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**“The management of common-pool resources
(commons): Case study of the municipal vegetable
garden of Larisa”**

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ABSTRACT

The commons, or common pool resources, are natural, manmade and socio-cultural resources that belong to all because no one can be excluded from using them. At the same time, however, the use by one user reduces their quantity available to other users. Unlike public goods, the commons are characterized by subtractability and non-exclusivity.

Traditionally, the "commons" were mainly large-scale open access resources such as air, water, seas and oceans, ecosystems, forests, wildlife, the fisheries and cultural resources. Thereafter, were added shared resources of the urban setting.

The urban commons include networks of infrastructure (roads, water supply, sewerage, electricity, communications), harbors, parks, playgrounds, buildings, open spaces, land trusts, vacant land, and generally places that planners ignore considering non-proprietary ("unowned") free space.

In the context of 'commons' generally and urban commons specifically, in this thesis, we will examine the vegetable garden of the municipality of Larissa, which is one of the first attempts to develop urban agriculture in Greece, a practice which in Europe and America has a history of more than 150 years.

The research will focus on the user-based management of vegetable gardens and specifically on the nature and structure of the vegetable garden of Larisa in order to identify the possibilities for the development of a communitarization regime.

Key Words: Common, urban commons, urban agriculture, user-based management

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1. INTRODUCTION

1.1. THE OBJECT OF THE THESIS

The literature on common pool resources, or commons, has increased significantly over the past two decades. The main reason is the pervasive concerns globally, on environmental degradation and resource depletion. The accessibility and use of resources by a large number of users (larger than this that the resource can bear) results in depletion and degradation not only of them but of the environment as a whole.

Although the problem is quite old (even Aristotle mentions it), the issue came to the fore in the contemporary literature by Elinor Ostrom, who in 2009 awarded with the Nobel Prize in Economics for her contribution to the analysis of the governance of the commons. In particular, Ostrom documented the feasibility of effective management by the users themselves, in contrast to the hitherto prevailing position of privatization or nationalization, which was argued by Hardin (1968) in an article titled “the tragedy of the commons”.

But the literature on the appropriate management regime of the commons concerned mostly natural resources, or artifact rural resources, such as forests, pastures and water bodies. In the last years the attention has shifted to include urban ones, where the analysis of commons seems to be equally significant. So the literature on the management of the commons has placed emphasis on the urban setting. This broadening of the research can, to a degree, be explained on the basis of the importance of the urban areas. For the first time in history, from the 2000 onwards,

the majority of global population became urban rather than rural and so cities became the focal points in both global and local contexts (Gehl 2010).

The rapid urbanization of the last 50 years, the dense construction and the subsequent urban crowding has caused many social and environmental problems. The “guardians” of a sustainable urban system, the public spaces, were reduced dramatically in many cities, due to rapid urbanization on the one hand, and the inability or unwillingness of the local authorities to keep them on a proper level on the other (a situation known as regulatory slippage).

The development of community gardens provides a way to improve and expand open public spaces. The development of urban agriculture, therefore, has been the key alternative option for the unused urban space aiming to the preservation of urban ecosystem balance. Nevertheless, community gardens face the same threats as the other public spaces, that is the risk of both quantitative and qualitative degradation, because of the rapid urbanization and privatization of open public spaces and the regulatory slippage phenomenon.

1.2. AIM OF THE THESIS

Cases of commons are evident in everyday life - the ongoing debate between public and private ownership of space, and the tension that characterizes this, is perhaps the most obvious manifestation of the importance of the analysis of the commons. This happens because the users and uses of the resources depend on the allocation of the rights on the resource, which define what can be done and by whom.

This piece of research aims to explore the urban vegetable gardens as commons, using the municipal vegetable gardens of Larissa as a case study. To our knowledge, this is the first attempt to examine urban vegetable gardens (a practice which has a long history of more than 150 years) under this perspective.

In accordance to the aforementioned aim, the objectives of this study are:

1. the study of the relevant literature (on both commons and community gardens) that would enable us to define community gardens as commons,
2. the identification of those characteristics seen as significant for the successful implementation of a community-based management system,
3. the analysis of the ‘regime’ (or ‘governance structure’) of the Larisa community gardens and the assessment of its characteristics vis-à-vis those argued by the commons literature to safeguard a sustainable community-based management system.

The importance of the current research can be argued on the basis of two factors. First, on the proliferation of the literature on urban commons, and the lack of studies examining vegetable-garden management from this perspective. Second, on the importance of the urban agriculture and vegetable garden formation in Greece today. In particular, the financial crisis that afflicted the Greek economy over the last years has sprawl interest on the initiative of vegetable gardens, where a number of local authorities have been quite active on the issue in an attempt to support poor households and vulnerable socio-economic groups while at the same time to promote cooperation between citizens towards actions that improve the urban environment.

1.3. STRUCTURE

This dissertation consists of six chapters which are as follows:

Chapter 2 develops a theoretical framework for the analysis of the commons. In particular, the case of ‘tragedy’ is outlined and issues of successful management are explored, that is, the appropriate factors and institutions that are deemed necessary for the sustainable management of the commons.

Chapter 3 examines the practice of urban agriculture and the development of vegetable gardens in the cities. More precisely the chapter begins with a conceptual definition and a brief historical overview of the practice and then it moves to provide a classification of urban agriculture systems and a definition of urban community gardens.



Chapter 4 explores community gardens as commons. It starts by identifying community gardens as a special case of urban public spaces, to highlight their significance for the urban ecosystem and to acknowledge the threats that they face resulting to degradation and tragedy. Moreover, it puts forward a number of preconditions (drawn from the literature examined in the chapter 2) that community gardens as commons should satisfy in order successful user-based management regimes to be developed.

Chapter 5 provides an empirical analysis of the aforementioned issues in the case of the community garden of Larisa. It starts by discussing community gardening in Greece and it places focus on the vegetable garden of Larissa to explore its history, current structure and generally the way it is organized. In addition it assesses its qualities in order to evaluate if these satisfy the preconditions for a successful development of a user-based management regime.

Chapter 6 contains the conclusions of this research.

2. THE COMMONS AND THEIR GOVERNANCE STRUCTURES

2.1. INTRODUCTION

The chapter reviews the relevant literature and develops a theoretical framework for understanding and analyzing the commons. In particular, it provides a working definition of commons, it identifies their characteristics and types and it delineates appropriate arrangements for their management, so that free-riding and overexploitation to be prevented. Finally are presented the factors of feasibility and success of the community-based management of common pool resources which is one of the managerial solutions in order to prevent the tragedy of common pool resources.

2.2. BRIEF HISTORY OF THE CONCEPT

The ‘commons’ is a term used throughout the centuries, as well as today, to denote resources that can be used by everyone without restrictions. Due to such lack of property rights specification they suffer from over-exploitation and mismanagement that often leads to their destruction (Briasouli, 2003).

Even from the time of Aristotle the commons and their management have been subject to continuous discussion and reflection (Gillinson, 2004). Their key characteristic (i.e. unrestricted access to all members of a society) may attract an increasing number of users, giving rise to a number of problems; a case that have been well documented and made known to the wider public by Hardin (1968) in an article



he wrote with title ‘The Tragedy of the Commons’. Hardin argued that without a proper ‘governance structure’ the resource, upon which users depend, is destined to be over-used, over-exploited and consequently to deteriorate until finally it collapses (this is the tragedy). Governance structures that according to Hardin can prevent this are either state ownership (nationalization) or private ownership (privatization) of the resource (Hardin, 1968).

In the decades that followed, the intensity of environmental problems, their development into broader social concerns and the entrance of the term ‘sustainable development’ in the scientific discussion, have called for prudent management of the commons in order to allow societies to achieve economic prosperity in a healthy environment (Briassoulis, 2003). Additionally, the ongoing debate regarding the merits of private versus public ownership (that is, in essence, the debate between state intervention and the free market function), which was intensified after the fall of the so-called Keynesian state, placed a new impetus on the classic question of ‘who should have the right to use what, how and why?’ (IDGEC, 1999).

In parallel with these developments, the research on the commons revealed their variety, diversity and complexity as well as the influence of these characteristics on their management (Briassoulis, 2003). The scientists, who have dealt with the issue of management of the commons, have put forward three schools of thought regarding appropriate governance structures so that the tragedy can be prevented. In addition to the original proposals for either nationalization or privatization (Adhikari, 2001), recent studies have argued for an alternative governance structure which is based on the users themselves, who undertake the responsibility and risk of managing jointly the commons (Ostrom et al., 2002).

2.3. CONCEPTUAL DEFINITION OF COMMONS

As has already been mentioned, the issue of commons and the discussion around their appropriate management form is perennial, and as a result the solutions provided come from a number of different theoretical viewpoints. The meaning of the term and the content of the commons varies from one historical period to another, and from one



society to another, even within the same time frame. This is because, over time, the physical characteristics, the economic, cultural and political conditions and the scientific paradigms, under which commons can be seen vary and change. As a result our conception of what constitutes commons (and, of course, what constitutes appropriate management of them) has also changed (Briasouli, 2003).

In order to determine what a commons is and to identify its basic properties, the definition of public goods will be used. Public goods are characterized by three interrelated properties: indivisibility, non-exclusivity and non-subtractability (Γεωργακόπουλος, 2005: Apestequia and Maier-Rigaud, 2006). The indivisibility is due to the nature of the good. The air that we breathe, radio transmissions and the national defense are indivisible goods because they cannot be split, priced and allocated to individual users, and as a result the private sector is not interested in their production (Briasouli, 2003).

The non-exclusivity characteristic means that it is very difficult (i.e. has high costs) to exclude someone from using a good (Fisk, 2005). Since the public good is offered in a set amount for a certain number of people, there is no marginal cost of supply for each additional consumer of that good (Georgakopoulos, 2005). Of course, in a sense, all goods can be excluded from usage, but the issue here is the costs for doing so which may lead to sub-optimal allocation of the resource. Also sometimes though exclusion is practically feasible might not be morally acceptable (Georgakopoulos, 2005: Briasouli, 2003).

The non-subtractability (or non-competitiveness) issue means that the consumption of a good by one person does not limit the consumption by another person. Therefore the consumption of such goods cannot be differentiated by the income or the preferences of each person of the society. The entire population can consume the total amount of goods (Georgakopoulos, 2005).

The degree to which a good has the properties of a public good depends on its nature and characteristics as well as the spatial-temporal and socio-cultural frame of reference (Briasouli, 2003). One of the three properties, the non-exclusivity, depends critically on the socio-cultural and institutional context and more specifically on the



ownership regime of resources that concerns human-environment relations and establishes the rights of ownership and use of the resources, namely it determines who is allowed and who is excluded from their use. In relation to the ownership type the resources are divided into public, private, common property and open or free access resources (Ostrom et al., 1999).

However, most of the resources are not unlimited, so their use by each additional user reduces the available amount to others and thus leads to a competition in their use. So, if a good has the two properties of public goods, namely indivisibility and non-exclusivity, but not the non-subtractability, then the good is called common pool resource or commons in short. Note however, that the term that does not concern the property rights of the resource (Briasouli, 2003).

2.4. FORMS AND TYPES OF COMMONS

The term commons traditionally refers to a natural or artificial large scale resource so that it is costly to exclude its potential users (Ostrom, 1990). Such systems of natural or man-made resources include: fisheries, wild life, forests, groundwater basins, grazing, irrigation canals and water bodies such as oceans, rivers, etc. (Ostrom, 1990 :Ostrom, 2006).

In addition there are other, less conventional types of commons, which are material or immaterial (Bernbom, 2000). In the urban space, there are urban commons, such as infrastructure networks, land trusts, squares, playgrounds, urban landscape and generally deprived areas or unowned areas (Clapp and Meyer, 2000). Outside of the urban space, the common pool resources include global environmental problems such as climate change, water and air pollution and its attendant environmental costs and benefits (Briasouli, 2003).

Based on various criteria, commons are divided into a variety of types. More specifically, based on the spatial scale, resources are divided into local and global, depending on the spatial extent of their importance (Ostrom et al. 1999). Given the nature of their components, they are divided into tangible and intangible (Ostrom,



1990: McCann, 2000). In terms of the degree of complexity, the resources are divided into simple and complex, where the main feature to the last one is the overlapping and conflicting uses and property rights (Edwards and Steins, 1998). Also resources are divided on renewable and non-renewable according to the rate at which the units of the resources which are used are updated over time (Ostrom et al. 2002).

In relation to the ownership type, as already mentioned, the resources are divided into public, private, common property, and open or free access resources. Specifically, open or free access ones are the resources of which there are no clearly defined property rights; so their access is open and free to all. Under private ownership, the rights to exclude others and to regulate the use of resources entrusted to one person (or group of individuals, such as a corporation).

Unlike to open access rights, private property rights are usually exclusive and transferable (Feeny et al., 1990). In the case of public commons, the property rights of the resource belong to the state, whereas in the case of common property the rights are held by a group of users. In practice, many resources are characterized by combinations of these schemes, and there is a variation between them (Ostrom et al. 1999).

2.5. THE GOVERNANCE STRUCTURES OF COMMONS

The common pool resources are involved in all activities of production and consumption and suffering from over-exploitation and mismanagement that often leads to their destruction. The reduction of their quantity, the deterioration of their quality and in extreme cases their destruction, is a result of their two features: non-exclusivity and subtractability. These two elements are responsible for creating a divergence between individual and collective economic rationality (Berkes, 1995).

The lack of a specific owner and the lack or the inefficient implementation of limitations on their use, leads to overexploitation of the commons and especially of those with not clearly defined property rights (open access) or those which their property rights are held by the State (Briassoulis, 2003). This leads to the emergence of



the free riding situation, where interested users follow short-term dominant strategies and use the resource as much as they like and in any way, trying to derive more benefit today regardless of the consequences of their actions on other users and for the future. Thus the available amount for other users is reduced and simultaneously the quality of the resource is degraded (Hardin, 1968 :Ostrom, 1990).

Given the above, in a resource with one of the above forms of ownership, any user tries to exploit as much as is possible from it, participating in this way in a prevalence game with the other users, where everyone bears only but a part of the costs while enjoys all the benefits. So the private sector has no incentive to invest in protection, conservation and rational management of those resources, because while the costs are borne by the investor, the benefits are allocated to all users who are not contributing to the cost (Briasouli, 2003).

The common pool resources are dynamic systems and the socio-economic changes alter their composition over time, affecting the characteristics of the resources and users and the relationships between them. In addition the value system (social values) and the institutional framework modulate significantly the severity of the tragedy of the commons and play a central role in management decisions (Briasouli, 2003).

The high rate of exploitation of commons is not socially optimal. When property rights are not clearly defined, problems of externalities occur and the result entails inefficiencies due to failure to achieve the Pareto efficient allocation of resources. Such a well-known inefficiency is the tragedy of the commons. Thus the question of the appropriate form of management is raised and has the main goal of securing all current and future users, something that requires the retention of an adequate and satisfactory quality and quantity of these resources (Ostrom et al. 1999 : Briasouli, 2003).

According to Briasouli (2003), the question of management focuses on two key issues: the restricting access to commons and the creation of incentives for users in order to protect them (instead of overexploiting them). These issues concern the configuration of an appropriate property rights regime, which defines, allocates, monitors and enforces property rights over the resource, contributing in this way to



the effective management of the commons (Ostrom, 1990). Of great importance in this configuration are both formal and informal institutions that either exist or being developed for that purpose. The choice of the appropriate management form (or governance structure, or property-rights regime) influences the outcome due to the configuration of incentives to users and managers of the resource aiming to the protection rather than to its overuse (Agrawal, 2003).

Property rights can be regarded as sets of rules (institutions in a sense) that determine the access, use, exclusion, management, monitoring, sanctioning and the arbitration of the users in relation to specific resources (Schlager and Ostrom, 1992). The scientists, who have mainly dealt with these issues, differ as to the most appropriate ownership structure that preserves resources from destruction. Three different schools of thought have emerged on the governance structures that should be implemented to prevent the tragedy of the commons. These are: privatization, nationalization, and communitarization.

The privatization concerns the management framework in which the property rights (regarding the use, management and, generally, the regulation of the resource), belong to certain individuals. Those scholars, who believe that privatization is the most appropriate framework for managing commons, support the allocation of such property rights only to individuals, and the abolition of the nationalization, which is considered responsible for the relentless destruction of the common pool resources (Smith, 1981). According to the proponents of privatization, the full determination and clear allocation of property rights are the most effective means of internalizing externalities (Demsetz, 1967; Welch, 1983).

Under the nationalization regime, the state has strong enforcement mechanisms and it maintains the property rights of the common pool resource (concerning its access, use and management) (Ostrom, 1990). Some scholars, such as Ehrenfeld (1972), support the need for state intervention (top-down management) to ensure the effective use of the commons (Ostrom, 1990). Ophuls(1973), who also supports the nationalization regime, argues that due to the tragedy, environmental problems cannot be solved by cooperation, but only through intervention by the state, which has great powers of

enforcement and coercion. He also concludes that the avoidance of the tragedy leads necessarily to the development of a Leviathan state (Ostrom, 1990).

Heilbroner (1974) argued that in order to achieve control over the ecological problems, it is necessary to have stringent government and perhaps military control. The same argument is adopted by Hardin (1978) and Carruthers and Stoner (1981) who believe in the necessity of a coercive power to ensure the efficient use of the common pool resources. It is important to note that the policy proposal for centralized control and regulation of natural resources, such as pastures and forests, has been widely adopted, particularly in the Third World countries (Ostrom, 1990).

The third school of thought on the governance structures of the commons is the community-based (or user-based) management. A increasing number of scholars, (Ostrom 1990: Ostrom et al., 1992, 1999: Feeny et al., 1990: Baland&Platteau, 1996, etc.), argue that decentralized collective management of common pool resources by users is the most suitable system to avoid the tragedy of commons (Adhikari, 2001).The proponents of this form of governance argue that private and state management regimes tend to destroy the social capital that characterize local communities (in contrast to the communitarization regime) (Arvanitidis et al, 2014). Moreover, the first two solutions impair the efficient use of the resource and are likely to harm traditional users whose rights are rarely recognized under either private or public property (Briassoulis, 2003).

Community-based management is dictated partly by the indivisibility of the resources which make necessary the collective decision-making, the cooperation in their use and the enforcement of co-decided rules between community members (Berkes, 1995). Under the communitarization regime, the property rights to the resource (e.g. ownership, management and decision making) are clearly defined, but instead of being attributed to individuals or to the state, they are attributed to a collective group or a community, consisting of interdependent users who share the power, the responsibility and the management of the resource (Briassoulis, 2003).

The research of the past two decades has focused its analysis on the community-based management of the commons, studied mainly in the Third and the Western World countries (Ostrom et al, 2002). As a result, researchers have acknowledged the

supremacy of this governance structure, as it seems to provide more appropriate, effective and realistic institutional arrangements over the two others. However, there have been other scholars who argue that it is not possible for its superiority to be confirmed (in relation to privatization or nationalization) (Husain, 2009).

Ostrom (1990) acknowledges the difficulty of developing a successful user-based management regime; as such a process is time consuming, requires reliable information about space and time and may cause conflicts between stakeholders. In addition, several empirical studies have shown that there are no specific management institutions that can be applied a priori to all commons regimes (Ostrom et al, 1999). As a conclusion, however, it can be argued that the communitarization can give rise to effective institutions, ensuring the longevity of the resource and its sustainable management. Of course, the successful user-based management requires certain qualifications to be met, which are examined in the next section.

2.6. THE QUALITIES OF A SUCCESSFUL GOVERNANCE STRUCTURE FOR COMMONS

As already mentioned, communitarization has been preferred over other governance regimes as most appropriate for the efficient management of the commons, partly due to its ability to support collective action and cooperation between users. The successful implementation of this governance structure in practice requires the establishment of a set of pertinent institutional arrangements. These should encourage cooperation between stakeholders, provide incentives to users for the sustainable use of the resource and develop institutions (rules, norms, etc.) that guarantee the sustainable management and conservation of the resources by sharing responsibilities among all interested parties (Briasouli, 2003).

This user-based management scheme is based on two fundamental assumptions (prerequisites), essential for its feasibility: (a) the existence of this kind of social relations (networks, norms and trust) that enable participants to act together more effectively to pursue shared objectives and (b) the existence of an interest among

stakeholders for the conservation and management of the resources (Onyx and Bullen, 2000 : Briasouli, 2003).

The first assumption which concerns features of social life essentially refers to what is called social capital. Onyx and Bullen (2000), who drew the concept from Putnam (1995), defined social capital as those features of social organization, such as trust-reciprocity, norms and networks that can improve the efficiency of society by facilitating coordinated actions. According to Pretty (2003), the term social capital captures the idea that social bonds and norms are important for people and communities and is synthesized by relations of trust, reciprocity and exchanges, common rules, norms and sanctions.

Relations of trust lubricate cooperation, and so reduce transaction costs between people. Reciprocity increases trust, and refers to simultaneous exchanges of goods and knowledge of roughly equal value, or continuing relations over time. Reciprocity contributes to the development of long-term obligations between people, which helps in achieving positive cooperative outcomes. Common rules, norms and sanctions are the mutually agreed upon or handed-down drivers of behavior that ensure group interests are complementary with those of individuals (Pretty, 2003).

Social norms are generally unwritten but commonly understood formulas both for determining what patterns of behavior are expected in a given social context and for defining what forms of behavior are valued or socially approved (Onyx and Bullen, 2000). These are sometimes called the rules of the game, and they give individuals the confidence to invest in the collective good. Sanctions ensure that those who break the rules will be punished accordingly (Pretty, 2003).

Scholars (such as Wade,1987, Ostrom and Ahn2007, and Baland and Platteau,1996) argue that the combined effect of tight personal networks, high trust, mutuality and reciprocity among people creates a ‘strong community’ characterized by an ethos of collective responsibility which is prerequisite for communitarization. They also argue that such strong communities develop an effective system of informal social sanctions that prevents free riding and ensures the sustainable use of the common pool resource to the mutual benefit of all Where there is a strong community which is characterized



by those features of social organization, the development of an interest among stakeholders for the conservation and management of the resources is easier to obtain (assumption b).

Although social capital plays an important role in the development of an efficient communitarization regime, factors relating to the natural resources themselves also play a critical role in affecting whether social groups can succeed, keep down the costs of enforcement, and ensure positive resource outcomes.

Overall the literature has converged in a series of conditions (emerged primarily by empirical studies) required for the establishment of successful user-based governance structures of the commons (Ostrom et al., 1999). These can be grouped into the following categories relating to: resource characteristics, user characteristics, relationships between resources and users, institutional arrangements, and the relationship between resource system and institutional arrangements, and external factors (such as technology, the wider socio-economic system, the state, etc.) (Briasouli, 2003; Agrawal, 2003).

Wade (1987), Ostrom (1990) and Baland and Platteau (1996) argue that, effective rules which regulate access and use are unlikely to last if there are many users, if the boundaries of the commons are unclear, if users are scattered over a large area and if the identification of offenders is difficult. Moreover Ostrom et.al (1999) draw significant attention in the establishment of restrictions on use, because strong restrictions may exclude certain users (having significant distributional effects and social exclusion) whereas loose constraints may increase rapidly the number of users creating serious pressure on the viability of the resource.

In addition scholars (see Briasouli 2003) support that the successful building of effective governance structures depends on the existence of homogeneity among group members, the existence of appropriate leadership, the co-operative experience in the past, the interdependence between users and the existence of external assistance, guidance and recognition of the right of self-organization. The existence of these elements contributes to shaping management schemes that have the ability to



combine scientific management with local experience and the traditionally accumulated ecological knowledge (Berkes, 1995).

According to Agrawal (2003) demographic change and population dynamics of the community certainly affect those who depend on the resource (currently and in the future), as well as demand, but also the users' ability to implement regulations and rules. Moreover, the increasing integration of markets and the sudden emergence of new technologies and innovations can have an additional impact on the management of common pool resources, due to the influence of those changes in the existing management regime. Even the predictability of the quantity of resource (in relation to the degree of mobility or stagnation) plays an important role in formulating effective management (Agrawal, 2003).

In total, the necessary conditions that determine the feasibility and success of the user-based management regime in commons have been consolidated by Agrawal (2003) and are presented in the following table (Table 1).

Table 1: Critical conditions for building effective governance structures of commons

1) RESOURCE SYSTEM CHARACTERISTICS

- i) Small size (RW)
- ii) Well-defined boundaries (RW, EO)
- iii) Low levels of mobility (AA)
- iv) Possibilities of storage of benefits from the resource (AA)
- v) Predictability (AA)

2) GROUP CHARACTERISTICS

- i) Small size (RW, B&P)
- ii) Clearly defined boundaries (RW, EO)
- iii) Shared norms (B&P)
- iv) Past successful experiences - social capital (RW, B&P)
- v) Appropriate leadership - young, familiar with changing external environments, connected to local traditional elite (B&P)
- vi) Interdependence among group members (RW, B&P)



- vii) Heterogeneity of endowments, homogeneity of identities and interests (B&P)
- viii) Low levels of poverty (AA)

(1&2) RELATIONSHIP BETWEEN RESOURCE SYSTEM CHARACTERISTICS AND GROUP CHARACTERISTICS

- i) Overlap between user-group residential location and resource location (RW, B&P)
- ii) High levels of dependence by group members on resource system (RW)
- iii) Fairness in allocation of benefits from common resources (B&P)
- iv) Low levels of user demand (AA)
- v) Gradual change in levels of demand (AA)

3) INSTITUTIONAL ARRANGEMENTS

- i) Rules are simple and easy to understand (B&P)
- ii) Locally devised access and management rules (RW, EO, B&P)
- iii) Ease in enforcement of rules (RW, EO, B&P)
- iv) Gradual sanctions (RW, EO)
- v) Availability of low-cost adjudication (EO)
- vi) Accountability of monitors and other officials to users (EO, B&P)

(1&3) RELATIONSHIP BETWEEN RESOURCE SYSTEM AND INSTITUTIONAL ARRANGEMENTS

- i) Match restrictions on harvests to regeneration of resources (RW, EO)

4) EXTERNAL ENVIRONMENT

- i) Technology
 - a) Low-cost exclusion technology (RW)
 - b) Time for adaptation to new technologies related to the commons
- ii) Low levels of articulation with external markets
- iii) Gradual change in articulation with external markets
- iv) State
 - a) Central governments should not undermine local authority (RW, EO)
 - b) Supportive external sanctioning institutions (B&P)
 - c) Appropriate levels of external aid to compensate local users for conservation activities (B&P)



d) Nested levels of appropriation, provision, enforcement, governance (EO)

RW: Robert Wade (1988)

EO: Elinor Ostrom (1990)

B&P: Baland & Platteau (1996)

AA: Arun Agrawal (2003)

Source: Agrawal (2003)

2.7. CONCLUSIONS

The issue of the management of the commons is subject to continuous debate and reflection. An important contribution to the contemporary literature has been made by Hardin (1968) who argued for either privatization or nationalization as the most appropriate property-rights regimes, able to ensure the sustainability of the commons. More recently, other scholars (leading by Ostrom, 1990) have questioned this bipolar position and the traditional public-private dichotomy of governance approaches.

Drawing on empirical research they showed that there is a third way to avoid the tragedy of the commons where property rights are assigned to a group of users, who share the authority and responsibility of the resource. This third approach refers to the development of a communitarization regime, which is argued to be more efficient as compared to either privatization or nationalization.

In parallel with these developments the research on the commons revealed their variety, diversity and complexity as well as the role these play for the emergence of an efficient management structure. These characteristics affect the feasibility and success of the developed regime, as they are the basis on which rules of access and use are enacted, and an organizational structure to monitor and enforce these rules and resolve potential conflicts are provided. Leading scholars in the field have, through empirical studies, identified a number of characteristics which are essential for the feasibility and success of the communitarization regime.



However, there are also numerous cases where an effective management structure does not emerge and the "tragedy" becomes inevitable. So despite the provision of a set of guidelines for the successful self-management of the commons, what actually develops depend on the specific characteristics of each particular case. In that sense, it is made clear that successful solutions (structures, institutions, etc.) are not easily transferable and can be hardly implanted to other places.

In conclusion, it is argued that the community-based management can produce effective institutions for the longevity of the resource and its successful management. However, although a great amount of knowledge have been produced over the past years, more research is needed in order to improve our understanding of how institutions are build and change over time in order successful solutions to be accomplished

3. THE PRACTICE OF URBAN AGRICULTURE

3.1. INTRODUCTION

The previous chapter dealt with the theory of the commons. In particular, it provided a working definition of the commons and it outlined its forms and characteristics. In addition it explored the issue of their sustainable management discussing the three approaches that the relevant literature has put forward in order the tragedy to be avoided. The chapter concluded with the identification of the appropriate features that the communitarization regime has to incorporate towards that end.

The current chapter examines the practice of urban agriculture and its manifestation in the cities in the form of urban vegetable gardens. It starts by providing a conceptual definition of the practice and then it outlines a brief historical overview discussing the reasons that led to its emergence and development of it as well as the problems that it has had to solve over time. The chapter concludes with a classification of the urban agriculture systems and the urban vegetable gardens.

3.2. URBAN AGRICULTURE: A DEFINITION

Urban Agriculture (UA) is a well-known activity with a long history especially in those western countries which has experienced industrialization and urbanization. In a sense it has provided the means for urban populations to survive under tough conditions of economic crises and severe unemployment and poverty. The way to



define urban agriculture varies from one country to another and from one academic discipline to another, since it includes as a wide range of practices.

According to various global organizations such as Food and Agriculture Organization of the U.N. (FAO), urban agriculture can be defined as the growing of plants and/or the raising of animals, within or at the outskirts of the urban frame by urban residents, aiming to production of fresh and high quality products mainly for self-consumption and other activities such as the processing and marketing of products (FAO, 2007).

Mougeot (2007), expanding this definition, adds that urban agriculture is an industry which grows and raises, processes and distributes a diversity of food and non-food products, (re)-using largely human and material resources, products and services found in and around that urban area, and in turn supplying human and material recourses, products and services largely to that urban area.

Moreover, as summarized in the report of the RUAF Foundation (Resource Centre on Urban Agriculture and Food Security), urban agriculture provides a complementary strategy to reduce urban poverty and food insecurity and enhance urban environmental management (Anthopoulou and Nikolaidou, 2013). Hodgson et al. (2011), also endorse these aspects of urban agriculture set by RUAF Foundation saying that *'urban agriculture is a complex activity, addressing issues related to food security, community development, environmental sustainability, land use planning and farmland preservation'*.

From the above definitions of urban agriculture is made evident that the most important characteristic of UA is not so much its location, but the fact that it is an integral part of the urban economic, social and ecological system. Thus, UA must be understood as a permanent and dynamic part of the urban socio-economic and ecological system, using typical urban resources, competing for land and water with other urban functions, influenced by urban policies, and contributing to urban social and economic development (FAO, 2007).

The practice of UA has emerged as a result of either targeted (though fragmented) actions of local and regional authorities or of activist initiatives organized by the local

populations (Anthopoulou and Nikolaidou, 2013). In recent years UA is pursued to be an integral part of a sustainable urban system. A number of initiatives pursue the integration of UA in urban centers as safe acceptable component of sustainable city through partnership with institutions of policy and planning of urban areas (Prain, 2006).The integration of UA into the urban land use system and the creation of a favorable policy environment are critical steps in the development of the sector (FAO, 2007).

3.3. BRIEF HISTORICAL OVERVIEW

As mentioned, UA has a long history in the Western industrialized world. Since its appearance in the early 19th century, UA has addressed issues of poverty, hunger and nutrition (caused by conditions of crises such as wars, famines, and economic recessions), as well as of social unrest. Moreover it had a substantial recreational function.

The first examples of urban agriculture in Europe were the first organized orchards in Germany at the first half of the 19th century. These had been originally developed as places of healthy environment and physical activity for children, but they were converted to ‘gardens of relief’ aiming to alleviate urban populations from hunger, unemployment and depression caused by the Great Recession of the 1929 (Anthopoulou and Nikolaidou, 2013). For similar reasons, the socio-economic crisis of the Great Recession led the USA government to promote urban agriculture programs around the same time period (image 1) (<http://sidewalksprouts.wordpress.com/history/>).

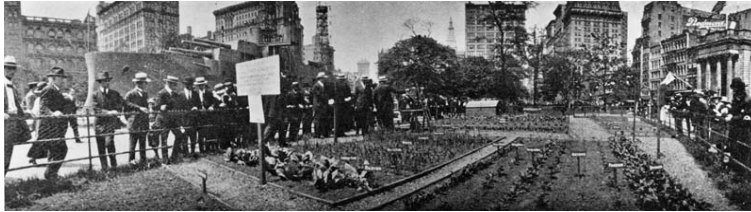
Image 1: Gardens of Relief during the recession period in USA



Source: google

During the first and the second world wars, many countries (e.g. USA, Canada, Great Britain, Germany) have converted a number of both private and public urban spaces to urban gardens in order to confront the lack of supply (and the consequent price increase) of basic agricultural products caused by the devastation of the rural areas (images 2 and 3).

Image 2: Victory Garden in New York City during the WWI



Source: google

Image 3: Victory Gardens in USA and Great Britain during the WW2



Source: google

These highly productive urban areas were named ‘victory gardens’ and formed an organized effort to avoid shortage of food for both local populations and soldiers, considered also as acts of high social responsibility and patriotism in wartime (image 4) (<http://sidewalksprouts.wordpress.com/history/>).

Image 4: Brochures highlighting the growing in Victory Gardens as act of patriotism



Source: google

The UA became a popular practice not only for food security reasons but also for the benefits it provided to the people, i.e. contributing to their mental and physical health (Hodgson et al., 2011). However after the war the interest on UA was declined and its food production was diminished and finally it came to a halt, mainly due to substantial changes in the urban lifestyle caused by globalization, consumerism and the mass production of products. Today, UA, in all its diversity, becomes again popular in both developing and developed cities around the world, although it is in the former countries that we see its proliferation.

The factors that have led to increase of interest in UA are, of course, not only survival issues. Nowadays, UA, especially in the developed world, mainly addresses the question of the postwar "production model" of agriculture towards sustainable development (image 5). After the 1960s the growing concerns for environmental sustainability, quality of life in the cities and the quality of food for consumption, became the main reasons for the reemergence of UA as an integral part of the contemporary urban lifestyle (Anthopoulou and Nikolaidou, 2013).

Image 5: Vegetables garden in London and Paris



Source: google

The intensive urbanization over the past years that many cities have experienced in both the developed and the developing world has given rise to significant and varied urban problems. For example, densely populated and environmentally degraded urban areas and the negative balance between the built and the natural environment (urban sprawl), have reduced the quality of life in the cities (image 6). In recent years issues such as food security - quality and the recent economic crisis were added to the



aforementioned problems of degradation of the urban environment and of the quality of life (FAO, 2007).

Image 6: Vegetable Garden in the abandoned airport of Tempelhof in Berlin



Source: google

The contemporary approaches to urban agriculture place special emphasis to the role that it plays in the urban environmental system and the local economy, contributing to the 'greening' of the city and the efficient reuse of the urban waste (image 7). In addition its social perspective is also considered, as it supports the social inclusion of vulnerable groups, and especially of women who are those mainly involved in the UA (Anthopoulou and Nikolaidou, 2013).

Image 7: Vegetable Gardens in USA and Canada



Source: google

To conclude, the revival of this trend is due to a number of issues related to the sustainability of the urban environment. These issues concern both the public health and the protection of the environment, allowing new possibilities in the urban design, the economic (local) development and the social interaction of the citizens (Columbia University, 2012).

3.4. CLASSIFICATION OF URBAN AGRICULTURE SYSTEMS

As mentioned, UA implemented in the form of urban gardens (food producing and ornamental plants) and urban farms (small or medium farm animals, beehives) addressing issues related to food security, community sentiment development, environmental sustainability etc. Several authors have discussed UA and described its characteristics and the forms it has taken. However, these studies were mainly case based analyzing specific examples at a local level. Overall, the literature has not yet provided an overview study that draws together all these experience. So comparisons between cases (or cities) have not been made.

In addition, at a more methodological base, the literature has not provided a consistent typology and a unifying research approach on examining UA systems. Most researchers have developed their own approach, leading to a large variety of definitions and classifications of the farming systems (FAO, 2007).

The available classifications of UA vary and are based on a number of criteria, such as the location and the size of the lot, the production aim (e.g. consumption or recreation), the end product (crops or animals), or the production process and techniques and the type of management used (Hodgson et al., 2011: *Advocates of Urban Agriculture*, 2004). Most of the developed classifications focus on a few such criteria (thus, they reflect part of the variability that reality exhibits) and suffer from a lack of clarity. In addition they cannot capture differences between regions or cities, and they show a degree of overlap (FAO, 2007).

According to the location criterion UA activities (including the production, processing, and the sale of plants, animals and ornamentals) can be located in the urban, suburban, or in a peri-urban area, on underutilized private or public land, or on building sites in developed residential, commercial, or industrial areas (Hodgson et al., 2011). Also the activities may take place ‘on-plot’, that is, in the house area (e.g. in the backyard, kitchen, balcony, rooftop, etc.) or on land away from the residence (i.e. ‘off-plot’). The land tenure regime is very important because it determines the property rights of the farmers and so the cultivation processes and techniques, the



organizational forms, and generally, the possibilities for sustainability of the scheme (FAO, 2007).

The production aim of UA refers to the objective that is to be accomplished. This might be personal consumption, educational or demonstration purposes, neighborhood revitalization or economic development, healing or therapeutic purposes, sale or donation, or a combination of the above (Hodgson et al., 2011). In most cities of developing countries, an important part of UA production is for self consumption, with traded surpluses. However, the importance of market-oriented UA, both in volume and economic value, should not be underestimated (FAO, 2007).

According to the end product criterion UA can include the production of plants or animals (or combinations) for consumption or non-food products such as ornamental plants, medicine and aromatic herbs, tree products and seedlings as well as the production of key urban agriculture inputs, such as compost (Hodgson et al., 2011). The choice of what to produce is determined by a variety of social, economic and physical determinants (diets, food patterns, climate and soil conditions, religion) (FAO, 2007).

The production techniques that UA can utilize can be in-soil or raised-bed cultivation, hoop house or greenhouse growing, hydroponics, aquaponics, permaculture, or vertical farming (Hodgson et al., 2011). Access to irrigation water turns out to be an important determinant of income raised in UA (FAO, 2007).

As regards the management form of UA, Smit and Bailkey (2006) distinguish between what they call community-based UA from other proactive forms of UA, such as: subsistence farming by individuals for themselves and their families; entrepreneurial (market-oriented) UA, often consisting of privately-owned, profit making businesses; and leisure or recreational gardening. Community-based UA is seen as a joint activity where users cooperate to produce food and other services aiming at building 'strong communities'. These initiatives are administrated by not-for-profit organizations formed in collaboration with the users, whereas usually the land used belongs to the local authorities and the leases paid concern a share of the production or its value (Smit and Bailkey, 2006; Ferris et al, 2001).

The classification of UA under the aforementioned criteria created a plethora of types of urban gardens, such as: private gardens, community gardens, allotment gardens, institutional gardens, demonstration gardens, and guerilla gardens, that differ from each other in terms of the composition of the above characteristics (Hodgson et al., 2011). The plurality of terminology (even for the same type of garden) and its haphazard use in the literature make difficult overall comparisons between similar cases and leads to a definitional fuzziness (Firth et.al, 2011).

Despite this definitional fuzziness, the generic term community garden endures in the literature and includes a diverse set of schemes. In the UK, for instance, there is a notable difference between allotment gardening, where each member has a plot of land, and community gardens, which is a public garden in terms of ownership, access and degree of democratic control (Firth et.al, 2011). But in countries that do not use the term allotment garden, a community garden can refer to individual small garden plots as well as to a single, large piece of land gardened collectively by a group of people (Pudup, 2008).

Linn (2007) distinguishes community gardens as a common space that brings people together and inspires collective action. One of the greatest benefits of community gardens is that they help build the character of a neighborhood through sustainable community development. As a result, community gardens provide many opportunities for social and cultural exchange (Firth et.al, 2011).

Overall, in accordance to the aforementioned criteria community garden can be defined as small to medium scale production schemes of food or ornamental plants, located on a single piece of land or on individual plots in a residential area. They take place on public or private property and they are gardened and managed collectively or individually (by a group or external organizations, land trusts, institutions, private citizens). Gardening activities and end products are typically used for consumption, education or recreation; however, they may also be sold on-site (or off-site), depending on local government regulations and the goals of the garden as a collective resource. Community gardens also: provide employment to local people, improve the 'image' of the neighborhood, build a sense of community, contribute to environment protection, strengthening the relationship between human and nature and in general



favor the social and cultural exchange between people (Hanna and Oh, 2000 : Linn, 2007 : Pudup, 2008 : Hodgson et al., 2011 : Firth et.al, 2011).

3.5. CONCLUSIONS

Urban agriculture is a well-known activity with a long history in the Western industrialized world. For centuries it has provided the means for survival, recreation and socialization between urban people living in adverse conditions. The practice has been implemented in the form of urban gardens (concerning the cultivation of plants) and urban farms (concerning the raising of small or medium animals) but a consistent typology as well as a unifying research approach on the issue is missing. Most researchers have developed their own approach (drawing on local case studies), leading to a large variety of definitions and categories of local farming systems.

The practice of UA emerged as a response to conditions of poverty and hunger that urban populations encountered during periods of severe crises (e.g. wars, famines, economic recessions, etc.). However, its environmental and social benefits (contributing to the mental and physical health of the people) are also appreciated. It is on these grounds that UA has not been abolished even in times of economic growth and prosperity. The main challenges that the UA currently faces (particularly with regard to developed countries) are to supply high quality(organic) food, to boost socialization and social capital formation, and to improve quality of living by providing a high quality urban environment.

Moreover, given the severe economic crisis that Greece and other countries are going through, UA can also play an important role in feeding vulnerable groups, providing opportunities for employment, recreation, exercise and education, and supporting social cohesion in the cities. The development of community gardens, therefore, can provide a safety net for vulnerable urban households (such as the elderly, the unemployed, etc.) boosting their psychology, enhancing social relationships and providing a base for development of a strong community and cooperation ethos.



However, obstacles to the development of community gardens are also evident. These are mainly due to the lack of political will, to restrictions and inflexibilities of the urban planning system and to the shortage of available urban land. Despite these, the recent years have seen a number of initiatives (in fact, our case study constitutes one of them) where either the local authorities or the citizens themselves have managed to set up community gardens in various urban areas. We argue that the integration of UA into the urban land-use system and the creation of a favorable institutional environment are critical steps for the flourish of these initiatives

4. COMMUNITY GARDENS AS COMMONS

4.1. INTRODUCTION

The previous chapter has analyzed the practice of urban agriculture, the reasons that gave rise to it and the benefits that it provides to contemporary urban societies. In addition the chapter discussed the types of the urban agricultural systems and provided a definition for the community gardens as special forms of urban agriculture.

This chapter examines the community gardens as common pool resources. It starts by highlighting the link between community gardens and urban public spaces, the significance of the former for the urban ecosystem and the common threats that both are facing resulting to their degradation. Then it moves to identify community gardens as a common pool resource by analyzing their characteristics which pose them as classic cases for tragedy. Drawing on these, the chapter finally defines which specific conditions, characteristics and qualities the community gardens as commons should have in order successful management to be accomplished (in the form of a communitarization regime).

4.2. COMMUNITY GARDENS AND URBAN PUBLIC SPACES

As discussed, the practice of urban agriculture was developed as an attempt to confront environmental, economic and social issues troubling the city. The implementation of urban agriculture in the urban setting was mainly through community gardens which were created either by the citizens themselves or through

initiatives undertaken by the local authorities. The land in which urban gardening takes place is in the vast majority of cases public land owned by the state or by the local authorities.

As such, the dependence of urban community gardens on open public places is very high, since the existence of the former presupposes the existence of the latter. Urban public spaces fulfill two different but complementary roles. First they are spaces open to the elements of the natural environment. They allow the presence, and to some extent, the operation of nature into the built environment. In this way, they have a regulatory role in the microclimate and the environment of the city while provide the opportunity for people to come in direct contact with the nature (Loukopoulos, 2005). As Loukopoulos (2005) puts it, they are in essence natural “break points” of the built environment continuum.

Second, public spaces have a social role; they are social spaces. They accommodate the social life in the city, providing the space within which the individual meets the community (Loukopoulos, 2005). Also open public spaces are relatively adaptable and can accommodate a variety of users (Kassa, 2008).

As mentioned in chapter two, community gardens (after the 70's) have confront not only issues of “food crisis”, but also issues related to modern lifestyle and intense urbanization (Anthopoulou and Nikolaidou, 2013; FAO, 2007). More precisely, community gardens contribute to neighborhood improvement, enhance a sense of a community and in general favor social and cultural exchange between individuals, resulting in a more cohesive society.

In addition, the rapid development of community gardens in many cities of the world comes to confirm the need of people to reconnect themselves with the nature by addressing the social and environmental amnesia regarding our dependence on nature and the appropriation of public space (Anthopoulou and Nikolaidou, 2013).

Urbanization results in scarcity of land in cities, accompanied by an increase in land prices and a subsequent compartmentalization of land that favors private land ownership (Colding et.al, 2013). It has been well argued that urbanization disturbs the

connection with the natural environment as modern life-styles are less environmentally attuned and as usage of public spaces (including urban green) is reduced (Bendt et.al, 2013).

These (hostile for public spaces) trends are enhanced by a ‘regulatory slippage’ which is due to reduced funding or changing priorities by the local governments, all of which give rise to management inefficiency (Foster, 2011). Regulatory slippage refers to a gap between regulatory standards and the enforcement of these standards. According to Foster (2011) this slippage occurs primarily in open-access public space, such as parks and streets, when cities or regions lack the will or the resources to maintain a required level of control.

The development of community gardens functions as a means of halting the modern tendency for quality and quantity deterioration of open public spaces. The preservation and development of these sites as operational and productive spaces through urban agriculture is a key alternative proposition to the use of unused urban space which also preserves the urban ecosystem. Nevertheless community gardens continue to face the same risks of quantitative and qualitative degradation both because of the rapid urbanization and privatization of open public spaces and the regulatory slippage phenomenon.

4.3. COMMUNITY GARDENS AS URBAN COMMONS

As discussed, the term ‘commons’ is used to denote resources that can be consumed by everyone but this usage by some reduces the amount available to the others. As such, they face over-exploitation and mismanagement that often leads to their destruction. Traditionally, studies on commons focus on natural resources and their management arrangements, with a substantial number of studies having explored these issues. These are known as ‘traditional commons’ (Parker and Johansson, 2011).

Recently, scholars have seen as commons other, less traditional (not natural), resources which exhibit the same characteristics of common pool resources. These are called new commons. Urban commons belong to this category. They comprise shared,

mostly human-constructed, parts of the urban environment (Poklemovai et.al, 2012). Some types of urban commons are publicly shared resources that have been reconceptualized as commons, such as infrastructure networks (roads, water utilities), pavements, plazas, playgrounds, open spaces, vacant land, brownfields, and generally areas that planners ignore considering them as non-privately owned ("unowned") free space (Hess 2008).

According to Elzenberg (2011) urban commons follow several core characteristics. First, the urban commons are produced by humans. Second, they, arguably, improve the quality of living, by offering facilities such as housing, open space, recreational and social space, movement in space, and control over space, and by fulfilling these and other social needs in a non-commodified manner. Third, they necessitate communities to operate them through collaboration, cooperation and communication rather than through private interest and competition. All together, the commons provide the opportunity "to obtain social wealth and to organize social production" (Elzenberg, 2011).

In accordance to these features and the analysis of the previous section, open public spaces and community gardens are urban commons since their purposes, functions and prospects look very similar. In addition, urban public spaces and community gardens (as well as other urban commons) have more clear ownership characteristics (perhaps due to their relatively higher land values), as compared, for instance, to rural areas. Usually, it is local authorities that have these ownership rights. However, political and institutional limitations placed on them (to a degree due to regulatory slippages) curtail the extent to which those spaces are controlled, resulting in a case where open public spaces and community gardens very strongly resemble commons of an open-access type (Garnett, 2011).

Under those conditions local authorities face serious problems in enforcing existing property rights tolerating non compliance by unauthorized users, usually leading to overuse and overexploitation of the resources. According to Garnett (2011), the open-access nature of urban public spaces which formed under the above conditions, constitutes them classic cases for tragedy.

Community gardens as open public spaces are subject to degradation by overuse or abandonment just as other public spaces. Municipalities often lack the means and perhaps the interest in monitoring them (to secure the desirable quality levels) and this can lead to congestion as users who may have been previously excluded from it are now able to access and exploit the resource for their own benefit (Foster, 2011).

The similarity between community gardens and urban public spaces with the traditional commons becomes more evident if we look at their management and the possible risk they face due to their ownership characteristics. Despite their vital importance in the urban milieu, they usually face the same risks that common resources usually face because of the characteristics of non-exclusivity and subtractability. They could be ill-managed, deteriorating both physically and aesthetically and become desolate urban spaces. In addition, the urbanization trends which most modern cities confront, place an extra pressure on the existence of community gardens (again due to high land values) disrupting the balance between the built and the natural urban environment (Kassa, 2008).

4.4. SUCCESSFUL MANAGEMENT OF THE COMMUNITY GARDENS AS COMMONS

The proposed solutions to the rivalry, congestion and degradation that afflict urban commons typically track the traditional public-private dichotomy of governance approaches. These solutions propose either a more assertive central government role or privatization of the resource. A contemporary example of the latter is Robert Ellickson's proposal for 'public space zoning' which would allow cities to more comprehensively regulate open public spaces in order to control chronic nuisances (Ellickson, 1996). An example of the privatization as a solution to the tragedy of urban commons is the 'Gated Communities' which is a form of common interest development in which individual property owners own and control shares/parts of the development, including its common spaces (Low, 2006).

Neither of these proposed solutions has taken root, because of the potential costs that each carry—costs to the local government during times of fiscal strain, costs to

communities where the majority of residents are non-property owners and costs to internal community governance (Foster, 2011). So the third management regime, this of the communitarization governance structure gains momentum, posing as the most preferable solution to the tragedy situation. However, even in this case the state (central or local) continues to play a key role in the whole initiative. This is because it usually retains a great number of property rights (ownership) on the land (primarily vacant land) on which urban gardening takes place.

Overall, the communitarization governance structure refers to user-based management schemes in which rights and responsibilities for the use and management of the garden are allocated to specific citizens - the users. The state, however, continues to hold a number of regulatory powers; but even so, we see a shift of responsibilities from the state to the local people and the gradual empowerment of the latter. In this perspective, the local state comes to play an ‘enabling’ role, supporting the initiative and providing incentives and capacity to local users to strengthen the self-management of the resource and to overcome free-riding and coordination problems (Foster, 2011).

The implementation of the community-based management requires the establishment of a number of institutional arrangements (communitarization regime), and as mentioned in chapter two, its successful implementation rests on a series of qualifications (conditions, characteristics, qualities) which the relevant literature has drawn from numerous empirical studies all over the world. These, according to Agrawal (2003) – see Table 1 in chapter 2 – can be grouped into six categories related to: the characteristics of the resource, the characteristics of the users, the relation between the resource and the users, the institutional arrangements, the relation between the resource system and the institutional arrangements, and the external conditions.

These categories, however, refer to any kind of commons and are general in their scope. Therefore, we are now moving to modify the list and to adjust the required qualities in order to be more attuned to the specific case of community gardens.

(1) Resource System Characteristics

As discussed, the size and the well-defined boundaries of the resource play a significant role in the successful implementation of the communitarization. These, inter alia, determine how much authority and control power the group will need in order to secure the resource (Foster, 2011). Certainly, clearly defined and small sized community gardens require less monitoring and control, making informal institutions quite effective for providing and enforcing rules and dealing with potential conflicts (Colding and Barthel, 2012).

The exploitation of urban land for agricultural production requires the existence of tangible benefits from the resource and the predictability of the resource capacity so that does not threaten the viability of it. These two features play an important role in formulating effective management.

The location of the community garden and the property rights of the land are also very important to the successful implementation of a community-based management. About the location, Garnett (2011) supports that in contrary to the view of Jacobs (1961) (who extolled the virtues of mixed land use), there is evidence that mixed-land-use neighborhoods have lower possibilities for effective self-management because there are problems to identify who and what belongs to the community (Garnett, 2011).

The creation of an urban garden on land belonging to local governments or to the State ensures the conservation of this use because they both operate principally to the existence of social benefits and not only to gain higher profits. In the case of private owned land the urban vegetable garden would be threatened by a more profitable use.

The property rights of the land (to use, change, exploit, transfer ownership, etc.) are also significant. Which are these rights? How clearly are these rights defined and allocated to stakeholders? As already mentioned most of the urban gardens created on land that belongs to local governments or to the State, so the question becomes which rights have been retained and which ones have been transferred to the community of users and how secure these rights are? Certainty of these issues increases security on

the part of the users and their willingness to invest on the development of a sustainable commons.

As mentioned above, usually the local authorities retain the ownership of the land used for community gardens and grant to users the right to use and manage the resource through contracts of specific structure. The structure and terms of these contracts (leases) are therefore of particular importance for the viability of the schemes. We expect that long-term and affordable leases to increase user's willingness to participate and invest in community gardens and in the necessary social relations (Colding and Barthel, 2012).

(2) Group-users Characteristics

In respect to the characteristics of the users, important is a clear specification of the number of users that the garden can bear, as well as the criteria which define eligibility for participation in the scheme. The smaller the number of users and the clearer the criteria for eligibility, the greater the chances of a successful scheme are. But the management of a community garden demonstrates some of the differences between urban commons and traditional common pool resources. A successful management of a community garden does not imply the need for a strictly bounded community of appropriators.

As already stressed, community gardens beyond providing agricultural products and solving nutritional needs, are places of social and cultural interaction which facilitate information and knowledge exchange, and sites that promote a more environmental friendly way of life. Obviously, eligible users are not only the holders of the land but a wider group of people who can contribute to and benefit from the outcomes (social, psychological etc.) of the garden. According to Parker and Johansson (2011) the manager of an urban common, like a community garden, must accept contributions by people who do not take part in the management regime. They can have access to the resource as far as they comply with the rules and they refrain from vandalizing it.

Appropriate leadership is very significant element for the success and viability of the management regime. The term appropriate means that the managers should not only

have knowledge about agriculture (i.e. the opportunities and risks of urban land where cultivation takes place in order to maintain the quality and quantity of the resource), but also leadership qualities that would enable them to define proper rules and resolve conflicts in a peaceful and consensual way.

The ability of user's collective action that is necessary in all such bottom-up schemes refers to as collective efficacy. A group's capacity for joint action depends at a certain level on the social capital available (trust, norms for cooperation, etc.) and on previous experiences on similar matters (Foster, 2011). In addition collective efficacy increases when social cohesion between participants is high and when users feel an ethical obligation towards the sustainability of the resource – called stewardship ethic (Foster, 2011).

A lack of collective efficacy is correlated with the existence of social disorder in public spaces, enforced by violence or threats of violence. Social disorder can prevent or impede the development of productive social norms and the collective efficacy necessary for neighbors to maintain effective social controls in their community (Foster, 2011). What is especially important to note is that although the existence of social capital, shared norms etc. are foundations for the development of a model of self-management, on the other hand community gardens contribute to the building of these elements (Colding and Barthel, 2012).

Additional a basic requirement that allow the operation of user-based management regime is the existence of common interest and the mutual engagement among users for participation in the management of the resource. Mutual engagement through working together does not, however, require homogeneity of identities among group-members, but rather creates similarities aswell as differences, something that called engaged diversity (Colding and Barthel, 2012).

It is known that cultural diversity is increasing in cities as a result of urbanization and globalization. Colding and Barthel (2012) support that when a diverse group of stakeholders share the management of a resource, decision-making is more efficient since there is more information available, more perspectives to judge a situation, more options for testing and evaluating policies and due to that stakeholders may have

greater participation in the decision make processes. Cultural diversity appears to promote the ability to build and increase the capacity for learning and adaptation in groups. This latter function seems directly linked to the sharing of a common interest (Colding and Barthel, 2012).

(1&2) Relationship between Resource System and Group Characteristics

Particularly important for the success of the community gardens management is the proximity between user's residential location and the resource location. Close distance contributes to better oversight and general management of the resource. This feature is even more important if we consider that in contrast to traditional commons these resources are unlikely to form an essential part of people's livelihood (Parker and Johansson, 2011).

Urban commons often have an indirect and less obvious connection with people's livelihoods. only as civic virtue complementing their daily work life and which is characterized by high intensity and speed. The proximity to the resource and the time remaining for users to deal with the vegetable garden are critical for the success of the communitarization regime (Parker and Johansson, 2011).

In addition collective efficacy increases as average residential tenure and levels of home ownership increase. Homeowners have higher incentives to solve problems related to the community and to the community garden, as these affect their daily life to a high degree. It seems reasonable to assume that residential stability probably increases the likelihood that neighbors will get to know and to trust, one another (Garnett, 2011).

Having direct and regular contact with the resource is crucial for evolving the sense of belonging/identity. Here very important is the role of communication; communication in the space and about the space (Poklemovai et.al, 2012). An additional important element for sustainability of urban gardens is the existence of fairness (through the provision of clear criteria) in the process of allocating the plots and the property rights on the resource to the potential users.

(3) Institutional Arrangements

A particularly critical factor is the establishment of institutional arrangements that will confer balanced rights and obligations to all participants, will eliminate the condition of free riding and will allow users to participate in the management regime. In order to ensure legitimacy, all actors involved must have justified rights which should be clearly distributed (Poklemovai et.al, 2012).

Locally devised use and management rules should determine who, where, how and for how long they take advantage of the resource. The rules must be simple to understand and easy to enforce. The stability in community garden membership helps to the better application of the rules, because frequent changes in the group of participants (i.e. high volatility of the list of users) reduces the levels of trust between participants and the commitment of users to the rules (Foster, 2011).

In order to sustain the quality of the resource and ensure its viability, monitoring mechanisms are necessary. Monitoring might be undertaken by the users themselves or by other agents assigned to do the job. The key mechanisms facilitating effective control are the close relationships among users and the strengthening of the community's identity, which reduce the costs of monitoring and possible infringements by reference to ethical values shared to by all members of the commons (Poklemovai et.al, 2012). Very significant issue is also the monitors to be part of, or accountable to the participants, so the Principle-Agent problem to be eliminated (Parker and Johansson, 2011).

If there is offending behavior, violators should be punished with escalating penalties depending on the seriousness of the offense and the context in which it was, in order to avoid unfairness and generalizations in sentencing. The participants themselves must commit to credible enforcement of sanctions. But it may be helpful the systems of monitoring and sanctioning to not only work in order to avoid unwanted scenarios but rewarding positive and cooperative behavior.

Also in order institutional arrangements to be sustained over time, it is necessary to have mechanisms which can clearly identify what constitutes infringement in order to achieve the resolution of conflicts at a low cost.

(4) External Environment

The support of central authorities is an important element in user's ability to overcome free-riding and coordination problems and to manage collectively their resource. In the case of community gardens, this enabling role is of particular significance given the local authorities' ownership and control over the resource. Ostrom's work, as well as the work of others, suggests that central governments can play a significant role in supporting, and potentially lowering the costs involved in, the creation of these institutions without subsuming them into a centralized governance regime (Foster, 2011).

A characteristic of the community gardens as commons is that they often enabled and operated in cooperation with local authorities. A challenge emerged in this context is the need to conduct a balancing act so as not to crowd out civic engagement by overmuch governmental presence, yet maintaining enough governmental engagement to avoid pitfalls of collective management such as lack of accountability (Parker and Johansson, 2011). Local governments can stand helpers to the project by solving problems that may arise from time-consuming, bureaucratic and organizational difficulties; even become major providers of technical infrastructure and knowledge.

The central authorities can contribute to the sustainability of the project by supporting the managerial scheme with external sanctioning institutions, recognizing the right to establish institutional arrangements. Local government's contribution is often necessary in order to incentivize norm activation and to make collective action less costly to undertake.

In addition, local governments can support the whole activity by providing favorable lease terms to the users, e.g. they could incur part of the costs by lowering the rents paid by the users so that they do not match the open market prices. This brings us to another critical factor which is the behavior of the real estate market both now and in the future. The high demand for urban space due to urbanization hinders the chances for developing and maintaining an urban garden, since the possibility of higher returns by alternative uses leads the owners to give such land to these uses.

Another important external factor (related mainly to treatments of free riding) is the cost of the exclusion technology. The higher the cost of the exclusion technology (such as fencing) to the enforcement of private rights, the smaller the chances of successful management are.

In addition, another critical factor is whether the urban agriculture is institutionally recognized and protected as a special type of land-use in the planning system of cities. The identification of urban agriculture as a specific use may confront many of the pressures created by urban sprawl, ensuring the viability of the urban community gardens.

All the above discussed necessary conditions that determine the feasibility and success of the self-management regime in community gardens as commons are summarized in Table 2 below.

Table 2: Qualities for a sustainable governance regime in community gardens as commons

1) RESOURCE SYSTEM CHARACTERISTICS

- a) Small size
- b) Well-defined boundaries
- c) Owner of land
- d) Property rights of land
- e) Lease structure
- f) Proximity to residential areas
- g) Benefits from the resource
- h) Resource capacity and appropriateness

2) GROUP CHARACTERISTICS

- a) Small size
- b) Clearly defined boundaries
- c) Collective efficacy
 - i) Social Capital-(trust, reciprocity, social norms)
 - ii) Past successful experiences
 - iii) Social Cohesion-Social Disorder

- iv) Stewardship ethic
- d) Appropriate leadership-Knowledge about agriculture, the possibilities and risks of urban land
- e) Mutual engagement among users for participation in the management of the resource
- f) Engaged diversity

(1 AND 2) RELATIONSHIP BETWEEN RESOURCE SYSTEM CHARACTERISTICS AND GROUP CHARACTERISTICS

- a) Proximity between user-group residential location and resource location
- b) Residential stability (residential tenure and levels of homeownership)
- c) Communication in the space-sense of belonging/identity
- d) Fairness in allocation of property rights of the resource

3) INSTITUTIONAL ARRANGEMENTS

- a) Clearly defined and allocated property rights
- b) Locally emerged access and management rules
 - i) Rules determine who, where, how and for how long someone uses the resource
 - ii) Rules simple enough to understand and enforce
 - iii) Clear specification of infringements
 - iv) Match exploitation to renewal ability of the resource
 - v) Certainty in community garden membership-commitment
- c) Monitoring mechanisms
 - i) Accountability of monitors and other officials to users
- d) Escalating sanctions
 - i) Availability of low cost adjudication

4) EXTERNAL ENVIRONMENT

- a) Technology
 - i) Low-cost exclusion technology
- b) Condition in the Real-Estate market
- c) State-Local authorities
 - i) Should not undermine co-management schemes



- ii) Solving problems arising from time-consuming, organizational, bureaucratic processes
 - iii) Provide the necessary technical infrastructure and knowledge
 - iv) Provide supportive external sanctioning mechanisms
 - v) Internalizing part of the lease costs
 - vi) Provide incentives for collective action
 - vii) Include urban agriculture as a distinct useclass in urban planning
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Source: Adapted from Agrawal (2003)

4.5. CONCLUSIONS

The relationship between community gardens and open public places is evident. The development of the former presupposes the existence of the latter, and they both have similar and complementary functions aiming to the sustainability of the urban environment, the creation of social cohesion between citizens and the reinforcement of the relationship between humans and nature.

Yet, despite the importance of the open public spaces, recent decades have seen a significant reduction of them, leading to the disruption of balance between the built and the natural environment in cities. This is due to the intense urbanization that has taken place in recent years and resulted in scarcity of land in cities, accompanied by an increase in land prices with a subsequent compartmentalization of land that favors private land ownership. It has been suggested that urbanization disturbs the connection with the natural environment, as modern life-styles are less 'environmental friendly' and as usage of public spaces (including urban green) is reduced.

This trend is also reinforced by the inability of responsible authorities to maintain the quantity and/or quality of these spaces. This inability is due to reduced funding (or resources in general) or changing priorities by the local governments, all of which give rise to management inefficiency. This situation is called regulatory slippage and occurs when cities lack the will or the resources to provide the required level of public

spaces due to a gap between regulatory standards and their enforcement capacity of these standards.

The community gardens are special types of public space. As such they face the same threats of quantitative and qualitative degradation both because of the rapid urbanization and privatization of open public spaces and the regulatory slippage phenomenon.

Due to subtractability, non-exclusivity and regulatory slippage, community gardens resemble urban common pool resources of an open access type. As such individuals are able to access and exploit them for their own benefit, preventing others from doing so. On these grounds they are subject to degradation (as a result of overuse) making them classic cases for tragedy. In addition, the urbanization trends, which many modern cities confront (especially in Greece), place an extra pressure on them threatening their viability and existence.

The proposed solutions to the problem are, traditionally, privatization or nationalization, and more recently, the development of a communitarization regime, where all stakeholders jointly undertake the responsibility and rights for the collective management of the resource. In this case the support of both the central and the local authorities is of paramount importance, as they usually retain the property rights of ownership in the resource.

Following the analysis conducted in the previous chapter we have specify which particular conditions, characteristics and qualifications the community gardens as commons should have in order successful user-based management to be accomplished (in the form of a communitarization regime). These qualities provide the basis to empirically explore (in the following chapter) the community gardens of Larisa as commons, and to assess their potential for sustainability and proliferation.

5. CASE STUDY: THE MUNICIPAL VEGETABLE GARDEN OF LARISA

5.1. INTRODUCTION

The previous chapter defined community gardens as urban common pool resources. Initially it highlighted the relation between community gardens and urban public spaces and the reasons that lead them to conditions of ‘tragedy’. It then identified the qualities that the user-based governance regime of community gardens as commons should exhibit in order successful management to be accomplished.

This chapter provides an empirical analysis of the issues. It starts by discussing community gardening in Greece and it then moves to outline the methodology followed in our specific case study, this of Larisa. Next, it places focus on the vegetable garden of Larissa to explore its history, current structure and generally the way it is organized. In these terms it also assesses its qualities (in accordance to the checking list provided in the previous chapter) to identify strengths as well as deficiencies that may put in danger the scheme’s viability and existence. This analysis enables us, first, to evaluate the initiative and, second, to reflect on the features that a successful communitarization regime of community gardens should incorporate.

5.2. COMMUNITY GARDENING IN GREECE

The recent economic crisis and the social and economic deprivation that afflicted the Greek households (especially those located in the urban areas) led several

municipalities in Greece (Alexandroupoli, Edessa, Thermi, Kavala, Kalamata, Komotini, Lesvos, Rhodes, Serres, Trikala, Tripoli, etc.) to initiate the practice of urban agriculture and to create municipal community gardens. This initiative has, to a large degree, been organized by a national network of people which was created to combat the effects of the crisis by setting forth a series of social structures (social grocery, social pharmacy, liaison office for unemployed people etc.) and institutions (Anthopoulou and Nikolaidou, 2013).

In this effort there are involved: 51 municipalities, 46 NGOs, 8 public sector bodies and 18 private sector entities. Municipalities contribute the necessary infrastructure (mainly public land), the NGOs provide expertise and staff, and finally the other bodies provide equipment, products and services (<http://www.koinoniasos.gr/the-project/purpose>).

At the same time, citizens organize themselves in a bottom-up fashion to develop vegetable gardens in public and/or abandoned urban spaces (e.g. the Elliniko self-managed garden in Athens; the PER.KA.1 and PERKANTHES2 initiatives in Thessaloniki). Also there are several instances of groups of citizens who lease agricultural, usually peri-urban, land to develop (in effect) community gardens which are run by themselves under a regime that resembles the communitarization governance structure (Anthopoulou and Nikolaidou, 2013).

So, the practice of urban agriculture was introduced quite recently in Greece, in a framework aiming to relieve citizens from the effects of the economic crisis through the self-production of food to the support of the most vulnerable groups. This has also other important site-effects, such as the increase of social cohesion and the enhancement of environmental ethic in the society. The first initiatives have been received with great enthusiasm by the people, leading to the proliferation of the schemes. The growing number of urban gardens confirms the dynamics of the phenomenon and the need of people to be in touch with the nature and with agriculture. Also the expansion of this practice highlighted once again the values of urban vegetable gardens in the light of the economic crisis and the general crisis of capitalism per se.

The municipality of Larissa was pioneered in the development of community gardens, providing a "model of good practice" among Greek municipalities. This is testified by the fact that many delegations of other municipalities are visiting the Larissa garden in order to consult those responsible and get expertise (Tikos, 2014). The purpose of the Larisa municipal community garden is not only the support of the poor and vulnerable citizens, but also the development of a community ethic which favors socialization, interpersonal relations and the development of social links between the citizens. In addition this initiative has contributed to the improvement of the quality of urban life, to the increase of the green spaces the city have and to the provision of further opportunities for recreation and exercise to the citizens (Tikos, 2011).

The following sections examine in detail the municipal community garden of Larisa, after having discussed the methodology this dissertation has followed.

5.3. METHODOLOGY

The information that is provided in the case study was mainly emanated from long interviews with stakeholders of community garden in Larisa as well as from secondary sources of official texts. More specifically the interviews were conducted with 10 beneficiaries-users of the garden (referred to as Respondents in the text), with 2 of them being members of the user committee and have served as guardians in the garden. In addition were conducted interviews with the person in charge on the part of the municipality, Mr. Tiko P. (arborist M.Sc), and with the representatives of the National Emergency Network for Social Intervention (NENSI), Mr Karavasilis D. (arborist), Ms Christou Ch. (arborist) and Ms Kourti G. (psychologist), which is a key stakeholder of the scheme.

The interviews were based on structured open-type questions that investigating the characteristics of the vegetable garden of Larissa, its organization, its structure, its way of operation and its management form. These questions were developed on the basis of the list of characteristics of a successful user-based management regime, which were identified and presented in detail in the previous chapter.

As such, the interviews explored issues in four thematic areas. The first contained questions with regard to the resource characteristics, that is to say the community garden of Larisa, and the second questions about the user's characteristics. The third area included questions concerning the institutional arrangements of the garden and the fourth questions about issues of the external environment.

The interviews were conducted in May 2014 through repeated visits to the community garden by the researcher. On these grounds the researcher had also the opportunity to observe how the garden is organized and works on a daily basis. This enabled us to cross-check and to validate the respondent's answers. Of course, as is the case in this type of research, responses contain a subjective element influenced by the personal values and attitudes of the specific people interviewed. Since the time that the research was conducted was close to the day of local elections, such views might be a bit more sentimental and passionate.

5.4. THE COMMUNITY GARDEN OF LARISA

A. HISTORY AND GENERAL STRUCTURE

The creation of the community garden of Larissa was an initiative of the municipality under the framework of the National Emergency Network for Social Intervention (NENSI) which aimed to create social structures and implement a set of actions to combat the effects of the economic crisis in Greece. The Geotechnical Department of the municipality in cooperation with the Technical Department studied and finally implemented at the end of 2011 the community garden of Larisa (Municipality of Larisa, 2013).

The community garden was implemented on an urban land that belongs to the municipality. This is located at the southern end of the city in the urban area of Averof, at the junction of the Paioniou and Argonafton roads (image 8). The Averof area is the largest district of the city (1.866,510 stremmas). Although, over the last twenty years it has received a high volume of property development (mainly housing), more than the city's average, there is a high amount of land (more than 75% of the

area) which remains undeveloped. The principle land-use in the district is "pure residential" with zones of "general residential" along the main roads. The open public and green spaces of the area occupy only 19,7 stremmas (Tsakiris and Lalenis, G.U.P. of Larissa, 2006)

Image 8: The location of vegetable garden of Larisa



Source: google

The land on which the community garden is created belongs to the municipality (full ownership) and according to the General Urban Plan of Larissa (2006) it is designated as 'urban green' area. This land was always an agricultural land; it was previously owned by the last "gardener" of the city until it became municipal property (Tikos, 2014). In this land, which is 22stremmas in area, the municipality fenced 277 individual plots (50 m² each) in such a way as to provide autonomy to each farmer. Moreover the municipality created lanes so that each plot to be assessable on foot and a network of water supply that provides each plot with irrigation water (image 9).

This water comes from a well, and it is collected in three water reservoirs, so that irrigation water is always available to farmers (image 10) (Tikos, 2014).

Image 9: The access corridors of the vegetable garden



Source: Personal archive of the researcher

Image 10: The water reservoirs and the space of drilling



Source: Personal archive of the researcher

Furthermore the municipality fenced the whole area with wire creating two entrances to the scheme (image 11). It also provided the necessary equipment for horticultural and for the maintenance of the area. In addition it provided a restroom and an office

building (image 12), alongside with a pavilion (the latter was funded by a private donation) (image 13) (Karavasilis, 2014). The investment of the municipality for all of the above is amounted 100.000 euro (Tikos, 2014).

Image 11: Part of the wire fence and the entrances of the vegetable garden



Source: Personal archive of the researcher

Image 12: The restroom and the office



Image 13: The pavilion



Source: Personal archive of the researcher **Source:** Personal archive of the researcher

The application process for the allocation of the plots to the people started in December 2011, and the establishment of the first beneficiaries was a month later, i.e. in January 2012 (Municipality of Larisa, 2013). Eligible for application were only residents of the city which were unemployed, low-incomers, low pensioners, had large families, or families with only one parent, and did not possess other agricultural land within the limits of the municipality or in the neighboring municipalities. In addition some garden plots were allocated to entities or bodies, which expressed

interest in participating, and concerned with people having health problems or are elderly, to rehabilitation centers, and also to schools. For the allocation of the plots (especially in the case where demand would exceed the number of available plots) the municipality had developed a point system that took into account the duration of the unemployment, the household income and the marital status of the applicant (Tikos, 2011; Tikos, 2014).

The concession period (lease length) was set to two years with the possibility of renewal for a further period of another two years. The beneficiaries are imposed no rental charges, but they are obliged to donate the 10% of their crop production to the ‘social grocery’ shop. (This food is distributed to the indigent families of the municipality). In addition the beneficiaries bear the expenses for the irrigation of their plot (e.g. related to equipment) and the expenses for the horticultural seeds (Tikos, 2011).

The beneficiaries have signed a contract with the municipality stating that they accept the rules of management and cultivation that have been set by the municipality. The cultivation rules indicate that the plots will be cultivated exclusively by the applicant with the help of their family, producing products only for their own consumption while the cultivation concerns only organic vegetables (not perennials) without the use of pesticides and other chemicals (Tikos, 2011). In addition they are prohibited: (1) the establishment of any construction on the site, except from small greenhouses (up to one meter) and small storage places where the cultivation equipment can be put, (2) the deposition of materials that pollute the garden and generally of any object that is against its aesthetics, and (3) the entrance of cars and motorcycles in the site. Moreover, the municipality is exempt from any obligation related to damages caused to the communal infrastructure of the garden, to thefts or to accidents of any kind (Tikos, 2011).

In addition the contract specifies that those who abandon their plot for more than three months with no serious reason will lose their right to take part in the initiative and will be removed from the garden. The same also applies to those caught violating any of the cultivation rules. In any case, at the expiry of the concession period, the beneficiary has to deliver his plot in the same (excellent) condition (Tikos, 2011).

From the 277 formed garden plots only 10 remain today unoccupied (uncultivated), mainly due to lower demand on the part of eligible citizens. Most of the rest plots were allocated to the unemployed (107 beneficiaries), while a significant number was given to single-parent families (10 plots), large families (15 plots), low incomers (20 plots) and pensioners (30 plots). In addition some plots have been allocated to employees of the Water and Sanitation Department of the municipality (20 plots), who built the irrigation system of the garden. The rest of the beneficiaries include: two local schools, the Church of Larissa, a local care center for elderly people, a local care center for autistic children and a local psychiatric center. Moreover the University of Thessaly maintained a garden plot, used for scientific purposes but abandoned it (Tikos, 2014; Karvasilis, 2014).

The management of the community garden is split in two parts and the parties who are involved are three (Tikos, 2014). The first part consists of the municipality supplemented by NENSI. The representative of the former is a person from the Urban Green Department, who is a qualified arborist responsible for the custody of the garden, supported by three more people from the NENSI, two agronomists and one psychologist. These people are present in the community garden during working hours and then they leave (Christou, 2014; Karvasilis, 2014; Tikos, 2014). But the rest of the day (afternoon) and on weekends the vegetable garden remains open. In order to fill in this 'managerial' gap, the users of the garden themselves, with the encouragement of the municipal authorities, have formed a management committee which comprises the second part of the garden's managerial scheme (Tikos, 2014; Respondents, 2014).

The municipal management authority is responsible for advisory and technical-scientific support to the growers, for guarding the site, for the monitoring and enforcement of the rules and the imposition of sanctions in cases of violations, as well as for resolving disputes and settling conflicts. In addition, it maintains a waiting list recording people who are interested in getting a plot in the future. Generally the authority deals with and resolves all issues that come up aiming to ensure the smooth functioning of the garden (Tikos, 2014).

It is important to note that the municipality is the only entity with the authority to enforce rules and to take decisions regarding the management in the community garden. As such, the municipality is the only one of the three stakeholders who can set rules, impose sanctions for infringement and even dismiss users who do not comply (Tikos 2014: Respondents, 2014). In addition the municipality specifies the operational and the irrigation schedule of the community garden. Moreover although NENSI too keeps waiting lists of eligible applicants who are interested in taking part in the scheme, it is the municipality alone who decides who finally will get a plot (Karavasilis, 2014: Kourti, 2014).

The representatives of NENSI have a role of technical social and psychological support to the participants (remember, they are mainly unemployed, elderly and generally vulnerable groups). They also monitor users' compliance to the rules and are mediated in the dispute resolution, usually before the matter goes to the municipality. In addition, NENSI maintains a seeds bank to supply growers who are unable to do so by themselves, and it organizes workshops to inform growers about cultivation issues. Furthermore, in accordance with the municipality, it performs actions to promote this initiative to the community of Larisa (Karavasilis, 2014: Kourti, 2014: Christou, 2014).

The management committee of the users consists of 10 elected members-growers meet formally every two months. Its main concern is the operation of the vegetable garden in hours and days that the other two management authorities are absent. For this purpose two members of the committee voluntarily act as guardians being responsible for opening and closing the vegetable garden, operating the irrigation system, and, in general, for overseeing the scheme. For each such person there is a symbolic monthly fee paid by the growers. Generally the user committee is tasked with the resolution of the disputes arising between users, and with the briefing of the municipality for any violations of the regulations. In addition it collects and carries any suggestions, comments, complaints, etc. users have to the municipality (Respondents, 2014: Tikos, 2014).

B. QUALITIES OF SUCCESSFUL COMMUNITY-BASED MANAGEMENT

This section assesses whether the conditions, characteristics and qualifications of the Larisa community garden comply with those specified in the previous chapter assumed to contribute to a successful management along the lines of the communitarization regime. The following table (Table 3) presents in a succinct way these qualities.

Table 3: Qualities for a successful governance regime in community gardens as commons-qualities under investigation in community garden of Larisa

1) RESOURCE SYSTEM CHARACTERISTICS

- a) Small size
- b) Well-defined boundaries
- c) Owner of land
- d) Property rights of land
- e) Lease structure
- f) Proximity to residential areas
- g) Benefits from the resource
- h) Resource capacity and appropriateness

2) GROUP CHARACTERISTICS

- a) Small size
- b) Clearly defined boundaries
- c) Collective efficacy
 - i) Social Capital-(trust, reciprocity, social norms)
 - ii) Past successful experiences
 - iii) Social Cohesion-Social Disorder
 - iv) Stewardship ethic
- d) Appropriate leadership-(with knowledge about agriculture, the possibilities and risks of urban land)
- e) Mutual engagement among users for participation in the management of the resource
- f) Engaged diversity

(1 AND 2) RELATIONSHIP BETWEEN RESOURCE SYSTEM CHARACTERISTICS AND GROUP CHARACTERISTICS

- a) Proximity between user-group residence and resource location
- b) Residential stability (residential tenure and levels of homeownership)
- c) Communication in the space-sense of belonging/identity
- d) Fairness in allocation of property rights of the resource

3) INSTITUTIONAL ARRANGEMENTS

- a) Clearly defined and allocated property rights
- b) Locally emerged access and management rules
 - i) Rules determine who, where, how much and for how long someone uses the resource
 - ii) Rules simple enough to understand and enforce
 - iii) Clear specification of infringements
 - iv) Match exploitation to renewal ability of the resource
 - v) Certainty in community garden membership-commitment
- c) Monitoring mechanisms
 - i) Accountability of monitors and other officials to users
- d) Escalating sanctions
 - i) Availability of low cost adjudication

4) EXTERNAL ENVIRONMENT

- a) Technology
 - i) Low-cost exclusion technology
- b) Conditions in the real estate market
- c) State-Local authorities
 - i) Should not undermine co-management schemes
 - ii) Solving problems arising from time-consuming, organizational, bureaucratic processes
 - iii) Provide the necessary technical infrastructure and knowledge
 - iv) Provide supportive external sanctioning mechanisms
 - v) Internalizing part of the lease costs
 - vi) Provide incentives for collective action

vii) Reduce transaction costs in collective action

vii) **Include urban agriculture as a distinct useclass in urban planning**

Source: Adabted from Agrawal (2003)

(1) Resource System Characteristics

The size of the vegetable garden of Larissa as mentioned is 22 stremmas which is divided into 277 garden plots. As became evident through personal observation, and confirmed at the interviews, the size of the vegetable garden does not constitute a barrier to its efficient management. In addition the clearly defined boundaries of the garden, both externally from the adjacent uses through the wire fence, and internally with the clear demarcation of the garden plots, determine clearly who and where is someone entitled to cultivate. So monitoring in relation to the size of the resource, is effective (Tikos, 2014 : Respondents, 2014 : Karavasilis, 2014).

The area at which the community garden is located is primarily residential. This enhances the creation of a distinct community identity and for which the vegetable garden can be a point of reference. The property rights of the land are also clear: the designated land-use is urban green and all rights (full ownership) belong to the municipality of Larissa (Tikos, 2011 :Tikos, 2014). These conditions create a safety net for the preservation and continuation of the initiative of community gardening.

The previous use of the land was vegetable garden and the plot has a long history of such a use so the land is suitable for cultivation (Tikos, 2014). In addition the garden is not located near to high traffic roads, so there are no risks of contamination of the crops from dirt and dust.

The municipality grants to the beneficiaries the right to use the resource through contracts which have a clear and specific structure. All interviewees when asked to comment on the lease structure answered that they are completely satisfied with the rights granted to them as well as with the obligations attached (respondents, 2014). Of a particular importance to them was also the fact that they do not have to pay a rent

for their plot, something would have prohibited many of them from participating in the scheme (Respondents, 2014).

About the duration of the lease, the majority of the respondents believe that is not enough and that it should exceed the three years. This is because they find that the sunk cost they bear (for the purchase of tools, equipment, irrigational hoses, seeds, etc.) as their personal work are not repaid within these two years. In addition their lack of experience and knowledge on agriculture as well as the inverse weather conditions and the existence weeds (remember, they grow organically), result in low production or no production at all at the first year of their engagement. Nevertheless, all respondents were quite positive of the initiative, acknowledging that the benefits from their participation are very significant, with some even claiming that their needs for vegetables are covered exclusively through these garden plots (respondents, 2014).

(2) Group Characteristics

Although the number of eligible participants is large, the criteria for eligibility are not only clearly specified but also have a social sensitivity. These criteria define a relatively homogeneous group (unemployed, poor, vulnerable, etc.) which depend on the resource for their living.

The land can support 277 users. This is regarded to be a relatively high number of people, creating a number of problems (disagreements, conflicts, delays) in the processes of decision-making and dispute resolution, and high costs in the monitoring procedure (Tikos, 2014; Kourti, 2014; respondents, 2014). But these deficiencies are also related to the level of collective efficacy exhibited by the users, which constitutes a key issue for the development of a successful community-based management regime.

In order to assess the level of collective efficacy, the researcher asked the participants of any past experiences of collective action. In particular he explored whether users had participated in organizations, clubs, etc. as well as in protests, petitions, and the like. Moreover they were asked how much they trust other people in general, and how comfortable, secured and confident they feel in their interpersonal relations with the

other users and with the managerial scheme. In addition it was explored whether they are willing to take more actively part on the collective management of the scheme.

None of the respondents had past experience on collective action. The majority of the respondents argued that in their interpersonal relations they do not trust someone from the start but only after they become sure that they worth such trust. The same is the case in their relations with the other users and the management group. Interestingly, most respondents acknowledged that apart from their neighbors they do not have close relations with the other users. As regards the members of the user committee, the majority of respondents argued that: they do not have the knowledge (or the will) to help users with the problems they face, they do not take decisions collectively, and they are unworthy of trust because they act for their own interest and not for the benefit of the whole community (respondents, 2014).

On the contrary, users seem to place a lot of confidence on the other two management authorities. To the municipality because of its institutional credibility (and presumably authority stemming from land ownership) and the high investment it has done in the community garden, and to the representatives of NENSI for their daily presence and pragmatic support they provide to the community (respondents, 2014). As regards their commitment to the resource (in a sense an issue of stewardship ethics), all respondents (apart from one) were positive to the question if they would stay in the garden in the case of a rent being imposed (respondents, 2014).

Overall, it became evident that although users have very much welcomed and endorsed the initiative of the community garden, they do not feel very confident with a self-management scheme for its governance. In particular, the respondents are rather insecure to join forces with the other users towards this end (manly due to the low degrees of trust and social capital) and uncomfortable to put together a bottom-up governance structure (perhaps due to lack of similar experience). In contrast, they trust and give credence to more top-down regimes, led by formal authorities such as the municipality and the NENSI. Note that similar conclusions were drawn by other researchers who explored similar issues in the rural areas of Larisa (Arvanitidis et al, forthcoming).

In support of the aforementioned conclusion it is interesting to mention that although it is clear to all participants that a user-based structure (such as the user committee) is absolutely necessary for the function of the scheme (since the municipality and the NENSI people do not come in the afternoons or in the weekends), their presence in, and attendance of the assemblies has been “disappointingly low” (Respondents, 2014: Tikos, 2014).

(1&2) Relationship between Resource System and Group Characteristics

Evidently there seems to be a close proximity between user residence and resource location. In fact, most of the respondents acknowledged that their movement to the garden is done in a short time and at a low cost. Thus they are able to be present continuously in the site and to take part in the workings and the monitoring of their plot.

As the interviews revealed, most of the respondents visit their plot 3-4 times a week and stay there on average for about 2-3 hours per day. Specifically two of them acknowledged that they visit the garden every day staying there for more than 3 hours a day (respondents, 2014). This regular contact both with the plot and with the other users gives rise to a sense of belonging to the users and contributed to the development of a common identity; a case which is supported by the fact that users would be willing to stay in the scheme even if rent is imposed (respondents, 2014).

(3) Institutional Arrangements

A critical factor for the successful implementation of a community-based management regime is the development of proper institutional arrangements (which define rights and obligations and provide mechanisms for monitoring and enforcement). We argue that in the community garden of Larisa there is neither a well-defined specification of rights and obligations, nor a clear allocation of property rights to the users. Of course the municipality has set a number of fairly simple rules and guidelines with regard to the use and management of the resource, but these are few in number and concern only basic functions. Therefore there have been numerous

cases (as both the users and the NENSI representatives have acknowledged) where, due to lack of detailed rules, conflicts arise between users.

To make things worse, enforcement procedures are also problematic. The inexistence of gradual sanctions (see below) and the lack of authority on the part of the two management stakeholders (i.e. the user committee and the NENSI representatives) to impose fines to the infringers (even in the case that a violation is well documented) substantially impairs the system. Interestingly, as many interviewees have highlighted (respondents, 2014: Karavasilis, 2014: Christou, 2014: Kourti, 2014) there have been quite a few instances where users caught to free-ride have questioned the authority of both NENSI and the user committee to discipline or to compromise the situation.

So despite the fact that both the user committee and NENSI are highly involved in the monitoring and running of the daily activities in the garden (and so it should be much more efficient if they could dictate solutions to problems that arise), they do not enjoy such powers, placing the municipality as the ultimate authority able to resolve disputes and problems. Unfortunately, the municipal representative (who is arborist), prefer to refrain from imposing penalties or from bringing the issues to his seniors (even when violations are brought to his attention), following the common practice of avoiding tensions (Karavasilis, 2014: Christou, 2014).

Turning to the rules for cultivation and, generally, usage of the resource, these are clearly defined. As mentioned, the municipality has specified who, where, how and for how long someone will use the garden as well as what constitutes an infringement (Respondents, 2014: Tikos, 2014). These rules are easy to understand, but there are frequent breaches. Many of the respondents have reported violations regarding the use of pesticides, entrance of cars and motorbikes, cultivation by non-beneficiaries, as well as constructions inside the plots. In addition there have been several complaints for thefts of crops, tools and other items, while there have been some cases of vandalism. The most common and frequent theft incident is this of crops which are stored to be given to the 'social grocery' (Karavasilis, 2014: Tikos, 2014).

Arguably, non-compliance to the rules is also related to the low degree of commitment by some users. Since the beginning of the initiative there have been a

number of beneficiaries who had abandoned the scheme (Tikos, 2014). According to Tikos (2014), the reason behind this is the high cost and the overall difficulties of cultivation as well as the lack of financial support (especially for those who on the basis of past experience would expect the provision of a kind of social benefit).

Let us now discuss the monitoring mechanisms that are in place. As discussed the two members of the user committee and the NESRI representative constitute the monitoring mechanism with the committee's members act as guardians. According to the respondents these people are not enough for the job (2 guardians for 277 plots) and thus the monitoring process is inadequate (respondents, 2014). Unfortunately, the other users prefer to refrain from the policing of the garden, looking after only their own plot (Karavasilis, 2014). To make things worse, the assigned guardians watch after the garden up to a certain time (that is up to its closure at late in the evening) leaving the place unattended the rest of the time (e.g. during the night). The two NESRI's members who are arborists, while they detect violations of the cultivation rules they do not intervene following the practice of the municipality to avoid tensions (Karavasilis, 2014; Christou, 2014).

As concern the sanctions that are at hand when violations of the rules occur, according to the regulations set by the municipality the only penalty available is the eviction from the garden (Tikos, 2011). So there are no other sanctions and no gradual system of penalties which would reflect the size and the seriousness of each offense. The result is to be no punishment at all for any infringements, something that is related to the wider attitude of the municipality to not encourage and foster tensions between the beneficiaries (Karavasilis, 2014).

(4) External Environment

The municipality of Larissa undertook the initiative to create a vegetable garden as a measure for supporting vulnerable citizens from the effects of the economic crisis. The municipality granted the rights of cultivation to beneficiaries without any charge while provided them with the basic infrastructure, equipment and information/knowledge required for the task.

However, the municipality has been reluctant to keep a strong stance regarding the enforcement of the rules. According to the respondents there have been numerous cases of violation which the municipality has tolerated imposing no sanctions to the infringers (respondents, 2014). Moreover, although it prompted the users to organize themselves and to develop a committee which would be responsible for the management of the garden, it did not authorize it to be able to undertake disciplinary action. In addition, a number of suggestions for a more effective operation of the garden introduced by either the user committee or the NENSI were not taken into consideration (respondents, 2014; Karavasilis, 2014). This situation is placing into danger the whole initiative, as it creates insecurity and reduces user willingness to undertake the necessary investments for the development for the scheme.

In addition another critical factor for the sustainability of the initiative is whether the urban agriculture is institutionally acknowledged as a specific land-use class and is included in the urban planning of cities. In Larissa, as in any other city of Greece, this is not the case. This, in combination with the fact that the land is granted without fee, renders the whole initiative vulnerable to pressures toward more profitable and competitive uses. However, according to the senior municipal officer responsible for the community garden, the municipality does not intend to abandon the project. On the contrary, it plans to create another one at the northern part of the city, thus satisfying the high demand for garden plots and the geographical distribution of the applicants (Tikos, 2014).

5.6. CONCLUSIONS

This chapter studied the structure and operation of the municipal vegetable garden of Larissa. In particular, based on a series of critical conditions, which the literature considers important for the development of successful governance institutions on commons, explored whether and to what extent these find expression in the case of Larissa. The first group of characteristics focuses on vegetable garden land features. It was found that the duration of the contract acts as a barrier to the user's commitment with the project and their willingness to participate more actively in its management. In particular, the two-year lease put in danger the feeling of security and certainty

required by the users to actively engage with the commons. Generally, participants are more willing to invest (money, time, effort, etc.) in gardens, and so to guarantee their sustainability, only when longer periods of holding lots are provided.

The second group of qualities focuses on the characteristics of the users themselves. Here, the large number of users, coupled with the low degree of trust between them and their lack of previous experience in collective action, function as a barrier for the development of productive social norms which are necessary for maintaining social controls to the efficient management of the gardens. Moreover, while a common interest among users for the continuation of project was observed (they have even been willing to pay for it if necessary), this was not materialized into a general stance favoring cooperation and collaboration towards jointly participation in the management of the resource. The respondents consider as more suitable actors for the management of the resource the formal authorities of the municipality and NENSI.

The third group of conditions focuses in the relation between the characteristics of the resource and the users. Here, the high dependence of users on the garden was acknowledged, with most of them spending many hours and days of the week in their plots (arguably due to easy and low costs access the site enjoys). The benefits from their participation in the project and the ongoing contact with the site and the other users, has given rise to a sense of belonging with most of them wishing the project to continue.

The fourth set of conditions refers to the institutional arrangements that have been developed to manage the vegetable garden. Here it was made apparent that although the municipality and been supportive of the initiative and it encouraged the users to organize themselves and to develop a management scheme, it has been quit reluctant to provide a sound framework for the enforcement of the rules. This places into danger the whole initiative, as it increases the feeling of insecurity and reduces user willingness to undertake the necessary investments for the development for the scheme.

In addition, despite the provision of simple and clear rules regulating the use of the resource there have been numerous violations over time. This is partly due to the

inadequate monitoring system and the lack of escalated sanctions to the infringers. Only one sanction is available, eviction, and because of its severity municipality is refraining from using it.

The fifth and final set of conditions focuses on the external environment and how this contributes to the viability of the self-management regime. The municipality despite its commitment to the project and its willingness to engage the users in its management, it did not proved bold enough to give them the real power to organized themselves and to govern the resource in a true bottom-up fashion.

At a more macro perspective, another shortcoming of the institutional framework is the fact that urban agriculture is not designated as a specific land-use class in the urban planning of cities. This renders the whole initiative vulnerable to pressures by more profitable and competitive uses. So whether this activity will continue to exist depends largely on the will of the municipality, as well as of other interested parties and their ability to demand and safeguard this type of land uses.

In conclusion, we argue that although there are a number of barriers and deficiencies regarding the establishment of a sound communitarization regime for the management of the community gardens, this does not necessarily mean that there are no prospects for their development and proliferation. The originality of the project and the short duration of its application justify partially the aforementioned problems. The statement of the municipality for the continuation of the activity and its declared will for devolving part of the management to the users make us optimist that the problems can be resolved. After all, these initiatives are always dynamic and mature in a process of trial and error.

Precisely, the extension of the lease length can be achieved through the development of additional community gardens and by satisfying the demand encountered. Moreover, the establishment of escalating sanctions (the usefulness of which is recognized by the municipality) and a change in the municipality's stance towards more active enforcement of the rules, will increase participants security and the overall credibility to the project.



Finally, although the collective efficacy of users is low (mainly due to the lack of trust among them), the fact that there is an increasing sense of belonging and identification of the users with the garden (due to the increased involvement with the project) constitutes a sign of optimism for the viability and continuity of the initiative. After all, as the literature highlights, these is a two-way relationship here; community gardens too come to support the building of collective efficacy.

6. CONCLUSIONS

The problems that are related with the effective management of commons and their long-term economic viability concerned many scientists of various disciplines at the last decades. Although the problem is quite old (even Aristotle mentions it), the issue came to the fore in the contemporary literature by Elinor Ostrom, who in 2009 awarded with the Nobel Prize in Economics for her contribution to the analysis of the governance of the commons. In particular, Ostrom documented the feasibility of effective management by the users themselves, in contrast to the hitherto prevailing position of privatization or nationalization, which was argued by Hardin (1968) in an article titled “the tragedy of the commons”.

But the literature on the appropriate management regime of the commons concerned mostly natural resources, or artifact rural resources, such as forests, pastures and waterbodies. In the last years the attention has shifted to include urban on something that, can, to a degree, be explained on the basis of the importance of the urban areas. For the first time in history, from the 2000 onwards, the majority of global population became urban rather than rural and so cities became the focal points in both global and local contexts.

So the cities more than ever are the centre of the debate, with the viability of the urban environment to be the greatest challenge. The importance of urban agriculture for the sustainability of the urban environment is well documented. For more than 150 years urban agriculture has played a major role in the cities by addressing a number of nutritional, economic, social and environmental problems. In the recent years the creation of urban vegetable gardens has also been used as a mean of halting the decline of public spaces in the cities. The intensive urbanization and the inability of the local authorities (due to lack of either resources or/and political will) to preserve them resulted in their degradation and the disruption of the environmental balance of the urban system.

But urban vegetable gardens, as special types of public space, face the same risks and are threatened with qualitative and quantitative deterioration both because of the rapid urbanization and the ‘regulatory slippage’ phenomenon. In addition, community gardens are characterized by subtractability and non-exclusivity and so constitute urban commons of an open access type. So, similar to other common pool resources, in order to avoid the tragedy in community gardens, the development of an appropriate governance structure that will define, allocate, monitor and enforce property rights to stakeholders is necessary.

The development of a successful user-based management regime in community gardens depends on specific characteristics whose existence makes viability feasible. These characteristics provided the basis to empirically explore the community gardens of Larisa as commons, and to assess their potential for the development of a communitarization regime.

The community garden of Larissa is a municipal initiative aiming to support the vulnerable citizens of the city affected by the negative consequences of the economic crisis which Greece is experiencing. But the municipality through this project also aimed to boost socialization, interpersonal relations and the development of social links between the citizens. In addition this initiative has contributed to the improvement of the quality of the urban environment and to the provision of further opportunities for recreation and exercise to the citizens.

The research in the community garden of Larisa aimed to analyze its management regime and to assess whether the characteristics that argued by the literature to safeguard a successful user-based management of the resource, are present there. The research concluded the following. As regards the features of the garden’s land, the duration of the contract does not enhance user’s commitment with the project and their willingness to participate more actively in its management. The extension of the lease length is necessary but is deterred by the high demand and the limited supply of the available garden plots. However, according to the municipality, there are plans for expansion of the activity in other areas of the city. We believe that the creation of new gardens (more garden plots available) will provide a solid ground for the increase of the concession’s period.

As concerns the characteristics of the users, the research made evident that they are quite positive with regard to the continuation of the activity and their participation in the garden. However, the research also found low levels of interpersonal trust between participants and so lack of interest on the part of users to cooperate with each other and to develop a user-based management structure for the maintenance of the garden. Although the literature supports that the development of a community garden results in the emergence and increase of such collective efficacy (social capital), the significant role of the municipality towards this end should be emphasized. The municipality should take initiatives that will contribute to the strengthening of the social ties between the users. This can be done with the organization and the encouragement of social events that will promote the whole project and bring the users closer to each other, aiming to the creation of a strong identity and of a sense of being part of a collectivity. Such events would give an opportunity to participants (and others interested in) to know each other better and to gradually create relations of trust.

The institutional arrangements which have been developed in the community garden exhibit various problems arising mainly from the ‘soft’ stance that the municipality keeps with regard to enforcement of the rules and property rights. Moreover the non-existence of escalated sanctions in proportion to the magnitude of each infringement reinforces these problems. The ‘soft’ stance of the municipality towards offenders and the existence of a single sanction for all offences, that of the eviction from the plot, has resulted in the proliferation of violations and the depreciation of the informal monitoring mechanisms (developed by the users and the second official management authority). The configuration of escalated sanctions and their credible enforcement will increase participants’ security and the overall viability of the project

In addition, the monitoring of the area is not sufficient due to the limited number of people to whom the task is assigned, since both the area of the garden is quite big and the number of users high. Moreover, in the hours that the community garden is not open there is no one to supervise the site. So it is necessary more people to be employed in the monitoring process as well as the extension of the mechanism for the time in which the community garden remains close. This can be realized by the

assignment of more users to the task or by employing additional municipal employees. Also by taking into account the will of the users to contribute financially for the better management of the garden, we consider that it could be set a monthly fee for the guardians so as to exist a reward for their services and an incentive for the proper supervision of the site.

Finally, the municipality should substantially support its decision to grant a part of the management to users by strengthening the role of the committee of users. Initially the municipality should take into proper consideration the views and indications of the committee regarding managerial issues so as to strengthen and authorize the credibility and power of the committee and promote users participation in the assemblies. Moreover the municipality should strengthen the role of the committee by giving it the right to impose sanctions, at least in those cases which can be regulated without the intervention of the municipality.

In conclusion, it must be stressed that the community garden of Larisa constitutes a new project (one of the first gardens in Greece) with just two years of operation. The improvement and the resolution of any operational and managerial problems are made through a process of trial and error. So it is obvious that the initiative of the community garden is in a continuous phase of configuration something that justifies the problems that have been raised. The continuation of the project will contribute to the maturing of the project and to the resolution of the arising problems. In this direction would also be very significant the development of a cooperation network with vegetable gardens both from Greece and abroad aiming at the exchange of views, expertise and solutions to various problems.

A future research it could re-examine the vegetable garden of Larissa and realize any improvement in problems that was analyzed in our research as well as the interventions that made for their confrontation. Also it would be useful a comparison between practices that are followed in Larissa's garden with practices of other gardens in Greece for the resolution of managerial problems and the strengthening of collective efficacy of the users.

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