation.

The subject of innovation and knowledge production outside university is not explicitly tackled here but, in reality, the entire process of the Food Policy can also be regarded as one of facilitation of the interaction between the components of the quadruple helix, as was implicit in the connection established in 2015 between the structure of the Food Policy process and the RRI (Responsible Research and Innovation) approach of the EU.

We cannot fail here to mention the **Human Technopole** that will be located in the Expo area, inasmuch as it represents a very significant investment in terms of scientific as well as financial programming and some of the research centers that will be sited there are connected directly or indirectly to the themes of food. Having said this, it needs to be stressed that the reference to the Human Technopole is, for the moment, still a virtual one in that it is only in the initial stages of its development. It is thought worth citing nevertheless as it could in part be oriented toward questions of interest for urban and regional policies on food, given both the commitment of the City of Milan to the Food Policy and the Milan Urban Food Policy Pact and the growing attention paid to the theme of food as urban policy at the European and international level.

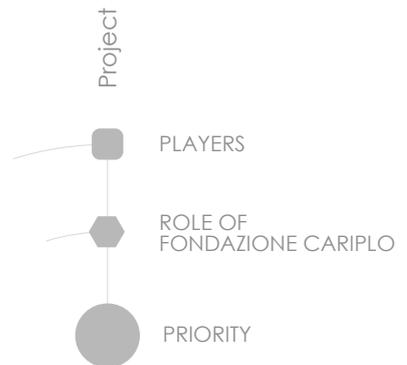


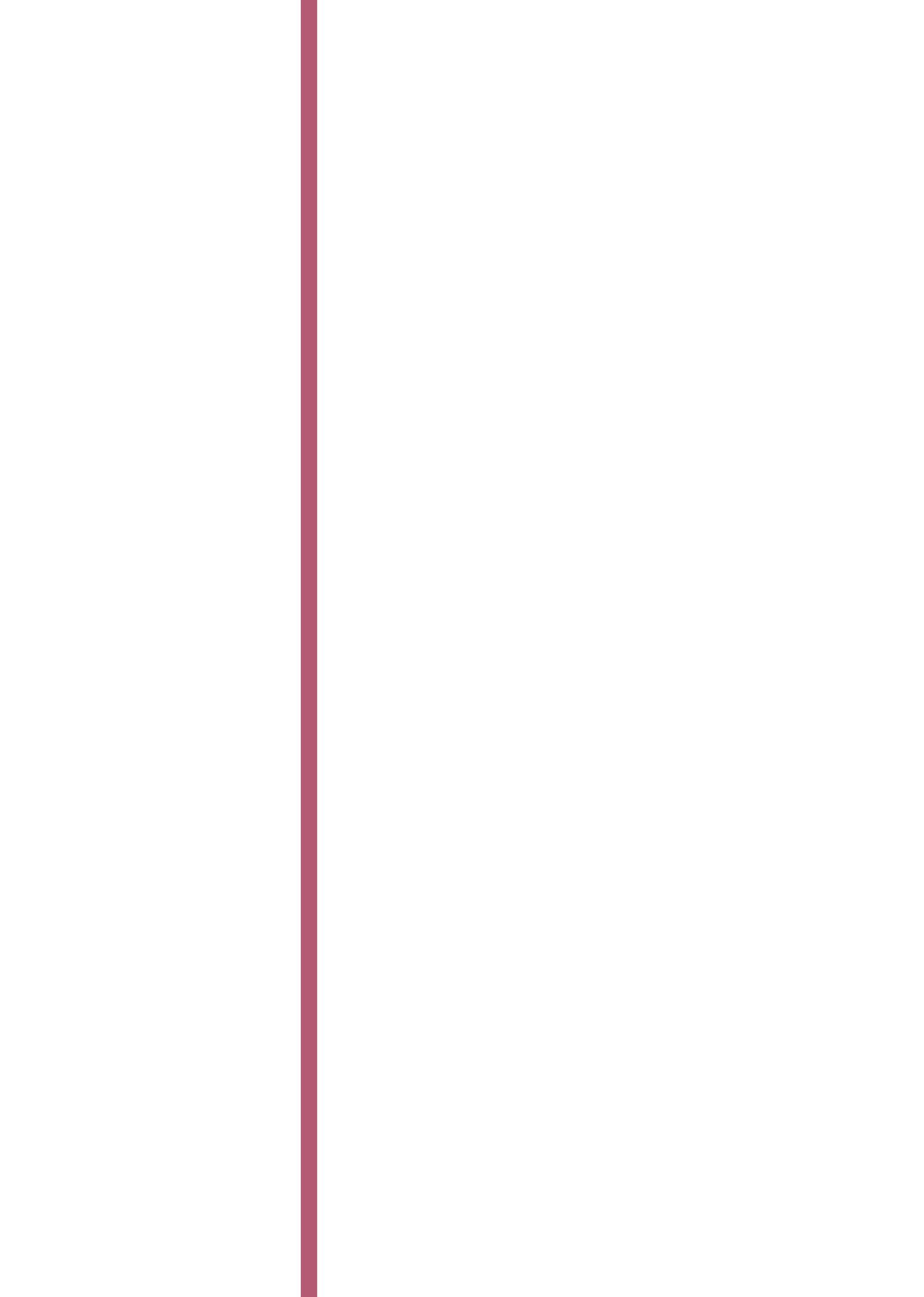
PLAYERS

- M** Private
- N** Public
- O** Nonprofit sector
- P** Nonprofit sector/
social initiatives

INVOLVEMENT OF FONDAZIONE CARIPLO

- Project funded by Fondazione Cariplo
- Projects run by Fondazione Cariplo





MILAN FOOD POLICY'S CONTRIBUTION TO THE SUSTAINABLE DEVELOPMENT GOALS



Monitoring
Framework



SUSTAINABLE
DEVELOPMENT
GOALS

The monitoring of Milan's Food Policy and its contribution to Agenda 2030

In 2017 the City of Milan, along with thirteen other cities around the world, put itself forward to work in collaboration with the FAO on local testing of the indicators of the Milan Urban Food Policy Pact (MUFPP) Monitoring Framework. This is a set of indicators that can be used to evaluate the progress made by the cities adhering to the MUFPP in rendering their own food systems sustainable, in keeping with the strategies and actions suggested by the pact itself. The work, initially seen as a move toward the definitive structuring of the MUFPP Monitoring Framework, has also provided an opportunity to reflect on the potential contribution of Milan's Food Policy to the sustainable development goals (SDGs) of the UN's Agenda 2030.

The indicators of the MUFPP Monitoring Framework have been associated with the five priorities and two tools of Milan's Food Policy. They have been subjected to a process of verification of their meaningfulness for the city and of the availability of the data and they have been utilized to establish a link between the Food Policy and the SDGs.

Out of this process has come a set of indicators, still to be perfected, that can be used to monitor on the one hand the development of Milan's Food Policy and its impact on the urban food system, and on the other its contribution to the SDGs. So the result of the work also constitutes a first step toward the construction of a system for the monitoring of Milan's Food Policy.

In greater detail, the working method followed, schematized in Figure 1, has started out from the analysis of the MUFPP Monitoring Framework that, in its most recent version (issued by the FAO in June 2018), consists of 44 indicators associated with 37 recommended actions, grouped in turn into six thematic areas. For each indicator a correspondence has been sought with the five priorities and two tools of Milan's Food Policy. This first step in the process has allowed 39 of the 44 indicators to be associated with four of the five priorities and the two tools of the Food Policy. Five indicators—relating to the themes of governance and food safety—have not

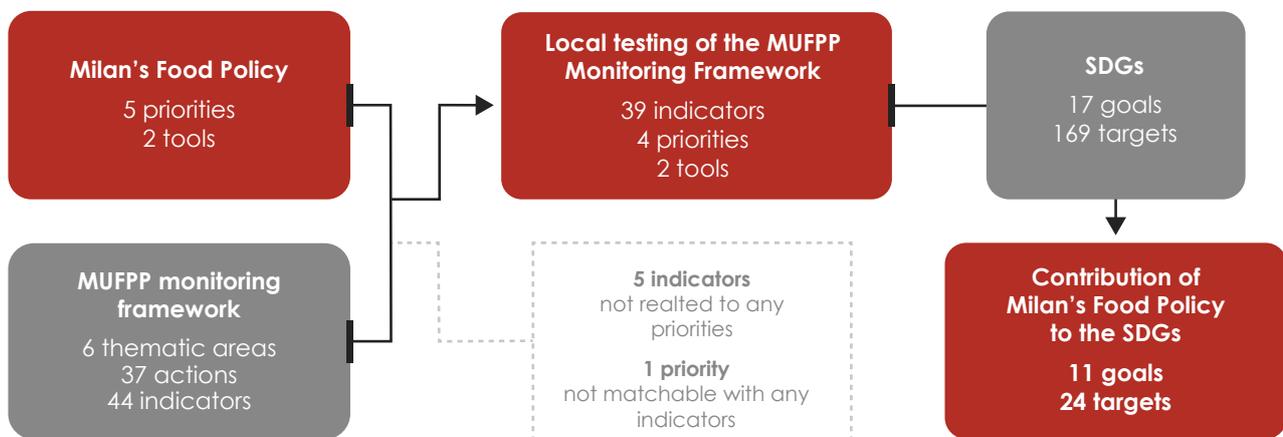


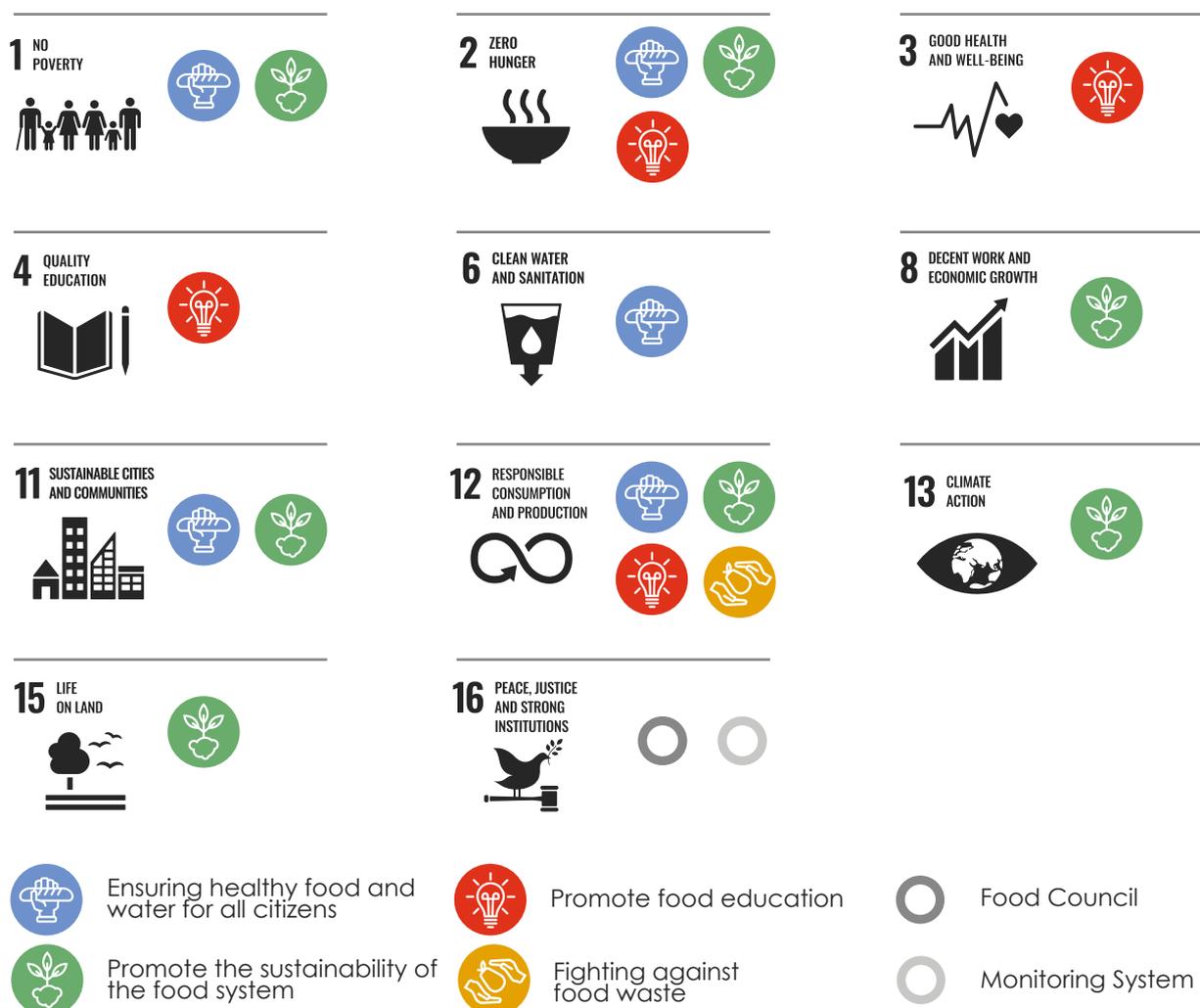
Fig.1
Milan Food Policy
contribution to SDGs:
analysis flow

been associated with any priorities, and it has not been possible to associate any indicator with the Research priority. The next step was to check for which of the indicators of the MUFPP Monitoring Framework data were actually available at the local or metropolitan level.

For each of the four priorities and two tools for which a correspondence has been found with at least one MUFPP indicator, the potential contribution to the 17 SDGs (and the related 169 targets) was then evaluated: in this way 11 SDGs and 25 targets to which the Food Policy can contribute were identified through the 39 indicators pinpointed (Figure 2). For the Research priority, despite no indicators having been identified, two more targets and one SDG to which the priority could contribute have been pointed out.

The analysis carried out has made it possible to highlight in particular certain questions that can also be seen as directions to be taken in the work, from the methodological viewpoint, on the monitoring of the state of the Milanese food system and the impacts of the Food Policy:

- the need to initiate studies and research for the collection of certain data that are not currently available on a municipal scale, if considered of interest for local policies;
- the need to adapt some definitions in the MUFPP Monitoring Framework (food desert, nutritional basket...) to the local context and to provide some definitions of terms utilized in the priorities of Milan's Food Policy (local and sustainable food...);



- the dispersion of the data in bibliographical sources and databases that are not always easy to access and belong to different bodies and institutions;
- the discordance of data relating to the same theme in different sources and databases.

It should be stressed that, as the indicators are the same for all the cities adhering to the pact—cities that are located all over the world and so have specific situations that differ greatly one from the other—it has been necessary to carry out a great deal of interpretation of the individual indicators in the light of the local context.

Fig.2
 The contribution of the Milan's Food Policy to the SDGs

In addition, since the SDGs have been drawn up to represent the global priorities for sustainable development and not those relating solely to the food system, the connections between Milan's Food Policy and the targets of the sustainable development goals are not immediate. Consequently the analyses carried out make no claim to provide a definitive result. Rather they offer material for discussion that might be subject to further modification, representing as it does just the first step in a process that undoubtedly deserves additional reflection and analysis. But it is a necessary step, given the pervasiveness of the food theme and the fundamental role that urban food policies play, or can play, in guiding food systems—in cities but elsewhere too—toward the attainment of goals of greater sustainability.

The Milan Urban Food Policy Pact (MUFPP) Monitoring Framework

In 2016 the Secretariat of the MUFPP and the FAO started to work together on the development of a set of indicators that could be used to evaluate the progress made by the cities adhering to the pact in rendering their food systems more sustainable, in keeping with the strategies and actions suggested by that pact. The **44 indicators** published by the FAO in June 2018 represent a subset of a much more wide-ranging scheme, known as the **City Region Food System indicator framework**, worked out since 2015 by the FAO and RUAF (a global partnership on sustainable urban farming and food systems) with the aim of helping cities to evaluate the state and efficiency of the own food systems at the level of the city region, i.e. "the complex network of actors, processes and relationships to do with food production, processing, marketing, and consumption that exist in a given geographical region that includes a more or less concentrated urban center and its surrounding peri-urban and rural hinterland; a regional landscape across which flows of people, goods and ecosystem services are managed."

In November 2017 experts at the FAO proposed a version of the monitoring scheme made up of 42 indicators. **Fourteen cities** in Europe and elsewhere (Milan, Antananarivo, Austin, Copenhagen, Ede, Funchal, Ghent, Quito, São Paulo, Tirana, Toronto, Washington, West Sacramento and Windhoek) agreed to the proposal that they make an active contribution to finalizing the MUFPP monitoring framework by seeking to identify its strong and weak points, in part in relation to the availability of data on a local scale. The latest version of the monitoring system composed of 44 indicators was issued in June 2018.

The general scheme of the MUFPP monitoring framework connects the **6 thematic areas** with 44 indicators through areas of impact and recommended actions. Table 1 shows by way of example the structure of the monitoring framework for thematic area no. 2 (Sustainable Diets and Nutrition).

Tab.1 Example of the MUFPP Monitoring Framework

Category	Outcome areas	Reccomended actions	Indicators
SUSTAINABLE DIETS AND NUTRITION	Urban residents have access to affordable, sufficient, nutritious, safe, adequate, and diversified food that contribute to healthy diets and meet dietary needs	7. Promote sustainable and healthy diets	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
	Decrease in prevalence of non-communicable diseases and improved diet-related health outcomes in specific communities	8. Address non-communicable diseases associated with poor diets and obesity.	11. Numbers 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
	Food, health and educational policies addresses and improves sustainable diets and nutrition and coordinates action between health, environmental and food sectors	9. Develop sustainable dietary guidelines.	14. Number of city-led or supported activities to promote sustainable diets
		10. Explore regulatory and voluntary instruments to promote sustainable diets.	15. Existence of policies/programmes that address sugar, salt and fat consumption in relation to specific target groups (e.g. general public, in hospitals & schools)
		11. Encourage joint action by health and food sectors.	
		12. Adapt standards and regulations to make sustainable diets accessible in public and private sector facilities.	16. Presence of programmes/policies that promote the availability of nutritious and diversified foods in public facilities
	All residents have access to safe drinking water and sanitation	13. Adapt standards and regulations to make safe drinking water accessible in public and private sector facilities.	17. Percentage of population with access to safe drinking water and adequate sanitation
		14. Invest in and commit to achieving universal access to safe drinking water and adequate sanitation.	

As can be seen, each of the six thematic areas includes certain areas of impact influenced by the actions that the cities should undertake to make their own food systems more sustainable and resilient. The impacts correspond in fact to benefits that the cities ought to achieve in the medium to long term through the application of specific policies and programs. In many cases, however, the impacts cannot be attributed to a single action since there are numerous factors that contribute to the attainment of the benefits listed.

To each area of impact, therefore, correspond one or more actions recommended for the achievement of benefits. For the sustainable diets and nutrition area, for instance, in order for the food, health and educational policies to tackle and improve sustainable diets and nutrition and coordinate the interaction between health, environment and food sectors, a total of four actions are recommended: (9) Developing guidelines to favor the adoption of sustainable diets; (10) Exploring regulatory and voluntary means of promoting sustainable diets; (11) Encouraging joint action by the nutritional and health sectors; (12) Adapting standards and regulations to make sustainable diets accessible in public and private facilities.

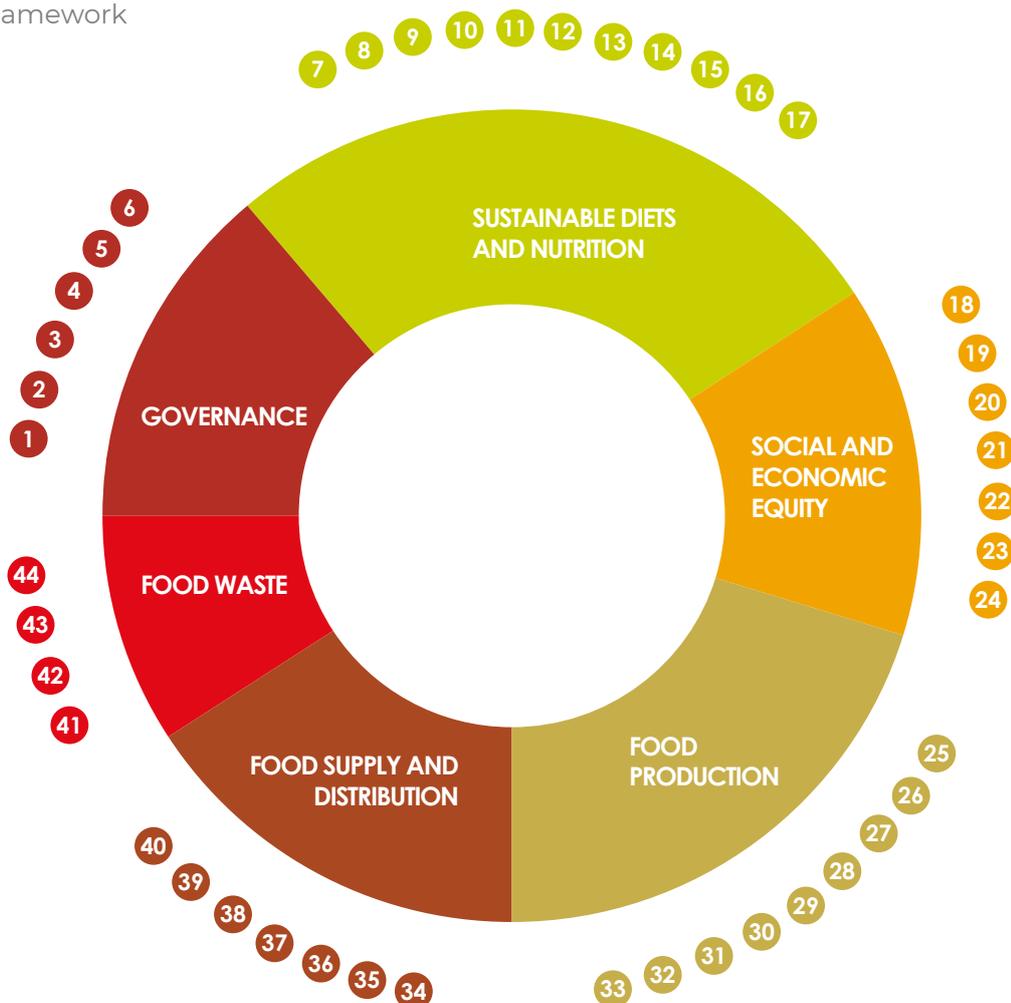
To each area of impact and relative actions also correspond one or more performance indicators: see for example the case of action (8), to which correspond indicators nos. 11, 12 and 13. Or to two actions can sometimes correspond a single indicator: for example to actions (10) and (11) correspond only indicator no. 15, which evaluates the existence of policies/programs regarding the consumption of sugar, salt and fats by specific target groups.

The purpose of the 44 indicators proposed is to help measure the extent to which the desired changes are actually taking place or to what point the impacts have been achieved. If measured periodically, they will serve to evaluate the degree to which an urban food system is moving toward a greater sustainability.

Figure 3 shows the distribution of the 44 indicators over the six thematic areas of the MUFFP, i.e.:

1. Governance (indicators from 1 to 6)
2. Sustainable diets and nutrition (indicators from 7 to 17)
3. Social and economic equity (indicators from 18 to 24)
4. Food production (indicators from 25 to 33)
5. Food supply and distribution (indicators from 34 to 40)

Fig. 3
Indicators of the MUFFP
Monitoring Framework



6. Food waste (indicators from 41 to 44).

A point by point list of the 44 indicators follows in the next pages. Note that there is a predominance of indicators for themes related to sustainable nutrition and food production.

The indicators proposed are mostly **quantitative** but there are also some **qualitative** ones. More precisely we can distinguish:

- three qualitative indicators that can be used to identify the presence or absence of an organ of government, a policy or a planning structure (i.e. no. 1: Presence of an active municipal interdepartmental government body for advisory and decision making of food policies and programs; no. 2: Presence of an active multi-stakeholder food policy and planning structure; no. 39: Presence of food safety legislation and implementation/enforcement procedures);
- 41 quantitative indicators that can be used to measure percentages, absolute numbers, rates of change of a certain parameter or variable describing the urban food system (e.g. no. 9: Cost of a nutritious food basket at city/community level; no. 29: Proportion of agricultural land in the municipal area under sustainable agriculture).

Many indicators that were of the qualitative type in earlier versions have been turned into quantitative indicators through the insertion of suitable metrics. For instance, indicator no. 3 that assesses the presence of an urban food policy or strategy could be measured in terms of the percentage of the municipal budget allocated to that policy or strategy; indicator no. 4 (Presence of an inventory of local food initiatives and practices to guide development and expansion of urban food policy and programs) could be measured by the proportion of the budget available or the number of end users of the inventory. However, the mode of measurement of some indicators will depend on the choices of the City of Milan, once the selection of the indicators considered useful for the monitoring of the Food Policy has been made definitive.

Further analysis of the indicators proposed allows us to note that they represent measurements—be they qualitative or quantitative,

aggregated or disaggregated—in terms of spatial, demographic or socioeconomic variables as they can refer to:

- the entire municipal territory (e.g. no. 1: Presence of an active municipal interdepartmental government body for advisory and decision making of food policies and programs; no. 33: Annual proportion of urban organic waste collected that is reused in agricultural production within municipal boundaries);
- sub-areas of the municipal territory (e.g. no. 8: Number of families living in food deserts);
- specific socioeconomic groups (e.g. no. 23: Presence of food-related policies and objectives with a specific focus on socially vulnerable groups);
- particular age or gender brackets (e.g. no. 7: Minimum dietary diversity for women of reproductive age; no. 11: Number of adults with type 2 diabetes);
- particular players or stakeholders (e.g. no. 15: Existence of policies/programs that address sugar, salt and fat consumption in relation to specific target groups; no. 30: Number of food producers that benefited from technical training and assistance in the last 12 months).

The implementation of the indicators will obviously require further aggregation and disaggregation: when speaking of vulnerable segments, for instance, reference is made to young people, migrants, women, the elderly, etc., and it is necessary to provide separate statistics for each of these sociodemographic categories; when speaking of different market opportunities for local producers it is necessary to distinguish between the different kinds of market to which they can have access, and so on.

One last observation regards the need, at least in some cases, for definitions suited to the local context that make it possible to calculate the indicators without ambiguity. Reference is made, for example, to terms like food deserts, vulnerable groups, minimum dietary diversity, nutritional food baskets, agricultural population, local food, etc.

MUFPP monitoring framework 's indicators

1. Presence of an active municipal interdepartmental government body for advisory and decision making of food policies and programs (e.g. interdepartmental food working group, food policy office, food team)
2. Presence of an active multi-stakeholder food policy and planning structure (e.g. food policy councils; food partnerships; food coalitions)
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 programs
5. Presence of a mechanism for assembling and analyzing 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
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. Numbers 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/programs that address sugar, salt and fat consumption in relation to specific target groups (e.g. general public, in hospitals & schools)
16. Presence of programs/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
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 programs

20. Percentage of children and youth (under 18 yrs) benefitting from school feeding programs
21. Number of formal jobs related to food and drink sector 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 vulnerably 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
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 urban and peri-urban agriculture production and processing
27. Surface area of (potential) agricultural spaces in the municipal area
28. Proportion of total agricultural population 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 food producers that benefited from technical training and assistance in the past 12 months
31. Number of local food processing and distribution infrastructures available to food producers in the municipal area
32. Proportion of food producers in the municipal area that sell their products to markets in the city
33. Annual proportion of urban organic waste collected that is re-used in urban and peri-urban agricultural production
34. Existence of policies/programs that address the reduction of GHG emissions in different parts of the food supply chain (e.g. processing, storage, transport, packaging, retail, cooking, waste disposal etc.)
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 1000 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/enforcement procedures
 40. Existence of support services for the informal food sector providing business planning, finance, development advice
 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
-
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The relationship between the MUFPP monitoring framework and Milan's Food Policy

In order to evaluate the applicability and utility of the MUFPP monitoring framework for the city of Milan a relationship has been established between each indicator and the priorities and/or tools of the Food Policy.

Figure 4 shows how some indicators correspond to more than one priority or tool (which amounts to saying that different priorities or tools are monitored in some cases by the same indicators): this happens where a number of actions recommended in the MUFPP correspond to a single indicator, or where the attribution to a single priority or tool risks being restrictive. For example:

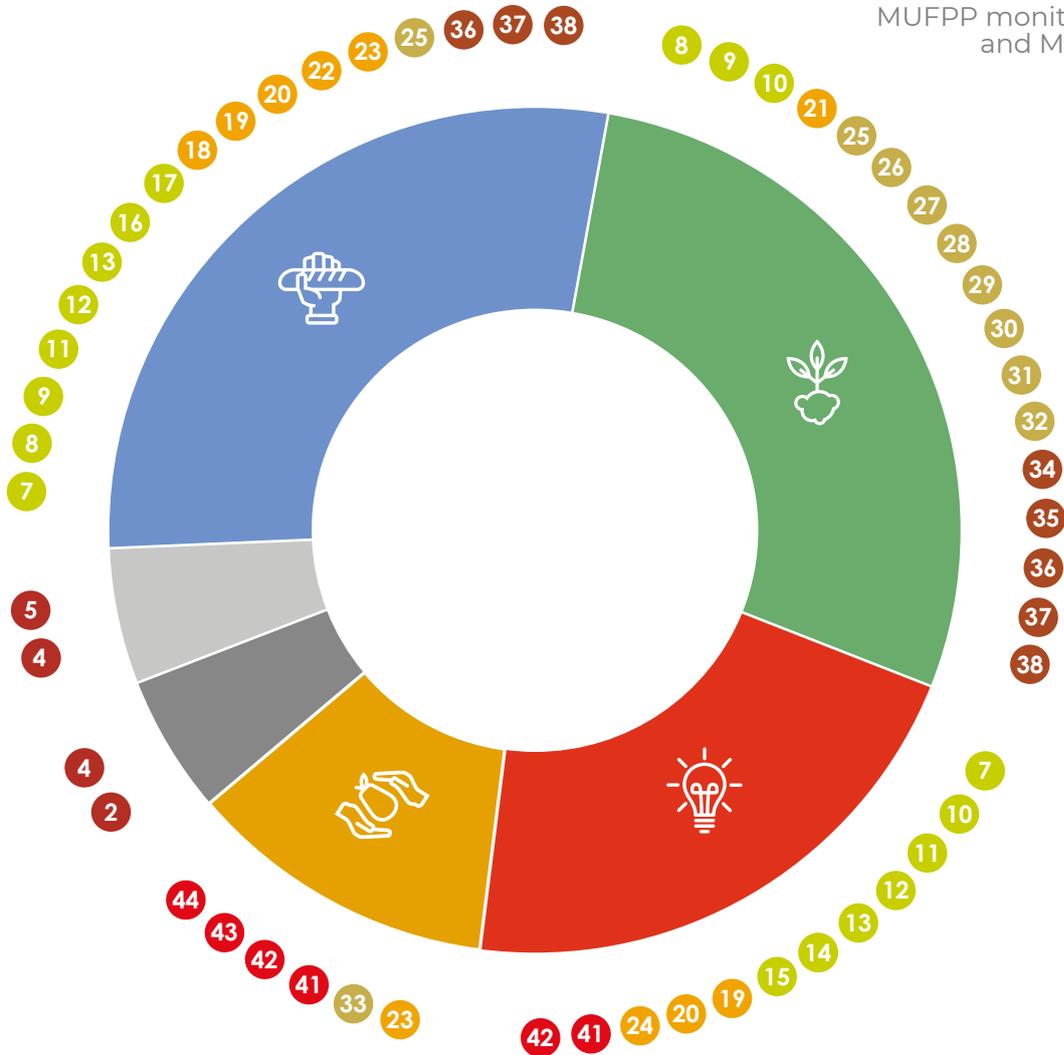
- the indicator "Average individual daily consumption of meat" (no. 10) that refers to the recommended action "Promote sustainable and healthy diets" has been linked with both the theme of Education and that of Sustainability in that it aims to measure the consumption of food and its implications for health as well as the environment;
- the indicator "Number of fresh fruit and vegetable outlets (markets and stores) supported by the municipality per 1000 inhabitants" (no. 36), has been linked to the Access priority, when it refers to the recommended action "Provide policies and programs of support for municipal public markets." On the other hand it has been linked to the Sustainability priority when it is associated with the recommended action "Improve and expand support for infrastructures of use to the food market."

Figure 4 also shows that Access and Sustainability are the two priorities to which the greatest number of indicators correspond.

The process has made it possible to:

- highlight the **impossibility of establishing a correspondence between some indicators and one priority or tool**. This has happened for those indicators that make reference to the

Fig. 4
The relationship between the MUFPP monitoring framework and Milan's Food Policy



AREE TEMATICHE MUFPP

- **GOVERNANCE**
- **SUSTAINBALE DIETS AND NUTRITION**
- **SOCIAL AND ECONOMIC EQUITY**
- **FOOD PRODUCTION**
- **FOOD SUPPLY AND DISTRIBUTION**
- **FOOD WASTE**

-  Ensuring healthy food and water for all citizens
-  Promote the sustainability of the food system
-  Promote food education
-  Fighting against food waste
-  Food Council
-  Monitoring system

themes of governance (nos. 1, 3 and 6) and food safety (indicators nos. 39 and 40). The theme of governance is not explicitly present in the priorities of Milan's Food Policy, although in its programmatic guidelines it indicates the need to set up a Metropolitan Food Council and a Monitoring System as tools for governance of the process (in fact indicators nos. 2, 4 and 5 of the Governance area of the MUFPP are associated with the two aforementioned tools of the Food Policy). The theme of resilience in particular, covered by indicator no. 6, is of undoubted interest for the city but has not been tackled in relationship to the food system. The theme of food safety, which has to do with the presence of regulations that guarantee the distribution of food which meets standards of hygiene and health, despite being of importance for the city, is not tackled explicitly in any priority in so far as it is already regulated at the EU and national level;

- point out **overlaps and differences between priorities of the Food Policy and themes of the MUFPP**. The priority of Access has parallels with various themes of the MUFPP: in the first place with that of sustainable diets to which the majority of the indicators correspond, but also with social justice, supply and production. The priority of Sustainability, as it is understood in Milan's Food Policy, is connected chiefly to the themes of production and supply, but also to those of sustainable diets and social justice. The priority of Education has parallels with the MUFPP themes of sustainable diets, social justice and waste. Finally the Fighting Waste priority, as interpreted by the Food Policy, finds obvious parallels with indicators attributed to the themes of waste, but also with those of social justice and production. The two tools of the Food Policy, i.e. the Monitoring System and Metropolitan Food Council, are the only ones to contribute to the theme of governance. The Research priority, on the other hand, finds no correspondence with any theme of the MUFPP and so does not appear in Figure 4.

The relationship between Milan's Food Policy and the SDGs of Agenda 2030

Once the relationship between the indicators of the MUFPP Monitoring Framework and the priorities/tools of Milan's Food Policy had been identified, the latter were **connected with 17 SDGs and 169 targets of Agenda 2030**. It has been possible to establish links with **25 targets in relation to 11 SDGs**. It is important to stress that the connection between targets and priorities/tools of the Food Policy has been made through the MUFPP indicators. No indicators have been associated with the **Research priority**, but attention has been drawn to **two additional targets**, and their related SDGs, to which this priority could contribute and that should be added to the ones mentioned above. All the relationships pointed out should therefore be understood as the contribution of Milan's Food Policy to the sustainable development goals of Agenda 2030.

The priorities of Milan's Food Policy that contribute, along with the related indicators, to the greatest number of targets are respectively those of Sustainability (seven SDGs and 12 targets) and Access (five SDGs and nine targets).

In particular 15 indicators that make reference to the Sustainability priority could contribute to the implementation of some targets of the following SDGs (Figure 5A):

- 1: No Poverty (target: 1.4);
- 2: Zero Hunger (targets: 2.3, 2.4, 2.c);
- 8: Decent Work and Economic Growth (target: 8.3);
- 11: Sustainable Cities and Communities (targets: 11.a, 11.b, 11.7);
- 12: Responsible Consumption and Production (target: 12.7);
- 13: Climate Action (target: 13.2);

- 15: Life on Land (targets: 15.5 and 15.9).

The 17 indicators that make reference to the Access priority could contribute to the implementation of the following SDGs and related targets (Figure 5A):

- 1: No Poverty (targets: 1.3, 1.4, 1.b);
- 2: Zero Hunger (targets: 2.1, 2.2, 2.c);
- 6: Clean Water and Sanitation (target 6.1);
- 11: Sustainable Cities and Communities (target: 11.7);
- 12: Responsible Consumption and Production (target: 12.7).

The 12 indicators that make reference to the Education priority could contribute to the implementation of the following SDGs and related targets (Figure 5B):

- 2: Zero Hunger (target: 2.2);
- 3: Good Health and Well-Being (target: 3.4);
- 4: Quality Education (target: 4.7);
- 12: Responsible Consumption and Production (targets: 12.3, 12.8).

The Fighting Waste priority could be of use in implementing SDG 12 (Responsible Consumption and Production), in particular targets 12.3 and 12.5 (Figure 5B).

The two tools of the Food Policy—the Metropolitan Food Council and Monitoring System—could contribute to SDG 16 (Peace, Justice and Strong Institutions) and more precisely to targets 16.6, 16.7 and 16.10 (Figure 5B).

The Research priority, while having no correspondences with the MUFFP's set of indicators, could nevertheless contribute to the implementation of targets 2.a (SDG 2) and 9.5 (SDG 9).

As shown in Figures 5A and 5B, several priorities/tools can contribute to some SDGs and related targets. This is the case for example

with SDGs 1, 2, 11, 12 and 16. To others instead only one priority of the Food Policy makes a contribution: for example Education contributes to two SDGs that have no connection with other priorities, i.e.:

- 3: Good Health and Well-Being (target 3.4);
- 4: Quality Education (target 4.7).

The same is true for Sustainability (SDGs 8, 13 and 15), Access (SDG 6) and Research (SDG 9).

Thus the connections highlighted show that the **goals** of the Food Policy can be **synergic** with those of **sustainable development** that have been identified at the **global level** as priorities to be attained in the next two decades. The links are a demonstration of the **holistic approach** that the **Food Policy** offers to urban policies thanks to the strategic role it plays on various fronts, from the reduction of poverty and food insecurity to better management of natural environmental resources and the creation of sustainable cities and communities.

Fig. 5,6,7,8 e 9 (pag. 140)
Contribution of each priority
of the Milan's Food Policy
to the SDGs



**1. Ensuring healthy
food and water for
all citizens**

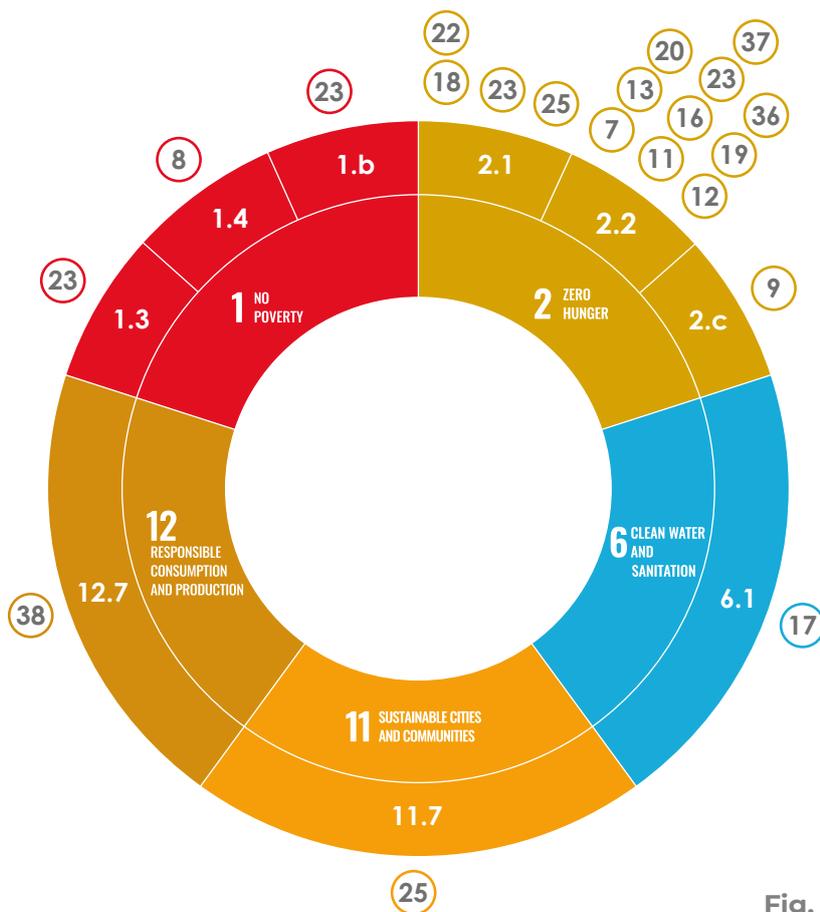


Fig. 5




**3. Promote food
education**

Fig. 7

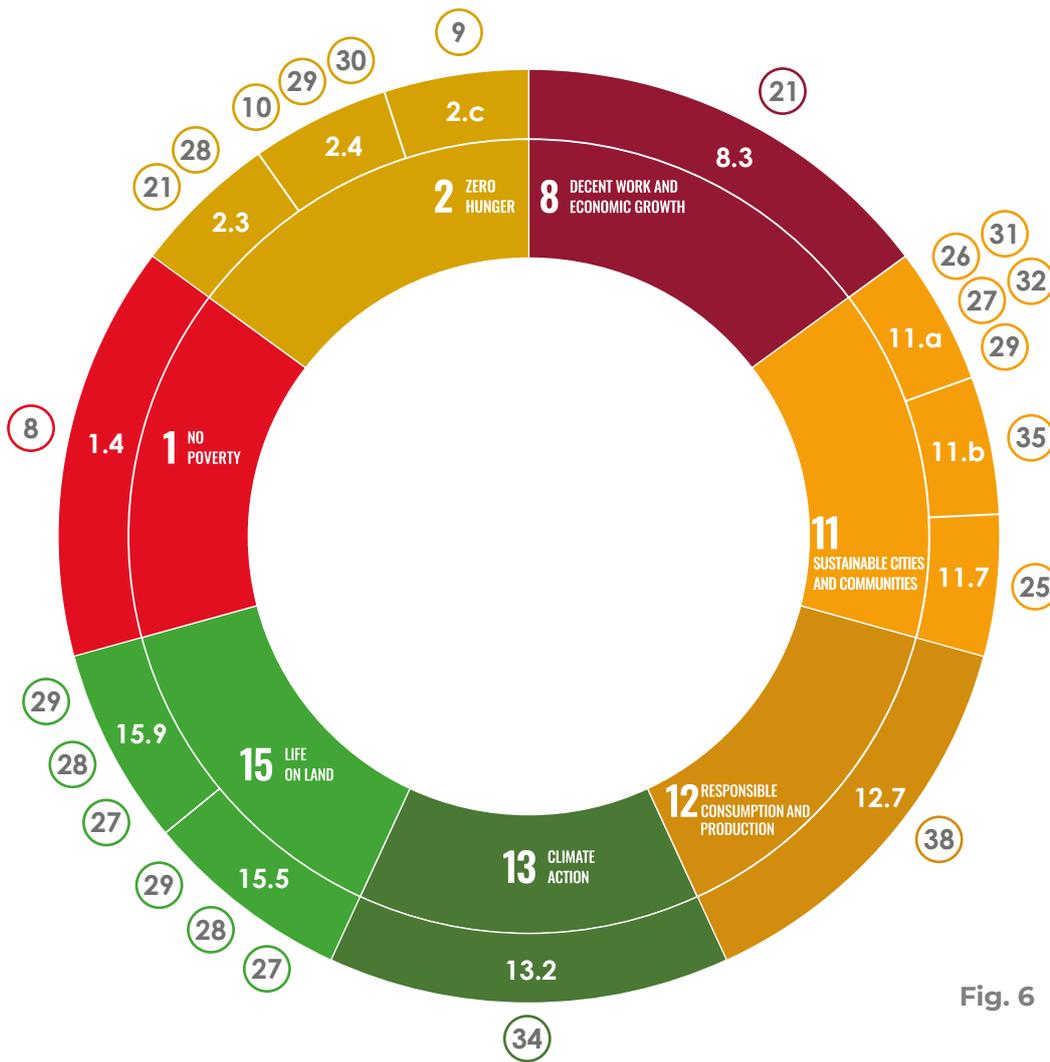


Fig. 6


2. Promote the sustainability of the food system


4. Fightin against food waste

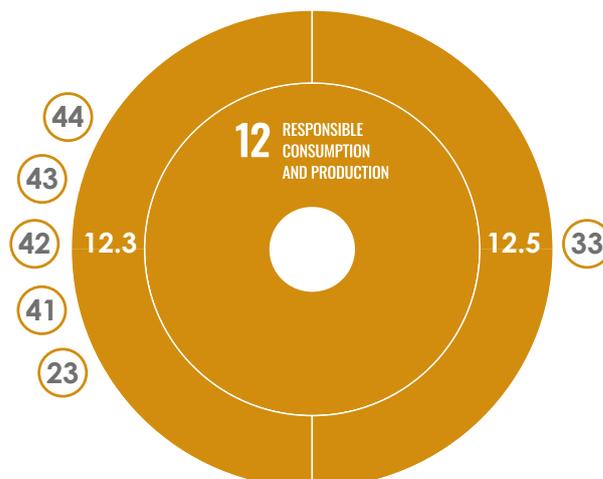


Fig. 8

Fig. 9


5. Supporting the scientific
agrifood research

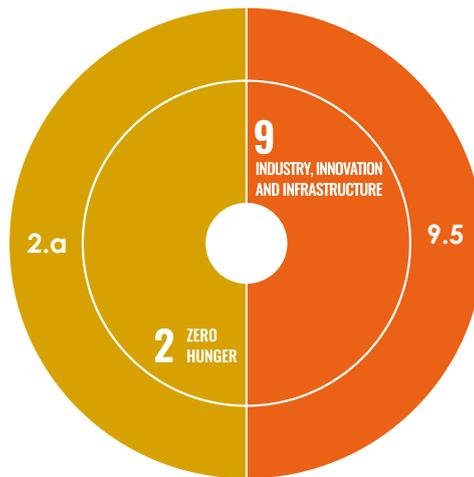
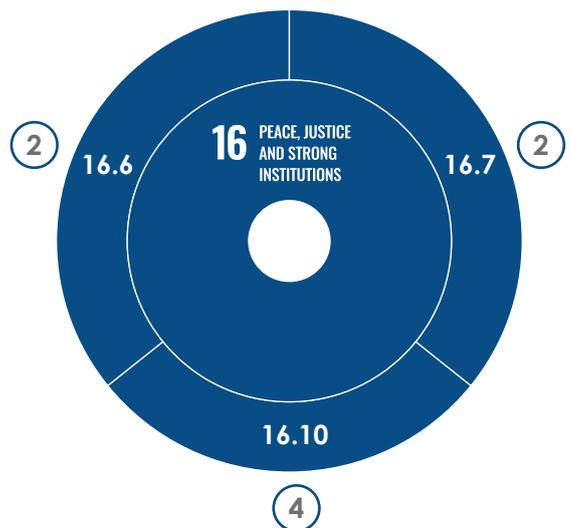


Fig. 10
Contribution of the two
tools of the Milan's Food
Policy to the SDGs


Monitoring system




Food Council



The availability of data for the MUFPP Monitoring Framework applied to the city of Milan

A further passage in the local experimentation of the MUFPP Monitoring Framework has been the checking of the meaningfulness of the indicators and the availability of data. It has in fact been conceived for application to cities in different geographical regions and socioeconomic situations; as a consequence not all the indicators can be utilized for or are relevant to all the cities.

As was pointed out above, of the 44 indicators proposed, five have no relationship with the priorities of the Food Policy despite being of significance for the Milanese food system. With regard to the remaining 39, 23 of them are measurable, while seven cannot be implemented at the moment and there are six whose calculation has problematic issues.

There are several reasons why it is not possible to calculate some indicators at the moment:

- inaccessibility or current unavailability of the data (e.g. no. 11: Number of adults with type 2 diabetes; no. 21: Number of formal jobs related to the food sector that pay at least the national minimum or living wage; no. 30: Number of urban and peri-urban food producers that benefited from technical training and assistance over the last 12 months; no. 33: Annual proportion of urban organic waste collected that is reused in farming within the municipal boundaries; no. 41: Total annual volume of food losses and waste);
- recourse to systems of measurement not normally utilized at the municipal or even the national level (e.g. no. 18: Percentage of food-insecure households according to the FIES (Food Insecurity Experience Scale));
- irrelevance of the theme for the Milanese context (e.g. no. 12: Prevalence of stunting for children under 5 years).

Among the obstacles standing in the way of the calculation of some indicators on the other hand there are:

- the availability of up-to-date figures on a regional and/or national but not municipal scale (e.g. no. 10: Average individual daily consumption of meat), and in some cases even then only partially available because the data refer solely to particular age brackets (e.g. only adults for indicator no. 13: Levels of excess weight or obesity among adults, teenagers and children), or have to be deduced from data collected on the subject using different criteria (e.g. no. 7: Minimum dietary diversity for women of reproductive age).
- the current difficulty in obtaining some data (e.g. no. 29: Proportion of farmland in the municipal area under sustainable agriculture; no. 31: Number of municipal food-processing and distribution infrastructures available to food producers in the municipal area; no. 32: Proportion of local/regional food producers that sell their products to public markets in the city).

Among the indicators that can be more easily calculated there is one, no. 44, that it will only be possible to measure in the near future as it refers to the impact of policies which have only recently begun to be implemented. This indicator in fact measures the volume of food surpluses recovered and redistributed for human consumption: the municipality of Milan will be able, for example, to estimate the amount of food donated, and hence the level of loss and waste reduced, on the basis of the documentation that will be produced by companies that decide to request a cut in the variable part of the TARI.

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The text summarizes the essential features of the food system in Milan, in relation to the 5 priorities of the Milan's food policy: **Access**, **Sustainability**, **Education**, **Fighting waste** and **Research**

ISBN 9788894200379
Food Policy Milano

