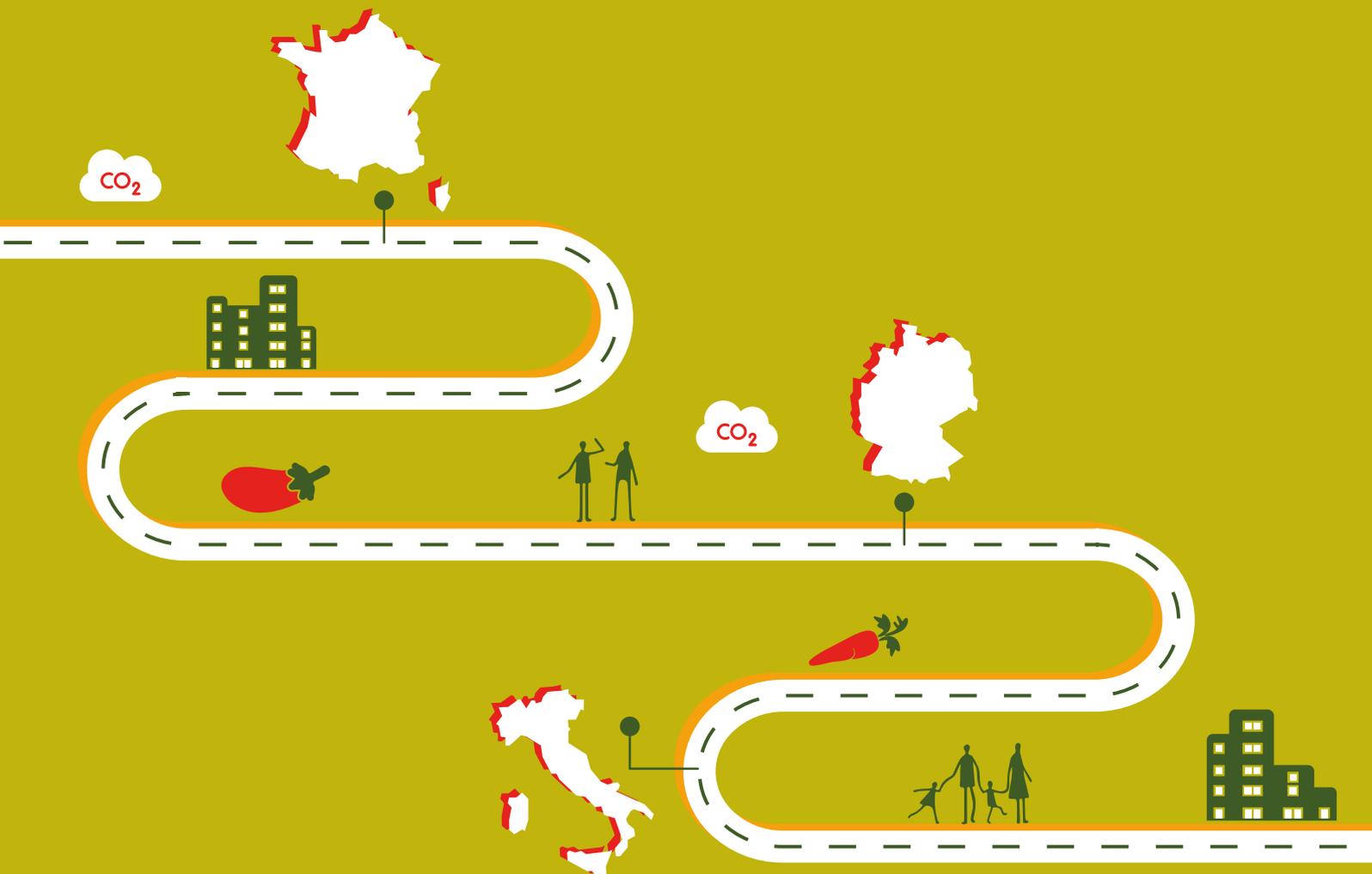


Climate, Poverty and Policies: food systems in France, Germany and Italy



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Index

Foreword **7**

1. Background: issues and context **9**

What are food systems?	10
Why are food systems relevant for sustainability?	10
Why are food systems relevant at urban and suburban scale?	12
The contexts : France, Germany and Italy in the European framework	13
Diversity and similarities of contexts of analysis (focus on points of attention for comparative reading)	14

2. Food systems, climate change and global risks **23**

Introduction	24
Which food production and consumption patterns are most responsible for the climate impact in France, Germany and Italy?	24
The relationship between the food system and climate change	24
Data on the food systems of France, Germany and Italy	27
Measuring climate impact at the urban level: the case of Bergamo	30
Which agro-industrial sectors and which categories of consumer goods are most affected by foreign dependence in France, Germany and Italy?	33
Bibliography and notes on the method	37

3. Food systems and poverty **39**

Poverty as a system, food as an access point	40
Why is food poverty and insecurity something to care about in Europe?	41
A matter of quality	42
<i>Box: Are sustainable and healthy diets affordable? A case from Italy</i>	43
Which are the other faces of food poverty and where is Europe going?	44
<i>Box: Labour and poverty</i>	45
How do the different sides of poverty correlate with each other?	49
Bibliography and notes on the method	53

4. Food systems and policies **59**

Food policies as a crosscutting topic for all European countries	60
What are the characteristics of urban food policies?	61
How did urban food policies arise?	63
Who are the main actors in urban food policies?	64
Urban food policies in France, Germany and Italy: a look at some examples	66
European policies for food systems	70
Common Food Policy for Europe	72
Bibliography	74

5. Conclusions : main issues raised and suggestions **79**

Foreword

“Climate, Poverty and Policies: food systems in France, Germany and Italy” by Heinrich-Böll-Stiftung Paris and ESTà offers a transversal reading of the interconnections between the various elements that make up the food system, the similarities and differences between the food systems of France, Germany and Italy and the most relevant evidence that distinguishes these three territories, focusing on urban and peri-urban areas.

The first two chapters concern two themes that profoundly characterize the evolution of European society and economy in recent years. The first concerns the climate crisis, which links the economic-productive structure to individual consumption practices, and the second to the issue of poverty, which is linked to the theme of inequalities.

These are two themes that are increasingly present in public debates since the effects of both climate change and inequalities are increasingly evident in the daily lives of European citizens and, consequently, also on the political agenda. Despite the relevance of these two themes and the multiplication of communications related to them, widespread perception is not always supported by a reasoned framework of information that correlates what is seen and perceived to the respective causes and different contexts. For example, the climate issue is mostly treated through a global narrative which, even if correct, often does not shed much light on the diversity of causes and impacts in which climate change manifests itself in specific contexts. These dynamics are particularly relevant in Europe; rich in differences both on a bioclimatic level and from the point of view of the socioeconomic structure.

This report provides a contribution to the progress in understanding these dynamics by taking into consideration three European nations, France, Germany and Italy, providing some interpretations supported by official data. Food constitutes a privileged point of view for the knowledge and interpretation of processes linked to climate change and poverty. Food, understood as a food system, is made up of many aspects ranging from cultivation, transformation,

transport, sale, consumption, up to the management of all organic and inorganic waste connected with the different phases of the food cycle . It, therefore, involves large portions of the production system, with strong links to mechanics, chemistry and energy sources and, therefore, to the sum of all the climate impacts generated by the particular conformation of the European food system.

Similarly, food poverty is the symptom of a broader picture of both material and immaterial poverty ranging from income, cultures, education, issues of justice and inclusion.

Among the data and interpretations useful for understanding the European specificities of the issues related to the relationship between food, climate and poverty, a chapter is dedicated to local policies relating to these issues.

Municipalities are the public authority closest to citizens and cities are the places where food poverty is most concentrated and where demand takes on increasingly specific forms and are more linked to the sustainability of what is consumed. On the other hand, local governments are not always able to respond adequately to the evolution of these phenomena, especially because the governance and management of some relevant parts of the food system do not fall within their direct competences, starting with agriculture. Despite this, for about 15 years now in Europe the recognition of the central role of local authorities has been growing and it is in these contexts that, in the integration between social innovation and the protagonism of local authorities, new spaces of public policies that link food are growing to combat climate change and poverty.

Background: issues and context

1

The Report intends to analyse the **food systems** in **France, Germany and Italy** in the European context, investigating their role in relation to **integral sustainability**. While considering the complexity of this picture, in this report, the focus is on the relationship with **climate and global risks, poverty and policies**.

The issues

What are food systems?

The concept of food systems encompasses **various elements**, including the **flow of goods, processes, knowledge**, as well as symbolic and cognitive **values**, which regulate food movements throughout the entire supply chain. It gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the **production, processing, distribution, preparation and consumption of food**, and the output of these activities, including socio-economic and environmental outcomes (HLPE, 2014). This includes production choices, technology usage, localization, and the management of production factors, all the way to the consumption and disposal of food waste.

Why are food systems relevant for sustainability?

There is substantial evidence highlighting the imperative need for a **fundamental shift away** from the current global food system due to its **detrimental impact on the environment, health, and society** (as documented by Linseisen et al., 2002; FAO, 2012; Tukker, 2006; Westhoek et al., 2014; Bailey et al., 2016; Lang and Heasman, 2015; Springmann et al., 2018; Willett et al., 2019; Barilla Foundation, 2021; IPES-Food & ETC Group, 2021). Furthermore, the impacts caused by current food systems themselves, for example through their

contribution to climate change and the reduction of biodiversity, undermine the **stability of economic systems and international geopolitical security**. From these considerations, the importance of food systems for sustainability, understood in an integral sense, becomes evident.

According to Bricas (2015), the **industrialization** processes that have characterised the food supply chain in recent decades have led to **internal disconnections** within these food systems, creating greater **distances** between **food production and consumption** on multiple levels:

- Geographically, there is increased complexity due to long supply chains.
- Economically, numerous stakeholders and intermediaries are involved in food production.
- Cognitively, there's a challenge in understanding how the food system operates.
- Socially, there's a mix of trust and distrust in the relationships between producers and consumers.
- Politically, there's complexity in regulating the food system, involving both consumers and states.

Moreover, these implications encompass environmental impacts, as well as landscape and cultural effects, leading to the loss of traditions and direct connections with food producers. Modern societies grapple with the **consequences** of these challenges. On one hand, **controlling** production and processing methods is difficult, coupled with a rise in the consumption of heavily processed products, which incurs significant **health** effects and **negative economic impacts** on local healthcare systems. On the other hand, the prevailing **food paradigm**, dominated by **large-scale retail** trade, undermines urban and peri-urban agriculture in favour of extensive, large-scale intensive production methods that are **poorly integrated** into local communities and territories (Mazzocchi, 2020). Dietary patterns have undergone significant changes in the past fifty years, posing a **threat** to both the well-being of populations and the environment. This has led to the well-recognized “**triple burden of malnutrition**” where one in nine people experiences hunger or undernourishment while one in three is obese or overweight (Global Nutrition Report, 2020).

Because of all these aspects, for about 30 years, researchers and experts have been developing the concept of **Sustainable Food Systems** and its applications from the global to the local scale. Fig. 1 shows the macro-dimensions involved (**Governance, Food security,**

Nutrition, Economic, Social-cultural, Environment) and, for each macro-dimension, some of the qualifying characteristics.

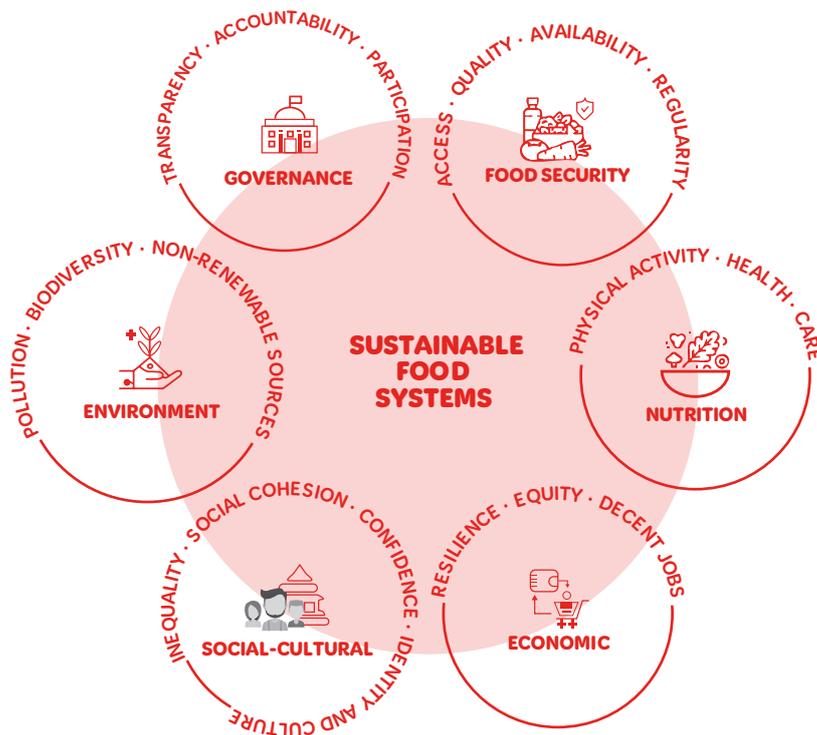


Fig.1 Macro-dimensions and characteristics of Sustainable Food Systems. Source: Blay-Palmer et al., 2019; Urbal project: <https://www.urbalfood.org/the-project/>

Also, many recent works are focused on the role of **sustainable food systems** (eg. dietary transition) in widening the spectrum of justice in sustainability (before the attention has been mainly concentrated on energy systems). **Just ecological transition** is gaining increasing attention, as the need to consider **social justice** in sustainability transitions is finally being acknowledged (Kaljonen et al. 2021).

Why are food systems relevant at urban and suburban scale?

Although food-related issues have traditionally been associated with the poorest countries and rural areas, **more than half of the world's population now resides in cities**, and this percentage is expected to increase by **18% by 2050** (United Nations, 2018). Urbanisation not only involves the physical expansion of cities but also significant **modifications** in the environment, society,

and the surrounding economy. Thus, sustainable development, particularly concerning the food system, hinges on the idea that **cities are interconnected with their surrounding rural areas** (Lang et al., 2009; Calori and Magarini, 2015; Hawkes and Halliday, 2017). Cities can be regarded as living organisms where **54%** of the global population resides (**70%** in Europe), and **80%** of the world's GDP is generated (United Nations, 2018). Furthermore, some big cities function as **economic powerhouses**, resembling entire states as they serve as hubs for the movement of raw materials and finished products within nations, contributing significantly to food production, transformation, and consumption. Ultimately, cities are where **society, economy, health, and the environment** converge and intersect (Calori and Magarini, 2015), suggesting that acting on cities with **food system policies** is relevant for the whole territory. Thus, cities concentrate **problems** but also offer sites for sustainability **solutions**.

Furthermore, **suburbs** are **critical** areas in all the **worldwide cities**, where **multiple problems** are concentrated. Cities traditionally tend to structure themselves in a **functional way** and relocate the most significant **impacts** (waste treatment plants, etc.), complex social structures (prisons, etc.) and the most fragile social groups to the suburbs. The suburbs are thus configured as **hotspots** of poverty, social insecurity and pollution in a process of progressive exclusion. Poverty is multidimensional, including **food poverty** and difficulties in **accessing food**, which emerged dramatically in the pandemic period, as discussed in Chapter 3. Peripheral areas also involve the **fringes of cities**, i.e. places that are poorly managed from a planning point of view but at the same time, relevant for **food systems sustainability**. They are in fact the areas most in contact with **peri-urban agriculture**, which represents one of the most interesting opportunities for **shortening food supply chains** and **re-linking rural and urban** cultural relations (Pirovano, 2008).

The contexts: France, Germany and Italy in the European framework

Europe is the continent that **most aspires to lead the world in integral sustainability**: as discussed in Chapter 4, there are numerous recent regulations and policies promoted in the last three years aimed at the ecological transition. Although the **European triad** plays an important role in these areas, the character of EU governance depends heavily on **the geo-political and cultural**

axes and balances of the States that make up the continent. For this reason, European analyses always need to be contextualised in **national territories**, in order to avoid excessive generalisations and to investigate dynamics, evolutions and problems in a more rigorous manner.

This is why the analysis focuses on three States, **Germany, France and Italy**, which play a relevant role from many points of view at European level. The comparison between the three contexts is, however, particularly complex, since **comparative studies are scarce** in the **literature** and in most cases focused on very specific aspects, with data characterised by rapid obsolescence and often lacking in terms of connections with the specific characteristics of the Countries in question. It is also emphasised that often, even within individual Countries, **territories are very diverse** and that for increasingly detailed and rigorous analyses, the **local scale** is in most cases the most appropriate for analysing results in terms of sustainability. These aspects are all particularly true if the object of the comparative analysis concerns **food and food systems** which, as pointed out above, involve multiple aspects such as **cultural, psychological, social**, as well as **economic, political and environmental spheres**.

Diversity and similarities of contexts of analysis (focus on points of attention for comparative reading)

France, Germany and Italy played a decisive role more than 70 years ago in the **establishment of the European Union**. Despite this, the three Countries differ considerably in historical, cultural and geographical, and consequently societal and economic, aspects. In addition to the more macro and well-known differences (economic structure, GDP, etc.), one of the first diversities to bear in mind in comparative analyses is that relating to the **political-administrative systems** that distinguish the three States (which in turn are grounded in history and geopolitics) and the effects of these systems on the construction of **policies and the attitudes of reference and trust of citizens** with respect to the bodies that propel these policies (**government, state, local and supra-local authorities**).

First, the **different role of the State** in the three Countries should be emphasised. France, given its long history as a centralised state

(starting in the Middle Ages and later with greater prominence since the French Revolution), emerges as the context where the **State plays the most relevant role**, when compared to Germany and Italy. Therefore, the presence of a **strong State and the recognition** of this by territorial collectivities, citizens and businesses characterises policies, spatial planning, investments and results, as well as transcale forms of collaboration. In **France**, in fact, many initiatives have a strong centralisation (Stratégie, etc.) and the State enters into a traditionally direct contractualisation with the territorial authorities, in a form of **pact (e.g. “contrat territorial”)** that commits both parties to a **territorial project**, often with a defined timeframe, at the end of which there is an evaluation and a possible continuation of the pact (this is the case with the Regional Parks, the Charte Paysagères, etc.). As we shall see in Chapter 4, this feature is specific to France and thus represents an **already established practice** into which food systems initiatives are grafted.

On the other hand, albeit with different roles of the State, in Germany and Italy, the **Länder** and the **Regions**, respectively, assume a considerably **more relevant role** with legislative and administrative powers, decision-making and economic autonomy (more relevant in the German case than in the Italian one). Hence, Germany, a fully **federal state** (also for historical reasons), shares powers **at a territorial level**. On the other hand, Italy represents **an intermediate case** between Germany and France, because, although it is not a federal state, the regions, since their creation in the 1970s, have engaged in a continuous and ‘hard’ battle with the state, resulting in a **consistent autonomy of the regions and diversification in broad areas** of policies and territorial results.

The role of the **Régions in France** is more limited (also economically) than in the two other countries considered, in favour of the **Départements**, a second-level decentralisation. In **Germany**, these correspond to the so-called **Landkreise**, which, although they have less autonomy than the Regions and are decentralised entities, represent relevant planning subjects that are closer to the territories. Geographically speaking, this scale in **Italy** is represented by the **Provinces**, which however, although they still exist, have been progressively emptied of powers, competences and personnel in favour of the Regions and other entities since 2014. For the theme discussed here, **the ‘provincial’ or ‘departmental’ scale**, which is closer to the territories than the Regions, is instead the one that is best suited to **wide area policies**, capable of **influencing food systems** and all those relations that can determine their

sustainability (infrastructures, logistics, soil protection, etc.).

A dynamic in which **similarities** are found in the three States considered are the “**metropolitan areas**” that have increased over time in the specific contexts (albeit with different rhythms and denominations), marking an evolution of an increasingly relevant role of **the big cities**. This is a phenomenon that can also be observed **in other continents**, with the increase in attractiveness and therefore in population and investments, and at the same time also in problems and opportunities at the geopolitical and territorial **consensus level**. In fact, many large cities express **Mayors** who move on the geopolitical chessboard, building networks of influence and exchange of good practices, as well as often professing more progressive and open positions with respect to the orientations of the States to which they belong. **This scale is also relevant to the sustainability of food systems**, precisely because of these characteristics and because of their **proximity to the citizenry** and thus in contact with the problems it expresses (see the theme of **food poverty**, Chapter 3).

An important aspect that **differentiates** the three Countries concerns the **aptitude for scenario building / « la prospective »**, i.e. the development of visions of the future against which strategies and action plans can be constructed. A well-known case is that of **France's DATAR**, which ‘literally’ planned the future of French territories well in advance, so much so as to be identified as one of the reasons for the construction of rural France and the very characteristic and protected landscapes that resulted. The opposite is the case of Italy, which, on the other hand, has greater difficulties in this respect, despite having a history and great technical competence **in territorial planning**.

Moving on to the reading of **socio-demographic phenomena**, as in the whole of Europe (absolute primacy among the continents), the trend towards **ageing** (together with low fertility) characterises the three Countries considered, with a progressive decrease in the **population of working age**, aspects that will characterise the **problems of the future** (increase in welfare and health expenditure, imbalance between generations, impoverishment of public funds, etc). In this dynamic, Italy ranks first (22.8 elderly per 100 inhabitants, Fondazione Cariplo, 2023). In this context, the **link between health and nutrition**, one of the aspects of **food systems** now recognised internationally (e.g. Lancet, 2019), is of **crucial importance for present and future generations**.

Another highly topical dynamic affecting Europe and the three Countries considered is that of **migratory flows** that are generally increasing because they are generated by wars, inequalities, environmental and climate crises that are increasingly frequent and impactful. Although it represents an opportunity for e.g. **integration, cultural growth and coping with an ageing population and labour shortage**, it has been and is addressed differently by the Italian, German and French governments. Beyond controversial political evaluations, the phenomenon is of particular interest to **European food systems as agriculture and livestock breeding**, which underpin them, represent the **main destinations of their employment**. This employment (mostly seasonal) is **necessary to maintain the system itself** (cheap labour) with relevant aspects of **exploitation and violation of human and social rights**. **Caporalato in Italy**, for example, shows extreme pervasiveness and seriousness in all regions (see the recent analysis of the Lombardy case by the Terra Association, 2023) and represents a serious issue **that is always poorly considered when dealing with food systems**.

In general, another phenomenon affects Europe and the three Countries considered, namely that of the **worsening inequalities**, with the dimensions of relative and absolute poverty increasing in a differentiated but nonetheless worrying way, in parallel with the dynamics of **wealth concentration**. Inequalities can also be seen in terms of **unequal access to and quality of basic services** (concentrated mainly in urban **peripheries**), including access to **healthy, quality food and water**, another important aspect of food systems. Please refer to Chapter 3 for specific discussion.

Among the **most relevant economic issues**, which affect Europe and the three Countries covered in the Report and which have a major impact on the **sustainability of food systems**, we briefly mention that of the **volatility of the financial markets**, induced by the situation of instability (war in Ukraine broke out in the post-pandemic period) and the contextual speculation. **The prices of agricultural products in a globalised world** are determined by complex balances between market, subsidies, protectionism, harvest/breeding weather conditions, etc. This aspect, which is **critical for food systems even in periods of stability**, is currently very **evident**, particularly for certain product categories (e.g. wheat). Even the positive dynamics of the **ESG** 'sustainable' investment market (50% of European mutual funds), since 2022 is experiencing a period of crisis for various reasons (including opposition from some large international managers - Fondazione Cariplo, 2023).

The critical issues outlined above have also led to the sharp increase in **energy prices**, which, in addition to causing **energy poverty**, also impacts on **functional aspects of food systems** (production, with, for example, the increase in the prices of **fertilisers** that are traditionally very energy-intensive; processing; distribution).

Current food systems are therefore **impacted and affected** by all the dynamics briefly mentioned above but, at the same time, they are also **directly responsible for significant negative effects on socio-economic systems** (one for all, the aforementioned **health**) and on **natural systems**, such as **biodiversity** and **climate change**.

The **energy, climate and ecological transition of food systems** in a context characterised by **global risks** therefore appears to be one of the priorities that Europe and the three Countries considered are facing, together with the evidence of increasing **inequality and poverty**. With this in mind, the Report has chosen to examine **these issues in depth** (Chapters 2 and 3), together with the **responses that food policies** are providing and that could be even more developed in the future (Chapter 4).

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Food systems, climate change and global risks

2

Introduction

This chapter comparatively analyses the food systems of three major EU countries - France, Italy and Germany - highlighting their characteristics most closely linked to the major global risks of our time: climate change on the one hand and wars and pandemics on the other.

With respect to climate change, the chapter analyses the different impact of specific food categories (cereals, meat, local fruit and vegetables, tropical fruit...), identifying the sectors where it is most important to bring about changes in both consumption and agri-food production.

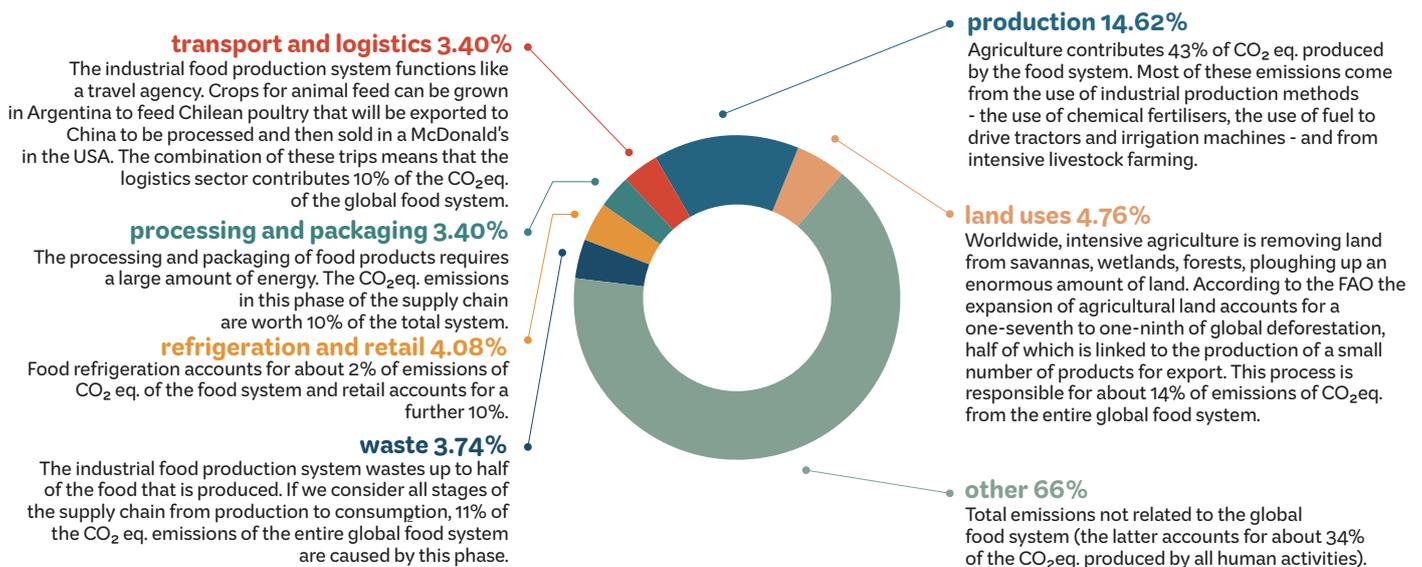
Instead, the global issues of wars and pandemics call into question the level of foreign dependence of national food systems. A food system that is highly dependent on exogenous factors is exposed to the risk of short supplies of basic necessities when global crises occur. The chapter analyses the level of dependence of the three countries, again allowing the identification of the least resilient production and consumption sectors.

Which food production and consumption patterns are most responsible for the climate impact in France, Germany and Italy?

The relationship between the food system and climate change

In order to understand the contribution of the **food system** to the production of climate-changing gases - carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) - it is first of all useful to remember that in this system, **it is the production phase that is most responsible for emissions**. Depending on the geographical context, it contributes more than 50 per cent. On the one hand, this phenomenon can be explained by the effects of deforestation

Fig.1 Breakdown of greenhouse gas emissions for the different components of the agri-food system in industrialised countries - Source: elaboration by EStà on data from Crippa et al.,2021



to transform areas into agricultural or livestock fields, and on the other hand by an analysis of production methods. Modern farms are in fact highly dependent on fossil fuels, both because of the machinery used - almost always powered by diesel engines with high CO₂ emissions - and because of the chemicals used to increase soil fertility, protect crops from disease or eliminate weeds (the production of which is energy-intensive and made with fossil fuels). With respect to the livestock production macro sector, it also contributes significantly to climate-changing emissions. In fact, livestock farms are one of the main emitters of methane (CH₄), a gas that is produced either when organic matter decomposes in an oxygen-poor environment, or in the enteric fermentation of ruminants, or in the treatment of animal manure. It should be added that methane is also emitted in large quantities in rice fields under submerged conditions. Nitrous oxide (N₂O), on the other hand, is produced by the microbial transformation of nitrogen in soils and manure, and, together with methane, is emitted during the combustion of agricultural residues (although it usually represents a small percentage compared to the other emission sources). **The adoption of more environmentally sustainable agronomic practices can therefore significantly influence the climate impacts** of the agricultural production phase, even if in many cases the benefit is only visible in the long term; here the practices of so-called conservation agriculture stand out: reduction of ploughing, hedging and crop rotation. It should also be remembered that agriculture, in addition to emitting climate-altering gases, can also contribute to their sequestration through agronomic practices that tend to conserve carbon in the soil: every tonne of organic carbon

retained by the soil corresponds to the non-emission of 3.66 tonnes of CO₂ equivalent.

Another stage of the food cycle that deserves consideration with respect to its consequences in terms of climate-changing gas emissions is transport, observed in particular through three types of variables: 1) the type of means of transport used; 2) the efficiency of vehicles in terms of climate-changing emissions; and 3) the way in which the final consumer accesses the places where the food is resold. As far as the means are concerned, ships are the example of a means of transport with low climate-changing gas emissions per transported unit (although the growth of international trade in the 2000s has made the ship system as a whole equivalent to the sixth largest nation in the world in terms of CO₂ eq. emitted) and, as far as the transport of food is concerned, where possible they are to be preferred to rail and road, which are in turn less impactful than air transport. However, if the entire life cycle of a product is taken into account, for many foods the transport phase has a limited influence on total greenhouse gas emissions; an exception in this respect are so-called tropical products of which the banana is the most emblematic case. The world of food transport also offers cases in which the climate impact is quite different from what one intuitively imagines: there are foods that have less impact if they are transported halfway around the world, even by air, than if they are produced in greenhouses a few kilometres away; for example, the winter transport of tomatoes by truck from Spain to the United Kingdom releases fewer climate-altering gases than those emitted in heated greenhouses in the United Kingdom itself (Segrè and Gaiani 2011). Such considerations show **how the so-called '0 km product' is not always preferable from the point of view of environmental impacts**, although the discourse changes once other dimensions of sustainability and in particular impacts on society and the local economy are taken into account.

Another element of the food system that generates significant climate impacts **is the cold chain**, i.e. the set of operations that serve to keep a product at low temperatures (in some cases a few degrees, in others as low as 20-30 degrees below zero) from the moment of its production until its consumption. There are several factors on which the emission level depends, namely:

- the temperature at which the product is stored;
- the distance between the place of production and consumption and the means of transport used;
- the time that elapses between the preparation of the food, entered into the cold chain, and its consumption.

However, the cold chain only appears relevant in terms of impacts

when it concerns the freezing of simple products with a low environmental impact, such as vegetables, and when storage times at low temperatures are relatively long. In contrast, the impact of the cold chain becomes insignificant for products with short refrigerated storage times and for foods that already have a high environmental impact such as meat (BCFN, 2016).

Last aspects of the food system, potentially impacting on the climate, are those of food cooking - a step that, depending on the means and techniques used, can exceed the rest of the entire food production cycle in terms of emissions - and that of food waste - a problem mainly linked to household behaviour and capable of both rendering useless the emissions that accompanied the production of wasted food, and of producing new emissions through increased waste.

Data on the food systems of France, Germany and Italy

The observation and processing of the data summarised in the following infographics was conducted through two perspectives. Through the first, the climate impact of the production system (i.e. agricultural and food processing enterprises) of each of the three countries was analysed. Through the second point of view, the climate impact was observed from a per capita consumption point of view, a value obtained from the sum of food produced, imported, exported and wasted.

The specific questions that guided this phase of the research were as follows:

“Which food production, in each of the three countries, is responsible for the greatest impact in terms of greenhouse gases (measured in CO₂ equivalents)?”

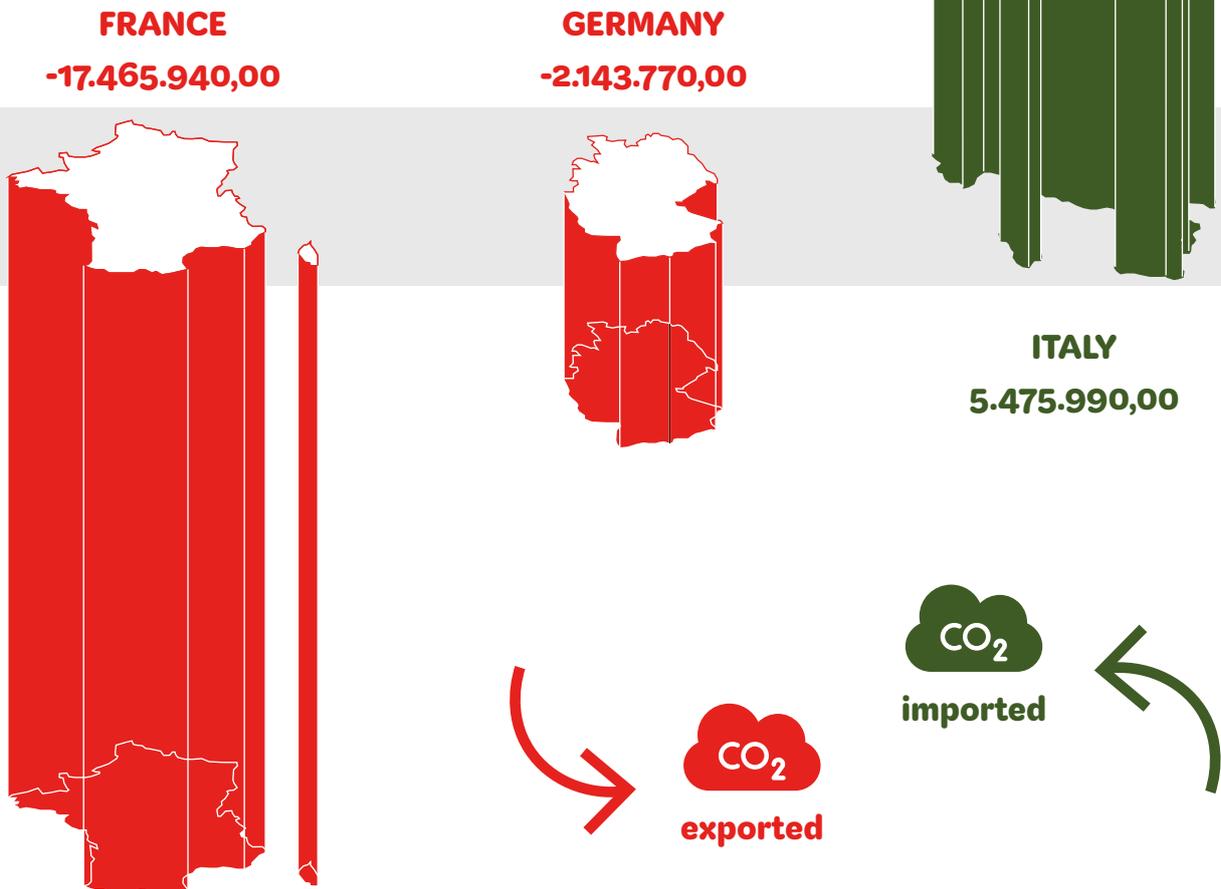
“Which citizens’ consumption produces the highest greenhouse gas emissions?”

Before going into the answers, it is important to note that there are differences, sometimes significant, between CO₂ related to food production and CO₂ related to consumption. Italy, for example, produces few Pulses, but imports many from abroad to meet the needs of its inhabitants; in this case the CO₂ produced by the country appears very low, while the amount of CO₂ imported is 10 times higher. In other cases, the opposite happens: the consumption of Vegetables open field by the inhabitants of Italy develops less

IMPORTING AND EXPORTING CO₂ IN FOODS

CEREALS

Wheat and products, Rice and products, Barley and products, Maize and products, Rye and products, Oats, Sorghum and products, Millet and products, Cereals, Other



FOOD	FRANCE	GERMANY	ITALY
TUBERS	-1.084.860,00	-1.346.220,00	276.750,00
SWEETENERS	-1.558.440,00	-364.260,00	1.198.080,00
PULSES	31.200,00	207.480,00	333.320,00
SEEDS AND OLEAGINOUS PLANTS	1.203.840,00	9.588.480,00	5.067.920,00
FRUIT AND VEGETABLES	2.742.780,00	4.231.700,00	-1.758.220,00

MEATS

Bovine Meat, Mutton & Goat Meat, Pigeat, Poultry Meat, Other Fats, Animals, Raw Offals, Edible



In **green** the **CO₂ importing states**, contained in food consumed locally and produced abroad;
 in **red** the **CO₂ exporting states**, contained in food produced domestically and consumed abroad

FOOD	FRANCE	GERMANY	ITALY
COLONIAL GOODS	3.100.580,00	4.951.420,00	2.333.020,00
BEVERAGE	-173.820	127.560	-1.134.690
MILK AND DAIRY PRODUCTS	-3.595.680,00	-3.268.800,00	2.079.360,00
EGGS	-6.400,00	998.400,00	92.800,00
TOTAL	-13.946.610,00	10.432.500,00	22.698.130,00
TOTAL TON/CAP, 2020	-0,21	0,13	0,38
KG/DAY/CAPITA	-0,57	0,34	1,05

CO₂ than that emitted during production, which is a clear sign that the missing CO₂ is exported together with the related products (the difference will therefore be attributed to the consumers of the countries that imported the Italian Vegetables open field).



Data related to climate impacts are only available in connection with categories and not with individual products, but this does not prevent the observation of significant phenomena. From the point of view of overall emissions per inhabitant - referring to both the production and consumption phases - **Italy is more virtuous**, with -40% of CO₂ eq. compared to France and -30% compared to Germany **in the production phase and** about 16% less than both other countries **in the consumption phase**. The differences are mainly attributable to Italy's lower emissions compared to France for beef consumption and compared to Germany for pork consumption. In the production phase, however, the differences are mainly attributable to the high impact of cereal cultivation in France and Germany.

Measuring climate impact at the urban level: the case of Bergamo

In the last part of this section devoted to the relationship between the food system and CO₂ equivalent emissions, **we see an example of an assessment of the climate impact of a city's food system**. The case concerns Bergamo, a city in northern Italy of approximately 120,000 inhabitants, roughly equidistant from France and Germany.

There are no systematic data collections at the municipal, local or provincial level concerning the climate-changing emissions of the food system, and therefore data at the local scale can only be obtained through indicators derived from the recombination of global data, local data, coefficients and scientifically sound calculators. The results and tools used are presented below.

The first result obtained is based on a calculation of the total climate-altering gases emitted by the city of Bergamo through a combination of evidence obtained from the INEMAR database of ARPA Lombardia, from the EDGAR-FOOD data of 2021 and from the normalisation parameters of climate-altering gases established in 1996 by the IPCC. Through this procedure it is possible to estimate the total emissions attributable to the Bergamo city food system at

196,037.99 tonnes of CO₂ eq. per year, equal to 1.69 tonnes (1,693.95 kg) per capita.

The second overall result was obtained on the basis of food consumption. Of course it is not possible to estimate with sufficient approximation which foods and in what quantity are consumed by a population, so the calculation was referred to specific sectors of the population where this information is available. In particular, the survey was referred to the primary and secondary school population by analysing weekly menus and applying the database Petersson et al., 2021. For the analysis, a typical menu week of the school year 2021-'22 was chosen, taking into consideration the institutions receiving meal transport from the Municipality of Bergamo. The quality indications of the menus were cross-referenced with the recommendations of the Local Social and Health Authority in terms of ingredient quantities and the overall calculations were carried out plate by plate; the average obtained is 1,225 grams of CO₂ equivalent per meal. Taking this average as a basis, multiplying it by the 730 (365*2) meals per year (assuming the emissive weight of lunch equivalent to that of dinner) and adding a large daily breakfast, the result is a total of 1.156 tonnes of CO₂ eq., equal to the per capita emission that would be obtained if an individual citizen of Bergamo were to follow a menu similar to that consumed in the schools mentioned above for a year. This figure differs from the previous calculation (1.69 tonnes), however, it must be taken into account that these are two different methods: one that takes into account national parameters (the EDGAR-FOOD coefficient applied to emissions relative to the production chain); the other local parameters (the diets studied by Local authority, applied to calculations relative to final consumption), in addition to the fact that children's diets are in any case different from those of adults. On a comparative and pedagogical level, however, it **may be interesting to note how the substitution of certain foods with others similar in characteristics or nutritional potential may lead to profoundly different results from the point of view of the impact on climate-changing gases**, as the Table 1 shows.

With the same methodological precautions mentioned in the last paragraph of the previous section, in the following lines, results will be presented in terms of emissions referring to the individual stages of the food system. In particular, the stages considered will be the following: land-use changes caused by production; agricultural production; transport; product processing; product packaging, retailing, consumption and end-of-life.

Tab.1 Comparison of foods in terms of emissions. Source: Database Petersson et al., (2021).

FOOD	g of CO₂ eq/g of food	Ratio of the two foods
Red meat	25,75	49,5/1
Lentils	0,52	
FOOD	g of CO₂ eq/g of food	Ratio of the three foods
Cow's milk	1,31	3,2/1
Almond milk	0,41	
Buffalo milk	3,57	

Underlying these analyses is the percentage breakdown assigned to each of these stages, out of the total emissions produced by the food systems of industrialised countries, by the study by Crippa et al. (Crippa et al., 2021). These percentages are referred to the total emissions produced by the Bergamo area, mentioned in the previous paragraph, and, where possible, commented on by integrating specific local evidence.

Tab.2 Estimated CO₂ eq. emitted at each stage of the Bergamo food system. Source: EStà elaboration on data from Crippa et al. (2021), ISPRA (2020).

STAGE	% over total	Specific stage emissions (in tons CO₂eq)
Agricultural production	57%	111.741,65
Transportation	10%	19.603,80
Product Processing	5%	9.801,90
Product Packaging	5%	9.801,90
Retail	12%	23.524,56
Consumption	3%	5.881,14
End-of-life	8%	15.683,04
TOTAL	100%	196.037,99

Which agro-industrial sectors and which categories of consumer goods are most affected by foreign dependence in France, Germany and Italy?

In contrast to the analyses of the climate impact of food systems in the three countries considered, the foreign dependence of each of them can be shown not only in relation to the main food families, but also in relation to individual products.

As was the case in the previous section, the issue is looked at from two perspectives: 1) from the producers' point of view, showing how much food companies need to import from abroad those goods that are not directly supplied by agricultural companies in the same country; 2) from the consumers' point of view, showing how much each national system needs to import individual products or categories of foodstuffs, in order to satisfy the eating habits of its inhabitants.

The data are expressed in percentage form (import/production and import/consumption) and, again, are offered in a comparative manner to allow similarities and differences between the three countries to be observed.

To fully understand the mechanisms, it should be noted that when the percentages of imports relative to domestic production are higher than the percentages of imports relative to consumption, the difference is likely to be destined for the domestic food industry which, not finding sufficient raw material in domestic agricultural production, imports it from abroad to process it industrially and sell the finished product.

The specific questions that guided this part of the research are as follows:

“If in the (deliberately extreme) future all imports were to stop, in Italy, France and Germany, which agro-industries would suffer most?”

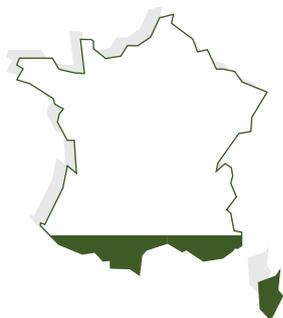
“In the same extreme scenario, the inhabitants of the three countries would have to give up which categories of food the most?”

The answers to these questions are shown in the following illustrations

FOREIGN DEPENDENCE FOR FOOD CONSUMPTION

CEREALS

Wheat and products, Rice and products, Barley and products, Maize and products, Rye and products, Oats, Sorghum and products, Millet and products, Cereals, Other



FRANCE
17,22%



GERMANY
37,23%



ITALY
60,58%

FRUIT AND VEGETABLES

Tomatoes and products, Onions, Vegetables, Oranges, Mandarines Lemons, Limes and products, Grapefruit and products, Citrus, Apples and products, Grapes and products (excl wine), Fruits, Bananas, Plantains Pineapples and products, Dates



FRANCE
50,46%



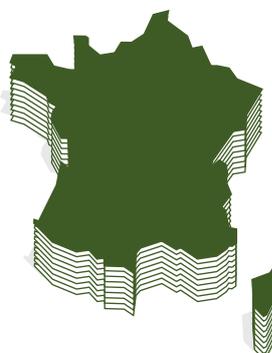
GERMANY
86,27%



ITALY
20,94%

COLONIAL GOODS

Coffee and products, Cocoa Beans and products, Tea (including mate), Pepper, Pimento, Cloves, Spices, Other



FRANCE
135,84%



GERMANY
200,18%

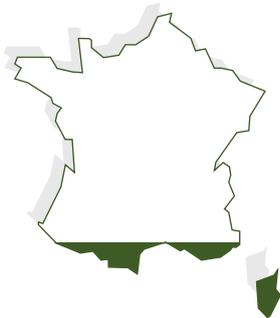


ITALY
181,60%

FOREIGN DEPENDENCE FOR PROCESSED FOOD PRODUCTION

CEREALS

Wheat and products, Rice and products, Barley and products, Maize and products, Rye and products, Oats, Sorghum and products, Millet and products, Cereals, Other



FRANCE
7,94%



GERMANY
34,02%



ITALY
94,85%

FRUIT AND VEGETABLES

Tomatoes and products, Onions, Vegetables, Oranges, Mandarines Lemons, Limes and products, Grapefruit and products, Citrus, Apples and products, Grapes and products (excl wine), Fruits, Bananas, Plantains Pineapples and products, Dates



FRANCE
70,58%



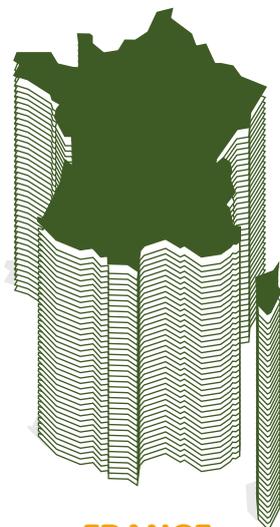
GERMANY
222,43%



ITALY
15,92%

COLONIAL GOODS

Coffee and products, Cocoa Beans and products, Tea (including mate), Pepper, Pimento, Cloves, Spices, Other



FRANCE
+∞



GERMANY
+∞



ITALY
+∞

The percentages of the three countries tend +∞ due to their absolute dependence on tropical areas.

FOOD	FRANCE		GERMANY		ITALY	
	IMP/CONS	IMP/PROD	IMP/CONS	IMP/PROD	IMP/CONS	IMP/PROD
TUBERS	4,31%	3,81%	5,20%	4,56%	27,99%	36,77%
SWEETENERS	27,07%	17,20%	46,11%	41,76%	90,32%	299,25%
PULSES	21,04%	16,02%	35,44%	42,81%	72,26%	214,35%
SEEDS AND OLEAGINOUS PLANTS	50,22%	60,57%	71,87%	166,30%	65,44%	140,41%
BEVERAGE	30,38%	27,74%	33,21%	36,68%	21,36%	16,08%
MEAT	26,85%	26,42%	37,10%	29,97%	37,00%	44,91%
MILK AND DIARY PRODUCTS	13,21%	12,02%	25,30%	23,62%	30,16%	33,29%
EGGS	11,29%	11,27%	36,20%	47,88%	11,36%	11,83%



Generally speaking, the category Colonial goods (tea, coffee, etc.) and the sub-category Fruit imported (i.e. tropical fruit) obviously see a complete foreign dependence of all three countries, with the partial French exception of bananas (take into account that France has about 120,000 km² of former colonial territories, which are considered part of the national territory and located in tropical climatic areas). Also with regard to Seed and oleaginous plants and some Sweeteners the three countries, especially France, are heavily indebted to foreign countries.

In addition to these categories, **Italy is dependent for Cereals (with the exceptions of rice and oats), Pulses and Potatoes, while France and, above all, Germany are dependent for Fruit and Vegetables** (due to the colder and more continental temperatures compared to the other two countries, a situation that is rapidly evolving as a consequence of climate change). More balanced among the three countries and, overall, little dependent on foreign countries, is the situation for the other food categories.

Bibliography and notes on the method

The FAOSTAT databases, which are available on the FAO website and are constantly updated (<https://www.fao.org/faostat/en/#data>), were the basis for all calculations concerning the levels of foreign dependency of the three countries analysed. It should be noted that while data on the **quantities of** food produced in a country are directly available in the aforementioned databases, those on the quantities consumed by their inhabitants were calculated by summing up production and imports and subtracting exports and wastage.

As far as greenhouse gas emissions are concerned (normalised in CO₂ eq.), the reference quantities (thousands of tonnes of food) relating to the production system and consumption are those mentioned in the previous paragraph. From these quantities, climate impacts were then calculated with the help of the information made available by the tool *SU-EATABLE LIFE: a comprehensive database of carbon and water footprints of food commodities* by Petersson et al. (2021).

The following tools were used for the calculations on the climate impact of the Bergamo food system:

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Food systems and poverty

3

Poverty as a system, food as an access point

The complexity of food poverty lies in its concatenation with other poverty: an approach that looks at the care of individuals in a holistic and systemic way can help achieve greater sustainability in policies against food poverty.

According to FAO, food poverty consists of four basic dimensions:

1. the **physical availability** of food: determined by levels of food production and trade;
2. the **physical and economic access to food**: determined by income levels and market price trends but also to geographic proximity to fresh and quality food;
3. the **utilization**: inherent in the quality and nutritional adequacy of the food consumed for a healthy diet and other non-food factors such as sanitation, water etc.;
4. the **stability**: concerning the necessary continuity of physical and material access to adequate food that can be made discontinuous due to political, economic and/or environmental factors.

Each of these dimensions influences and is influenced by several factors present within the food system but also by the concatenation with so many other factors that impact everyday life: health, housing conditions, work and human relationships. For instance, it is well known that economic difficulties not only lead to reducing the number of meals consumed daily, but also, the quality of the meal, with an obvious impact on health.

Only by looking at food poverty as one of the components of a larger system of vulnerabilities will it be possible to understand the complexity of this issue and find coherent solutions. In this sense, food is an access point for the other vulnerabilities that lead individuals to find themselves in contexts of marginality of various kinds.

To better understand the data that will follow, it is important to make a short specification. Data on poverty, and in general on social issues, are hard to gather, often hard to read and to compare. This is why, you might find data that doesn't look correct, it is because most of the time they are estimated and gathered with different methodologies by data authorities (local, national, European and international). Està decided to use these data anyway first because they are the only available and can give an idea of the phenomena, but also to raise awareness about the importance of measurement of such issues.

Why is food poverty and insecurity something to care about in Europe?

Dietary patterns changed dramatically in the past fifty years representing a threat to health and well-being of populations and the environment. One in nine people suffers from hunger or undernourishment while, at the same time, one in three is obese or overweight, resulting in the well-known “triple burden of malnutrition” (Global Nutrition Report, 2020). This term, in fact, refers to the coexistence of malnutrition (stunted growth and wasting), micronutrient deficiencies (often referred to as hidden hunger) and overnutrition (overweight and obesity). Food insecurity, often associated with developing contexts, now occupies an increasingly large space in economically developed contexts. In Europe, the economic crisis, high unemployment rates, rising absolute and relative poverty, and a recent pandemic crisis with a devastating impact on human health and social security have led to an increase in the number of people who are unable to access food that is quantitatively and qualitatively sufficient for their nutritional needs and food preferences (Eurostat, 2020). In 2019 one in five citizens in Europe were at risk of poverty and social exclusion, with 6.8% of the European population (nearly 27 million people) unable to afford a meal of meat, fish, or the vegetarian equivalent, every other day. In 2022, the perorating economic crisis and the social consequences of covid19 were felt: 95.3 million people in the EU were at risk of poverty or social exclusion, which was equivalent to 21.6 % of the total population. Women, young adults aged 18-24 years, people with a low level of educational attainment and unemployed persons were, on average, more likely to be at risk of poverty or social exclusion than other groups. In 2022, 8.3% of the EU population were unable to afford a meal containing meat, fish or a vegetarian equivalent every second day.

All these data are exacerbated in urban areas where poverty manifests itself more strongly. However, there is a lack of scientific data at the local level because policies on the topic have always been of a national and European nature. On a path to sustainability, it is important to investigate and act also at the local level, where phenomena like poverty are concentrated and become particularly complex and interconnected to many factors.

A matter of quality

Food poverty is a multidimensional phenomenon, along with the material aspects there are equally important immaterial aspects. These concern food in its social and psychological dimensions such as the cultural and traditional aspects that make the meaning of “quality” variates among countries, regions, cities and families. Here a quality diet is conceived as a sustainable diet, aka one that attempts to be nutritionally adequate, culturally acceptable, economically affordable, and have a low environmental impact. Hence, each context needs a different diet, as much as each household needs to be able to consume the food that meets their needs even in vulnerable conditions.

When talking about food insecurity it is important to not only consider the lack of access to available food but also the health component that consuming food involves. According to FAO (2023), the cost of a healthy diet indicator is the cost of purchasing the least expensive locally available foods to meet requirements for energy balance. A healthy diet is considered unaffordable in a country when its cost exceeds 52% of household income. The cost of a healthy diet rose globally by 4.3% in comparison to 2020, and by 6.7% compared to the pre-COVID-19-pandemic levels, in 2019. This increase is due to the overall rise in inflation in 2020 and 2021, driven in part by the persisting effects of the pandemic.

In Germany, France and Italy, the cost of a healthy diet is lower than the global average cost (3.66\$) making it more accessible to most of the population although Italy still accounts for 1,5% of the population unable to afford it. This percentage also refers to the average number of people in Europe. This number is very low when compared to other countries around the world, but shows how food insecurity is growing even in European countries. 1,5% might seem a low percentage of population but if applied to the 59 million people living in Italy, the phenomenon seems more real: 590.000 people in Italy and 7.5 million people in Europe cannot afford to buy a healthy diet. Additionally, also in Italy, over 2.18 million households (8.3% of the total from 7.7% in 2021) and more than 5.6 million individuals (9.7% up from 9.1% in the previous year) are in absolute poverty in 2022. This deterioration is largely attributable to the sharp acceleration in inflation, which obviously impacts food consumption as well.

	EUROPE	FRANCE	GERMANY	ITALY
Cost of a healthy diet (PPP dollar per person per day)	3,217	3,254	3,082	3,168
Percentage of the population unable to afford a healthy diet (%)	1,50%	0,20%	0,20%	1,50%

Are sustainable and healthy diets affordable? A case from Italy

A study published in 2022 on the True Cost of a Sustainable and Healthy diet(1), compared the cost of the current Italian diet to the one of a desirable sustainable and healthy diet. The cost of the two diets was accounted for through the method of the TCA (True Cost Accounting) which included in the economic calculations also parameters related to the environmental costs and the socio-economic impact of the diets, both related to the consumer and the national health system. The study showed that the desirable diet has a lower environmental impact in terms of carbon (-47%) and water footprint (-25%) than the current diet and brings about an economic saving of 0.75 EUR of CO₂ per week per person and 7.11 EUR per litres of irrigation water per week per person. Also, the study highlighted that the recommended diet has a lower impact on CHD (coronary heart disease) by 21%, which directly relates to an annual saving of 25 Euro per year for each Italian citizen. At the same time, the healthy and sustainable diet resulted to also be 5% more economically affordable than the current one, considering the average Italian income and the monthly food expenditure declared.

The study is particularly interesting if related to the discussion on food poverty and quality of the diet as it shows that ideally a desirable diet for human health would not only benefit the consumers pockets but also the health of the environment.

(1) Minotti B, Antonelli M, Dembska K, Marino D, Riccardi G, Vitale M, Calabrese I, Recanati F and Giosuè A (2022) True Cost Accounting of a healthy and sustainable diet in Italy. *Front. Nutr.* 9:974768. doi: 10.3389/fnut.2022.974768

Which are the other faces of food poverty and where is Europe going?

If we look at food poverty as a phenomenon concatenated with other poverty, employment and housing conditions are among the most important because the increase or decrease of a fragility in any of these areas can influence the improvement or worsening of food poverty conditions. Variables such as employment or unemployment, average income per capita, and the frequency of movements of individuals between the labor market statuses, are all essential parameters to fully understanding the level of general poverty but also and especially food poverty. Likewise, so are the ability to afford a home and the condition of housing.

According to the 7th overview of housing exclusion in Europe 2022, 5.4% of Europeans stated in the first half of 2021 that they risked having to leave their current housing within the next three months due to being unable to pay the rent. 7.8% of households and 31.8% of poor households living were overburdened by housing costs in 2020, besides 6.5% of households and 15.8% of poor households were in arrears on their utility bills in 2020. Every night, 700.000 people sleep on the streets or in dormitories in Europe, an increase of 70% between 2009 and 2019. But the problem affects not only those who are “already on the street,” but also those at risk: 3.3% of households in Europe are behind in paying rent or mortgage payments, an increase of 19% between 2019 and 2020. Within housing conditions, matters of energy poverty are very important. In recent years, the challenging circumstances faced by numerous EU residents have been exacerbated by a series of events, including the COVID-19 crisis, a spike in energy costs, and the Russian invasion of Ukraine in February 2022. Despite a slight improvement in the percentage of people unable to adequately heat their homes, which decreased from 8% in 2020 to 6.9% in 2021, this figure rose to 9.3% in 2022, as reported by Eurostat in June 2023.

Housing conditions often relate to work conditions. Eurostat estimates that 12.928 million persons in the EU are unemployed and 3.2% of the total European population live in a state of labor market transitions so often move between the statuses of employment, unemployment and economic inactivity. Average wages are often not enough to sustain livelihoods, especially in big cities and income

inequality is rising along with the poverty rate.

France, Germany and Italy are a good example of the direction in which Europe is going. **Correlation of food poverty with other poverty components is proposed** to better understand the phenomenon in these four countries. Then, some of those data has been used to create **a set of indexes** to deepen these correlations.

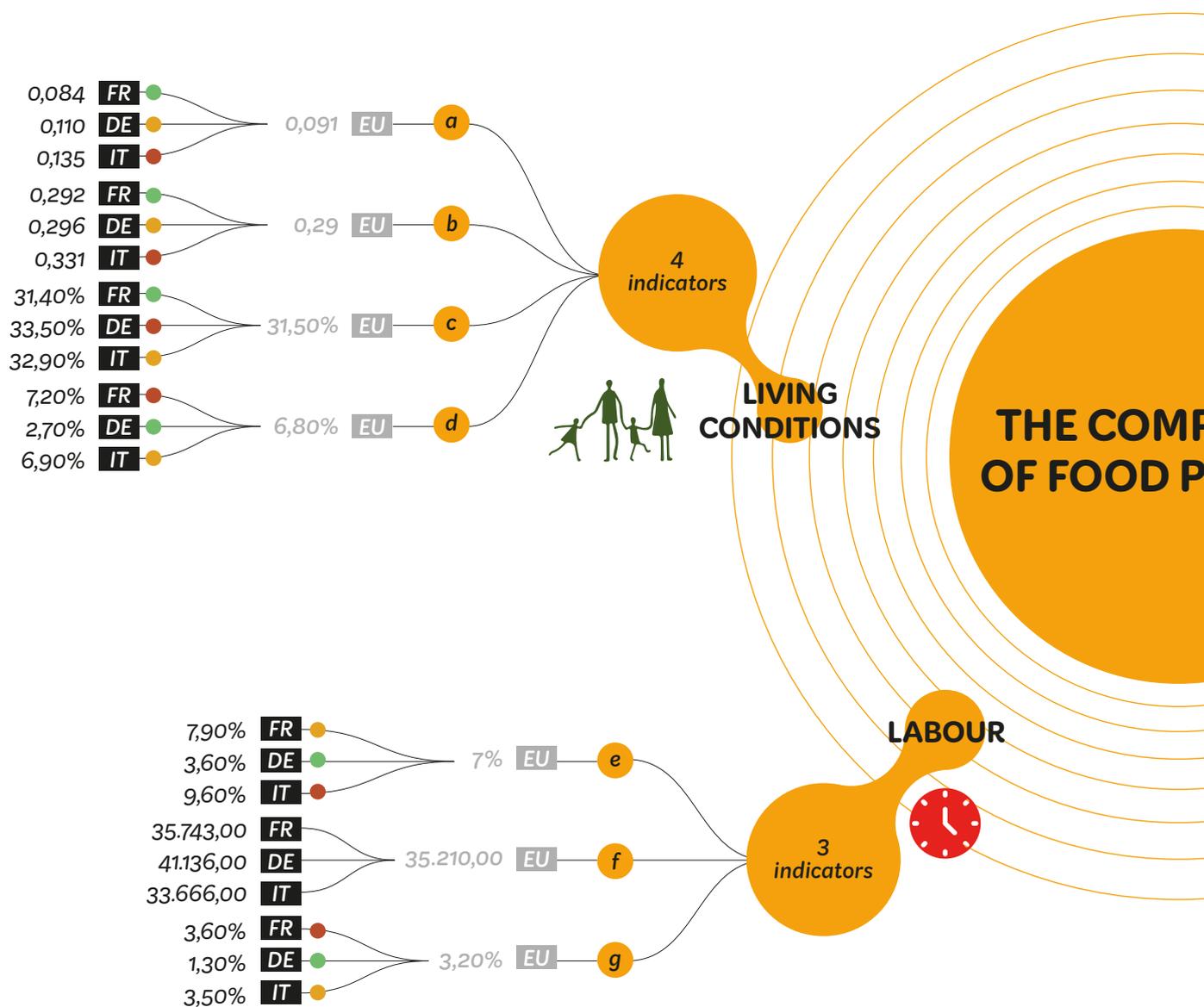
Labour and poverty

Labour-related poverty does not only concern the wage dimension, although it is considered the most important, but affects multiple dimensions of the labour domain. In the agrifood system, the recurrence of poor labour and irregular labour is very high. According to data from the latest Agromafie e Caporalato Report (1) (2022), in Italy in 2019, more than 1 in 4 workers were employed irregularly in the sector (a total of 230,000). Overall, the weight of female workers in irregular situations is increasingly high (24%) and the phenomenon largely affects salaried employment and that of nonresident migrants. Situations of exploitation and poverty are complexified and stratified on several levels: access to rights, documents, housing, equal pay and personal protection.

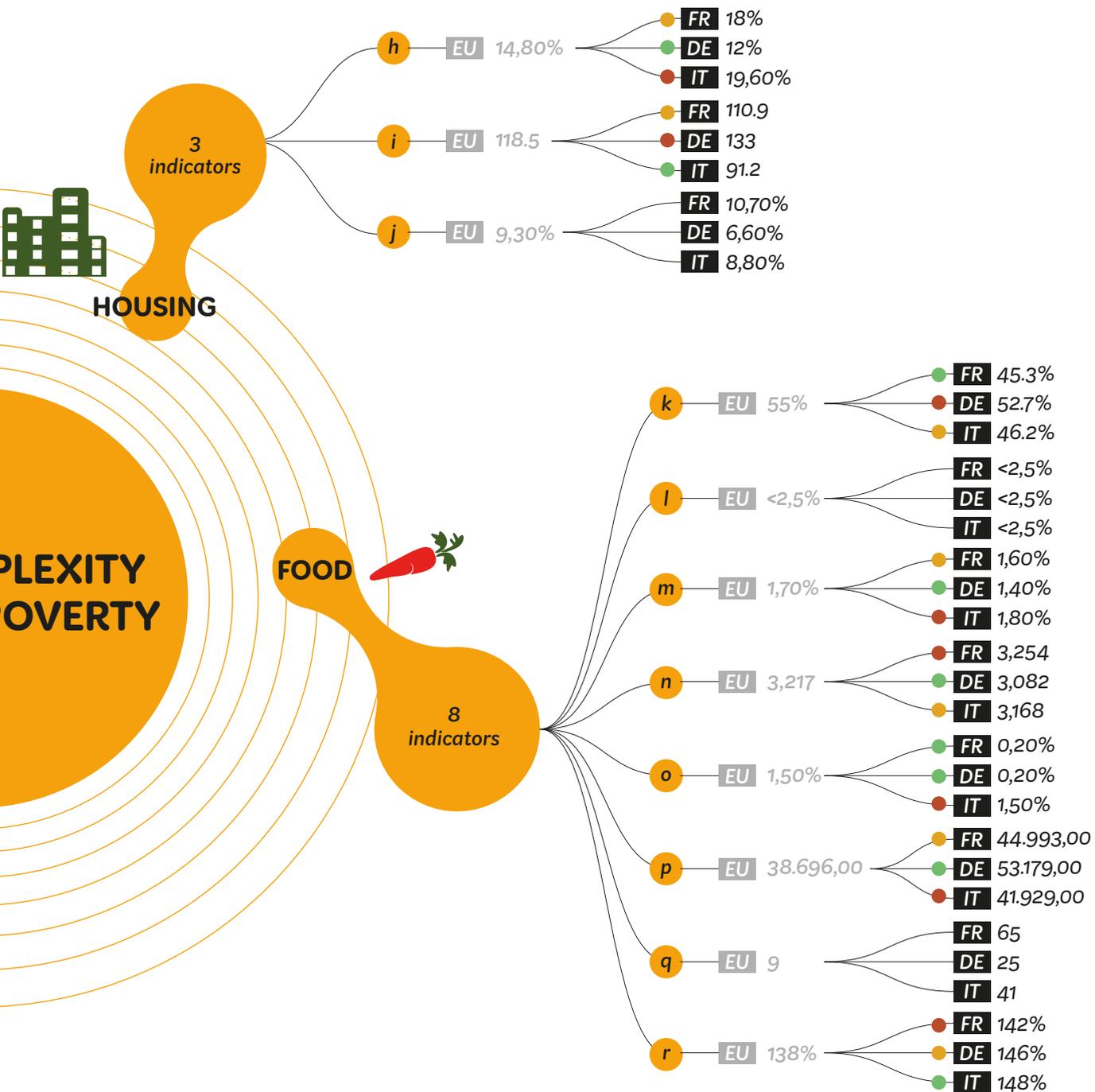
In terms of value, the economy based on irregular labour generates about 17% of the sector's value added. Moreover, the sector's tendency to generate "poor labour" is confirmed by the analysis of workers' incomes. In the agricultural sector, excluding nonresident migrant workers, about 1 in 3 employees (amounting to more than 300,000) falls into a very low income area, i.e., less than 8,300 euros per year, with an incidence that is three times the average. In addition, very often, irregular labour characterises production districts of excellence, manifesting the deep mismatch between the production of value added and the fair remuneration of labour.

What becomes clear is that combating the phenomenon of irregular employment is a key priority for acting on poverty alleviation. There remain important critical issues related to the analysis of the various dimensions affecting agricultural employment due to the lack of complex surveys and data collection.

(1)The report is written by the Placido Rizzotto Observatory/FLAI CGIL.



- a. Poverty rate (ratio)
- b. Income inequality (0=complete equality and 1=complete inequality)
- c. Inability to face unexpected financial expenses
- d. Inability to make ends meet
- e. Unemployment (% of labour force)
- f. Average wage (EUR/ anno)
- g. Labour transitions by employment status
- h. Total population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor
- i. Housing price: price to income ratio (measure of affordability)
- j. Inability to keep home adequately warm
- k. Overweight or obese population



- l. Prevalence of undernourishment (percent) (3-year average)
- m. Prevalence of severe food insecurity in the total population (percent) (3-year average)
- n. Cost of a healthy diet (PPP dollar per person per day)
- o. Percentage of the population unable to afford a healthy diet (percent)
- p. Gross domestic product per capita, PPP, (constant 2017 international \$)
- q. Variation of the food supply across time expressed in kcal/cap/day (higher the number, lower the stability)
- r. Average dietary energy supply adequacy (percent) (3-year average)



What the matrix shows is that, besides Germany performing slightly better and Italy slightly worse on average, **all three countries have very similar data**. This result does not mean that all three countries are experiencing poverty in the same way or that they all need the same solutions, because, besides the parameters selected, there are many more that could refine this result. However, this result shows that **poverty and food insecurity are a structural core issue in Europe**. Some percentage or number might look comforting, such as for example, the prevalence of undernourishment (less than 2,5%) or the prevalence of severe food insecurity (1,7%). But if we transform those percentages into the number of people, the results are less comforting: **almost 15 million people in Europe are undernourished and 7.5 million are severely food insecure**.

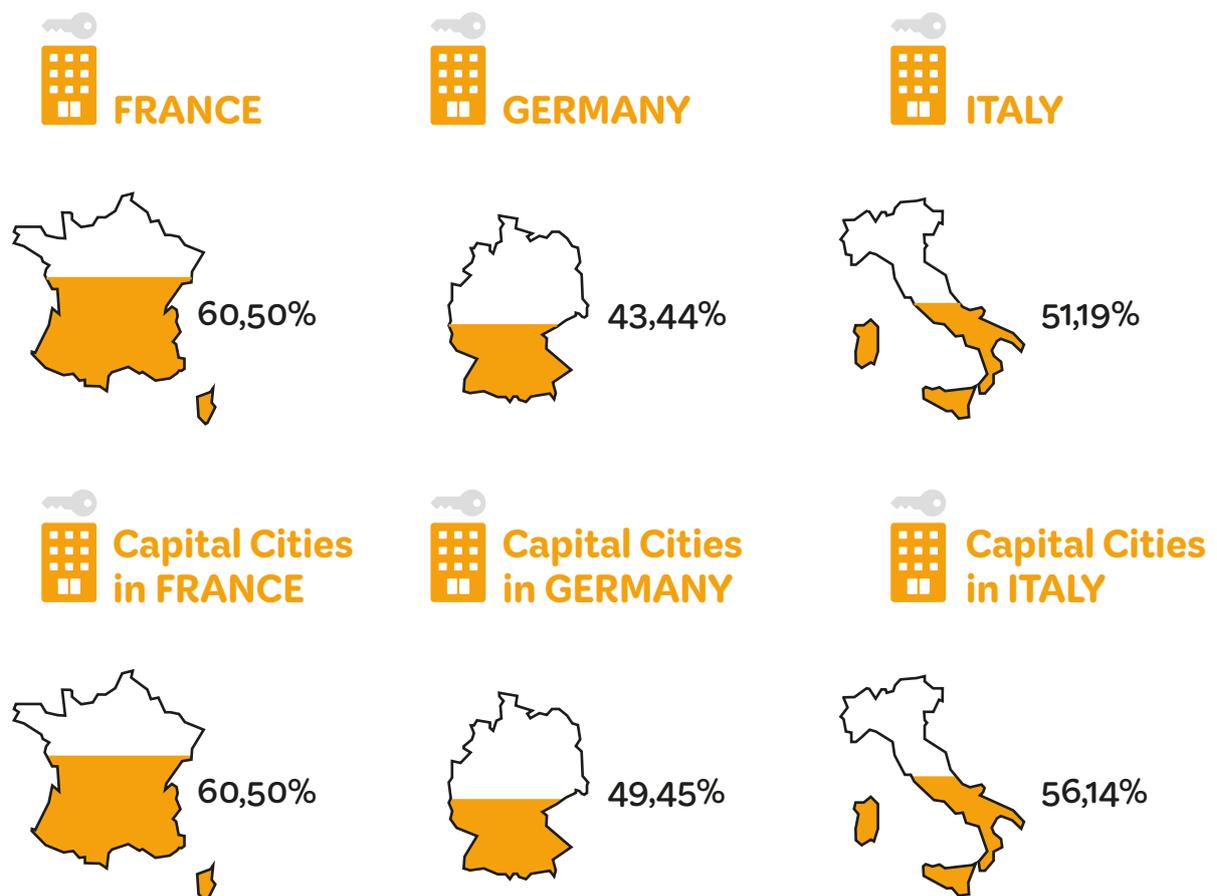
Some of the key information on the Eu situation are:

1. Poverty rate and income inequality, which have increased with covid19 but are still relatively low than in other countries, create a situation of vulnerability where more than 30% of the population cannot afford unexpected expenses and around 7% of the population declare to not be able to make ends meet. Regarding this last parameter, Germany is an exception with only 2.7% of the total population, however, these results show that the average wages in most Eu countries are not coherent with a good living standard.
2. Unemployment reaches 7% of the European population with higher numbers in Italy (almost 10%) and lower numbers in Germany (3.6%). More than 3% of the total Eu population move with a high frequency among the statuses of unemployment and employment, demonstrating that poverty nowadays can be discontinued and with varied forms of lack (not only total absence), which make it very complicated to trace.
3. Housing prices are becoming more unaffordable if considered the ratio between price and income, all over Europe, especially in Germany. Italy makes an exception in this case, although it is important to look at the differences between metropolitan cities and smaller ones to see that inequality is very prominent. Almost 15% of the European population live with basic deficits in their housing condition (leaking roof, rot windows and floor etc), with higher numbers in France and Italy than in Germany.
4. More than half of the Eu population is considered obese or overweight and 7.5 million people in Europe cannot afford to buy a healthy diet, although the price of it is lower than the international average in all three countries. Less than 2.5% of

the population is considered undernourished not because of insufficiency of the food supply but because of particularly bad distribution (as shown by the data on Average dietary energy supply adequacy).

How do the different sides of poverty correlate with each other?

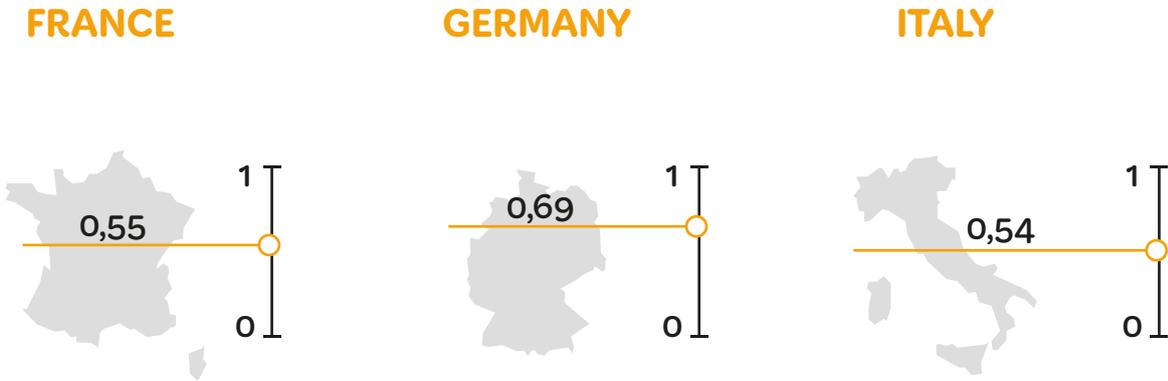
Incidence of rent expenditure on average income:



This rate shows the incidence of rent on income, which is an important parameter to highlight the risk of poverty, if we consider that rent is one of the fundamental expenditures. Germany is the country with a lower incidence of rent expenditure on average income which means that there is a lower risk of poverty because GDP per inhabitants results to be more adequate than in the other two countries to pay for rent. France is the country with higher rent

expenditure but not with higher GDP per inhabitants, therefore, the rate is higher, highlighting a higher risk in poverty. Italy has a similar rent expenditure than Germany but lower GDP per inhabitants which positions the country in a medium risk of poverty. However the data on rent expenditure available in France only refers to Paris, which is more expensive than other french cities. Hence, if compared with the rate in other capital cities, the incidence increases also in the other two countries. Moreover in Italy and in Germany, other cities have higher rent expenditures than capital cities (e.g. Milan and Munich), where inevitably the rate would have a negative variation if the GDP per inhabitants is not different from the country average.

Incidence of labour on material deprivation:



Legend:
 0=working conditions are irrelevant to material deprivation;
 1 = the material deprivation tends to be highly dependent on working conditions

The rate shows the incidence of labour on severe material deprivation, the higher the rate is, the higher is the weight of labour on material deprivation for each country. When the rate is lower, it shows that, besides labour, the country has other important variables that influence the deprivation. It is the case of France and Italy, that perform at a very similar rate, where presumably deprivation includes many other variables not strictly related to labour. From a policy perspective, this is particularly interesting because the correlation between the two parameters can help in shaping policy response: in countries, such as Germany, where the incidence of working poor on material deprivation is relatively high, the policy response to poverty could be related to increasing the labour opportunity.

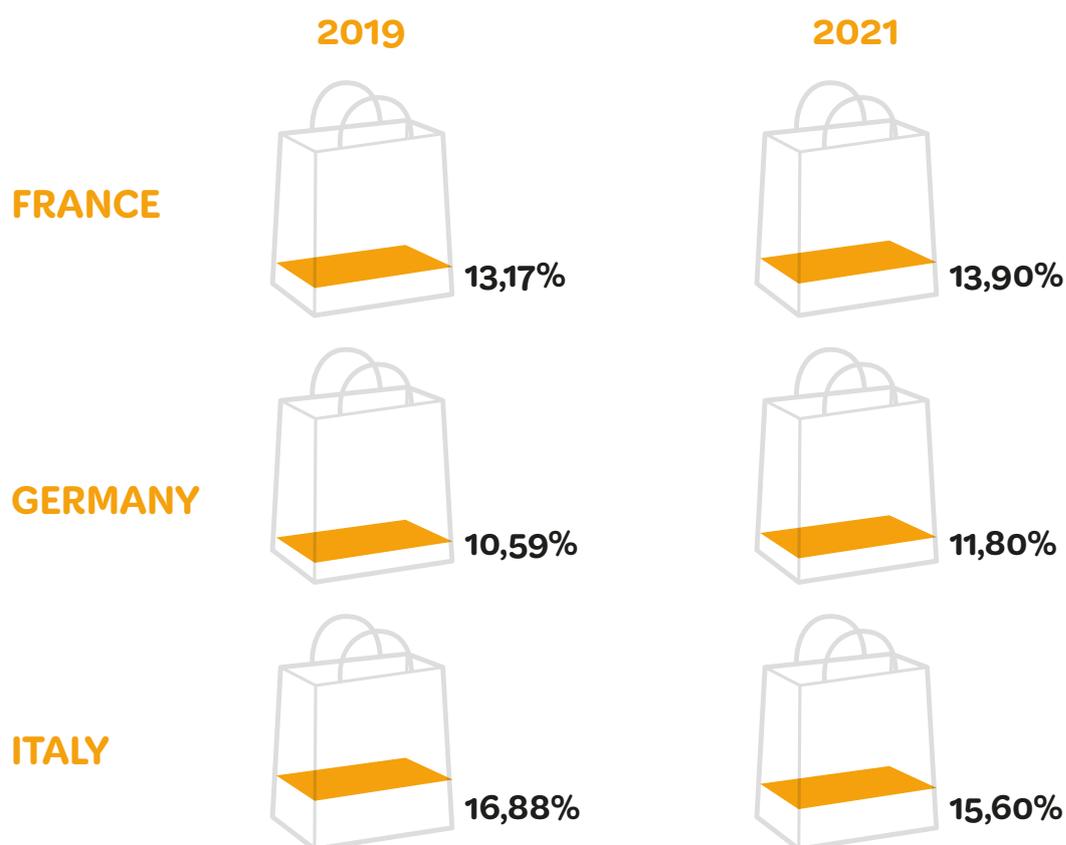
Working poor is a worker that has an income of less than 60 percent of the median equivalised income. Year over year Germany and France have decreased the percentage of working poor among the population if comparing 2020 to 2010. However France, compared to 2015, has a higher number of working poor by 2,3%. Italy, on the other hand, has increased its rate from 2010 to 2022 by 3,7% showing that a larger part of the working population cannot afford a proper livelihood. The trend is however improving showing a decrease in the percentage from 2015 to 2020.

Incidence of the cost of a healthy diet on average income:



The rate shows the incidence of the cost per person per day of a healthy diet on daily GDP per inhabitants. This rate helps to understand where or not the average income is adequate to afford a healthy diet: the higher the rate is, the lower is the affordability of the healthy diet. In fact, although France has the higher daily cost of a healthy diet, its rate is lower than the Italian one, showing that the French average income is more adequate to afford a healthy consumption than the Italian one. Germany on the other hand is both the country with a lower cost of the diet and a higher GDP per person, hence its rate results lower than the other two countries. This rate is particularly interesting if correlated with the % of obese or overweight population in each country. Germany, in fact, results to have the higher % of obese and overweight population (53%) although the cost of a healthy diet is adequate to the average income. France and Italy, which have lower % of obese and overweight population (43.5% and 46.2%) have the worst incidence of the cost of healthy diet on average income. This shows that in these three EU countries, the reasons for obesity are not strictly related to income or cost of food (as in other part of the world, e.g. USA) but they might be related to food consumption habits and behaviors, besides other sanitary and health parameters.

Incidence of food expenditure on income:



The rate shows the incidence of household consumption expenditure on food on average income per person. The higher the incidence is, the higher is either the cost of food, the quantity of food purchased or the lower is the average income. Italy has the higher rate followed by France and Germany with very similar rates. Data on food consumption expenditure from 2022 are not available, however if compared those from 2019 to the average income of 2021, the rate does not change significantly even if the average income has increased over the years, except for Italy where the rate has lowered in 2021 even if the income is higher. However, if this rate is correlated to the inflation rate, the meaning changes, as inflation has gone higher in all three countries both in 2021 and 2022: from 0,6 in Italy and 1,4 in Germany to 8,7 in both countries; and from 1,3 in France to 5,9 in 2022.

In conclusion: **If we look at food insecurity and poverty under this systemic lens, Europe can no longer address those issues as far away from the day to day reality.**

Bibliography and notes on the method

The **tables** gather parameters and data of three different kinds:

1. Data on living conditions

- Poverty rate: the ratio of the number of people whose income falls below the poverty line taken as half the median household income of the total population
- Income inequality: Income is defined as household disposable income in a particular year. It consists of earnings, self-employment and capital income and public cash transfers; income taxes and social security contributions paid by households are deducted (0=complete equality and 1=complete inequality).
- Inability to face unexpected financial expenses: refers to the percentage of persons in the total population who are in the state of enforced inability to face unexpected financial expenses
- Inability to make ends meet: refers to the percentage of persons in the total population who are in the state of enforced inability to balance the expenses at the end of the month

2. Data on labour

- Unemployment (% of labour force): people without a job who have been actively seeking work in the last four weeks and are available to start work within the next two weeks
- Average wage (US dollar/year): obtained by dividing the national-accounts-based total wage bill by the average number of employees in the total economy, which is then multiplied by the ratio of the average usual weekly hours per full-time employee to the average usually weekly hours for all employees
- Labour transitions by employment status: show the movements of individuals between the labour market statuses of employment, unemployment and economic inactivity.

3. Data on housing conditions:

- Total population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor: measures the share of the population experiencing at least one of the following basic deficits in their housing condition
- Housing price: include housing rent prices indices, real and nominal house prices indices, and ratios of price to rent and price to income.

- Inability to keep home adequately warm: this parameter calculates energy poverty which occurs when energy bills represent a high percentage of consumers' income, or when they must reduce their household's energy consumption to a degree that negatively impacts their health and well-being.
4. Data related to food:
- Overweight or obese population: is defined as the inhabitants with excessive weight presenting health risks because of the high proportion of body fat
 - Prevalence of undernourishment (percent) (3-year average): the probability that a randomly selected individual from the population consumes an amount of calories that is insufficient to cover her/his energy requirement for an active and healthy life
 - Prevalence of severe food insecurity in the total population (3-year average): an estimate of the percentage of people in the population who live in households classified as severely food insecure
 - Cost of a healthy diet (PPP dollar per person per day): is the cost of purchasing the least expensive locally available foods to meet requirements for energy and food-based dietary guidelines for a representative person within energy balance at 2 330 kcal/day. The cost of a healthy diet is converted to international dollars using purchasing power parity (PPP).
 - Percentage of the population unable to afford a healthy diet (percent): a healthy diet is considered unaffordable in a country when its cost exceeds 52 percent of household income.
 - Average dietary energy supply adequacy (3-year average): The indicator expresses the Dietary Energy Supply (DES) as a percentage of the Average Dietary Energy Requirement (ADER). Each country's or region's average supply of calories for food consumption is normalised by the average dietary energy requirement estimated for its population to provide an index of adequacy of the food supply in terms of calories. Analysed together with the prevalence of undernourishment, it allows discerning whether undernourishment is mainly due to insufficiency of the food supply or to particularly bad distribution.

All the data have been gathered from three main databases: Eurostat (2023), FAOSTAT (2023) and OECD (2023) statistics. The year of reference of the data is always the last available data on the database. Many other parameters could have been included in

this matrix but the author considered these the most distinctive to outline the issue. It is important to note that some of these data might differ or look incoherent with more local data regarding the same topic. This is because phenomena like poverty are very hard not only to explain with numbers but also to compare. For the sake of this work, we chose data that could compare three nations - Germany, France, Italy - knowing that when looking at local data, some of the figures would deviate from our results, because the aim of this work is to have a broad picture of the phenomenon. This issue of incoherent data between different level of analysis is one of the main issues of researching the poverty matter.

The **indexes**:

- Incidence of rent expenditure on average income: This index has been calculated using the data on rent expenditure in 2022 from Statista (2023) and the GDP per inhabitant in 2022, using data from Eurostat found on Destatis (2023).
- Incidence of labor on material deprivation: This index crossed the data on percentage of working poor (Eurostat, 2020) with the percentage of population with severe material deprivation (Eurostat, 2020). According to Eurostat Glossary, “working poor” is defined as a worker that disposes of an income of less than 60 percent of the median equivalised income; while “severe material deprivation” is defined as the “enforced inability (rather than the choice not to do so) to pay unexpected expenses, afford a one-week annual holiday away from home, a meal involving meat, chicken or fish every second day, the adequate heating of a dwelling, durable goods like a washing machine, color television, telephone or car, being confronted with payment arrears (mortgage or rent, utility bills, hire purchase installments or other loan payments)”.
- Incidence of the cost of a healthy diet on average income: The index works with two parameters: the cost of a healthy diet in 2022 (FAO, 2023) defined as “is the cost of purchasing the least expensive locally available foods to meet requirements for energy and food-based dietary guidelines for a representative person within energy balance at 2 330 kcal/day. The cost of a healthy diet is converted to international dollars using purchasing power parity (PPP)”; the GDP per inhabitant in 2022 (Eurostat, 2023).
- Incidence of food expenditure on income: This index crosses the GDP per inhabitant in 2019 and 2021 (Eurostat, 2023) with the Household consumption expenditure on food, % of total con-

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Food systems and policies

4

The purpose of this chapter is to deal with **food systems policies** and to show how their definition is crucial to face **sustainability challenges** worldwide, in Europe and in the three Countries covered by the Report. Although «food systems policies» are fairly **recent issues**, it will be illustrated how they are **widely interconnected** with a multiple of public and private sectors and spheres of policy actions at various **scales**, involving many different **actors**.

In the previous chapters, food systems have been defined with their **sustainability and urban / suburban relevance** in the framework of a context of fast change and instability that Europe is facing. This is the reason why the focus will be on «**urban food policies**». The complex interconnections between food systems and many of the actual biggest problems that Europe, France, Germany and Italy are facing have been analysed, focusing on poverty, climate change and global risk. **But in this context, how to intervene through urban food policies that can create lasting change?**

Urban food topics are of common interest to cities of all European Countries.

Urban food topics are of common interest to cities worldwide and of all European Countries. Rarely a global issue is more crosscutting than that.

Food policies as a crosscutting topic for all European countries

Food systems policies were among the first to be addressed at **every level of human organisation**, starting with villages and municipalities, because of their basic **survival** function. With the structuring of States and especially with market **globalisation** (with the progressive spatial and economic separation between the centres of consumption and the centres of production), the promotion of such policies has increasingly become the **prerogative of bodies superordinate to local and regional territories**.

On the one hand, this dynamic arose in response to **dramatic global problems** such as **hunger** and **famine** (e.g. with the birth of the World Food Programme, etc.). On the other hand, because food systems have been **increasingly controlled by international markets and finance**, as they are fundamental and at the same time large economic sectors. Indicative of this process is the tendency to

consider foodstuffs as '**commodities**' with the result that they are significantly **removed from the means of production** (land, nature, labour) and treated as objects **exogenous from their territories and landscapes of origin**.

At the same time, the phenomenon of **urbanisation** has become dominant, to the extent that **70%** of the population in Europe now lives in cities. And cities are therefore faced with increasingly complex socio-economic, environmental and territorial issues where the role of food is crucial. Cities are also the **public authority closest to citizens** who, on average more educated than rural areas, express an increasingly demanding and informed demand, individually or organised in constituencies. On the other hand, cities and suburbs are the places where **poverty is concentrated** (in terms of numbers and significance). Around food, therefore, attitude and demand takes on various increasingly specific forms (e.g. from access to healthy food to the environmental sustainability of agriculture) to which **cities struggle to respond**, above all because the **governance and management of some relevant parts of the food systems is not among their direct competences** and food production take place mostly outside urban boundaries.

What are the characteristics of urban food policies?

Despite the situation described above, for the past 15 years or so in Europe the **recognition of the pivotal role of local authorities is growing**, particularly considering their opportunity to develop and manage sustainable food systems through the design and implementation of **urban food policies**.

Cities carry out their food related activities in many ways: some of them develop **comprehensive strategic documents** and long-term plans, while others work on **sectoral policies and single actions**. Integrated **urban food strategy** as a policy approach which connects the issues of food and agriculture with other urban policies, such as nutrition, health, education, economy, social affairs or climate protection, at a local level. The strategy defines objectives, commitments, promotional programmes and policies as well as related tools and measures at a municipal level, e.g. changes

in public procurement policy to favour regional or organic food supply or land zoning for agricultural land preservation.

The **mainstream approach** for cities has been to treat food and all its aspects **separately** (health and nutrition, production and consumption, governance, social and economic equity, supply and distribution, waste). Only **few cities in Europe and worldwide** have developed **comprehensive food policies** and have a dedicated staff (as e.g. **Milan Food Policy**). However, in this context it is possible to observe different forms of innovation in cities, albeit sectoral or not included in a food strategy. Reference is made to the inclusion of food sustainability objectives in **policy instruments aimed at other issues** (territorial planning, climate action and social protection plans, etc.) or in the definition of **individual initiatives** (e.g. school food procurement).

These ways of addressing food policies are widespread in **French, German and Italian cities** to varying degrees. A characteristic that singles out **France as a special case** is that **food policies are embedded in the 'contractualist' approach typical of territorial collectivities** (see Chapter 1).

Originally, the **main focus** of many food initiatives in European cities were about **food waste** and the reconnection between **food producers and consumers**, between rural and urban areas and cultures, by alternative **short supply chains**.

During and after the **pandemic period**, the issue of **food solidarity** emerged widely in urban food policies in response to the emergency and the resulting restrictions and effects on poverty. In fact, food solidarity actors and initiatives already existed in European cities (e.g. food banks, charity organisations) but they were **linked to social policies** and aimed at the economically weakest. The pandemic, on the other hand, brought to light how fundamental these practices were in order to allow access to food to a **wider segment of the population**. Indeed, where **there was previous experience of food policy** (e.g. Bergamo, Paris, Milan), the response by the municipalities was **faster and more organised**, capable of mobilising different subjects and structures (e.g. food hubs) and coordinating associative actors.

Also as a product of these dynamics, a **recent perspective** within which urban food policies are evolving is that of **food democracy**, that “ideally means that all members of an agro-food system have **equal and effective opportunities** for participation in shaping that system, as well as **knowledge** about the relevant alternative ways of designing and operating the system” (Hassanein, 2003). This

concept seems **very significant for the future** insofar as it places the theme of food and food policies in a more **political framework and ideal perspective** so that it can be both a vision of the future for the strategies of local authorities and a sphere of concrete and integrated action for all actions. It is no coincidence that, in different social and institutional contexts (like the Eurocities food working group) there is a growing interest in the topic of food democracy.

Progress towards food democracy is also **closely linked to the emergence of issues of citizen participation** and in particular of the so-called **food citizenship**. As Giambartolomei *et al.*, (2021) write, it means “the power of citizens to create a new terrain for social agency and political action in relation to the food system (...) clearly advocating for individual and community Rights to Food (De Shutter, 2011) but arguably extend beyond rights to eat (the right to be fed) and into the terrain of **food sovereignty** and the collective right to produce one’s own food”.

In general, the **role** that cities see for themselves within urban food policies is that of designing different activities at local level, **empowering** different actors, **encouraging** connections and scaling up activities (Milan Food Policy & Eurocities WG, 2018).

How did urban food policies arise?

From years '80 it has been noted that in **OECD Countries** a growing awareness of the need to view the whole **range of activities related to food as one system** and to recognise the interdependencies of this system with the national and international economies. At the beginning, food policy has been viewed as a **government strategy** that provides a more comprehensive framework in which policy measures can be developed and assessed (OECD, 1981).

In this context, it is possible to outline **two main dynamics that have given rise to the definition of urban food policies in Europe**. On the one hand, the **international diffusion of Anglo-Saxon urban food policies**: the first urban food policies originated in North-America in response to health issues (obesity) and food deserts (please refer for a specific discussion to Calori and Magarini, 2015). On the other hand, the budding of urban food policies as one of

the **specific tools developed in the evolution of the so-called Local Agenda 21** processes and related action programmes, which became widespread in Europe in the 2000s. Specifically, the urban food policies of **Italian cities** are for the most part the fruit of the **first dynamic** (e.g. the first food policy in Italy, that of the City of Milan), while those of **French and German cities** are more to be ascribed to the **second one**, namely in the context of Local Agendas 21 (Doernberg et al., 2019). Then there are **punctual momentums** whose opportunity prompted European cities to define urban food policies (e.g. Expo 2015, etc.). Undoubtedly, the **increasing focus on health and sustainability** issues, which are becoming more and more acute, has favoured the spread of urban food policies.

Who are the main actors in urban food policies?

Urban food policies in general aim to **bring together** citizens, CSOs, private sector, research organisations, public authorities with cross-sectorial governance approaches, schools, etc. (see typology's analysis in Fig. 1).

These stakeholders act at different scales (local, metropolitan and regional) in a creative space, where innovative solutions are designed and co-create together (Milan Food Policy & Eurocities WG, 2018).



Fig.1 Food systems & urban food policies: main types of actors (EU). In red are actors mainly external to the municipality but influential to the design and implementation of urban food policies. In black are actors internal to the municipality food system; in green the substrate of a food system.

Source: EStà, own elaboration

MARKET / FINANCE

UN Agencies - Agenda 2030

Local and supra-local authorities & agencies



BIODIVERSITY

National States

Local and supra-local utility / services companies
Eg. Canteen, Waste management

Citizens



FARMERS

Local health authorities

Networks (Cities, NGO, Trade Union)

Non-profit Associations / Food Banks / NGO /
Consumer organizations



FISHERMEN

Foundation / philanthropic / funding bodies

Food distribution Eg. Large- medium scale retail,
proximity shops

Innovation companies / Start up

Universities / Research Institutions

Seed companies



BREEDERS

Schools of all levels

Logistic operators / intermediaries

Food industries Eg. Processing

Municipalities

Professional organisations and trade unions

European institutions



AGRICULTURAL AND FISHING DISTRICTS

Urban food policies in France, Germany and Italy: a look at some examples

Despite the increasing diffusion of urban food policies in the last ten years, there are to date **no comprehensive and up-to-date databases** for any scale of analysis to produce a **meaningful snapshot of the phenomenon**. Among other things, also the databases relating to **food systems policies** in general (at the scale of states, for example) are not at all complete and robust from a scientific point of view.

The method therefore adopted here to provide an **up-to-date look at urban food policies and/or practices related to food sustainability in the three countries** considered was to rely on the recent database of practices nominated by cities for the **Milan Pact Award** (MPA 2022), i.e. the awards (honorary and recognition) that the Milan Urban Food Policy Pact (MUFPP) organises every two years to stimulate the exchange of practices and learning between signatory cities of the MUFPP and, in the same time **monitoring the evolution** of urban food policies. The MUFPP is an international agreement among cities from all over the world, nowadays, 270 signatory cities, more than a third (102) are European cities and among them: 28 are the Italian cities, 13 the French ones and 4 German cities (see Fig. 2). So far, since 2016, **621 practices worldwide** have been collected in this way. The MPA was promoted by the Municipality of Milan and Fondazione Cariplo. From this database, a **map** was drawn up of **French, German and Italian cities** that have nominated one or more practices for the MPA 2022 (Fig. 3).

In total, there are **48 candidate practices** mapped by the cities considered, of which **17 are French, 3 German** (3 practices, all candidates from Berlin) **and 28 Italian**.

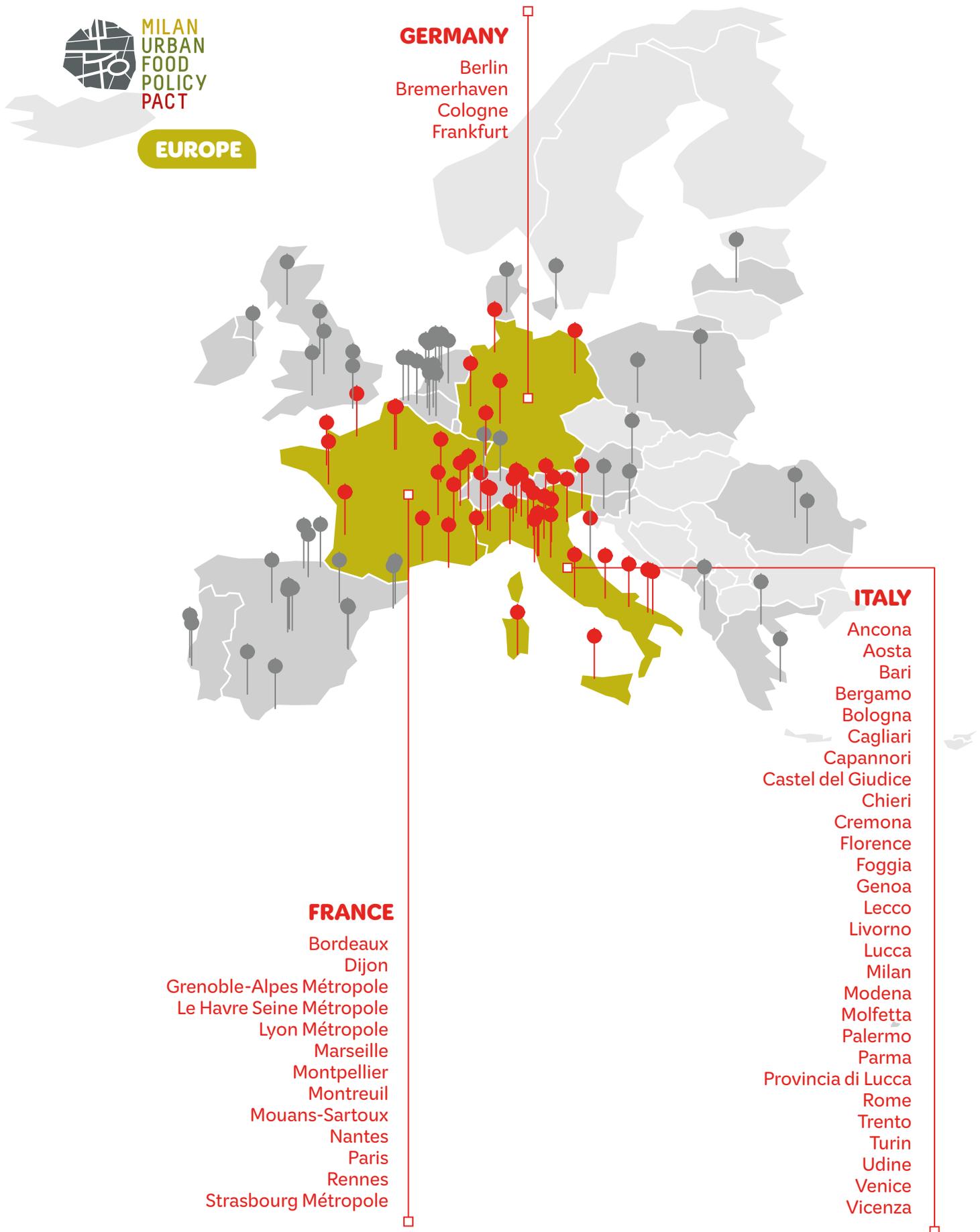
As can be seen, most of the cities that have candidate practices are **medium to large cities** (as is also reflected in the percentage of cities signing the MUFPP).

Most of the practices presented by **French cities** concern **Sustainable Diets & Nutrition** (6), followed by **Governance** (4) and **Social & Economic Equity** (3) and 2 practices in each categories of **Food Production** and **Food Supply & Distribution**.

Also with regard to **Italian cities**, most candidate practices are related to **Sustainable Diets & Nutrition** (10), followed by **Governance** (7) and **Social & Economic Equity** (5), reflecting

Fig.2 Map of the MUFPP's signatory cities in Europe and focus on cities in France, Germany and Italy.

Source: Està own elaboration from MUFPP data 2022.



the order of priority of French cities (albeit with more practices from Italy). In fourth place among the candidate practices from Italian cities is the **Food Waste** category (4 practices) while only 2 candidate practices concern **Food Production**.

The picture that emerges seems to **reflect the priorities** dictated by the **post-pandemic period** (**health** and **social equality** issues ranked first and third, respectively, among the priorities that emerged from the files submitted by **French and Italian cities**). It should be noted that **Germany** was not considered in this reasoning because it was of little statistical significance, as there were three practices candidates from only one city, **Berlin** (2 referring to Sustainable Diets & Nutrition and 1 to Social & Economic Equity).

The **main differences** between the practices presented by **French and Italian cities** relate to **food waste** (4 practices presented by Italian cities; no practices by French cities) and vice versa on the topic of **Food Supply & Distribution** (2 practices presented by French cities; no practices by Italian cities). Although these considerations are interesting for the purpose of analysing an up-to-date snapshot, it should be noted that the database and the categorisation of practices according to the six categories of the **MUFPP** is constructed in relation to the **willingness of the individual cities in presenting practices** and in the same way in the freedom in the choice of the **attribution of practices in priority to one of the 6 categories** (practices may in fact assume characteristics that place them in ambiguous positions with respect to the attribution of the category).

More interesting is probably the analysis of the practices presented by all **European cities** re-read according to their specific **contribution to one of the 17 SDGs of the 2030 Agenda** (see Fig. 4).

Fig.3 Map of the French, German and Italian cities (members of MUFPP) candidates to Milan Pact Award 2022. Source: Està own elaboration from MUFPP data 2022.



- Governance
- Sustainable Diets & Nutrition
- Social & Economic Equity
- Food Production
- Food Supply & Distribution
- Food Waste
- ★ Special Mention

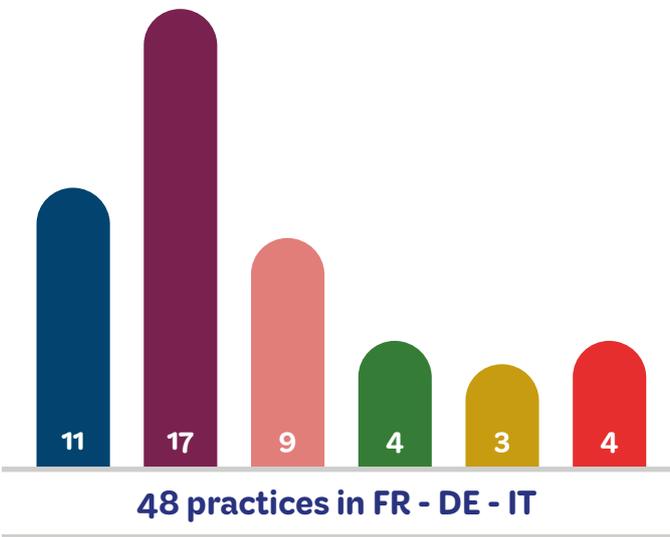


Fig.4 The relationship between the themes of the MPA 2022 candidate practices from European cities and the SDGs of the 2030 Agenda. Source: Milan Pact Awards 2022 Report (2023), edited by Municipality of Milan, Fondazione Cariplo and EStà - Economia e Sostenibilità (in the framework of Agreement among AICS and the City of Milan to strengthen the Milan Urban Food Policy Pact).



European policies for food systems

Europe's role is very important in the field of **sustainability** because it acts as a stimulus for Member States: among those considered here, this is especially the case in **Italy** where, for example, most environmental policies have been prompted by European measures (including the creation of the Ministry of the Environment). In addition, the European Union now **aims to lead the international context** with regard to sustainability issues within the **framework of the UN's 2030 Agenda**. Proof of this are the **numerous communications, strategies and measures** on the subject produced in the last three years, starting with those necessary to respond to the **climate emergency**. As mentioned in Chapter 2, the European Union aims to become **climate neutral** with an economy with zero net greenhouse gas emissions **by 2050**. This goal is at the centre of the **European Green Deal** and in line with the EU's commitment to global climate action under the Paris Agreement (see **Fit for55, European Climate Law**, etc.).

Food systems play a very relevant role with respect to **climate change** and the **just ecological transition**, so much so that they are officially considered in the COP Climate and Biodiversity along the years. There are **many European policies that directly and indirectly influence** certain food systems sectors (from **Common Agricultural Policy - CAP** to air pollution control measures, from regional policies to **structural fund** in general, from the new proposal on **Waste Framework Directive** to strategy on **Circular Economy**, etc) up to the more comprehensive ‘**Farm to Fork**’ strategy (2020). While recalling that it is a strategy and therefore not binding, the merit of Farm to Fork is that it has addressed the system as a whole, **lining up and quantifying targets**. Specifically, all the objectives concern the **future of food systems** and are:

1. reduce **nutrient losses** by at least **50%** while ensuring **soil fertility**; this will lead to a reduction in **fertiliser use** of at least **20% by 2030**;
2. **by 2030, at least 25%** of the EU’s agricultural area devoted to **organic farming**;
3. **by 2030 reduce by 50%** the overall use and risk of chemical **pesticides** and the most dangerous pesticides ;
4. **by 2030 reduce by 50%** the sales of **antimicrobial** substances for farm animals.

Among other European policies to be mentioned in relation to food systems is the so-called **European Strategy Food2030**, the **EU’s research and innovation policy** framework supporting the transition towards sustainable, healthy and inclusive food systems that respect planetary boundaries (EC, 2016). Food 2030 is underpinned by the need to foster a multi-actor and systemic approach to research and innovation capable of delivering co-benefits for people’s health, our climate, our planet and communities. The four thematic priorities are: **Nutrition** for sustainable and healthy diets ; Food systems supporting a **healthy planet** ; **Circularity** and resource efficiency ; **Empowering** communities. Funding is made available under **Horizon Europe** to help find answers to Food 2030 priorities, concentrated on eleven areas known as “Pathways for action”. Food 2030 has inspired and led to the creation of the “Horizon Europe Partnership for Safe and Sustainable Food Systems for People, Planet and Climate” and is supportive of the goals of the “EU Mission: A Soil Deal for Europe”.

For the sake of conciseness, all European policies (and their declination in the three Countries considered) that directly and indirectly affect food systems will not be dealt with in detail here. However, it is worth mentioning **two policies** that are decisive for

the **future of the food systems' base**, i.e. the **agricultural world**. First of all, this is the case of the **CAP** that accounts for a large part of the EU's annual budget and has recently entered into the new **2023-2027 programming phase**. As is known, the CAP were initially introduced to **increase production** and farm income in the European context extremely prostrated by World War II. Over time, the goal of increasing production has become **anachronistic** (while the question of adequate income for **small to medium farmers** remains) and contribute to making agriculture one of the most significant 'threats' to the environment (e.g. drastic reduction of **biodiversity** in Europe). Furthermore, numerous experts and CSOs emphasised the failure also of recent CAP to achieve its **environmental objectives**. The reason why has been attributed to a '**one size fits all**' approach that does not sufficiently account for **diversity between farms and farmers**. New policy designs that efficiently adapt to farm contexts are therefore warranted (Huber *et al.*, 2023).

The new 2023-2027 CAP aims to face exogenous challenges and contribute to the **New Green Deal strategy** in support of the transition towards climate neutrality, considering the synergies with the Recovery and Resilience Facility (the New Delivery Model). The link is also with the Farm to Fork, the Biodiversity Strategy and "A long-term vision for the EU's Rural Areas" to define interventions for the revitalisation of Europe's rural territories (Cagliero *et al.*, 2023).

The second focus presented here concerns organic agriculture because it has been outlined as **one key component of the overall solution as it is able to mitigate some of the negative externalities resulting from intensive agricultural practices**. There has been a large policy focus on promoting organic agriculture in the European Union over the last 30 years, which has contributed to a higher area share in the EU of about **8.5%** compared to the global average of about **1.5%**. Nevertheless, the sector still requires significant growth given the ambitious target for 25% of the farmed area to be managed organically by 2030 through the Farm-to-Fork strategy (Ress *et al.*, 2023).

Common Food Policy for Europe

Many experts argue that Europe needs a more **integrated and coherent set of food policies to establish a sustainable food system** (Bailey *et al.*, 2016; Fresco and Poppe, 2016; De Schutter *et*

al., 2016; Compassion in World Farming, 2014). The current food systems are increasingly recognized for their adverse effects on the environment, society, human and animal health, local economies, and various other sectors. In response to the need for a more sustainable European food system, **IPES-food initiated a project in 2016** (a three-year project) aimed at transitioning to sustainability through the proposal of a **Common Food Policy (CFP)**. This policy would serve as an overarching framework to regulate the entire EU food system, starting with reforms to the existing **Common Agricultural Policy (CAP)**, which specifically governs agriculture within Europe. Given the significant influence and relevance of the CAP, its transformation in line with societal developments is regarded as a crucial political objective, advocated for by numerous academics and organisations (De Schutter et al., 2016). The process of developing a CFP involves **multi-stakeholder policy labs and multilevel governance**. The ultimate goal was to create a policy that could bridge various policy areas (such as agriculture, trade, environment, health) and policy levels (EU, national, local) governing food systems. This process employed principles of **participatory governance**, emphasising balancing political power, decentralisation, transparency, reliability, and collaboration. It involved Policy Labs in **Brussels** focusing on different policy aspects influencing the EU food system and Local Labs in several cities (**Turin, Montpellier, Milan, Freiburg**) to assess the impact of policies on local food systems. Throughout this process, IPES-food published **policy briefs** as a foundation for the sustainable food scoreboard, which later became the Common Food Policy proposal. The proposal was presented to EU policymakers at the end of **2018**, following a major multi-stakeholder event in May 2018 (IPES-food, 2017).

From 2018 to the present day, the situation has evolved: the **Farm to Fork** included the provision of a measure specifically dedicated to Food Systems and the proposal for a **legislative framework for sustainable food systems (FSFS)** will be adopted by the Commission **by the end of 2023**. Its goal is to accelerate and make the transition to sustainable food systems easier, with as core objective the promotion of policy coherence at EU level and national level. The sustainability labelling framework will be part of the FSFS. Many studies have been developed over the last two years (e.g. the recent and broad consultations and impact assessment ; **now approval is expected**, as declared by the **European Commission itself** (website updated 4/12/2023).

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Conclusions: main issues raised and suggestions

5

In a global context increasingly characterised by **instability** and the escalation of environmental and socio-economic issues, Europe is proceeding to respond to **emergencies** with significant geopolitical difficulties. Despite the increasingly dense production of communications, strategies and measures over the last three years, the issue of **sustainability is in danger of falling back on the priority scale**. As developed at length in the Report's chapters, **food system policies** represent an extraordinary **opportunity to refocus** attention on sustainability, given the multiple connections with fundamental and inescapable issues such as **health, poverty, the risks of supply chain disruptions due to wars and pandemics** and the **future of soils and agriculture** impacted by **climate change**. It is no coincidence that, just as the drafting of this report is coming to an end, we are awaiting the **approval** of the measure on **sustainable food systems by the European Commission**.

In the European context and in this framework, **Germany, France and Italy** play a relevant role from many points of view: that's why the present Report focuses the analysis on these.

The first chapter focuses on the topic by **defining food systems**, their relevance for sustainability and for the urban and suburban scale. Within this framework, as a preface to the specific analyses, the **main differences** between the three Countries under consideration are highlighted, especially with regard to the **political-administrative systems** that influence governance issues in relation to food systems.

With respect to **climate change** and **global risks**, the second chapter analysed the different impact of specific food categories, identifying the sectors where it is most important to bring about changes in both consumption and agri-food production. The global issues of wars and pandemics call into question the level of foreign dependence of national food systems. A food system that is highly dependent on exogenous factors is exposed to the risk of short supplies of basic necessities when global crises occur. Hence, the second chapter analysed the level of dependence of the three Countries, allowing the identification of the least resilient production and consumption sectors. In particular, France and Germany are dependent on foreign Countries for fruit and vegetables, while Italy is for some cereals and pulses. Finally, the strong French and German climatic impact due to meat consumption should be noted.

The third chapter, on the other hand, highlighted the complexity of **food poverty** and its concatenation with other poverties. Only by looking at food poverty as one of the components of a larger system of vulnerabilities will it be possible to understand the complexity of this issue and find coherent solutions. In this sense, food is here understood as an access point for the other vulnerabilities that lead individuals to find themselves in contexts of marginality of various kinds. The third chapter, in fact, analyses the topic of food poverty through a set of interdisciplinary parameters among the three European Countries, highlighting that by looking at food insecurity and poverty under this systemic lens, Europe can no longer address those issues as far away from the day to day reality.

Furthermore, Europe is the continent that most aspires to lead the world in **integral sustainability**: as discussed in the fourth chapter, there are numerous recent regulations and policies promoted in the last three years aimed at the sustainable transition. **Food systems policies** are fairly recent issues but they are widely interconnected with a multiple of public and private sectors and spheres of policy actions at various scales, involving many different actors. The fourth chapter discusses these aspects, focusing in particular on **urban food systems policies** in Europe and in France, Germany and Italy.

In conclusion, the report brings some final considerations about food systems in Europe and a set of suggestions adaptable to the three context taken into account:

1. Promote the **right to food and food** as a fundamental human right which intersects many different other human rights by influencing policy making.
2. Organise **advocacy in a coordinated manner** to achieve approval of the European measure on sustainable food systems by sharing the **advocacy agendas** of the main CSOs and existing networks.
3. Recognize the **relevant role of cities and local authorities** and involve those of the three Countries considered which have **urban food policies** in place **as important partners** for advocacy mobilisations.
4. Foster the **development of databases and specific studies** on all European urban food policies and systems to diminish the **lack of in-depth comparative analyses**.
5. **Foster cooperation** between France, Germany and Italy with cities in the **Global South** and the **Mediterranean**, to advocate for the **sustainable transformation of food systems** and to promote so-called **reverse innovation**.

“Climate, Poverty and Policies: food systems in France, Germany and Italy” by Heinrich-Böll-Stiftung Paris and ESTà offers a transversal reading of the interconnections between the various elements that make up the food system, the similarities and differences between the food systems of Italy, France and Germany, and the most relevant evidence that distinguishes the three territories, focusing on urban and peri-urban areas.

The report provides a concise picture of the importance of action on food systems for environmental, social, economic and institutional sustainability, developing 3 main themes:

Food system climate change and global risks,
Food system and poverty,
Food system policies.

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