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In pursuit of resilient community gardens: A comparison between bottom-up and hybrid initiatives in New York and Amsterdam

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The numerous bottom-up initiatives appearing in Western cities, especially since the outbreak of the economic crisis in 2008, leads this research to focus on the future and endurance of these projects. Sometimes implemented and maintained only by citizens, other times supported by institutions, all of these initiatives aim at becoming successful and resilient. But how to measure the resilience of these grassroots efforts is still an open debate. In order to achieve this goal, the present study focuses on four community gardens as an example of citizen-led initiatives in New York and Amsterdam. Based on a literature review on the topic of resilience applied to socio-ecological systems and an analysis of these four community gardens, a list of seven indicators is presented. This study shows that external indicators, which are related to the socio-economic and institutional context, are more relevant to measure resilience than internal indicators, which refer to the organization of the initiative. Even though New York can be seen as a frontrunner in comparison to Amsterdam due to its longer tradition of grassroots support, the article identifies lessons from which both cities can learn in order to implement more resilient bottom-up initiatives in the future.

1. Introduction

Since the 1970s and continuing into the present, Western cities are witnessing a rise in the number of citizens initiatives. Thanks to this grassroots movement, civic society is acquiring more responsibilities in the process of city making (Angotti, 2008). This study analyzes this phenomenon and chooses one type amongst the many citizen-led initiatives that are taking place in cities, urban agriculture projects, focusing specifically on community gardens. Some of these community gardens are implemented and maintained only by residents and others are supported by institutions. But what both residents and institutions are asking themselves is how to achieve a successful initiative and how to maintain in time these projects that are increasingly appearing in the city. Therefore, this research analyzes the relationship between the role of the actors involved in a community garden, from now on called 'agency', and the ability of a garden to respond and to adjust to change, from now on called 'resilience'.

In order to study the relationship between agency and resilience, two different approaches to agency are selected: bottom-up and hybrid. Bottom-up gardens are the ones implemented and maintained by residents without a continuous institutional support while hybrid gardens are the initiatives also implemented and maintained by citizens but with a continuous support of institutions. How to measure the resilience of these gardens is the main challenge. Existing research on resilience shows the difficulty of measuring this concept (Cutter et al., 2008) and many scholars point out the "urgent need for demonstrating projects" to provide a clearer picture of how resilience can be operationalized (CDRSS, 2006). This research aims at contributing to this debate by finding a set of indicators to measure resilience of community gardens. Four initiatives - two bottom-up and two hybrid gardens - in New York and Amsterdam are analyzed in order to shed some light on this topic. The main research question is: Which indicators are most relevant to measure the resilience of community gardens when looking at bottom-up and hybrid initiatives in New York and Amsterdam? By comparing community gardens in two cities with two different socio-economic and institutional contexts, the present study aims at finding a list of principles to open up the discussion about the resilience of not only community gardens, but also the resilience of different types of citizen-led initiatives.

2. Urban agriculture and community gardens in New York and Amsterdam

The RUAF Foundation (the Resource Centre on Urban Agriculture and Food Security) defines urban agriculture as 'the growing of plants and the raising of animals within and around cities.' Nowadays, many urban agricultural practices are being implemented in our cities, ranging from more traditional initiatives, such as community gardens or rooftop gardens, to more sophisticated solutions; e.g., using LED lights to grow vegetables inside buildings or other techniques such as hydroponics. The current research focuses on one of the urban agriculture initiatives taking place in our cities: community gardens. According to Ferris et al. (2001, p. 560), 'what distinguishes a community garden from a private garden is the fact that it is in some sense a public garden in terms of ownership, access, and degree of democratic control.' It involves the convergence of multiple individuals, joining together to grow, among other things, food.

Community gardens are not a new phenomenon. Looking briefly at their history in the United States, traces of the first community gardens date from before the First World War. At that time, immigrants, children and the poor were the targeted populations. During World War I

and II, however, participation in community gardening became universal (Lawson, 2005). The so-called 'Victory gardens' were vegetable, fruit and herb gardens planted at private lots and public parks that flourished during World War II as a way to provide food for communities in times of crisis, reducing the pressure on the public food supply (Saldivar-Tanaka et al, 2004).

As the United States recovered from World War II, community gardens diminished, but they made a comeback in the early 1970s when food prices increased and an environmental consciousness arose (Lawson, 2005). The financial urban crisis of the early 1970s and the failure of the top-down approach defended by the Parks Commissioner Robert Moses had a strong influence in the Community Garden Movement, which started in New York with the nonprofit Green Guerrillas in 1973 (New York City Department of Parks & Recreation, 2014). Due to the fiscal crisis, many lots were vacant and abandoned. Therefore, the Green Guerrillas started throwing 'seed bombs,' packed with seeds, water and fertilizer, over the fences of these vacant lots in an attempt to beautify the abandoned spaces. This movement encouraged neighborhood participation and became a grassroots program. The City realized the potential of delegating the maintenance of city-owned lots to the citizens and in 1978 established the GreenThumb program in order to support the community groups. Although the community gardens were located in public land and were temporary, many acquired a permanent status due to their added value to the neighborhood. In the 1990s, real estate pressure increased and community gardens in New York threatened to disappear. Thanks to the nonprofit New York Restoration Project (NYRP), started in 1999, three quarters of the sites were protected against development and became part of the jurisdiction of the City of New York. Today, GreenThumb is the nation's largest urban gardening program and supports over 600 community gardens (New York City Department of Parks & Recreation, 2014).

In the Netherlands, the history of community gardening goes back to the late eighteenth century, when allotment gardens (volkstuinen in Dutch) started to appear. These plots of land were assigned to individuals or families for non-commercial gardening purposes. In the beginning, these gardens were managed by the government but during World War I the gardeners started to organize themselves. In Amsterdam, the association Bond van Volkstuinders was founded in 1917 (Bond van Volkstuinders website, 2014). Until the 1950s, the allotment gardens were used to cultivate vegetables but since then there has been a shift towards recreational use due to the improvements in the provision of affordable food. In contrast to community gardens, these allotment gardens are cultivated individually and are located in the outskirts of the city.

Additionally, there is also a history of community gardens in the inner-city of Amsterdam. In the 1970s, influenced by the 'Green Guerrillas spirit' from New York, informal and therefore illegal community gardens started to appear in Amsterdam. The local government was, in most cases, aware of these initiatives but did not take action to stop them. The number and impact of these gardens, which were mainly individually established and maintained, cannot be compared with the impact of the New York Community Garden movement view taken from an interview with an employee from a local government in Amsterdam).

In both the U.S. and in the Netherlands, after the outbreak of the economic recession of 2008, there has been a sharp increase in what are being called 'Recession gardens', which are being used in order to decrease individual and family food bills and provide for more self-sufficiency to gardeners (Sutter, 2009). Besides, 'green' initiatives, such as community gardens, have become very popular among the middle class and are considered a "trend" in

cities in developed countries (Cucca, 2012). In order to better understand these grassroots initiatives, the actors involved are analyzed in the next section.

3. The agency behind community gardens: citizens and institutions

As stated before, since the beginning of the 1970s and continuing into the present an increasing number of grassroots movements can be observed in contrast to the period before World War II, when community gardens were government-driven (von Hassel, 2005). This coincides with the new civic awareness and the social movements that arose in the 1970s all over the world (Angotti, 2008).

But where do these 'green citizens', residents who show some interest for "this new and urban green way of life" (Cucca, 2012, p. 5), come from? The retreat of state powers due to the implementation of neoliberal policies has facilitated the growth of this notion of 'green citizenship'. Neoliberal governance encourages privatization and market-driven development, and delegates government functions to local governments, nonprofits and civic society in general (Angotti, 2008). As a result, citizens are empowered to participate in the process of building their own cities.

This article analyzes four community gardens located in New York and Amsterdam. These four initiatives show on the one hand, different types of citizens with different income levels, ideologies and motivations to participate in a community garden, and on the other hand, different institutions, such as local governments, housing authorities and nonprofits, which are supporting these gardens. In both cities, citizens and the institutions supporting these gardens are wondering how to achieve long lasting initiatives. In the next section, some indicators to analyze and measure the resilience of these initiatives are presented.

4. In pursuit of resilient initiatives

The concept of resilience literally derives from the Latin word 'resilio', meaning "to jump or leap back". Resilience can be defined as "the ability to recover from or adjust easily to misfortune or change" (Resilience Alliance, 2006). Originally, resilience was applied to natural disasters but, since the beginning of the 2000s, some research organizations, such as the Resilience Alliance, started applying this concept to urban socio-ecological systems, which are systems that integrate people and nature (Abesamis et al., 2006). As stated by Batty (2008), several elements of resilience theory are highly relevant to cities and by focusing on urban socio-ecological systems the concept of resilience focuses more on urban scenarios.

Many scholars (e.g., Adger, 2000; Alberti et al., 2004; Carpenter et al., 2005) are conducting research on resilience and although there is some consensus on the factors that cause resilience, measuring it is still a topic of debate (Cutter et al., 2008). Therefore, there is an "urgent need for demonstrating projects" that provide a clearer picture of how resilience can be operationalized (CDRSS, 2006). According to Bahadur et al. (2013), this could be done through stakeholder assessments, model explorations, historical profiling and case study comparisons. Focusing on the latter, this research uses four case studies to find a set of indicators to measure community gardens' resilience.

Based on the existing literature on resilience applied to social-ecological systems, this study aims to test the seven indicators that repeatedly appear in this literature. Some indicators are external and for those the socio-economic and institutional context plays an important role, others are internal to the organizations of the garden, while some are a combination of both, meaning that both the context and the organization of the garden influence these indicators. By analyzing which indicators appear in hybrid and bottom-up gardens, this study will extract some conclusions on the relationship between agency and resilience of community gardens. The seven indicators identified in the literature review are:

External indicators:

1. Security of land tenure

Land ownership plays a crucial role in the resilience of a community garden. According to the UN Development Program (1996) one of the biggest challenges in urban agriculture internationally is insecurity of land tenure. Questions of ownership and fairness can make community gardens contested spaces, raising the question of "who has the right of access to space and nature" (Schmelzkopf, 1995, p. 380). Other authors as well (Bryld, 2003; Okvat & Zautra, 2011) identify the insecurity of land tenure as one of the mayor obstacles for urban agriculture, and therefore for the resilience of community gardens.

2. ***Flexible institutions in order to allow for Self-Organized Community Gardens***

Many scholars have analyzed the flexibility of institutions and its direct correlation with resilience (Tierney & Bruneau, 2007; Folke, 2006; Osbahr, 2007; King, 2008; Ostrom, 2009). An organization with a rigid hierarchy is less flexible in the face of change than a decentralized organization that can cope with changes and be more in contact with the needs of the community and the local reality. When the institutions supporting community gardens are flexible, there are more chances to develop trusty relationships between the gardeners and the institutions, which allow the gardeners to develop self-organization skills. By learning by themselves how to grow food, establish participation rules, organize activities, advocate with city government, etc. (Tidball & Krasny, 2007; Hynes, 1996; Pinderhughes, 2001), the resilience of community gardens increases.

External and internal indicators:

3. ***High levels of equity and inclusiveness***

A community garden where diversity is embraced and where all members are included in a more horizontal organization of the garden appears to be more resilient than initiatives with a strict hierarchical structure (Twigg, 2007, Nelson et al., 2007; Bahadur et al., 2013). The institutional context provides community gardens with ways of association that foster initiatives with different levels of inclusiveness.

4. Social and economic diversity

Diversity is considered as fundamental to resilience (Carpenter et al., 2001; Folke, 2006; Holling, 1973; Resilience Alliance, 2002, Okvat et al., 2011). Social diversity refers to the different ethnicity, age, economic status and skills of the gardeners who work together in a

community garden. Diversity also includes the different organizations involved. The more diverse the stakeholders the better informed the decision-making process will be, creating more innovative and efficient solutions that will enhance resilience (Tidball & Krasny, 2007; Osbahr, 2007). Diversity is crucial for economic resilience too. As such, a garden with diverse economic sources will be more resilient.

Internal indicators:

5. Leadership and vision

Leadership needs to be a dynamic process that allows for a change of leaders without affecting the community garden as a whole, allowing it to maintain function and structure in the face of change. As stated by Walker et al. (2006a), if a community has multiple leaders the system has a greater chance to be resilient than if there is a single and well defined leader. Leadership is an important indicator to measure resilience due to its contribution to the social capital of a system and to it being an important aspect of adaptability (Abesamis et al., 2006; Tierneyan & Bruneau, 2007).

6. Active participation due to increased social capital and similar ethical values

Social capital is defined by Norris et al. (2008) as the 'combination of social support, social embeddedness, organizational linkages, leadership, sense of community and attachment to a place.' Social capital is built on trust, norms and networks and is a key element to generate resilience (Norris et al, 2008; Mayunga, 2007), reduce conflict and resolve problems effectively (Bahadur et al., 2013). Existing research on community gardens (Worden et al., 2004; Glover, 2003) shows how community greening creates human, natural, physical and financial capital, which altogether leads to social capital. Besides, sharing similar ethical values and high levels of trust make a community more resilient (Ostrom, 2009; Twigg, 2007).

7. *Capacity for Learning and Innovation*

The ability to learn from past experiences leads to a greater ability to solve problems in a more flexible way, which in the long term results in resilient communities (Berkes et al., 2000; Moser, 2008). Related to the process of learning is innovation, which is a key element in fostering resilience. Innovation is seen as "novel ways of doing things, or how new things can be made useful, and refers to incremental or radical changes in ideas, practices, and products" (Ernstson et al., 2010, p. 538). In a resilient community garden, the elements of learning and innovation are present.

The aforementioned indicators identified to measure resilience will guide the analysis of the four community gardens selected in this research in order to shed some light on the relationship between the two approaches to agency, bottom-up and hybrid, and resilience. Each case will focus on the indicators that are more relevant for the resilience of the respective initiatives.

5. Methodology

The study at hand has a sample of four cases in the form of four community gardens. Two cases are located in New York City and two in Amsterdam. One bottom-up and one hybrid community garden were selected in both cities. Having four cases allows for a comparison between cities and between approaches, which effectively enriches the comparison.

For reasons of triangulation, the research uses a mixed-method approach. In order to select diverse cases, a preliminary study was done using quantitative methods and secondary data. Data from the Community District Profiles, provided by the NYC Planning Department, was used to select the New York cases. Data from the Stads en Regio Monitor was used in the case of Amsterdam. Qualitative methods are, however, the main methods applied in this study. In total, 35 in-depth semi-structured interviews with gardeners and institutions' representatives were conducted. Participant observation was a crucial method in all four community gardens, firstly to gain the trust of the respondents and, secondly, to collect relevant data, which could not have been obtained during the interviews. Document analysis completes the data collection. Reviewing newspapers, policy documents, blogs and social media web pages was useful to gather data and better prepare the interviews. In Prospect Farm, attending monthly meetings organized by gardeners was also a source of relevant data. All the data collected was coded and analyzed using a list of codes based on the theoretical framework, which later was completed with new codes that arose during the analysis.

This research acknowledges some limitations regarding the asymmetry of the data. First, in Garden of Eden, conducting interviews among the gardeners was quite challenging. Due to a language barrier, it was impossible to communicate with some of the ethnic groups participating in the garden and most of the gardeners did not feel comfortable answering direct questions. These circumstances changed the methodological approach and participatory observation became the main method. Approaching some of the institutions in this community garden was also difficult. By triangulating different data sources, such as policy documents and information provided by other institutions, this lack of data was compensated. Secondly, participant observation differed in both cities. In New York, due to more benign weather conditions, the observation took more the form of 'participant-as-observer' (Bryman, 2008). Long hours were spent in the community gardens, taking part in gardening activities and social events. In the Amsterdam cases, due to the fieldwork being conducted during winter, there were fewer chances to meet the respondents in the gardens. Therefore the data collection was done mainly through semi-structured interviews. Finally, although selecting diverse case studies offers stronger representativeness than in other small sample research, this study acknowledges that generalizing to other cases in other countries is problematic because of context-dependent circumstances.

6. Community gardens in New York

6.1. Prospect farm (bottom-up initiative)

Photo Credit: Beatriz Pineda Revilla. Community garden in autumn 2013.

Prospect Farm is a community garden located in Windsor Terrace, a residential neighborhood in North-West Brooklyn. The idea of creating this initiative came from a professor at the City University of New York who has lived in this neighborhood for over 15 years and who owns, next to his house, a sloped terrain that was not in use. In 2010, concerned about the increasing privatization of space in the city, he approached his community with the idea of starting a community garden. He would offer the land, and people interested in this initiative would contribute with their help in the implementation and maintenance of the garden. Many people showed interest in his initiative, attracted by this noble goal and the idea of gardening.

The community garden faced a significant challenge during its implementation. In the past, the site was a parking lot and a dump and when the community members started cleaning the area, they found that the soil was highly polluted. This did not discourage the motivated members who cleaned up the area and started working on a composting system in order to remediate the soil progressively and to be able to eat the vegetables produced on it. Four years after the implementation of the garden, the members continue remediating the soil and the pollution levels have decreased considerably. This is a good example of how the capacity for learning, in this case, learning how to make compost, has contributed towards strengthening the relationship between the gardeners and between the garden and the neighborhood. The local community brings food scraps once or two times per week, depending on the season, to contribute towards this goal. The food scraps are coming from the local community, not from the garden (at least during the first few seasons). The organizers have been testing the quality of the soil every year. They did not eat anything from the garden in the first season and rather waited until the tests were more positive until they started eating the leaves but still not yet the root vegetables.

One of the characteristics that differentiate Prospect Farm from other gardens is that the land is not subdivided into individual lots. Members cultivate one communal space and the crops are equally distributed among the members. This exemplifies one of the aforementioned indicators, namely, the importance of high levels of equity. Still, because of the issue of working with yet polluted soil, children and pregnant women are not allowed to go into the garden. This has had a big impact in targeting Prospect Farm members, as this rule was a deterrent for people with children to participate. This has affected the age diversity of the gardeners, having two very specific age ranges: members in their late twenties and early thirties and members who are in their sixties or older.

The security of the land tenure seems not to be problematic because the garden is implemented in a private lot; however its non-legalized status and the fact that its initiator is aging might lead to its disappearance in the future, after he is not there to take care of it. In order to protect the site of the community garden against such a development, at the end of 2013 the initiator suggested that the members transfer the land to a Land Trust, a nonprofit organization whose goal is to preserve the use of land as a community garden. In order to do that, the first step is that Prospect Farm becomes a nonprofit corporation that leases the land of the garden to its owner through an annual contract. This new situation was presented to the gardeners through several monthly meetings throughout a period of half a year during the winter season of 2013.

In 2013, Prospect Farm had 20 members of which approximately only seven were active. As one of the gardeners states, “if there are less members it’s less motivating because you’re alone working in the garden”. This lack of participation could also be seen in the attendance of those monthly meetings. Not even all of the active members were willing to get involved in the process of establishing a nonprofit corporation, which requires having a board who elects at least three officers: President, Secretary and Treasurer, with the consequent legal responsibilities. For several months, the position of President was vacant as no one wanted to assume that responsibility and the initiator of the garden could not take this position due to legal incompatibilities because he is the owner of the land. Moreover, this legalization process happened at a time when the strength of the community was not at its best. The motto of Prospect Farm, “Healthy Food, Soil and Community”, was called into question. The active members decided to start organizing monthly film screenings at a local restaurant to talk about food and to reach the community with the hope of attracting new members that will bring ‘new energy’ to the garden. “We need to ‘cultivate’ our community as well”, said one of the members. Organizing together these events improved the social cohesion among the gardeners and in March 2014 one of the member assumed the role of President.

The garden is now starting a new phase with the implementation of the nonprofit corporation and is working towards becoming a more resilient initiative. It is worth mentioning how the collective decision-making was made possible through the leadership, perseverance and vision of the highly-educated initiator and his personal goal to leave this community garden as a legacy for the city and its future generations. It can also be stated that the fact that the initiator was the owner of the land discouraged some members to take more responsibilities in this garden. This thought was shared among several gardeners, with one stating: “Creating the nonprofit corporation is the change that Prospect Farm needs to achieve a better organization. The challenge is to find more local people interested in participating”. Although this garden started as a bottom-up initiative, it is now following a hybrid path to assure its continuation, which involves several processes such as becoming a nonprofit corporation and its future incorporation in the Land Trust nonprofit.

6.2. Garden of Eden (hybrid initiative)

Photo Credit: Myrtle Avenue Revitalization Project (MARP). Garden initiators in 2009.

Garden of Eden is located in Fort Greene, a neighborhood in northwest Brooklyn. This flower and vegetable community garden is implemented on the grounds of one the New York City Housing Authority's (NYCHA) housing developments, the Ingersoll Houses. Community gardens are strongly supported by NYCHA's developments through the Garden and Greening Program, which is the beautification and environmental education program established by NYCHA in 1963. Fifty years later, the program supports 745 community gardens at over 200 developments. It is an application-based program and residents need to approach NYCHA with a location and a vision for any future garden proposal. NYCHA provides the registered gardeners with free seeds and bulbs, technical assistance and compost for their gardens. Educational workshops and events, such as the Annual Award Ceremony, which recognizes the effort of the most dedicated gardeners, are also organized regularly by NYCHA. These social events increase the social capital among the gardeners, which translate directly into more active participation in the gardens themselves.

One of the characteristics that make this garden unique is the ample institutional support that it receives, not only from NYCHA but also from several local nonprofits, such as Myrtle Avenue Revitalization Project (MARP), a nonprofit that aims at restoring the economic vitality of the street where the garden is located. In 2009, during one of the meetings between MARP and the residents, the lack of affordable and fresh food in the area arose as a crucial issue. The residents came up with the idea of gardening to tackle this shortage. A group of six senior African-American women - supported by MARP - approached NYCHA with the idea of creating a community garden. The proposal was approved by NYCHA and the garden was implemented. The success of this garden is such that they started with eight planting boxes, but now have 40 plus a long waiting list of residents interested in participating in the garden a

garden that continues to grow. In 2014, NYCHA and the residents started a new garden at the Ingersoll Houses to satisfy the increasing demand for gardening.

Photo Credit: Beatriz Pineda Revilla. Annual Award Ceremony organized by NYCHA(2013).

The gardeners have become more self-sufficient as the garden grows. That is also the wish of NYCHA and MARP. Still, MARP continues to provide them with services and physical resources when needed. “We (MARP) organize monthly field trips so that they can meet other gardeners and people who are doing similar work and exchange experiences” (MARP

Photo Credit: Beatriz Pineda Revilla. Community garden in Autumn 2013.

employee). Garden of Eden has benefitted also from several grants provided by Citizens Committee for New York City (CCNYC), which have helped in expanding the initiative. CCNYC is a micro-funding organization that conducts workshops and awards micro grants to resident-led groups to support their self-determined neighborhood improvement initiatives. All of the institutions that support this initiative allow the gardeners to organize themselves, avoiding a paternalistic top-down approach.

Garden of Eden shows not only great economic diversity, but also social diversity. Most of the gardeners belong to three main ethnic groups: African-American, Chinese and Bangladeshi. Even if there is some knowledge exchange among the groups, there is still a significant communication barrier due to cultural differences, as most of the Chinese and Bangladeshi gardeners do not speak English. This unbalanced situation has given a dominant leading role to the African American gardeners, who are the clear leaders of this garden. The six senior women who initiated the garden in 2009 elected themselves as President, Vice President, Treasurer and Secretary without a proper election, and thus excluded their community in the process. This informal way of association gives freedom to the gardeners to self-organize themselves but at the same time it is an example of a lack of equity and inclusiveness, which does not benefit the resilience of the initiative. Due to the old age of the current leaders, coping strategies will soon be needed to assure the continuation of the leadership of this garden. Equity and inclusiveness should play a crucial role in the new election system in order to achieve a resilient initiative.

7. Amsterdam

7.1. Valreeptuin (bottom-up initiative)

In 2011, a group of ‘subversive citizens’, as they call themselves on their website, decided to occupy an empty building which was once an animal shelter after it was declared a protected monument due to its architectural value. The building had been abandoned for several years, waiting for the implementation of a master plan that the project developer OCP envisioned for the site. That is how the cultural center Op de Valreep, which is Dutch means ‘just in time’, was born. Although at that time squatting was already illegal in the Netherlands, the project became a vibrant community center for the neighborhood. Thanks to voluntary work, the cultural center Op de Valreep regularly organized all types of activities and workshops, always with a non-commercial mindset.

At the end of 2011, several people interested in permaculture and gardening asked the volunteers of the cultural center if they could use the space adjacent to the building to create a garden, the Valreeptuin. The answer was positive and the garden started in March 2012. Six initiators started this garden. Their diverse interests, backgrounds and gardening expertise made this group a highly effective steering committee or ‘Rootsteam’, as the initiators called themselves. During the implementation of the garden, the support of the nonprofit ASEED (Action for Solidarity Environmental Equality and Diversity) was crucial. With the help of approximately 100 volunteers, the garden was set up in one afternoon. ASEED provided them with symbolic financial support to buy healthy soil. Due to the polluted ground of the site, the gardens were organized in raised bags. This was the only financial support that the Valreeptuin received. A non-compulsory EUR 25 donation per bag was asked of the gardeners in order to cover further expenses.

Photo Credit: Beatriz Pineda Revilla. Valreep Garden in Spring 2014

Due to the fact that the garden was located next to a squat in an occupied land, institutions tried from the beginning of the initiative to evict them, clearly showing no support, neither for the cultural center nor for the garden. Despite the many meetings between the center's volunteers and the local municipality to try to find a legal situation for the cultural center, the space where the Valreeptuin was located was reserved for new housing in the master plan. Therefore, the garden had to move. The land insecurity, a lack of clean water and the polluted soil did not discourage the motivated Rootsteam to implement this supposedly temporary garden.

In only two gardening seasons, from 2012 to 2014, it is worth mentioning the strong community that was created around the Valreeptuin. The inclusiveness and non-imposing attitude of the initiators allowed for a community to flourish. The possibility to garden in an individual bag or in the communal garden, or in both, gave enough freedom to the members to find their roles in the garden. A flexible organization, with two non-compulsory working days per month, with the rules about how to take care of the individual gardens not 'too' strict, an organic assignation of bags to new members, etc., made it possible to create a relaxed atmosphere where everybody felt welcome. One of the participants mentioned, "I appreciated that the Rootsteam didn't impose rules or a hierarchical structure, too many rules is not nice".

Despite the initial intention of the initiators to spread the gardening tasks among the members, the freedom in the rules implied less commitment from the gardeners, which led to the Rootsteam to assume more responsibilities. As one of the initiators stated, 'there were a lot of plans in the beginning, how are we going to organize the garden to make people responsible, etc. (...). In the end the Rootsteam was doing everything, keeping it strong, deciding what to do.' This caused frustrations and some initiators naturally became less involved with the garden. Still, half of the initial Rootsteam were active and motivated in the spring of 2014 to

continue leading the Valreeptuin. Regular social events organized by the initiators and the possibility to use the cultural center facilities, such as a kitchen, has allowed for spontaneous gatherings to take place, which increases the social capital of the group and leads to more active participation in the garden.

Photo Credit: Ton Hendrix. Valreep communal garden (2012)

Due to the high level of inclusiveness and the freedom regarding rules, the Valreeptuin had many diverse members. The youngest gardener was 13 and the oldest were in their sixties. Approximately two-thirds of the gardeners were Dutch and lived in the neighborhood. The main motivations to participate were to 'reclaim public space', as one of the initiators stated, to be in contact with nature and to learn about gardening and permaculture principles. The knowledgeable Rootsteam was able to share their gardening knowledge with the other members during workdays and workshops organized in the cultural center. Even if everybody was welcome in Op de Valreep, the fact that there was a fence with a lock made going to the garden less accessible to the general public. Therefore, many members got to know the garden through the cultural center and shared the squatters' principles, while gardeners from Turkish and Moroccan ethnicities were barely present in a neighborhood with a high concentration of these ethnic populations. It is worth mentioning that the fence was not always closed and that the gardeners knew the lock code, so that they had easy access to the garden. This 'relative openness' of this garden makes its diversity somewhat 'relative'. Sharing similar ethical principles allowed these gardeners to create a community in a shorter period of time.

In June 2014, the eviction letter arrived. The Rootsteam was then busy for months looking for a new location to move the garden and its community. Finally the bags, soil and gardening materials were moved to a garden whose initiators shared the Rootsteam's principles, and which is legally authorized by the local government. Now the question is what will happen with the Valreeptuin community, if it will stay together or if it will be dissolved. This

question underlines the importance of location and land security when building a resilient community garden.

7.2. Buurttuinen Transvaal (hybrid initiative)

Photo Credit: Suzanne Blanchard. Buurttuinen Transvaal in Spring 2014.

Buurttuinen Transvaal is a community garden located in Amsterdam East, in the Transvaal neighborhood. In 2010 the garden was laid out in a green public space that was mainly used by dog owners to walk their dogs. The initiative of creating a community garden came from five citizens who lived in the surroundings of the square and who, individually, had the wish to transform their living environment and to create a meeting place for the neighborhood. These five initiators approached the urban district Amsterdam East, which at that time had a subsidy from the Physical Planning Department (in Dutch, Dienst Ruimtelijke Ordening (DRO)) to support citizen-led initiatives in 'conflict' neighborhoods with safety and social cohesion problems (in Dutch, Vogelaarwijken). This is how the Buurttuinen Transvaal became the first 'formal' community garden in Amsterdam East, designed and thought up by the citizens and implemented with the financial support of the local government.

In order to be able to receive this subsidy, the community garden had to become an association, composed of members and based on voluntary work. Establishing an association has conferred a democratic way of organizing this garden. In 2013, the Buurttuinen Transvaal had 55 members, from which 27 were gardeners. Members have to be residents of the neighborhood, be a minimum age of 18 years old and pay EUR 10 per year. All members have the right to vote on issues related to the garden and to choose the board. The members get together twice a year in the Members Meeting. The fact that all of the neighborhood can become involved in this initiative is an example of an inclusive approach. Another sign of equity is that this garden has not only individual gardens but also several communal gardens, such as flower, herbs and fruit gardens. This allows the neighbors to enjoy the communal spaces and to be part of the project. 'I think it's great that the garden is open, that not only us

but also people who are not directly involved in the garden can come in and take some herbs. This I think is very important for the neighborhood', said one of the gardeners.

The initiators of the Buurttuinen Transvaal were aware of the importance of creating a community garden for the whole neighborhood, including all nationalities living in the area. In the beginning, half of the individual plots were reserved to non-Dutch gardeners, therefore encouraging social diversity. Also, thanks to the 'rotation rule', created by the initiators, every four years, each garden has to pass on to the next member on the waiting list. As one of the board members said, "we have to make an effort to not make this garden a 'white-only party', that is social cohesion, which means the entire neighborhood should be involved, not just our white middle class.'

Furthermore, the board, which plays a crucial role in self-organizing the community garden, is newly elected approximately every two years. This way, conflicting and imposing views are minimized, allowing for new ideas and new members to take over the responsibility of leading the garden. The board can always contact the local government if there are any technical issues and once a year there is an evaluation meeting before the annual contract is renewed. It is worth mentioning the important role of the participation broker. This position was created by the local government, more or less at the same time of the implementation of this garden, in order to mediate between the interests of the urban district and the gardeners. During the implementation process there was more frequent and regular contact between the participation broker and the gardeners but as the garden grows the contact is becoming less and less necessary. The existence of this mediator increases the flexibility of the local government, allowing the board to self-organize all issues related to the garden: 'We cannot say 'you have to do this and that'. It doesn't work. These types of initiatives have to be nice and positive', said one participation broker.

Also the capacity of learning is present in this garden in the fact that one of the initiators has experience in organizing community gardens in New York, which allowed the initiators to apply some of these organizational principles to this garden. Dividing tasks amongst different committees is one such example of this. The ideal situation would be to have eight committees, such as general maintenance, flower, herb, social event committees, among others, with four or five members in each team, in order to equally divide the responsibilities of running the garden. In practice, there are approximately eight active members who take care of the different committees. Social capital is built thanks to social events, such as the harvest party, and the workdays that are regularly organized, being two of these working days compulsory for all members. As one of the gardeners mentioned, 'one of the main points of having a successful initiative is how to sustain motivation, how to feed a sense of community but still feel like individuals... It's my garden but I'm with other people.' This increase in social capital leads to more active participation in the gardeners, and to members who are well-informed via the e-mails that the President of the board sends periodically.

The garden is now in its fourth year and after a first phase of implementation it is now reaching a consolidation phase, focusing more on fostering social capital among the members through social events and an active education committee, which is organizing educational workshops for children and people who are interested in gardening. Since 2014, the Buurttuinen Transvaal receives financial support from a non-profit organization, Groen en Doen, to help it organize these workshops.

4.3. Bottom-up and hybrid initiatives in New York and Amsterdam compared

Based on the four cases analyzed, the relevance of these indicators in bottom-up and hybrid gardens will be presented grounded on the New York and Amsterdam cases. All the indicators outlined in the theoretical framework influence the resilience of these gardens, but it happens to be that the external indicators are especially relevant in this regard.

When looking at the two bottom-up community gardens, the indicator of security of land tenure appears crucial. Due to a lack of institutional support, bottom-up initiatives face a significant challenge regarding the location of their implementation. In New York, due to the scarcity of public green spaces, many community gardens, which even started illegally in the 1970s, have been legalized and have acquired a protected status. Green public spaces belong to the jurisdiction of the New York City Department of Parks & Recreation, which already in 1978 established the nonprofit GreenThumb to support community projects. This long tradition of gardening in New York has allowed the city to develop different ways to protect these gardens, such as Land Trust nonprofits, and legal ways of organization such as nonprofit corporations, as mentioned in the case of Prospect Farm. In Amsterdam, community gardens, which are implemented in public spaces, are under the jurisdiction of the different urban districts. In the last decade, local governments in Amsterdam have welcomed citizen initiatives that aim at improving public spaces, with projects such as community gardens, as long as the citizens themselves organize these legally. That is why the Valreeptuin, located in an occupied land, was evicted. This study shows the importance of having a secure location in order to build a strong community.

Three indicators show crucial relevance when analyzing the hybrid initiatives: flexible institutions in order to allow for self-organized community gardens, social and economic diversity and high levels of equity and inclusiveness.

In order for institutions to be flexible and not to exert a paternalistic top-down approach, trust between the gardeners and the institutions is required. When this level of trust is reached, gardeners are empowered to organize themselves, improving in the long term the resilience of the initiative. Trusty relationships need time to develop and the role of the leaders and the institutions in this process are essential. In New York, in the case of Garden of Eden, NYCHA's Garden & Greening Program has had 50 years of experience supporting gardens. Each NYCHA housing development has assigned a property manager, who acts as a contact person between the gardeners and NYCHA. Garden of Eden counted also on the support of the local nonprofit MARP who moderates between the gardeners and NYCHA. It is worth emphasizing the role of the nonprofits in supporting community gardens and in making them more resilient. In Amsterdam, due to the relatively recent support of community gardens, local municipalities are still looking for legal ways to develop trusty relationships with citizens. The participatory agent, explained in the case of the Buurttuinen Transvaal, acts as a mediator between the local municipality and the gardeners. Having a person 'in the field', always available and listening to the gardeners' needs, allows the local government to be more flexible and gives more freedom to the gardeners to organize themselves. The support from nonprofits is still very limited in Amsterdam.

When looking at social diversity, it can be observed that in bottom-up initiatives there is a strong idea or vision behind what attracts a specific group of people to the garden. The

audience believes in this common goal and normally shares similar ethical principles, making up a more homogeneous group. On the contrary, such a strong vision which attracts a specific group lacks in hybrid gardens, due to the fact that institutions support initiatives meant for the general public, such as all NYCHA residents, in the case of Garden of Eden or the whole neighborhood. In the case of the Buurttuinen Transvaal, these gardens tended to attract a more socially diverse group of people. Looking at economic diversity, bottom-up initiatives are normally maintained due to members' fees or donations. These bottom-up gardens might receive a one-time financial support in the beginning, from nonprofits for example, but it is not support that they can continually rely on, unlike hybrid gardens, which are economically more diverse and have several sources of financial support. This continuous support allows hybrid gardeners to improve the infrastructure of the garden, such as to install an irrigation system or to invest in educational activities, such as workshops and excursions. Economic diversity is not a crucial indicator of resilience per se since both bottom-up and hybrid gardens can survive with members' fees. Economic diversity is an extra help that allows gardens to upgrade, improve and expand.

Finally the high level of equity and inclusiveness indicator offers different institutional ways of organization that hybrid gardens can adopt. In New York, Prospect Farm, a garden that started as a bottom-up initiative became a nonprofit corporation to assure the resilience of the location. A nonprofit corporation has no members and gives a lot of power to the board. In Garden of Eden, NYCHA's gardens have no 'formal' way of electing the board. This confers freedom to the gardeners, who can organize themselves, but at the same time, reduce the inclusiveness of the garden. These two cases contrast with the way the hybrid garden in Amsterdam is organized. The Buurttuinen Transvaal is an association that must have members who elect the board and who come together twice a year to vote and decide about garden issues. Additionally, the fact that neighbors who do not necessarily need to be gardeners can be part of the association emphasizes this democratic approach. This way of organization shows higher levels of equity than in the New York gardens.

The internal indicators - leadership and vision, active participation due to increased social capital and similar ethical values and capacity for learning and innovation - are present in both the bottom-up and hybrid community gardens analyzed in this study. The high levels of equity and inclusiveness indicator can be considered internal when looking at how members organize themselves.

It is worth mentioning the importance the leaders of the garden play in the aforementioned four indicators and the importance of having several leaders - in any case more than one - to assure the effective organization of the garden in the long term. When a garden has several leaders, it is easier to spread the responsibilities of running a garden. In addition, leaders play a crucial role in building social capital by organizing cultural events, which improves levels of bonding among the members and their participation in the garden. The role of the leaders in fostering a capacity for learning and innovation is also important. By sharing their knowledge with the members, a cycle of exchanged knowledge starts that spurs innovative solutions that can help upgrade and improve gardening techniques and garden infrastructure. Finally, the levels of internal equity and inclusiveness of a garden start also with its leaders. If the leaders are welcoming and apply inclusive rules, more diverse members will be interested in participating in the garden, increasing its social diversity and therefore resilience. These equal and inclusive principles should not only be applied to the members but also to the surroundings of the garden in order to win local community support and to integrate the

garden in the urban scene. Table 1 shows the relevance of the analyzed indicators as shown visually per community garden.

	NEW YORK		AMSTERDAM	
INDICATORS	BOTTOM-UP: PROSPECT FARM	HYBRID: GARDEN OF EDEN	BOTTOM-UP: VALREEPTUIN	HYBRID: BUURTTUINEN TRANSVAAL
EXTERNAL				
Security of land tenure	High relevance	Medium relevance	High relevance	Medium relevance
Flexible institutions in order to allow for self-organized community gardens	High relevance	High relevance	High relevance	High relevance
EXTERNAL & INTERNAL				
High levels of equity and inclusiveness	Medium relevance	Low relevance	Medium relevance	High relevance
Social and Economic diversity	Low relevance	High relevance	Low relevance	High relevance
INTERNAL				
Leadership and vision	Medium relevance	Medium relevance	Medium relevance	Medium relevance
Active participation due to increased social capital and similar ethical values	Low relevance	Medium relevance	Medium relevance	Medium relevance
Capacity for learning and innovation	Medium relevance	Low relevance	Medium relevance	Medium relevance

Table 1: Indicators' relevance in measuring the resilience of the community gardens analyzed

5. Conclusions

After analyzing these indicators, the relevance of the external indicators in measuring the resilience of both bottom-up and hybrid community gardens stands out. The importance of the socio-economic and institutional context is crucial in both cities: It influences the security of land tenure, the ability of the institutions to be flexible, the level of social and economic diversity, and the different legal ways of organizing community gardens in New York and Amsterdam, which allow for more or less high levels of equity and inclusiveness. The internal indicators are also important to measure the resilience of these gardens but are less relevant. These internal indicators depend more on specific circumstances, such as who the leaders or members in each garden are.

Based on the comparative analysis between these two cities, New York can be seen as the frontrunner in comparison to Amsterdam due to its long tradition in supporting community gardens. During the last 50 years, New York has been developing diverse strategies to help these types of initiatives, such as the state delegating responsibilities to nonprofits and the creation of application-based programs, through which citizens can present their ideas to the institutions in charge. Time has allowed New York to establish a solid network of institutions, which are aware of their respective roles and collaborate together to better support bottom-up efforts. However, there is one indicator - high level of equity and inclusiveness -, which shows how Amsterdam can be an example for New York in terms of fostering more inclusive ways of organization. Establishing a community garden as an association confers a more democratic and inclusive approach to the community garden allowing all members to have a say in the issues related to the garden.

Despite their institutional differences, in both New York and Amsterdam there has been a retreat of state powers, due to the implementation of neoliberal policies. This retreat has facilitated the delegation of responsibilities to local governments and citizens. The longer presence of neoliberal governance in New York is one of the factors that explains this mismatch between New York's long tradition in supporting community gardens and the only recent interest of Amsterdam's local governments in supporting these bottom-up projects. The outbreak of the economic crisis in 2008, in the case of Amsterdam, has also influenced this shift from top-down to bottom-up, making local governments more aware of the important role civic society plays in the process of city making and therefore looking for ways to support citizens.

Finally, it can be stated that this list of indicators, both external and internal, which has been developed throughout this article could also be applied to other types of citizen-led initiatives in order to make them more resilient. Depending on the type of grassroots project, having a secure location as well as the security of property rights is crucial. Also, the support of flexible institutions and diversified financial sources will contribute largely to the resilience of these initiatives. Additionally, an effective and inclusive way of organization will make these projects more successful and long-lasting.

This article acknowledges the need for a larger comparison of citizen-led initiatives, not only with regards to community gardens, but also across a longer period of time and across different contexts. By using this list of indicators in future research, its validity can be tested, opening the possibility to enlarge it with new relevant indicators. The list of indicators introduced in this article aims at providing citizens and institutions with an initial guidance to achieve more resilient initiatives, by taking into consideration the internal and external factors of each project.

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