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# Governance structures and stakeholder's involvement in Urban Agricultural projects: an analysis of four case studies in France

## RESEARCH ARTICLE

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## Abstract

Nowadays, there is great pressure in cities on the demand and supply of food as well as environmental needs, and where Urban Agriculture emerges in various forms to confront this situation. Indeed, Urban Agriculture is a form of agriculture, highlighting its multiple functions in ensuring food security, maintaining urban ecosystem services, and improve the quality of life. Moreover, the use and transformation of abandoned areas is proving to be an appropriate way of creating new green spaces. This research article focuses on analysing the alignment between governance mechanisms, the distribution of the value created, together with the benefits derived. The comparison is based on four case studies in France, two in Paris ("La Caverne" and "Veni-Verdi") and two in Rouen ("Le Champ des Possibles" and "Le Jardin de l'Astéroïde") with different vocations (social vs economic), and which will serve as a basis for investigations into the theme of Food Governance Structures. This research work consisted of carrying out interviews with the stakeholders involved in Urban Agricultural Projects, as well as on-site visits for analysis and evaluation. An empirical analysis through the NVivo Software is used, which allowed the qualitative analysis of the data. The results show that there are similarities between the different initiatives, such as having a well-structured administrative office headed by a president, treasurer and employees. At the same time, there are a few differences in terms of the type of structure, key priorities and management structure. Indeed, three of the four initiatives evaluated aim to reach out to local residents and to understand the benefits of having agricultural spaces in our cities and to recreate this link with nature, unlike the economic initiative, which focuses more on business and commerce and less on social and educational inclusion.

**Keywords:** government mechanism, interviews, stakeholders, Urban Agriculture, Urban Agricultural benefits
**JEL codes:** C83, C93, I18, I38

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## 1. Introduction

By 2030, the United Nations Human Settlements Program has estimated that 60% of the population will live in urban areas (UN-Habitat, 2011). Ensuring a secure and accessible food supply for this ever-growing urbanization is therefore one of the most urgent and complex challenges facing the world, and where Urban Agriculture - cultivation, processing and distribution of food products by growing plants in and around cities (Poggi *et al*., 2021) - is the way to remedy food insecurity in cities (FAO, 2019). Furthermore, Urban Agriculture is also increasingly seen as an essential component of food security, and is regarded by researchers as a highly promising pillar of food supply (Mougeot, 2005; Paganini and Lemke, 2020), which ensures a reconnection to nature (Clement, 2010).

To tackle this challenge, the creation of Urban Agricultural spaces as part of the redevelopment of industrial areas is a process that has been designed to create new green and public spaces that will enhance the development of new positive social and cultural projects (Childers and Diaz, 2000). Therefore, the objective of this research article will be to analyse the alignment between governance structures, stakeholder involvement and the benefits of Urban Agricultural Projects, through the evaluation of decision-making, the cost and benefit that such projects require, as well as the distribution of the value created, together with the benefits this brings. In this study, four cases are evaluated, two in Paris ("La Caverne", which is a private urban farm located in an unused underground space for mushroom production, and "Veni Verdi" which is an association whose goal is to establish gardens on school roofs or in the open ground) and two others in Rouen ("Le Champ des Possibles", designed to help people eat better by educating them about food diversity, consumption and processing at both practical and theoretical levels, and "Le Jardin de l'Astéroïde", whose aim is to rent individual plots to local residents so that they can grow their own fruit and vegetables).

This research paper is structured as follows: First, an analytical framework is established to facilitate understanding of the various concepts that will be used in the remainder of the paper. Then comes the methodology, which consists of fieldwork and visits to various urban initiatives, accompanied by interviews with a number of stakeholders, which leads on to the results section. Finally, the discussion section will be based on a critical evaluation of the results, contrasting with other researchers work, followed by a series of conclusions.

## 2. Analytical Framework

Understanding this document requires prior knowledge of a number of key concepts and fundamentals, since understanding them is essential to correctly analysing and evaluating the results obtained. The following sections present the key concepts on which this article focuses.

### *2.1 Organizational specificities of Urban Agricultural Projects (UAP)*

Diversity and heterogeneity of stakeholders

In 1984, Freeman defined stakeholders as those who can influence or be affected by a specific decision. They can also be defined as representatives of institutions capable of influencing decisions taken at municipal level (Foltýnová *et al*., 2020). Indeed, most of the fieldwork is carried out by involving stakeholders, as they play the crucial role of local pioneers and experimenters. It should also be noted that the integration of different types of stakeholder can be an asset in obtaining the necessary resources, but it can also make collaboration more complex (Prové *et al*., 2015).

According to Freeman (2010), there are two types of stakeholder: primary and secondary. Primary stakeholders are those who have a direct involvement with the organisation concerned, such as customers, shareholders, employees, suppliers and regulators. Secondary stakeholders refer to those who are not involved in transactions

with the organisation but who can affect it or are affected by it, such as academic institutions, NGOs, neighbours, advocacy groups and social activists. In this article, both primary and secondary stakeholders are analysed. In fact, the application of critical analysis methods of internal heterogeneity within stakeholder categories lends to the development of greater inclusivity by acknowledging important differences, with a view to deepening our understanding of societal uncertainties and the heterogeneity of stakeholder perspectives (Lelea *et al*., 2015). Moreover, relationships between stakeholders are often dynamic and mutually dependent, and their degree of significance is based on a wide range of degrees of legitimacy and power (Hall *et al*., 2014; Mitchell *et al*., 1997).

*Outcomes of Urban Agricultural Practices (UAP)*
*Benefits of UAP*

Urban Agriculture is considered as an important component of practices aimed at food sovereignty and the protection of urban ecosystems (Opitz el al., 2016). Indeed, several studies demonstrate the importance of Urban Agriculture in providing a variety of social, economic and environmental services within urban territories (Chalmin-Pui *et al*., 2021; Scott *et al*., 2020).

From Table 1 we can suggest that the implementation of UAP within territories would ensure many benefits. For example, the requalification of abandoned areas such as urban and industrial spaces is a process that can make the cities more resilient (Gros-Balthazard, 2018), leading to the creation of new green and public spaces, and the development of new economic and cultural projects and activities (Childers *et al*., 2000).

*Challenges of UAP*

Despite the many potential benefits of ecosystem services provided by urban areas, Urban Agricultural Gardens (UAG) are known to be heterogeneous and difficult to characterise from one garden to another (Orsini *et al*., 2020), making it difficult to establish a coherent picture of the demographic characteristics of the distribution of urban gardens (Ambrose *et al*., 2023). Moreover, further research is needed to empirically assess the environmental impacts of urban soils prior to UAG implementation, as it can be contaminated or of poor quality, air pollution, water contamination, etc. (Guitart *et al*., 2015).

**Table 1.** Benefits of the implementation of UAP from the literature.

| **Environmental and nutritious aspect** | **Social aspect** | **Economical aspect** |
|---|---|---|
| Reduce food and nutritional insecurity in relation to food sovereignty, accessibility and quality (Golden, 2013; Ribeiro *et al*., 2015) | Recreational and leisure spaces for relaxation (Bottiglione, 2014; Companion, 2016) | Revitalize local economies by creating new jobs and attracting investment (King and Shackleton, 2020; Okvat and Zautra, 2011) |
| Support better food security and public health (Egerer *et al*., 2022; Flies *et al*., 2017; Ribeiro *et al*., 2015) | Improve mental health and well-being, promoting stress management and encouraging social cohesion (Clatworthy *et al*., 2013; Maheshwari 2017; Soga *et al*., 2017). | Offers direct access to a wider range of nutritionally rich foods at a lower cost than the market price (Grebitus *et al*., 2020; Okvat and Zautra, 2011). |
| Air purification and biodiversity conservation (Czembrowski *et al*., 2019; Delshad, 2022). | Sustaining spaces for the exchange of knowledge and the creation of community bonds (Hallberg, 2018; Uhlmann *et al*., 2018) | Transform abandoned spaces to resilient cities (Gros-Balthazard, 2018; Satterthwaite *et al*., 2010) |

Source: The authors and review of literature.

Besides the cost of implementation (Lemeilleur and Sermage, 2020), the sustainability of the governance mode and achieving optimal alignment between governance mechanisms and stakeholder benefits/costs is proving to be a real challenge (Romagny *et al*., 2023), which can result in a poor governance structure (Mintz and McManus, 2014). Therefore, to overcome this challenge, successful UAG implementation needs to be coupled with "political and/or administrative support" (Fox-Kämper *et al*., 2018), for which an understanding of local and political conditions, and the barriers they generate, is also necessary for policy development and reform (Mougeot, 2001).

### *2.2 The issue of governance of UAP*

Governance can be seen as the system of strategic processes and inputs, as well as appropriate institutions, regulations, and interactions, that enable effective policymaking (OECD, 2015), managerial implication in a multilevel approach. Indeed, local and national governments play a role in promoting Urban Agriculture, as well as facilitating multi-stakeholder processes that support the multifunctionality of Urban Agriculture activities (Halloran and Magid ,2013).

This issue of governance for UAP requires consideration of the multiplicity of benefits and outcomes (Nicholas *et al*., 2023) which must be aligned with the main governance mechanisms set up at local as well as territorial level. Following this alignment concept, Prové *et al*. (2015) suggest for instance that "the complexity of the UA advocacy movement, involving different (state, market, civil society) actors operating at different governance levels and advancing different (sustainability) goals, makes novel demands on urban policy-making and planning processes". They argue that "in light of this complexity and uncertainty, scholars have pointed out the need to identify governance arrangements and tools that can orchestrate the new creative multi-actor, multilevel, multi-purpose and multi-sector trajectories" (Prové *et al*., 2015).

Moreover, assessing UAP requires an analysis of the governance of Urban Agriculture and its stakeholders to better understand the appropriate governance processes. For this, it is necessary to consider three levels of complexity that have an impact on governance processes: the wider urban context, the external characteristics and the internal characteristics of governance. By external characteristics of governance, are meant partnerships and public policies, while the characteristics of internal governance are the initiative's objectives, scale, timetable, stakeholders, power and capacity to act (Prové *et al*., 2015).

### *2.3 Analytical framework*

Understanding the governance of a project or initiative requires a deep understanding of the various components that make it up, as well as the roles, objectives, and missions of the players at different levels of the system and its environment, analysed through the concept of alignment as developed below. Table 2 explains the various elements with which it is necessary to cope in order to better understand the analysis.

Regarding the stakeholders, who were defined in 2020 by Foltýnová as representatives of institutions that can influence decisions taken at municipal level, represent a crucial element, with the role of responding to requests and providing assistance where needed (table 2). As far as balanced value is concerned, this is very important, as it encompasses many variables, including motivation, benefits, costs, and so on (Table 2). In addition, the governance mechanism serves to ensure proper supervision, control and management of the project, as well as a post-political environment, focused on the development of consensual policies and the narrowing of political opportunities (Swyngedouw, 2015), as shown in Table 2.

Consequently, the present research paper analyses, for each case study, the results for the three dimensions of environment, economy and human/social aspects, in order to better understand the distribution of the value created and the resulting benefits, together with the proper understanding of the alignment between governance mechanisms and stakeholder involvement. Correspondingly, four components of governance

**Table 2.** The various components and their role in project governance.

| Component | Variable |
|---|---|
| Stakeholders | Respond to requests/assistance |
| | Investors |
| Users | Person interaction with a product or service |
| Governance mechanism | Supervision |
| | Incentives |
| | Control mechanisms |
| Value balance | Motivation |
| | Rewards |
| | Benefits |
| | Costs |

Source: The authors.

structures are detailed, including type of structure (ownership), financial support, cost management, stakeholders/administrative office. Therefore, our analytical framework helps identify the structural invariant of governance structures based upon the rationale of governance value analysis developed by management scientists, where the global value of the set of relationships within a collective form of organization must be maximized by the institutional matrix, i.e. governance forms and governance mechanisms, which are implemented by players in place.

## 3. Methodology

In this research article, the methodology employed follows Yin's (2003) researcher's model, which consists of analysing the case studies in an exploratory and descriptive manner. This methodology makes it possible to investigate, clarify ambiguities, uncover unexpected results and information-rich material in order to gain an in-depth understanding of the underlying research (Rice and Ezzy, 1999). Moreover, interviews have been done with many stakeholders (project leaders, managers, communications managers, farmers, volunteers, etc.) of each Urban Agricultural project, as well as visits onsite to make a better investigation and analysis.

### *3.1. Data collection*

#### *Study area*

To carry out this work, 4 case studies were selected, two with a social vocation ("Le Champ des Possibles" and "Le Jardin de l'Astéroïde") and two with an economic vocation ("La Caverne": urban farm and "Veni Verdi"). These cases have been carefully and precisely chosen, since they deal with and apply the aspects that correspond most closely to our research. In fact, a vaguer selection of cases was first drawn up before the final choice of our cases was made.

Table 3 gives a description of the main characteristics of each of the sites evaluated, specifying the number of square meters in each site, as well as the number of people interviewed. More detailed information on the content of the interviews will be given in the following sections, while more information on the description of each site will be evaluated and developed in the results section, since this information was obtained from the interviewees 'own words'.

#### *Interviews and data analysis*

In-depth interviews were carried out with each of the four selected initiatives in order to gain a better understanding of the structure and objectives of each project, which would enable an inter- and intra-analysis

**Table 3.** Main characteristics of the evaluated study sites.

| Initiative | Location | Area ($m^2$) | Type of UAP | Number of interviewees |
|---|---|---|---|---|
| "La Caverne": Urban Farm | Paris, France | 10 000 | Underground Urban Farm | 2 |
| "Veni Verdi" | Paris, France | 15 000 | Open-ground and Rooftops Gardens | 3 |
| "Le Champ des Possibles" | Rouen, France | 20 250 | Urban Garden: permaculture | 9 |
| "Le Jardin de l'Astéroïde" | Rouen, – France | 4500 | Allotments | 6 |

Source: The authors.

**Table 4.** Example of questions asked during interviews.

| | Questions interviewed |
|---|---|
| General information | Can you tell us a bit about yourself? |
| | What motivated you to work on this project? |
| Related to the project | In your opinion, what are the objectives of this project? |
| | What kind of activities are you organising for this project? |
| Challenges and obstacles | What challenges did you face when working on this project? |
| | Could you find solutions to solve them? |
| Urban Agriculture | What Urban Agriculture is and why is it important? |
| | What urban farming practices do you use? |
| Environmental aspects | How do you think Urban Agriculture could contribute to ensuring biodiversity conservation? |
| | How does Urban Agriculture contribute to a healthy, sustainable environment? |
| | Could Urban Agriculture help to improve soil regeneration? If so, how? |
| Social and nutritional aspects | Are you maintaining relations with other stakeholders (experts, farmers, municipalities, consumers, etc.)? |
| | Can you explain how Urban Agriculture could contribute to food security? |
| Economic aspect | Does this project aim to ensure the development of an economic level? |
| | How are products distributed or sold? |
| Governance structure (project managers) | How do you measure the results of the project and use them to adjust your governance structure and improve the performance of the project? |
| | Do you benefit from financial or non-financial support? From whom? |
| | How are costs and investment managed within the project? |

Source: The authors.

of the organisation of each of the projects, whether they had a social or economic vocation. Table 4 provides a clearer explanation of the various types of open-ended questions we have asked, and which have been answered in an orientation to our needs. Furthermore, it should be noted that other questions relating to the project governance structure and budget management etc. were only asked to project managers and coordinators. Overall, the interviews lasted around an hour with each of the participants, and the questions were very clear and precise, which allowed in obtaining the desired results.

The interviews were conducted and recorded vocally (with the interviewees' permission) and transcribed in French, followed by a professional translation into English for subsequent analysis. The data obtained in this research article was processed using NVIVO software, as it is now widely recognized for its effectiveness in processing data related to qualitative and mixed-methods research (NVivo, 2019; Zamawe, 2015). As many authors suggest, this software not only makes it possible to unravel the complexity of real-life situations, but also, through iterative approaches, to generate and develop a theory based on a comparative qualitative analysis of a selected set of case studies (Dalkin *et al*., 2021).

*Field analysis*

In order to obtain more concrete and relevant results, it was essential to carry out field research. Travelling to the field several times enabled us to get in touch with the participants so that we could carry out the interviews, since no other method was available as we did not have all their contacts, so travelling made it easier to obtain confirmation of participation in the project. In addition, the fieldwork served as a basis for analysing the current situation and its evolution over time, given that each of the sites had been visited at least thrice, and above all, the managers, volunteers and partners showed us around the sites and explained what existed and what they were planning to do. Visits are therefore an invaluable way of getting to know people and learning more.

## 4. Results

The following sections present in greater detail the results obtained, with the ultimate aim of answering our research question about analysing the alignment between governance mechanisms, along with the distribution of the value created, together with the benefits it brings:

*4.1 Case studies evaluated*

This research study evaluated four case studies in France, two each in Paris and Rouen. The following sections will first give a presentation of each of the cases, taking into consideration their objectives and history of implementation. Indeed, the four cases analysed are: “La Caverne” and “Veni-Verdi” located in Paris (Figure 1), and “Le Champ des Possibles” and “Le Jardin de L’Astéroïde” located in Rouen. The following maps represented in Figure 2 were created using QGIS Software, where the location of each of

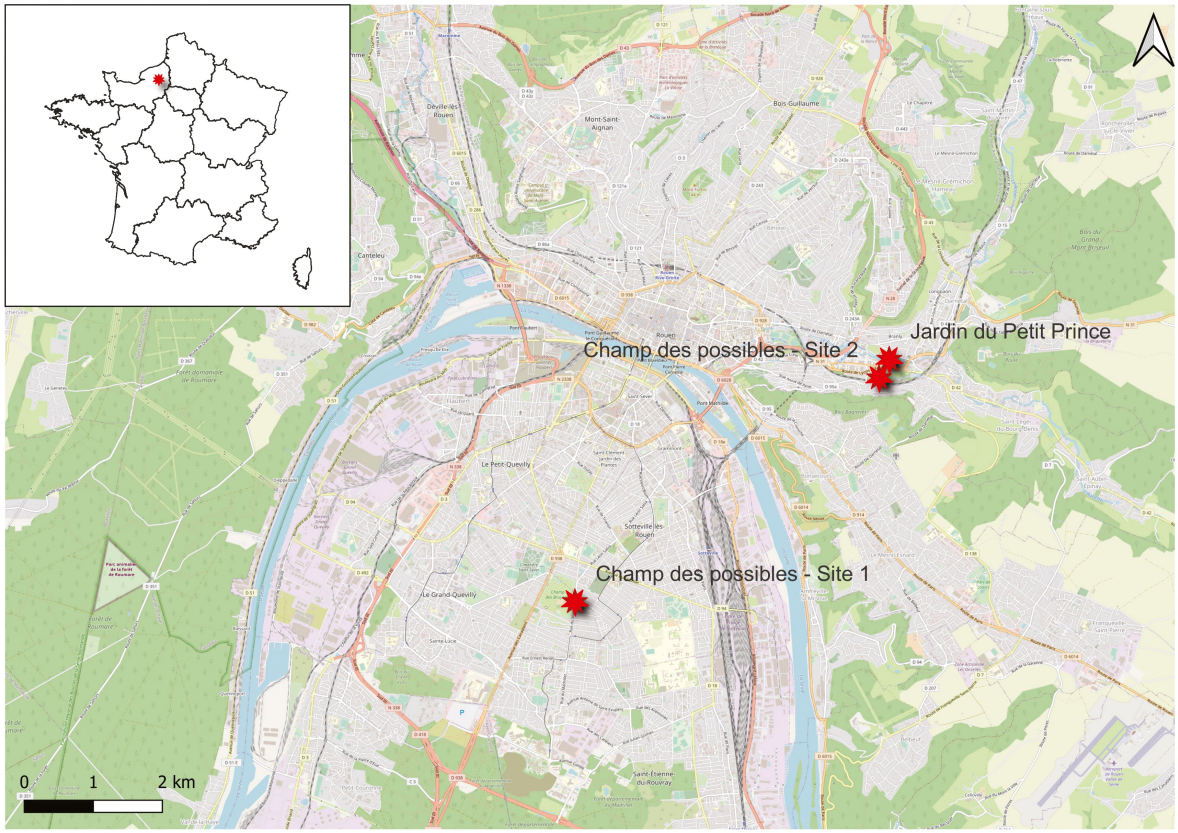


**Figure 1.** Location of the initiatives evaluated in Paris. Made using QGIS Software.

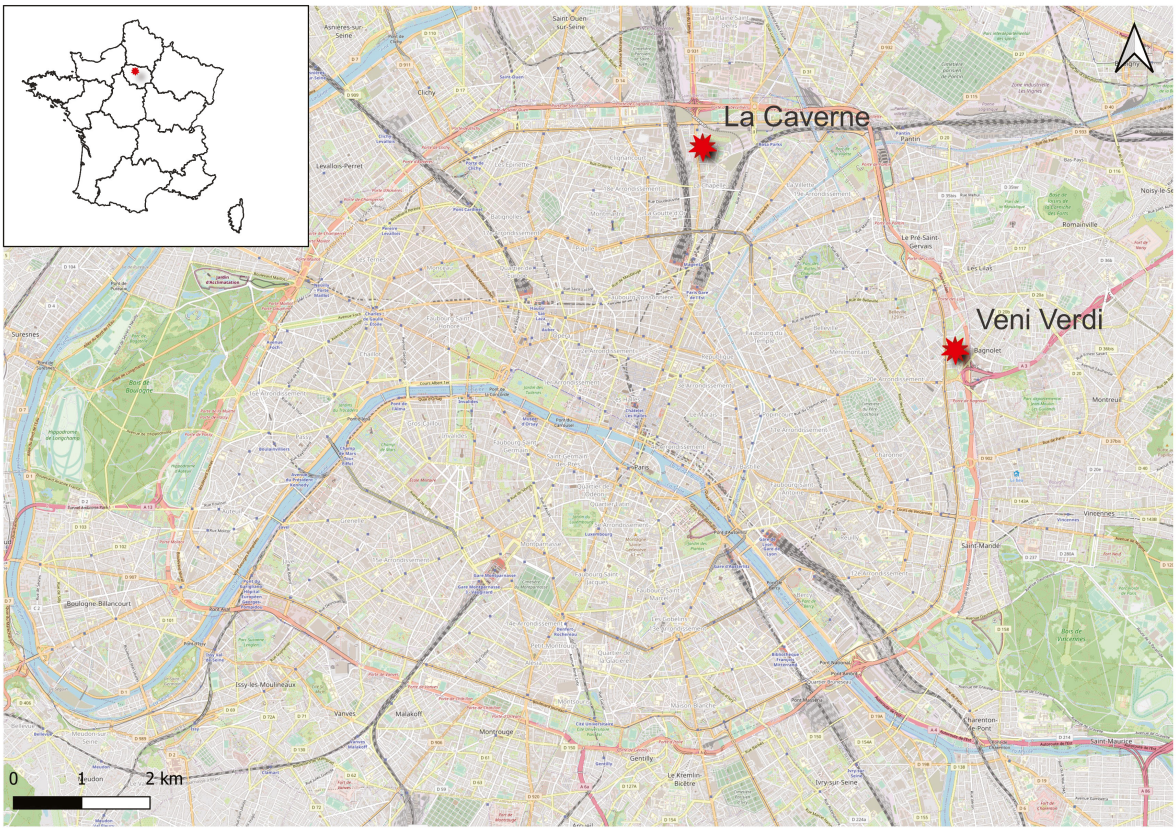


**Figure 2.** Location of the initiatives evaluated in Rouen Made using QGIS Software.

the two cities is clearly indicated in the map of France in the corner of the map, as well as the initiatives evaluated in each of the cities.

From Figures 1 and 2 we can clearly see that, in the case of Paris, the two cases evaluated are in the heart of the city, but are nonetheless moving towards the periphery, while maintaining good accessibility for citizens. This can be explained by the presence of more greenery and the possibility of setting up urban farms, as well as by the distance from pollution and population density, which facilitates installation and procedures. The same applies to Rouen, where initiatives are moving more towards the outskirts of the city while remaining in the centre. Plus, one of the "Le Champ des Possibles" sites (Figure 2, Site 1) is right in the centre of the city.

*Cases in Paris*

*"La Caverne" Urban Farm:*

"La Caverne" is a private urban farm located in Paris (Figure 1), dedicated to the transformation of unused underground car parks into re-qualified spaces. "La Caverne" focuses on the production of three varieties of mushroom. Indeed, in 2017, it was launched thanks to its acceptance of the Paris-culteurs call for projects, which aims to introduce agriculture into the city. Since its acceptance, "La Caverne"has not stopped producing until today. Moreover, "La Caverne" is currently gradually expanding and has now opened its doors in 7 sites in France, including the cities of Lyon, Bordeaux and Paris, with the help of the French State's subsidies.

*"Veni Verdi" Association:*

"Veni Verdi" association was set up in 2010 in the 20th arrondissement of Paris by the Metropolis of Paris (Figure 1), with the main objective of establishing gardens on the roofs of schools or in the open ground, to raise awareness among young people, where they first started with opening their first school urban garden in 2011, and are now working with 9 sites, all located in Paris. Every year, the association must respond to calls for projects in order to obtain subventions and funding, to ensure the continuity of the project. The main objective of "Veni Verdi" is to provide sustainable food, while building up a territorial network to ensure a circular economy and short supply chains, as well as selling vegetables, fruit and flowers to local stores near their sites. Preparing the younger and current generations for environmental challenges, while working on the region's food resilience, is the main aim of this association.

*Cases in Rouen*

"*Le Champ des Possibles" (The field of possibilities, in English)*

"Le Champ des Possibles" is a non-profit association that aims to help people eat better by educating them about food diversity, consumption and food processing at all stages, while integrating cooking into their activities. "Le Champ des Possibles" is spread over two sites: Park of Bruyères and Repainville, both located in Rouen (Figure 2) and which were previously industrial areas. Indeed, this project has been implemented thanks to a call for projects from the Region and the Rouen Normandy metropolis, which involved transforming an old horse-racing track in Rouen's Parc into an urban space. The association emphasizes the educational and social aspects, around which the economic model is built, by selling seedlings and never vegetables.

*"Le Jardin de l'Astéroïde" (Astéroïde Garden, in English)*

"Le Jardin de l'Astéroïde" is an urban garden based in Rouen (Figure 2), with the main aim of renting out individual plots to neighbouring residents so that they can grow their own fruit and vegetables. Before the garden was set up, there was a wild, abandoned area where cars used to park. After four years of administrative procedures with the town hall of Rouen, everything was ready to install these shared gardens in 2016. Moreover, within "Le Jardin de l'Astéroïde", the use and consumption of the harvested produce is solely for personal use or exchange between members, and any type of sale is not authorized. Additionally, until now, the garden's funding has been limited to the annual dues paid by members and other volunteers, leading to the project's continuity.

*4.2 Activities realized and urban practices employed*

When conducting the interviews, a number of questions were asked about the activities carried out within each of the projects, as well as the urban practices they employ. Table 5 provides a clearer and more detailed illustration of these two aspects.

Regarding the activities carried out, it is clear that the 4 initiatives share a number of common activities. In fact, what all the initiatives have in common is that they are all open to the public for visits, but in different ways: Visits to "La Caverne" are strictly limited to professionals, and require an entrance fee. On the other hand, for "Le Jardin de l'Astéroïde" and "Le Champ des Possibles", they organize open days and events for the general public so that people can come and discover their urban farm for free, and even perhaps join their project as volunteers, since this is one of their main objectives (considering that "Veni Verdi" also organizes paid professional courses). With regard to the "Le Jardin de l'Astéroïde", the interviews conducted show that so far, they have not yet organized any visits with other actors, but that they are always open to the general public so that they can come and get to know the association, discover the garden and feel the freshness of the countryside.

**Table 5.** Activities and urban practices employed within Urban Agricultural cases analysed.

| Project | Activities realized | | | | Urban practices employed | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Worksite** | **Pedagogy** | **Workshops** | **Visits** | **Individual plots** | **Collective garden** | **Biological agriculture** | **Roof** | **Apiary** |
| "La Caverne" | | | | x* | | | x | | |
| "Veni Verdi" | x | x* | x | x | | x | | x | |
| "Le Champ des Possibles" | x | x | x | x | | x | | | |
| "Le Jardin de l'Astéroïde" | x | | x | x | x | x | | | x |

x*, charges included. Source: The authors.

Secondly, it is clear that "Veni Verdi", "Le Champ des Possibles" and "Le Jardin de l'Astéroïde" are organizing workshops and worksites, which includes activities related to cooking learning and the use of vegetables correctly, since its objective is more related to producing savings, as well as learning how to plant a seed and how to properly cultivate it to be able to grow a good final crop.

Table 5 also shows the urban practices applied in each of the four selected cases, where we can see that there are both similarities and differences. "Veni Verdi", "Le Champ des Possibles" and "Jardin de l'Astéroïde" share a common practice: collective gardens. What's more, each of the initiatives employs an additional practice that differs from the others: for example, the "Jardin de l'Astéroïde" also has individual plots and beekeeping, while "Veni Verdi" installs its crops on rooftops. At the same time, "La Caverne" uses a completely different practice: organic soilless cultivation. This diversity in the use of urban practices within cities shows the different possibilities for urban involvement that these projects can bring.

*4.3 Economic, social and environmental aspects*

When conducting the in-depth interviews, interviewees were asked a number of questions about the social, economic and environmental impacts of their involvement in these projects and the resulting contributions. To facilitate the understanding of the impacts in the three dimensions of sustainability and make it easier, Figure 3 gives a clearer picture of these three key aspects, drawn from the results of interviews with the respondents questioned, and where the arrows refer to the link between each aspect to the other.

The interviews we conducted with the stakeholders we interviewed enabled us to identify three key aspects, which form the basis for the implementation of each of the initiatives (Figure 3). Moreover, these aspects may be directly or indirectly linked. Regarding the environmental aspect: "Le Champ des Possibles", "Le Jardin de l'Astéroïde" and "Veni Verdi" agree that the use of natural, relatively inexpensive fertilizers for food production helps to improve soil quality and hence its regeneration while providing better air purification. However, "La Caverne" does not work with soil since they are using biological agriculture. Another important aspect is the social aspect, which involves creating links between different participants, which will help to ensure good social inclusion as well as reconnecting urban areas with rural areas. The same applies to the economic aspect, which involves making savings on supermarket purchases, thereby improving the consumer's quality of life and well-being. Indeed, all the interviewees agree that their implementation within those initiatives allowed them to improve their quality of life and living conditions.

*4.4. Impact of Urban Agriculture on the community*

All of the interviewees acknowledge that their participation in these initiatives has enabled them to improve their quality of life and living conditions, as one of the "Veni Verdi" interviewees said: "It's really nice to be

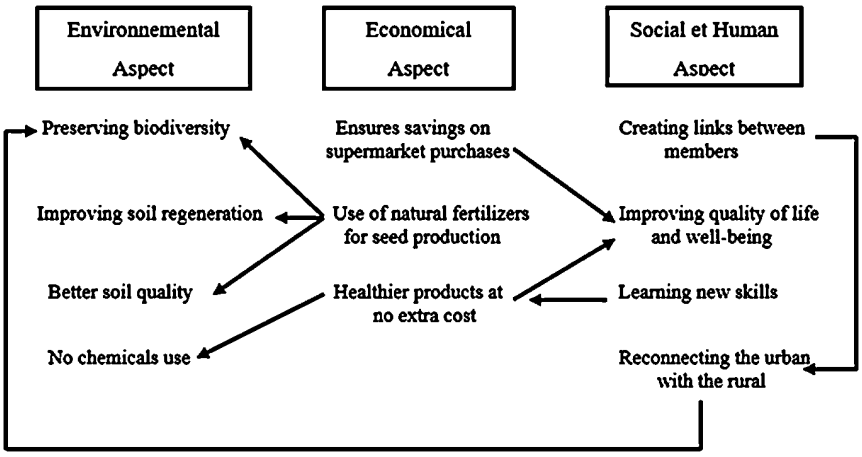


**Figure 3.** Economic, social and environmental aspects identified from the interviews.

here and I'm very happy to contribute to this team". In addition, the socio-economic profiles of the gardeners suggest that their implementation in the UAG plays an important role in social integration. In fact, they feel closer to their neighbours, more relaxed and improve their mental health, as one member put it: "It's a time to relaxation, physically and mentally". In addition to the social benefits, all the participants agree that the implementation of these UAP has enabled them to make certain savings, since it allows them to produce fresh, healthy food at a much lower price, as one of the members interviewed said: "my quality of life has improved a lot, and I can have access to fresh fruit and vegetables at a lower price".

*4.5 Governance structure and mechanisms*

One of the main lines of this research study is to analyse the alignment between governance structures, stakeholder involvement and the costs/benefits balance of Urban Agricultural Projects. The purpose of Table 6 is to gain a better understanding of the type of structure of each company, the identification of costs versus benefits, and the involvement of stakeholders in these aspects, which will enable us to better frame and respond to our problem, consisting of analysing the alignment between governance mechanisms, the distribution of the value created, and the resulting benefits. All the information contained in this table was obtained through the interviews we conducted.

Table 6 shows that various governance aspects were evaluated during the interview. Firstly, the type of governance structure is not the same for our selected case studies, where "La Caverne" is a 100% economic enterprise, while le "Le Jardin de l'Astéroïde" is 100% social, and "Veni Verdi" and "Le Champ des Possibles" are in-between entities, i.e. they carry out their pedagogical and learning activities, while having a developed economic side.

On the financial side, "La Caverne" is entirely supported and financed by the State and claims that these subsidies are "sufficient", while "Veni Verdi" and "Le Champ des Possibles" claim to receive quite a few subsidies, notably from the city of Rouen/Paris, the town hall or volunteers, and that they have to respond to calls for projects to ensure the continuity of their project. "Le Jardin de l'Astéroïde", on the other hand, says it does not need any subsidies, and that it relies solely on donations from members (it has received help from the city to set up an apiary and create some basic elements).

In terms of cost management, we can see that there is a lot in common between the different entities, where they all have a treasurer who deals with cost management, as well as the town council in some cases ("Le Champ des Possibles" and "Le Jardin de l'Astéroïde"), for carrying out tasks such as installing fences, poles, and so on.

**Table 6.** Presentation of the governance structure of the various entities, results obtained through interviews.

| | Governance structure | Paris | | Rouen | |
|---|---|---|---|---|---|
| | | "La Caverne" | "Veni Verdi" | "Le Champ des Possibles" | "Le Jardin de l'Astéroïde" |
| Type of structure | Enterprise | x | | | |
| | Profit-making association | | x | x | |
| | Non-profit-making association | | | | x |
| Financial support | State | x* | x | | |
| | Metropolis | | | x* | |
| | Town hall/City | | x* | x | x |
| | Private | | x | | |
| | Membership/volunteers | | | x | x* |
| Cost management | Deputy Treasurer/Finance Director | x | x | x | x |
| | Town hall/City | | | x | x |
| Stakeholders/ administrative office | President and Director | x | x | x | x |
| | Management office | x | x | x | x |
| | Salaried employees | x | x | x | x |
| | Interns | x | x | x | |
| | Trainees | | x | x | x |
| | Members with plot | | | | x |
| | Members without plot | | | | x |

* Financial entity. Source: The authors.

Concerning the administrative office, the four entities have a well-structured office composed of a president, manager and employees. In addition, interns also have a place in each of "La Caverne", "Veni Verdi" and "Le Champ des Possible", unlike "Le Jardin de l'Astéroïde", which does not employ interns, but does have other participating stakeholders and trainees (Table 6).

## 5. Discussion

Urban Agriculture has become a key research area seen its relevance to current challenges and future considerations. The changing living conditions, including drought, climate change and increasing urbanisation, require a closer look at the role of Urban Agriculture (Türker and Akten., 2022).

On the basis of the results of the study presented above, we note that the four initiatives evaluated have points of convergence and points of divergence. "Veni Verdi", "Le Champ des Possibles" and "Le Jardin de l'Astéroïde" have as their main objective and motivation to reach out to local residents and particularly young public, since they believe that "children are our future generation", as an employee of "Veni Verdi" expressed it, which will allow to understand the benefits of involving UAG's projects in the sense of recreating this link with nature and thus creating value (Figure 3). However, "La Caverne" has more of an economic objective, namely the production and sale of locally-grown mushrooms.

Regarding the social community participation and involvement, as far as activities are concerned, "Veni Verdi" and "Le Champ des Possibles" organize free open days for the general public, while "La Caverne" organises paying visits reserved exclusively for professionals, allowing the company to generate an added value. In contrast, "Le Jardin de l'Astéroïde" does not organise any activities, but "intends to do so in the future" (Table 5), according to one of the office members. Indeed, in this sense, we can find the work of

Yusoff *et al*., in 2017, which has shown through its research and field practices in Malaysia that community participation in Urban Agriculture activities can help to strengthen links between residents and help them to learn more about and live with this subject, given its vital importance in our daily lives; and to ensure a better food future for all.

On the economic side, as shown in Table 5 and described before, "La Caverne" only organizes visits for professionals, not for the public, although the visit is subject to a fee. Moreover, it does not organize other activities for the public, on the pretext that it is a business and that its objective is commerce and not social and educational inclusion. In line with this aspect of the economic side of sustainability and the creation of new job opportunities, the work carried out in Germany by Krikser *et al*. (2019) shows also that these urban and peri urban practices also aim to increase economic competitiveness by making use of new business opportunities through direct marketing, innovation and interaction with customers, thereby contributing to greater economic recovery and reducing dependence on public support. In parallel, "Veni Verdi" organizes paid professional events and sells all its products directly to consumers or through grocery stores, which plays an important role in their economy. Same for "Le Champ des Possibles" that sells only seedlings, and never vegetables, either through their on-site open house, or through local events or partners. In a similar vein, the Organization of Markets and Producers of Urban Agriculture (OMPAU), which includes as distribution networks to individuals either directly at the place of production by picking or selling baskets, or through restaurants, markets, grocery stores (both luxury and solidarity) (Saint-Ges, 2021). Finally, " Le Jardin de l'Astéroïde", for its part, departs from all these perspectives and declares that the creation of this garden is mainly linked to the desire to create a place of natural and cultural value for the public, while giving them the opportunity to grow, harvest and use their own fruit and vegetables. This is in line with the work carried out in the Centre-Val de Loire Region in France, where members claim that allotment gardens provide them with vegetables, fruit and flowers, and are motivated by the need for "quality food", which is "healthier", chemical-free and, above all, more economical (Robert and Yengué, 2017).

Regarding to the alignment of governance structure, Table 6 clearly shows that the four cases analysed have a well-defined main governance structure, composed of a president, directors and employees, who are responsible for the proper management of the business. The difference is clearly visible in the way tasks are carried out, which, after the intervention of the project manager at "La Caverne", emphasizes that "everyone has their task", and that employees therefore have well-defined tasks which they must respect. At "Le Champ des Possibles" and "Veni Verdi", it is the same thing, except that the people interviewed emphasize that they always help each other to accomplish their goals. At the "Le Jardin de l'Astéroïde", everyone works on their own plot and harvests what they have sown, and social relationships are created between residents through organized workcamps or during work on the collective plot. Generally speaking, the players maintain good relations with each other, with of course, as all the interviewees from each company pointed out, a few misunderstandings that may arise. This can be complemented with the work carried out by Hammelman (2019) who points out that a number of social norms and social assumptions are deeply rooted in local governance and reproduced in our food systems in a way that limits progress towards social equity.

The four cases analysed show that the structure of the governance mechanisms is well defined and respected, enabling them to identify their needs, in terms of administration, task performance and project progress, which in turn enables them to better express their needs to the State, the metropolis, the cities of Rouen/Paris, private funding and through the calls for projects in which they participate to ensure the continuity of their project, enabling them to obtain subsidies and make good progress on their projects. And where their objectives fit perfectly with the implementation of UAP within cities, given the many benefits that accrue, environmentally, beneficially, socially and in terms of a sustainable supply of nutrients. The study carried out by Halloran and Magid (2013) in Dar es Salaam and Copenhagen also highlights the role of a good governance structure in promoting Urban Agricultural activities. In fact, as reported previously, both local and national authorities are supporting the involvement of the community at local level in the provision and conservation of space for Urban Agriculture, as well as access to such land to provide many benefits such as providing fresh food and vegetables

## 6. Conclusion

Over the past two decades, Urban Agriculture in cities has attracted growing interest due to its potential benefits in terms of socio-cultural development, public health, the environment, and the economy (Santo *et al*., 2016). In addition, there is a growing awareness of the significant contribution that the connection with nature brings to our mental health and well-being (Capaldi *et al*., 2015; Uhlmann *et al*., 2018), and which have been recognized through many initiatives such as Milan's Urban Food Pact, which promotes local food production as a way of addressing the issue of Urban Agricultural (MUFP, 2015). Due to the high diversity of stakeholders involved, and potentially impacted, by these Urban Agriculture Projects, and also of the complexity of urban milieu, the question of how the governance of these projects, at the multiple levels of their organisation, is designed, is paramount to their success. Thus, this research article evaluated the alignment between governance mechanisms of implementing Urban Agricultural Projects, and the distribution of the value created, together with the benefits and costs this will bring.

The case studies evaluated were carried out in two cities with different locations, Paris being densely populated and facing pollution problems, while Rouen is a metropolis whose main objectives are to support the environment and agriculture within cities, in a context of industrial transition. In this sense, it is interesting to note that both cities are currently aiming to make their cities green and sustainable for current and future generations. This means that the various players in charge are encouraging these projects and are increasingly setting up subsidies to facilitate the involvement of these projects within the cities.

From the analysis carried out in this research work, it can be seen that the main objective of the four cases studied is to ensure the production of crops within the city by setting up urban spaces: "La Caverne" ensures local production and the sale of mushrooms in an underground garage, "Le Champ des Possibles" grows different fruit and vegetables for local consumption by participants and members, "Le Jardin de l'Astéroïde" rents out plots of land to local residents, enabling them to grow their own fruit and vegetables, which improves their diet and saves them money, and "Veni Verdi" grows fruit and vegetables in the city's schools and colleges and sells them to local grocers.

The results show that the structure of the governance mechanisms in all four cases is defined and respected in a rational way, enabling them to identify their needs, both in administrative terms and in terms of task implementation and project progress, which in turn enables them to better express their needs to the State, the metropolis, the cities of Rouen and Paris as well as private funding, and thus to obtain subsidies and make good progress with their projects. And where their objectives fit perfectly with the implementation of Urban Agricultural Projects within cities, given the many benefits that accrue, environmentally, beneficially, socially and in terms of a sustainable supply of nutrients.

Following these results, we suggest approaching the topic of urban projects' governance through the definition of a comprehensive typology of their diversity. As a first output of this research, the main delineation principle which could help this categorization of projects is to be found in a holistic (i.e. taking into account the diversity of players) approach of all the benefits and all the costs of such projects, in order to avoid mal adaptations and major misalignments.

The results of this research show that there are limitations, such as not getting economic support from those in charge by drawing up several open calls for tenders for large production projects and start-ups, as well as providing them with more subventions and support. In addition, it is difficult to get people to attend and take part in workshops and other activities, and above all to help share information about the benefits and advantages that Urban Agriculture brings to the lives of present and future generations.

Finally, the various benefits and contributions of Urban Agriculture to our quality of life, health, physical and moral well-being show the importance of involving and integrating urbans spaces into our daily lives. To

this end, various projects relating to Urban Agriculture are being planned in all its different forms, whether on rooftops, gardens, balconies, urban gardens, etc. These projects should be carried out with the help of experts in the field, while taking into consideration the various indicators that may or may not allow the implementation and optimal governance of such projects, to ensure greater productivity and better results, which will be beneficial for the population and for the city itself.

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