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Authors:	Cassatella C., Gottero E., Cotella G., Salizzoni E., Pede E., Quaglia S.
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Acknowledgments

Executive summary

Until a few years ago, Urban Agriculture (UA) was not formally recognised and integrated into land use policies and planning tools but perceived by urban planners as a rural activity that didn't fall within their field, not as a possible and valuable urban function. However, more recently scholars, planners and city authorities have understood the possible contribution of UA to overcome urban issues connected with social, environmental and economic spheres. The benefits of UA support different dimensions of urban sustainability: feeding the city, making the city inclusive, tackling inequalities, improving the value of recreation, climate mitigation, greening the city, maintaining biodiversity and ecosystems, improving local economies, and others. In recent years, in order to take advantage of these benefits, different thematic and intentional public policies have been launched at city level, using a range of policy instruments.

This report illustrates how UA benefits are utilised in the field of urban planning and how UA benefits could be used to address specific urban and peri-urban issues. The report also documents a wide range of urban planning approaches which support UA development, pinpointing the significant characteristics of UA practices and the governance models that can help or hinder the achievement of urban development strategy. In particular, the final section (4.3) provides city and regional authorities with a comprehensive set of successful strategies when making use of UA as a tool for urban planning.

The methodology is reported in section 2 starting with the literature and Research and Innovation (R&I) project reviews, the collection and analysis of case studies, and finally the interviews and online surveys and discussion with experts. The third section focuses on the main connections between UA and Urban planning. The last section presents the main challenges and needs when planning for and with UA, in order to guide local authorities and support decision making in the integration of UA into public policies.

This research has highlighted that many UA initiatives are not the result of public policies but bottom-up processes. Few cities have a specific plan or strategy for UA. Many cities developed comprehensive plans and strategies on UA which were not binding. Rather, these tools have UA as a key component, but not the only ingredient. The majority of UA-related public policies at city level that we collected and analysed refer to greening and food domains. This research also showed that UA is dealt by various planning and management tools such as inventories, plans or programs, regulations, incentives and assessment instruments. The main barriers that still limit the development of UA are legal restrictions and limitations, the lack of integration with zoning tools, as well as the land availability and usability. Finally, to overcome these barriers and reinforce UA in public policies at city level, the research defined 9 key steps when planning for and with UA: establishing participatory processes and UA committees, ensuring availability and access to public land, identifying existing and potential land, creating a specific plan, defining a regulation, developing financial or incentive tools, developing facilities and infrastructures, supporting UA initiatives and urban farmers, as well as evaluating and monitoring public policies for UA.

List of boxes

1 Introduction

Since 2000 many scholars, especially within the American Planning Association, underlined the "lack of formal recognition and positive reinforcement for UA in local planning policy" (Quon, 1999, p. 56) and have showed that UA is not quite integrated with land use planning (Cabannes and Marocchino, 2018; De Zeeuw et al., 2000; Huang & Drescher, 2015; Lovell, 2010; Mubvami et al., 2006; Pothukuchi & Kaufman, 2000; Thibert, 2012). Until a few years ago, UA was perceived as a rural activity, not urban (Lovell, 2010; Quon, 1999), a topic that mainly concerned the domain of rural policy (Pothukuchi & Kaufman,2000), in contrast to rural agriculture (FAO et al., 2022). As a consequence, urban planners paid low attention to UA and urban food system issues considering them as domains do not fall within their expertise. The reasons behind this lack of emphasis on UA are different. According to a survey carried out by Pothukuchi & Kaufman (2000) at the end of the 1990s, it is not only due to the fact that UA was considered as a marginal activity in urban fabric, but also because the agri-food system was mostly managed by the private actors, as well as the knowledge and training on food systems and rural planning was still lacking. Some scholars (Horst et al., 2017; Huang & Drescher, 2015; Thibert, 2012) claimed that, until recently, land use planning ignored UA and did not considered agriculture as a valuable urban land use. In addition, they stated that the development of specific urban agriculture strategy or plan requires a multidisciplinary approach which did not meet urban planner expertise. However, especially in the last decade, scholars and planners understood the possible contribution of UA in terms of provision of a wide-range of benefits to urban communities and achievement of urban policy targets. This fostered the implementation of UA initiatives in many cities worldwide thanks to the development of focused public policies and policy instruments (Halvey et al., 2021).

This research was carried out in order to understand how UA benefits are perceived and "used" in the field of urban planning and how UA benefits can be alternatively/additionally/ differently used in order to be transferred towards next practices. To respond to these questions, we propose a comprehensive and integrated approach that includes the involvement of all EFUA partners and WP4 components, developed in close connection with other tasks and deliverables of WP4[1]. The aim of task 4.2 is to define a comprehensive set of urban planning approaches supporting UA development. The objective is also to pinpoint the significant characteristics of UA practices and their governance models that can help or hinder them in achieving the goals of urban development strategies, as well as to analyse what makes UA-related urban strategies successful. According to the initial EFUA proposal, the deliverable 4.2 should include a section addressed to city and regional authorities that highlights the main challenges, opportunities, and demands when making use of UA as a tool for urban planning.

For these reasons, the second section of deliverable 4.2 includes the methodology applied in this research, that contains the literature and R&I project reviews, the collection and analysis of case studies, interviews and online surveys. The third section focuses on the main findings related to the connections between UA and Urban planning. This section includes evidence from literature and R&I projects reviews, from the analysis of case studies at city level, especially in terms of governance, purposes, planning and management instruments, as well as their delivery mechanisms. We collected 44 case studies at international level in order to transfer successful experiences and tools on the EU level. We analysed case studies mainly from European cities, but also cases from 35 developed countries, 5 developing countries and 4 Least developed countries (LDCs). Section 3 also contains the point of view of stakeholders, i.e. interviews, online surveys, a roundtable

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[1] See, in particular, D4.1 "Practice-governance matrix with set of indicators" and D4.3 "Impact assessment of existing EU-level policies on UA practices and governance models".

and a policy talk. The discussion of the results then follows. The last section also presents challenges and needs when planning for and with UA, in order to support decision making.

2 Methodological approach

In this section we present the methodology used to define a comprehensive set of urban planning approaches supporting UA development. Figure 1 shows the two main methods applied that will be discussed in more detail in the next subsections. Task 4.2 includes three parts: i) evidence from literature and R&I project reviews; ii) point of view of stakeholders and iii) case studies analysis. The second part contains the findings of interviews conducted with WU and WR, the results of two round tables, as well as three surveys: the first on UA types (carried out by WU and WR), the second on the UA benefits (by Polito) and the last on planning issues (by Polito). In addition, these steps include parts connected to the sub-tasks 3.2.1 (UA benefits) and 3.2.2 (UA links to other urban oriented concepts), as well as other tasks of WP4 and WP5 of the EFUA project.
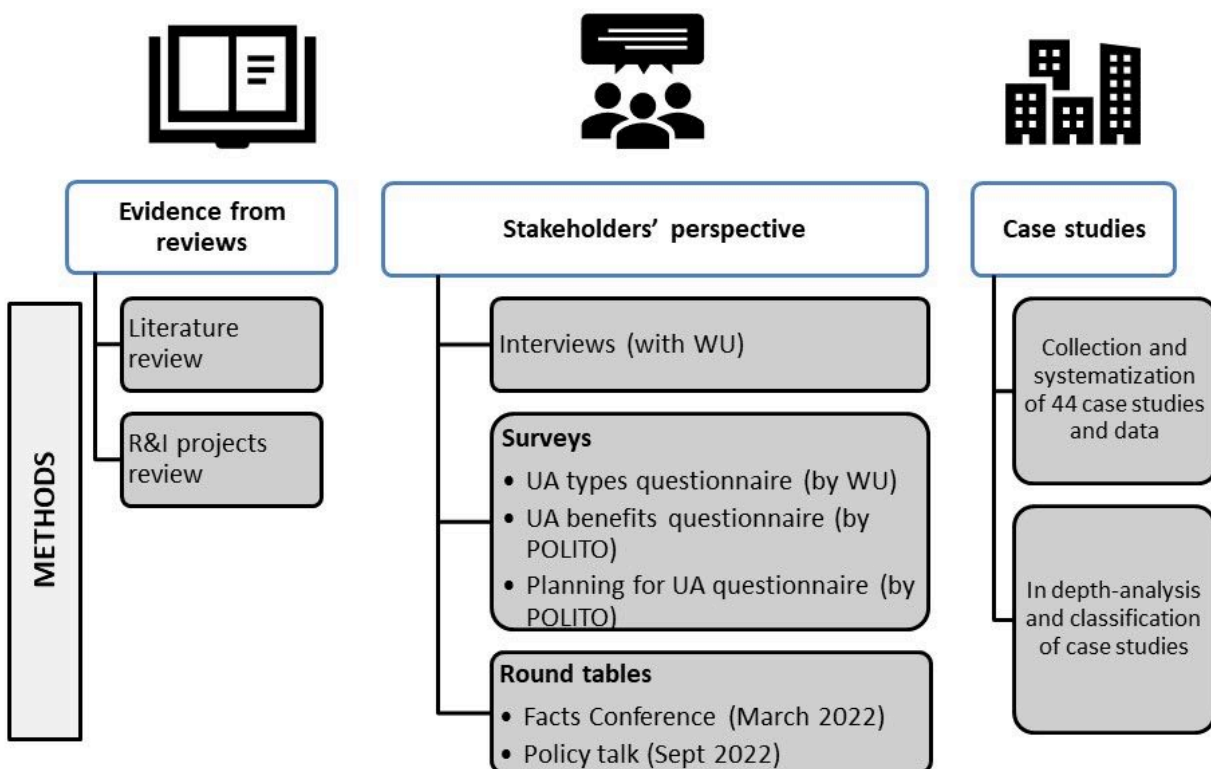
Figure 1 - Scheme applied to carry out the research on UA-related urban planning approaches

2.1 The review of literature and R&I projects
The review process is based on an initial unstructured review of references on UA-related urban planning approaches, from previous research projects on UA, grey literature, the review of other tasks (in particular 3.2.1 and 3.2.2) and through some search on Google Scholar database. The review process also includes a search with Scopus database, some records identified through partner suggestions and through CORDIS and EU database searching. These steps were useful to identify and select case studies and highlight any gaps in the evidence base (Figure 2).
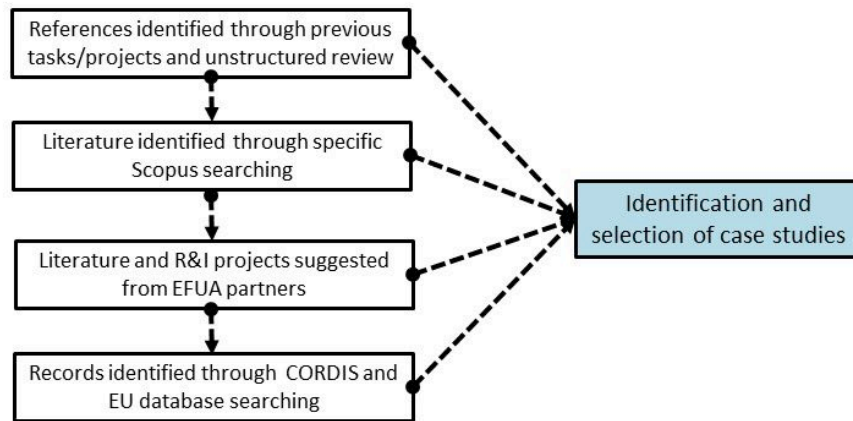
Figure 2 – The review process

The systematic literature review through Scopus database

The systematic literature review was carried out through a search process performed on Scopus between June and July 2021. It was based on a key words list defined by the partner consultation that included, in particular, the combination between "Urban Agriculture" and "sustainability + strategies", "forestry + strategies", "renewal + strategies", "local + community + development", "regulation", "plan" and "greening". In order to capture next UA practices at city level, we also included key words such as "high-tech + farming", "rooftop", "hydroponic", "vertical framing" and "indoor farming". The search involved title, abstract and key words. The criteria for the Scopus search are the same of subtask 3.2.1 (see: Cassatella & Gottero, 2022, D3.2- section 2.2.1). In contrast to this, the search for task 4.2 was also extended to the references related to Least Developed Countries (LDCs). Through the Scopus search 424 records were identified, 353 after the duplicates removal. The following screening phase was divided into two steps: *i) abstract and title screening*: it includes the removal of papers with unrelated focus, analysing the content of the abstract and title; *ii) full text review*: this step included the assessment of 109 full-text articles and the removal of papers with unrelated focus. In the end, after the screening phase, 29 papers were selected and classified (Figure 3). They were included in a database that contains authors, a section on policy topic, a part on the policy tools, a column on case studies investigated and notes on the focus of the reference.
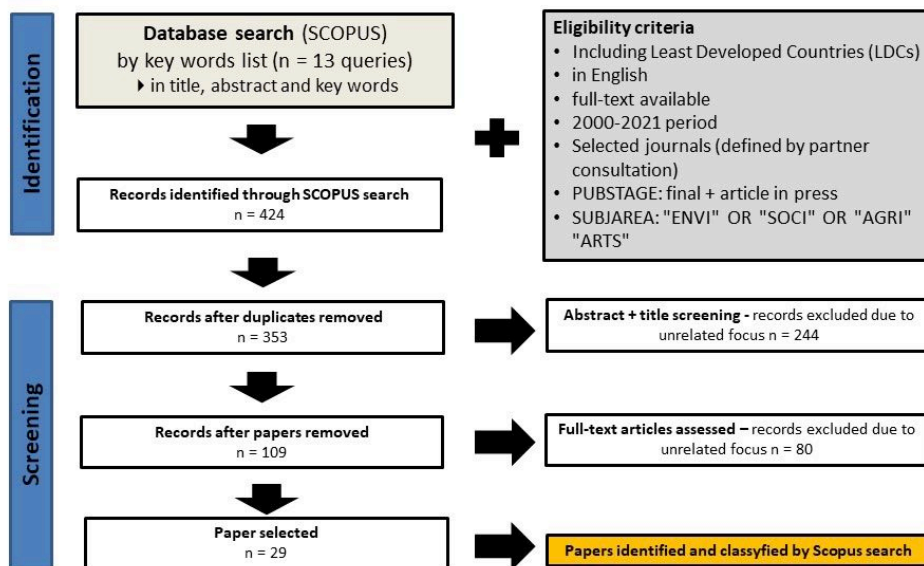
Figure 3 - The systematic literature review through Scopus database

R&I projects review

In a similar way, a R&I projects review was carried out between August and September 2021 by exploring several European project databases. In terms of criteria, the same ones used for the subtask 3.2.1 (see: Cassatella & Gottero, 2022, D3.2- section 2.2.2) were applied also in this case. R&I projects were classified through a database that includes project acronym, title, objective, timeframe, status of the project, weblink, funding program, linked main topic, as well as some note or any references.

2.2 The involvement of stakeholders: interviews, surveys and roundtables

Regarding the stakeholder's perspective, we have tackled these issues by both conducting several interviews, in close cooperation with WU[2], and setting three online surveys and two roundtables (Figure 4). In previous tasks (see, in particular, task 3.2), questionnaires proved to be very productive. Thus, we preferred to use them instead of focus groups in order to involve different stakeholders and collect more information.
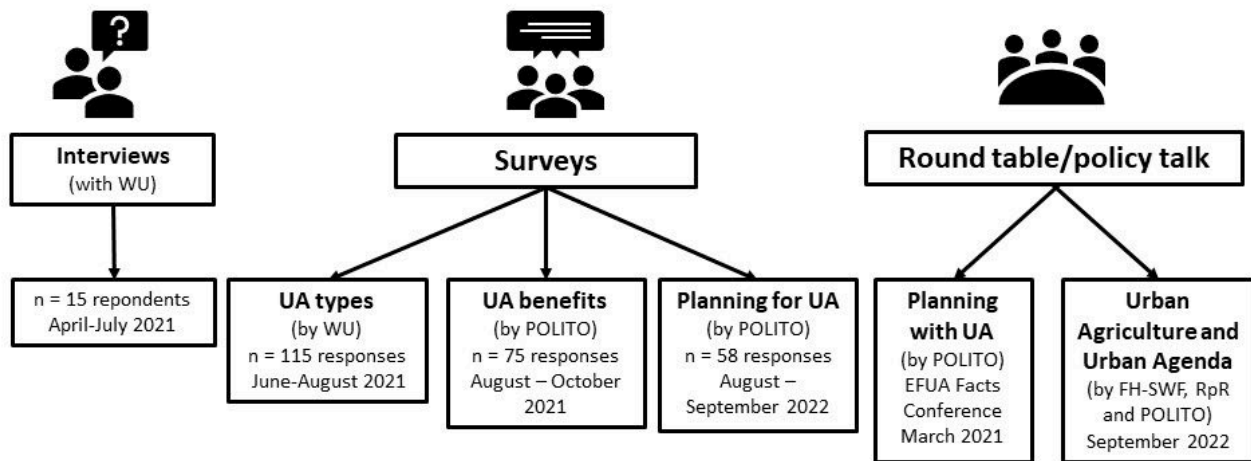
Figure 4 – Methods for the involvement of stakeholders

The first survey was carried out by WU[3] and it also included some questions on governance and planning tools (for criteria see: Cassatella and Gottero, 2022, section 2.3). Concerning UA-related strategies and policies, we asked interviewees to describe what the future challenges are, any failed or negative initiatives they knew about, as well as any specific UA development plan and/or regulation that have been implemented in their city (or city-region) or they knew as part of their expertise and knowledge on UA.

Regarding the UA types questionnaire, we asked respondents to express on the typology of settlement (according to the national classification) and location (city or city-region) of their UA initiatives, whether the initiative started in the frame and/or with the support EU policy, as well as whether the city have a specific UA development plan/policy/strategy, and/or a regulation at the municipal or at any other level.

With regard to the UA benefits survey (see Cassatella and Gottero, 2022, section 2.3) which mainly involved experts and city officials, we asked respondents to express their opinion on what urban needs may be addressed through UA initiatives and whether there is a specific UA development plan and/or an UA regulation in their city or at other spatial levels. Furthermore, we asked to mention any future prospects, directions, potential challenges and/or opportunities associated to UA initiatives, especially in their city, as well as any information about failed UA initiatives and how they could be avoided in the future.

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[2] For the methodological approach of interviews see also of Jansma et al., 2021, section 2.2. The Italian interviews were videorecorded by Microsoft TEAMS and all interviews were transcribed ad verbatim. Informed consent was given, the interviews have been anonymised and they are saved in a institutional repository such ad Dropbox and OneDrive.
[3] For the methodological approach of UA typology questionnaire see Jansma et al., 2021, section 2.3.

Additionally, we conducted a survey specifically addressed to professional farmers and urban gardeners (Annex 4). It was closed in September 2022 and produced 58 responses in total. The on line questionnaire included 16 questions, mainly focused on the most prominent urban needs and/or demands that can be addressed through UA, the location where UA initiatives take place (private or public land, intra-urban area or outside urban area), main reasons and barriers influencing the maintenance and expansion of urban and peri-urban agriculture, as well as what public policies should do to improve UA.

Finally, in March 2022, during the online EFUA Facts Conference we also conducted a roundtable that involved experts from the city of Almere, Lisbon, Turin and Rome. We asked them to explain which policy tools favoured the development of UA practices in their cities, which obstacles posed by the planning framework were/are in place and which lessons can be learnt and transferred to other EU cities and regions on the integration of UA into urban planning and policies. In a similar way, in September 2022, we also carried out a policy talk in close cooperation with WP5 partners (FH-SWF and RpR) which was specifically aimed at understanding how UA can contribute to reach various Urban Agenda Goals and sustainable development targets, by examining public policy tools and planning instruments at the city and city-region level. The policy talk[4] involved policy makers and several stakeholders such as DG Regio, experts and researchers, as well as public organisations and city networks such as Eurocities.

Draft findings of task 4.2 will be reflected and grounded in some city workshops taking place in Copenhagen, Sofia (in the framework of EFUA annual conference) and Turin. In addition, key topics and preliminary findings of this task have been discussed with researchers, practitioners, public officials, gardeners and professional farmers' organization in two city workshops, in Copenhagen and Turin: Seminar "Planning for urban and peri-urban farming" (University of Copenhagen IGN, 8 September 2022, organized by UPCH, 15 participants); Roundtable "Agricoltura urbana e periurbana e food policy locali" [Urban and peri-urban agriculture and local food policies] (Turin, Terra Madre[5], 22 September 2022, organized by the Italian Network on Local Food Policies, 12 participants). Both events included an interactive session after a presentation by PoliTO.

2.3 Collection and systematization of case studies

Case studies were selected through the reviews of task 4.2 and 3.2, questionnaires and interviews of task 3.2, and EFUA partner suggestions. The references and documents on selected cases were also collected through the consultation of some database such as Google Scholar, Scopus, ResearchGate and Mendeley. We mainly selected case studies at the meso (city and city-region) level, from European cities, but also cases from developed countries, developing countries and least developed countries. This information was presented in the format of a long list from which some valuable and successful case studies were selected for an in-depth desk analysis and presented in some boxes. Although it was not possible to assess the impact and results of UA-related public policies in many case studies, and thus their success, we selected these considering stakeholder and expert opinions (from interviews, surveys and roundtables), and based on the evidence in literature. Focusing on some selected cases allowed us to highlight additional features such as general information, type of policy, decisional model, planning and management tools.

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[4] The results of the policy talk on the relationship between Urban Agriculture and Urban Agenda were described in D5.3 - Report from policy talks.
[5] Terra Madre is an international event organized by Slow Food. In the edition 2022, the organizers declare the presence of 350.000 visitors.

These case studies were collected in a Google web map and onto a sheet for each city selected that includes the denomination, country and city, the type of intentional public policy (strategy/vision, programme, project, land-use zoning instrument, sectoral policy, regulation), the main topics or thematic domains of urban strategies/policies (such as urban-rural partnership, urban green development and management, climate adaptation and/or mitigation, urban nature protection, Urban forestry, Food strategies), a brief description and some references (see Annex 1)[6]. The case studies were also included in a database that also includes the country classification (according to UN, 2020) and the spatial governance and the planning system (according to Berisha et al., 2021) such as state-led systems, market-led, neo-performative systems, conformative systems, proto-conformative systems, misled performative systems, all elements that can support further considerations on the actual potential for transferability of the analysed practices from one context to another (see Annex 2).

3. Main Results

3.1 Urban Agriculture and Urban Planning: evidence from reviews

Systematic literature review

The review of the literature was performed using different methods. The initial Scopus search has identified 424 records (353 after the duplicates removal). This search highlighted that the combination of the key words "urban agriculture" and "plan", as well as "urban agriculture" and "regulation" are the most frequent in the literature while the words "renewal", "indoor farming" and "hydroponic" are less common (Figure 5).

Key words	Number
urban + indoor + farming	9
urban + vertical + farming	26
urban agriculture + hydroponic	9
urban agriculture + rooftop	35
high-tech+ farming	12
urban agriculture + food + system + Europe	14
urban agriculture + rural + linkage	19
urban agriculture + metabolism	23
urban + agriculture + greening	29
urban + agriculture + plan	82
urban + agriculture + regulation	74
urban + agriculture + renewal + strategies	12
urban + agriculture + forestry + strategies	26
urban + agriculture + sustainability + strategies	54

Figure 5 - Number of references for each combination of key words selected

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[6] Some of these case studies were included in-depth boxes (see section 3.3). To avoid duplicates, Annex 1 contains only those cases not described in the boxes.

After the two-step screening that included the full-text review of 109 articles – collected not only through systematic review of task 4.2 but also from task 3.2 and unstructured review – for the final database and the quantitative and qualitative synthesis 29 papers were selected. These references were classified in an Excel file.

Selected articles were all published after 2011, with the majority of them published between 2017 and 2021 (Figure 6), in 12 different journals with focusing on several diverse scientific disciplines such as sustainability, environmental science, urban planning and policy, geography, sociology, agriculture and food studies. "Sustainability" and "Land Use policy" journals prevail (Figure 7). These papers mainly analysed American and European case studies (Figure 8).
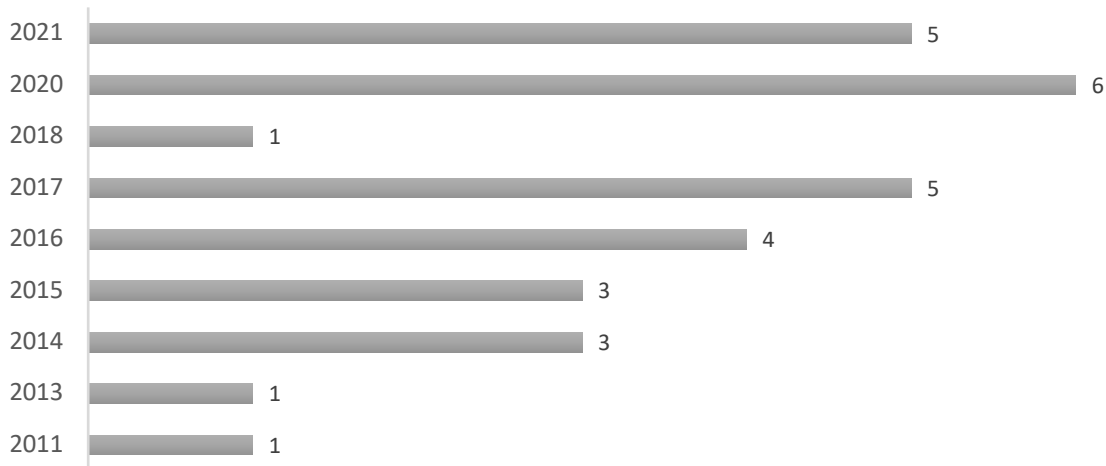
Figure 6 - Distribution of reviewed papers for publication year
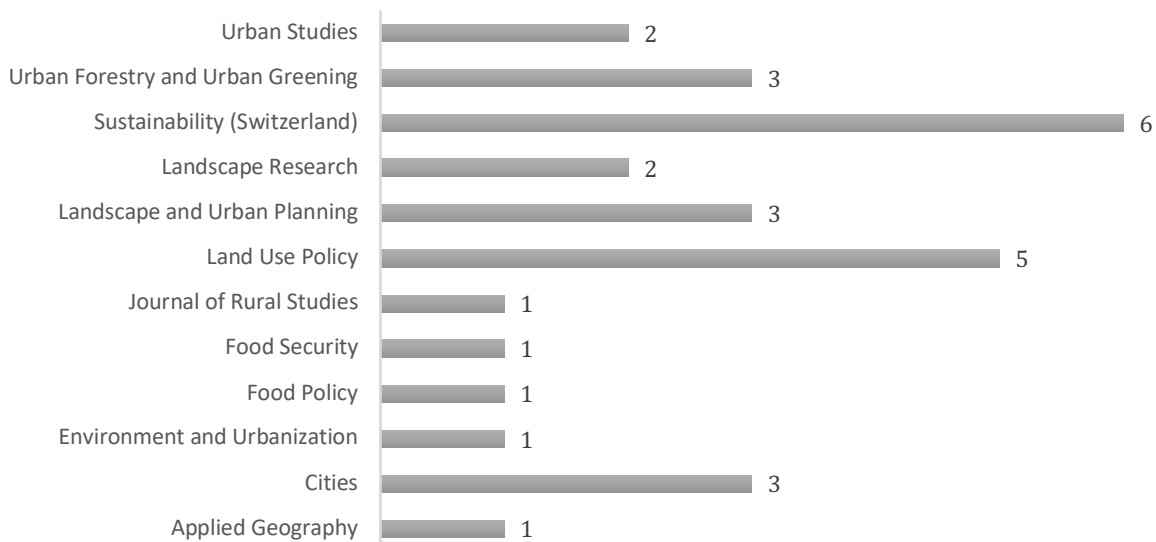
Figure 7 – Distribution of reviewed papers by journal
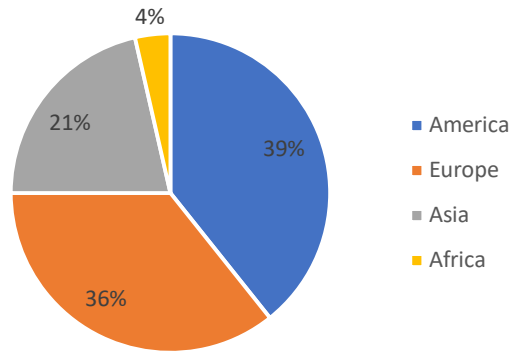
Figure 8 – Distribution of reviewed papers by continent

Concerning the themes addressed by the articles reviewed, the majority of papers mainly focused on aspects related to food (e.g. access, security, production, planning, etc.), management of urban green spaces and green infrastructures (including urban forestry and agro-forestry) and land use planning and regulation.

In the Global North, many scholars examined the role of UA in food policies, with particular interest towards the reasons and processes behind the integration of UA in the policy domain (Campbell, 2016). Morgan (2015) analysed the relationship between food systems and urban planning and the recent evolution of food system planning theory, considering UA as 'a new foodscape' and a tool to grow food for both individual and commercial purposes, and for promoting alternative food networks (Morgan, 2015). Other scholars investigated the various dimensions of food security and effects of targeted subsidies policy on food security (Hosseini et al., 2017). Literature also focused on urban food provision and consumption at city regions scale, identifying the relationship between food supply and demand (Jensen & Orfila, 2021), defining economic-based indexes (Monaco et al., 2017) and geospatial tools to evaluate food yield potential in local food systems, food production and self-sufficiency (Sioen et al., 2017 and 2018), including rooftop urban agriculture (Saha & Eckelman, 2017). The governance of local food strategies and the complex system of relationships and agreements between different stakeholders involved in sustainable food systems are other themes that emerged from the review of recent literature (Crivits et al., 2016; Hardman & Larkhamb, 2014).

Furthermore, some scholars have recently contributed to the different dimensions of the role of UA in the management of urban green spaces and green infrastructures, such as the localization of agri-green roof (Zambrano-Prado et al., 2021) and vacant land for urban gardens, especially in order to reduce urban heat island effect and mitigate food desert (Smith et al., 2017), as well as the definition of strategic urban community garden siting and criteria for the identification of possible community garden locations (Smith et al., 2021). GIS-based approach was explored by scholars to "localize and quantify available areas for agriculture" (Lucertini & Di Giustino, 2021, p. 1), classify new practices of UA (La Rosa et al., 2014), as well as identify vacant land for greening cities through UA practices (Smith et al., 2017). Some cities, such as Baltimore, also defined inventories of available and private land for UA (Horst et al., 2017).

Some papers also focused on the planning tools (Halvey et al., 2021; Huang & Drescher, 2015; Lucertini & Di Giustino, 2021; Specht et al., 2016) such as UA plans, tools to localize and quantify available areas for UA and other instruments to support decision making. Less frequent are the references related to incentive tools and urban-rural connections, as summarized in Table 1 and Figure 9.
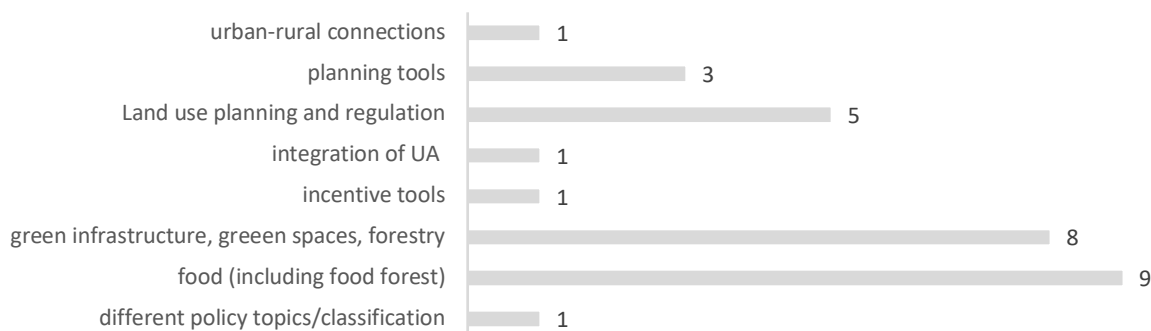
Figure 9 – The main analysed topics

Table 1 – References collected through Scopus search which adopting UA-related planning tools

Authors	City/Region	Policy topic	Planning tools	Main issues
Campbell, 2016	New York City, USA	food	-	How and why UA was included into local food policies and sustainability plans
Capotorti et al., 2015	Rome, Italy	green infrastructure, forestry	-	Identifying priorities in urban forest planning
Contesse et al., 2018	Santiago de Chile	green spaces planning policy	green space policy arrangement	Urban green spaces and urban agriculture
Crivits et al., 2016	Ghent, Belgium	food	Ghent en Garde Program	Local food strategy, Governance of Local Food Strategies, democratic participation
Halloran & Magid, 2013	Dar es Salaam	UA integration	Strategic plan	Urban agriculture in the strategic urban development plan
Halvey et al., 2021	USA	different policy topics/classification	Tools to support and regulate UA	Municipal urban agriculture policies in the United States; public policy definition; different public policy in US
Hardman & Larkham, 2014	Birmingham	food	food charter; local food agenda	Food charter
Hosseini et al., 2017	Iran	food	Targeted Subsidies Policy	Food security
Hou, 2020	Taipei	green spaces planning policy	partecipatory tools	Garden City Initiative
Huang & Drescher, 2015	Ontario and British Columbia, Canada	planning tools	Recommendations	Integration of urban agriculture and planning, barriers, planning instruments and tools for UA
Jensen & Orfila, 2021	Leeds, UK	food	tools to support decision making	Food production and demand
Jiang et al., 2020	Changzhou, China	urban-rural	farmland protection zone	Spatial regulation
La Rosa et al., 2014	Catania, Italy	Land use	tools to support decision making	Method for the characterisation of new forms of UA
Lucertini & Di Giustino, 2021	Venice, Italy	planning tools	GIS based	GIS-based approach used to localize and quantify available areas for UA
McClintock et al., 2014	USA	land use regulation	urban livestock codes	Urban livestock regulation and management
Monaco et al., 2017	Berlin, Milan, Rome, London, Rotterdam, Ljubljana	food	economic-based indexes	Food Production and Consumption at city regions scale

Morgan, 2015	-	food	-	New food equation, food planning, food security, food policy
Napawan and Townsend, 2016	Sacramento, USA	incentive tools	Urban Agriculture Incentive Zone, urban agriculture ordinance	Reduction in property taxes
Pallagst et al., 2017	Flint, Michigan, USA	green spaces planning policy	-	Greening shrinkage cities, vacant land
Perrin & Nougaredes, 2022	Montpellier, France	social equity	SCOT, agricultural park	Social equity, regulatory framework for farmland protection
Saha & Eckelman, 2017	Boston, USA	food	tools to support decision making	Geospatial assessment of urban agriculture potential
Smith et al., 2017	Phoenix, USA	green spaces planning policy	tools to support decision making	Identification of vacant parcels for potential greening
Smith et al., 2021	Phoenix, USA	green spaces planning policy	tools to support decision making	Community gardens, to site potential or represent priority locations for gardens, criteria and indicators
Specht et al., 2016	Berlin, Germany	planning tools	Regional Open Innovation Roadmapping (ROIR)	Zero-acreage farming
Vannozzi and Borelli, 2020	Brazil	urban food forests	Urban Forestry Master Plans	Analysis of master plans, definition of urban food forestry
Wang et al., 2021	Chengdu, China	land use planning	Urban Agriculture Functional Zones; indicator framework; The Urban Agriculture Cross Strategy	characterization of UA, creation of seven urban agriculture functional zones
Xie et al., 2020	Beijing, China	landscape planning	-	Urban Agriculture Parks, supply and demand for seven types of landscape services, Landscape Services Analysis
Yokohari and Bolthouse, 2011	Tokyo, Japan	urban greenspaces, forestry	-	Focusing on urban agriculture and woodland management
Zambrano-Prado et al., 2021	Barcelona, Spain	urban greenspaces	urban policies for green and urban agriculture roofs, financial support, land use planning codes	Urban agri-green roofs, legal barriers and opportunities, lack of specific regulations and protocols, building volume limitation

R&I project review

In a similar way, the R&I project review was carried out through the analysis of different European research project databases, as described in D3.2, section 2.2.2 and 3.1.1 (Cassatella and Gottero, 2022). We identified 13 R&I projects addressing the relationship between UA and urban planning, in different ways (Table 2). The majority of them are ongoing projects funded by the H2020 programme. They mainly focused on tackling soil degradation and land consumption, governance systems of peri-urban areas, integration of Nature based solution (NBS) in planning systems, as well as issues related to the role of UA in the food planning process. Some of these - such as ProGIreg, ROBUST, Ru:rban, Foodmetres - provided a comprehensive overview of public policies and planning instruments related to UA, useful for the collection and systematization of case studies at city and city-region levels (see section 3.3).

Table 2 - List of the reviewed research projects which address the nexus UA-Urban Planning

Acronym	Title	status	Link	Funding program	Main issues
FUSILLI	Fostering the Urban food System Transformation through Innovative Living Labs Implementation	ongoing	https://cordis.europa.eu/project/id/101000717	H2020	Urban food plans
ProGIreg	Productive Green Infrastructure for post-industrial urban regeneration	ongoing	https://cordis.europa.eu/project/id/776528	H2020	NBS and Governance (community-based urban farms)
ROBUST	Rural-Urban Outlooks: Unlocking Synergies	ongoing	https://cordis.europa.eu/project/id/727988	H2020	Rural-Urban linkages
Ru:rban	Urban agriculture for resilent cities	ongoing	https://urbact.eu/resilient-urban-and-peri-urban-agriculture	Urbact	Brownfield recovery, Governance
INSPIRATION	INtegrated Spatial PlannIng, land use and soil management Research ActTION	closed	https://cordis.europa.eu/project/id/642372	H2020	Land use, governance, soil protection
LANDSUPPORT	Development of Integrated Web-Based Land Decision Support System Aiming Towards the Implementation of Policies for Agriculture and Environment	ongoing	https://cordis.europa.eu/project/id/774234	H2020	Soil sealing, soil protection, land consumption
Contracts2.0	Co-design of novel contract models for innovative agri-environmental-climate measures and for valorisation of environmental public goods	ongoing	https://cordis.europa.eu/project/id/818190	H2020	Policy, contractual models, governance of agro-environments
RUMORE	Rural-Urban Partnerships Motivating Regional Economies	ongoing	https://www.interregeurope.eu/rumore/	Interreg	Rural-Urban linkages
RENATUR	Improving regional policies to better protect natural heritage of peri-urban open spaces	ongoing	https://www.interregeurope.eu/renatur/	Interreg	Governance of peri-urban areas
PROSPERA	PROmoting Sustainable development and regional attractiveness through PERi-urban Areas	ongoing	https://www.interregeurope.eu/prospera/	Interreg	Governance of peri-urban areas
SUPER	Sustainable Urbanization and Land Use Practices in the European Regions	closed	https://www.espon.eu/super	ESPON	Land-take, soil sealing and urban sprawl
Foodmetres	Food Planning and Innovation for Sustainable Metropolitan Regions	closed	https://cordis.europa.eu/project/id/312185	VII framework programme	Food planning
URBAN GreenUP	New Strategy for Re-Naturing Cities through Nature-Based Solutions	ongoing	https://cordis.europa.eu/project/id/730426	H2020	NBS and Urban Plans

3.2 Urban Agriculture into Urban Planning: a stakeholders' perspective

3.2.1 Framing UA initiatives into policies and practices. Results from online surveys

The UA types questionnaire (see also: Jansma et al., 2021) related to UA practices, highlighted that state capitals and cities are the main types of settlement where UA practices take place (Figure 10) and that these initiatives are usually located within the city boundaries (intra urban) (Figure 11).
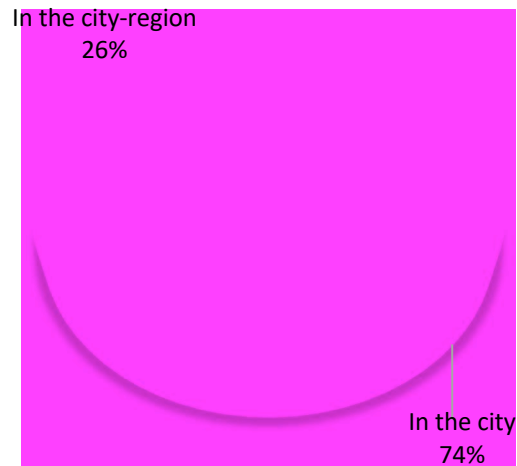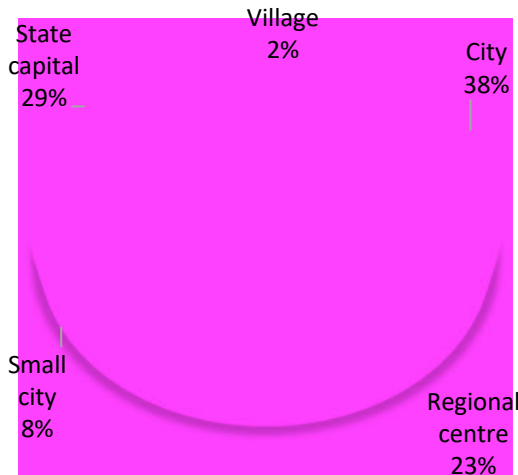
Figure 10. Type of settlement where of UA initiatives is located   Figure 11. The location of UA initiatives

This survey also showed that 58% of these practices is not the result of public policy implementation but the outcome of several instruments (Figure 12). Most cities do not have specific planning tools. Only 35% of the cities of these UA practices have a specific UA development plan/policy/strategy, and/or a regulation at the municipal or at any other level (Figure 13).
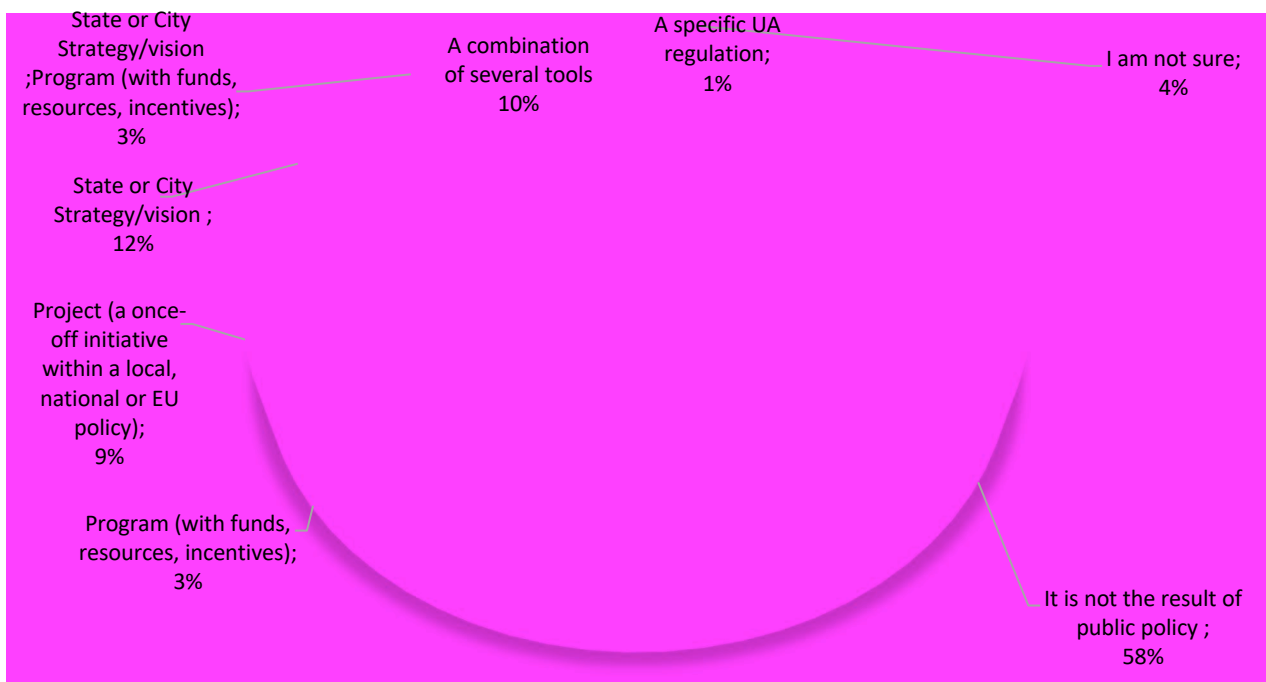
Figure 12. The location of UA initiatives

Figure 13. Existence of specific urban agriculture development plan/policy/strategy, and/or a regulation at the municipal or at any other level

The questionnaire on UA benefits, carried out by Polito in the framework of task 3.2 (see also: Cassatella and Gottero, 2022, section 3.2.3), received 75 responses, mainly from researchers and experts, less than half from city officials. In this case, both respondents claimed that social and environmental/climate are the main urban needs that may be addressed through UA. In addition, for non experts respondents the cultural needs seem less important, while for expert the economic demands are not the main issue to be tackled through UA (Cassatella and Gottero, 2022). These findings are useful also on the political level in order to integrate UA in urban planning tools. 52% of respondents stated that there is a specific UA development plan and/or an UA regulation at municipal or at any other level in their cities such as Turin, Gent, Bristol, etc. (Table 3).

Table 3 – City or City-region that has developed a specific planning tools for UA according to respondents

City, Country	Tool
Turin, Italy	Strategic plan of green infrastructure
Rome, Italy	- Rome Regulation for the Management of Urban Gardens - Food Policy Resolution - Agrifood plan
Gent, Belgium	Gent en Garde (organization by the city to improve the local food chain)
Bristol, UK	- Bristol City Council - Sustainable Food Places Gold Award - Signed up to MUFPP and Glasgow Declaration on Food and Climate
Krakow, Poland	Regulations related to setting up and maintaining community gardens
Ljubljana, Slovenia	Strategy for rural development for programming period 2021-2027
Oslo, Norway	National and local (municipality level) plan for urban agriculture
Vilnius, Lithuania	Regulations of urban gardening. Issued and approved by City administration, municipal regulation on setting up new urban gardens that has been developed as part of URBACT project RURBAN

Regarding future prospects, directions, potential challenges and/or opportunities associated with UA initiatives, respondents highlighted the need of developing policies at strategic level, planning/zoning tools and economic funds in many cities. Land conflicts, land preservation, land accessibility and public ownership are other important topics mentioned by respondents. Moreover, the redevelopment of abandoned areas,

rooftop farming, and cooperation with local authority, are open questions that should be addressed through UA (Figure 14).
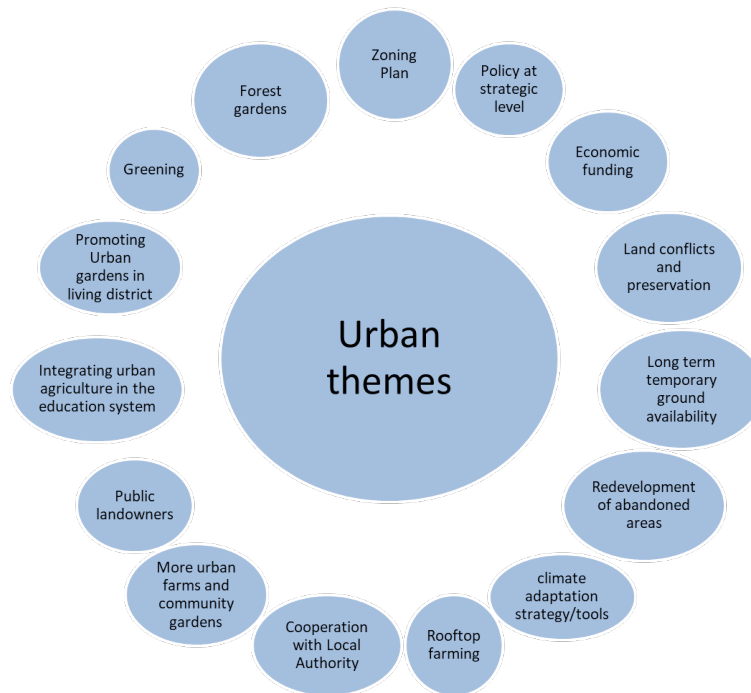
Figure 14 – Urban themes and potential challenges associated to UA initiatives according to respondents

Finally, regarding failed UA initiatives, high costs of management, land conflicts, land accessibility and land ownership are the most frequent reasons pointed out to be behind their failure. UA strategies adoption and their integration within planning tools, better access to support and finances, effective involvement of farmers and local community in decision making, as well as improvement of infrastructure are considered as possible solutions to avoid UA initiatives failure according to respondents (Figure 15).

Figure 15 – Main reasons for failure of UA initiatives according to respondents

3.2.2 Reasons for failure of UA and UA-related planning challenges. Results from interviews

The interviews carried out in close cooperation with WU highlighted several reasons contributing to the failure of UA initiatives and some of the urban challenges that UA could tackle in the upcomingr future (see also: Jansma et al., 2021). Respondents mentioned some failed experiences of vertical and urban farming in Europe and the main motivations such as several opponents, resources scarcity, water requirements, insufficient space, lack of skills, difficulties in competing in the global agri-food market, shortage of public plots management, as well as lack of an adequate marketing strategy. Interviews also highlighted some urban themes related to UA such as overcoming land consumption, managing land conflicts and preserving soil for agriculture. Some respondents also underlined the role of UA as a form to protect the soil and greening the city (Respondent 15). Other respondents claimed that "getting space and keeping space for urban agriculture" (Respondent 4) are crucial issues for urban and peri-urban areas. Finally, containing the "pressure on land" (Respondent 9) and the "competition for land" (Respondent 6), "increasing the short supply chain" (Respondent 14), as well as promoting "legal recognition"(Respondent 13) of UA are the main goals that every urban agenda should take into account. In addition, interviews showed interesting cases and spatial tools that integrated UA, such as the French territorial food plans or "project alimentaire teritoraux" (Respondent 7), agricultural parks such as Rome's Master Plan (Respondent 15), as well as municipal ordinances (Respondent 13) or "farmers' market regulations" (Respondent 15). Other respondents quoted some specific planning attempts such as the TOCC project in Turin (Respondent 14). A respondent claimed that "there is a lot of demand for agriculture in the city" and that "the territorial food plans are first of all thought of as plans to feed the city" (Respondent 8).

3.2.3 Policy tools and possible obstacles. Outcomes of the roundtable

The roundtable was conducted in March 2022, during the online EFUA Facts Conference. Experts involved represented different European cities such as Rome, Turin, Almere and Lisbon. They highlighted several interesting issues such as policy tools that promoted the development of UA practices in their case study and obstacles posed by the planning framework. They also explored different and heterogenous ways in which UA can be integrated into urban planning and policies. For the city of Almere, Jan Eelco Jansma[7] presented the case of Almere Oosterwold, a new town 30 km away from East of Amsterdam that has been recently developed. He described the entire planning process that produced a city with a particular focus on food production and its integration in the masterplan. Davide Marino[8] described the "proposal for the definition of Urban Agricultural Parks based on social and environmental services" in the peri-urban agricultural areas of Rome, as a specific tool of the Metropolitan Strategic Plan. He mainly focused on the criteria to define the Agricultural Park and on the role of multifunctional farms. The agrofood parks network of the Lisbon Metropolitan Area (LMA, Portugal) is the topic introduced by Rosário Oliveira[9]. She described why a food planning strategy in LMA is needed, its concept and vision. Finally, Simone Mangili[10] illustrated the case of Turin (Italy) and its green infrastructure strategy, with a focus on the urban gardens, new UA initiatives and new management models.

3.2.4 UA demands may be addressed through Urban Planning. The questionnaire "Planning for UA"

The questionnaire conducted between August and September 2022 produced 58 responses. Respondents mainly come from Italy (24%), Denmark (22%) and Belgium (19%). More than a half of them are aged between 40 and 60. Respondents are mainly not professional gardener (38%), while professional farmers (17%) and researcher (14%) are other participants (Figure 16). More than half of respondents are part of an association/organisation of farmers or of gardeners.
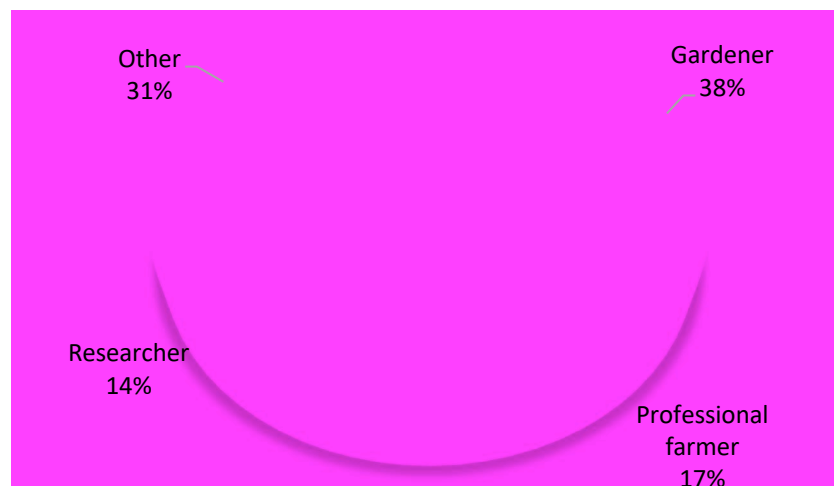
Figure 16 – The type of respondents

According to respondents, the main urban needs and/or demands that can be addressed through UA include social and environmental spheres. Food and well-being dimensions exceed 70% of responses (Figure 17). The

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[7] WU and WR, Netherlands.
[8] Università del Molise and Università RomaTre, Italy.
[9] Institute of Social Sciences, University Of Lisbon, Portugal.
[10] Indipendent research.

majority of respondents stated that they practice UA on private land (47%) (Figure 18), more than 70% in intra-urban areas.
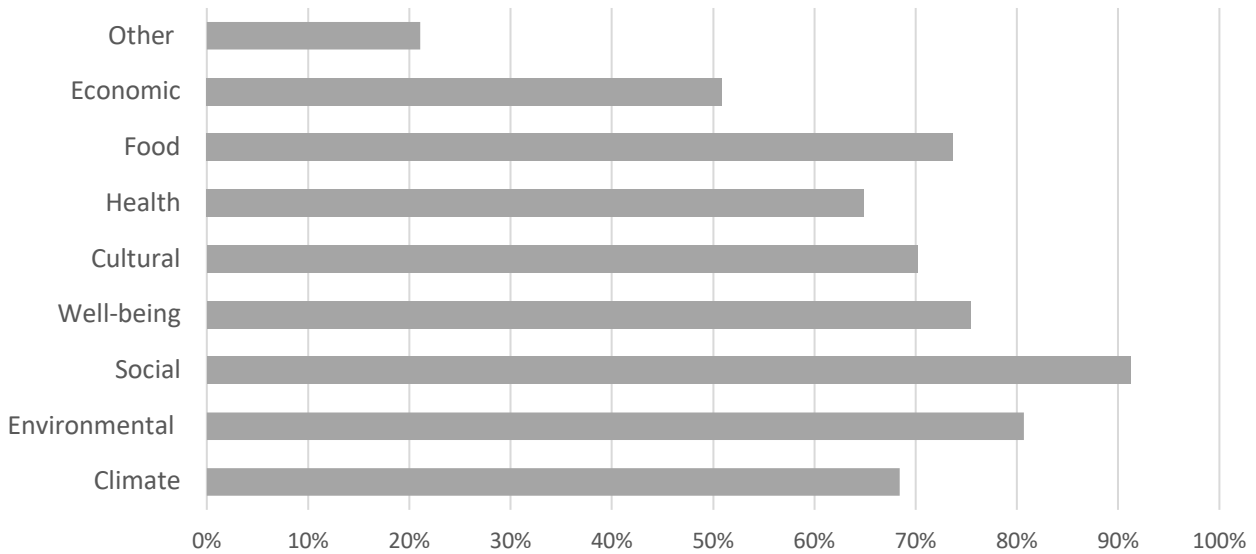
Figure 17 – Urban needs and/or demands can be addressed through urban agriculture according to respondents (multiple answer allowed)

Figure 18 – Land ownership where UA is practised according to respondents

According to respondents, the main reasons for farmers and gardeners to practise UA are to produce fresh and healthy food, build or develop a sense of community, as well as to improve the state of mind or mental health. Instead saving money or affordability and increasing dietary diversity are less frequent reasons (Figure 19). This questionnaire highlighted that the main barriers to maintain and expand urban and peri-urban agriculture are connected with access to land, limitations from local regulations/zoning code, as well as issues related to land ownership. Instead, farmworker conditions and possible conflicts with local residents are not considered as relevant barriers (Figure 20). According to respondents, public policies should provide public land for UA, integrate urban agriculture into planning policies and create UA plan/vision/strategy at city level in order to improve UA. Creating agreements with farmers and promoting UA benefits seem less pressing tools (Figure 21).
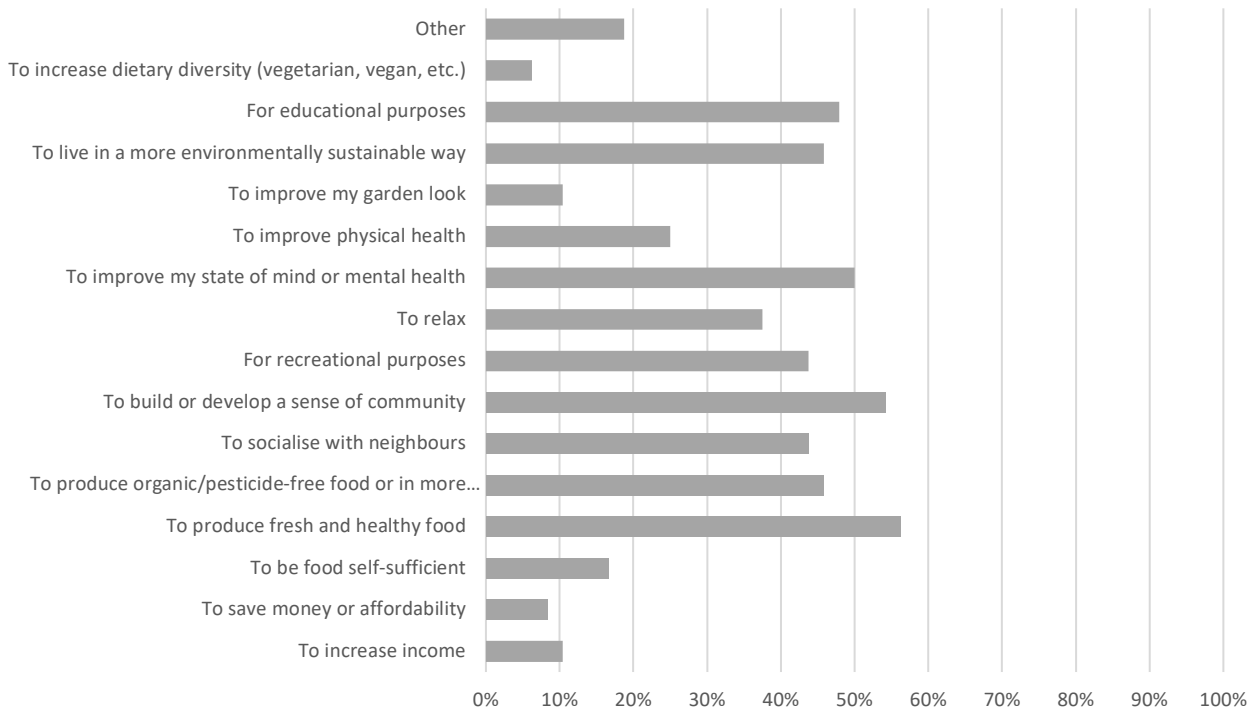
Figure 19 – The main motivation for practicing UA according to respondents (multiple answer allowed)
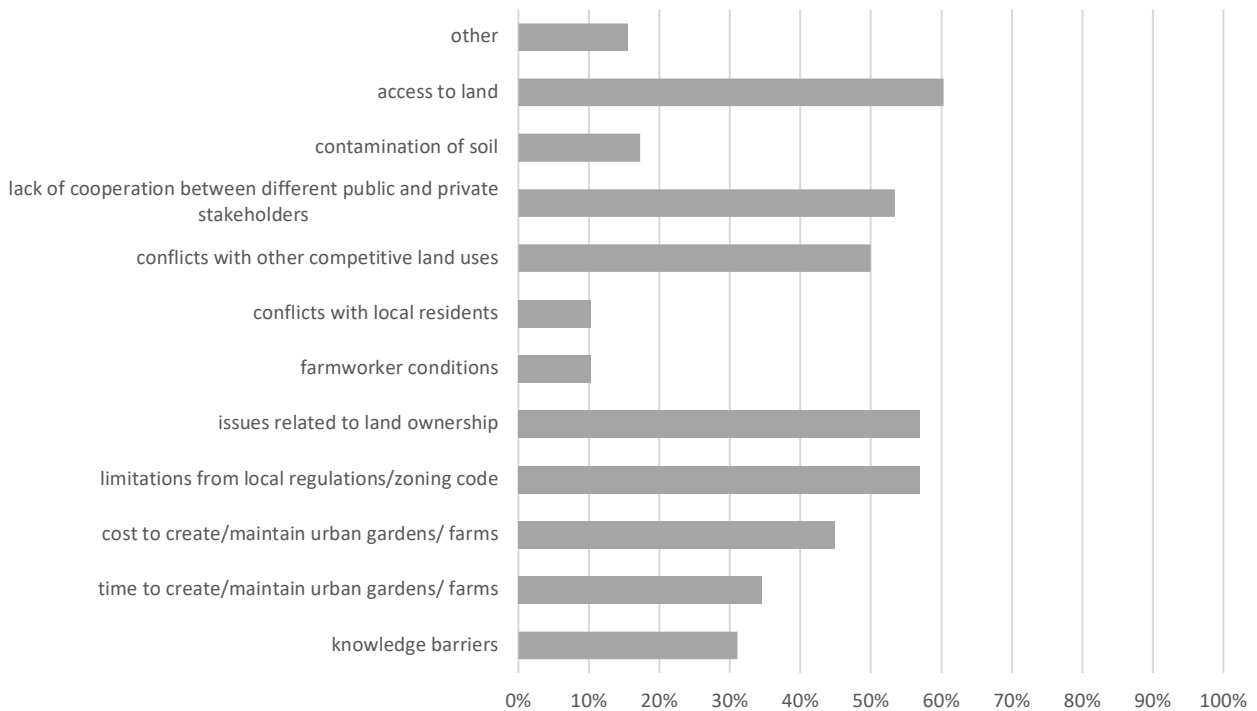
Figure 20 – The main barriers to maintain and expand urban and peri-urban agriculture according to respondents (multiple answer allowed)
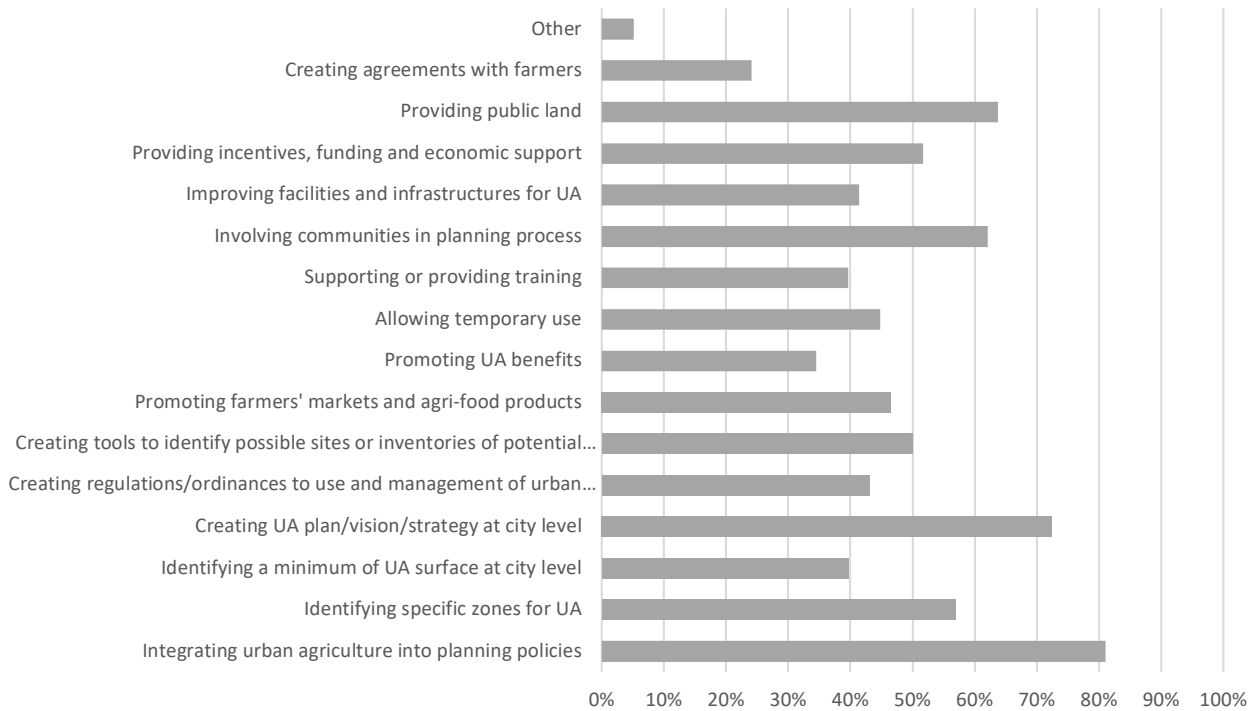
Figure 21 – What public policies should do to improve urban and peri-urban agriculture according to respondents (multiple answer allowed)

Although the majority of respondents stated that "urban agriculture must be addressed in urban planning on a high level and needs a high priority", and that UA should be also integrated in European sectoral policies (such as CAP), especially with a view to making cities more "sustainable and livable", a respondent claimed to be contrary to the integration of UA (particularly urban gardens) into planning tools. He/she considered UA as exclusively bottom-up initiatives.

However, almost all respondents argued that "providing city authorities with more knowledge about these and other human benefits such as urban belonging and nature connection could perhaps be helpful" (Respondent 68). Nearly all respondents suggested tools and measures in order to integrate UA in planning policies. A respondent underlined that, "despite the pivotal role of urban allotment gardens in response to socio-economic or environmental stressors in cities, they are still underutilized and primarily unprotected spaces. Policy makers should seriously consider the role of allotment gardens in strategies to address climate change resilience because they have a historical precedence of providing a community space during various socio-economic stressors. If we are to be better adapted to climate change, we should incentivize, establish and protect community spaces like urban allotment gardens that promotes community-based adaptation in numerous capacities". Another respondent highlighted the role of urban planners in order to adopt UA in public policies. "Planners should receive training on how UA can be integrated into local green infrastructure planning processes to complement other greenspace initiatives. Similarly, planners should also be made aware of the potential for bottom up civil society initiatives and how these can be assisted through appropriate policies and incentives. This might involve improving the community engagement capacity of local authorities through effective training, partnerships etc."

3.3 Urban Agriculture and Urban Planning. Learning from experience

UA practices have spread around Europe and the world incrementally in the recent years. Whereas this happened at first spontaneously, as a consequence of episodic, bottom-up social innovation practices, through time a number of attempts have been put in place to progressively institutionalise them into the planning practice. This institutionalisation took place in various forms, from the inclusion of related themes within the scope of selected strategies and policies, to structured attempts to carve room and upscale UA initiatives within the mechanisms that allow the operation of spatial governance and planning systems.

An objective of this project lies in understanding how to use UA benefits to promote urban development. While WP3 has identified UA benefits at micro (local) level, task 4.2 look up to the meso (city-region) level, trying to answer two important sub-questions: how UA benefits are perceived and "used" by urban planning and how they can be alternatively/additionally/differently used in order to be transferred towards next practices.

For these reasons, this section illustrates a comprehensive set of urban planning approaches supporting UA development to identify the significant characteristics of UA initiatives and their governance models, as well as to understand UA-related urban strategies' success factors. We collected case studies at city and city-region level through the literature review, questionnaires and interviews of this task and task 3.2, as well as through EFUA partner suggestions. We collected 44 case studies. including both European and international cases as well as cases from Least Developed Countries (LDCs), in order to reflect on the actual potential of transferability of the identified successful experiences and tools from one context to another, as well as on their upscale into relevant EU level policies (Dolowitz & Marsh, 2000; Cotella et al., 2015). We collected case studies mainly from European cities, but also from 35 developed countries, 5 developing countries and 4 LDCs (Figure 22).

Figure 22 – Map of the selected case studies

Firstly, case studies were collected onto sheets (see Annex 1) and subsequently some of these were included in-depth boxes in the following paragraphs. Secondly, they were also classified according to the type of the intentional public policy, the topic area or thematic domain, and the planning system (Annex 2). Drawing on the evidence included in this list of case studies, this section aims at making sense of this process and its outcomes. It first briefly introduces the heterogeneity that characterise spatial governance and planning systems in Europe and beyond and its implications for the development of links between urban planning and urban agriculture and for the transfer of successful practices from one context to another (§3.3.1), to then focus on how the latter has been included into urban planning practices in terms of scope and themes (§3.3.2), planning and management tools (§3.3.3) and delivery mechanisms (§3.3.4).

3.3.1 Spatial governance and planning systems. An institutional approach

Spatial governance and planning systems' (SGPSs) evolved over time following context and path-dependent dynamics, as a consequence of the 'particular histories and geographies of places' (Healey & Williams, 1993), leading to the consolidation of a highly heterogeneous set of spatial planning systems around the world.

A growing number of contributions aimed at making sense of said heterogeneity have been developed starting from the 1980s. They focus either on the different legal frameworks upon which SGPSs have been pivoted (Newman & Thornley, 1996; Larsson, 2006), the identification of spatial planning ideal types or traditions (CEC, 1997; ESPON, 2007), the exploration of more nuanced concepts as planning cultures (Sanyal, 2005; Knieling & Othengrafen, 2009) or the underlying models of society (Nadin & Stead, 2008). Recently, the focus of analysis has shifted towards a more detailed theorization of the object of the study – i.e. the 'system' – and its dynamic nature (Reimer et al., 2014), leading to the conceptualization of SGPSs as 'institutional technologies' aimed at providing to public authorities with the capacity to steer and regulate spatial development (Janin Rivolin, 2012). This approach allowed for the identification of different 'types' of SGPSs, drawing on the actual mechanisms that, within each national or regional context, are put in place to award land-use and transformation rights (Janin Rivolin, 2008, 2017; Munoz-Gielen & Tasan Kok, 2010). The most recent contribution on the matter follows a similar path, exploring the results that these different mechanisms produce in presence of a stronger or lower influence of market on the public sector in the definition of territorial development priorities (Berisha et al., 2021; Blanc et al., 2022).

Different in their nature, approach and in the results they provide, these typological classifications point out a number of levels of heterogeneity that can be adopted to make sense of how a specific subject – in this case UA – can be integrated within the spatial governance and planning activity.

Firstly, one should pay attention to the scope of spatial governance and planning in a specific context, that is to say to the topics and themes that are encompassed by spatial governance and planning activities due to either an explicit codification of the role that planning can play on the matter within the constitutional and/or legal framework or an incremental recognition of such role in the practices. In this concern, different degrees of integration of UA into spatial governance and planning can be encountered, whereas spatial planning may

explicitly integrated UA within its scope, undertake efforts to align policies and measures, simply refers to UA goals and policies or completely neglecting the issue[11].

At the same time, particularly relevant are the instruments that are put in place, within each system, to deal with UA matters, as the latter can either constitute the main focus of dedicated strategies or be the subject of specific rules or other more or less binding devices that affect land use, or even targeted by dedicated incentive schemes that aims at triggering processes of economic conditionality. The actual tools put in place are context-dependent, as they are shape on the nature of each spatial governance and planning system and, more specifically, on the nature of the instruments that, at each territorial level, are statutorily adopted for steering and regulating spatial development, and on their more or less strategic, visionary, programmatic or binding nature.

Finally, specific attention should be dedicated to the mechanisms that, within each context, allows to deliver results on the ground in the field of UA. Here the focus is on the actual governance models and mechanisms that allows for the implementation of the instruments mentioned above, and in particular to the network of actors they mobilise, the nature of said actors (may they be public, private, or belonging to the civic society) and the power and financial relations among them (i.e. through public-private partnerships, local crowdfunding etc.). As important is the origin of the policy triggering urban agriculture initiatives, how the latter positions within the broader multilevel governance framework and what are the dynamics that affect the decision making process in each case and their consequence in terms of legitimacy and accountability of the decisions taken and of the processes that derives from the latter.

In the reminder of the section, these three complementary perspectives will be further elaborated upon, with reference to the collected case studies. Overall, the acknowledgement of the context-dependence of the identified practices constitutes a crucial precondition for a more thorough reflection on the actual potential for their successful transferability from one (policy) context to another. In other word, as argued from several authors (Dolowitz & Marsh, 2000 and 2012; Benson & Jordan, 2011; Cotella et al., 2015), to understand the actual potential to successfully "filter out" a policy (or a part of it) from a given context and to "filter it in" in another context in a way that avoid the pitfalls constellate policy transfer[12].

3.3.2 Scope and Topics addressed by public policies on UA

Topics addressed by UA policies are very different. The analysed UA related public policies include laws, regulations and funding promoted by different institutional or governmental bodies (Halvey et al., 2021) and address various topics such as urban-rural partnership, urban green development and management, climate adaptation and/or mitigation, urban nature protection, urban forestry, local community development, urban renewal, health and education policies, food and others. Although we also collected UA public polices focused on several topics, the most frequent themes concern food and urban green spaces. In the following paragraph these policies will be illustrated.

The approach and the scope of UA initiatives in the least developed countries (LDCs) and other developing countries are mainly aimed at subsistence food strategies in order to tackle food insecurity and land scarcity (see case studies in the box 1)[13]. According to several scholars, although UA in the Global South shows some similarities with the Global North, the differences are still quite remarkable. According to Opitz et al. (2016),

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[11] In this concern, the ESPON COMPASS research project provided a preliminary attempt to understand whether agricultural and rural policies are either integrated, coordinated, informed or fully neglected by spatial governance and planning in the different European countries. However, no specific zoom on Urban Agriculture has been operated by the project (ESPON, 2018).

[12] For a more detail discussion of the potential pitfalls of policy transfer see: Dolowitz and Marsh, 2000.

[13] For additional information about LDCs see also case studies collected by recent report on the Rikolto's Food Smart Cities programme (FAO et al., 2022).

UA in the Global South is different especially in terms of food security. The growing urban populations and the rise of poverty, food insecurity and unemployment fostered the implementation of urban and peri-urban subsistence agriculture to address nutritional needs, often practised in polluted environments and in the absence of rules, forms of management and legal recognition (Follmann et al., 2021; Gray et al., 2020; Opitz et al., 2016; Taguchi & Santini, 2019). In the Global South, cities started to include UA in their urban agendas, such as in the cases of e.g. Bobo Dioulasso, Burkina Faso (Borelli et al., 2018), Dar el-Salaam, Tanzania (Bersaglio and Kepe, 2014), and Kigali, Rwanda (Górna and Górny, 2021). Concerning the latter, great attention was paid to UA, as witnessed by the introduction of the ambitious Kigali Masterplan 2020, that aims to set aside around 22% of the city's total area for UA and, at the same time, protect agricultural land and high-quality soil also through the promotion of sustainable food production practices (see box 1).

Box 1 – The subsistence approach to UA of least developed and developing countries

Dar es Salaam 2012–2032 Master Plan - Tanzania

The formalization process of UA in Dar es Salaam gradually started from the 1979 City's Master Plan and the 1992–2003 Strategic Urban Development Plan (SUDP) in the context of the UN−Habitat Sustainable Cities Programme (SCP). They were mainly addressed land conservation and environmental and food security issues. Later, in 2012, the Sustainable Cities International Network Africa Programme (SCINAP) revitalized the recognition and legitimation process of UA through the involvement of several stakeholders (Halloran & Magid, 2013). As a result, local governments in Dar es Salaam, including the three municipal agriculture and town planning departments, formalized the integration of UA in the new Dar es Salaam Master Plan 2012–2032 by designing zones for UA – within the peri-urban areas of the city – and defining "formal land rights to urban farmers within these zones" (Bersaglio & Keep, 2014, p. 390). In this way, the master plan aims to preserve environmental features, with a special focus on adaptation to climate changes (Halloran & Magid, 2013) (Figure 23).
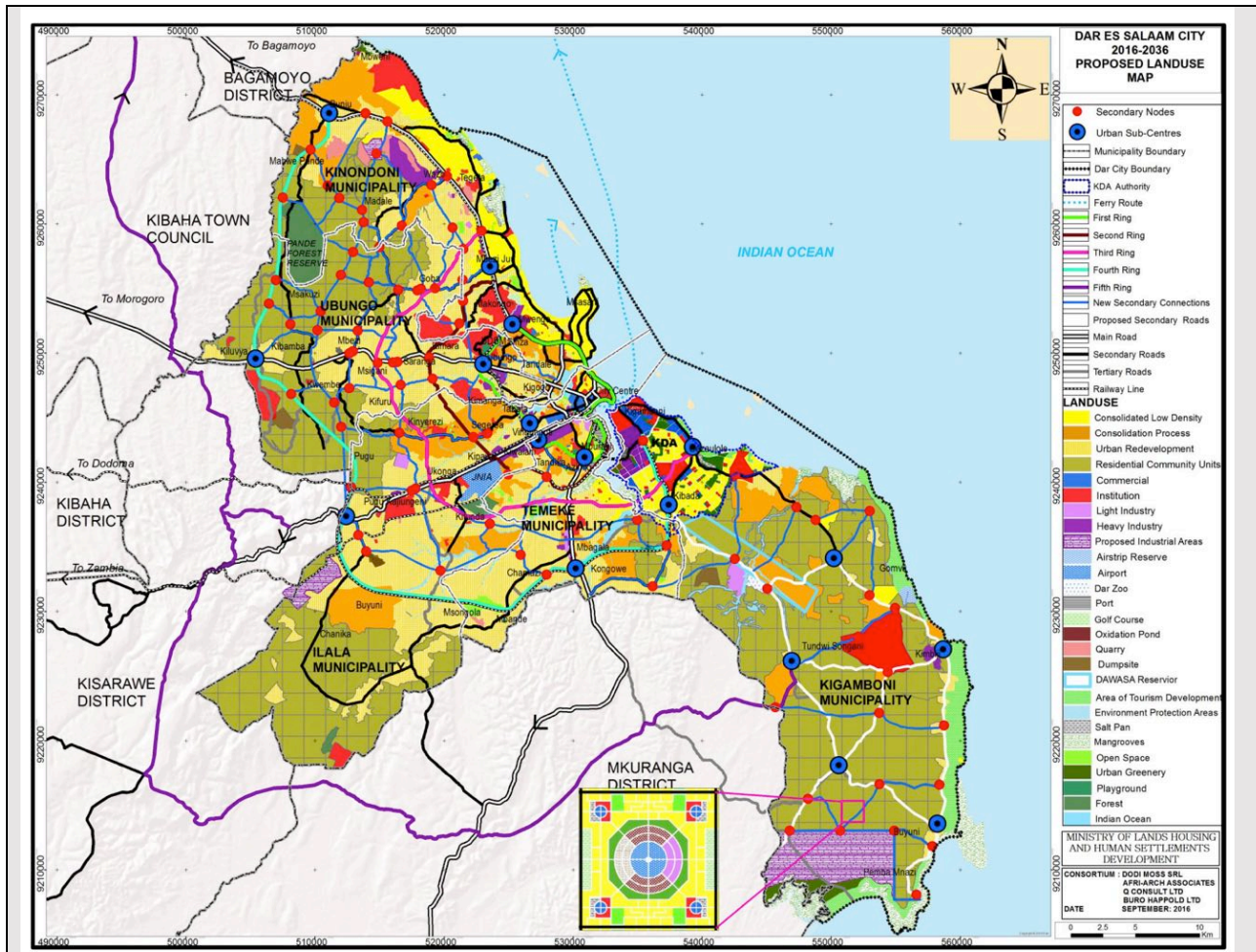
Figure 23 - Proposed Land Use Map of Dar Es Salaam City Masterplan 2016-2036, (Ministry of Lands, Housing and Human Settlements Development, 2016)

Urban and Periurban Integrated Agriculture Program (PIAUS) in Havana - Cuba

The Cuban programs for urban and peri-urban food production started in the 1990s to respond to the increasing food insecurity due to the fall of the Socialist Bloc and the related increase in food production for self-provisioning (Fernandez, 2017; Spencer, 2016). To achieve these objectives the Ministry of Agriculture (MINAG) founded the Department of Urban Agriculture in 1994 and National Group for Urban and Sub-urban Agriculture (GNAU) in 1998, as part of the National Institute of Tropical Agriculture (INIFAT). GNAU is composed of scientists, government officials and producers that coordinate the informal urban agriculture movement, its activities and programs at national scale (Fernandez, 2017; Leitgeb et al. 2016). Today, the Urban and Periurban Integrated Agriculture Program (PIAUS) includes some sub-programs such as the Agricultura Urbana program - focused on domestic gardens and organoponicos for food production, mainly located in urban spaces and public areas – and Agricultura Suburbana program (Finca Program), located in peri-urban areas and focused on small farms, in order to tackle food insecurity (Spencer, 2016). In addition, in 2008 the Cuban government also launched a land reform (Law Decree 259), for the allocation of vacant land in usufruct, in order to expand sustainable agricultural production and decrease food imports (Fernandez, 2017; Leitgeb et al. 2016).

Kigali Master Plan - Rwanda

UA has been included in the Kigali Conceptual Master Plan aiming at ensuring food security of Kigali inhabitants and preserving the city's natural capital against urban sprawl. In this context a limit on

population density (max 10 people/hectare) and an area (about 3.400 ha) for UA were defined. In 2013, an upgraded master plan added some measures for the maintenance of agricultural lands and restrictions about intensive agriculture, mainly to oppose soil erosion through agroforestry systems and slope terracing. This document also identified specific zones for cultivating maize, vegetables, fruit, rice, and coffee. In addition, in order to identify "Zero Net Loss of Agricultural Areas", as well as promote kitchen gardens and rooftop farms, the new Kigali Master Plan 2020 developed special tools such as the Urban Agriculture Development Plan, the Urban Agriculture Extension Manual and the Integrated Urban Agriculture Management Plan. The Kigali City hall has recently introduced and promoted some tools to support nutritional needs such as the temporary use of vacant (private and public) lands, as well as kitchen gardens for the food self-sufficiency of families (City of Kigali, 2020; Górna & Górny, 2021).

Participatory Urban Agriculture Program (AGRUPAR) in Quito - Ecuador

The city of Quito (Ecuador) has approximately 1.7 million of inhabitants. The rapid and continuous demographic growth, especially in the last years, increased food insecurity, particularly in the most vulnerable and poor neighbourhoods (Diehl et al., 2019a) . In order to address this issues, in 2002 the city's Directorate for Sustainable Human Development launched the Participatory Urban Agriculture Program (AGRUPAR). This program includes several initiatives: promotion of self-production, organic food and alternative food markets, technical training, access to microcredit, provision of infrastructures, seeds and seedlings, and development of participants' management skills (Diehl et al., 2019a; Dueñas, 2013; FAO, 2014; Young, 2019). Nowadays, the AGRUPAR program is managed by Conquito, a municipality Economic Development Agency and involves all the districts of Quito. AGRUPAR, which involved more than 12,000 urban and peri-urban farmers and 300 community-based organizations, has been key in supporting the creation of one thousand urban gardens (FAO, 2014).

The high-tech farming vision of Singapore

At the end of the 1970s, the rapid population growth and the urbanisation of large rural areas, significantly reduced the space for agricultural activities in Singapore. Currently, agricultural area covers less than 1% of the island's surface area. Singapore is heavily dependent on food imports and around 90% of the city's food demand is addressed through imports from other countries such as Malaysia, China and the United States (Diehl et al., 2019b; Diehl et al., 2020; Górna &Górny, 2021; Mok et al., 2020; Russo, 2021). In order to increase its self-production of food, the government of Singapore has recently developed many public policy tools. The Landscaping for Urban Spaces and High-Rises (LUSH) program promoted the agricultural use of rooftops excluding these space from gross floor area calculation and providing incentives for property developers in order to greenery built areas (Benis et al., 2018; Diehl et al., 2020; Górna & Górny, 2021;). Moreover, in 2012, Singapore introduced the Food Security Roadmap, a strategy to ensure food security through the strengthening of high-tech farming and the establishment of the Singapore Food Agency (SFA). In addition, to enhance the use of industrial and commercial areas for more efficient activities, including professional as well as indoor and vertical farming, in 2014 Singapore defined the Land Intensification Allowance. Recently, the Urban Redevelopment Authority (URA) has developed a Master Plan that identified specific land zones and uses including agriculture (Diehl et al., 2020; Górna & Górny, 2021).

In the Global North, various food public policies, including food strategies, charters and plans, were developed in the last two decades at the city or city-region level, especially as tools for promoting UA and achieving food safety and quality targets. Food strategies are driven by different reasons, usually related to

the social, economic and environmental sustainability of food chains, quality of urban and peri-urban agri-food products, and enhancement of short supply chains and alternative food networks, as shown by case studies collected in Box 2.

Box 2 – Food strategies in the Global North

Good Food Strategy of Brussels- Belgium[14]

The Good Food Strategy was launched by the Brussels Government in January 2016. This strategy includes 7 themes and 15 actions, and it aims to increase local and sustainable production, as well as reduce food waste in the Brussels-Capital Region. By promoting urban and peri-urban agriculture, this strategy specifically aims to increase food self-sufficiency of the city and create a more sustainable urban food system, based on healthy and seasonal agri-food products, as well as short chains. One of the most ambitious targets is to produce 30% of the total amount of fruit and vegetables consumed by Brussels residents by 2035 through UA. Another important target concerns the sustainability of supply chains. In particular, the strategy aims to strengthen food accessibility, especially extending programs related to public canteens, schools and kindergartens. Food waste is also a key topic, with the target of a 30% reduction by 2020 (Brussels Environment & Brussels Regional Public Service's Agricultural Unit, 2016; Manganelli and Moulaert, 2019).

Rome Agrifood Plan 2030 - Italy

Rome is one of the largest agricultural municipalities in Europe characterized by an agriculture land cover of around 45% of its total urban area and more than 40 thousand companies operating in the agrifood sector. In line with the relevance of this territorial and economic asset, in 2021 the Roma Agrifood Plan 2030 was adopted by the Municipality of Rome following a participatory process involving several key actors e.g. local trade associations, research centers, chamber of commerce (Agro Camera), and universities. This strategy, focused on the development of the local agrifood business, aims to build up a more sustainable and just urban food systems in the upcoming future on the base of seven strategic lines, namely: (i) agriculture and the Roman countryside; (ii) agricultural and food identity: local products; (iii) Rome's markets and short food supply chains; (iv) the future of Rome's catering; (v) innovation, sustainability and research for the future of the Roman agrifood system; (vi) logistics, flows management and food security; (vii) territorial marketing and communication. Each of these strategic line is divided into specific objectives, actions, and tools for which the enabling actors and stakeholders are identified in line with an adequate time frame (City of Rome, 2021).

The Agenda Food and the City – Rotterdam (The Netherlands)

The Agenda Food and the City is a policy document approved in 2012 to promote UA and food production, in and around the city of Rotterdam. It focused on the people-planet-profit approach and three pillars of sustainability, i.e. social, economy and ecology. The Food and the City strategy is based on three main objectives: "improving the health of residents", "enhancing a sustainable economic development" and "improving spatial quality". The first includes informative activities on healthy food and diets, and the creation of new community gardens, especially in care institutions. The second goal includes the development of the production system, enhancement of regional products, reduction of food miles and fostering of green jobs sector. Finally, regarding spatial quality, the strategy includes the identification of vacant sites for urban agriculture, the creation of new urban and rooftop gardens, especially in the least

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[14] See also: https://www.acrplus.org/en/news/news-from-our-members/611-brussels-environment-a-good-food-strategy-for-brussels (last access: 28/09/2022). For an overall prospects of the project's outcomes see: https://economy-employment.brussels/news-goodfood-results (last access: 28/09/2022).

green neighbourhoods, as well as the provision of training and education activities on UA (City of Rotterdam, 2012; Cretella & Buenger, 2016; Schans, 2015).

Vancouver's strategies on food - Canada
UA is a part of Vancouver's strategies on food and green spaces. They started in 2006-2007 from the definition of Vancouver Food Charter (Valley & Wittman, 2019) and specific guidelines for UA in public and private lands (Huang & Drescher, 2015). Furthermore, in 2010, the Vancouver Urban Farming Society (VUFS) - a network of farms that aims to grow and sale food in Vancouver - was established. In order to increase the food assets by 2020, Vancouver also defined the Greenest City Action Plan (2011) that includes the development of community gardens, urban farms and farmers markets. In this context Vancouver developed more than 90 community gardens, 4.000 plots on public land and a network of citizens' associations and other non-profit organizations (McClintock et al., 2021; Valley & Wittman, 2019). Furthermore, in 2013 the city of Vancouver approved the Vancouver Food Strategy which focuses on 5 priority action areas including the support and the creation of several forms of UA (such as community gardens and urban farms) in order to increase local food production (Valley & Wittman, 2019). In 2016, for financial and tax reasons relate to the residential landowners, the city of Vancouver also defined guidelines for urban farming, especially for enterprises producing and selling food in the city (McClintock et al., 2021; Valley & Wittman, 2019).

Public policies related to urban green spaces and infrastructures considered UA as an opportunity to increase the area and accessibility of urban green spaces, a form of greening or green infrastructure, especially in cities with high population density (Contesse et al., 2018), in shrinking cities (Pallagst et al., 2017) and where land competition is very high (Zambrano-Prado et al., 2021) (see box 3).

Box 3 – UA in the context of urban green development and management

Community Gardens Policy and guidelines of Sydney - Australia
In 2016 the city of Sydney defined a Community Gardens policy (City of Sydney, 2016a) and Community Garden Guidelines (City of Sydney, 2016b) as parts of the "Sustainable Sydney 2030 program". The former was aimed at promoting and supporting local residents in developing and managing community gardens on private and public lands (including open spaces, rooftops and footpaths) within the city boundaries. This document was also intended to define the procedures for the management of community gardens, responsibilities of all stakeholders involved, as well as encourage organic, fresh and locally produced food (City of Sydney, 2016a; Corkery et al., 2021). Instead, the Community Garden Guidelines aimed to define preliminary criteria and rules for the creation of self-managed gardens (e.g. local community consultation, definition of garden group, site, type, gardening methods and design, project, layout, funding, etc.), outline technical instructions such as the construction and management of urban gardens, as well as explain procedures for developing urban gardens on city-owned lands (City of Sydney, 2016b; Corkery et al., 2021; Kingsley et al., 2021). Currently these documents are under review. However, in 2021, the City of Sydney also developed a Greening Strategy (City of Sydney, 2021a) including actions specifically oriented to improve local food production, even on private land, through the strengthening of community garden networks and the Sydney City Farm. This last is a social enterprise based on an innovative governance model engaging the local community, whose goal is to provide fresh fruit and vegetables, and training and educational activities (City of Sydney, 2021b; Corkery et al., 2021).

Taipei Garden City Initiative - Taiwan

The Garden City Initiative in Taipei was launched in 2015 as the main part of the campaign of the elected mayor Ko Wen-Je. It was developed in the context of a new policy agenda addressing the emerging UA interest in Taiwan. The decision-making process behind its definition and implementation involved a wide range of stakeholders such as NGOs, universities, and governmental authorities (i.e. Taipei Parks and Street Lights Office (TPSLO), the Department of education and the Department of Economic development). The Garden City Initiative aimed at promoting and supporting the creation of urban gardens such as community gardens, rooftop gardens and school gardens. The Garden City Initiative was based on a white paper defined by the Farming Urbanism Network (FUN) during the campaign for the election of the new major, which emphasised the development of a "green and healthy city, with edible landscapes appearing in home gardens, on balconies, on rooftops, on street corners, in parks and schools" (Hou, 2020, p. 1405). Thanks to this initiative, approximately 400 urban gardens were created on 100.000 square meters of different public and private areas, to cultivate vegetables for self-consumption. The initiative has also promoted training courses for the citizens (Hou, 2020).

Turin Strategic plan for green infrastructure - Italy
In 2020 the city of Turin adopted the Green Infrastructure Strategic Plan (GISP), which was inspired by the National Urban Green Strategy enacted in 2018. The GISP includes an overview of urban gardens in the Turin municipality, a list of weaknesses, a strategy for the development of urban food gardening, as well as a section on urban farming. The GISP also identifies public vacant lots to be protected in order to support multi-functional agriculture, improve food production and urban quality, as well as strengthen the provision of ecosystem services. In addition, the new General Regulatory Plan of the City of Turin, has recently identified the "Ecological Agricultural Areas" (ZAE), a new land-use designation that includes rules and practices for the protection and enhancement of intra-urban agricultural areas, especially within the urban green spaces. Turin is also a front-runner city of the H2020 ProGIreg (Productive Green Infrastructure for post-industrial urban regeneration) and, in 2015, signed the Milan Urban Food Policy Pact (City of Turin, 2020).
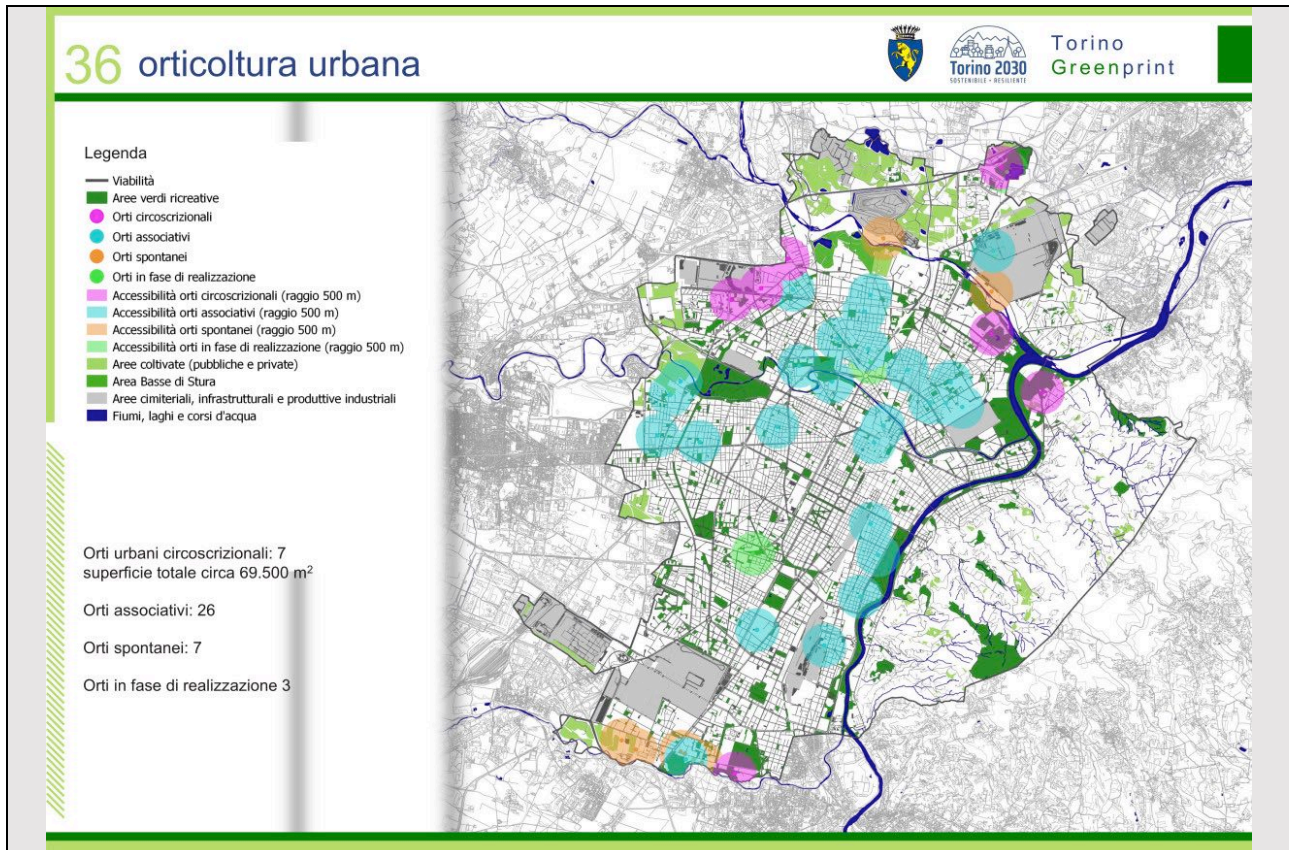
Figure 24 – Urban gardens in the Turin Strategic plan for green infrastructure

Zurich Policies Fostering Multifunctional Urban Agriculture - Switzerland

The City of Zurich has recently adopted a multifunctional land use approach based on the national goals of Swiss Agriculture, in order to protect biodiversity and cultural landscape. In Zurich UA is a way to maintain green spaces within the city. In fact, the city department in charge of green space management (Grün Stadt Zürich) has adopted land use policies to limit urban sprawl and has bought "land from private or public owners in order to safeguard city green spaces" (Jahrl & Schmid, 2015, p. 30). In addition to national funds for urban farmers, the city support their city-owned farms with additional funds in order to preserve agricultural land. Grün Stadt Zürich has also developed several measures to support farming and gardening (allotments and community gardens), defining several requirements to adopt organic methods, fostering agro-ecological practices, providing funds for agricultural infrastructures and promoting educational activities. In the last year the city of Zurich has maintained 810 ha of agricultural land in the city. Zurich has developed 10 city-owned farms (mainly rented to farmers), 5500 allotment gardens on 135 ha, 20 community gardens on 2.8 ha of city-owned land and some temporary community gardens, mainly on building areas with soilless production (grown in boxes) (Jahrl & Schmid, 2015; Reed et al., 2018).

Another frequent theme addressed by the public policy domain related to UA concerns the urban-rural partnership. According to recent literature (Lange et al., 2013; OECD, 2013; Opitz et al., 2016; Zasada, 2011), UA involves different dimensions of urban-rural linkages: demographic flows, economic activities (e.g. local and circular economy, the creation of green jobs, etc.), public services (such as education, therapy, leisure and recreation activities), amenities and environmental goods, management of public spaces and natural

resources, as well as multi-level governance of urban and peri-urban areas[15]. At city and city-region level public policies for strengthening urban-rural partnerships are plentiful and can take many forms (e.g. agreements, UA-related plans, agricultural parks, etc.), especially in the European context, leveraging mainly on urban and peri-urban professional agriculture (see Box 4).

Box 4 – Public policies for strengthening urban-rural partnerships through UA

Agromere - The Master Plan of Oosterwold - Netherlands

Oosterwold is a new peri-urban area located in the city of Almere, at north-east of Amsterdam. Agromere is a concept plan launched in 2009 with the aim of integrating UA in the city's development plan and creating a living space for 5,000 inhabitants combined with UA practices (Jansma & Wertheim-Heck, 2021 and 2022). The plan was developed based on sustainable urbanisation principles such as "cultivate diversity, connect place and context, combine city and nature, anticipate change, continue innovation, design healthy systems and empower people to make the city" (Jansma & Wertheim-Heck, 2021, p.9). The design process involved several stakeholders and representatives of local farmers, city developers and local authorities (City Councils, Province and Ministry of Agriculture). Through this process common principles were defined, such as the integration of housing and agriculture, the organic production of all farming, as well as the agricultural use of public areas, in order to provide public green spaces, public services and other facilities. The plan concerns 180 ha of agricultural areas and 70 ha for houses and relatives infrastructures (Jansma & Wertheim-Heck, 2021 and 2022). The plan was designed considering four different types of urban farms according to the households' needs for food and other agricultural products: "vegetables and fruits (with chickens and cereals), greenhouses, arable farming with beef cattle, as well as dairy and community services" (Jansma & Visser, 2011, p. 30).

The agrofood parks network of the Lisbon Metropolitan Area – Portugal

Urban and peri-urban agriculture is considered as a key practice for the creation and management of green spaces in the Lisbon Metropolitan Area (LMA), as evidenced by its integration in several policy and planning documents. In this respect, UA was included into the Green Plan (1997), the strategy for municipal horticultural parks. In 2007, it was also created a working group for the integration of UA in municipal policies for green spaces (Green Spaces Strategy), within the Municipal Master Plan (PDM), as part of the UA Intensification Program and the Strategy. UA was integrated into land use policy as urban spaces for the agricultural production and loisir (Mousselin and Scheromm, 2015). Most recently, in the context of ROBUST H2020 project (Unlocking Urban-rural synergies) was launched the project "Metropolitan Network of Agro-Parks" (MAP). It includes a network of different partners and stakeholders aims to better ensure the planning and management of the metropolitan food system. The MAP also aims to provide 15 per cent of the food supply in the LMA, based on sustainable production methods and short food chains, as well as strengthening of urban-rural partnerships. The project also includes the creation of a collaborative platform and a specific label for agro-food products of LMA, the definition of spatial planning and management strategy, training and educational activities (Oliveira, 2022a & 2022b).

Milano Metropoli Rurale – Italy

The Milano Metropoli Rurale is a local development agreement signed in 2015 that involves public authorities (i.e. Lombardy Region, Metropolitan City of Milan, City of Milan), rural districts (Distretti rurali) and irrigation authorities, in order to balance urban and rural development and connections in the metropolitan area of Milan. The aims of the agreement are: "limiting soil sealing, integrating the farming

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[15] For additional information see also the report on links to other urban concepts (D3.3).

production with environmentally sustainable and multifunctional activities (…), the progressive diversification of the agricultural activities and the potential synergy with other economic sectors/industries, limiting the territorial degradation trend and protecting the rural heritage (…), enhancing the peculiarities of the urban-rural territory and improving the connection between rural and urban areas" (Lombardy Region, 2015, p. 1). The agreement consists of a strategic plan with guidelines and an action plan that includes seven sections: irrigation canal system, natural environment, building heritage, products and supply chain, multifunctionality, rural cultural heritage and urban-rural balanced development. It was also developed in the context of the Interreg Alpine Space project "RURBANCE"[16] (Laviscio et al., 2015).

3.3.3 UA-related planning and management instruments

In the last two decades, we have observed a growing public interest towards UA, as witnessed by the increasing number of cities promoting UA, through several public policy tools such as plans, regulations, incentives and inventories (Halvey et al., 2021; Provè, 2018). Municipalities and cities authorities support UA "by changing zoning ordinances and building codes to permit growing food where previously prohibited, creating UA-specific plans outlining UA priorities, and incorporating goals to increase UA into comprehensive or sustainability plans" (Halvey et al., 2021, p. 2), regulating UA through specific laws, developing financial programs to provide tax rebates, technical assistance, access to public land, educational activities (Halvey et al., 2021).

The debate on integration of UA in land use and zoning instruments has been going on since the early 2000s, especially in North American context. Many municipal policies and tools to support and regulate UA in the United States were developed (Halvey et al., 2021). Particularly, the American Planning Association (APA) has played a crucial role in evolution of relationship between UA, food and planning (Ilieva, 2014), fostering the development of numerous UA-related planning experiences at city level in the U.S. cities such as New York, Baltimore, Minneapolis, Portland, Sacramento and Seattle, that also inspired other North and South American cities (see Box 5). In the first decade of the 2000s, several cities developed both comprehensive plans including UA (such as in the case of Baltimore, New York and Portland) and specific UA-related programs/plans (such as Minneapolis, Toronto and Rosario) or *ad hoc* strategic tools (such as Vancouver and Yarra, etc.), as shown in the Box 5.

Box 5 – Promoting UA by comprehensive plans, programs and UA-related tools

Baltimore Sustainability Plan – Baltimore (U.S.)
In 2009 the Baltimore Food Policy Task Force was appointed with the aim of assessing the local food system and providing recommendations for its improvement. As a result, a 10-goals roadmap addressing food health and sustainability issues was developed. Among them, two goals were focused on the promotion and expansion of CSA, community gardens and UA. On the basis of these goals, in 2010 the Baltimore Food Policy Initiative (BFPI) was established to implement the roadmap and achieve targeted-goals. Moreover, as a consequence of the increasing interest towards urban food-related issues and the changing zone code to allow for UA implementation, the city's 2009 Sustainability Plan outlined as one of its strategies the necessity of developing an UA plan, then published in 2013. In 2019, in the Baltimore Sustainability Plan, was included an UA chapter outlining the following strategies: (i) create agriculture land-use policies that encourage urban farms and local food production; (ii) ensure farmers and gardeners can produce food,

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[16] See also: https://www.interregeurope.eu/policylearning/good-practices/item/2869/official-agreement-for-local-development-milano-metropoli-rurale/ (last access: 27/09/2022).

flowers, fibre, and fuel in ways that are safe, environmentally sustainable, and socially responsible-and educate residents on opportunities to support and engage with them; and (iii) support growers to create financially variable urban agriculture (City of Baltimore, 2019; Santo et al., 2014)

PlaNYC 2.0 – New York (U.S.)

The PlaNYC 2.0 is a long term plan, developed in 2007 and afterwards updated in 2011. The first edition of this plan was focused on economic competitiveness, infrastructure and land use in New York City. It did not include urban farming and gardening goals among its priorities, but mainly some environmental goals (such as land, water air, climate change, etc.) and several strategic initiatives (Campbell, 2016; Russo, 2021). Its update was mainly based on two policy documents such as FoodNYC and FoodWorks that introduced specific recommendations on UA and urban food production. In particular, the section on Parks and Public Space of the new PlaNYC 2.0 aims to improve and foster UA and community gardening, through the creation of new farmers market and school gardens, revision of "existing regulations and laws to identify and remove unnecessary barriers to the creation of community gardens and urban farms" (Campbell, 2016, p. 304), as well as the promotion of community gardens on regenerated brownfield sites. By Zone Green Text Amendment (2012), New York amended some zoning instruments to encourage food production and educational activities through rooftop gardening, including restrictions on the height and area of greenhouses (Cohen et al., 2014; Goodman & Minner, 2019; Russo , 2021; Thomaier, et al., 2015).

City of Portland 's Sustainable Food Program[17] – Portland (U.S.)

In the last years, the growing City of Portland's interest towards food-related issues emerged in several planning and policy documents: i.e. the Comprehensive Portland Plan; the Portland Plan Food System, which introduced the concept of UA; the Multnomah Food Action Plan; and the Climate Action Plan that includes a chapter on food and agriculture. In this institutional context, UA is recognised as a key element of the city's Sustainable Food Program, which is aimed at improving food initiatives knowledge through the implementation of several practices, namely: Sustainable Food Resource Database; Urban Food Zoning code; and the Portland FoodHub. Looking at local food production, UA is mostly implemented in community gardens, managed by the City of Portland Community Garden Program and serving around 3,000 citizens, and eco-roofs, delivering several benefits besides food production (e.g. community building, storm-water runoff management, energy saving and pollution reduction) and are managed by the City of Portland Environmental Services (Borrelli, 2018; McClintock et al., 2021).

Rosario Urban agriculture program (PAU) – Rosario (Argentina)

The metropolitan area of Rosario, located in an agricultural region of Argentina (pampa húmeda) and 300 km north of Buenos Aires, has approximately 1.35 million inhabitants. In order to respond to economic crisis and poverty, in 2002 the Rosario municipal government launched the Urban Agriculture Program (PAU) in close cooperation with the Centre for Agro-ecological Production Studies (CEPAR) and the national Pro-Huerta ("Pro-Garden") programme. Nowadays, PAU has an annual budget of more than US$300.000, includes several agronomists and gardening promoters, involves approximately 40,000 people and supports 800 community gardens with a plot of land, funding for tools, seeds, equipment, inputs and training. This program is completely integrated into Rosario's land use planning system and urban development plan with "specific provision for the agricultural use of public land in the spatial organization of the city and its territory" (FAO, 2014, p. 85). UA is recognized as a permanent activity in the city. It is

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[17] See also: City of Portland, Sustainable Food Program. Available at: https://api.portlandoregon.gov/bps/41480 (last access 21/07/2022).

mainly located in marginal and degraded lands, as well as vacant spaces in urban and peri-urban areas such as land along railways and highway, green belts and areas subject to flooding. Gardeners' products are sold directly into urban farmers markets and with specific brands (FAO, 2014; Hammelman et al., 2022). PAU is also linked with the most recent Greenbelt Project, started in 2011 in order to support peri-urban farming (Hammelman et al., 2022).

GrowTO: An Urban Agriculture Action Plan – Toronto (Canada)

After a brief planning process, in 2012 the Toronto Food Policy Council (TFPC), in close cooperation with many other local organizations, launched the "GrowTO" Action Plan. Its development was inspired by previous food strategies and studies on the limits and opportunities of UA. The action plan was developed in order to involve key stakeholders, to show socio-economic benefits and define possible policy solutions for UA. GrowTo action plan includes six strategic priorities to support UA in Toronto: "link growers to land and space", "strengthen education and training", "increase visibility and promotion", "add value to urban gardens", "cultivate relationships" and "develop supportive policies" (TFPC, 2012, p. 11). For each objective, this document explained related issues, current activities, and recommended next steps, in order to guide the City of Toronto in the development of UA. In 2013, the TFPC also contributed to defining the municipal Toronto Agriculture Program, a plan to support the growth of urban farming and agricultural hubs (Hammelman, 2019; Mulligan et al., 2018).

Yarra's Urban Agriculture Strategy – Australia

Yarra is a local government area in the inner eastern and northern suburbs of Melbourne. It was among the first Australian cities to establish an UA strategy in 2011 (Urban Agriculture Guidelines) as a response to the strong community's demand. The guidelines were then followed by the Yarra's Urban Agriculture Strategy 2014-2018 aimed at fostering the growth of UA by both the council and the community. This strategy, mostly due to concerns about polluted soils, encouraged the implementation of planter boxes on footpaths in public spaces and unused alleys, as well as on private land and rooftops. To foster its implementation an Urban Agriculture Advisory Committee was established to support community gardening networks and provide advice to the Council about UA-related issues. Currently, the new Urban Agriculture Strategy 2019-2023 adopts a food system approach (not only food production) to create a resilient and regenerative city. It is focused on the following objectives: (i) facilitate access to space for people to grow food; (ii) increase food skills and knowledge through education and training; (iii) build partnerships with other organizations and groups; (iv) advocate – within and beyond council to work towards a food systems approach (City of Yarra, 2019; Russo et al., 2017).
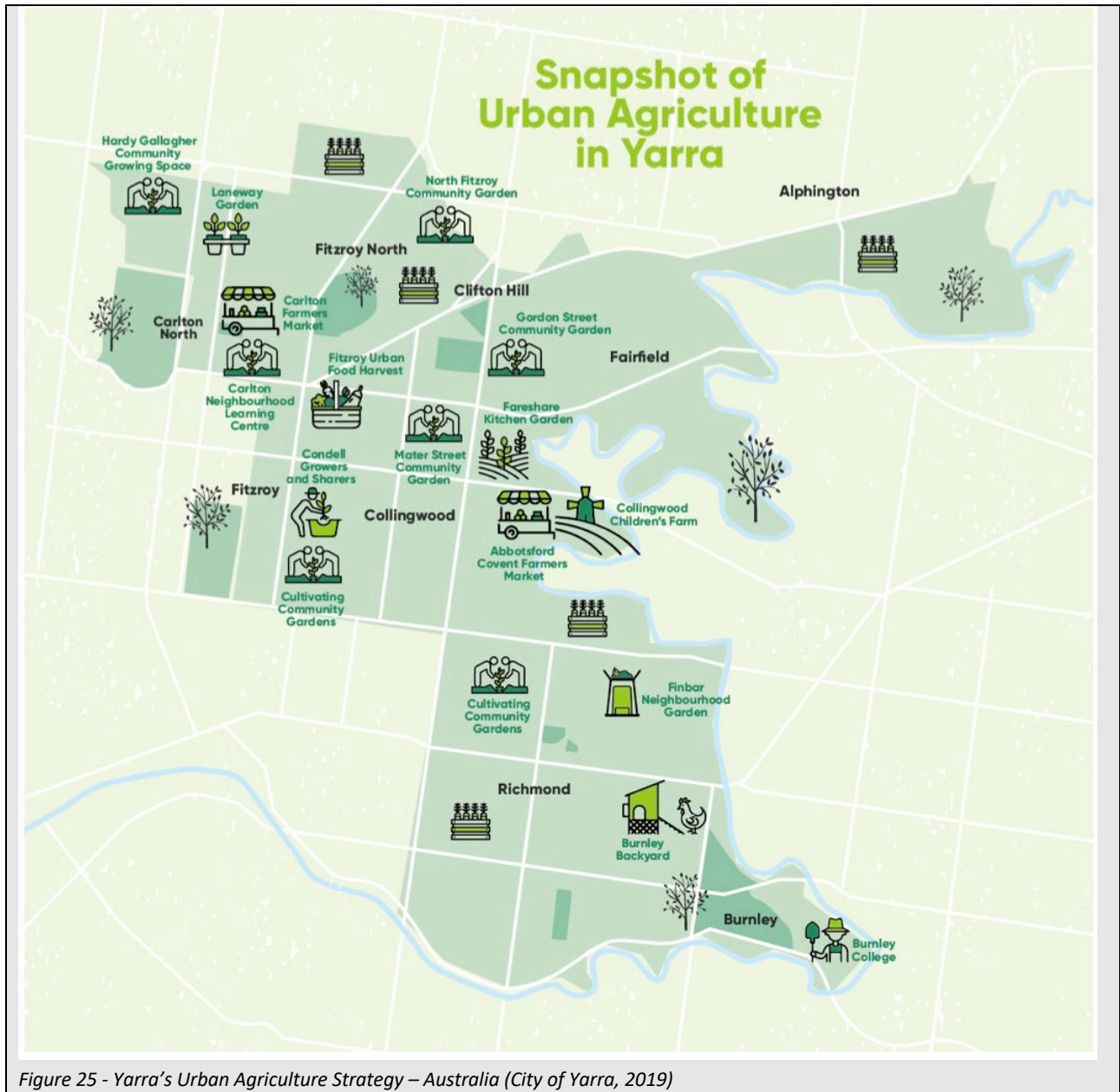
Figure 25 - Yarra's Urban Agriculture Strategy – Australia (City of Yarra, 2019)

Regulations or ordinances that "establish standards for UA" (Halvey et al., 2021, p. 12) are other frequent policy instruments, as proven by the recent literature and different case studies (see box 6). Many scholars observed the increasing number of American cities that have recently changed their zoning ordinances and building codes to foster livestock farming and crop cultivation in urban environment (Horst et al., 2017; McClintock, 2012). Other authors explored regulations for the management of urban gardens, such as in cases of the Italian cities of Milan, Turin, Bologna and Rome (Forte, 2021; Forte et al., 2022). Some researchers also analysed the regulatory framework for the farmland protection policies at supra-local scale, such as the SCOT intercommunal masterplan of Montpellier city-region in France (Perrin & Nougaredes, 2022). However, often UA initiatives are still unregulated and some municipalities have regulatory vacuums, particularly on land tenure and regulation, conventional zoning and animal regulations (Meenar et al., 2017). Regarding urban livestock management, McClintock et al. (2014) suggested that urban planners should also define suitable rules on sizes, limits and shapes of lots, animal welfare, sales and slaughter. The introduction and promotion of rules for temporary use of vacant or underutilised land, as proved by the cases of Detroit and New York (Horst et al., 2017), as well as the most recent regulations and guidelines for urban gardening

in Vilnius (see Box 6), should be seen as key issues for which urban planners are responsible for their effective integration in urban agendas.

Box 6 – Regulating UA spaces and activities by ordinances and codes

Detroit - Urban Agriculture Ordinance

In 2012 the City Council of Detroit adopted the Urban Agriculture Ordinance (UAO), a revision to the zoning code promoted by the Detroit City Planning Commission. UAO aimed at making legal UA initiatives to maintain urban gardens and farms in Detroit, mainly consenting agricultural uses in the zoning tools and defining new rules and standards for UA initiatives (Paddeu, 2017), not only for non-commercial gardening but also for commercial farming, using especially numerous vacant lots and abandoned land of the city. Detroit had also needed an exception from the state-level legislation (the Michigan Right to Farm Act), in order to define wider regulations and policies that recognised UA as a new land use (Meenar et al., 2017).

Vilnius Community gardens regulations - Lithuania[18]

In March 2021 the City Council of Vilnius adopted new regulations and guidelines for urban gardening, based on the experience of the City of Rome and in the context of the RURBAN Project (URBACT program), with a special focus on environmental sustainability. Currently, this model is part of the city's urban development policies. Vilnius also implemented a participatory approach that included the involvement of the municipality, NGOs, schools and the Environment Ministry, in order to develop these tools. The city has also recently launched the CITY+ program that supported the creation of new urban gardens and aimed to foster participation and create a sense of community, particularly in some neighbourhoods. To overcome land ownership issues and increase land allocated for urban gardening, the city has started a debate with the National Land Authority on possible temporary use of state property lands.

Zoning tools related to UA are other public instruments identified in recent literature and city-planning experiences. Indeed, "what UA is and where it can be practiced" (McClintock et al., 2012, p. 23) is an important aspect of the planning process. For example, McClintock et al. (2012) have collected UA zoning practices in some American cities and identified use definitions and different zoning code languages including home and community gardens, urban farm and markets, location of UA, on-site sales, and management plan. In this respect, McClintock et al. (2012) developed some zoning recommendations for UA in Oakland (California) that include residential, civic and commercial UA use definitions and permitted zones. Other scholars analysed zoning instruments in terms of the identification of prime farmland protection zones (Jiang et al., 2020). Wang et al. (2021) studied the creation of UA functional zones (such as agricultural parks, high-tech farms, edible mushroom production, ecological agriculture, cereal and olive oil production) that defined location, development strategies, main functions, traditional and typical agricultural products and practices. The Japanese Productive Green Zones and several Agricultural parks are other forms to protect agricultural land in intra-urban and peri-urban areas, as well as practical examples of the variety of specific zoning, regulatory and management tools for UA (see box 7). Agricultural parks are often uncoded and bottom-up instruments but effective tools for the protection and management of agricultural areas. They have recently spread not only in Europe but also in other parts of the world such as in China (Xie et al., 2020).

Since the 1990s, there has been a growing interest for Agricultural Parks (AP) in the European context. Several experimentations have been implemented and, in parallel, efforts to theoretically define the AP model have been done. Even if there is not a codified model, we can define APs as "a tool that is strongly addressed,

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[18] See: URBACT website available at: https://urbact.eu/new-urban-gardens-bringing-communities-together (last access: 21/12/2021).

more than with other types of peri-urban open spaces protective tools, to fully develop the mutual relationships between urban and farmland areas" (Fanfani, 2019, p. 151) and, particularly, to enhance farming activities "as the weaker of the two poles, (…) taking advantage of the proximity to the urban environment both as viable market places for food production and as a source of services and incentives for innovation" (ibid.). To address the city-farmland mutual relationship, APs are typically multi-functional: they aim at fostering not only primary production but also providing leisure and cultural benefits to citizens. The AP management model can be applied both through top-down approaches, stemming from public authority initiatives, and bottom-up initiatives, based on voluntary collaboration and interaction between public and private actors. In the Mediterranean context, and particularly in Italy, Spain, and France, AP model has been developed since the 1990s (see Box 7). The experiences here developed, which are briefly discussed hereafter with specific reference to the most renowned cases in each country, represent a useful overview to better understand PA missions and features. Even if the three presented cases slightly differ in terms of governance model and planning and management tools, they share a similar objective as building sustainable and innovative city-farmland relationships.

Box 7 – Zoning, protection and management instruments of UA

The Japanese Productive Green Zones
The Japanese's land use policy is based on the City Planning Act established in 1968 and by its subsequent revisions in the 1990s. The Productive Green Space (PGS) are intra-urban areas aim to preserve farmland to urban sprawl. The PGSs are agricultural areas designed for 30 years, larger than 500 square metres, in which it applies the same tax regulations of farmlands (Takatori et al., 2019). Most recently was introduced the Urban Agriculture Promotion Basic Plan and the Productive Green Space Act was revised, introducing more tools and incentives to promote urban farming (Cassatella and Iida, 2018; Takatori et al., 2019). In the city of Tokyo the PGS were defined in close cooperation with the local community (Takatori et al., 2019). Today Tokyo has 14 million inhabitants and includes about 5,400 hectares of productive urban agriculture area and about 6,5 ha of allotment gardens (mainly into urbanization promotion area) (Sioen et al., 2018; Sioen et al., 2017; Zheng et al., 2022). According to Sioen et al. (2018), sometimes professional farmers rent small parts of their land to urban gardeners (experience farms).

Agricultural parks in Italy, Spain and France
In Italy the most significant implementation of PA model is given by the *Parco Agricolo Sud Milano*[19] (*PASM, Milan's Southern Agricultural Park)* (Figure 24), the first AP to be formally established in Italy and in Europe. Established in 1990, it is a large protected rural area located in the south peri-urban interface surrounding the city of Milan. Currently, it covers an area of approximately 47,000 ha, of which 38,000 ha are cultivated, and includes 61 municipalities. PASM was established on the wave of social pressure: the environmentalist association *Associazione per il Parco Sud Milano* was founded in 1985 to foster the idea of an AP to protect and enhance the persisting rural area in the south metropolitan area of Milan. PASM is managed by the Provincial Authority, namely *Città metropolitana di Milano.* The Directive Committee is supported by a Landscape Commission and a Technical/Agrarian Committee that address operational management issues, such as advice on planning permission, or technical support for farmers. PASM, as APs usually are, is intentionally multifunctional. Indeed, since its establishment, several objectives have been pursued: rural landscape preservation, enhancement of agro-forestry activities, and protection and recovery of the socio-economic and spatial links between the city and its rural outskirts (Targetti et al. 2010). These multiple aims are being achieved through two different and complementary tools: a planning tool to address spatial

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[19] See: https://www.cittametropolitana.mi.it/parco_agricolo_sud_milano/ (last access: 01/07/22).

issues, particularly urbanisation control (*Piano Territoriale di Coordinamento*) (Figure 26), which is applied by each municipality to address matters concerning the Park area under their control), and a programmatic tool to sustain and foster agro-forestry activities (*Piano di Settore Agricolo*). Nowadays, the park is an important territorial actor, and the area represents a significant resource for citizens, hosting several areas where they can practice sports and leisure activities. Concerning production, up today there are nearly 900 active farms. Projects such as *Nutrire Milano*, *energie per il cambiamento*[20] – aimed at promoting an agrifood model of excellence in the area that includes the city and *Parco Agricolo Sud Milano*, based on the production and exchange of food and services according to principles of quality, trust, and sustainability – contribute to strengthening the link between the park and the city.
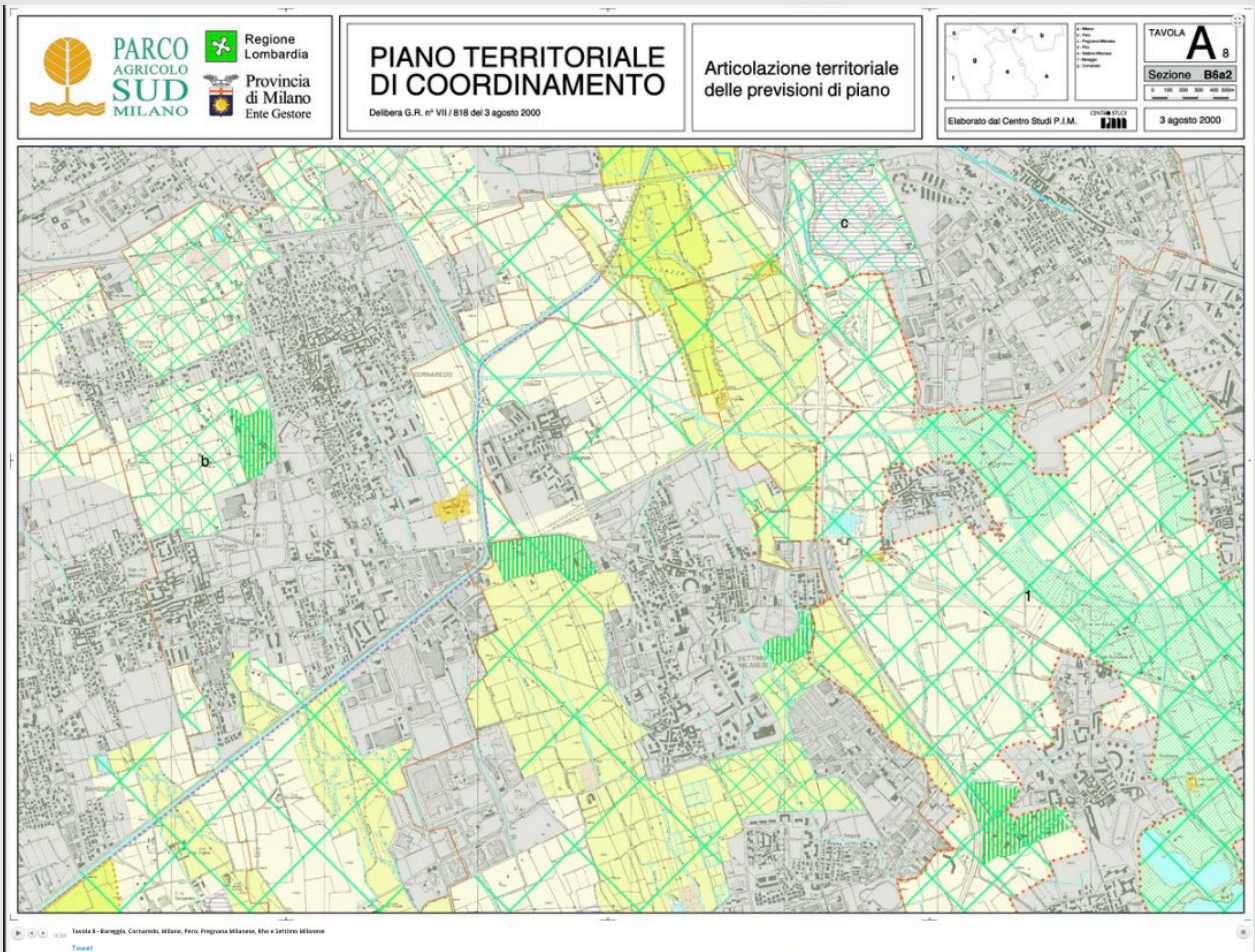
Figure 26 - Milan's Southern Agricultural Park, Piano Territoriale di Coordinamento (section B6a2), 2000

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[20] The project is promoted by Slow Food Italy, in collaboration with the University of Gastronomic Sciences in Pollenzo and the Milan Polytechnic and financed by Fondazione Cariplo.
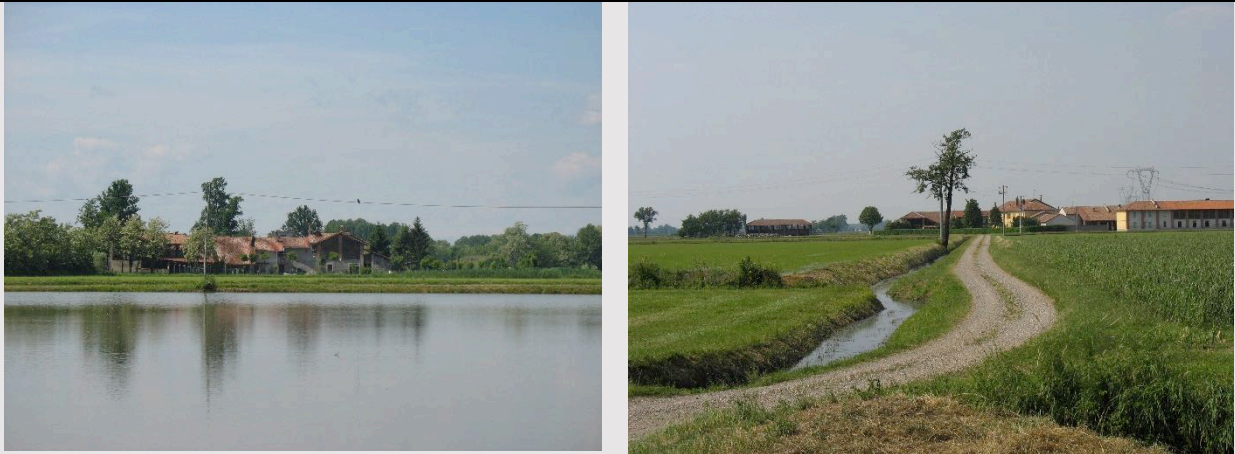
Figure 27 – The system of farms in the Parco Agricolo Sud in the peri-urban area of Milan (photo by Giacomo Pettenati)

In Spain a significant concentration of APs can be found in the Catalonia Region. All the APs were primarily created to hamper the urbanisation pressure and farmland acquisition originated from the growth of the Barcelona core urban area since the 1970s (Fanfani, 2019). The *Parc Agrari del Baix de Llobregat* is the most renowned case[21]. The Parc is located immediately southwest of Barcelona in the Llobregat delta area. It extends over 3,348 ha, of which 2,000 ha are cultivated, and it involves 14 municipalities (Figure 28). Compared to the Italian case, the Park establishment is the result of an even stronger bottom-up commitment, especially by local farmers (*Unió de Pagesos*, created in 1974, i.e., the principal farmers' union in Catalonia). In 1977, farmers supported by environmentalists and other civil organisations, promoted "Save the Plain!" (*Salvem el Pla!*), a campaign to counteract the 1976 Barcelona Metropolitan Plan and the related reduction in farmland (Giacché, 2014). During the 1980s and 1990s, farmers struggled for permanent preservation of the remaining farmland in the area. Thanks to EU funding (LIFE program) between 1996 and 1998 a concept plan was developed for the establishment of the park and some pilot actions were implemented. In 1998 a Consortium made up of the *Unió de Pagesos* and District and Provincial councils was set up, subsequently joined by Municipalities and, in 2006, by the Catalan Government. Thanks to this private-public partnership farmers have been effectively included in the policy-making process (Paül and McKenzie 2013). Like the Italian case, the objectives of the parks are multiple, with a marked emphasis on strengthening agricultural activity (i.e. more effective infrastructures, better commercialization systems), together with landscape protection and tourist promotion (Montasell, 2007). Spatial and socioeconomic objectives are pursued through two main tools, the *Pla de especial protecció i millora* (a spatial plan) and the *Pla Gestió i Desenvolupament* (a socio-economic program). Currently the Park involves 1,200 farmers, and agricultural products – that have a Park label – are sold mainly in Barcelona City (Jarrige and Perrin, 2017).

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[21] See also: https://parcagrari.cat/ca/el-parc (last access: 01/07/22).
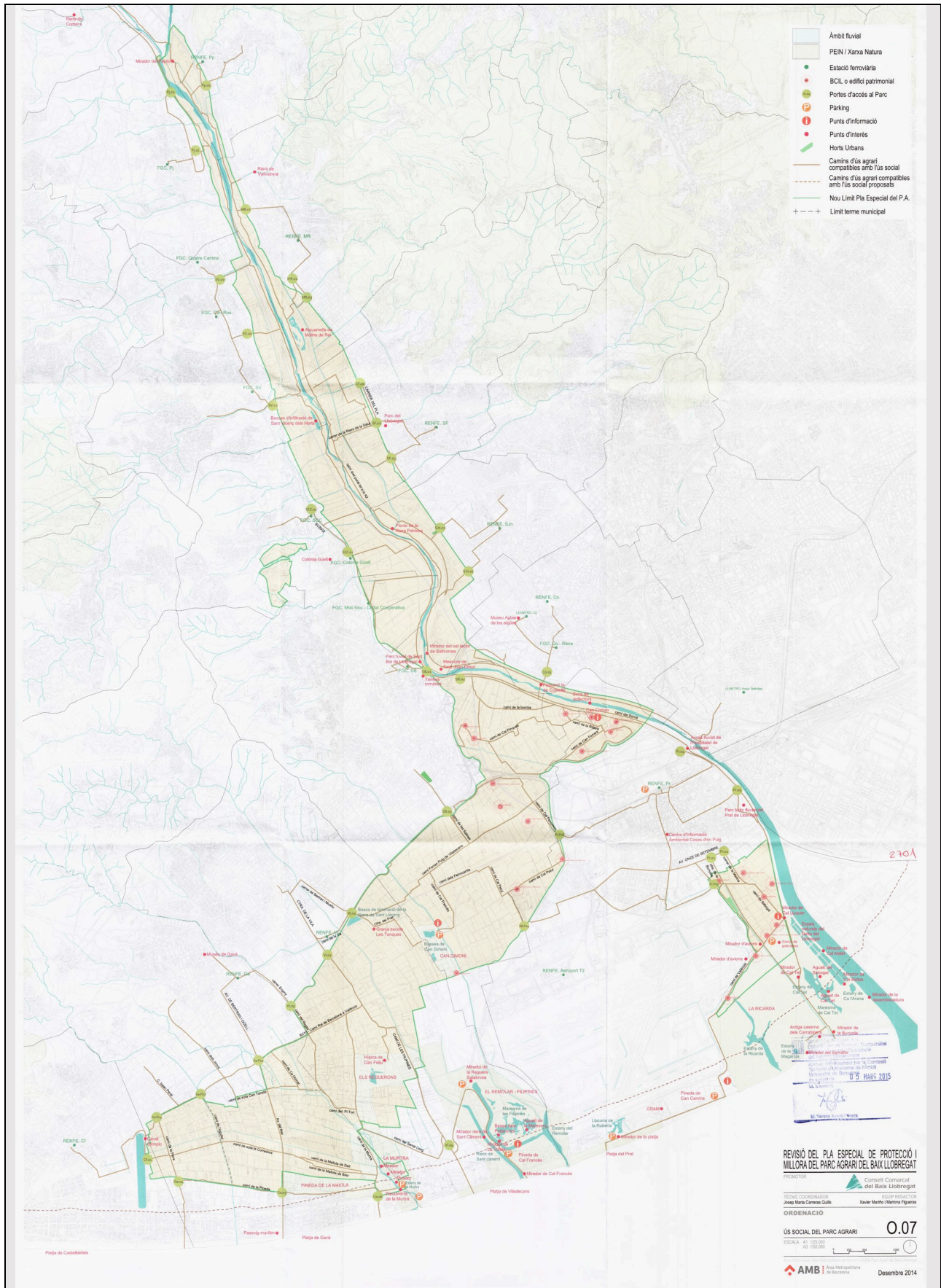
Figure 28 – Parc Agrari del Baix de Llobregat, Pla de especial protecció i millora, Ús social del Parc Agrari, 2014

France hosts several cases of Aps. One of the oldest AP in France is *Parc de La Deûle*[22], situated along the Deûle canal in the Lille south-west zone. This area (400 ha), characterised since the 1960s by the presence of industrial, extractive wastelands and brownfields, was interested by a first rehabilitation project in 1968 (by Organisme Régional d'Étude et d'Aménagement, OREAM-Nord), but it encountered a strong opposition from farmers. In 1993 the project was relaunched by the Inter-municipal Authority Lille Metropole and the AP was finally established in 1995, with the purpose of including support and regeneration of farming activities. Unlike the above-mentioned cases, the Park's institution process had been completely top-down. Anyway, thanks to a collaborative and participative approach adopted by the management authority, after initial opposition, farmers convincingly supported the Park's development (Fanfani, 2019). Currently, Park management is carried out by the public inter-municipal partnership ENLM (Natural Space Lille Métropole), created by the Urban Community of Lille, that recently became MEL (European Metropolis of Lille). Lille Metropole *Schema de Coordination Territorial* (SCOT) is the structural spatial planning tool of the Park. As every SCOT, however, it does not have the power to directly define land use that is a prerogative appointed to land use municipal plans (PLU). Currently, the Park, even if still keeps the mission to provide a green leisure area inside a densely urbanized territory, focuses much more than in the beginning on the support and regeneration of farming activities, compared to other objectives such as tourism: agriculture is no more conceived simply as an activity to support territorial marketing, but it is understood in its real production dimension, as an important socio-economic driver for both rural landscape and the city (Jarrige & Perrin 2017).

Financial support or incentives and technical assistance are very frequent policy tools to promote and enhance UA. They may take different forms such as grants, cost-sharing, loans, tax rebate, etc. (Halvey et al., 2021). Some municipalities, such as Sacramento (see Box 8), within U.S. metropolitan regions established "Urban Agriculture Incentive Zones" that provide a rebate on property taxes for landowners who undertake to keep their land in agricultural use for at least five years (Napawan & Townsend, 2016). Property tax reductions, tax abatements and tax exemptions are most frequent especially in some North American cities (Horst et al., 2017; Meenar et al., 2017). In addition, some cities such as Boston and Seattle, also offer staff support, funding and city-owned land for developing UA (Horst et al., 2017). According to Zambrano-Prado et al. (2021), financial incentives and tax reduction subsidies for the management and development of urban agri-green roofs should be developed.

Box 8 - Financial support or incentives for UA

Urban agriculture incentive zones – Sacramento, USA
The city of Sacramento has a long tradition in UA projects and initiatives. In the last years the city has also removed many restrictions through several ordinances and resolutions in order to support and favour agriculture within the city boundaries. Some of the most interesting initiatives include an ordinance to allow front yard vegetable gardens and "the Campaign for Legalising Urban Chicken Keeping (CLUCK)" in residential backyards (Napawan & Townsend, 2016). In the city of Sacramento, numerous NGOs proliferated with the aim of contributing to fostering the development of UA practices such as "the Sacramento Urban Agriculture Coalition (SUAC)" in 2012. In particular, their goal is to address issues such as food insecurity, economic resilience and redevelopment of degraded neighbourhoods. In this regard, the city and SUAC have defined a new ordinance into the General Plan update (2012) that promotes

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[22] See also: https://enm.lillemetropole.fr/parcs/autour-de-la-deule (last access: 01/07/22).

community gardens and the sale of urban garden products (London et al., 2021). By the California Assembly Bill (AB) 551, Sacramento has also designed Urban Agriculture Incentive Zones in order to promote UA in private and vacant lands, as well as ensure lands for UA initiatives. The identification of these incentive areas allowed a property tax reduction to landowners in return for a multi-year agreement based on the maintenance of agricultural use (Napawan & Townsend, 2016).

3.3.4 Delivery mechanisms

Delivery mechanisms are here understood as all those mechanisms including specific policy and planning tools, actors collaboration and interaction, and funding schemes for fostering the actual implementation into practice of UA projects, programs and plans, and UA benefits provision to dependent urban and peri-urban communities.

Delivering different types of instruments

Promotion of appropriate policies and planning tools is central to effectively deliver UA initiatives. In the last few decades, we have witnessed an increasing development of innovative planning and policy approaches and instruments to foster the implementation and expansion of food production practices in and across cities, both in the developed and the developing world. Being UA characterized by high multifunctionality - with functions ranging from subsistence to environmental sustainability, from recreation and leisure to education and community building (see §3.2.2) - different types of initiatives can be implemented to deal with the various challenges currently affecting our cities. Importantly, these challenges may have a smaller or wider dimension, leading to UA initiatives to be incorporated into the urban/spatial development and planning agenda at different levels, including metropolitan strategic plans and visions, subnational sectoral programming, instruments dealing with landscape quality, as well as municipal land use zoning tools and actions focusing on specific neighbourhoods or sites.

In this vein, selected case studies showed that the multifunctional potential of UA is often valorised through the development of *ad hoc* strategic tools. These complex strategies are non-statutory in nature and extremely heterogeneous, sharing the aim to integrate multiple themes and dimensions among their objectives, in order to provide a spatial framework for their implementation. Most initiatives use to integrate into UA policies also aspects related to health, education, local community development, or soil protection (e.g. Baltimore Food Policy Initiative, Blu Finger Alliance in Bristol). In other contexts, as for instance, the municipality of Bobo-Dioulasso (Burkina Faso) that promoted multifunctional urban agroforestry systems, UA initiatives has been used also as a climate change mitigation and adaptation strategy besides its value in terms of additional food and income sources for urban dwellers (Borelli et al., 2018).

Zoning tools, due to their statutory and binding nature, represent the main planning instruments to preserve urban farmland and tackle urban sprawl (Cotella et al., 2020). This can be achieved through either forbidding the development of specific areas of a city (i.e. through the institution of ecological corridors, green belts etc.) or through the zoning of areas explicitly dedicated to agricultural activities, where building quantities are to be kept to a minimum and only allows for the development of structured functional to UA. These tools are popular especially in those cities struggling with high urbanisation pressure (e.g. the London Plan, the Baix Llobregat Agricultural Park of Barcelona, etc.).

Whereas the first type of tools (ad hoc strategies) are usually delivered through complex process of coalition building and negotiation among the multiple actors involved, with the public actor that serves as facilitator in the composition and consolidation of virtuous partnerships aimed at implementing specific future development visions, the second type (zoning) is implemented normatively by the public authority that,

depending on the specific mechanisms characterising each spatial governance and planning system (see §3.2.1), either check the conformance of proposed developments with the agreed zoning configuration or decide case by case what type of development to allow and where. Importantly, several cases showed that these different types of tools are often strongly integrated and used as parts of a broader framework of public development strategies. For example, the Plan d'action Métropolitan en faveur de l'agriculture urbaine (2019) of Marseilles is part of a broader framework of the Metropolitan Project (2018), as well as is part of the Environmental Agenda (2018), of the Territorial Food Project (2019) and of the Climate-Air Energy Plan.

In some cities, UA initiatives have been officially integrated into urban planning systems to address various issues, accordingly with local needs, cultures, and available resources (e.g. water, land, labour). In this respect, several innovative planning approaches have emerged to deliver UA. For example, in the city of Almere (see also Box 4), where in 2012 a masterplan to transform the urban area of Oosterwold was launched. Its innovativeness lies both in the mixed urban-rural approach adopted, aimed at dedicating 50% of the total area (4,300 ha) to UA, and in the entrustment of the area transformation to the local residents' self-organization practices (Jansma & Wertheim-Heck, 2021 and 2022). Another interesting and innovative example is the French city network "Terres en Villes" which promotes the integration of peri-urban agriculture into planning tools (see Box 9). In other cases, policies have been enacted to deliver UA at different scales. In this light, Food Charters recently emerged as an enabler tool to foster the implementation of UA through the establishment of *multi-actor* and *multi-level* governance modes sharing vision, power, funds and knowledge (Hardman & Larkham, 2014). In the city of Birmingham, for instance, a Food Charter was launched in 2014[23] as a set of shared principles aimed at improving citizens' health, maximising the contribution of food in the local economy, and reducing the global impacts of food locally consumed (Hardman & Larkham, 2014). Despite overwhelming evidence of the diversity of the benefits UA can provide, some cases show the increasing competition for land in tandem with frequently diminishing local budgets. In this regard, the London Plan explicitly acknowledges the importance of protecting existing allotments from land pressure and the need to protect them through land zoning tools.

Box 9 – The approach of "Terres en Villes" to integrate urban and peri-urban agriculture into planning tools

The guidelines drafted by the Terres en Villes association in 2009 (2012) – "Comment bien prendre en compte l'agriculture et ses espaces dans les SCoT Le guide" – in collaboration with CERTU (Centre d'Études sur les Réseaux, les Transports, l'Urbanisme et les Constructions Publiques, a technical agency of the French ministry for Energy, Ecology and Sustainable Development), aim at integrating agricultural issues into regional and urban planning tools. Terres en Villes is the French network of local actors connected to peri-urban agriculture and open spaces. Established in June 2000, the association brings together twenty-six urban agglomerations, each of which is represented by the intercommunal authority and the departmental chamber of agriculture. Terre en Villes main role lies in contributing to the debate on the city and its agriculture, exchanging know-how, and experimenting with practical solutions. These activities are carried out on the basis of five main issues: (i) Co-construction of peri-urban agricultural policies, (ii) Protection and concerted management of peri-urban open spaces, (iii) Food governance, (iv) Integration of agriculture and peri-urban open space issues into European policies, (v) Peri-urban forests. The guidelines presented here are an outcome of the second issue, "Protection and concerted management of peri-urban open spaces", to foster the integration of agriculture-related topics into regional planning

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[23] See the Birmingham Food Charter, available from: https://www.birminghamfoodcouncil.org/wp-content/uploads/2014/08/BirminghamFoodCharter_Summer2014.pdf (last access: 01/07/2022)

tools and, in particular, in the *Schéma de cohérence territoriale* (SCoT), which is the main planning strategic tool at the inter-municipal level (Fédération Nationale des SCoT, 2022)[24].

In France, the relationship between agriculture and planning has always been complex and often conflicting. Traditionally, regional planning is mainly "urban-centric" and has been usually perceived by the agricultural world as nearly ignoring agriculture concerns and the protection of rural areas. On the other side, farmers rarely demonstrated an interest in the development of local agricultural projects integrated into urban and peri-urban planning (Terres en Villes and CERTU, 2012). The intention by Terres en Villes to foster a more sustainable relationship between cities and agriculture was supported by the issuing, at national level, in 2009 and 2010, of the "Grenelle de l'environnement" laws (1 and 2), that are specifically aimed at tackling urban sprawl also by controlling the artificialization of agricultural areas. The Association started to develop the "AgriSCoT project" in 2006. A multidisciplinary team surveyed the implementation of several SCoTs, looking for good practices in terms of agriculture integration into regional and urban planning. Based on this systematic research, guidelines were drafted in 2009 and updated in 2012. They are intended for public as well as private actors, such as farmers, practitioners, and associations, and they are divided into two parts. The first part provides the prior knowledge necessary for understanding the recommended approach for proper integration of agriculture in the SCoTs; in this part, general issues concerning agriculture, planning and their relationship are addressed. The second part is devoted to illustrating the five stages of the so-called "AgriSCoT approach", namely: i) raising awareness of political, professional and associative actors, ii) organising actor consultation and governance co-building, iii) carrying out an agricultural diagnosis and identifying the major issues, iv) drawing up a political project integrating agriculture and translating it into planning documents, v) implementing, monitoring and evaluating the SCoT. These stages are illustrated by highlighting some main "points of vigilance", whose explication is supported by the reference to specific field cases and the connected graphic documentation. Thanks to this structure, the guidelines are a clear and usable tool to practically support public and private actors in the integration of agriculture into SCoTs (see also Figure 29).

The guidelines are an effort to look beyond the SCoT drafting, addressing also its implementation phase through local urban planning tools (Plans Local d'Urbanisme – PLU). This multiscalar approach has been strengthened by a second initiative launched by the Association in 2016, that is the "AgriPLUi project". The project aimed at fostering the integration of agriculture into inter-municipal urban planning tools (Plans Local d'Urbanisme intercommunal - PLUi). It consisted of the organisation of four workshops, mainly devoted to technicians, in which the PLUi of 9 territories, at different stages of their development (the inter-municipal dimension of urban planning is a relatively new element in the French planning system), were presented by people in charge of their preparation, to favour know-how exchanging (Terres en Ville, 2018). Finally, some "points of vigilance" were defined to support technicians in implementing agricultural issues inside PLUi and thus, more generally, to foster a multiscalar approach to planning policies, which is essential to grant their effectiveness (see also Figure 30).

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[24] See : Fédération Nationale des SCoT (2022). Le SCoT modernisé < https://www.ecologie.gouv.fr/scot-projet-strategique-partage-lamenagement-dun-territoire> (last access : 01/07/2022).
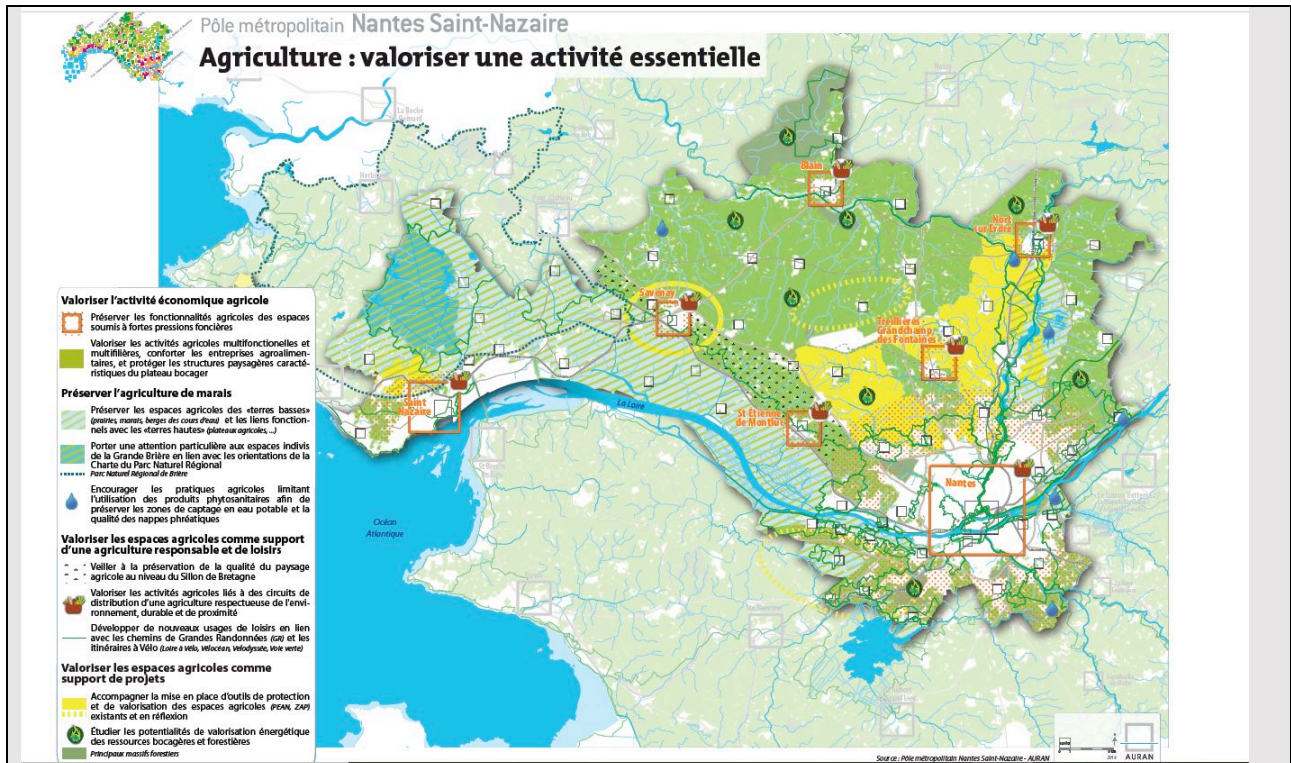
Figure 29 - The SCoT of Nantes Saint-Nazaire (2016), one the SCoTs that have been analysed in the "AgriSCoT project", promoted by Terres en Villes.
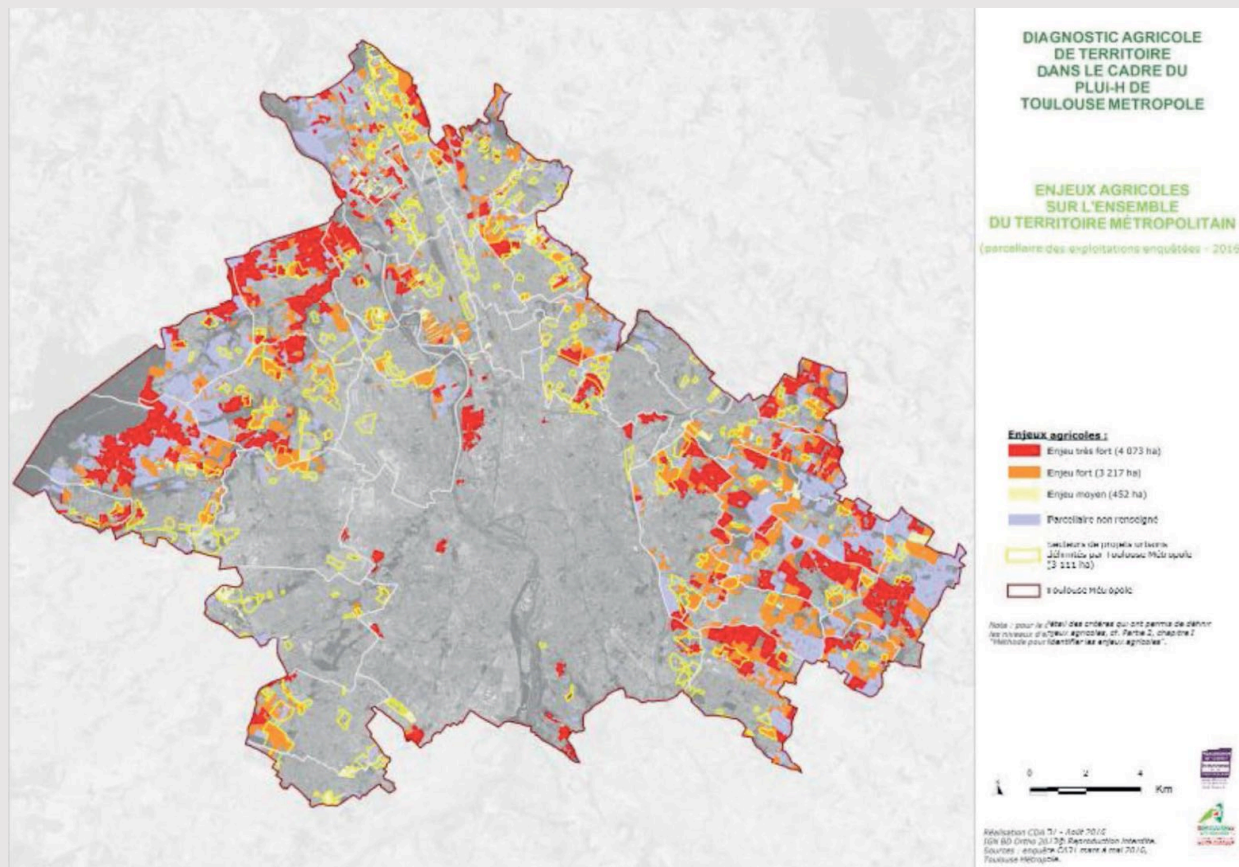
Figure 30 - The PLUi of Toulouse Métropole ("Le diagnostic agricole"), one the PLUis that have been analyzed in the "AgriPLUi project", promoted by Terres en Villes

Actors, partnerships and funding

In the last few decades decentralized, participative and more democratic governance modes have been introduced to implement urban spatial policies, including urban green infrastructure, and address multiple issues at various levels. This process has been highly context-sensitive, with the organizations and structures that concurs to the implementation of UA that greatly vary according to the political, socio-environmental, economic and institutional dynamics that, in the different regions and cities, shape citizens' needs and actions. As a consequence, the governance models that concur to the implementation of UA initiatives may range from purely government-led models – i.e. where the public authorise is the both the initiator and the main actor managing the initiative – to purely self-governance models – where a differential network of actors from the private or civic society realm join forces from the bottom-up, in absence of any public stimulus. The most common configurations, however, lies in between these two extremes, composing a highly heterogeneous spectrum of governance models where the role of the public actor may be more or less dominant and where, at the same time, the influence of actors from the private sectors and/or the civic society may play a stronger or weaker role in influencing, financing and implementing the objectives and actions undertaken.

Some of the initiatives reviewed at city level highlighted the development of participatory approaches in planning process such as in the case of Regional Open Innovation Roadmapping (ROIR) for the introduction of Zero-acreage farming in Berlin (Specht et al., 2016) and the participation of different actors in the Garden City Initiative in Taipei (Hou, 2020). According to Coles & Costa (2018) some of "urban food growing initiatives are largely activist-led and tend to fall outside of, or conflict with current city planning models. Where these initiatives are incorporated, they have the potential to provide effective urban landscape solutions that respond to local circumstances, new markets, engendering social and environmental improvement" (Coles & Costa, 2018, p. 1).

In general terms, the adoption of participative and inclusive decision-making processes in UA is becoming increasingly popular. For instance, in Bologna (Italy), the project *Il Parco Città Campagna* (City Countryside Park) was initiated through the collaboration between public (interested municipal, provincial and regional authorities) and private actors (e.g. local associations, farmers), that joined forces to develop a shared vision aimed at implementing agricultural practices in the metropolitan area. In other cases, public utilities and authorities are also involved in order to coordinate actions and resources (e.g. *Milano Metropoli Rurale*, see Quaglia & Geissler, 2018). Furthermore, when UA struggles to be officially included into urban development agendas by public officials and planners, related initiatives can be enabled and delivered bottom-up, through grassroots cooperation and the action of selected networks (i.e. activists, neighbourhood associations, etc.). For instance, in Bristol (England, UK) since 2012, a local network named the 'Blu Finger Alliance' carried out advocacy and campaign activities aimed at protecting the agricultural functions and soil quality of a strip of land located in the peri-urban interface of the city (i.e. the Blu Finger area) (de Moor, 2020). In this respect, local activists' actions over the years have contributed to promote the city's transition towards a more sustainable urban development model, although several challenges persist such scarce political support, lack of integration of UA into urban planning, and fragmented agricultural land tenure (Koopmans et al., 2017).

Various initiatives concerning UA developed outside Europe provide an interesting picture of numerous approaches. For instance, the Cuban case (see also Box 1) shows an interesting approach to solve the food shortage after the collapse of the Socialist Bloc. In this case, indeed, the Ministry of Agriculture established in 1994 a Department of Urban Agriculture, currently known as the Urban and Peri-urban Integrated Agriculture Program (PIAUS), leading to the involvement of non-state actors along with governmental institutions at various scales, from national to municipal. According to Fernandez (2017), the transition

towards a decentralized UA system resulted as beneficial for dependent communities, especially in terms of improved access to fresh and nutritious food, jobs creation, access to market, and delivery of education programmes.

Particularly relevant in these initiatives are the governance mechanisms aimed at developing multi-sector partnerships, whereas UA is included into integrated strategies that focus on more than one issue and try to coordinate their spatial impact on the ground. In the case of Quito (see also box 1), the AGRUPAR provides training, extension services, and resources for organic, agro-ecological small-scale agriculture. The program involves several urban and peri-urban farmers and community-based organizations; for this reason, the program is managed by a municipality Economic Development Agency.

When it comes to the financial resources, which are key to establish and maintain UA at different scales in the long-term, it is not an easy task to understand the actual magnitude of resources delivered through each initiative, nor to identify the main funding streams through which UA actions have been supported. This challenge is partly intrinsic in the multifunctional nature of UA itself, which allows related projects to be financed in several ways and through multiple, often concurring funding sources, from agricultural or rural development-related funds to funds dedicated to environmental protection and/or re-naturalisation or desealing, or to crowdfunding campaigns and other types of bottom-up funding schemes (see also box 8).

However, in the case of limited public financial resources, it is crucial for actors involved to find alternative funding sources. For example, as analysed by Cabannes (2012), in low-income countries other ways to finance UA exist as complementary to the resource that may be allocated by national and sub-national statutory authorities through specific policies (e.g. subsidies, grants). They mostly refer to loans and micro-credit provided by banks and financial institutions to urban famers, although the latter are often affected by several bottlenecks limiting their access to credit such as e.g. lack of awareness about UA, concerns related to repayments, and tendency to finance only-large scale (and more profitable) UA initiatives. In this respect, also other sources can be taken into account as, for instance, loans from family and friends, informal credits from suppliers, cross-subsidies that allow to make risky investments (Cabannes, 2013).

4 Discussion and conclusions

4.1 Planning with and for Urban Agriculture. General remarks

UA has an obvious spatial dimension. Whatever its type (a tiny private garden, a rooftop or a glasshouse integrated in a building, a peri-urban crop field), UA regards land uses, which are regulated by government authorities for the public interest. But UA is not codified into traditional classifications of land use designated by urban plans: it's a recent and rather fuzzy object. Due to its heterogeneous and often hybrid nature, it is not easy to identify whether UA is a land use which concerns the rural of the urban domain. In addition, UA is becoming the object of sectoral policies in several fields, due to the main benefits which it pursues (from food production to social wellbeing), which translate into sectoral or intersectoral plans and programs. Consequently, identifying univocally how spatial planning instruments should address UA is not an easy task, and our research has therefore opted for an approach that starts from the actual practice to reflect upon the role that planning can play in UA.

This Report explored the world UA practices by literature review, project review, questionnaires and interviews, roundtables with experts, and partners' meetings, in order to produce a systematised collection of experiences through which, in the different contexts, UA is promoted through and integrated within the

planning activity. The literature and R&I projects review showed that evidence on plans and regulations related to UA is manifold. The literature review identified 353 papers (2011-2021) which combine UA & plan, UA & regulation, and selected 29 of them, the majority between 2017 and 2021, mainly on European and US case studies. The review of R&I projects identified 13 recent and on-going projects, which address connections between UA and urban planning. The topics are: urban food planning, rural-urban linkages, brownfield regeneration, nature-based solutions, land uses, land take and soil protection, governance of peri-urban areas, and governance of public goods in agro-environments. The references to topics such as food (access, security, production, planning, etc.), land (conflicts, scarcity, consumption) and NBSs are very frequent. The role of UA in terms of the creation and management of urban green spaces and green infrastructures (including urban forestry and agro-forestry) are extensively debated topics. Instead, urban renewal strategies are less frequent in literature.

Interviews, questionnaires and analysis of case studies showed, in different ways, how UA benefits are perceived and applied in the context of urban planning activities. Thanks to the first on-line survey on Types and Practices of UA (Task 3.1), we found that 58% of practices are not the result of a public policy, and that only 35% of the cities in the sample have a specific strategy, plan, or regulation on the matter. From this first survey, it is clear that "urban planning" should be regarded in a wide sense, paying attention to whatever planning instrument affects the transformation and management of land uses such as: statutory and binding plans (for instance, city masterplans), strategic plans and programs, urban codes and regulations. Besides planning controls, monetary and non-monetary inducements are widely used and therefore should be considered. Regarding the scale and the administrative level of planning instruments, the municipal level is well represented, and plans and programs at the level of city-regions present interesting opportunities.

Consideration of the political objectives of the intentional policies on UA is fundamental in order to understand their design. According to the questionnaire on the benefits of UA recognized and expected by experts and city officials (see D3.2), UA can contribute to urban needs with regard to social issues, environment, climate and, to a lesser extent, to cultural and economic issues. Not surprisingly, many of the collected initiatives were planned within the framework of environmental policies or related to urban regeneration operations.

Based on the literature review, project review, questionnaires and interviews, roundtables with experts, and partners' meetings, 44 case studies were selected and analysed, representative of practices in Europe, America, Asia, Australia and Africa. The first result is that UA-related planning initiatives exist all around the world. Nowadays, UA is clearly defined within urban planning in a growing number of case studies in many countries, but the role of urban planning in managing UA has not been codified yet in any planning system. Our analysis of case studies underlined that land-use instruments can be grouped into two systems: a) UA is the main focus of a dedicated strategy (binding or not binding); b) UA is a component of a comprehensive strategy which addresses different urban issue (for instance: urban sustainability, food, green infrastructure). The analysis of case studies allowed us to define a comprehensive set of urban planning approaches supporting UA development, and to investigate characteristics of UA practices and their governance models that help, and sometimes hinder, in achieving the goals of urban development strategies.

Firstly, the analysis of case studies highlighted that different UA-related plans and strategies are strongly determined by various governance and planning systems. Many case studies belong to conformative and state-led systems (a fact that can explain formats and path dependencies). The main analysed intentional public policies were developed not only at municipal level, but some of these also as more comprehensive national strategies (for instance Norway, France, etc.). They are mainly ad hoc strategies or visions. Case

studies also showed that these tools mostly involved greening or food domains. The first was tackled in two ways: UA as a tool to overcome the food insecurity and address self-provisioning, especially in less developed countries, and as a way to improve food quality and sustainability. In the second case, UA is an instrument to reinforce and maintain urban green spaces and green infrastructures. UA has become a component of the green infrastructure design, in particular in dense cities and in shrinking cities, where particular attention is paid to measures for allowing or promoting agro-green roofs or the reuse of vacant land for urban gardening. At the supralocal scale (city region) urban-rural linkages are explored and transferred into partnerships and governance arrangements such as agri-parks, or UA-related plans, and incentives for professional farming.

Regulating UA spaces and activities by ordinances and codes is the consequent need, as concluded by several scholars. Regulation tools, related to UA or also mentioned in regulations of green areas, are very frequent in the investigated cases. Often, they concerned the access and management rules of urban gardens. Zoning is the most obvious device of spatial planning. UA-related zoning tools are heterogeneous public instruments that include not only where UA can be developed but also the identification of incentive, protection and functional zones. On the one hand zoning maintains prime farmland for food production, as well as traditional or typical agricultural products and practices (not always in the name of farming activity, often in the name of landscape protection, of soil protection or urbanisation control, at the metropolitan level). On the other hand, zoning encourages the development of different types of UA in urban and peri-urban areas. Finally, as shown in many American cities, the different types of financial or incentives tools, such as property tax reduction or subsidies, tax abatements and tax exemptions, can significantly contribute to the development of UA. Financial and non-financial incentives need a spatial identification of UA activities, which can be challenging (see, in part., the difficulty of tracing boundaries between urban rural and peri-urban spaces). In many cases, regions and municipalities provide tax reductions or rebates, grants, cost-sharing, subsidies, for a start-up period or for longer (for instance, 5 years in US to initiate a UA activity, 30 years in Japan for maintaining an existing one).

The research also showed that the main UA-related planning and management tools are very heterogeneous. We developed a comprehensive scheme (Figure 31; see also Annex 3) that summarises the tools into five categories: inventories, plans, regulations, incentives, and assessment instruments. Each category includes various typologies that were tested in several cities and/or identified and analysed by scholars, as follows:

- inventories: they include inventories of existing and potential areas for UA;
- plans: they concern comprehensive strategies or plans, that can be binding or non-statutory tools;
- regulations: they include ordinances, agreements, sectoral regulations, and rules on agricultural spaces and activities;
- incentives: they comprise financial incentives, technical assistance, education and training activities;
- assessment instruments: they consist of evaluation frameworks (including set of indicators) for outcomes and impacts of UA policies or practices.

The shortage of the impact and results assessment systems and other type of evidence on case studies has not shown whether they are all successful experiences. However, the UA-related public policies that we selected show different key success factors and issues to consider in the development of UA. Moreover, many stakeholders and experts described several innovative experiences, planning tools and approaches that integrate UA at city level. In addition, stakeholders also highlighted the reasons for failure, often related to managing land conflicts, as well as land accessibility and land property. For many participants, keeping the space for UA in the city and legally recognising UA, are crucial needs and challenges that public policy should address.

Figure 31 - UA-related planning and management tools

Category	Sub-category	Description
Inventories	Existing UA areas	Inventories of existing plots and urban farms
	Vacant or underutilised land/roofs	Inventories of available, public and private land with potential for UA, including abandoned, marginal and degraded lands, brownfield sites, available roofs
Plans	Comprehensive strategies or plans	A broad framework of spatial strategies that also include UA
	Specific strategies, plans or programs	Ad hoc strategies, plans or programs for UA
	Master Plans	Statutory and binding plans that identifies specific zones and land use rules for UA
Regulations	Ordinances	Measures or resolutions that introduce specific rules for UA and the agricultural use in zoning
	Territorial agreements	Agreements between different actors to establish protection and management rules of urban and peri-urban agricultural areas
	Regulations on UA management	Sectoral regulations on the management of allotment gardens, community gardens, livestock and animal upkeep
	Temporary use	Rules to support and promote the temporary use of vacant lands for UA
Incentives	Financial incentives	Funds, subsides, property tax reductions, tax abatements and exemptions to promote the development and the maintenance of UA
	Technical assistance	Activities promoted by public or private organizations in order to innovate UA practices and technically support urban farmers and gardeners.
	Education and training	Educational and training activities promoted by public or private organizations in order to encourage UA practices
Assessment	Evaluation frameworks	Indicators to evaluate different social, economic and environmental impacts and results of UA policies/practices

The interviews, questionnaires and literature review carried out in this study also showed the limits and barriers that could hinder the development of UA. According to some respondents and scholars, planning instruments and tools for urban agriculture should also remove legal restrictions, integrate UA into zoning, find possible locations for UA and join UA with other urban functions (De Zeeuw et al., 2000; Huang & Drescher, 2015). Some scholars have pointed out that the main obstacles for UA development are linked not only to land availability and usability, but also to planning factors such as responsibility for UA, regulating, supporting and financing UA, the lack of formal comprehensive planning policy, the legal recognition as a land-use activity, as well as the high competition with other land uses (Lovell, 2010; Quon, 1999). In fact, the survey "Planning for UA", confirmed that the main barriers to maintain and expand urban and peri-urban agriculture include not only the access to land and issues related to land ownership, but also limitations from local regulations and zoning codes. Another barrier that could hinder the development of UA practices regards some restrictive regulations, especially on the urban livestock (McClintock et al., 2014). The lack of

specific regulations and protocols, as well as height and volume limitations in building codes are also other legal barriers for the development of some types of UA, especially Zfarms and urban agri-green roofs (Zambrano-Prado et al., 2021). Finally, as shown in the survey "Planning for UA", public policies should also integrate urban agriculture into planning policies and create specific UA plans at city level in order to overcome these barriers and improve urban and peri-urban agriculture.

4.2 Good practices and the challenge of their transfer

The heterogeneity that characterises the collected sample of UA practices does not allow to individuate recurrent models or types: too many different policy goals and too many planning frameworks and the governance regimes behind. Nevertheless, the presented results allowed us to identify a number of key aspects to be taken into account when planning for UA, as well as multiple ways and means on how to go for it. Whereas the context-dependence of these ways and means makes their transferability from one context to another far from linear, by drawing on the literature on policy transfer it may be possible to provide policy and decision makers with inspirational lessons for their practice, while at the same time avoiding the risks of failure that often one-size-fits-all solutions bring along with them.

As a matter of fact, there is a long tradition of international comparative research in planning to foster "the transfer of experience, ideas, instruments and institutions from one country to another" (Masser, 1992, p. 3). The identification of good practices can moreover help shape the discourse used for agenda-setting and the development of successful solutions (Bulkeley, 2006). However, the question remains how useful such collections of practice examples are within an activity as notoriously complex and context-specific as spatial governance and planning (Berisha et al., 2021). The literature on policy transfer is useful for addressing this question, individuating four different degrees of transfer: copying, emulation, combinations and inspiration (Dolowitz and Marsh, 2000). When considering international transfers, the most ambitious level (copying) could often unfeasible and lead to policy failure due to uninformed, incomplete or inappropriate transfers (*Ibidem*).

In order to avoid these failures, Buffet et al. (2011) suggest a three-step procedure. First, one must define who will be involved in taking the decision. The second step concerns orienting group members to the process and establishing timelines. The third point is the most relevant: to address both the applicability (e.g. political climate, resources, etc.) and the transferability (whether the target area resembles the original area on important criteria) of the host policy. This procedure requires both expert and political knowledge. By framing the identified ways and means (i.e. the identified strategies, instruments, actions etc.) into the spatial governance and planning systems within which they have been emerging (as well as in relation to the multilevel and multiactor coordination mechanisms that led to their setting and implementation, the financial schemes upon which they have been based etc.) it may be possible to develop evidence-based reflections in relation to the actual possibility to transfer a successful experience (or a part of it) from one context to another, limiting the risk of policy transfer failure.

4.3 Keys to success. Guidelines to support city authorities in the integration of UA into public policies and planning tools

A primary objective of this Task and Report is to provide cities and regional authorities with successful factors when planning for and with UA. When making use of UA as a means for urban development, public planning departments and urban planners should pay particular attention to the following:

1. **Developing a participatory process and establishing a UA committee**

UA should be implemented on the basis of a participatory planning process, engaging different stakeholders and defining a UA committee or public department/agency involves the identification of specific governmental responsibility concerning UA at city level. The committee should include the private sector, non-governmental organisations, NGOs, associations and different public departments (not only planning but also agriculture, environment, etc.) related to UA issues. The committee should aim to support policy makers and evaluate the progress and outcomes of UA policies over time. Moreover, the committee should observe the constant process of diversification of UA and promote tools to adapt public policies to new developments and practices (see, for instance, Yarra's Urban Agriculture Advisory Committee).

2. **Ensuring availability and access to public land for UA**

Cities and public bodies should ensure the availability and access for UA to urban and peri-urban public land for agricultural use, in order to significantly contribute to the conservation and enhancement of urban green spaces and agricultural land. This can be achieved by acquiring private properties, through the definition of long-term concessions, as well as developing various forms of land acquisition such as taxpayer bonds, the integration of UA into public parks, etc. (see, for instance, Zurich and Seattle). Urban land for agricultural use should also be protected through specific zoning limitations (see point 4).

3. **Identifying existing and potential land for UA**

Creating inventories of existing plots and urban farms, as well as available (public and private) land with potential use for implementing professional UA (e.g. indoor and high-tech farming) and urban gardening - including underutilised, abandoned, marginal and degraded lands, brownfield sites and rooftops - is crucial to support UA (see, for example, North American cities). This step should include the collection of baseline data on agricultural activities, the development of a land database and a land bank, as well as the identification and analysis of the main stakeholders. This step also includes the identification of potential barriers for UA, including urban farming (for instance restrictions on height and area of greenhouses), and how existing urban policies limit the development of UA.

4. Creating a specific plan for UA

Developing a specific plan is an indispensable step of the UA planning process. UA should be planned and implemented on the basis of a participatory planning process involving a wide range of community actors, and in accordance with regulations on farmland protection at the supra-local scale. UA plans should be integrated into landscape and urban design, with other sectoral policies and more comprehensive strategies and plans at city level. Plans should identify different UA types (professional and not professional) and define zoning restrictions, recognizing UA as a specific (existing or new) zone (where UA is permitted) in the land use designation system (including zones that combine UA with other urban functions) (see, for instance, Oslo, Rosario, Toronto and Yarra).

5. Defining regulations for UA

Regulations should support land-use zoning and urban policies, as well as define what is permitted and what is not. Regulations can include guidelines and requirements to implement urban gardens (e.g. allotment gardens, community gardens, etc.), allocation mechanisms for urban gardens, rules for agricultural temporary use of public vacant or underused plots, by-laws on animal and livestock management, sale activities (direct sales on farms, location of farmer markets, including stocking and accessibility), and restrictions on the use of resources such as water and energy (irrigation systems, water abstraction, etc.) (see, for instance, Italian cities, Vilnius, etc.).

6. Developing financial or incentive tools
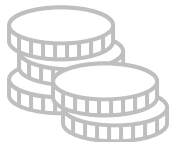
The lack of funds and financial instruments are the main factors usually leading to the failure of UA initiatives. Financial resources include not only subsidies or block grant funds for maintaining and developing existing UA initiatives, but also fees, tax rebates and reductions, abatements and exemptions for landowners, specific tax regulations for urban land, credit and loans, as well as incentives for innovative agricultural activities (e.g. indoor farming, high-tech farming, etc.) (see, for instance, North American cities).

7. Developing facilities and infrastructures for UA

The management and development of UA facilities and infrastructures, is a key aspect for ensuring success of UA initiatives. This might include not only the accessibility to specific sites or the normal functioning of UA plots (e.g. irrigation systems, roads, small facilities, plot layout, fencing, etc.), but also farmer market structures, as well as any potential decontamination and soil rehabilitation work.

8. Supporting UA initiatives and urban farmers

Public bodies should provide information to citizens about UA initiatives and promote short chains, local agri-food products, sustainable farming practices, and UA-related recreation activities. Public bodies should be able to manage any potential social and land use conflicts between UA practitioners, citizens and the private sector. They may support and facilitate the establishment of agreements

with farmers (particularly for public procurement) or associations, as well as with landowners for land allocation (see financial tools). They can offer technical advice and assistance, training and educational activities concerning UA, for schools, practitioners, urban planners and politicians (see, for instance, Quito, Rosario, Sidney, Rotterdam and Toronto).

9. Evaluating and monitoring public policies for UA

This step includes the evaluation of the effectiveness and outcome of UA-related policies (projects and plans) through specific monitoring, evaluation and research activities (including the application of a set of indicators) and periodic reports established by the UA committee.

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Annexes

Annex 1 – Sheets to collect case studies

Name	Birmingham Food Charter
Country	UK
City	Birmingham

Type of Public policy	- Strategy/vision
Thematic domain	- health and education policies - local community development - food strategies
Description	Food charters are a set of principles which bring together the local authority and community, the private sector and other actors pursuing an agenda to increase food security. Usually the Charters focus on sustainable food systems, but they are increasingly being used to facilitate and expand UA activities. This is the case of Birmingham. The Charter brings together the key actors involved in urban food and the initiatives creating a common UA agenda. In the same way, the Charter is facilitating the sharing of funds, knowledge and other resources.
References	Birmingham City (2014). Birmingham Food Charter, available from: https://www.birminghamfoodcouncil.org/wp-content/uploads/2014/08/BirminghamFoodCharter_Summer2014.pdf (last access: 20/07/2022). Hardman, M., & Larkham, P. J. (2014). The rise of the 'food charter': A mechanism to increase urban agriculture. Land Use Policy, 39, pp. 400-402.

Name	Bobo-Dioulasso Greenways Strategy
Country	Burkina Faso
City	Bobo-Dioulasso

Type of Public policy	- Strategy/vision; - Program; - Lan use zoning instrument;
Thematic domain	- Urban green development and management - Climate adaptation and/or mitigation - Urban forestry - Local community development - Food strategies

Description	In order to address the negative impacts of urbanization and climate change, in recent years the Municipality of Bobo-Dioulasso have promoted multifunctional agroforestry activities on urban greenways as a climate change mitigation and adaptation strategy. In particular, vacant lands within the city were transformed into green corridors hosting agroforestry systems characterized by fruit trees and crops and primarily aimed at mitigating urban heat island effect and reducing surface runoff, as well as enhancing the resilience of urban dwellers by providing additional food and income sources. In addition to that, space is also provided to urban gardening and recreation.
References	Borelli, S., Conigliaro, M., Quaglia, S., & Salbitano, F. (2018). Urban and Peri-urban agroforestry as multifunctional land use. In Agroforestry: Anecdotal to Modern Science (pp. 705–724). Singapore: Springer. RUAF foundation (2015), Urban agriculture as a climate change strategy, Policy brief, Available at: https://ruaf.org/assets/2019/11/Policy-brief-Urban-agriculture-as-a-climate-change-strategy.pdf (last access: 28/09/2022).

Name	Parco Città Campagna
Country	Italy
City	Bologna

Type of Public policy	- Project
Thematic domain	- urban-rural partnership - urban green development and management
Description	The "Parco Città Campagna" project concerns the plain between the Reno river and the Samoggia stream, a large peri-urban area to the south-west of the Bolognese metropolitan area. The project started in 2010, as a result of a long participatory planning process started in 2006. The project aims to protect open spaces, preserve the rural landscape, enhance the tourist and recreational offer, as well as define a network of cycling and walking routes (CMB, 2014; Forte, 2021). This agricultural park includes the Villa Bernaroli area, a publicly owned land that includes farms, farmers' market, vegetable gardens, social associations and activities (Forte, 2021).
References	Città metropolitana di Bologna (CMB), 2014, Il parco città campagna. Progetto di valorizzazione della rete dei paesaggi e di integrazione delle aree a elevato valore ecologico-ambientale nel territorio della pianura situato tra il fiume Reno e il torrente Samoggia, Bologna. Forte, A. (2021). Urban Food Gardening and City Planning: towards integration. Evidence from Italy, Master Thesis, Master's degree programme in Territorial, Urban, Environmental and Landscape Planning, Curriculum: Planning for the Global Urban Agenda, Politecnico di Torino, Supervisors: C. Cassatella Claudia and E. Gottero, Turin.

Name	Blu Finger Alliance
Country	UK

City	Bristol

Type of Public policy	- Project
Thematic domain	- urban-rural partnership - local community development - Food strategies - Other: soil protection
Description	The Blue Finger Alliance (BFA) is a local network which has campaigned for the protection of good soil and agricultural functions of the land as a contribution to the city's transition towards environmental sustainability, and to promote opportunities for agricultural jobs. The name refers to the Blue Finger, a strip of agricultural land covering 400 hectares that stretches from the edge of Bristol's city centre, crosses the municipal boundary into the suburbs and into the rural countryside of South Gloucestershire. Its name is linked to the blue shading that distinguishes the highest quality of agricultural land ('Grade 1: Best and Most Versatile') on soil classification maps in the UK. To date some BFA activities have included compiling a register of the many landowners of the Blue Finger, encouraging Bristol City and South Gloucestershire councils to work together to support BFA objectives, and to develop public events and awareness-raising activities, including walks. BFA has also supported the Bristol 'Declaration of Soils', a manifesto seeking to prioritize the protection of soils as part of a systematic shift towards sustainable living.
References	de Moor, J. (2020). Alternatives to resistance? Comparing depoliticization in two british environmental movement scenes. International Journal of Urban and Regional Research, 44(1), pp. 124-144. Koopmans, M. E., Keech, D., Sovová, L., & Reed, M. (2017). Urban agriculture and place-making: Narratives about place and space in Ghent, Brno and Bristol. Moravian Geographical Reports, 25(3), pp. 154-165. See also: https://www.bluefingeralliance.org.uk/ and https://bristolfoodpolicycouncil.org/about/ (last access: 21/07/2022).

Name	Ghent en Garde
Country	Belgium
City	Ghent

Type of Public policy	- Strategy/vision
Thematic domain	- Food strategies

Description	In 2013 the City of Ghent introduced 'Gent en Garde' food policy. This strategy includes five goals to support an urban sustainable food system: "i) a shorter, more visible food chain; ii) more sustainable food production and consumption; iii) the creation of more social added value for food initiatives; iv) reduce food waste; v) optimum reuse of food waste as raw materials" (City of Ghent, 2016, p. 3). As an outcome of this strategy, in recent years the city has created peri-urban farmers markets and a new logistics platform for professional buyers. Over the years, the city have also promoted a new distribution platform for the redistribution of the surplus food that involved more than 57,000 people. Since 2014, the city has also organized training courses and workshops for the development of community gardens in schools.
References	City of Ghent (2016). From strategic to operational goals for the Gent en Garde food policy. Recommendations of the food policy council, available at: https://ruaf.org/document/gent-en-garde-food-policy/ (last access: 28/09/2022).
	See also: https://unfccc.int/climate-action/momentum-for-change/planetary-health/ghent-en-garde (last access: 28/09/2022).

Name	Grenoble - Metropolitan Agricultural Strategy 2015-2020
Country	France
City	Grenoble

Type of Public policy	- Strategy/vision
Thematic domain	- Urban-rural partnership - Climate adaptation and/or mitigation - Food strategies
Description	In October 2020 Grenoble was awarded with the title of European Green Capital 2022, that acknowledges the long-term commitments of Grenoble metropolitan area in terms of sustainable development. Urban agriculture development is an important objective pursued by the City within the general aim of sustainable development. In recent years, Grenoble has focused its efforts on area of agriculture with its Metropolitan Agricultural Strategy 2015-2020. This strategy, that involves all of the city's 49 municipalities, seeks to drive sustainable and quality farming in rural municipalities and link these with other urban areas within the metropole through short supply chains. The metropolis fulfills its commitments by carrying out various actions, and which also the development of urban agriculture and family gardens is included. To this in 2017 a call for projects has been created for the creation or development of community gardens and apiaries. Since 2013, community gardens and orchards have been cultivated by residents according to a sustainable garden charter. Today, urban farming production is increasing also thanks to public structures, such as the municipal horticultural center (an open area of 700 m²).
References	Vargas, L. (2016). Définition de la stratégie agricole 2015-2020 de Grenoble-Alpes Métropole : le foncier au cœur des enjeux. Sciences Eaux & Territoires, Numéro 19(2), 28. See also:

- https://letsfoodideas.com/en/initiative/la-strategie-agricole-et-alimentaire-2015-2020-et-le-projet-alimentaire-inter-territorial-pait-de-grenoble-alpes-metropole/(last access: 28/09/2022).
- https://www.grenoble.fr/2163-un-savoir-faire-au-service-du-vegetal.htm#par17459 (last access: 21/07/2022).

Name	London Plan
Country	UK
City	London

Type of Public policy	- Strategy/vision; - Regulation
Thematic domain	- urban green development and management - local community development
Description	The Plan recognises the importance of urban agriculture and claims that the Development Plans should protect existing allotments and encourage provision of space for community gardening including for food growing. There are 3 categories of allotments: - Sites managed by the council (or a company on behalf of the council); - Self-managed sites managed by an independent association; - Privately-owned and managed sites The responsibility for the management of allotments lies with local authorities for each borough. Despite there is a rising demand of allotments, there is a rapid decline in provision. This decrease is attributed to increasing land pressure and the need to build at high densities, particularly in Inner London. For this reason, few boroughs propose increasing allotment provision but most of them have prioritized other solutions such as increasing the quality of existing sited, favouring other urban gardening schemes such as community gardens (where plots are shared), closing allotment waiting lists and increasing the efficiency of the management of allotment sited.
References	Fletcher, E. I., & Collins, C. M. (2020). Urban agriculture: Declining opportunity and increasing demand—How observations from London, UK, can inform effective response, strategy and policy on a wide scale. Urban Forestry & Urban Greening, 55, 126823.

Name	Plan d'action Métropolitain en faveur de l'agriculture urbaine
Country	France
City	Marseilles (Métropole Aix-Marseille-Provence)

Type of Public policy	- Strategy
Thematic domain	- Urban-rural partnership - Urban green development and management - Food strategies - Local community development

Description	The Action Plan (2019) is part of the broader framework of the Metropolitan Project (2018), the Environmental Agenda (2018), the Territorial Food Project (2019) and the Climate-Air-Energy Plan. The Plan aims at developing more sustainable agriculture and food as well as at revitalizing the territory of the Metropolis. It concerns more than 40 hectares of land put or put back into cultivation on the territory of Marseille as well as more than 20 professional farms, all for a budget of 2.1 million euros. The plan intends to respond to three major challenges: i) providing residents with access to ultra-fresh products while raising public awareness of healthy eating; ii) making the Metropolis a greener territory where agriculture makes it possible to better manage the urban fringes and reduce the risks associated with climate change (forest fires in particular) as well as to create islands of freshness; iii) strengthening the social bond between the inhabitants of the neighborhoods around community, collective or school gardens. The action plan is spread over 2 years (2019-2020). In the first phase of implementation (2019), the plan presented a total of 30 flagship actions (one of these is related to the UA practice "Micro-ferme des Calanques").
References	See: - https://www.franceculture.fr/conferences/bibliotheque-publique-dinformation/aux-origines-de-lagriculture-urbaine (last access: 21/07/2022) - https://www.ampmetropole.fr/agriculture-urbaine (last access: 28/09/2022)

Name	Urban agriculture policy plan
Country	USA
City	Minneapolis

Type of Public policy	- Programme - Land-use zoning instrument
Thematic domain	- local community development - Food strategies
Description	In 2009 the Minneapolis City Council adopted "The Homegrown Minneapolis Report" that includes different recommendations concerned urban agriculture, local food production and the entire food chain within the city boundaries (Russo et al., 2017). This document was the basis of the next "Urban agriculture policy plan: A land use and development plan for a healthy, sustainable local food system" (2012) as a part of the "Minneapolis Plan for Sustainable Growth". The Urban agriculture policy plan includes eight goals and different targets (Okner, 2017).
References	Okner, T. (2017). The role of normative frameworks in municipal urban agriculture policy: Three case studies from the United States. Natures Sciences Societes, 25(1), 70–79. Russo, A., Escobedo, F. J., Cirella, G. T., & Zerbe, S. (2017). Edible green infrastructure: An approach and review of provisioning ecosystem services and disservices in urban environments. Agriculture, Ecosystems and Environment. Elsevier

Name	Les jardins familiaux Programme
Country	France
City	Montpellier

Type of Public policy	- Programme
Thematic domain	- Urban green development and management - Local community development
Description	In the framework of the biodiversity strategy, in 2004 the municipality of Montpellier launched a program for the development of collective gardens (family and community gardens) in order to "give "landless" families an opportunity to participate in the practices of cultivation" (Scheromm, 2015, p. 736) and to socialize with different social groups. The urban gardens involve several people: nearly 160 for family gardens and from 10 to 30 gardeners for each community garden. According to the garden regulation, gardeners undertake to use organic or low environmental impact techniques, the efficient use of natural resources such as water, as well as the use of non-alien plant species. In addition, the municipality promotes environmental education programs and workshops on different topics such as organic gardening (Scheromm, 2015).
References	Scheromm P., 2015, Motivations and practices of gardeners in urban collective gardens: The case of Montpellier, Urban Forestry & Urban Greening, 14, pp. 735–742. See also: https://www.montpellier.fr/1862-les-jardins-familiaux.htm (last access: 28/09/2022)

Name	Municipal vegetable gardens
Country	Germany
City	Munich

Type of Public policy	- Project
Thematic domain	- urban-rural partnership - urban green development and management - Food strategies
Description	In order to increase the green spaces, in 2013 the city government of Munich launched some urban gardening projects such as municipal vegetable gardens initiative in the context of the long-term settlement development strategy. Municipal vegetable gardens project involves farmers, the city od Munich and citizens and regards mainly peri-urban areas, in and around the city. Some small plots (between 30 and 60 square meters) of agricultural land are rented by farmers to inhabitants for a period between April and November (Artmann et al. , 2021).
References	Artmann, M., Sartison, K., & Ives, C. D. (2021). Urban gardening as a means for fostering embodied urban human–food connection? A case study on urban vegetable gardens in Germany. Sustainability Science, 16(3), pp. 967–981.

Name	Sprouting Oslo

Country	Norway
City	Oslo

Type of Public policy	- Strategy/vision;
Thematic domain	- local community development - urban green development and management - Food strategies
Description	The "Sprouting Oslo" strategy was adopted by the City Council in Oslo at the end of 2019, in order to greening the city, increase local food production, create meeting places, increase school gardens and improve knowledge on urban agriculture and food production in the city. To achieve these goals, the strategy identified different key actions such as the brownfield redevelopment, the strengthening of green corridors and the improvement of urban habitats, the definition of zoning regulations for urban gardens, the promotion of community supported agriculture model and high-tech farming (Oslo City Council, 2019). Based on local experiences on urban agriculture at city level such as Oslo (but also Bergen and Telemark), recently the Norwegian government - in accordance with several ministries - has launched the "Norwegian Strategy for Urban Agriculture" in order to support urban agriculture in cities especially through the sustainable food production, as well as the local and economic development (Norwegian Government, 2021).
References	Norwegian Government (2021). Norwegian Strategy for Urban Agriculture. Cultivate Cities and Towns, available at: https://www.regjeringen.no/contentassets/4be68221de654236b85b76bd775355 71/strategi-for-urbant-landbruk-engelsk-web.pdf (last access: 28/09/2022). Oslo City Council (2019). Sprouting Oslo. Room for everyone in the city's green spaces. A strategy for urban Agriculture 2019-2030, Oslo

Name	Charte Main Verte des jardins partagés
Country	France
City	Paris

| Type of Public policy	- Programme
Thematic domain	- Urban green development and management - Local community development
Description	In 2002, Paris local authorities launched the program "Green Thumb of Paris" in order to develop and regulate community gardens. In general, Parisian community gardens are located in public or private vacant lands and managed by volunteers and nonprofit associations according to official agreements with the Paris municipality. In particular the agreement "Chart Main Verte" includes not only specifications on permitted uses, goals and obligations, but also information about the involvement of community and participation activities aimed at increasing the social inclusion. Nowadays, community gardens in Paris are extremely varied and include edible or ornamental gardens individual plots and gardens of varying sizes (Torres et al., 2017 and 2018).

References	Torres, A. C., S. Nadot, and A.-C. Prévot (2017). Specificities of French community gardens as environmental stewardships, Ecology and Society, 22(3):28. Torres, A. C., S. Nadot, and A.-C. Prévot (2018). Small but powerful: The importance of French community gardens for residents, Landscape and Urban Planning, 180, pp. 5–14. See also: https://www.paris.fr/pages/les-jardins-partages-203 (last access: 21/07/2022)

Name	Connect the Dots
Country	Brazil
City	Sao Paulo

Type of Public policy	- Project
Thematic domain	- Urban-rural partnership - Food strategies
Description	The city of São Paulo is the largest metropolis in Brazil with 22 million of inhabitants (12,4 million in the city). In 2004, São Paulo started the Urban and Peri-Urban Agriculture Program (PROAURP) in order to promote and support local agri-food production and urban gardening, providing technical assistance, agroecological guidance, tools and seeds (Nagib & Nakamura, 2020; Nemoto & Biazoti, 2017). Some years later, in the context of the revision of the Master Plan and the Zoning Law (Abreu et al., 2016), the Municipal Authority of Sao Paolo reclassified "25% of metropolitan land as "rural zones," prohibiting new residential construction, and authorising family farmers to access low-interest loans and subsidies for machinery and seeds" (Hearn et al., 2021, p.18). The planning process of Strategic Master Plan also involved many urban gardeners and farmers, by further strengthening of the importance of urban agriculture in São Paulo's public policies and agenda (Nagib & Nakamura, 2020). The Connect the Dots project launched in 2016 and funded by the Bloomberg Foundation, in order to prevent further urban sprawl, promote sustainable land development, as well as local and organic farming in the peri-urban area (Abreu et al., 2016; Hearn et al., 2021; Palm, 2022). It aimed to bring closer farmers and consumers, as well as addressing the food demand of restaurants, supermarkets, schools and hospitals in urban and peri-urban area. The aim is also to maintain green, open and unbuild spaces in order to avoid the land consumption and urban expansions (Hearn et al., 2021). Most recently, the city of São Paulo has also launched the Municipal Plan for Food Security that includes specific measures for urban gardens (Nagib & Nakamura, 2020).
References	Abreu G. K.M., Franco F., Mori A. K. (2016). Connect the Dots: The Local Agricultural Value Chain as a Framework for Structuring Public Policies in the City of Sao Paulo. Spaces And Flows 2016 Conference Hearn, A. H., Mauad, T., Williams, C., Amato-Lourenço, L. F., & Reis Ranieri, G. (2021). Digging up the past: urban agriculture narratives in Melbourne and São Paulo. Journal of Urbanism, 14(3), pp. 309–336. Nagib, G., & Nakamura, A. C. (2020). Urban agriculture in the city of São Paulo: New spatial transformations and ongoing challenges to guarantee the production and consumption of healthy food. Global Food Security, 26

Nemoto, E. H., & Biazoti, A. R. (2017). Urban agriculture: How bottom-up
initiatives are impacting space and policies in São Paulo. Future of Food:
Journal on Food, Agriculture and Society, 5(3), 21–34.
Palm, L. (2022). Connect the Dots (Ligue os Pontos), EFUA Conference (online), 29-
30 March 2022

Name	Seattle P-Patch Community Gardening Program
Country	USA
City	Seattle

Type of Public policy	- Strategy/vision; - Programme;
Thematic domain	- urban green development and management - Other: social justice and equity program
Description	The city of Seattle has recently adopted comprehensive plans and strategies to support urban agriculture that includes rules – such as a urban garden for every 2,500 residents - funds, staff support, educational training and public and private land, especially for community gardens (Horst et al., 2017). For example, the P-Patch Community Gardening Program integrated many community gardens into public parks, in order to save the cost for land acquisition (Hou & Grohmann, 2018). Seattle funded community gardens, mostly in disadvantaged areas and communities, with $2 million using the 2008 Parks and Green Space Levy. In last years, Seattle has also developed different ways for the acquisition of land for community gardens, such as bonds of taxpayers (Horst et al., 2017). In addition the city of Seattle has recently adopted "the Race and Social Justice Initiative"(2016), an initiative that promotes race and social justice (Horst, 2017) even into urban agriculture policy and programming. The department of Neighborhoods, for example, planned new markets, "gardens, farms, and training programs in neighborhoods with a high percentage of low-income people and people of color" (Horst et al., 2017, p. 289) or with immigrant farmers.
References	Horst, M. (2017). Food justice and municipal government in the USA. Planning Theory and Practice, 18(1), pp. 51–70. Horst, M., Mcclintock, N., & Hoey, L. (2017). The Intersection of Planning, Urban Agriculture, and Food Justice: A Review of the Literature. Journal of the American Planning Association, 83(3), pp. 277–295. Hou, J., & Grohmann, D. (2018). Integrating community gardens into urban parks: Lessons in planning, design and partnership from Seattle. Urban Forestry and Urban Greening, 33, pp. 46–55.

Name	Kipos3
Country	Greece
City	Thessaloniki

Type of Public policy	- Project

Thematic domain	- urban green development and management; - local community development; - urban renewal;
Description	The Kipos3 initiative is one that was started as an idea by an academic partnership between an urban landscape architect and agronomists with the goal to bring the local community together around an urban garden and enhance social inclusion and civil participation in urban policy making. The idea was supported with land and water from the Municipality, which, without a comprehensive UA or Food policy, is working towards establishing sustainable food habits and at the moment is organizing a Food council. The project was also funded by a couple of private companies to ensure gardening supplies, a shed, etc.
References	See also: https://thessaloniki.gr/?lang=en (last access: 25/06/2021)

Name	Municipal vegetable gardens and orchards
Country	Bulgary
City	Troyan

Type of Public policy	- Project
Thematic domain	- urban green development and management; - local community development; - health and education policies; - food strategies;
Description	The mayor of Troyan has recently promoted many initiatives about how to make kindergarten and primary school children eat healthily. Although the town still has not got a formulated food strategy or urban agricultural policy, the municipality officials are looking for ways to participate in projects and partnerships. This is how they got involved in an UrbAct project BioCanteens and created a municipal vegetables garden and an orchard to supply the kindergartens in the town.
References	URBACT (2021). Good practice transfer -why not in my city?, URBACT III, June 2021, available at: https://urbact.eu/sites/default/files/urbact-tnresults-web-final.pdf#page=34 (last access: 28/10/2021)

Annex 2 – The classification of case studies

| n	Country	denomination	Country classification	City	Strategy/vision	Plan/Programme	Project	Land-use zoning instrument	Sectoral policy	Regulation	urban-rural partnership	urban green development and management	climate adaptation and/or mitigation	urban nature protection	urban forestry	local community development	urban renewal	health and education policies	Food strategies	Other	state-led system	market-led neo-performative system	conformative system	proto-conformative systems	misled performative systems	Other
01	Netherlands	The Master Plan of Oosterwold	DC	Almere	X			X			X					X			X		X					
02	USA	Baltimore Sustainability Plan	DC	Baltimore	X				X	X									X	X						X
03	Spain	The Baix Llobregat Agricultural Park	DC	Barcelona				X			X			X									X			
04	United Kingdom	Birmingham Food Charter	DC	Birmingham	X											X		X	X		X					
05	Burkina Faso	Bobo-Dioulasso Greenways Strategy	LDC	Bobo-Dioulasso	X	X		X				X	X	X	X				X							X
06	Italy	Parco Città Campagna	DC	Bologna			X				X	X											X			
07	United Kingdom	Blu Finger Alliance	DC	Bristol			X				X					X			X	X	X					
08	Belgium	Good Food Strategy	DC	Brussels	X							X							X				X			
09	Tanzania	Dar es Salaam 2012–2032 Master Plan	LDC	Dar es Salaam				X											X	X						X
10	USA	Urban Agriculture Ordinance	DC	Detroit				X		X							X									X
11	Belgium	Ghent en Garde	DC	Gent	X														X				X			
12	France	Metropolitan Agricultural Strategy 2015-2020	DC	Grenoble	X						X			X					X		X					
13	Cuba	Urban and Periurban Integrated Agriculture Program	LDC	Havana	X	X								X					X							X
14	Rwanda	Kigali Master Plan	LDC	Kigali	X			X									X		X							X
15	Portugal	The agrofood parks network of the Lisbon Metropolitan Area	DC	Lisbon	X		X				X	X							X				X			
16	United Kingdom	London Plan	DC	London	X				X			X				X					X					
17	France	Plan d'action Métropolitain en faveur de l'agriculture urbaine	DC	Marseilles	X						X	X				X			X		X					
18	Italy	Milano Metropoli Rurale	DC	Milan	X	X					X					X							X			
19	USA	Urban agriculture policy plan	DC	Minneapolis		X		X								X			X							X
20	France	Les jardins familiaux Programme	DC	Montpellier		X						X				X					X					
21	Germany	Municipal vegetable gardens	DC	Munich			X				X	X							X			X				
22	USA	PlaNYC 2.0	DC	New York		X		X		X		X							X							X
23	Norway	Sprouting Oslo	DC	Oslo	X							X				X					X					
24	France	Charte Main Verte des jardins partagés	DC	Paris		X						X				X					X					
25	USA	City of Portland 's Sustainable Food Program	DC	Portland		X	X	X	X		X		X	X				X	X							X
26	Ecuador	Participatory Urban Agriculture Program (AGRUPAR)	ODC	Quito		X													X							X
27	Italy	Roma Agrifood Plan 2030	DC	Roma	X				X		X				X	X		X	X					X		
28	Argentina	Urban agriculture program	ODC	Rosario		X					X															X
29	Netherlands	The Agenda Food and the City	DC	Rotterdam	X														X					X		
30	USA	Urban agriculture incentive zones	DC	Sacramento				X		X								X								X
31	Brazil	Connect the Dots	ODC	Sao Paulo			X				X								X							X
32	USA	Seattle P-Patch Community Gardening Program	DC	Seattle	X	X										X									X	
33	Singapore	The high-tech farming vision	ODC	Singapore	X	X		X									X		X							X
34	Australia	Community Gardens Policy and guidelines	DC	Sydney	X											X	X									X
35	Taiwan	Garden City Initiative	ODC	Taipei		X										X										X
36	Greece	Kipos3	DC	Thessaloniki			X									X	X						X			
37	Japan	Productive Green Zones	DC	Tokyo			X				X	X														X
38	Canada	GrowTO: An Urban Agriculture Action Plan	DC	Toronto	X											X			X							X
39	Bulgaria	Municipal vegetable gardens and orchards	DC	Troyan			X					X				X	X	X					X			
40	Italy	Strategic plan for green infrastructure	DC	Turin	X					X		X											X			
41	Canada	Urban agriculture guidelines and strategies	DC	Vancouver	X			X		X		X							X							X
42	Lithuania	Community gardens regulations	DC	Vilnius						X		X												X		
43	Australia	Urban Agriculture Strategy 2019-2023	DC	Yarra	X									X		X		X	X	X						X
44	Switzerland	Policies Fostering Multifunctional Urban Agriculture	DC	Zurich	X							X		X									X			

DC = developed countries
ODC = other developing countries
LDC = least developed countries

Annex 3 – UA-related planning and management tools

Category	Sub-category	Description	Cities where it was tested	References
Inventories	Existing UA areas	Inventories of existing plots and urban farms		Pulighe & Lupia, 2016; Taylor & Lovell, 2012
	Vacant or underutilised land/roofs	Inventories of available, public and private land with potential for UA, including abandoned, marginal and degraded lands, brownfield sites, available roofs	Baltimore, US; Detroit, US; New York, US; Rotterdam, The Netherlands; Singapore	Diehl et al., 2020; Góma and Górny, 2021; Horst et al., 2017; Pothukuchi, 2017; Saha & Eckelman, 2017; Smith et al., 2017; Zambrano-Prado et al., 2021
Plans	Comprehensive strategies or plans	A broad framework of spatial strategies that also include UA	Baltimore, US; New York, US; Portland, US; Marseilles, France	
	Specific strategies, plans or programs	Ad hoc strategies, plans or programs for UA	Oslo, Norway; Rosario, Argentina; Toronto, Canada; Yarra, Australia	
	Master Plans	Statutory and binding plans that identify specific zones and land use rules for UA	Almere, The Netherlands; Dar es Salaam, Tanzania; Kigali, Rwanda; Singapore	Jiang et al., 2020; Wang et al., 2021
Regulations	Ordinances	Measures or resolutions that introduce specific rules for UA and the agricultural use in zoning	Detroit, US; Sacramento, US; Tokyo, Japan	Halvey et al., 2021; Horst et al., 2017
	Territorial agreements	Agreements between different actors to establish protection and management rules of urban and peri-urban agricultural areas	Barcelona, Spain; Milan, Italy; Paris, France; Lille, France	Jarrige and Perrin 2017; Magnaghi and Fanfani 2009
	Regulations on UA management	Sectoral regulations on the management of allotment gardens, community gardens, livestock and animal upkeep	Krakow, Poland; Turin, Italy; Rome, Italy; Vilnius, Lithuania	McClintock et al., 2014
	Temporary use	Rules to support and promote the temporary use of vacant lands for UA	Detroit, US; New York, US; Kigali, Rwanda; Vilnius, Lithuania; Zurich, Switzerland	Horst et al., 2017
Incentives	Financial incentives	Funds, subsides, property tax reductions, tax abatements and exemptions to promote the development and the maintenance of UA	Sacramento, US; Seattle, US	Meenar et al., 2017; Napawan and Townsend, 2016
	Technical assistance	Activities promoted by public or private organizations in order to innovate UA practices and technically support urban farmers and gardeners	Oslo, Norway; Sao Paulo, Brazil; Seattle, US	
	Education and training	Educational and training activities promoted by public or private organizations in order to encourage UA practices	Quito, Ecuador; Rosario, Argentina; Rotterdam, The Netherlands; Seattle, US; Sydney, Australia; Taipei, Taiwan; Toronto, Canada; Yarra, Australia	
Assessment	Evaluation frameworks	Indicators to evaluate different social, economic and environmental impacts and results of UA policies/practices	Toronto, Canada	Teitel-Payne et al., 2016

Diagram titled "UA-related planning and management tools"

Annex 4 – Survey "Planning for Urban Agriculture"

Planning for Urban Agriculture

Welcome to this survey!

This form supports the EFUA project (European Forum on Urban Agriculture - https://www.efua.eu/), which aims to enhance knowledge of urban agriculture and to understand how its potentials can be better supported through policies.

This survey aims to gain a more in-depth understanding of the main characteristics of Urban Agriculture (UA) practices and their territorial governance models that can help or hinder them in achieving the goals of urban development strategies. Your contribution to answering these questions will help to define what the UA demands for urban planning are.

By "Urban and peri-urban farming" we refer manly to farm enterprises. Instead "Urban food gardening" refers to not professional agricultural activities (production of food for other goals).

The survey will take about 10 minutes.

Your participation is completely free and refusal to participate will not entail any consequences.

If you have further questions or comments, please feel free to contact us through: enrico.gottero@polito.it

Thank you for your help!

Survey conducted by Politecnico di Torino - Interuniversity Department of Regional and Urban Studies and Planning (DIST) - Polito team: Claudia Cassatella, Giancarlo Cotella, Emma Salizzoni, Enrico Gottero, Stefano Quaglia

This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No. 101000681

* Obbligatoria

1. By participating in this questionnaire, you declare that you have read the information regarding the processing of your personal data by Politecnico di Torino, in compliance with the privacy legislation - Reg. (EU) 2016/679. We invite you to contact enrico.gottero@polito.it for any requests for clarification and information. *

   ○ I have read the information notice pursuant to art. 13 GDPR concerning the processing of personal data by the Politecnico di Torino, available from: https://www.dropbox.com/s/roc3b5zove8g863/EFUA_Planning%20for%20UA_Survey%20Privacy%20Policy_Polito.pdf?dl=0

2. Communications regarding future initiatives on this project promoted by the Politecnico di Torino *

   ○ I AGREE to receive communications regarding future initiatives promoted by the Politecnico di Torino

   ○ I DON'T AGREE to receive communications regarding future initiatives promoted by the Politecnico di Torino

E|F|U|A

3. If you agree, please provide us with an email

4. Your city and country *

5. Your age

6. Are you a professional farmer, an urban gardener or other? *

"Urban and peri-urban farming" refers to farm enterprises. "Urban food gardening" refers to not professional agricultural activities (production of food for other goals

○ Professional farmer

○ Gardener

○   Altro

7. What is your connection with UA?

Please describe briefly your role and background

8. Are you part of an association/organization of farmers or of gardeners?

○ Yes

○ No

9. If yes, which?

E|F|U|A

10. In your opinion, what main urban needs and/or demands can be addressed through urban agriculture?

- Environmental and climate: refers to biodiversity (habitat e species), natural resources (air, soil and water), climate, green infrastructures
- Social: refers to cohesion, inclusion, education, social life, sense-of-place, participation
- Economic: refers to diversification, incomes, local economies, job, public costs
- Health and well-being: refers to qualify of life, physical and mental health
- Food: refers to food security, quality and access
- Cultural: refers to open spaces, landscape diversity, traditional landscape features, leisure and recreation activities, tourist attractions, local knowledge and cultural heritage

☐ Social

☐ Cultural

☐ Environmental

☐ Climate

☐ Food

☐ Health

☐ Well-being

☐ Economic

☐ Altro

11. Where do you practice urban agriculture?

○ Private land

○ Public land

○ Altro

12. Where do your plots are located?

○ intra-urban area

○ outside urban area (peri-ruban, metropolitan region, etc.)

13. Why you practice urban and peri-urban agriculture?

☐ To increase income

☐ To save money or affordability

☐ To be food self-sufficient

☐ To produce fresh and healthy food

☐ To produce organic/pesticide-free food or in more environmentally sustainable way

☐ To socialise with neighbours

☐ To build or develop a sense of community

☐ For recreational purposes

☐ To relax

☐ To improve my state of mind or mental health

☐ To improve physical health

☐ To improve my garden look

☐ To live in a more environmentally sustainable way

☐ For educational purposes

☐ To increase dietary diversity (vegetarian, vegan, etc.)

☐ Altro

14. In your opinion, which are the main barriers to maintain and expand urban and peri-urban agriculture?

☐ knowledge barriers

☐ time to create/maintain urban gardens/ farms

☐ cost to create/maintain urban gardens/ farms

☐ limitations from local regulations/zoning code

☐ issues related to land ownership

☐ farmworker conditions

☐ conflicts with local residents

☐ conflicts with other competitive land uses

☐ lack of cooperation between different public and private stakeholders

☐ contamination of soil

☐ access to land

☐ Altro

15. In your opinion, what should public policies do to improve urban and peri-urban agriculture?

☐ Integrating urban agriculture into planning policies

☐ Identifying specific zones for UA

☐ Identifying a minimum of UA surface at city level

☐ Creating UA plan/vision/strategy at city level

☐ Creating regulations/ordinances to use and management of urban gardens

☐ Creating tools to identify possible sites or inventories of potential vacant and under-utilized lands for UA

☐ Promoting farmers' markets and agri-food products

☐ Promoting UA benefits

☐ Allowing temporary use

☐ supporting or providing training

☐ involving communities in planning process

☐ improving facilities and infrastructures for UA

☐ providing incentives, funding and economic support

☐ providing public land

☐ creating agreements with farmers

☐ Altro

16. Do you have any comments, feedback or suggestions for urban planning, in order to integrate urban agriculture?

modifications in planning policies needed to integrate urban agriculture, unwanted effects or risks to be considered