

PANORAMA OF URBAN AGRICULTURE WITHIN THE CITY OF PERUGIA (ITALY)

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Abstract: Agriculture has always existed within the city but new relationships between cities and agriculture are emerging, and new geometries of spaces are arising. While in the late nineties, family or allotment gardens started to spread up, over the years other types of urban agriculture (UA) arose. UA performs several functions, besides that of food supply, as an instrument of civil activism, a place for educational or social activities, rehabilitation and integration and it responds to different goals according to the actors involved, to spaces and socio-economical contexts. The aim of this study is to identify the goals of UA and the social benefits generated in order to detect the potential of its development. The main questions are: Do different types of UA play different roles? Do different types of UA have different value of societal benefits? What policies and actions are in place? We interviewed the promoters of 5 projects of UA within Perugia municipalities to understand the origin, benefits and goals of the projects and public policies in place and expected. The overview shows the diversity of actors and the multifunctional nature of the projects that have the ambition to draw on different objectives. The main goal of these projects is not economic, while different issues are addressed: cultural, educational, therapeutical, social cohesion. The initiatives are supported by different sectors of public policies (agricultural, social-care, educational, environmental). Several actions (creation of multimedia meeting platforms for actors and spaces) and tools (ex. a plan for temporary use of space management) are proposed to enhance the UA within the city.

1. Introduction

Urban agriculture (UA) has strong historical roots and over the years the linkages among cities and agricultures have evolved and new geometries of spaces are arising. During the years several types of UA have taken shape around the world, related to different socio-economic and territorial contexts and many authors deal with its characterisation. Simt et al (1996/ updated in 2001) and van Veenhuizen and Danso (2007) outline a rather detailed and complex UA in the world, but they avoid any kind of generalization and theoretical conceptualization describing actors, spaces, functions and impact.

Cohen et al (2012) underline that each UA project arises in response to the particular needs and opportunities of a given community, organization, and they identified four types of urban agriculture sites (institutional farms and gardens, commercial farms, community gardens, and community farms) within the city of New York. Newly, within the COST-Action TD1106 on "Urban Agriculture Europe" (UAE) and starting from the actors involved and functions performed, UA has been unfolded on two levels (farming and gardening) and three main categories: Urban food gardening, Urban Farming and not Urban oriented farming. In particular for Urban food gardening means "Gardening activities with mostly low economic dependence on material outputs but making use of agricultural procedures for

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achieving other, mostly social goals", while for Urban Farming means "Intentionally materialized business models taking advantage of the proximity to the city by offering local/regional agricultural products or services.

A wide bibliography demonstrates that UA can provide substantial health, social, ecological, and economic benefits to communities.

Concerning the economic aspects few studies point out that UA promotes economic direct impact as the creation of job, business incubation, skills training (Smit et al., 1996; Feenstra et al., 1999; Conner et al., 2008; Kobayashi et al., 2010; Metcalf and Widener, 2011; Vitiello and Wolf-Powers, 2014) or indirect impact considering the cost savings thank to the growing of food (Blair et al., 1991; Suarez-Balcazar, 2006). Patel (1991) listed some socio-economic benefits.

Concerning the social impact several studies reveal that UA promotes social capital and social interaction. Most of the studies focus on community gardens and their role for gathering and socializing (Patel, 1991; Saldivar-Tanaka and Krasny, 2004; Teig et al., 2009) or in improving interracial relationships or in decreasing crime (Shinew et al., 2004; Ferris et al. 2001). Concerning the health impact researches show that UA increases the consumption of fresh fruit and vegetable among participants (Parmer et al., 2009; McCormack et al., 2010) and the greening is a benefit outcome in terms of visual quality and human health and well-being (Smardon, 1988; East et al., 2009).

The qualitative analyses are more numerous than the quantitative ones, and the first are usually focused on a specific case study or a particular aspect. Some authors starting from an empirical survey in order to evaluate the benefit generated determining quantitative data as the increase of the consumption of fruit and vegetables (Alaimo et al. 2008) or level of self-sufficiency (Pourias, 2014). Cohen et al. (2012) proposed an interesting metric framework to evaluate the benefits of UA proposing some indicators for each category of benefit (economic, health, social and ecological).

In this paper we quantify the societal benefits generated by UA focusing on the urban food gardening initiatives within the city of Perugia, referring to the methodology developed within the working group "Entrepreneurial models of urban agriculture" of UAE Cost-action. After selecting different types of UA within the Urban food gardening category, we take into account four categories of societal benefits: social, economic, environmental and cultural. The results obtained allow to describe the diversity of UA typologies and propose a strategy for developing UA within the city considering the actors involved and their suggestions.

In this context our research questions are: what are the goals and the societal benefits of UA initiatives? Do different types of UA play different roles? Do different types of UA have different value of societal benefits? What policies and actions are in place?

The research method of this paper has been developed in the second paragraph. In paragraph 3 the empirical analysis is illustrated and in paragraph 4 the results have been presented which are then discussed in the paragraph 5. In the last paragraph some final remarks are included.

2. Research Methods

This paper is a first outcome of a research still in progress and it is based on the results of an empirical investigation conducted from January to August 2015 in Perugia.

The city of Perugia was chosen for several reasons related to the characteristics of the city and the interest for this topic. First of all, Perugia, capital city of Umbria Region with 165,668 inhabitants (ISTAT, 2015), is one out of 105 medium-sized cities Italian cities that have been assigned a functional and strategic role within the European development policies (Tortorella, 2013). Secondly, the

Province of Perugia fostered in the seventies one of the first public program for promoting UA, and in the last years several projects are arising: community gardens promoted by local associations and the university, a synergistic therapeutical garden promoted by a social cooperative and city farms where citizens can grow fresh produce, with the help of farmers.

Before starting the survey a preliminary review⁴ has been conducted and we identified 7 typologies of UA within the urban settlement and in the surrounding (1 km from the border of the city), as defined by the UAE Cost- Action (Tab.1).

Table 1 - Typologies of Urban food gardening in the City of Perugia and case studies

Typologies of Urban Food Gardening	Case studies
Family garden	50 private gardens ⁵
Allotment garden	Social Garden of Santa Margherita Park and Social Garden of Ponte della Pietra
Allotment garden in local food farm	Elaia farm
Educational garden	University Garden
Therapeutic garden	Synergistic gardens
Community garden	Ortobello
Squatter garden	No
Other garden types	Orto di Porta Eburnea

We have not taken into account the private gardens and the "Orto di Porta Eburnea" considering that their performed functions that are strictly private or projects that were born less than a month before the time of survey.

The investigation is based on a qualitative methodology using the techniques of participant observation and semi-structured interviews. The observation has always been done taking notes of the situation considering the actors, the speeches, the practices and the dynamics between them. Data were collected through semi-structured interviews, using a questionnaire (Alfranca *et al.*, 2013)⁶ organized in six parts: socio-economic data, origin and goals of the project, social benefits of urban agriculture, public policies in place and needs and ideas to the development of the project or initiatives.

From January to June 2015, twenty people involved in the five UA projects types selected have been interviewed (urban farmers, representatives of institutions and associations and the users). The data were analysed through a qualitative analysis of the responses and the societal benefits were evaluated on the basis of eight benefit indicators (production, occupation, volunteering, educational activities, rehabilitation and care activities, agrobiodiversity, landscape and cultural heritage maintenance cost), belonging to four macro-categories (economic, social, environment and cultural

⁴Made through photo interpretation, visits and interviews with key stakeholders.

⁵ Estimated by photo interpretation

⁶ The questionnaire was developed by participants at the Working Group on Entrepreneurial Model within the UAE COST-Action

heritage) (Polling et al., 2014). For each indicator six value classes have been determined in order to compare the indicators and measure the weight taken by each of them (Tab.2). The indicators have been established by empirical investigation conducted during the UAE Cost Action (Polling et al., 2015).

Table 2. Macro-categories, indicators and six levels visualising societal benefits

Macro-categories	Classes /indicators	level 0	level 1	level 2	level 3	level 4	level 5
ECONOMIC	Production value (€ per year) ⁷	< / = 1,000	>1,000 – 5,000	> 5,000- 20,000	>20,000- 100,000	> 100,000 – 500,000	> 500,000
	Paid full-time jobs (Person per year, in full-time equivalent)	No	< 0.25	>0.25 – 1	> 1– 5	> 5– 10	> 10
SOCIAL	Non-paid full-time jobs (Person per year, in full-time equivalent)	No	< 0.25	>0.25 – 1	>1– 5	>5 – 10	> 10
	Number of hours dedicated to social activities (person-hours per year)	0	< 100	>100-1,000	>1,000 - 5,000	>5,000 - 10,000	> 10,000
	Number of hours dedicated to educational activities (person-hours per year)	0	< 100	>100 - 1,000	>1,000 - 5,000	>5,000 - 10,000	> 10,000
ENVIRONMENTAL	Agrobiodiversity (number of different races and species produced)	1	2 -5	6 - 10	11 - 20	21 – 30	> 30
	Managed green open space land (ha per year)	0	< 0.1	>0.1 - 1	>1- 10	>10 - 50	> 50
CULTURAL HERITAGE	Maintenance costs preserving historical buildings and natural monuments (€ per year)	No	< 5,000	>5,000- 20,000	>20,000 – 50,000	>50,000- 100,000	> 100,000

Source: Alfranca, O. et al., 2013

The production value was estimated considering a standard level of productivity (3 kg of crop per square meter) and a value price (1 euro per kg). The price is too low considering that the production is organic but we prefer to establish fixed values considering that all actors were not able to define the quantities produced and their market value.

Information on goals and public policies in place or expected was extracted from the interviews.

⁷ Estimated a production of 3kg per square meter sold for 1 €/kg

3. The UA Projects investigated

Allotment gardens

During the 70's, the Province of Perugia promoted the first social program for the creation of two allotment gardens located in the suburbs of the city. In this period of time, entire rural families, especially former sharecroppers, migrated to the cities. In particular in the Umbria Region they migrated to Perugia, the chief town of the Region, searching better conditions of life and work and aspiring to the improvement of their social status. On the contrary the reality often did not respond to their expectations. The former farmers started to work on factories and they lived in a situation of marginalization and exclusion in the peripheral areas of the city. In order to improve this situation of marginalization and to reduce the traumatic separation from the countryside that gets worse with retirement, the Perugia Province created few allotment gardens. So the Province carved up an area in the suburb of the city, Ponte della Pietra district, assigned plots to retired people for gardening: an opportunity to occupy their leisure time and to regain confidence in their own abilities.

A resolution of 6th July 1976 was drawn up to define the directions of allocation and organization agreements. The Province, assigned to applicants a lot of 150 square meters for one year the assignment time was automatically renewed. The institution provided land, water and a tool shed. The retiree, in turn, committed to cultivate the lot, provide tools, seeds and other materials. The first funding allowance of 10 million liras covered the building of 30 lots, considering that the investment required to build each lot was about 500-600 thousand liras. Following the great number of applications to the program, the Province decided to create more lots in Ponte della Pietra and extend the project to another area which belongs to the former farm of the Santa Margherita psychiatric hospital (closed by the time). The Resolution 167 of June 4th 1991 envisaged the enlargement of the program in this area and some orientations to the management of the gardens that should be conducted activating committees and defining management regulations.

Over the years, the Province created a total of 340 lots of which 198, located in Ponte della Pietra.

A further review of the Regulation 167 was done in 2011. Two are the main additions: compulsory organic method of cultivation and 5% of the lots assigned to subjects with disabilities. 95% of lots is always assigned to retired over 65 years-old residents of the city of Perugia. The allocation, provided for four years, would be raffled at end of the period if the number of available lots is less than the number of applicants.

The technicians of the Province, that manage the program, pointed out that in May 2015 in Ponte della Pietra were 198 lots cultivated and one of them is assigned to a person with psycho-physical disabilities and in the Santa Margherita area there were 106 lots 5 of them unoccupied. So in total there are 309 lots a bit less than the 340 initial lots.

The profile of participants is different in the two zones. In Ponte della Pietra the participants live in the neighbouring areas and are for the most part former factory workers. They belong to a lower-middle income bracket and 34 are women (17% of the total). In this area conflicts and tensions among users are frequent.

Santa Margherita allotment garden is mostly attended by former professors or public employees. They have an average income and they live in the city center or in the suburbs (as Ponte San Giovanni or Ponte Felcino). 33 are women (30% total). The conflicts between the participants are not so frequent and for three years they have also been planning a party each September.

Over the years, despite the goal of the program is unchanged, the profile of the participants changed. Forty years ago, when the program started, the participant already had a previous experience with farming in fact most of them had a rural origin, in recent years the "new" retired people in most cases did not have any contact with agriculture before and are on their first experience. Usually the

users give up to cultivate only for health reasons or inability to continue the activities, with rare the waivers for lack of interest.

The program is currently running and is orientated to retired people with the aim to "*keep them in their social environment and encourage employment activities which stimulate participation in collective life*" (Article 1 of Resolution 167). The managers of the Province underline that the program has a social purpose, but for the participants also other goals are important as: self-consumption, food security, environmental protection, leisure and recovery of traditions and culture (Tab.3). The sale of produce is not allowed.

The managing staff point out that in both areas there have been cases of theft and vandalism as in fact those are both marginal areas and unfenced, even though the presence of the gardens provides some kind of safeguard for the territory. In both areas a space to stimulate meetings and socialization is missing and should be provided.

As for the social benefits of this program (Fig.1), the economic aspects are more relevant in terms of production value, considering the extension of the area and the production of fresh organic vegetables, than in term of employment, considering that the participation is free and voluntary and there are only two staff technicians of the Province that are paid to follow the program.

The social aspects are very relevant in term of social activities, considering the purpose of the project and the numbers of people involved and in terms of volunteering, not as relevant are the educational activities that are not organised by the users. There is only one association that sometimes organises some casual school visits.

The environmental aspects in terms of agro-biodiversity is high considering that the organic method of production and the function that is self-consumption so the diversity and variety of crop lots guarantee a better supply of fresh vegetables, aromatic and medicinal herbs. The total area occupied is quite big so also the open spaces managed have a high value.

Allotment garden in local food farm

The project "AgricityUmbria" promoted the creation of a few allotment gardens within nine farms. The project is the result of a wide partnership among nine farms, the Technology Agribusiness Park of Umbria, the association of producers "Impresa Verde" and the Department of Agricultural, Food and Environmental Sciences of University of Perugia as coordinator. The project was financed by the measure 1.2.4 of the Rural Development Plan of the Umbria Region (2007-2013) on "Cooperation for development of new products, processes and technologies in the agriculture and food and forestry sectors". At the beginning, in January 2015, nine farms, located in the peri-urban areas of several Umbrian city centres, have been involved in this project. The project had ten months lifetime (until September 2015). Eight out of nine farms provided a part of their land divided in lots of variable size to be assigned to city-dwellers. 18,000 square meters in total are involved in the project. Only one farm, Elaia farm, is located in the peri-urban area of the city of Perugia.

The project was promoted for spreading the "rural culture", respect for the environment and the food culture and the gardens were designed as a green space for leisure and connection with the farmers and the agriculture. The gardens built in the two day-care centers involved in the project, assumed an important role in social inclusion for the young autistic people and rehabilitation for disabled young people. We presented the allotment garden realized within the Elaia Farm that it is located very close to the city centre of Perugia.

The farm provided an area of 3,000 square meters that has been divided in lots of different sizes (between 100 and 150 square meters each) according to the participant request; the irrigation water was pumped from a small artificial lake, located near to the lots. All the lots were cultivated with organic agriculture. The farmer and the farm workers prepared the soil, built the garden paths and

planted the plants. During the project lifetime, the tools to cultivate the horticultural plants and the aromatic herbs were available for everyone in the farm. All the costs - for work, land, and tools - were covered by the project funding, as the city-dwellers that decided to manage a plot into the urban garden of Elaia did not have to face any cost during the AgricityUmbria project lifetime. Twenty-one lots of land were prepared within the farm and 15 families have participated in the project. In particular participants included twelve children/teenagers, one family without children, five retired people (a couple and two single men and one single woman) and one group of three friends.

Various are the objectives of the project, which differ according to the actors. The farmers diversify their activity to have an income supply. For the city-dwellers (Tab.3) the main objective was the self-production of fresh products and aromatic herbs. Specifically all the families decided to manage the assigned lot to help their family income, especially those with a single-income.

The secondary goal for the families was the educational aspect: the horticultural activities represent a way to enjoy the connection with nature, particularly important for the children. In fact these agricultural activities had a strong educational function: they made the children able to understand where the food they eat comes from, and they helped to build and reinforce the respect for the environment. However the city dwellers that have cultivated the farm lots have established good relationships exchanging suggestions and knowledge on horticultural practices.

During the meetings among the farmers, the project coordinators and the participants, it was pointed out an important result: the teenagers improved their initial interest by asking specific questions on horticulture and agriculture, demonstrating an increasing sensitivity to the topic. They have also expressed their willingness to continue the horticultural activities after the end of the project.

A family with a five years old child was assigned a single lot of land to cultivate and the experience was very educational for all of them, especially for the child: he demonstrated to be very interested in the activities and amused by the new experience, mainly because he had the chance to share it with his parents and grandparents.

Another lot of land was cultivated by a young couple who lives very close to Elaia; the girl, who was unemployed, lived the participation in the project as a great opportunity of joining her personal passion for horticulture and agricultural work in general, with the actual necessity of improving her means for family livelihood. During the project the retired couple was in its first experience with agriculture: they were very motivated to participate at the project, both of them attracted by the idea of eating healthy, fresh, better-tasting products and to do daily physical activity outdoor. The retired couple involved two friends of them, a paediatrician and a lawyer both retired; who decided to cultivate further plots into the Elaia urban garden.

The retired man that was assigned with another lot of land had been a farmer in his teenage, before moving from the country to the city area during the industrial boom. He decided to participate to AgricityUmbria project both to grow fresh products "getting his hands dirty" and to share his knowledge and his passion for gardening and to transmit them to the younger generations.

Another plot of land was managed by three friends who were approaching to horticulture for the first time: they wanted to try to produce their own organic vegetables, and, not less important, to spend valuable time together outdoors.

The participation of Elaia to the AgricityUmbria project was primarily a way to diversify the activities of the farm, in a multifunctional perspective. Indeed, although the project was an experimental activity with a nine months lifetime, it represented a relevant opportunity to connect the farm with the inhabitants of Perugia. The farmer would like to carry out the project and he estimated the cost of 1.20 €/square metres a year for that ones who are going to manage the lot after the end of the

project. This cost is calculated to cover the plot rent and the irrigation water; for example 60 € is the rent cost for 50 square metres a year lot of land. Additional cost (from 70 to 90 €) is required for the water system according to the size of plots. The city-dwellers that have participated to AgricityUmbria project will continue to manage the urban garden plots into Elaia farm paying a rent for using land and water.

The project redraws the connection between agriculture and cities by establishing a new relationship between producer and city dwellers, including training on issues of food security, fairness of price, integration and social inclusion of weak people. The project has also proved a new opportunity to offer a service that fits perfectly into the multifunctionality concept for farms located in urban and peri-urban areas and so it could be an income support. AgricityUmbria project is pilot for Perugia while similar initiatives was arranged in other Italian cities (Bevagna, Padua, Milan) and in Europe (Aachen, Germany).

Community garden

Another project analysed is the Ortobello community garden. It is the first running community garden within the city of Perugia. The project was promoted within the Caro Vicolo (Dear Alley) Project started in 2014 from the collaboration between the Umbra Institute⁸ and the Borgo Bello Association⁹. The Umbria Institute hosts American students for short period courses on various theoretical and practical issues. In 2014, within the course on sustainable architecture some American students have the possibility to work on urban projects in collaboration with the Borgo Bello Association. They started thinking about the revitalization of the Borgo Bello area and the requalification of the alleys within the district.

They selected Fiorenzuola Street, an abandoned and dangerous lane, dimly lit and prone to unlawful uses. The students started to embellish the street with paintings including, a paint on the wall, Saint Ercolano, the patron of the city, who holds a tomato on their hands. Then the process of reflection about the improvement of the quality of the space continued. The semester later, the two Professors that hold the courses on sustainable architecture propose to develop with the students and the Borgo Bello Association a participatory planning activity using the place-making method. They decided to improve the quality of the urban space of the area creating a community garden. Once kept this shared decision they thought how to do it, considering the limited space, a rectangular area of around 24 square meters, and the typology of the area, a crossing point at the exit of escalators. On the 15th of April 2015, after few months of theoretical and practical workshops the garden was created. They realized four bins to cultivate and two benches to sit on and everything realized with wooden pallets. The space was decorated with flowers and pinwheels made with recycled materials. They haven't a formal concession for the use of space that is public yet. The old administration had granted the formal patronage to initiative and the use of the space that it had not been formalized though. The dialogue with the new administration, elected in 2014, is in progress but the department in charge is changed. Before it was the department of "Urban Center" now it is the "Urban Decor".

The participants, about twenty those most dedicated, meet once a week, on Tuesday evening, to make some labours (ex. planting, maintenance, etc.) and take joint decisions (ex. which plants to plant, how to organize the garden, the organisation of events for promoting educational and recreational activities, etc.). In the garden there is a showcase and inside there is a notebook where the participants can indicate the turn of watering to avoid overlapping or long periods of drought.

⁸ The Umbra Institute was founded in 1999 in Perugia in cooperation with Arcadia University. The center offers academic programs for higher education for students of American colleges and universities.

⁹ Borgo Bello is the association of residents and friends of the neighborhood of Corso Cavour and Borgo XX Giugno. The association offers monthly cultural and social events.

In order to understand the collective perception about the goals of the project, 10 participants have been interviewed collectively. According to their opinion, as the Table 3 shows, the main purpose of the garden is the redevelopment of urban space and a significant importance is given to social activities; educational and recreational roles and to environmental protection.

As for the societal benefits detected (Fig.1), the higher value was attributed to the agro-biodiversity considering the high number of species cultivated. Also the social aspects are relevant related to other, in particular the voluntary work and the social and educational activities will tend to increase in importance over the course of the project that is only active for a few months. On the contrary the economic aspects are irrelevant.

The participants of Ortobello community garden imagine that the garden itself could expand on the private adjacent space and there are discussing with the owner to establish an agreement for the free use of the area. They also aspire to the diffusion of community gardens that could spread up, leading to the creation of several community gardens, which could invade the entire neighbourhood and the city as the case of Todmorden in England. Obviously, they considered the municipal administration as the main interlocutor, attending from them a support for these initiatives.

The participants of Ortobello community garden are in contact with the University of Perugia where an idea to realize another garden within the Faculty of Agriculture. The idea came from the desire by the Department of Agricultural Sciences, Food and Environmental to reactivate the students' gardens, more or less abandoned in 2012. They realized, in June 2015, five batches of four squares meters each that could be cultivated by members of the association with the students of the Faculty of Agriculture. The main goal of garden is the social integration among students and the residents of Borgo Bello, the area where the faculty is located. This collaboration emerges for a dual motivation on the one hand to ensure the vegetable garden during the summer when students normally are not there and at the same time create a space for integration and social cohesion between students and city-dwellers. The Department of Agricultural sciences would like to achieve a greater number of lots and cultivate the entire area also activating few greenhouses for producing seeds that now are in a state of decay. At the moment, this initiative does not have specific funding.

Therapeutic garden

Another project it is the synergistic gardens. This is a therapeutic garden carried on by the *Nuova Dimensione* (New Dimension) social cooperative. The cooperative runs a day care center, the *Casa Famiglia Taralla* (Family Home Taralla) for people with mental health problems. During the morning, two social workers conduct activities in the garden involving seven guests of various ages.

The project was created in 2012 thanks to the enthusiasm of a social worker. In 2010 he attended a two years course on hortotherapy at the Hortotherapy School of Monza. Then he proposed to the cooperative to realize a synergistic garden within their center. The local health unit has allowed him to carry on this project investing his time on it. Over the last three years the project grows extending out of a total of 7,000 square meters composed of two big lots.

The main goal of this project (Tab.3) is therapeutic but other goals are considered important as: educational, social, protection of environment, cultural; considering the strong ties sought with local food traditions. Commercial and food security are less important. The social worker underlines that one of the objectives that the program achieved is the working integration. The social operator involved the people less problematic and more interested on these activities on the maintenance works of other areas and one of them it is the "Giardino dei Semplici" in Assisi. The Assisi Nature Council Association takes in charge the cost of the garden's maintenance that is realized by the New Dimension Cooperative. The social worker proposed to the Italian Environment Fund (FAI) the creation of a synergic vegetable garden. During few months between 2014-2015, the social worker

and three guest of the daily care centre worked on the project (from the ideation to the realization) of the garden. It was opened on June 7th 2015 and it has as main objectives educational and ornamental purposes. The Assisi Nature Council Association financed this project.

These experiences show that gardening could be a real job opportunities for people who could be hardly allocated in the job market.

Concerning the societal benefits (Fig.1) that the project generates, it is not surprising to note the positive repercussions in economic aspects in terms of production and employment. Both aspects could be improved thanks to major investments in term of financial and human resources. The social activities could be also more relevant if the project could involve more people.

The environmental impact are major in term of agrobiodiversity considering that the method of cultivation is synergistic therefore higher is the diversity of species that are planted following the intercropping and rotation techniques.

The social worker points out that there is enormous potential for growth and development and diversification, focusing on the services supply (as plant production, seed breeding, transformation, flower nursery, etc.). He also underlines that they could extend the cultivated area considering the large space available within the Santa Margherita Park where they are located. For the moment, however, the project reaches its limit considering the number of people and hours invested. It would require a greater investment in (h/man) and economic resources (ex. To restore an old building that they use as a shed for tools and the purchase of the latter).

4. Discussion

This overview shows the diversity of the promoter actors (institutional, private firms, farmers, citizens, universities) and the multifunctional nature of this type of projects that have the ambition to draw up different objectives.

These initiatives of UA involved different actors and their main goal is not economic while different social issues are addressed (cultural, educational, therapeutical, social cohesion and so on) according to the project and not related to typologies (Tab.3).

Tab. 3 The goals of UA projects

	Allotment garden in local Food Farm (Elaia Farm)	Allotment Garden (Social Gardens)	Therapeutic Garden (synergistic gardens)	Community Garden (Ortobello)
Main goal	Income integration for farmer / production of fresh products for the participants	social integration	Social-care rehabilitation	Requalification of urban abandoned space
secondary goals	Self-consumption, food security, environmental protection, leisure and recovery traditions and culture	self consumption, food security, environmental protection, leisure and recovery traditions and culture	social and education, protection of environment, leisure and recovery traditions and culture	Social and education, protection of environment, leisure and recovery traditions and culture

In fact it can be noted that the same type has different goals, for example the allotment gardens present as main goals different focus but they have in contrast to other typologies the food security and self sufficiency as secondary goals. It is noteworthy that all projects have as secondary goals the protection of environment, leisure and the recovery of traditions and local culture. The method of

cultivation is organic and in most of the projects local varieties are cultivated and the participants rediscover the pleasure of producing and cooking their own food. The production is oriented to improve self-consumption and education and recreational activities rather than to market the products. Nobody indicated the production of energy as a goal of their activity.

The figure 1 shows the UA initiatives produce different benefits related to economic, social, environmental and cultural heritage aspects.

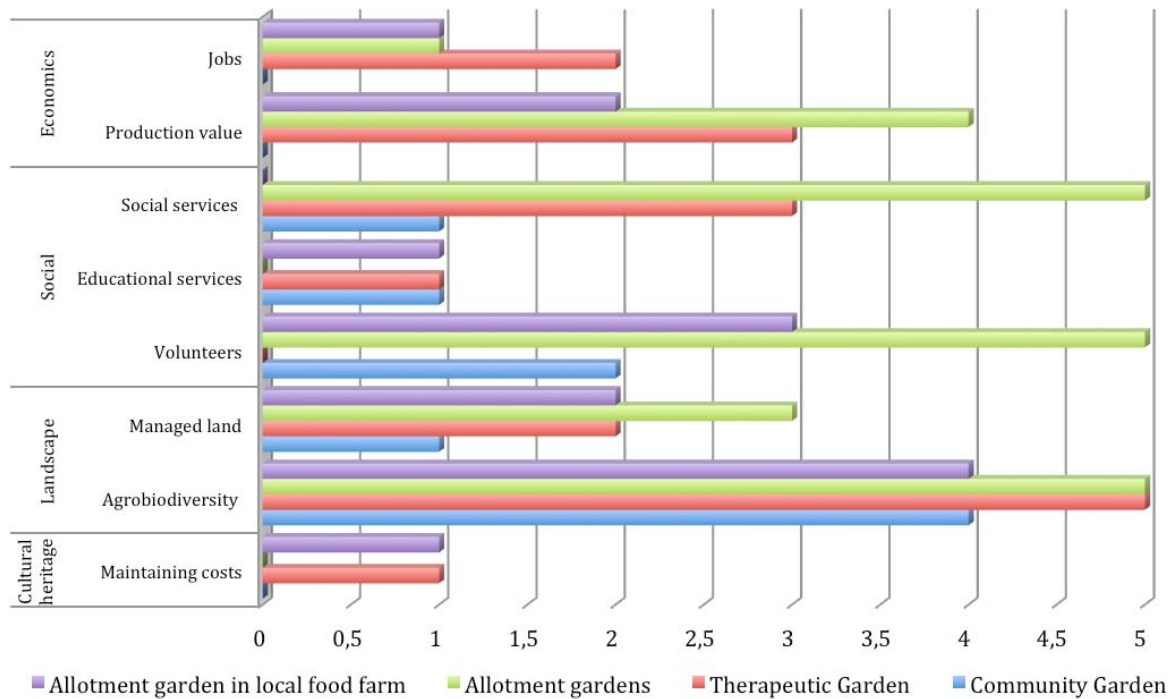


Figure 1. The societal benefits of UA projects

Concerning the economic aspects (jobs and production value) the results vary related to the size of cultivated area and number of people employed. The production generally does not cover the needs of people involved especially in the wintertime considering that for most of the people involved it is a part-time and recreational activity that they prefer do in the spring and summertime. As for the production value, the participants are not able to quantify their production because it can vary during the seasons according to the time invested and the weather and the skills needed. The value of the production indicator should be rethought on the basis of the experiences and a survey of the organic products market. In fact, according to the observation made during the search it was found that the quantity produced varies related to the experiences of the people and the time invested. Important to underline that only five people (social worker, the two staff of the province and the farmer of Elaia farm) are paid for working within these initiatives that are based above all on volunteer work. Moreover it is possible to create new possibilities and paid-jobs on this sector (ex. social worker specialists on hortotherapy, facilitators of strategic planning, gardeners to maintain edible community gardens, ect.).

The social aspects are relevant in all experiences considering the number of people involved directly and indirectly in the practice of UA and in the activities (educational and social) and the impact on their lives. The Ortobello community garden presents a very low value considering the limited

extension and the focus of the project. Also the AgricityUmbria project has had an interesting social aspect; in fact, even if it was a pilot project with only ten months lifetime, it was an opportunity to bring together different city dwellers (like retired people, family with children, single and so on). Concerning the environmental aspects in most of the cases the indicator with the highest value is the agro-biodiversity because of the method of production that is organic and with a high variety of species cultivated.

The cultural heritage aspect is not relevant because the initiatives are not located in a cultural and historical site and there aren't historical buildings to maintain.

Only a few initiatives are supported by a political sphere, which varies (agricultural, social-care, education, environment, urban planning, ect.) according to the project. In the case of the cities of Perugia it is interesting to note that the initiatives are supported by the Culture and Social Promotion Service of the Province that supports the allotment garden program; the Local Health Unit that support the synergistic garden allowing two operators to engage in this activity and the Rural Development Plan of the Region that oriented some resources to the AgriCityUmbria project.

5. Final Remarks

The questionnaire was useful to understand the goals of the different experiences of UA in the city of Perugia and also to identify and quantify their societal benefits. As pointed out in the discussion the economics aspects concerning the production value is not easy to define and a method should be chosen to calculate it.

The societal benefits that we took into account did not consider the health aspects that should be integrated.

The results of the analysis confirm that urban horticulture from the original purpose of food production have since evolved (La Malfa, 1997; Hynes and Howe, 2004; La Malfa et al., 2009) assuming aesthetic and recreational, educational (Taylor et al., 1998; Wells, 2000), social (Westphal, 2003; Tei et al., 2009) or therapeutic functions (Crouch, 2000; Lorenzini and Lenzi, 2003) in relation to the economic and socio-cultural changed context (Tei and Gianquinto, 2010). The majority of respondents consider that while many private and public subjects are engaged in urban agriculture, until today there is no citywide policy or plan to coordinate the different projects. It is the responsibility of the administration to design a policy and a strategic vision to implement UA within the city.

Newly the municipality of Perugia demonstrates more interest in developing UA within the city and the last 29th of September the Vice Mayor of the municipality of Perugia announced that they have identified 12 public areas available to cultivate. The idea is based on the Regional Law of Umbria Region 3/2014, which promotes the destination of the urban and peri-urban areas owned by the municipality to "social gardens" privileging the people that want to cultivate for charity or self-consumption using organic method.

The support of Regional Policy was fundamental for the Elaia case study because the AgricityUmbria project was financed by Rural Development Plan of the Umbria Region (2007-2013).

The results of the project (in terms of social aspects, creating knowledge on horticultural activities, educating to consume vegetables and last but not least creating income support for farmers) have showed the high interest both of the city dwellers and the Policy makers concerning UA in Umbria Region. It is hoped that this interest will strengthen in the next Rural Development Plan of the Umbria Region (2014-2020). This survey can give some orientations to develop AU within the city based on the needs expressed and the public policies in place or potential. However these experiences seem to be isolated from each other. Several projects are located in the same areas and

they are not connected (as synergistic gardens and allotment garden of Santa Margherita). This fragmentation does not allow either the creation of a network of exchange (know-how, tools, etc.) and collaboration (ex. the cooperative new dimension would need a support in human and economic resources and the retired people would perhaps time to help and cooperate with the social workers) and it is not conducive to the disclosure of these experiences. The municipality through the implementation of appropriate tools could carry out this function of connection among initiatives, disseminating the good practices. For example a platform, where indicated the spaces and experiences underway emphasizing strengths and needs, could be realized considering the increasing use of technology. For the dissemination of practices and increased knowledge they may also be organized the open day by opening these facilities to the citizens and tourists can see and experience for a day to be farmers in the city. The agricultural practice has shown over the years, starting from the pedagogical theories of John Dewey, the dissemination of civic values (respect public space, learn to stand in public and relate to others, etc) (Ralston, 2012).

Moreover it would be important to enhance and improve the measures for the realization and implementation of those initiatives through regional funds (ex. Rural Development Plan), and to increase and invest in human resources (ex. operators of health local unit or persons who receive income citizenship, refugees, etc.) in this sector. Moreover could be encouraged the use of the intra-urban spaces (ex. Regulation of green, activating a call for the management of temporary public spaces as the Pla Bruits of Barcelona) for agricultural activities.

Over the years the changing socio-economic conditions should lead to a reflection on the function of the gardens and of the social categories, to be admitted to this experience. It would necessary to think how to make this experience more rational updating it to changing needs. Today UA could be improving also as support to families in economic difficulties and in food insecure state. So the social program of Province could be extended at this category in addition to retired people. To realise these strategies and reflecting on this reality the involvement in all local public institutions (municipalities, unit of local health, province, region, ect) is critical. Furthermore the institutions showed certain inertia could change thanks to the thrust of sensitize of city-dwellers, several regional or local territorial issues (as. safety of urban areas, degradation of environments, economic crisis, ect).

It is necessary now take advantage of this moment of intense activity, creativity, ideas and actors involved in order to improve connections and synergy to implement these initiatives. Furthermore we show that to develop these initiatives and to multiply the experiences of UA within the city the institutions, private citizens, associations and farmers should operate in more synergistic and efficient way.

6. References

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