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Understanding
the Urban Commons

Economics and Governance

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Introduction

In many cities worldwide, the inhabitants often initiate collective activities using shared urban resources. Their motivations vary. Sometimes they are driven by a desire to share common interests and do something together in their free time; in other cases, people want to improve the quality of public spaces in their neighbourhood, whereas others are concerned about protecting and promoting places associated with natural or cultural heritage. Several specific features characterise such activities. First and foremost, the inhabitants' initiatives are bottom-up and tend to avoid relying on local authorities. Secondly, they are non-market activities because the inhabitants devote their free time to them, without seeking any financial benefits. Thirdly, there is a conscious and strong bond between urban community members and urban common-pool resources. The community takes care of a resource and uses it to everyone's benefit. Fourthly, different kinds of tangible and non-tangible common goods result from the collective activity of urban community members. In such cases, the approach to urban living changes – from living next to each other to living together.

The issue seems highly practical, but scholars representing different scientific disciplines, including the economy, have become interested in the urban commons. The academic accomplishments related to the commons are principally based on the achievements of Elinor Ostrom, the Nobel Prize Winner, and scientists who continue and develop her work. Ostrom focused on commons located in non-urbanised areas that were used by rural communities. Therefore the concept of the commons has to be translated onto the field of urban studies. This entails defining the urban commons and proposing their classification. The distinction between urban commons and traditional commons has to be made. The study seeks to answer the question of who governs the urban commons, and on the basis of what rules. Understanding the strategy of actions taken by the urban community members who co-create and co-use the commons will help set out recommendations for developing long-lasting and stable urban communities.

The book's authors attempt to answer the above-mentioned question. The main aim of the book is to present the concept of the urban commons and to discuss ways of governing urban commons in practice. The aim is also to formulate recommendations for urban communities and local authorities which could be useful in the process of the co-production and co-consumption of common goods and city governance.

Chapter I defines the urban commons and describes the relationships between such terms as common property, common-pool resources, commons, commoning and common goods. These definitions are of pivotal importance, as these terms are defined in various different ways and are used interchangeably, which may

cause confusion and misunderstanding, mainly because they span different science disciplines. In Chapter II, the authors focus on specific characteristics and types of urban commons, as well as dilemmas related to their creation and use. The two subsequent chapters describe the determinants of the existence of urban commons. Chapter III is devoted to urbanity as a factor that shapes the characteristics of urban commons. The notion of local governance, as a way to create urban commons in the relations between local authorities and other local development actors, is introduced in Chapter IV. Chapters V and VI summarise the results of research based on field experiments, international surveys and case studies. The scientific research helped formulate conclusions and recommendations for urban communities and local authorities.

The book is addressed to anybody researching urban and regional studies. Still, the interdisciplinary character of this issue makes it useful for representatives of economic and management sciences, and for people dealing with social and economic geography, spatial management, architecture, urban planning and urban sociology. It can be hoped that the book will fulfil utilitarian objectives, including disseminating the economics of urban commons among people who take actions concerning the common goods in cities, as well as local authorities looking for the best solutions within more participative management of shared urban resources and implementing urban policies that promote social inclusion and sustainable development.

The book was inspired by face-to-face meetings and discussions during scientific conferences in Bologna, Utrecht, Katowice and Washington with Professor Sheila Foster and Professor Christian Iaione, who carry out international research on urban commons and developed the concepts of *Co-City* and *City as a Commons*. Moreover, the authors' interest in the topic of the urban commons was kindled by everyday observations of urban communities that try to improve the quality of urban life, taking matters into their own hands, demonstrating persistence and often innovative approaches to solving the problems that afflict contemporary cities.

1. Theoretical foundations of the urban commons

1.1. A review of concepts in the field of the commons

The commons is not a category that is easy to define. The concept is used across various scientific disciplines, including philosophy, law and economics, and each time it has a slightly different meaning. In philosophy, the commons are everything that arises from human interaction and cannot be divided into individual goods. These are also conditions that enable individuals to cooperate and achieve the intended objectives within the community, as the commons in the proper sense always concern a community [Piechowiak 2003, p. 34; Młynarska-Sobaczewska 2009, p. 63]. In the legal approach, the State is assumed to be a common good[1]. This means that the State serves the development of human beings, while respecting their inherent dignity [Lipowicz 2017, p. 20]. On the other hand, it is the duty of every citizen to care for the common good. Although the concept of the common good is present in the Polish Constitution, it is undefined, either there or in any other legal act. In legal terms, the common good can be considered in two categories: as a notion and a concept. In the first case, it should be assumed to be a set of values, and in the second one as a set of principles [Piechowiak 2012].

Hess [2008, p. 34–36], juxtaposing many definitions of the commons used in the literature, shows that it is a fuzzy concept, understandable to most people, but without strictly defined conceptual boundaries. It should also be noted that following the growth of interest in the topic, the approach to the definitions has evolved. This is best evidenced by the renaming of the association that brings together academics and practitioners working on the commons. In 1989, an international scientific association was established: *The International Association for Study of Common Property* (*IASCP*). In 2006, the name of the association was changed to *The International Association for Study of the Commons* (*IASC*), through invoking the need to go beyond the current studies related to the system of property rights and common-pool resources and to expand the research with new types of commons related to, among other things, digital resources. Also, the concept of the commons was found to be the most capacious; the one that best reflected the interdisciplinary nature of research in this field [Hess, Meinzen-Dick 2006; van Laerhoven, Ostrom 2007; Hess 2008].

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[1] In Article 1 of the Polish Constitution (*The Constitution of the Republic of Poland*) the notion of the **common good** is used: *"The Republic of Poland shall be the common good of all its citizens."*

Today, we have a vast range of goods which are classed as belonging to the commons. The list is constantly expanding, either because of the emergence of new goods resulting from the implementation of new technologies or because of new insights into the management of individual goods that go beyond market and state solutions. **Table 1** presents the list of the **traditional commons** and the so-called **new commons**. Initially, the research focused on the traditional commons involving renewable environmental resources and non-urbanised areas where small rural communities worked out the principles of governing shared resources. Over time, the idea of the commons came to cover an increasing number of thematic areas, becoming entrenched wherever shared resources and collectively operating communities emerge. That applies to both tangible goods, such as infrastructure, and intangible goods, such as knowledge and culture. Due to the global challenges of climate and environmental change, the idea of the commons is going beyond small communities and is increasingly concerned with the community at large.

Table 1. Traditional and new commons

Traditional commons	New commons
fishery	cultural commons
forestry	knowledge commons
irrigation	medical and health commons
water management	neighbourhood commons
animal husbandry	infrastructure commons
grazing lands	urban commons
wildlife	global commons
	the market as a commons

Source: [van Laerhoven, Ostrom 2007; Hess 2008].

The urban commons can be included in the category of the new commons. The distinguishing feature of these goods should be urbanity, i.e. a set of city-specific features that may affect the way that commons are created, delivered and used. It should also be borne in mind that the new commons permeate each other. Thus, for example, cities will have neighbourhood commons, infrastructure commons or cultural commons.

At the outset, it is worth making a synthetic review of all the concepts we may come across during the study of the commons, including the scope of individual concepts, what relations exist between them, and when each concept should be used. A summary of the basic concepts can be found in **Table 2**. It should be noted that the concept most often used to describe the whole situation is the word *commons*. It is the most comprehensive, as it brings together all the parts. It is assumed that there are no commons without common-pool resources, community and the commoning process. The word commons is also used to express a broader idea, which is presented as an economic paradigm, complementing the paradigm based on the neoliberal economy [Felber 2014; Bollier 2014]. Rifkin

Table 2. Basic concepts of commons

Concept	Scope
common-pool resources (CPRs)	resources
common property	legal relations
commons	relations
commoning	process/mechanism
common goods	products/effects

Source: the authors' own study.

[2016, p. 6] writes about the emergence of a hybrid economy partly based on the market and partly on the collaborative commons. These two economic systems usually find synergies on their peripheries, by which they add value to each other and benefit from it. Commons is therefore used to describe ideas, relations between resources and communities, and indicate specific goods, e.g. knowledge commons. According to Bollier [2014, p. 2], commons (...) *is less a noun than a verb because it is primarily about the social practices*, by which ways of managing shared resources are developed.

The first essential concept is **common-pool resources (*CPRs*)**. Elinor Ostrom defines this concept as follows: *Common-pool resource refers to a natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use. To understand the processes of organizing and governing CPRs, it is essential to distinguish between the resource system and the flow of resource units produced by the system, while still recognizing the dependence of the one on the other.* [Ostrom 1990, p. 30].

According to Ostrom, a resource system should be treated as a stock that, under favourable conditions, can produce the maximum amount of a stream of resource units without harming the system. Resource units are what people use when using the resource system. Ostrom names the people withdrawing resource units from the system appropriators[2]. A resource is renewable as long as the average utility rate does not exceed the average stock replenishment rate. Sample systems and associated resource units are presented in **Table 3**.

The greatest challenge in using common-pool resources is that excluding certain people from the use of the resource system is problematic, while the consumption of resource units by some individuals reduces the consumption of others. Natural resource units are renewable but still limited at any time, so their overconsumption may lead to the irreversible degradation of the resource system. The risk of overconsumption stems from the fact that people are willing to increase their level of consumption, knowing that otherwise other community members will use the resource units instead of them. It was long assumed that community members would not agree as to how common-pool resources should be used and act collectively. This state of affairs was explained by the game called

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[2] Elinor Ostrom described the withdrawal of resource units from the resource system with the term *appropriation*, which she borrowed from the work of [Plott, Meyer 1975].

Table 3. Examples of resource systems and resource units under CPRs

Resource systems	Resource units
Fishing areas (seas, rivers, lakes, etc.)	Metric tons of fish caught in a given fishery
Irrigation canals, groundwater reservoirs	Cubic meters of water drawn from a given reservoir
Pastures and other grazing areas	Metric tons of feed consumed by animals in grazing areas
Forests	Cubic meters of wood harvested from the forest
Bridges	The number of crossings over the bridge per year
Car parks	Number of cars parked per year

Source: the authors' own study.

the prisoner's dilemma [Dixit, Nalebuff 2008], and by the **logic of collective action** outlined by Mancur Olson [1965], where individuals who form a large group from which it is difficult to exclude individual members, will individually benefit from the effects of the group's action while having a weak incentive to ensure a group interest. The privatisation or nationalisation of common-pool resources was supposed to be the remedy for such a problem, as common ownership did not guarantee the collective action of the community. Elinor Ostrom [1990] showed that self-organising communities could overcome problems by developing a system of norms and principles of accordant, profitable, collective action for the benefit of common-pool resources.

The second concept that appears when discussing the commons is **common property.** In the initial stage of research on the governance of natural resources, they were assumed to be the common property of given community members. The focus was on answering whether the common property arrangements are the right solution to problems associated with the exploitation of natural resources. It was assumed that common property is a formal or informal legal regime (under which the ownership of resources and control over their use is in the hands of a group of people whom we will call co-owners) [Bromley 1992, p. 2; Ciriacy-Wantrup and Bishop 1975; Hess 2008, p. 34]. In practice, shared ownership may cover extensive areas, e.g. fisheries, forests or grazing land, and for this reason, control over access and exploitation levels may be limited. Consequently, the term common property has frequently been equated with the absence of rights, on the principle that if something is common, it is, in fact, nobody's. Thus, in practice, common ownership has been confused with open access resources which everyone can use without restrictions, because the property rights have been assigned to no one, which means that there is no law to exclude anyone from using a given resource [Bromley 1992, p. 2; McKean 2000, p. 30]. This otherwise incorrect assumption underlies Garrett Hardin's [1968] formulation of the famous dilemma called **the tragedy of the commons.** This consisted in the fact that shared ownership, when equated with uncontrolled access, inevitably led to the overexploitation of resources.

The lack of rights – as is the case with open access resources – may result from the nature of the good. An example is the Earth's atmosphere. Usually, however, it may result from deliberate action by the public authorities not allowing a group to restrict access. Ostrom and Hess [2010, p. 56] provide the example of fishermen's organisations wishing to restrict fishing for others and to establish rules within the legal system, which the Oregon and Washington state governments opposed. However, we often deal with the open access system when the rights and obligations established under other systems are not protected and enforced, for various reasons. If the legal system is inefficient or collapsing, then there is a risk that common ownership will degrade to open access resources. The difference between a shared ownership system and an open-access resource is that in the former, we have legal guarantees to gain future benefits from the resource, while in the latter, we only have a chance to use the resources, being aware that there are no rules [Bromley 1992, p. 12–13].

By combining the subject of common-pool resources and common property rights, the researchers' interest in common-pool resources extended to communities and the sets of norms and principles they develop. That is how the concept of the commons emerged, understood more from the relational perspective than from the resource perspective or the legal relationship perspective. Researchers share a fairly widespread belief that three elements make up the commons: shared resources, communities, and a set of standards developed through commoning [Bollier 2014; Harvey 2012; Slodowa-Hełpa 2015]. The above set shows the humanisation of shared resources. Fishing areas, pastures, irrigation systems and forests are not only perceived as elements of the environment but are inextricably linked with people's decisions and actions [Hess 2008, p. 37]. Bollier [2014, p. 15] emphasizes that the essence of the commons is the personal relationship between people and their resources. For this reason, there is no complete and closed list of the commons. It is the community that decides whether a given good is treated as a commons [Felber 2014]. The same forest, park or city square can be a common good for the community, while at the same time being a public space for other people, or simply one of many places in the city. The commons is not given by nature, because it only arises when permanent relationships between people and resources are built. The common good can only be created by building lasting relationships between people and these resources. As Bollier [2014, p. 14] states, *The commons appears when a community decides to collectively govern a certain resource, taking into account the equality of access to it and the derived benefits, as well as the principle of maintaining ecological balance.*

All this makes the concept of the commons very general and vague. It can be said to be a specific self-organising social system serving the long-term governance of resources, maintaining common values and community identity [Bollier 2014, p. 175]. According to Harvey [2012, p. 111], it is a kind of flexible and unstable relationship between a specific self-defined social group and certain aspects of its environment, which – very importantly – has been recognised as crucial for the life of a given community. Thus, a feature of the commons is that they are important for a given community. Particular shared resources become commons

when there is growing awareness of their value and importance for the functioning of the community. The commons can – and, in practice, often do – emerge in the most unfavourable circumstances. All of a sudden, due to the feeling that resources are under threat, or in response to the appropriation of a given space by an aggressive investor, or the state changing the rules of resource use, the community closes ranks and defends shared resources, perceiving them as a good for which responsibility must be taken to safeguard its continued existence and ensure that it is fairly available to community members and will generate benefits for all.

An essential feature of the commons is also its uniqueness. It develops in the relationship of a given community with a unique resource, local history and individual tradition [Bollier 2014, p. 15]. This means that the developed principles through which a community governs a commons cannot be easily replicated by other communities when regulating other commons. We should also be aware that the commons is not a stable construct. It can disappear as quickly as it appeared. If the community that was responsible for creating and using the commons disappears, thereafter there is no reason to claim that a given shared resource is itself a commons. The disappearance of the community, and hence the social protocol, which has created the relationship between the community and the resource, causes people to stop treating a given resource as an element serving to create the commons. It becomes a local public good or is possibly transformed into a private or club good.

The bonding of individual elements, which results in the creation of a commons, seen as creating relationships and bonds, takes place in a commoning process, understood as the social practice of governing common-pool resources for mutual benefit [Bollier 2014, p. 20]. This practice manifests itself in animating collective actions through bottom-up personal participation, whose effects are shared by the entire community but may also be partially or entirely accessible to others. The creation and use of the commons do not follow market mechanisms and are not subject to market valuation [Harvey 2012, p. 111]. Commoning is based on mutual support, constant communication, negotiations, experimenting – including working out the best, permanent and stable rules for governing shared resources through trial and error methods [Bollier 2014, p. 2]. Commoning is a set of often informal activities consisting of three elements: sharing, collaborating and pooling – used by commoners to govern shared resources and create social, economic and relational values. [Iaione, De Nictolis 2017, p. 691].

The last concept that closes the discussed definitions is the **common good** in terms of the end result. The community cares for the common-pool resource. Community members must undertake activities for its maintenance and development. That requires spending time on physical work, fund-raising, planning and organising events, etc. Based on the common-pool resource and community members' potential, goods are co-created that can be named common goods. They are the result of the community work. They are not offered on the market and therefore do not have a market price. They arise from the desire to meet the community members' needs to develop common interests and passions and the

need to do something for other people. The creation process of common goods keeps the community members active. Common goods are often cyclical events, such as neighbourhood festivals, educational activities for children, leisure, sports and cultural events. They can also have a tangible form, such as street furniture and landscape design items, educational paths, murals, flower meadows, and many others. Finally, they can be ideas, strategic or planning studies, a proposal to solve some problems of a specific district or the entire city.

Table 4 presents the stages of shaping the usability of an exemplary area in which all the concepts discussed were applied. This example shows that these concepts interrelate; they even overlap and, in principle, cannot exist separately. We are dealing with a continuous process of collective action that involves organizing life around resources critical to the community, where the community is the main actor deciding on the creation and use of the commons.

Table 4. An example of the use of concepts related to the description of commons

Concepts	Description of concepts' application to one area – shaping usability
common-pool resources	a free, often abandoned area intended for a community garden
common property	right of use established by a municipality for the benefit of a community operating as an association, foundation, etc.
commons	a set of norms and rules, both formal and informal, describing the relationships/ties between the community garden and the community of people who co-create and share it
commoning	the process of joint, continuous negotiation; working out, often through trial and error, the rules of co-governance of the community garden
common goods	neighbourhood festival, ecological education for children, apiary

Source: the authors' own study.

1.2. Shared resources and public, club and private goods in the city

A city is a place where its users largely benefit from shared resources. These shared resources include transport systems, such as roads, streets and pavements; green leisure spaces, such as parks, squares and playgrounds; commerce and services, such as shopping arcades and marketplaces; collaboration spaces, such as co-working spaces, congress centres, etc. Shared resources constitute urban amenities, as they help to satisfy the various needs of city users. The type, size and quality of shared resources significantly determine the attractiveness of a city. Most of the shared resources are provided and maintained by local authorities. In this case, the shared resources are public property and are financed from public funds. Additionally, shared urban resources can also be owned by housing cooperatives and housing communities, e.g. estate spaces and courtyards, as well as institutions and private companies, e.g. an open-air art gallery or shopping arcade.

Sharing resources means they are available to many people at the same time. Individual users are aware that the decisions of other people influence the status of shared resources. A single user has no control over the quality and quantity of resources. Open and universal access to shared resources can run the risk of their misuse. Urban shared resources have limited capacity. Thus, in certain situations, there may be competition for shared resources. Competition may arise when many users desire to take advantage of a given feature. An example of such behaviour is competition for parking spaces in the city centre. Competition may also result from individual city users' attempts to take over a space. An example of this is a developer's efforts to build a housing estate in a place that has so far been a commonly accessible green area.

Urban resources and goods can be classified according to the classic division based on two criteria: excludability and rivalry, also known as subtractability. **Excludability** determines the extent to which the use of a good by individuals can be limited, or in other words, what cost must be incurred to exclude someone from consumption. **Rivalry** determines to what extent one person's consumption subtracts the possibility of using the goods by others. The above two criteria make it possible to distinguish four categories of goods present in the city (Fig. 1). It should be borne in mind that this is a somewhat simplified picture of reality. When using only these two criteria, we should be aware that the boundaries between individual goods are blurred, but it is preferable to assume instead that individual goods may be characterised by a different level of saturation with rivalry and excludability [Lamberton, Rose 2012, p. 110]. Over time, the rivalry or exclusion level may vary due to changes: technological (e.g. more effective monitoring facilitating exclusion), legal (e.g. more effective tools for enforcing property rights), or socio-cultural (e.g. changing users' awareness).

	Low rivalry	High rivalry
Low excludability	**Urban public goods** streets, parks, street lighting, city monitoring, urban landscape	**Urban common-pool resources** courtyards, parking spaces, community gardens
High excludability	**Urban club goods** gated communities, tennis courts, etc.	**Urban private goods** private houses, flats, office buildings etc.

Fig. 1. Classification of urban goods
the authors' own study based on Ostrom et al. 1994, p. 7.

The division of resources and urban goods based on the two above-mentioned criteria is quite contractual and from time to time may lead to disputes. A particularly blurred borderline runs between urban public goods and urban common-pool resources. In theory, both are characterised by low exclusion, i.e. they are open and widely available, and they only differ in the level of rivalry, i.e. the

consumption of urban public goods by one person does not limit the consumption by other people. In contrast, the consumption of urban common-pool resources limits their use by other people. In practice, it is hard to find many examples reflecting this division. Street lighting or a citywide surveillance system appear to be good instances of urban public goods. Additionally, the municipal parking system is an excellent example of urban common-pool resources. The system is widely available, but the resource units, i.e. individual parking spaces, are competitive. A parked car occupies the place and makes it inaccessible to others. It is worth noting that parking spaces are an example of individual consumption. We simply occupy a place in the city with our car for our individual needs. The fact that we have taken a parking space does not make others benefit from it. In contrast, most of the shared resources in a city can be a place of collective consumption and collective action. Many people can simultaneously visit a square or promenade. If everyone observes the accepted rules, then such a noisy place is an example of collective consumption, where people enjoy being among other people. It is in line with what Gehl [2009, p. 23] wrote: *"people are attracted by other people, and [...] new types of activity begin in the vicinity of events that are already underway"*. In the case of urban shared resources, collective action may also happen. Examples include joint games and activities, participation in outdoor events or joint protests. Accordingly, the level of rivalry for both urban public goods and shared urban resources can vary, depending on the place and time. More importantly, it can also be perceived and assessed differently because, in the case of collective consumption or collective action, the tendency to collaborate and use common spaces in a concerted manner seems more important than the level of rivalry.

The share of particular types of goods in the city does not result from their characteristics but from users' decisions, supported or approved by local public authorities. Let us consider, for example, a square located in the very centre of a housing estate. Such squares are rather commonplace. If the square is used as a communication route, a place for random meetings, and a children's playground, it can be assumed to meet a **local public good** criterion with relatively low levels of both exclusion and rivalry. If, after some time, residents start to park cars on the same square (first a few will do so, but then their number will increase), then, first of all, car owners will compete for the parking spaces, and at the same time, they will limit the space available to those who have previously used the square as a meeting and leisure place. In such a situation, the square will begin to have the features of **common-pool resources (CPRs),** characterised as before by a low level of excludability but also by an increasing level of rivalry. Then, if the residents of houses located in the immediate vicinity of the square, who hold a legal title to all or part of it, decide to fence it and develop it according to their needs, the square or its fenced parts will become **a club good**, characterised by a relatively high level of exclusion and a low level of rivalry.

Each of the three examples above shows that the type of good which a given urban space is only depends on people's decisions. Both excludability and rivalry levels can therefore be treated as variables that can be managed by city users

using appropriate means and tools [Frischmann 2004, p. 957]. By controlling the level of excludability or rivalry, users *de facto* decide whether a given urban space evolves, thereby transforming from a public good into a club good, for example. Looking at Figure 1, in principle all combinations are possible, as the plot discussed earlier may still be sold in order to create a private car park there. In this case, the square will turn from a public to **private good**.

Most of the shared resources in a city, despite their public nature, may at any given time resemble rivalry common-pool resources rather than non-rivalry public goods. Here, a vital role is played by the public authority responsible for managing urban public goods. If public authorities' standards and level of control are significantly lowered, a situation may occur that has come to be described as **regulatory slippage** [Farber 1999; Foster 2013, p. 67–68]. In such a situation, some users are tempted to use local public goods in a way that contributes to over-consumption and congestion, thus creating negative externalities. With insufficient control and monitoring by public authorities, some user groups may also, in practice, appropriate a public good. There are many examples of city parks that used to be leisure places for seniors or families with young children and which have now become a meeting place for hooligans and drunkards, effectively deterring other residents. Suppose the level and quality of public services provided by local authorities are unsatisfactory, or shared urban resources are "abandoned" by local authorities, which, due to lack of financial resources or other priorities, cease to care for resources. In that case, they may become more competitive, facing the risk of appropriation, privatisation or uncontrolled uses. In such an instance, existing users need to choose one option (obviously excluding the one in which they do nothing) (Fig. 2).
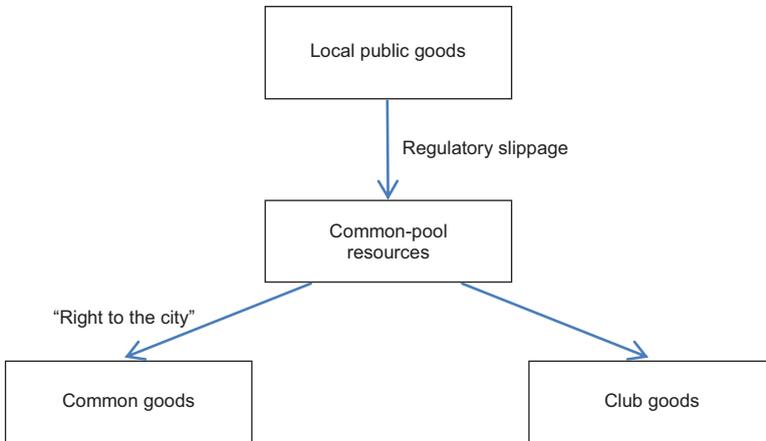
Fig. 2. Transformations of shared urban resources
Source: the authors' own study.

Firstly, they can organise themselves to jointly develop, arrange a given space, and establish rules and standards for its use. Without appealing to the local

authorities, they can begin to act, enforcing **the right to the city**[3] within the community and creating a good that can be named an urban commons. Alternatively, they can turn to the solution offered by **club goods.** The incentive for their formation is obtaining economies of scale and sharing costs in the goods delivering process [Buchanan 1965; Olson 1965]. If the number of members is kept at a sufficiently low level, the problem of congestion and consumption rivalry is eliminated [Cornes, Sandler 1996; Frischmann 2004, p. 952]. A prerequisite for the "club" to arise and function is group homogeneity in preferences and needs, as well as the ability to satisfy them [Schelling 1969; McGuire 1974]. By its very nature, the urban commons are inclusive and non-marketable, in contrast to the urban club good, which is exclusive and can be marketable.

In summary, when creating and using shared resources, city dwellers choose between public goods, club goods and common goods. In the first case, the leading role is played by local authorities, which are responsible for creating, delivering and maintaining public goods. Obviously, this can be done by considering social participation at various stages, but public goods nevertheless belong to the domain of the public sector. In the case of club goods, users most often avail of them on an arm's length principle, purchasing them from the supplier. Collective action and a sense of community are not a condition for the existence of a club good, such as a tennis court or a guarded gated community. On the other hand, in the case of common goods, the creation and use of shared resources must occur through the collective action of members of the urban community. Neither the public sector nor market solutions will ensure the existence and duration of commons. In this case, the decisive factor is the process of commoning implemented by the local community.

1.3. The concept of the urban commons

Urban commons are common-pool resources whereby urban communities consciously, through the commoning process, collectively develop and apply a set of values and norms (the so-called social protocol) for the stable, just and fair sharing of resources for the common benefit of the urban community members. Urban commons result from a commoning process carried out by urban communities using various generally accessible and shared urban resources. As a result, the individual and collective utility effect of the city's attributes is improved.

Therefore, a key element determining the formation and functioning of urban commons is the process of commoning. **City Commoning** should be understood as:

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[3] **The right to the city** – a concept based on the assumption that all residents should have the right to participate in the decision-making process on matters shaping the place and space in which they live. It is also the city residents' right to use, distribute and absorb urban surpluses that appear in cities. This concept was developed by Henri Lefebvre 1967].

– a management process (economic approach);
– the process of agreeing on rules (the formal and legal approach);
– the process of defining the form and content of the resource (the functional and urban approach);
– the process of shaping social attitudes (the sociological/anthropological approach).

Only the presence of these four components gives a chance for the emergence of urban commons.

Urban commons are goods users manage in a pro-social and non-profit-oriented way [Dellenbaugh-Losse et al. 2020, p. 7]. Thus, they are types of goods that are not consciously created, distributed and availed of using the market mechanism. Members of urban communities engage in activities for the benefit of urban commons, most often free of charge, without earning financial income and not driven by gaining profit. A very general yet valuable provisional definition is the statement that urban commons are everything we, as an urban community, rely on for our well-being and prosperity [Ramos 2016, p. 2]. The definition of mutual self-reliance appears here, i.e. the primacy of collective action over individual action. This reciprocal self-reliance applies, in particular, to issues that are most important to the entire urban community, as they determine its sustainability and well-being. So these are things and matters that are good for everyone, benefit everyone, and at the same time, all city residents have or can have an impact on their shaping. Urban commons can include tangible or intangible goods that are either created or inherited by the urban community.[4] The material goods produced include urban infrastructure, while those of natural origin include forests, rivers, hills in cities, and representatives of urban fauna; whereas inherited intangible goods are the broadly understood cultural heritage, including the city customs, traditions and history. On the other hand, the intangible goods produced are all the effects of *peer-to-peer* (*P2P*) production and urban knowledge and identity.

Whether a given urban resource will be treated as the basis for creating an urban commons depends solely on the inhabitants, and more precisely, on the urban community. Through collective action, the community will create and use the commons. In a specific community and a given resource, there can be a great many different and often complex commons, both tangible and intangible. For example, in a community garden, vegetable, fruit and flower crops can be a commons. Additionally, the commons will also include places arranged in the garden for spending free time, such as benches, gazebos, swings, etc. Finally, various types of outdoor events and occasions, both one-off and cyclical, organised by community members in the community garden, should be considered a commons.

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[4] This division into four types of urban commons has been taken from the classification presented by Michael Bauwen in *The City as a Commons: A Policy Reader*, Edited by J. Ramos, The Commons Transition Coalition, Melbourne 2016, p. 3.

Ownership status is irrelevant to the definition of the urban commons. Urban commons, in a formal sense, can be both public and private property, as long as they are open and usable and the local community is willing to engage in their production and management. Co-production and co-management in which local communities' representatives are involved distinguish urban commons from local public goods. [Iaione 2016, p. 417]. Harvey [2012, pp. 109–110] makes a clear distinction between urban public goods and urban commons. Public authorities are required to provide a set of urban public goods (including streets, parks, but also education). These public goods can become urban commons if the city community takes responsibility for them, protects and strengthens them for mutual benefit. The concept of the urban commons must therefore be inextricably linked with commoning.

The practice of **urban commoning** is about solidarity and cooperation, creating additional value for the community, democracy and inclusiveness [Dellenbough-Losse et al. 2020, p. 21]. Solidarity and cooperation are implemented based on voluntary participation and following the reciprocity standard. Also, people acquire competencies in involvement in public affairs and organising cooperation. Creating additional value for the community stems from voluntary, non-profit activities that promote collective benefits over individual ones. Democracy and inclusiveness are facilitated by the involvement of the broadest possible spectrum of the city community representatives through the possibility of participation in decision-making. Urban commoning is an idea with a very practical application in the process of shaping the urban environment. A specific feature of the commoning process in the city is experimenting, which is manifested in the continuous creation and then testing various ways of shared resources management, creating new goods and services, and solving current problems in city life. Thus, the idea of urban commoning will never constitute a complete set of solutions and should not be treated as a ready-made recipe for creating urban commons in any place and at any time [Ramos 2016, p. 1].

The challenge in managing urban commons is the size and high turnover of urban community members. A large number and high variability of participants is not conducive to the commoning process, which is long and firmly locally embedded. That is why Dellenbaugh-Losse et al. [2020, p. 12] propose the function of custodians and the form of **semi-commons** as a helpful solution to this problem. The custodians' job would be to ensure that people who cannot participate in the commoning process could use the urban commons under specific rules and to a certain extent. Then, semi-commons would be a mixture of private ownership with openness to users when the private owner allows for the implementation of joint projects on their property. Due to the urban specificity of the tremendous diversity of users and their different property rights, urban commons should be considered in terms of the so-called semi-commons. Semi-commons are situations when private rights are combined with commons rights, mainly in the form of joint ownership. The key point is that both types of rights are

essential and can interact with each other [Smith 2000, p. 131][5]. A situation that meets the semi-commons criteria can be traced to the functioning of housing estates. Usually, housing estates involve a diversified ownership situation. The areas around individual residential buildings are usually a mixture of plots owned by the municipality, housing associations, housing cooperatives. These areas are occupied by car parks, playgrounds, outdoor gyms, benches, flower beds and other elements of landscape design. In terms of functionality and development, this type of estate space is a whole used by the residents of the entire estate and other people who visit the estate for various reasons. Despite the diversified ownership situation, it would be best to treat the housing estate as a coherent whole, constituting the commons of all owners who make up particular housing, cooperative or municipal communities.

Urban commons can be viewed as a system of **urban amenities** that facilitates the use of other urban resources, generating agglomeration benefits related to proximity and density for the users. Due to the generally wide availability of urban commons, these benefits are positive externalities that are not subject to compensation and which escape the market mechanism. For example, if households take care of their homes and gardens in a given district, the more of them that do so, the greater the positive externalities that are generated. Another example is a busy playground. The more children play, the greater the chance of making new friends, playing games and team activities, etc. Foster and Iaione [2016, p. 15] emphasize that there is a thin line separating the state in which urban public space generates metropolitan benefits and is of great value to the community and the city as a whole from a situation of congestion leading to competition for space and its scarcity for specific users' groups. Being aware of this subtle borderline should be the first step to rethinking how the urban commons are managed.

If a research problem addresses the following questions, it will have practical application: What is the productivity of urban spaces, predominantly urban commons? Does a given urban space which has taken on the nature of an urban commons have greater value/utility than would the same space if it remained a private good and was sold on the market? [Foster, Iaione 2016, p. 21; Borch, Kronberger 2015, pp. 6–8]. Research shows that the existence of urban commons affects the value of neighbouring properties. At the same time, the risk of negative phenomena, such as relocation of the existing inhabitants, which is a feature of gentrification, is much less likely. *Urban commons facilitate the development of social capital among its networked participants, which in turns produces a host of other goods such as public safety, recreational opportunities, green space, fresh food, and other critical resources for neighbourhood residents, particularly in disadvantaged neighbourhoods.* [Foster, Iaione 2016, p. 307].

When defining the concept of the urban commons, one should also refer to the concept of neighbourhood and **neighbourhood commons,** which in urban

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[5] Smith [2000] exemplifies *semi-commons* with the medieval system of fields where peasants had scattered plots for growing grain, but all the land was used collectively for grazing cattle. Private cultivation and joint grazing took place in a variable seasonal cycle.

conditions should be considered a particular case of urban commons. A neighbourhood and the community that creates it will always be considered in terms of the common good. By its very nature, neighbourhood urban commons will exist no matter what activities the community undertakes. The neighbourhood has the characteristics of shared resources and common goods. Neighbours cannot exclude each other from being neighbours. Neither do we usually have any influence on who will move in or out of the local neighbourhood. However, the neighbourhood is not an entirely open common good, as the number of neighbours is limited at any given time, and the community is made up of well-known households that own or use real estate.

Also, neighbours may, through their decisions, reduce or increase the value of properties in the vicinity. The positive effects of the neighbourhood lead to the greater value of a given property. If a neighbour cares for their home, for example, by renovating the façade and trimming the lawn every Saturday, it positively affects the value of our property. Although we have not taken any actions to beautify our own home or raise its standard, we benefit from that. In such a situation, we demonstrate the stance of a "free-rider". A neighbour's care of their home and property affects us positively, and at the same time, does not involve any costs on our account. Nevertheless, our attitude may, over time – "in the next round" using an analogy from game theory – have a demobilising effect on the neighbour who will see no sense in investing in their real estate due to their neighbours' passivity. On the other hand, if we react to our neighbours' actions by renovating the façade and caring more for our property, the effect of our efforts will be more significant than those of a neighbour who does nothing. To cut a long story short, proper care of property generates positive externalities. It also brings about **complementary benefits,** which neighbours can only achieve if they reciprocate actions related to the maintenance and care of their property [Oakerson, Clifton 2017, p. 421].

Collective action problems in urban neighbourhoods are more about providing mutual assurance than limiting or preventing "free-rider" behaviour. We can usually distinguish two groups of users who are not involved in the commoning process in the neighbourhood. The first group can be called "holdouts". They are people who oppose any municipal community actions to create the common good. The second is free-riders, i.e. residents who do not oppose community actions, but do not participate in collective action in any way while benefiting from others' work. Maintaining mutual assurance is more difficult due to the existence of "holdouts" rather than "free-riders" [Oakerson, Clifton 2017, p. 422]. "Free-riders" look for benefits from other people' (neighbours') activities, somehow ex-post, e.g. by not keeping agreements or disregarding previously established rules. On the other hand, the "holdouts" torpedo collective actions ex-ante, refusing to participate and cooperate from the very beginning. "Holdouts" turn into "free-riders" if others, despite their opposition and reluctance, undertake to act collectively for the common good.

The study of the power of collective action in neighbourly relations is also of interest to urban sociologists [O'Brien 2012, p. 470]. It is referred to as **collective efficiency** and is usually higher in urban neighbourhoods characterised by:
– a strong sense of community accompanied by a system of social norms;
– many active social organisations, "urban movements", and local activists [Ohmer 2007].

O'Brien [2012, pp. 470–471] identifies three conditions that may determine individual incentives to engage in caring for the immediate neighbourhood. First of all, higher motivation to act on behalf of a shared space is exhibited by those who feel that it will have a long-term impact on them. O'Brien refers to the experiments conducted by Fehr and Fischerbacher [2004], which indicate that people who have long-term interactions (the same people participate in the experiment) are willing to cooperate more than those who participate in a one-time game within the experiment. Secondly, people who can derive greater material benefits from the surrounding space are more willing to invest their time and money in it. Thirdly, the costs of maintaining common spaces may be relatively higher for some people, e.g. those less affluent. Therefore, it is to be expected that different user groups will engage in urban commons activities to varying degrees. O'Brien [2012, p. 471] claims that the first two conditions differentiate homeowners and renters. He compares the former to players involved in repetitive games in economic experiments, while renters are not so attached to the local environment, so they are less motivated to invest in it. As for the third condition, this concerns the difference between rich and poor areas. Low-income households have smaller living space, which means that their socialisation happens more often in public spaces. The consumption of neighbourly public spaces is at a high level, but at the same time the possibility of taking care of this space is limited. In any case, the owner should be interested in a high-quality neighbourhood and be motivated to care for its condition. If they are considering selling the property now or in the near future, they will understand that its value is influenced, among other things, by the neighbourhood. If they are not considering selling and plan to live there for a long time, the condition of the neighbourhood, due to everyday use, will impact their level of satisfaction. The renter's motivations to engage in caring for the condition of the neighbourhood depend on what goals the rent is to fulfil. Some tenants may live longer in a given building than some families who hold ownership of the premises. Renters in municipal buildings typically live there for an extended period, usually with permanent contracts. Some tenants who change their place of residence may move to other premises within the immediate vicinity, e.g. in the same housing estate or the same street. They will then choose better apartments in terms of rent rates, standard or area, wishing to maintain access to the same neighbourhood. Thus, renters may be interested in getting involved in improving the quality of their neighbourhood as much as owners do. In the case of commercial or service premises tenants, these motivations should be equally strong, as the condition of the neighbourhood usually affects business attractiveness.

The impact on the involvement in neighbourhood commons may be related to the characteristics of households. Certain types of households may show a greater level of involvement. For example, seniors may participate more often as they have more free time and want to stay in touch with other people. Alternatively, they may be more determined to monitor and control the order in the neighbourhood. A great example of this is the main character of the Swedish film *A Man Called Ove* by Hannes Holm, who, being a pensioner and living alone since his wife's death, makes a daily tour of the housing estate, checking that everyone observes block association rules and in the event of problems never hesitates to intervene. Also, families with young children will be sensitive to the quality of the neighbourhood, especially when it comes to the level of safety and the possibility of playing in public spaces. On the other hand, people who lead a highly active professional life may be less willing to engage in work for the benefit of the neighbourhood community due to the lack of time.

To sum up, several conditions must be met in order for a given good in the city to be called an **urban commons**:

– there must be a community as a group of commoners who is willing to take responsibility for an urban resource; protecting, using and enhancing it for mutual benefit [Harvey 2012, p. 109];

– the urban community has the right to access the resource, i.e. it can use it regardless of the ownership status (the resource may formally have various forms of ownership, e.g. public, private, cooperative);

– the urban community, using shared resources, shows a willingness to co-produce, co-consume and co-manage urban commons [Iaione 2016, p. 417];

– there must be a permanent bond between the shared urban resource and the urban community, not based on market mechanisms; a manifestation of this bond is a process called commoning [Harvey 2012, pp. 109–110], which is a social practice that consists of three elements: sharing, collaborating and pooling [Iaione, DeNictolis 2017, p. 690].

2. The specificity of the urban commons

2.1. The features of the urban commons

Urban commons can be differentiated from traditional commons. They can be best presented by comparing, for example, a city forest or a city park with a forest in non-urbanised areas **(Table 5).** The differences between urban commons and

Table 5. Differences between traditional and urban commons – the example of a forest and an urban forest

Comparative criteria	Forest	City forest/city park
functions	forestry and wood industry (logging)	spending free time, leisure, nature education, protective greenbelts
resources' system	a natural, renewable resources system is the basis for obtaining the livelihoods which constitute the primary source of income for foresters	an artificial resource system, mostly infrastructure and arranged space, which can be collectively described as constructed commons, determines the improvement of city life quality; is an element of urban amenities
resource units	wood, game – given by nature – are renewable resource units, their size depends on the condition of the resource system	the space occupied and time spent on enjoying the woods or city park
appropriation	appropriation of resource units – mainly wood produced by the resource system; appropriation by one person reduces the amount of resources available to others; appropriation is an element of everyday activity	appropriation of resource units – the use of space in time, and the use of interaction space, benefiting from staying and spending time in a forest/city park; appropriation is usually not part of daily activities
community features	small, homogeneous, low-mobility, closed	large, heterogeneous, highly mobile, open, prone to instability and short-lasting
relationships with public authorities	relatively small ties with public authorities in the context of the functioning of self-organizing CPRs institutions	the need to take into account urban policy and many legal and institutional conditions

Source: the authors' own study with the use of [Foster, Iaione 2019; Parker, Johansson 2011; Kip 2015].

traditional commons arise both from the characteristics of the resources themselves and the characteristics of the users.

Primarily, a forest or park in a city has completely different functions and users than a forest located in non-urbanised areas. In the city, we use forests and parks as places to spend our free time, walking, relaxing, doing sports, satisfying the need to be in touch with nature. In forests and city parks, there is no forest management focused on wood production. Urban forests, and parks in particular, do not usually constitute nature-given resources. Most frequently, they are designed and equipped with infrastructure as a result of well-thought-out planning decisions. They constitute the so-called constructed commons [Foster, Iaione 2019]. Forests or city parks are also much more multifunctional compared to forests in non-urbanised areas. Therefore, there are potentially far more possibilities for conflicts of interest between different users' groups. That is why, unlike traditional resources, urban common-pool resources are frequently **contested resources** [Parker, Johansson 2011, p. 11; Kip 2015, p. 45]. That is related to the significant diversification of city users and their mobility. The stability and durability of urban communities may be weaker, and their diversity may result in conflicts of functions. Urban common-pool resources can meet the very different needs of young people and seniors, animal lovers and parents with young children, cyclists and hikers, etc. In such cases, there is a risk of space appropriation by a specific group of users. In cities, the motivations to act for the common good often result from a sense of threat and conflicts between user groups. Foster [2013] sees a positive effect there in the form of a lower risk of the so-called community ossification**,** that is, a situation where the forms of managing the common good are maintained, although, over time, other methods could be more beneficial.

Secondly, a system of urban common-pool resources is not a naturally renewable resource, as is the case with a forest. A city park left unattended will cease to be safe and attractive and thus will no longer fulfil its functions. Moreover, unlike traditional common-pool resources, urban common-pool resources are rarely the primary source of subsistence [Parker, Johansson 2011, p. 11]. Forests, fisheries and pastures in non-urbanised areas are sources of income for foresters, fishers and cattle breeders. In cities, common-pool resources constitute a collection of urban amenities, which affect the quality of life in the city, being places to spend free time and develop hobbies and passions. In cities, people do not engage in work for the common good due to the need to earn money. Also, it can be assumed that the fate of a city park is not necessarily a matter of "life or death" for all the city residents. Residents only sometimes devote their free time to improving the aesthetics, functionality, and safety of the immediate surroundings, or to taking care of a place with natural or cultural values that is at risk of degradation. Involvement in urban common-pool resources is also motivated by the desire to establish social relations, particularly with neighbours, to be a member of a group of people who share the same passions and spend their free time together.

Thirdly, there are fundamental differences between resource units and how they are appropriated. In a traditional forest, the matter is simple – the resource units are cubic meters of wood, which individual woodcutters appropriate. All

such appropriation reduces the pool of resource units available to others. On the other hand, in the case of an urban park as a common-pool resource, it is difficult to even talk about a division into a system and resource units. From the park user perspective, it is treated as an integral whole that enables the performance of specific activities. It is also doubtful that a walk in the park could be classed as an appropriation. A walk is not invasive and does not involve the occupation or exploitation of space, as happens with traditional CPRs, such as a pasture. It would also be difficult to defend the thesis that one person's walking limits the possibility of others walking. However, the situation becomes more complicated when two park users collide with each other, of whom one is a stroller, and the other is a roller-skater or cyclist. In such a situation, two different functions are performed in a given space, which may impinge on each other, and thus limit the ability to use the park for one of the parties. In the case of natural resources (CPRs), their appropriation always diminishes their value, while the consumption (or appropriation) of urban commons can be a productive act blurring the line between use and abuse [Kornberger, Borch 2016, p. 8]. For example, skateboarders riding on the market square in the city. Do they use the space and create value, building the city's atmosphere, or do they abuse the space by limiting its use by other residents? The answer to this question is not straightforward. An essential difference between urban and traditional common-pool resources is the agglomeration economies and agglomeration diseconomies relevant for the former and absent in the latter common goods. Agglomeration economies are like common-pool resources, i.e. it is difficult to exclude anyone from benefiting, but they are nevertheless competitive or otherwise subtractable as they are limited by congestion, i.e. agglomeration diseconomies [Fennell 2014, p. 1380].

Fourthly, urban communities are different from those found in rural areas. City dwellers are characterised by much greater mobility, diversity and the intensity of their activities. In large cities, anonymity and privacy are essential features, making community ties much more loose and far less durable and stable. Commitment to urban common-pool resources is usually not a part of everyday life. Therefore, if people are busy with other matters (work, family), they may limit or give up activities that benefit the common good. Both the communication between the members of the community and the monitoring they carry out is much less intensive than in the case of traditional common-pool resources. Urban common-pool resources have an indirect value [Parker, Johansson 2011, p. 11]. This value is reflected in the market value of the properties located in the vicinity of the urban commons. In other words, urban commons generate positive (or negative) neighbourhood effects. Moreover, city dwellers are often unaware of the consequences of the functioning of large, complex ecosystems of urban services such as water and sewage networks, networks of green and park areas, transport systems. Less awareness may result in a lower degree of involvement in working towards the creation and maintenance of urban commons [Kip 2015, p. 45]

Fifthly, urban shared resources always function in an environment that is heavily regulated and influenced by politics. In practice, it is impossible to completely separate urban common-pool resources from actions undertaken by local

authorities. The concept of managing urban commons, or more broadly the city as a common good, must consider the coexistence with legal regulations. Urban communities can benefit from collaborating with local authorities, which can support the communities or be active contributors to the management of urban common-pool resources. They can also enable the pooling of resources for their use by many urban communities [Foster, Iaione 2018, pp. 5–6]. The relatively more frequent need for cooperation between municipal communities and local authorities originates from the fact that sometimes municipal equipment (e.g. water and sewage infrastructure, lighting) require significant investments at the stages of creation and maintenance. Resident communities are unable to create and deliver this type of resource. However, they can co-manage them, participating in decisions regarding the form, function and level of services provided by these resources [Kip 2015, p. 46; Parker, Johansson 2011, p. 12].

2.2. The diversity of the urban commons

When attempting to create a typology of the urban commons, several criteria should be adopted that reflect both the urban specificity and the features and components of the commons. **Table 6** presents a classification proposal, considering the criteria and the corresponding types of goods, with descriptions and examples.

One of the criteria for division should be the spatial range of the common good. In the case of cities, firstly the division into common goods that function on a micro-scale should be considered, which in the case of cities would be the closest neighbourhood, i.e. neighbourhood commons; secondly, common goods should be distinguished, which include a district, housing estate, quarter; and finally, the entire city should be viewed as a commons. The differences between a typical neighbourhood, district or housing estate commons may not be precise and, to a large extent, result from the size of the city or the specificity of the urban layout.

Nevertheless, neighbourhood commons should be considered places where communities limited to their closest neighbours operate. The joint activities of such communities focus on improving the quality of the immediate environment where one lives. Shared resources are yards, squares, streets or their sections, car parks, and the surroundings of tenement houses and apartment blocks, and common parts of residential buildings. For such shared resources, there are many opportunities to delineate the boundaries of the common good and restrict access, such as a fence, lockable gate, intercom, etc. Establishing the collaboration principles, and then ensuring their control and enforcement, is facilitated due to the group's small size and the close, often long-term direct relations between neighbours. In the case of neighbourhood commons, co-ownership of the resource by community members may be an essential issue, as is the case with housing communities.

Table 6. A typology of urban commons

Criterion	Types of goods	Description	Examples
Spatial range	The city as a commons	Commons that have a city-wide rank or are non-spatial, affecting the functioning of the entire city, common goods that can potentially be used by all city residents and visitors (tourists, people working in the city, etc.)	The market square or the main square in the city, city park, main shopping street, promenades, riverside boulevards or city beach, city landscape, city panorama, and all other places and objects of a representative character.
	District and housing estate commons	Commons that have a district or housing estate range impact the functioning of a district or housing estate, common goods used primarily by residents of a given district or housing estate.	District and housing estate squares, parks, quadrangles, streets, playgrounds, public buildings such as culture clubs, community centres, branches of public libraries, etc.
	Neighbourhood commons	Commons with a spatial range limited to the immediate vicinity (street, square, quadrangle, yard, parking lot, staircases, etc.), common goods that people from the immediate vicinity use	Yards, squares, courtyards, quadrangles, streets or street sections, car parks, the immediate surroundings of tenement houses and residential buildings, shared parts of buildings (e.g. staircases), elements of landscape design.
Type of urban shared resources	Infrastructural resources	Commons created and used based on shared resources in the form of water and sewage, gas, energy, road, railway, tram and metro lines, bridges, as well as buildings and structures intended for use by urban communities	Bicycle paths, jogging paths, places for roller skaters and skateboarders, collectively managed parking spaces, shared monitoring networks, etc.
	Environmental resources	Commons created and used based on shared resources such as rivers and other water reservoirs, forests, coasts and city beaches, hills, urban landscape, city panorama, noise level, air quality.	Protection of natural resources, measures to improve the climate, anti-smog emergency, creating products and services that build city dwellers' awareness of natural values.
	Cultural resources	Commons created and used based on shared cultural resources, such as cultural heritage, historical values, city reputation, the identity of urban communities, aesthetics of places, tourist attractiveness	Cultural events, research and educational activities, protection and promotion of cultural heritage, creating and caring for the aesthetics of places, creating local goods in the form of handicrafts, cuisine, etc.

Criterion	Types of goods	Description	Examples
Type of urban shared resources	Human resources	Commons created and used based on shared resources related to the sharing of community members' knowledge and skills	Co-working spaces, fab-labs, urban labs, time banks, the transfer of knowledge and skills to young people by the elderly, etc.
	Economic resources	Commons created and used based on shared resources related to places of exchange of goods and services and joint work, the sharing economy	Collective production based on collaborating – the so-called common-based peer production, creating joint promotional and marketing activities as part of Business Improvement Districts (BIDs), economic cooperatives, city markets, local labour market, economic data and big data
Form of occurrence	Tangible	Commons created based on tangible shared urban resources, localised and mobile, renewable and non-renewable, natural and produced by human labour	Community gardens, city parks, yards and courtyards, as well as all places of integration of local communities and products resulting from the collective action of city communities
Form of occurrence	Intangible	Commons created based on intangible shared urban resources related to the values of the urban community, its cultural heritage, historical values, knowledge	City image, the reputation of city communities, traditions, rituals, habits and all services resulting from the collective action of city communities
Types of city communities	Communities based on spatial relations	Commons created and used by communities identified with a given location, starting from the entire city and ending with the immediate vicinity, in practice most often communities operating within a limited space related to a localised shared resource	Neighbourhood amenities to improve the quality of life, social integration, limiting or eliminating negative externalities, developing an abandoned area in the immediate vicinity, neighbourhood patrols and self-help, co-housing, Community Land Trust (CLT) etc.
	Communities based on common interests, lifestyle, a common idea	Commons created and used in order to popularise similar interests and lifestyles, also common goods developed by "protest communities", common goods for the needs of specific professional communities	Cultural events, games and activities, joint recreation in the running, Nordic walking groups, environmental actions, urban gardening, etc.

Criterion	Types of goods	Description	Examples
Motivation to create urban commons	To resist threats	Commons created as a reaction to opposing negative externalities, threats related to privatisation, commercialisation of public spaces, threats from other communities	Taking over and managing abandoned areas, protecting places valuable for the natural and cultural heritage, environmental protection, neighbourhood patrols, anti-smog alarms, etc.
	To improve the quality of life	Commons created in order to fill the gaps in the offer of public services, improve the quality of specific aspects of the functioning of the city, district, housing estate or the nearest neighbourhood	Playgrounds, community gardens, collective activities to upgrade the aesthetics of the surroundings, elements of landscape design, etc.
	For the personal development of community members	Commons created in order to develop community members' passions and interests, exchange experience and knowledge, willingness to spend free time together	Cultural events, games and activities, joint recreation in running, Nordic walking groups, environmental actions, urban gardening, etc.

Source: the authors' own study .

On the other hand, in the case of a district or neighbourhood commons, the spatial range of the shared resources expands, and the relations between community members are much looser. Community members usually know each other by sight and much less by name and surname, as is the case in typical neighbourhood communities. While delineating the boundaries of shared resources is still possible – e.g. a housing estate park or the main square of a district – monitoring and controlling who uses such places, and how, is much more complicated than in the case of a typical neighbourhood commons. In the context of district commons, in addition to the presence of users from outside the districts, one should also take into account the decomposition of the neighbourhood community into smaller groups, determined by age (e.g. youth and seniors) or lifestyle (e.g. preferring active and less active forms of spending free time). It can lead to rivalry for space and the potential occurrence of conflicts, e.g. between pedestrians and cyclists, and between mothers with young children and dog owners.

The last group of commons distinguished in terms of their spatial range is the city-wide commons and the idea of the city as a commons itself. In the first case, we can talk about urban shared resources and goods that can be used by all city residents, and to a large extent, by visitors. Examples of such resources include the market square or the main square in the city, city parks, the main shopping street, promenades, riverside boulevards or the city beach, the city landscape, the city panorama, and all other places and objects of a representative character. The city-wide commons also include intangible resources, such as the city's identity,

culture, image or brand. However, it should be clearly stated that all the resources mentioned above can be called commons only when specific urban communities co-create and co-use them for shared, collective benefits within the commoning process. Otherwise, as mentioned earlier, the resources can be called public goods, which are mainly the responsibility of local authorities. At the same time, *the city as a commons* should be treated in the category of ideas and not of specific goods. This is an approach where individual stakeholders in urban development agree to abide by and enforce rules and norms in city co-management.

Urban commons can also be classified based on the type of shared resources. The first division should take into account infrastructure resources, i.e. the system of physical resources created by people for the needs of public consumption [Frischmann 2004, p. 923]. Infrastructure resources in cities are pervasive and varied. They very often take the form of network infrastructure, e.g. water and sewage, energy, transport, and communication infrastructure. These networks are interconnected and, in many cases, interdependent. In practice, infrastructure network resources are provided and maintained by local authorities, and in the context of commons, they may constitute a specific "platform" for their production by urban communities. Infrastructural resources are "partially rival" goods, i.e. they have limited, renewable and shared capacity [Frischmann 2004, p. 951]. In the case of such resources, up to a certain point ("congestion point"), the marginal cost of an additional user is zero, and after that point is crossed, the marginal costs start to increase with each additional user. Therefore, such resources can be called congestible resources [Cornes, Sadler 1996, pp. 272–277].

Another vital type of shared urban resources is environmental resources. Contrary to infrastructure resources, these are natural and often renewable resources, although they are not devoid of infrastructure elements and high human intervention due to their location in cities. In contrast to traditional CPRs, they are used for leisure, recreation, education, and cultural purposes. City dwellers usually do not appropriate these resources for profit. On the other hand, in urban areas, environmental resources are under pressure from city users who want to replace them with other goods and at the same time advocate their privatisation. Combined with increasingly felt climate changes, environmental pressures make urban communities more and more aware of environmental resources as commons and defend them.

Cultural resources are specific shared urban resources. Each city and its individual districts and housing estates are characterised by a unique identity, history, reputation, and image. On the foundation of this heritage, many manifestations of urban culture may be formed and created, such as cultural events, developing an educational offer, discovering and maintaining urban traditions, creating local products and services.

Cultural resources can be supplemented similarly with human resources related to the potential of individual city residents and the entire urban community. Human resources in the commoning process are used in collective action to design innovative solutions and create products and services by people cooperating in co-working and fab-lab spaces. In cities, the commons are networks of

interpersonal collaboration that are not based on market exchange. Timebanks, systemic care for seniors, and on the other hand, the use of knowledge, skills and experience of seniors in educating young people, reduce the risk of older people's social exclusion, and simultaneously preserve the heritage and identity of the place.

The last category of shared resources discussed is economic resources. Hess [2008, pp. 29–31] indicates the existence of the so-called **market commons**. By analogy, it can be said that different local markets, such as the local labour market, can also be regarded as one of the elements of urban commons. In cities, traditional trading places (city markets, market halls), where local manufacturers offer regional products, are often a shared resource of an economic nature and cultural and historical values. All the producers undertake collective actions to maintain and develop such places. Another example is Business Improvement Districts (BIDs), involving the cooperation of owners and tenants of business real estate from a given area to rebuild or increase the economic attractiveness and improve the quality of amenities in the immediate vicinity. Another shared urban resource that can create urban commons is knowledge resources obtained from the continuously increasing amount of data. Increasingly greater possibilities of collecting and processing data, e.g. with the use of spatial information systems (GIS) tools, may, with universal and free access, serve city users in their everyday life and work.

Urban commons can be classified according to their tangible and intangible nature. Examples of tangible common goods in the city are landscape design, woonerfs, outdoor gyms, flower meadows, community gardens, makerspaces and many other goods created, maintained and used by urban communities. Examples of intangible goods include cultural events, educational programmes, and goods such as the city identity and image. However, it should be borne in mind that urban commons are, in many cases, of a very complex nature and contain both a material and an intangible component. For example, collective action as part of a community garden may generate products in the form of vegetables, flowers and fruit, but at the same time, joint work brings educational values or effects related to recreation and spending free time.

If it is true that *There is no commons without commoning* [Bollier 2014], then the critical criteria for the division of urban commons are the types of urban communities and the types of motivations that lead to their establishment and collective efforts. In general, urban communities can rely either on spatial relations – mainly neighbourly ones – or on relations based on shared interests, passions, lifestyle or professed ideas. In communities based on spatial relations, collective actions concentrate in the immediate vicinity or possibly within a district or housing estate. Urban commons have spatial boundaries delineated, and the communities strive to improve the quality of the neighbourhood, eliminate spatial conflicts, and reduce negative externalities. This type of communities may also be interested in implementing solutions in the field of procedures, standards and principles of cohabitation, and protection against adverse effects on real estate markets, in particular solutions such as co-housing and Community Land Trust (CLT). Then, urban communities based on shared interests, passions, and lifestyle will seek

and focus on those shared urban resources that are not necessarily located in the immediate vicinity of the residence but have features that will favour the development of shared passions. For example, people who prefer an active lifestyle will form communities that, in city parks, open green areas, river boulevards and similar places, will create both common goods (e.g. an outdoor gym, jogging path, skate park) and joint training, sports competitions, etc. Compared to communities based on spatial relations, or more specifically neighbourly ones, communities tied to some ideas or connecting people with common interests may be less durable, and the fluctuation of their members may be significant. People dissatisfied with the community's activities, changing tastes or simply giving up due to lack of time and other activities will be prone to leave the community. Communities of this type may also operate in design mode. Depending on the project's more or less satisfactory results, the community may survive and expand, or it may be naturally dissolved. Finally, there may be situations where some members of the community leave for other competing groups or establish such groups themselves.

A criterion similar to that related to the urban community type is the type of premises that underlie the formation of communities. Basically, we can distinguish three types of communities: communities whose existence is motivated by the need to oppose threats, communities that seek to improve the quality of life through collective action, and communities created in response to individual members' personal development needs. According to the above criterion, the division of urban commons seems vital from the point of view of forming management principles and the potential durability and stability of the urban commons. In the first case, related to community activities in response to the threat, it can be assumed that the worse the effects the community members may experience, the greater the level of commitment and determination in action will be. On the other hand, the first failures in a conflict with, for example, a developer, local authorities or another community may cause a decline in involvement, mainly when most of the community activities are undertaken by a leader or a narrow group. It should also be considered that forming a community in response to a threat does not necessarily lead to the emergence of an urban commons. In the course of its activities, the community may conclude that the best solution is to try to take over and privatise the resource, create a club good on its basis or, on the contrary, force local authorities to solve the problems associated with a given shared resource once and for all. Communities whose primary goal is to improve the quality of life in the city, not necessarily directly related to a specific threat, may be more diverse in terms of their members' characteristics and areas and forms of activity. Such communities can work on a project basis, planning and implementing a task in one area, and after its completion, shifting to another field of activity. An excellent example of such a community is local activists who, for example, try to carry out various tasks that improve life in a given district or the entire city in subsequent editions of participatory budgets. Communities of this type may be more attached to the idea of a city as a commons rather than to a specific place or type of shared resource. Associations, foundations, or informal groups operating under such names as *"Fix your city"* (the example of Katowice,

and even covering the entire Upper Silesian agglomeration) take action where they see the most pressing problem or the best chance of achieving their goals.

The final type of motivation discussed here is community members' desire to engage in personal development. In the context of the development of modern cities, so much attention is paid to the issues of creativity, more effective spending of free time, finding a balance between professional and personal development. In that case, it should be expected that communities who perceive shared urban resources as means for pursuing their interests and passions will gain importance. We are talking here, for example, about running and Nordic walking groups, groups of people who study the history of a district or city and make efforts to raise awareness of the cultural heritage and identity of the place, and finally, groups of gardeners or even city farmers or people who treat different types of urban fauna as urban commons.

When considering individual cases of urban commons, in each case an attempt should be made to filter them through the distribution criteria listed in this section. It helps understand the reasons behind the relationship between a shared resource and an urban community. It is also useful for creating solutions helpful in maintaining and ensuring the stable functioning of self-organising communities in the city.

2.3. Tragedy, comedy and drama – the dilemmas of the urban commons

Commons are exposed to problems both at the stage of delivery and use. This is due to their features, i.e. the difficulty in excluding and, on the other hand, rivalry. The originally dominant narrative was the **tragedy of the commons,** described in an evocative manner by Garrett Hardin, which predicted the inevitable degradation of the commons resulting from the unlimited exploitation of what is limited [Hardin 1968]. This pessimistic version was then broken by Carol Rose, who showed that in some cases, additional users of common-pool resources contribute to generating benefits for the whole group, in line with the maxim "the more, the merrier". Thus, next to the "tragedy of the commons", there is also room for the opposite situation, named the **comedy of the commons** [Rose 1986]. Both narratives rely on rational premises, and many years of empirical research have proved the complex nature of the commons, showing in practice that sometimes *tragedy* occurs, and at other times *comedy* arises, or an intermediate state. Elinor Ostrom's entire scientific output proves that people can work together to create, maintain and use common-pool resources. However, many factors and local conditions lead to the success of collective management efforts in some cases, failure in others, and sometimes the results are inconclusive. That is why numerous authors describe the situations faced by people who manage the commons with the common name **the drama of the commons** [Ostrom et al. (eds.) 2002], or tragicomedy [Roberts 1990; Elliot 2001; Daniels 2015], where both negative and positive factors that impact the functioning of the commons can coexist.

In order to discuss the dilemmas of the commons, first the concept of **social dilemmas** should be explained. Simply put, it should be assumed that if there is a situation in which there is a discrepancy between what is best for the individual and what is best for the group, then such a situation can be called a social dilemma. If we work in a group and for its benefit, we can benefit from it. However, someone who is also a group member but does not put enough effort into working for it may also benefit as "free-rider" [Anderies, Janssen 2016, p. 47]. In such a case, the individual's rationality leads to irrational results, from the group's perspective [Ostrom, Gardner, Walker 1994, p. 15]. According to the rational choice theory, the existence of social dilemmas is based on the assumption that everyone will act rationally and their own interests. However, there are many examples in practice of people willingly engaging in projects, without any compulsion [Anderies, Janssen 2016, p. 40].

Table 7. Dilemmas of the commons

Dilemmas of the commons		
Type of dilemma	The tragedy of the commons	The comedy of the commons
Author	Garrett Hardin [1968]	Carol Rose [1986]
Description	– If there is unlimited access to limited renewable resources, they will be depleted. – An individual user will maximise their current profits, ignoring the costs that will come later and will be shared by the entire community. – The costs of operating a common-pool resource are distributed among all community members, and only a few benefit from overexploitation (first come, first served). – The increase in the appropriation by an individual reduces the average level of return for others. If an individual ignores the impact of their level of appropriation on the average level of community appropriation, it results in negative externalities.	– An additional user benefiting individually from the use of the commons, rather than doing so at the group's expense, contributes to generating a net benefit for the whole group. – Those involved at the beginning of the venture bear the greatest costs with little benefit. Only with increasing participation do the economies of scale and the value of a given commons increase. – Participation creates the positive externalities for other participants.
Example	– The exploitation of open-access fisheries, pastures, etc. – Unlimited access to valuable natural or cultural resources.	– A neighbourhood picnic in the park. – Wikipedia

Source: the authors' own study

The dilemmas of the urban commons are not as apparent as they are with traditional commons such as fisheries, pastures and forests. Due to the high population density, the intensity of development, the variety of functions of shared resources and the city's openness to new residents, employees, tourists, new companies, and institutions, the use of shared urban resources involves various types of dilemmas.

The attractiveness of cities and their and power of attraction are demonstrated by the possibility of achieving agglomeration economies. These benefits are all the more significant, the greater the diversity of city users and the higher the intensity of their activity, i.e. the city functions they perform. The most attractive cities are those characterised by vitality and viability [Ravenscroft 2000; Polko 2017]. Bustling squares and promenades, crowded shopping streets and markets, people actively relaxing in city parks, groups of children playing in playgrounds and neighbourhood yards, are a source of benefits for the agglomeration and a manifestation of what Rose called the comedy of the commons. Achieving a high level of agglomeration economies may be difficult, as these benefits take the form of externalities. Thus, the social dilemma in cities may result from users seeking to maximize the agglomeration economies while remaining indifferent to the size of their contribution to the creation of benefits [Fennell 2014, p. 1386]. Striving to achieve agglomeration economies is also associated with the generation of costs that may ultimately lead to the emergence of agglomeration diseconomies which spoil the attractiveness of places or activities carried out in the city. The following exemplify this problem:

– during a festival organised by the local community, most of the participants arrive in their big cars, parking as close as possible to the venue, occupying every free patch of the park;
– on a city beach, many people separate themselves off by setting up beach screens over a vast space, and thus limit sunbathing space, movement and access to water for other users;
– a giant cruise ferry entering the Venetian lagoon takes up a great deal of space and obstructs the city panorama; a view which is valuable for other tourists.

Fennell [2014, p. 1390] describes the users described in the above situations as "space-eating slugs". They want to be the greatest possible beneficiaries of the agglomeration's benefits, very greedily appropriating space and disregarding other users' needs. Such situations in cities are the equivalent of Hardin's tragedy of the commons, which leads to over-exploitation, wear and tear, and literally "trampling down" attractive urban commons.

The opposite situation to the over-exploitation of urban commons is one in which the level of involvement is so low that it prevents the emergence of agglomeration economies at a sufficient level. This situation usually occurs in the early stages of the creation and use of urban commons. Those who engage in the beginning bear the greatest costs while achieving very little or no benefit at all. Only with increasing participation do the economies of scale and agglomeration economies grow, and thus the value of a given commons increases. The problem of insufficient involvement can also be encountered after some time. Organizing

subsequent editions of cultural events by the local community may become increasingly difficult due to the retreat of the project initiators, the exhaustion of the current formula of meetings, etc.

The tragedy of the commons in the city can be caused by something described as **regulatory slippage** by Foster [2013, p. 59]. This occurs when the standards and level of control exercised by local authorities decrease significantly. Foster [2013, p. 60] presents the example of Central Park in New York, which during the financial crisis of the 1970s was an under-invested place and hardly controlled by the city authorities. That led to Central Park becoming dangerous, littered, and prone to hooligan and criminal activity. It was appropriated by certain undesirable user groups (drunkards, graffiti artists, homeless people) and thus was unattractive for residents such as families with children or pensioners. The standards of behaviour and community norms were neither respected nor enforced. The uncoordinated use of public spaces led to conflicts of functions and negative externalities.

A specific feature of the urban commons is the balancing between the comedy of the commons generating the most significant benefits of the agglomeration and the tragedy of the commons associated either with too little user involvement or over-exploitation leading to a reduction of the agglomeration economies. Particular urban commons have a different capacity and the ability to create agglomeration economies [Iaione, De Nictolis 2017, p. 695]. So there is a tension between two opposing forces: scarcity and agglomeration economies.

The part marked with number 1 in Fig. 3 shows a situation in which sufficiently large agglomeration economies are not achieved due to low user activity. Urban spaces are deserted, without events to attract users. The part marked with number 2 symbolises the optimal situation in which the level of consumption of the municipal commons generates the most significant agglomeration economies.
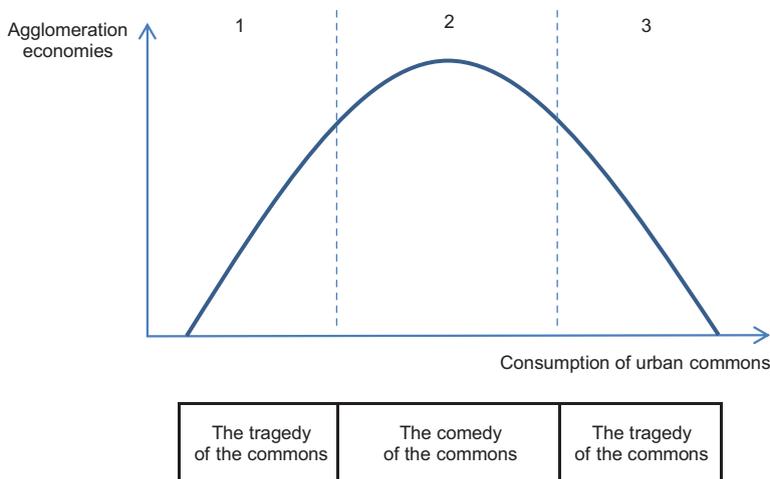
Fig. 3. Dilemmas of the urban commons
Source: the authors' own study.

The correct number of participants, who adhere to the rules and engage in collective action, makes everyone win. The last part, numbered 3, depicts a situation with over-exploitation of shared urban resources and the level of agglomeration economies decreases, until finally, negative consequences may appear, i.e. agglomeration diseconomies. Examples of such a situation include the over-exploited public spaces of tourist cities such as Venice or Barcelona.

Due to the diversity of the urban commons, different types of dilemmas related to their creation, use and co-management may arise at different stages of their functioning. The following categories of dilemmas can be distinguished:

1. **The choice and assurance problem.** This most often appears at the stage of creating urban commons. Urban spaces can potentially perform very different functions, which, with very diversified users, may lead to conflicts of functions, disputes over their choice, and the emergence of a threat related to the appropriation of a given place by one group of users.
2. **The free riders problem.** At the stage of creating, delivering, maintaining and appropriating the urban commons, some people may seem like *free-riders* benefitting from the involvement of other community members. The broader the spatial scope of the commons, the larger the number of community members and the fuzzier their obligations, the greater the occurrence of the free-rider problem should be expected. On the other hand, if the commons is created voluntarily, as a result of the realisation of shared passions and willingness to spend free time with others, then one should expect a high commitment of the majority of community members and a lower risk of the problem of free riders.
3. **The problem of negative externalities of appropriation.** This occurs when an individual ignores the impact of their appropriation level on the average appropriation level of other community members. That may be due to the community members' unawareness or to changing conditions. For example, a drop in travel costs may result in over-exploitation or even "trampling down" of places attractive for tourists. It may also be related to technological changes or changes in users' preferences. An example may be the appearance of quads on forest paths previously used only by walkers and cyclists.

2.4. Collective benefits as an effect of the urban commons

A vital element in the context of the urban commons is the benefits achieved by the urban community from collective actions. In this case, several benefits can be identified, brought about by the relations between individual members of the urban community, including taking collective actions for the common good.

These benefits are presented in Figure 4. Primarily, each owner, tenant, holder, or, generally speaking, user of real estate in the city, enjoys private benefits and bears private costs directly related to the activities on their property (first part from left to right in Fig. 4). These benefits are of different nature, and their

result is: increasing the real estate value, maintaining or improving its standard, gaining respect among neighbours (we are perceived as good neighbours, who take proper care of their property) [Oakerson, Clifton 2017, p. 421]. Private benefits are strengthened or limited due to externalities (positive or negative), which are a side effect of the neighbours' actions. Due to the immediate vicinity, all the neighbours, whether they like it or not, "absorb" such externalities (the central part in Fig. 4). In a small and well-defined community, neighbours can reach an agreement to reduce or eliminate negative externalities and strengthen positive ones. In urban conditions, a small and "closed" community is hardly ever established. Gaining both private and external benefits does not entail collective action by neighbours. However, the awareness of externalities should motivate people to initiate cooperation and achieve effects that can be called collective benefits.
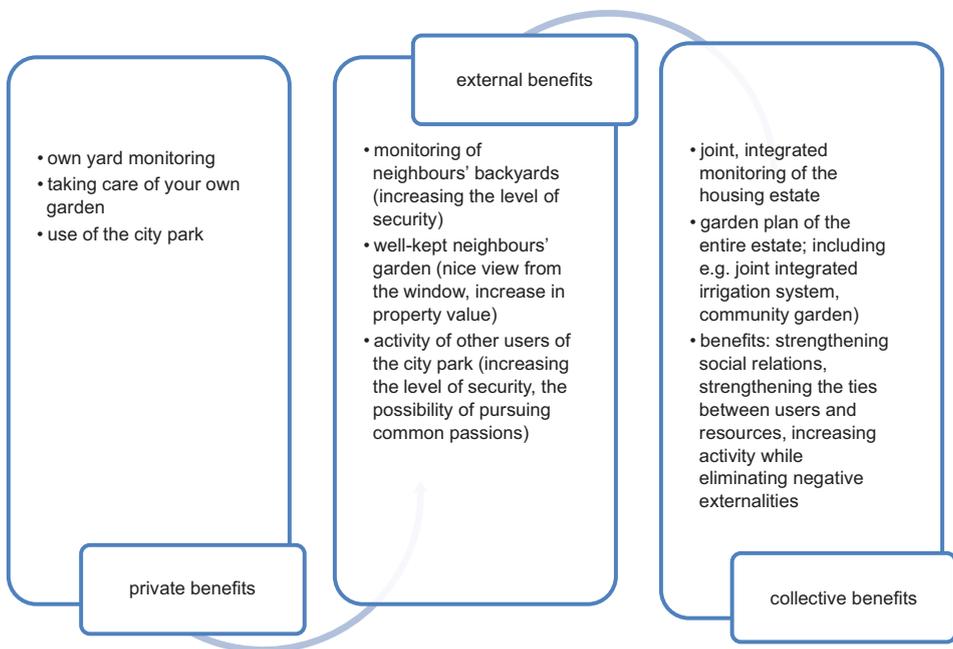
Fig. 4. Collective benefits of the urban commons
Source: the authors' own study

Collective benefits are only achievable when the community members take collective action. Such activities involve the consciously planned and implemented co-creation and co-using of shared resources. The previously indicated private and external benefits were related to individual activities, usually carried out thanks to members' own private resources. When generating collective benefits, community members go beyond their private properties and manage shared resources accessible to all community members. The necessary condition for

generating collective benefits is collaboration. Creating and maintaining a community garden, the integration and joint maintenance of a housing estate monitoring system, organizing events that integrate local communities on a neighbouring promenade – all these activities require collaboration, creating benefits that could not be achieved alone. It should also be borne in mind that collective action brings private benefits and increases the motivation to achieve the previously discussed so-called complementary benefits. Therefore, the beneficiaries of the effects of the collective action may also include individuals who did not engage in cooperation and applied the "free-riding" strategy.

3. Urbanity as a factor influencing the features of the commons

3.1. The phenomenon of urbanity

In the modern world, the importance of the cities' existence seems confirmed and accepted by all in many ways. They are the place of living for more than half of humanity. The process of people moving from the countryside to cities has been going on for centuries and is expected to intensify in many parts of the world[6]. This is due not only to the mechanisation and automation of agricultural activity, which no longer requires as much employment as it used to, but above all to the attractiveness of living in cities. The most valuable civilisational achievements of humanity are located there, the most famous and opinion-forming people – who constitute the cultural and political elites – live there, the wealthiest companies are based in cities, the most prominent events are held there, etc. Cities are the essence of the development of any area whose centre they are. By being an agglomeration of people and activities, not only do they allow most needs to be met and satisfied, but also enable people to obtain information about the existence of unknown goods and services that previously have not been the object of desire. They are the site of the most exciting and complete offer of items and consumption conditions that exists.

At the same time, however, cities are characterised by many inconveniences, mainly due to their small area, such as congestion, noise, exhaust emissions, excess light, or the need for daily, direct contact with many strangers, etc. Also, residing in the artificial world of urban development and infrastructure, where shapes, colours, and sounds constantly attack the senses of urban space users, is often burdensome, though sometimes inspiring. A significant disadvantage of the urban lifestyle may be the loss of pleasure offered by the experience of space, broadly understood, including the sense of freedom, which are often treated as synonymous and perceived as the right to self-define points of reference. Outside the city, in the absence of the constant presence of other people, the possibility of observing them and the need to take them into account disappear. One can and often must have one's own opinion. There is no urban point of support for views and opinions that are only obtained daily, not created (often out of passivity or

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[6]   According to the UN report, 54% of the world's population currently lives in cities and by 2050 it will have reached 66%. The growth will be driven mainly by the urbanisation of Africa and Asia (from 40–48% to 56–64%). World Urbanisation Prospect 2014.

laziness), which are necessary for evaluating things and matters. Realities are recognised in cities through their being given a current meaning and value. Thanks to attracting people and activities, interpersonal relations are constantly developing, evolving along with technological progress, improvements in communication and ecological demands.

To accept the loss of the advantages of space is also to consent to congestion. For many people, this is even a unique advantage of cities where one can always meet someone. Noise and crowds give a physical possibility to sense other people's presence. It is crucial in the post-modern, highly virtualised reality, where sociologists predict a crisis in traditional interpersonal relationships (although the coronavirus pandemic seems to contradict this somewhat). However, the urban social phenomenon is not the relatively perceived high population density, but rather the consent, common in cities, to give up one's freedom of behaviour for the sake of the generally understood common good. Everyone living and staying in urbanised areas is aware of the presence of other people and their rights to the same place as the city, and above all, to its public spaces. The "ours" category in the city becomes a regular pronoun referring to the conditions of use of goods and services. There is no room for "mine". Anyone who wants to glorify privacy and set the limits of individual use must leave the city. In its area, the behaviours of individuals become so obviously components of externalities that hardly anyone is aware of the fact, and probably no one finds that something special. If one tenant listens to music in a tenement house, everyone else hears it. When someone carelessly parks their car outside the designated area, another person will be unable to walk comfortably or park their car at all. Some people's everyday habits become determinants of others' behaviour. This is customary in the city, but consent to such influences is not. That is because consumption is an individual process. Everyone individually satisfies their needs, or at least subjectively perceives the satisfaction of doing so, selfishly assessing the usefulness of goods and services. On the one hand, throughout their lives, city dwellers learn to share space and compromise in the name of peace and good living realities. On the other hand, at least some of them are aware of the necessity to introduce restrictions as a condition for the existence of cities. It has always been like this. If one wants to live in a city, one has to adapt to the rules that define the lifestyle there. Agglomeration economies, including urbanisation, come at a price.

The uniqueness of cities can also be demonstrated by their artificiality, understood primarily in the material context, as a set of unnatural living conditions and undertaking various activities. They are human creations expressing the conviction that humanist reasons are superior to those of nature. City buildings were created using achievements in construction, technology, design, etc., but their general genesis includes the ever-existing belief that what people create will meet their needs better than the works of nature. We are living creatures; we need air, light, water, food, energy resources and other natural goods necessary to survive. However, we still have to satisfy the supra-existential needs. Nature does not offer that in its basic form, but from its resources we can create goods using the driving force of our imagination, cunning and innovation. The proverbial *necessity*,

which is the *mother of invention*, works only in ordinary situations. The most valuable motivating impulses to cross the known boundaries and create new works arise outside the economic context. They are the result of implementing ideas that may lead to the satisfaction of still unrecognised needs. Cities are clusters of initiators and performers of such items and services. In their areas, contrary to villages, there is no need to take the natural conditions into account constantly. So it is easier to release energy and enthusiasm to create goods unrelated to nature. The very buildings in urbanised areas are often an expression of denying the laws of nature (e.g. tall buildings manifesting the victory of human construction over gravity), the logic of communication in nature (e.g. colours used for purposes other than nature: red – warning, yellow – heat, green – safety) or water conditions (e.g. Venice, houses on piles, foundation strengthening techniques).

Cities are also artificial in the areas of life organisation. These are places where it is never dark because the sensors that detect the sunset automatically activate hundreds of lamps. Commercial and service activities set the city's rhythm through the opening hours of shops, restaurants, clubs, and many other services, without even separating in time the urban functions performed in the same area (e.g. the market square). Although big cities never sleep and their 24/7 activity schedule abounds in offers for those who are short on time during regular hours[7], it goes against the laws of nature. It is biologically normal to rest after sunset, during the night, in peace and silence. For many urban activities, however, twilight is the time to start work. Their nature assumes the creation of special conditions and, in the general message of the 24-hour-city concept, it involves intensive use of central places in the city. They are well-connected, rich in market services, safe and usually expensive, which results from the cost of using the properties located there. During abnormal times, cities attract users with more specialised needs and preferences. The cheapest lifestyle involves using the goods and services offered in the daytime, when most recipients use them. Agglomeration economies are then prominent. At other times, extra must be paid for the luxury of consumption. The urban phenomenon in this aspect is that so many people are interested in using urban products between 6 pm and 8 am that the difference is hardly significant. The urban lifestyle takes that into account and fills more time with a 24/7 commercial offer for everyone using city attractions than rural areas.

The eternal advantage of cities is their spontaneity. Cities never stand still in their current state. Although their development dynamics vary and the city's economy goes through development cycles, there is a possibility of a decline or de-urbanisation of their central areas. However, a city that deserves to survive will indeed find a way to solve such problems. Villages depopulate mainly when their inhabitants flee to cities. Cities compete for residents and other users, but apart from extreme situations (war, natural disasters), they do not send them back to

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[7] In 2017, almost 1.4 million people worked as part of the night-time economy in the United Kingdom, generating 6% of GDP. (see: Culture and the night time economy. Supplementary Planning Guidance. Mayor of London. Greater London Authority, Mayor of London, 2017)

agricultural areas. The contemporary urban sprawl processes are primarily driven by the desire to obtain ecologically better living conditions, which remain urban in terms of style, as is the employment of those who live in suburban residences. Extensive suburbs are a relatively new form of urbanisation in Poland, shaped by the development of motorisation and changes in spatial development trends. Cities remain the central places for their inhabitants, where the most important events of cultural, social, economic life etc., take place. All the transformations of the basic system of a county (the city and its surrounding rural areas for which it is the local centre) find their place in shaping urban realities. It is good if these are changes for the better, because they mean the development of the whole, but this is not always the case. One of the most severe problems has always been the lack of jobs for city dwellers. Company closures, no matter the economic motivation that lies behind them, in the social context result in poverty and the decline of urban functions. Rural areas can "store" excess human resources for many years, as they ensure that everyone's existential needs are met by producing food and offering conditions for the organisation of shelter (low-density housing, unoccupied land) and participation in the life of local communities. A city cannot function without income from production, trade or services, because it will not provide conditions for the coexistence of many people in a small area (water supply, sewage, transport, etc.). Instead, it can faster force the activity of its unemployed inhabitants, inspiring entrepreneurship and innovation due to the lack of livelihoods.

The collection of urbanity phenomena may also include the external influence of cities on lifestyle, consumer and ecological behaviour, and the political decisions of regions, states and – in the case of metropolises – the whole world. Democratic models of participation in shaping the realities of life require support for specific actions, and opinions are easiest to obtain in places where people are concentrated. The city dwellers' consent becomes, in many cases, the model of the entire society's will. The penetration of attitudes from cities to towns and further into rural areas is a well-established direction for spreading technical and organisational innovations. Culture, however, is not only an urban creation. Its rural contribution is equally valuable, although its popularisation usually requires urban advertising. Dissemination, financing, modern forms of communication, etc., depend primarily on the needs of city dwellers, who are undoubtedly a more extensive and more affluent group of buyers. It is also easier to enjoy the diversity of the cultural offer while living in the city. Today, there, in the streets and squares, an internet-based discussion on values is expressed, being also an opportunity to confront attitudes and behaviours. City dwellers manifest their will to change, which is an expression of modern civic attitudes.

3.2. The features of cities

Cities are complex settlement units, in the first place always being where people live. Their settlers' predispositions are as old as the social division of labour,

which separated a group of people dealing with manufacturing products that meet the higher needs. Primary hunting and gathering, and later agriculture, focused on satisfying existential needs, and only the increase in its productivity made it possible to produce goods on a larger scale which enrich living conditions. Cities result from the improvement of manufacturing techniques, but their existence became the primary impulse for the development of civilisation. One can risk the assertion that without cities, humanity would remain at the level of glorifying the idea of survival, focusing its efforts on building abundance in quantitative terms rather than increasing the quality of life, the degree of complexity of the activities undertaken or sublime forms of consumption. The vast majority of higher needs and ways of satisfying them arose in urbanised areas because humanity created better conditions for realising the possibilities of changing the existing living conditions there.

The main function of cities, namely exchange, turned out to be the essential development factor. It has been taking place ever since parts of the population started to be employed in non-agricultural professions, enabling them to obtain food and raw materials to produce goods and provide services, and farmers to purchase ready-made products. It is also the most important motivation for organising associations, and without the accompanying comparisons, confrontations, rivalries and possible cooperation, there would be no progress. Cities made meetings of different people possible, sometimes from distant places and different cultures. City markets, as focal points of their territory, in whatever form they existed – from the Greek agora, the Roman forum, medieval market squares at parishes and cathedrals, through modernist 19th-century areas of trade, workers' demonstrations and places of political expression, to contemporary public spaces – enable the exchange of goods, knowledge, ideas, opinions, cultural trends as well as threats and challenges. They are designed to bring together various city users, and this is intended to help develop the best solutions to existing problems.

Cities thus become a special kind of agenda, reflecting the list of current matters to be dealt with for the specific society that is their user. With their features and the decisions of local authorities, they express the current hierarchy of values. They also show the scale of complexity of interpersonal relationships in which it is necessary to constantly strive and act in order to satisfy needs. Cities have always been areas for creating good consumption conditions, places best suited to making satisfactory purchases and consuming goods and services, which was an important motivation attracting city users interested in their offer [Glennie, 1998, Czornik, 2012]. However, the urban lifestyle is more than a selection of characteristic goods and services that express a type of occupation, interest, or propensity to specific behaviour. It is also interference in production, meaning not just contemporary prosumption, which refers to increasing consumer participation in preparing an offer intended for them, but also much more valuable incentives to look for new solutions. Although they are not always directly related to urban realities, they are first presented, popularised and sold in cities. The needs, preferences, cravings, fashions, views and opinions of city users inspire them to act. The customers of their commercial offer are open to new products

and much more willing to get acquainted with something unknown than the conservative inhabitants of rural areas [CBOS, 2013]. They are willing to pay a lot for the possibility of using a good or service that they do not know yet, and therefore it is an attraction for them. City dwellers also have more funds for their purchases, as they produce the most complicated, complex, modern and original products, and are thus distributed at the highest prices. Urban life is the result of a specific openness to creation and consumption. It offers a wealth of material goods and impressions. In today's post-modern world, what matters is the pursuit of new experiences and original sensations. They are vital impulses for many economic behaviours and constitute the attractiveness of, for example, the offer of entertainment events or cultural tourism, where cities play an essential role.

The characteristics of urban development are also a distinguishing feature of urbanity. The space of urbanised areas is organised according to its primary attribute, namely the fact that it is limited. Cities are tight clusters of buildings serving, by definition, broadly understood non-agricultural purposes and the place for the location of facilities that enable life and the realisation of many residential purposes for a large number of people in a small area. The visual distinguishing feature of urbanity is, above all, the height of the buildings, manifesting the victory of human structural achievements over the Earth's gravity, and at the same time, expressing the civilisational hierarchy of urban functions. The highest place is occupied by office buildings, viewpoints with restaurants and clubs, and luxurious apartment buildings. Those are reserved for the city users who can afford to look down on the city and others who use its facilities. Buildings are arranged according to the distribution of the building income, meticulously calculated by developers and sellers on the real estate market, who base the logic of the space margin on it. Their valuations segregate urban spaces into more or less desirable areas, defining those that are subject to investor competition, ones of interest to average wealthy residents, and empty spaces of no importance [Kociatkiewicz, Kostera 1999]. Their specificity is nowadays associated with the category of "non-places", that is, as M. Augé [2010, p. 3] writes: *a space that cannot be defined either as identity, relational, or historical*, thus in practice meaning transit spaces intended for existence, created for movement, flow, variability. They constitute a fragment of the space of modern cities, which is in a way inaccessible to those using the city's offer on a daily basis. In the whole urban space, buildings, public spaces, accessible private areas, and empty spaces, make up the city area's development, and are characteristic for its specific cultural, economic, social, etc., features. Cities often have characteristic objects, symbolic places, which frequently convey in their shape a message about their cultural heritage[8] and contribute to

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[8] In February 2011, the City of Chicago had 349 objects of special importance to the city's landscape, including 296 individual objects selected for architectural, cultural, economic, historical, social and other heritage aspects of the City of Chicago, the State of Illinois, and the United States. Landmarks Ordinance and the Rules and Regulations of the Commission on Chicago Landmarks. City of Chicago, Reprinted May 1, 2014. In March 2008, Kraków had 1,143 objects in the register of historic buildings. Valuation of Krakow's urban space for the purposes of tourism. Institute of Geography and Spatial Management, Jagiellonian University, Kraków 2008, p. 33.

the location's brand building. They are part of the landscape owned by the local community, which offers it to be admired by all city users as a space bonus.

Among the features of the city distinguished in the context of economic considerations on the existence of urban commons, attention should be paid to specific capitals that are associated with cities. Nowadays, many types of such capitals are described, which contribute to the development potential of cities to varying degrees. They are a set of resources that illustrate their investment or tourism competitiveness, provided, however, their proper involvement in appropriate projects. The most noteworthy are:

– **social capital** – which is, according to the definition: "a set of informal values and ethical norms shared by members of a specific group and enabling them effective collaboration" [Sierocińska after Fukuyama, 2011, p. 70], which in the city takes the form of potentials, the carriers of which are mainly city residents, and constitutes one of the resources for the creation of urban communities;

– **financial capital** – this is at the disposal of the municipal authorities, which by law must be involved in municipal projects, and constitutes the financial resources of the city's inhabitants, assuming that they are willing to invest their funds primarily in the city of residence as long as it offers products that allow their needs to be satisfied;

– **relational capital** – defined as the value of all relations with clients and other entities of the environment, as well as all kinds of knowledge obtained through long-term cooperation [Kieżel, Kwiecień 2012, p. 587], which in the city means the richness of contacts between city users, including both official connections of the city authorities representing the local government, and residents who are the leading "carriers" of local features, and other entities operating at various levels of the city offer and related interpersonal relations, both market-wise (companies) and non-market-wise (public institutions);

– **information capital** – containing information resources enabling, above all, efficient management of the city's development, including recognition of residents' and other users' needs in order to obtain the desired position on the competitive market of city offers, participation in the effects of popularizing new socio-cultural trends and the desired economic changes.

They determine the benefits of using urban resources, dictating the possibilities and directions of their effective involvement. They belong to the city features, comprising characteristic elements of urbanity related to the lifestyle and specificity of economic activities carried out in urbanised areas. Not only do the capitals that are associated with cities determine the attractiveness of a city in external relations by influencing the competitiveness of products manufactured as a result of their use, but they also contribute to the analysis of the broadly understood city wealth that its residents have at their disposal. They decide, through elected authorities, but also by direct participation in many social initiatives, about the advantages of municipal capitals. They are their co-creators, as a group of city users who most significantly influence its advantages.

3.3. The economic usefulness of the urban community

According to archaeologists, the first cities were established over 7,000 years ago, and the most traces of non-agricultural activity in human communities can be found in Asia Minor. Humankind initially flocked to carefully selected small areas, primarily to trade in the surpluses of its production. Everyone offered what they had in abundance, expecting in return goods that they did not know how to produce or did not have the raw materials necessary to produce. Initially, the meetings took place occasionally, at fairs and when celebrating important events, and later, taking into account the high costs of transporting goods (resulting from the difficulty of overcoming long distances and many dangers of travel), decisions were made about a new location of production motivated by the market, i.e. moving to the city. There, various non-agricultural activities concentrated, providing goods and services for the entire region. By mutually complementing their production, city dwellers created production communities. They were decisive for satisfying both their own and external needs – reported by the population from neighbouring rural areas. Their cooperation contributed to creating the economic image of a territorial unit, closely related to its civilisational position in the entire settlement network. The technological achievements or the craftsmanship efficiency made some cities centres of production of a given group of goods well known far beyond the borders of empires, kingdoms or principalities.

Along with the popularisation of the social division of labour and the separation of economic activity of the rural and urban population, food became the primary object of exchange in the city markets. For centuries, it was delivered by farmers who came to the market, willing to obtain in return specialised non-agricultural products. Their production was the goal of economic activities fulfilling the external functions of cities. According to the economic base theory, those functions determined the city's supply beyond local resources and constituted an essential factor of urban development. The community of city inhabitants formed the most basic set of clients for rural activities, sometimes presenting exaggerated ambitions and having significant funds to purchase goods. Not only did the essential agricultural goods produced in the region sell in the city, but also motivation arose to supply luxury items, sometimes also colonial ones. Cities were the primary market for food imports, thereby promoting, for example, coffee, tea, chocolate, potatoes and tomatoes in Europe. This is still the case today because modern cities do not produce basic food products, and although bread is baked within cities, it is made from delivered grain. The same applies to milk, meat, fruit, vegetables, and similar agricultural products, whose processing is sometimes the occupation of city dwellers but is based on rural raw materials. The countryside feeds the cities and makes money from this.

At the same time, also for centuries in rural areas there was small-scale but original production of other goods, complementing daily activities. The seasonality of agricultural activities favoured this production following the seasons, with the regular changes in weather conditions and the growing and breeding cycles determining the breaks. Free time was devoted to home craftsmanship,

often connected to religion, traditions and customs. These works included an immense contribution from the local culture. They were not technological accomplishments, although they sometimes reflected interesting ideas, becoming symbols of the village and essential elements of its social image. As a by-product of agriculture, they needed a market other than the rural one, and cities provided a place and circumstances to sell or exchange such products. That is how goods were obtained that were not produced in the area of one's own residence and with a different cultural contribution, including unknown production technology, original raw materials or less common uses. The city community has always received craftwork production from the inhabitants of rural areas. That creativity was not only curiosity but also an object of admiration due to the considerable contribution of manual work (e.g. embroidery, lace). To this day, the originality of country crafts is highly valued, although they often use machines and devices made in cities.

Cities have always been large clusters of people who constitute the wealthiest group of consumers of all industries. The purpose of their existence is the broadly understood satisfaction of, firstly, residents' needs, and then those of all other users who, while purchasing goods and services, contribute to the growth of urban wealth. In the past, the essential city offer focused on providing conditions for commercial transactions and the implementation of collective military (defence) goals. Today, clusters of city dwellers gain and consolidate their economic importance in close connection with the mass educational, cultural and entertainment offer, as well as the individual development opportunities available for more ambitious acquirers of urban products. Their competitive position on the consumption scale is already high compared to rural areas because cities define fashion trends and dictate the prices of goods and services. City dwellers create the most extensive consumer communities for various goods, determining the economic sense of their production. Their purchasing decisions justify the development of inventions, thus improving the functioning of devices, increasing the variety of variants or varieties of products, etc. They also spend vast amounts of money on shopping, emphasizing their constant pursuit of new products and currently promoted items.

Simultaneously, cities are also places where the best opportunities for consumption accumulate. They offer spaces for facilities and activities which serve various forms of need satisfaction. The wealth of the proposals results from the significant area of urban development and the generally understood spatial development, which in turn results from investments in infrastructure and introducing principles for coordinating the goals of various groups of city users. The constant improvement of the urban life organisation, including the work of municipal services, translates into the many benefits of urbanisation. These, in turn, are advantages that attract both goods and services providers and their consumers. They are looking for such places in cities whose features will be consumption supplement, enriching it enough to make an effort to visit this places. Florida [2008] writes that place is a crucial element in creating people's happiness, one of the four categories (apart from private life, work and financial situation) that

make up this concept. The degree of satisfaction from meeting a need depends on the features of the consumed product as well as the environment. Contemporary consumption temples, such as shopping centres, entertainment and cultural centres, restaurants, wine bars, cafés, supermarkets, etc., are a feature of post-modern cities and arose due to the transformation mainly caused by the phenomenon of globalisation [Thorns, 2002]. Their existence in cities proves that they are also places in which exist communities that create, use, and accept the artificial world of consumption. This results from building cities according to needs and not according to the possibilities offered by the characteristics of the natural environment. Due to modern technologies and marketing achievements, consumers can get exactly what they want. City dwellers approve of this state of detachment from the geographical reality so that urban spaces, especially in metropolises, become similar to each other, no matter in which region or continent they are located. Globalisation has encouraged universal consumption patterns, and cities have adopted them. Urban consumer communities include not just the metropolitan class members who are open to spatial transformations (which are distinguished, among other things, by the lack of rootedness and by universal consumption behaviour), but also all city dwellers who are delighted with the anthropogenic origin of the conditions in which they function.

Their presence is yet another addition to the attractiveness of urban consumption. Such consumption is enriched with the awareness of the existence of co-consumers, people who watch, admire, evaluate or even envy the possibility of satisfying a need. That may be more than a strong motivation for specific consumer behaviours. It can also determine the individual's decision regarding their involvement in a social group activity that offers access to the desired good or consumption conditions. There are many items of consumption whose production and consumption make sense and are economically rational simply because they serve a group of people. Shared consumption is much easier in cities because many places offer the possibility of contact with many people. The activity of urban communities is motivated by the possibilities of collective consumption. The presence of many people interested in satisfying the same needs encourages integration and is an argument for those who doubt the sense of joint activity. A large group attracts people with its scale and power of influence. Not only does it encourage people to join in and get involved, but it also promotes consumption patterns. When users constantly observe each other in urban proximity, even just one slogan thrown by change leaders can effectively mobilise dozens of people to specific behaviours (e.g. neighbours from the same yard). That most often applies to common goods created on the basis of a socially favoured idea. However, it can also encourage market behaviour (e.g. individual purchase of house lighting during the holiday season, which translates into entire streets or districts being decorated and strongly influences the pre-Christmas mood enjoyed together).

Most often, residents unite in their efforts to improve living conditions and protect the location's existing benefits. If they lack anything in their place of residence or its immediate vicinity, they are willing to consider the community possibility of producing goods that fulfil their needs. Their involvement may originate

from both selfish consumption motivations and more ambitious social motives related to the professed views, adopted principles, accepted ideals, etc. Any idea with followers can become a goal for action. Urban communities are characterised by a wealth of consumption ideas that are based not only on a shared place but more often on exact needs and preferences. Professional diversity, different social and cultural backgrounds, and multiple lifestyles are among the features of each city and increase with the growth in the number of its inhabitants. The top of this hierarchy is occupied by metropolises, attracting thousands of people worldwide and creating conditions for hundreds of integration projects. Many of them are short-lived, motivated by achieving a single goal that unites community members, but there are urban ideas that the city's users hold for many years and which cross its borders, spreading to other regions and countries.

As a community of people living in a small area, city inhabitants have always been open to newcomers. In order to survive, cities must acquire external resources, which means that they constantly accept new users of their spaces, institutions, devices, events, etc. The inflow of "fresh blood" to the city's bloodstream, improving the "blood supply" of the entire system, is a prerequisite for maintaining vitality and development dynamics. That applies not just to demographic characteristics that stem from the traditionally lower birth rate in urban areas, but above all to cultural resources, inspiration for change and pressure to improve, brought mainly by young newcomers motivated by the desire to pursue a professional and social career, to succeed in promoting their advantages, or simply to make money. All these goals translate into the features of urban communities that city residents can create. Urban communities arise and dissolve as conditions change and they are no longer a necessary rung in the pursuit of success. Urban communities are sensitive to the cyclical nature of the current civilisational orientation. The motivations for their creation are sometimes different from the fashion promoted by model creators and celebrities, and from integration inspirations based on the economic advantages of cooperation to obtain items of consumption. Such communities are created by people interested in gaining discreet support to achieve individual goals, primarily young visitors (e.g. Warsaw "jars" – newcomers who bring food products from their family homes to the city in glass jars – symbols of their rural origin). The willingness to cooperate usually ensues not so much from the awareness of alienation or lack of contact with people in the same social situation, but from the better use of the social and economic aspects of urbanisation benefits. The objective is individual satisfaction and enjoyment, which outweighs the community costs incurred.

Cities have always taught, stimulated creativity, inspired artistic creativity, and developed the ability to use goods and services. That has not changed despite new forms of communication, including the development of passenger and goods transport and the intensification of virtual relations. Cities are communities of people open to civilisation innovations because they are keen on novelties and interested in exchange. They do not deny attitudes and behaviours which follow tradition and historical conditions but at the same time they observe and appreciate different proposals. The post-modern striving for modernisation argued that

the new is usually better and the related promotion of fast-paced changes serving the constant search for opportunities to better satisfy needs [Bauman 2004, Szahaj 2004]. This attitude quickly penetrates the city dwellers' views. They are prone to looking for new sources of income and enthusiastically pursuing higher education, and this results in the adoption of various strategies for attracting inventors, explorers and innovators. Communities of city residents are willing to experiment to improve their living conditions, enrich them with new goods and services, and distinguish them with the originality of offers.

All these motivations to build urban communities determine the city dwellers' inclinations to integrate (Table 8). They are justified by the features of managing urban resources, and even if the strength of their impact changes with the development of civilisation, the specificity of living in urbanised areas continually encourages integration and cooperation.

Table 8. Urban motivations to create communities

Urban motivation	Feature of the urban community
The need to have many different goods and services	supplementing production
Acquisition of rural production, especially food	the most essential set of clients for rural activities
Acquisition of original products	recipients of folklore production
satisfying many different needs	the largest groups of consumers
Satisfying needs in the most attractive way possible	people who create, use and accept the artificial world of consumption
Access to a collective offer (usually public), not available individually	possibilities of realising collective consumption
The multiplicity and variety of views and values contained in available goods and services	the wealth of consumer ideas that constitute them
Striving to have the newest, most expensive goods and services that best meet needs, etc.	sensitivity to the cyclical nature of the current civilisation orientation
Keeping up with the development of civilisation	openness to civilisational innovations

Source: the authors' own study

4. Local governance as a response to the dilemmas of the urban commons

4.1. The idea of urban resources governance

A city has been so far demonstrated to be a subjectively and systemically complex territory. A city's resources, especially its urban commons or local public goods, can be the field for competition, but also sharing. Local governments find the latter one of the many resources which can become a pivot for shaping the city's attractiveness and enhancing its competitive advantage in relation to other cities. Nevertheless, given the situation known as regulatory slippage, keeping some resources may result in lowering the city's attractiveness, and an intervention may be required. Therefore, this intervention specificity ought to be considered. Responsibility for local public goods lies with the authorities. This is the primary public resources management path (let us assume this is the first path). Whenever the authorities are incapable of taking any action, regardless of the reason, public resources may be privatised (the second path which is commonly used, e.g. in New Public Management rhetoric) as well as become a resource that can be (co-)hosted by urban communities or, to put it simply, social groups interested in the regeneration of resources. The privatization of urban resources is thus considered a separate issue; the main focus is placed on the emergence and management of the urban commons. It is assumed that *the emergence of user-managed, but not user-owned, resources represents a third way that cities have allowed urban common pool resources to be part of the governance process* (adapted from Foster and Iaione 2016, p. 324).

The **local governance** concept is rooted in the widespread belief that the setting up and/or implementation of a local policy comprises a set of activities in a multi-agency environment. This complexity of challenges faced by local authorities prods the search for new ways of dealing with the challenges and prompts thorough analyses of the available resources that are worth utilising. The resources pool does not only include financial ones. More and more often, this also consists of people's body of knowledge, as well as their time and willingness to engage in community life. Therefore, multi-agency requires work the objective of which is policy development and implementation, through specific undertakings included the process of an in-depth search for common values and desired changes, as well as conflict handling procedures. *Local governance is* thus shaped in the axiological compatibility environment, superior to the particular interests and benefits; therefore, the search for values that result in collective benefits

and expected changes in cities requires the institutional maturity of the urban system.

The institutional dimension of maturity means rules and principles which have been jointly developed and recognised by the vast majority; these do not have to be presented in the form of legal norms and regulations, although this form undoubtedly brings advantages. In practice, institutionalization often results from the bottom-up approach, initiated by groups and milieus which, for example, create a city discussion forum, pro-city profiles in social media; as well as by organised milieus and groups interested in advocating on behalf of housing estates. The latter set out specific rules or adopt ones developed by local authorities. Participatory budgets and local initiatives serve as examples of well-known institutional cooperation frameworks which also enjoy clear legal status. What is of particular importance is that the activity of such city entities is permanent, not accidental. Shaping relations, in the long run, eliminate the particularisms indicated above, strengthens trust, and develops relational capital between the stakeholders. Individual contacts, however valuable, are important; still, a continuous and ongoing process is the centre. The process involves:

– the interpenetration of different logics of activity coordination, i.e. market-based logic, logics of the hierarchical public sector's activities and network logic, and

– the utilisation of various types of structures, including multi-level and multi-sector partnerships, diverse social involvement and network forms, within formal organizations and informal groups;

Stakeholders, including city politicians, managers and administrators, and entities representing the social sector, are provided with an opportunity to develop and implement an "idea for the city" jointly.

Williamson [1995] pointed out a basic argument highlighting the value of such an approach. Williamson argued that decisions made by cooperating entities bring about the costs and time reduction necessary to launch and implement specific projects. The sense of cooperation between people and between organisations may be defined as a process that brings added value to partners, expressed as an additional effect unattainable in the long term without partnership relations. This value may both arise from activities to launch and implement the project but also from the subsequent activities-development phase. Therefore, reciprocity, or in a broader sense – relational capital, and the aforementioned transaction costs, may be regarded as the basic categories explaining the local governance process in terms of institutional economics. The economic benefits derived from cooperation are even more remarkable if the transaction costs related to cooperation are lower and the reciprocity level is higher; the latter are achieved with the synergy between activities and contacts. The added value of cooperation is not only revealed when joint activities are launched, as this value is often postponed and is thus attached to the potential activities and benefits thereof. Therefore, the contacts and relationships developed as part of partnership activities may give rise to future reductions in transaction costs and lead to the launch of new initiatives launch, and even more comprehensive commitment

to urban common goods or local public goods, improving their attractiveness and enhancing their usefulness.

For an outline of a local governance institutional framework, it is worth defining the process scope for joint management of the urban commons. Local governance should be understood as two complementary but also independently acting dimensions of cooperation. Therefore, we emphasise a diversified specificity for collaboration between public sector entities and communities (more broadly – the civic sector). These modes / dimensions are related to joint activities which, by their very nature, may be targeted at:

– a conceptual process, or
– an implementation process, or
– a conceptual and implementation process.

Therefore, this is specifically local governance aiming at setting up joint ideas and policies as well as implementing actions directly involving municipal commons or local public resources. According to the adopted logics, cooperation may encompass the implementation and evaluation process of projects attractive from the point of view of various entities; in such cases, local governance should be defined as **mode of managing actions and projects (mode B)**, whereas **ideation and policymaking mode (mode A)** is a process in which those interested parties, i.e. stakeholders, express their opinions, present arguments, share knowledge about the proposed change which is the subject of local authorities' decisions, thus influencing the decision, and often participating in the decision-making process.

If, therefore, local governance is regarded as a process in which many local stakeholders are engaged in politics and public resources management, there are at least four possible model scenarios. First, governance consists of ongoing processes which reveal and engage the opinion-forming activities of various milieus. As a consequence, lobbying for certain solutions occurs. Even though many treat this as a governance process, care should be exercised, because this is, to a certain degree, participation in the process of change co-creation, a step for political dialogue or a preliminary contribution towards the policy idea formulation for the management of public resources. Critics argue that this idea of public consultation with regard to strategic documents has causative mechanisms that are too weak. The governance essence is, therefore, a process rather than "occasional" cooperation, as the strength of the process is manifested in solutions which result from a joint search for knowledge and skills and the common use of the competence pool acquired this way [Barczyk, Ochojski 2014, p. 36]. The second model assumes that the active participation of various milieus in the analytical activities and the stage of formulating prospective judgments is of greater relevance, as it refers to the co-creation of changes in close relation to knowledge exchange. Responsibility for co-decision thus arises. Undoubtedly, this format engages many stakeholders; local governance (mode A) is expressed by the will to change and is demonstrated in the plans and strategic documents created as a result of the social decision-making process related to public resources. The third scenario shifts the activity towards implementation of public resources governance (mode B);

thus, specific solutions include arrangements between, for example, the civic sector stakeholders and local authorities. This model approach can be regarded as a practical emanation of urban commoning, which results in the management of the public resources owned by the public authorities. The emergence and development of urban commons offer the city authorities a chance to rejuvenate the resources the authorities are responsible for. The last model comprises the ideas contained in the second and third model – local governance (mode A and B) translates into the ideation, preparation of joint activities and consistent management processes with regard to local urban goods.

Finally, the idea of knowledge and learning is worth paying attention to when thinking about the implementation of local governance ideas in local government. Since governance may apply to both administrative and decision-making processes as well as services provided by operators, thus, for a municipal government we can identify a local governance process focused on improving the city's operation and development processes both in the internal context of the administrative structure and in the external context (Fig. 5).

Local governance	
The modification option within the municipal organisation (administrative and political structures)	**The community and partnership ties creation option**
Enhancement of the effectiveness and efficiency of public entities which manage public resources	Partnership through the co-creation of the public sector's mission
Modernisation of the commune's organisational, financial and accounting structure	Partnership through the activation of co-implementation and coordination mechanisms, other than hierarchical mechanisms
Modernisation of the incentive structure within the employee – employer relationship	Civic participation, the integration of networks and local communities
The streamlining of communication processes streamlining and the culture of teamwork development	Creation of a competitive market offer for local products or the revitalisation/ regeneration of public resources
...	...

Fig. 5. Local governance – internal (organisational learning) and external (public resources management) option
Source: the authors' own study.

The first option mainly concerns creating new activities, procedures, forms of organisational learning, and building administrative foundations for managing local public goods which result from cooperation with other entities. On the

other hand, the external context includes the modernisation of the service offer, the vitality and functionality of the offer in the conditions formed by the joint restoration of degraded resources or the co-creation of new resources and the development of the available offer, based on the resources.

4.2. The development of the urban commons – the challenges of local governance

The search for a justification for implementing the co-governance and co-management philosophy of local development has to consider the many types of public benefits shared by the entities involved. The most frequently indicated include:
– new ways of dealing with limited financial and human resources,
– the support of new solutions for traditional governance forms in public resources management (the so-called management patchwork) and
– an entrepreneurial approach to organising local services, which ensures the higher attractiveness and efficiency of services through the co-production of services mechanisms and the co-creation of new ones.

All of the above-mentioned public benefits are of particular value when developing urban commons. The previously mentioned phenomenon of regulatory slippage entails the necessity of searching for new human or financial resources, which in turn provides an excellent opportunity to co-create new community resources and incentives to support local authorities in the management of urban commons and local public resources. This kind of solution can be indicated as an example of top-down actions whereby the authorities, having noticed problems in given resource maintenance at a certain quality level, delegate the resource maintenance and thus sustain its certain public/community functions. The transfer of resources to the common-pool resources so that communities take care of them requires the will to engage a specific community and to develop the process of commoning. Thus, local authorities' decisions often lead to financial or in-kind support for communities. The local government is the initiator of activities and at the same time prospers from opportunities to strike up cooperation in co-management. If, however, the transferred public resource does not have a strictly defined purpose (function), it can be subject to co-governance and decision-making based on the cooperation between the community and the local authorities.

The formation of bottom-up initiatives, often of a neighbourly nature, or initiatives that make the community the centre of interest (e.g. active leisure aficionados) is yet another situation. The bottom-up initiatives are able to create an offer with regard to local resources and services while pursuing their goals. Bottom-up initiatives are a good complement to the public activity of local governments, as they respond to the collective needs of local communities to the fullest extent. Also, in this case, it is justified to offer the support of local government milieus – in-kind/financial support, as well as formal and legal support, at the stage of

shaping the idea of urban property. Co-management is done through resource sharing, which is requested by certain communities interested in urban commons creation. As in the previous situation, the community becomes a part of the decision-making process, co-deciding on the nature of the given area development.

Finally, the latter argument makes it possible for us to believe that the emphasised entrepreneurial approach in both modes of local governance involve much more than restoring resources or revitalisation. This mainly consists in searching for new forms of a service organisation or new offers which can be implemented as urban commons (e.g. a community garden with a cafe for people who need social inclusion). Entrepreneurial local governance is, therefore, nothing more than a search for new opportunities and opening up to the possibilities to acquire new resources or to use combinations of thereof in a way that produces collective benefits. This particular example of the multi-stakeholder approach to coordinate processes means shifting the focus from "power over" to "power to"; it includes the element of entrepreneurship manifested in new knowledge, in knowledge about opportunities which can be utilised to find change factors/opportunities for changes. In this sense, governance can be described as the process of entrepreneurial resource configuration and the search for development opportunities for urban commons.

The latter rationale for local authorities developing local governance practices leads us to consider identifying a set of assumptions that will help determine the right direction for urban commons local governance institutionalisation. A literature reference [Hirst 2000; Cochrane 2007; Dragoman et al. 2013] leads to the assumption that *local governance* should meet three conditions: easement, durability and usability. Therefore, public resources governance should be treated as a concept in which various stakeholders are involved. This concept:
– is auxiliary in its relation to the urban policy addressees, by considering the full spectrum of values and interests
– initiates and supports permanent, positive social, economic, spatial and environmental changes in cities,
– it enables the co-design of public resources and services.

Local governance auxiliary nature should be understood as the ability to employ cooperation instruments, which are never an end in themselves, as the instruments support gaining collective benefits, the recognition of expectations and reasons, as well as the opportunity to create a dialogue and learn about the technical sphere of urban commons or local public goods shaping. The search for sustainable and positive changes and their initiation is the precondition for the activity evaluation; this condition may (but does not have to) mean low economic efficiency in the short term. In the long run, the cost-benefit analysis in all these dimensions should be in favour of benefits, especially collective ones. This also applies to positive externalities and a reduction of negative externalities. Finally, the co-design of public resources and services is nowadays regarded as a two-way issue; on the one hand, it actively seeks new values, and on the other responds to the state's (local government's) changing role in services provision. In the first case, the commoning process and creation of new services that support common goods are recognised to have the potential to create various types of values. Such

values as a lively public sphere, the aesthetics and quality of public spaces, individual well-being, cultural vitality and cultural heritage are indicated as examples. In the second case; the state – automatically, in a sense – ceases to be an organiser of the services provided to residents. The state is rather the services-creating entity, together with the people who use the services. It is not about society replacing the state's role, or about teaching doctors how to do their job, for example, but rather about users' feedback, involvement in the service preparation, organization and provision. This school of thought has developed as public service management and has gained increasing attention among scholars and practitioners.

Those who criticise public resources' management in terms of the local governance conditions point out that the perspective of the easement of action is debatable; they question whether the new understanding of the nature of control, i.e. the commoning of control, is supportive of local action, or perhaps it contributes to the diffusion of responsibility. How to guarantee the responsibility of communities for the development of urban commons? This question is justified because it is not strictly the control process that is at stake, but rather the easement of actions. However, because of the funds allocated in co-management processes, the easement is lost; thus, it is rather a question of who is responsible for a possible failure that comes to the forefront. There are concerns about the authorities' economic, institutional and political responsibility for the cities' own tasks. For example, in the legal dimension, the authority does not actually have a co-responsible partner in the face of failure resulting from the given resources local governance (mode A). If a city park, developed as urban commons, becomes a dangerous place and someone's life may be put at risk there, who will bear the legal and political consequences?

It can be seen that the complexity of local governance definitions and the multidimensionality of the implementation practice lead us to consider public resources management outside a single, recognised model. This should be put in the local context. Undoubtedly, the challenges faced by local authorities are complex and unique on the scale of a region or continent. New Zealand's local government communities operate differently; there, the participatory process is a completely natural form of the community' activity. Countries with a low potential for bottom-up practices or a lower level of social capital have their specificity. What works in the centre of the Lyon metropolitan area, e.g. a social playground for children, does not give rise to a successful public resources' management in the peripheries, given their low safety level. This divergence should force us to look for individualised solutions, to identify new challenge-coping techniques, to apply "tailor-made" solutions in contrast to universal actions targeted at urban commons or local public goods. Community gardens, the famous examples of France or Northern Ireland, may not work out as an institutionalised form of natural resources management in Polish cities; this is related to the abundance of other community types created by the owners of allotment gardens. Yes, we have examples of community gardens in many Polish cities, yet still not as numerous or popular as allotment gardens; the tradition of the latter dates back to the 20th century in Poland.

4.3. From the urban commons to transformative governance and territorial development

Until now, the processes of change and activities for local resources management have been indicated as an option complementing the actions of local authorities related to individual urban commons. Local governance has been indicated as a possible attempt to restore the life of degraded spaces through its development. The initiative may emerge both in the bottom-up and top-down approaches. We have also listed community activities targeted at the development of neighbourhood initiatives which the local authorities saw as fitting with the functional or spatial idea. Finally, urban commons may be indicated as an attempt to co-decide on the shape and nature of services, and on the implementation of pilot projects – successful projects could be upscaled.

So far, a model has been assumed – a single community(s) developing urban common goods. What if we have numerous examples of activity associated with the commons in one city? Furthermore, is it possible that new ones may emerge in a longer-term perspective, taking advantage of the popularity and availability of benefits that can be individually and collectively obtained? And what if functional areas or metropolises become interaction arenas for communities acting on more prominent spaces, and there are larger groups of those potentially interested in using commons? Such a situation may lead to several possible scenarios.

The first of these scenarios, which is the least desirable for city authorities, is the one in which:
– there are ongoing attempts to appropriate the commons by rival communities,
– there is a predominant process of mutual benefits appropriation, for example, related to the availability of public resources that the members of many communities want to use at the same time,
– the free-rider problem aggravates, or
– tendencies favouring competition for resources develop, threatening the idea of local governance.
   The second scenario may produce the most desirable situation:
– universal co-habitation of communities and respect for collective benefits generated by individual communities,
– mutual support in the commoning process, in terms of tangible resources (work, infrastructural elements, etc.) and intangible resources (e.g. knowledge),
– shaping communities' partner relations by contacts with other communities outside their area.
   Finally, the third possible scenario involves temporary conflicts and various forms of cooperation associated with urban commons intermingling in a given territory. Additionally, these communities may support each other to some extent (e.g. in a joint application for financial resources), but nevertheless there will be competition for some resources. The communities will seek opportunities to

strengthen their own collective benefits (e.g. by introducing regulations designed to limit the availability of the urban commons to community members only).

Each of these situations may require local authorities to play different roles and perhaps, if they are strong enough, for communities to play varied roles too. Each of the scenarios needs certain roles to be clearly defined: those of a coordinator and institutional mediator, a transformation processes leader, and a facilitator.

The role of a coordinator is understood as a kind of supervisor, a host of public resources and, at the same time, a subject of authority which, by the implementation of the statutory mission, should limit spatial conflicts and foster the establishment of the institutional framework for shaping the urban commons. In Bologna, in cooperation with the communities, the city has undertaken the task of establishing rules and regulations for the emergence and development of urban commons. Not only are the rules and regulations important in this case, but so is the entire process of the so-called institutional work, a concept described by Lawrence et al. [2013]. This denotes three types of activities: political, technical and cultural. Political activities encompass the recruitment of relevant stakeholders in order to form coalitions and networks that facilitate practice-focus support. The assignment of roles and responsibilities can contribute towards creating the necessary predispositions for joint action; it is done by establishing appropriate institutional and procedural arrangements. The technical activity allows other entities to acquire knowledge and skills in the implementation of desired practices. These activities support governance implementation by, inter alia, creating accepted standards. Finally, cultural activities are the last and most difficult practice; these should constitute the foundation for persuading the largest possible group of communities to accept a conflict-free city with no competition over public resources and collective benefits. The long-term task of this practice is aimed at co-creating the urban tissue that makes it possible to attain a common understanding of what is in everyone's interest and why. Therefore, whenever activities enabling the co-development of positive urban commons do not require intervention, constant maintenance of the good spirit of the place (*genius loci*) is important – this creates the place identity and shows the lasting benefits of the changes brought about by the development of the urban commons. If, for example, knowledge-sharing and supportive urban agriculture commons are considered as something more than an example of good management of public resources, these can be regarded as a pathway for transformational change. This can be regarded as community orientation, which may perhaps trigger more extensive social group orientation towards the community considering responsibility for the natural environment and ecological processes. Ng H. [2020, p. 1426] develops this theme, pointing out the transformational possibilities of cities, which are due to individual and community interactions within the scope of, e.g. ecological commons.

Although the city authorities are not assigned the role of researchers of community behaviour, as leaders of transformational processes they can and should create conditions in which individuals and communities meet, learn and act. In

practice, this means ensuring support for the emergence of multiple sources of nested leadership, community leaders, self-organisation, and learning and experimenting with regard to forms and resources. Thus the authorities, together with the represented communities representing the milieus, are oriented towards the culture of change creation (cultural transformation) and mutual learning. This is undoubtedly the approach closest to local entrepreneurial governance.

The last role is the role of a facilitator, an entity that leads and stimulates the communities and social milieus to create new urban commons. This is also the "guardian" of institutional norms, whose task is to get periodically involved in the shaping of institutional norms. Each of these scenarios offers room for joint decision making and implementation. The differences relate to stages and the local contexts.

Commoning developing activities, leading to the creation and development of urban commons, in the local governance spirit, undoubtedly require triggering different types of mechanisms at different stages. The most common mechanisms are participation, network and hybrid.

The participatory mechanism makes it possible to develop the decision-making skills of local authorities seeking information about the communities' expectations and to develop this co-governance aspect in order to acquire knowledge about the direction of these changes. Participation in the case of the urban commons may refer to the identification of challenges that are important for the city, challenges worth meeting when the communities' knowledge is utilised. Participation also means communities' involvement in advisory and informative capacity at the decision-making stage, when local authorities propose new solutions in districts, e.g. revitalization or the creation of new urban commons or local public goods.

In the case of the network mechanism, a broader spectrum of contacts and knowledge can be expected; owing to the network nature, this mechanism may increase the learning and acquisition of new knowledge effects. As already indicated, local governance is a multi-stakeholder process that may involve different decision-making levels. Communities associating local milieus in a given country or in international agreements can partner in the establishment of supra-local norms and standards in order to facilitate, for example, the development of cross-border relations in single-culture areas. Moreover, the local communities' activity exercised through initiatives can be strengthened by access to the knowledge, practices and skills of other communities worldwide that have dealt with similar types of commons.

The hybrid mechanism of coordinating activities refers to a combination of implementation and realisations of activities in the community and local government dimensions; owing to the resources and competencies at the various milieus' disposal, these may be adjusted in time and space. This mechanism requires a constant information supply and, just like the participatory and network mechanisms, a good institutional basis.

Therefore, several model situations have been indicated, along with specific roles assigned to local authorities. In practice, local governance fits nicely into

the debate on the territorial development possibilities as it offers a chance to obtain an answer to the question – how to control success jointly if the task is to program change processes for cities or functional urban areas. Of course, always the nature and type of entities' cooperation is shaped by the game of interests between individual stakeholders and communities involved in the commoning process. Therefore, bearing in mind the complexity of milieus and the multitude of stakeholders' strategic stakes, an active approach to the collective acquisition and strengthening of knowledge is necessary to make decisions and implement solutions for better realisation of the communities' and other city users' needs. On the one hand, this will determine new resource management mechanisms based on institutional mechanisms; in consequence, local governance will relate to the impact on (decisions about) the resource form and content. On the other hand, the long-term effects and their significance for the perception and development of social attitudes in cities, including attitudes resulting in the transformative dimension of managing city resources, is worth considering as a more important perspective.

Seeing different components of commoning is important for co-governance and governance. In accordance with the adopted assumptions, there is resource sharing, users' cooperation and resource pooling, which all lead to collective benefits unattainable without a community, and to resource sharing and time saving. For each of the commoning components, governance, understood as the institutional format of decision-making in urban structures, is an important determinant of combining inputs and obtaining results. Resource sharing requires clear rules but also strengthens the cooperation basis within a specific functional scope. Although the method of combining resources and forms of cooperation are usually determined by the community itself, there may be activities facilitating this element of development through mutual learning from other communities or the acquisition of previously developed rules and knowledge codified by the city as a leader (*vide city as a commons*). Thus, this relationship arises between a community and a self-government, or between communities, and results from experience. Finally, in the commoning process, obtaining collective benefits is considered a kind of cause-and-effect relationship. Thus, if resource sharing or collaboration results in proper commitment within the local governance scope, the process which reveals collective benefits can be treated similarly. The benefits would probably not have been generated without the prior steps in the iterative process preceding this commoning element.

Thus, the managing principles for local public resources are crucial for both modes of governance; thanks to these rules the creation of the urban common will produce mutual benefits both for the community (commoners) and for local authorities responsible for the public mission. First, commoners should have the ability to make decision and take on obligations without having to refer to other entities (the principle of involvement stability). Secondly, commoners should strive to guarantee the durability of common goods and the continuity of mutual action (the principle of durability and cooperation). Third, the stakeholder relations structure between the authorities and commoners (and, consequently, this

may also be the commoning genesis) is enhanced by tangible public resources (land, infrastructure, financial capital, etc.) and/or intangible resources (knowledge, skills, etc.), and does not constitute the only condition for community creation (the additivity principle). Fourth, the principle of the community's full responsibility for the community's results and safety (the self-organisation principle) must be respected. Fifthly, communities must be open to accepting new members so as to avoid the creation of club goods (the openness principle). The role of the city authorities is to eliminate negative externalities and the free-rider problem. Sixthly, communities, as a rule, must pursue their goals, while respecting other communities' values, and guarantee collective benefits in at least one of the dimensions (socio-cultural, environmental, spatial) (the principle of competition exclusion and public values provision). Seventh, in the long-term commoners, support the transformational nature of co-management and co-governance through involvement in the collective learning process (the principle of active participation in the future character of the territory creation).

The principles formulated above offer an attempt to indicate the key institutional framework to facilitate understanding of the communities which develop urban commons. The approach through the prism of the local authorities also offers clear indications as to the role of local communities and authorities. As already shown, urban common-pool resources cannot be detached from local government or market activity. While the former may be and should be a partner in the development of urban commons through both modes of local governance, the latter may constitute an alternative source of benefits for the community. Unless the market organisations' activity is designed to eliminate urban commons, in this situation, the role of the local authorities – a public intervention – is undoubtedly justified. As already indicated, the aim of this study is not to develop the idea of the privatisation and marketisation of urban public goods. Nevertheless, this situation is possible. If such a resource cannot be managed by local authorities or the urban communities, privatisation and marketisation may be the only workable option; [Foster, Iaione 2019] call it "enabling the pooling of resources".

The last of the important issues which should be reflected upon in the transformational decision-making process is coping with three basic categories of dilemmas involved in the implementation of projects; this is to be done in the local governance spirit. The utilisation of the transformational processes' category indicates a set of activities that lead to permanent, future-oriented and, above all, positive effects affecting the territory development, where the territory is understood as a community of interests bonded by an institutional framework, a community that demonstrates a "sense of belonging" rather than a city in an administrative sense. Thus, not only the intra-city character of the change processes ought to be emphasised, but also the supra-local nature of these processes. In this perspective, the issue of relations in the local government – other local authorities – communities system is raised. This is the first dilemma regarding a conflict of functions. As indicated, there is a risk of disputes over the functions selection and the risk related to the appropriation of a given local resource by one group of

users. In the case of local governance, decision-making is exercised in a deliberative process, where arguments and reasons are replaced by mutual knowledge enhancement about the situation, a search for consensus, and providing the basis for the best decision. The free-rider problem is the second dilemma; as indicated, the greater the spatial extent of a given urban commons, the greater the risk of the free-rider problem. Implementation of territorial governance should sensitise the community to this problem and offer knowledge and perhaps instruments to protect the commons (e.g. investment in good monitoring and the use of control systems indebted to fence infrastructure). Assuming the scale of the urban commons is of a larger size, more milieus may contribute their tangible resources to its creation, development and protection. The third dilemma identified is the problem of the negative externalities related to the transfer of ownership. Both modes of local governance are assumed to facilitate the introduction of control-enhancing instruments for adverse effects as well as protection. A temporary restriction of car traffic in a given area may be envisaged, if it is introduced by the local authorities with the consent of the community managing the urban commons.

By pointing to the transformational nature of changes and the territory development processes, we assume that the phenomena scale and the appropriate institutional maturity of the urban communities and users may provide sufficient impulses to generate new lifestyles and new community relations. These styles, and above all, the sense of belonging to a territory, can give community-rich places a new quality of life through co-management and co-governance conditions.

5. Experiments as a research method for the urban commons

5.1. The urban commons game – the manual

A study of communities that generate urban commons was carried out with the use of the technique of scientific experiment; the general name for all the experiments is **"The urban commons game"**. The research procedure was based on the following circumstances and assumptions:

1. Each time 5 to 7 people take part in the experiment, which lasts 2 hours. At the beginning, the experiment instructions are presented to the participants. During the game, participants use paper forms.
2. The experiment is a field study because the study participants are representatives of existing urban communities, and meetings take place in places (rooms) the urban communities use on a daily basis.
3. Multifunctionality is the feature shared by urban resources, which means that a community may create and use various commons in a given space (e.g. a community garden, a seniors' meeting place, educational activities for children), according to the "the more, the merrier" principle, following C. Rose's notion of "a comedy of the commons".
4. For the purposes of the experiment, before the game starts, the participants define two urban commons that exist or can potentially be created by a given urban community. These commons are marked as (A) and (B) commons, respectively, in the course of the experiment.
5. Once two urban commons are chosen, each participant individually, without communicating with the other players, indicates on the form which commons from the the A and B pool they prefer, i.e. which they think brings more individual benefits, which they find more enjoyable, more interesting, more important, etc. Specifying preferences does not mean that the work they invest in the community focuses on only the selected commons (they also allocate part of their work to creating the other commons); however, they prefer to nurture the indicated one.
6. The experiment participants have enough time to decide how many hours a week they are willing to engage in activities and support the urban commons. They invest time instead of money, unlike economics experiments in which decisions are expressed in money or tokens payments. This assumption is justified by the fact that urban commons are not a source of monetary income.

7. A single participant has 10 hours in each round, equated with a week. The time is to be spent on engagement for urban commons (A), engagement for urban commons (B), and engagement in activities not related to the urban commons – free time.

8. The results of the allocation-decisions are expressed as effective time, which means "regular" time conversion according to the indicators used in the experiment. The clock hour may generate time-profit or time-loss resulting from activities collectively.

9. The effective time depends on individual preferences; for the participants who prefer urban commons (A), each engagement for work and use of this common have the 1.2 factor. The participants who prefer urban commons (B) likewise – their working hours will also be multiplied by 1.2. This should be interpreted to mean that if a person finds involvement in the urban commons enjoyable (e.g. working together in a community garden), the person feels that the hour is worth more than a clock hour.

10. The effective time of the individual's work also depends on the entire community's involvement. For example, if the community members agree that they will use the community garden together on a Saturday morning, the effective joint-work time of all those present is greater than clock hours (according to the appropriate conversion rate – see point 12), whenever many people participate in the meeting, spending time together in a nice way. Conversely, insufficient involvement of the community will make individual participants feel that a clock hour is partially "lost" (because it could have brought collective benefits, but this has not happened because of some community members' absence) and is worth less than 60 minutes.

11. The goal of each game participant is to maximise their effective time, assuming that it is the result of individual and the entire urban community's activities.

12. The time devoted by the individual to the urban commons and to free time generate the following results for the individual participant:

a. 1 hour allocated to the preferred commons = 1 hour × 1.2

b. 1 hour allocated to the non-preferred commons = 1 hour

c. 1 hour allocated for the remaining free time = 1 hour.

d. If A or B ≥ 40% of the total community time, then 1 hour is multiplied by 1.2, and the surplus shared equally among all participants

e. If A and B ≥ 40% of the total community time, then 1 hour is multiplied by 1.5, and the surplus shared equally among all participants

f. If A or B ≤ 20% of the total community time, then 1 hour is multiplied by (−1.2), and the loss shared equally among all participants

g. If A and B ≤ 20% of the total community time, then 1 hour is multiplied by (−1.5), and the loss shared equally among all participants

13. The experiment consists of 9 rounds divided into three stages, in which a participant makes individual decisions by filling in a paper form. After each round, the participant obtains aggregate information on the average results achieved by the whole community which offer the basis for assessment of the

effects of their declarations to date and for making decisions in subsequent rounds. Every three rounds, the rules of the game are modified by introducing different detailed assumptions of the experiment.

14. Decisions in the first two rounds of each stage are made without consulting the other participants; a player does not know the preferences declarations regarding the A or B commons. However, before each final round of the stage, there is an opportunity to talk and find a common, beneficial solution (a division of hours).

15. In each of the three stages, the following game scenarios apply:
   – **Rounds 1–3:** Participants make decisions on allocating hours on the (A) commons, the (B) commons, and free time. In the beginning, they have 10 hours at their disposal, but the final result (effective time) depends on both their own and other participants' decisions. Extra time can be gained or lost depending on the involvement level of the entire group in certain activities. There are no additional restrictions.
   – **Rounds 4–6:** These rounds introduce an important municipal entity's activities, i.e. local authorities which decide to support the community, provided that the entire community devotes 80% of its time to activities for the benefit of the (A) and (B) commons. This means that free time does not exceed 20% of the total time. The authorities want to see a great number of events in the city on certain days (e.g. on a bank-holiday weekend) to attract various non-urban users. The authorities will "pay extra" for the community's active involvement on those days. Each experiment participant involved in the A or B commons creation will have an additional 3 hours allocated to the total result. At the same time, the assumption was made that these activities are scheduled at an attractive time of the year when the value of free time is also higher and amounts to 1.5 "regular" hours. Individual conversion factors for community work related to preferred (A) or (B) commons remain unchanged.
   – **Rounds 7–9:** In these rounds, the rules for hours calculation are the same as for rounds 1–3. There is a modification – from among the community members, one person is randomly selected; for random reasons, this person will not be able to participate in the game, i.e. will not participate in activities for the creation of the common (fewer people will work). Furthermore, if other members spend at least 50% of their time creating the commons, the average score for each round in this stage is added to the score of the person who is not participating in the game. If the score is less than 50%, however, then the average score for each round in this stage is subtracted from the score of the person who is not participating in the game. A person randomly excluded from the game, however, participates in the benefits generated by the entire community.

In the course of the urban commons game, its participants use a table-form **(Appendix 1)**. They fill in grey-background columns; after each round, they receive aggregated information entered in white-background columns.

5.2. Case studies of urban commons games

Game #1 – February 2019

Participants: Members of the "Napraw Sobie Miasto (Fix Your City)" Foundation, Katowice, https://naprawsobiemiasto.eu/

Mission: acting as an interpreter between a clerk and a city user. Citizen science and urban prototyping tools are used for this purpose; residents are equipped with the arguments and knowledge needed to co-create a resident-friendly city.

Number of game participants: 7

Urban commons created by "Napraw Sobie Miasto" and the division of the Game 1 participants' declared preferences:

A – "Miejska Szychta (Urban Shift)" series of workshops – social monitoring aimed at changes design, in-field testing of urban innovations solutions for social and environmental problems – 3 people;

B – collective transport promotion – a set of activities aimed at the dissemination of the urban means of transport advantages – 4 people.

*In this game, people's preferences for commons are almost evenly distributed, with a slight advantage of the B commons, which was reflected in the results. The working time invested in the B commons, except for Round 1, always exceeded 40% of the total working time and resulted in the conversion factor of 1.2 use. The participants allocated a relatively long time for free time (2.8 hours on average) throughout the game, which did not contribute to the effective time increase allocated to work for the benefit of the commons. In Rounds 4 and 6, the participants managed to invest a total of 80% of their time in A and B commons, and thus everyone obtained a 3 hour-bonus. **The average player's profit was 29 hours and 36 minutes in total.***

Table 9. The results of Game 1

Rounds	Average work hours declared by game participants for the benefit of A. B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	3.7	3.0	3.3	0	0	76.4	23.0	53.4	6.4	55 min
2	3.1	4.1	2.7	0	1.2	86.6	19.0	67.6	16.6	2 hours 22 min
3	2.6	4.7	2.7	0	1.2	86.8	19.0	67.8	16.8	2 hours 24 min
4	3.0	5.6	1.4	0	1.2	113.0	15.0	98.0	38.0	5 hours 26 min
5	2.7	4.3	3.0	0	1.2	96.7	31.5	65.2	16.2	2 hours 19 min
6	3.0	5.0	2.0	0	1.2	115.4	21.0	94.4	38.4	5 hours 29 min
7	2.8	4.7	2.5	0	1.2	86.9	15.0	71.9	26.9	3 hours 51 min
8	1.5	5.2	3.3	−0.8	1.2	83.3	20.0	63.3	23.3	3 hours 20 min
9	1.3	4.8	3.8	−0.8	1.2	84.6	23.0	61.6	24.6	3 hours 31 min
total	×	×	×	×	×	829.7	186.5	643.2	207.2	29 hours 36 min

Source: the authors' own study.

Game #2 – February 2019

Participants: Municipal activists for the benefit of 3 Maja Street in Dąbrowa Górnicza
Mission: to increase the attractiveness of the city's main and boost residents' and entrepreneurs' activity.
Number of participants: 5
Urban commons created by the community of city activists who work for the benefit of 3 Maja Street. The game participants' declared preferences distribution:
A – "Cultural Melting Pot" cycle of events – outdoor cultural events in the summer season staged in 3 Maja Street – 5 people;
B – "Living Street" project – prototyping of functions and management modes for 3 Maja street; the activity designed to improve the space aesthetics – 0 people.

In this game, all participants indicated that they preferred working for the same commons – A. However, this was not reflected in the time proportions allocated to both commons because a little less time was spent on B compared to A. In each of the 4–6 rounds, the participants generated high scores and did not yield to the temptation of free time conversion. In all rounds of the game, the participants acted collectively, taking care of both A and B's welfare and allocated just a few hours as free time. **Thus the average player's profit was 35 hours and 36 minutes in total.**

Table 10. The results of Game 2

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	Free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	4.6	2.4	3	1.2	0	60.6	15.0	45.6	10.6	2 hours 7 min
2	4.4	3.4	2.2	1.2	0	60.4	11.0	49.4	10.4	2 hours 5 min
3	4.4	3.8	1.8	1.2	0	60.4	9.0	51.4	10.4	2 hours 5 min
4	4.7	4.1	1.2	1.5	1.5	87.7	9.0	78.7	34.7	6 hours 56 min
5	4.2	4.6	1.2	1.5	1.5	87.2	9.0	78.2	34.2	6 hours 50 min
6	4.2	4.2	1.6	1.5	1.5	88.2	12.0	76.2	34.2	6 hours 50 min
7	4.5	4	1.5	0	0	52.3	6.0	46.3	12.3	2 hours 28 min
8	4.75	4.5	0.75	0	0	52.6	3.0	49.6	12.6	2 hours 31 min
9	5	4.75	0.25	1.2	0	58.6	1.0	57.6	18.6	3 hours 43 min
total	×	×	×	×	×	608.0	75.0	533.0	178.0	35 hours 36 min

Source: the authors' own study.

Game # 3 – February 2019 and Game # 4 – March 2019

Game 3
Participants: Members of the "Pogoria Biega" (Running Pogoria) Association, Dąbrowa Górnicza
http://www.pogoriabiega.pl/
Mission: promoting jogging as the most accessible form of exercise and the promotion of recreational areas around the Pogoria water reservoirs in Dąbrowa Górnicza,
Number of participants: 5
Urban commons created by "Pogoria Biega" community and the division of the Game 3 participants' declared preferences:
A – Specialised training sessions – weekly training under the supervision of a coach, objective – general fitness improvement and better sports results in amateur running competitions – 1 person;
B – Recreational runs – weekly sessions around the Pogoria reservoirs, running pace makes it possible to talk while exercising – 4 people.

*In this game, the time-spending preferences unevenly distributed in relation to the commons; B was the preferred one, which was reflected in the results. The worst results were achieved in the first round. After the first round, the game participants discovered that hours allocated to free time does not generate any benefits in rounds 1–3 and 7–9; thus they focused on investing work in the commons. In the two cases, i.e. in rounds 3 and 9, the opportunity to discuss before individual decisions are made resulted in better results. In rounds 4–6, the participants managed to get an hourly "bonus" from the local authority only once. **The average player's profit was 27 hours and 8 minutes in total.***

Table 11. The results of Game 3

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group			The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	Free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	1.6	3.6	4.8	−0.8	0	49.6	24.0	25.6	−0.4	−5 min
2	2.4	5.8	1.8	0	1.2	61.8	9.0	52.8	11.8	2 hours 22 min
3	4	5.2	0.8	1.5	1.5	70.2	4.0	66.2	20.2	4 hours 02 min
4	3	4.6	2.4	0	1.2	66.6	18.0	48.6	10.6	2 hours 7 min
5	3.4	4.6	2	0	1.2	80.2	15.0	65.2	25.2	5 hours 2 min
6	4	3.8	2.2	1.2	0	65.7	16.5	49.2	10.2	2 hours 2 min
7	3	5.25	1.75	0	1.2	59.0	7.0	52.0	19.0	3 hours 48 min
8	3.25	5.5	1.25	0	1.2	59.3	5.0	54.3	19.3	3 hours 52 min
9	4	6	0	0	1.2	59.8	0.0	59.8	19.8	3 hours 58 min
total	×	×	×	×	×	572.2	98.5	473.7	135.7	27 hours 8 min

Source: the authors' own study.

Game 4

The urban commons created by "Pogoria Biega" community and the division of the Game 4 participants' declared preferences:

A – Specialised training sessions – weekly training under the supervision of a coach, objective – general fitness improvement and better sports results in amateur running competitions – 4 people;

B – Recreational runs – weekly sessions around the Pogoria reservoirs, running pace makes it possible to talk while exercising – 1 person.

In this game, the time-spending preferences were unevenly distributed in relation to the commons; compared to the previous game, more people preferred the A commons this time, which was reflected in the results. However, there was no situation where investment in the B commons was lower than 20% of the working time. In rounds 4–6, a bonus for a high level of time invested in the A and B commons was obtained only once; interestingly, in round 3. In the two consecutive rounds, despite the round 3 experience, it was not possible to reach an agreement. **The average player's profit was 25 hours and 22 minutes in total.**

Table 12. The results of Game 4

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	Free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	4.8	3	2.2	1.2	0	61.6	11.0	50.6	11.6	2 hours 19 min
2	4.4	3.4	2.2	1.2	0	60.8	11.0	49.8	10.8	2 hours 10 min
3	5.2	3.6	1.2	1.2	0	61.8	6.0	55.8	11.8	2 hours 22 min
4	4.6	3.4	2	1.2	0	80.6	15.0	65.6	25.6	5 hours 7 min
5	4.8	3	2.2	1.2	0	66.3	16.5	49.8	10.8	2 hours 10 min
6	3.8	3.2	3	0	0	61.1	22.5	38.6	3.6	43 min
7	4.75	4	1.25	0	0	55.5	5.0	50.5	15.5	3 hours 6 min
8	4.75	4.75	0.5	0	0	55.3	2.0	53.3	15.3	3 hours 4 min
9	5	4.5	0.5	1.2	0	61.8	2.0	59.8	21.8	4 hours 22 min
total	×	×	×	×	×	564.8	91.0	473.8	126.8	25 hours 22 min

Source: the author's own study

Games # 5–10 – March and April 2019

Participants: Students of the University of Economics in Katowice
Mission: representation of the University of Economics in Katowice's students' community interests regarding the space development within the university campus.

Game 5
Number of participants: 5
The urban commons created by the student community and the division of the Game 5 participants' declared preferences:
A – a relaxation zone – a place to spend free time before and after classes, equipped with seats, a leisure zone where students' cultural events will be held (e.g. the reading club meetings, chess competitions) – 3 people;
B – an activity zone – the place to free spend time before and after classes, equipped with sports equipment, a venue for sports and recreational activities (e.g. basketball games, yoga, outdoor gym exercises) – 2 people.

*In this game, people's preferences for the commons are almost evenly distributed, which was reflected in the results, as the game participants also allocated time for the commons quite evenly. Very good results were obtained in this game, which stems from the fact a limited number of hours was devoted to free time. Moreover, in rounds 4–6, the participants were able to obtain a bonus for devoting 80% of their working time to the commons. Each round was marked with collective actions. A positive effect of discussions was also observed in this game. In rounds 3 and 6, the participants, by establishing a common strategy, improved their overall performance. **The average player's profit was 40 hours and 19 minutes in total.***

Table 13. The results of Game 5

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	Free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	4.2	3.8	2	1.2	0	61.8	10.0	51.8	11.8	2 hours 22 min
2	4.4	4	1.6	1.5	1.5	70.2	8.0	62.2	20.2	4 hours 2 min
3	4	5	1	1.5	1.5	70.6	5.0	65.6	20.6	4 hours 7 min
4	4.4	3.8	1.8	1.2	0	81.3	13.5	67.8	26.8	5 hours 22 min
5	3.8	4.4	1.8	0	1.2	81.1	13.5	67.6	26.6	5 hours 19 min
6	4	4.2	1.8	1.5	1.5	88.7	13.5	75.2	34.2	6 hours 50 min
7	4	5.25	0.75	0	1.2	59.8	3.0	56.8	19.8	3 hours 58 min
8	3.75	5.25	1	0	1.2	60.2	4.0	56.2	20.2	4 hours 2 min
9	4	5.5	0.5	0	1.2	61.4	2.0	59.4	21.4	4 hours 17 min
total	×	×	×	×	×	635.1	72.5	562.6	201.6	40 hours 19 min

Source: the authors' own study.

Game 6
Number of participants: 5
The urban commons created by the student community and the division of the Game 6 participants' declared preferences:
A – a relaxation zone – a place to spend free time before and after classes, equipped with seats, a leisure zone where students' cultural events will be held (e.g. the reading club meetings, chess competitions) – 4 people;
B – an activity zone – a place to free spend time before and after classes, equipped with sports equipment, a venue for sports and recreational activities (e.g. basketball games, yoga, outdoor gym exercises) – 1 person.

The game was dominated by people who declared their working time-preference allocation for A commons. The participants consistently spent more time on this commons, which also resulted in the losses related to too few hours invested in B (a conversion factor of -0.8 was used in five rounds). In rounds 4–6, the achieved result guaranteed a bonus for collective action for the commons only once. There was no learning effect during the game or positive effects of discussions in rounds 3 and 6. **The average player's profit was 20 hours and 20 minutes in total.**

Table 14. The results of Game 6

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	5	2.4	2.6	1.2	0	61.0	13.0	48.0	11.0	2 hours 12 min
2	5.8	2	2.2	1.2	−0.8	57.4	11.0	46.4	7.4	1 hours 29 min
3	4	2	4	1.2	−0.8	56.6	20.0	36.6	6.6	1 hours 19 min
4	4	2.8	3.2	1.2	0	69.2	24.0	45.2	11.2	2 hours 14 min
5	4.8	3.4	1.8	1.2	0	80.3	13.5	66.8	25.8	5 hours 10 min
6	5.8	2	2.2	1.2	−0.8	63.3	16.5	46.8	7.8	1 hours 34 min
7	5.5	2	2.5	1.2	−0.8	55.2	10.0	45.2	15.2	3 hours 2 min
8	5	1	4	1.2	−0.8	36.5	16.0	20.5	−3.5	−42 min
9	6.75	2.75	0.5	1.2	0	60.2	2.0	58.2	20.2	4 hours 2 min
total	×	×	×	×	×	539.7	126.0	413.7	101.7	20 hours 20 min

Source: the authors' own study.

Game 7

Number of participants: 7

The urban commons created by the student community and the division of the Game 7 participants' declared preferences:

A – a relaxation zone – a place to spend free time before and after classes, equipped with seats, a leisure zone where students' cultural events will be held (e.g. the reading club meetings, chess competitions) – 5 people;

B – an activity zone – the place to free spend time before and after classes, equipped with sports equipment, a venue for sports and recreational activities (e.g. basketball games, yoga, outdoor gym exercises) – 2 people.

*In this game, more participants indicated a preference for the A commons, which was reflected in the results; much more time was devoted to this commons. In rounds 4–6, the achieved result guaranteed a bonus for collective action for the commons only once and this happened already in round 4. In the next two rounds, too many hours were allocated to free time. In round 3, the discussion opportunity generated a positive effect; as a result, maximum conversion rates were applied, and a high level of profit was thus achieved. **The average player's profit was 29 hours and 15 minutes in total.***

Table 15. The results of Game 7

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	4.6	3.3	2.1	1.2	0	85.8	15.0	70.8	15.8	2 hours 15 min
2	5.6	3.0	1.1	1.2	0	84.2	8.0	76.2	16.2	2 hours 19 min
3	5.3	4.0	0.7	1.5	1.5	98.8	5.0	93.8	28.8	4 hours 7 min
4	5.4	2.7	1.9	1.2	0	113.7	19.5	94.2	37.2	5 hours 19 min
5	4.0	2.6	3.4	1.2	0	96.6	36.0	60.6	14.6	2 hours 5 min
6	4.1	2.9	3.0	1.2	0	94.9	31.5	63.4	14.4	2 hours 3 min
7	6.8	2.8	0.3	1.2	0	86.6	2.0	84.6	26.6	3 hours 48 min
8	7.2	2.5	0.3	1.2	0	86.2	2.0	84.2	26.2	3 hours 45 min
9	5.8	3.8	0.3	1.2	0	85.0	2.0	83.0	25.0	3 hours 34 min
total	×	×	×	×	×	831.8	121.0	710.8	204.8	29 hours 15 min

Source: the authors' own study.

Game 8
Number of participants: 6
The urban commons created by the student community and the division of the Game 8 participants' declared preferences:
A – a relaxation zone – a place to spend free time before and after classes, equipped with seats, a leisure zone where students' cultural events will be held (e.g. the reading club meetings, chess competitions) – 5 people;
B – an activity zone – a place to free spend time before and after classes, equipped with sports equipment, a venue for sports and recreational activities (e.g. basketball games, yoga, outdoor gym exercises) – 1 person.

This game indicated a large preferences disproportion regarding the commons, with an advantage on the side of players preferring the A commons. This was mainly reflected in the first two rounds. In the third round, where a discussion was allowed, a high profit was made because a large number of hours was allocated to both commons. In rounds 4–6, no bonus was obtained for work for the commons. The number of hours assigned to free time was too high (especially in round 5, which resulted in running a loss). On the other hand, the last three rounds demonstrated significant involvement in working for both commons, which contributed to high profits in this part of the game. **The average player's profit was 28 hours and 29 minutes in total.**

Table 16. The results of Game 8

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	5.7	2.7	1.7	1.2	0	74.4	10.0	64.4	14.4	2 hours 24 min
2	5.7	3.3	1.0	1.2	0	74.2	6.0	68.2	14.2	2 hours 22 min
3	5.7	4.0	0.3	1.5	1.5	86.0	2.0	84.0	26.0	4 hours 20 min
4	3.7	2.8	3.5	0	0	76.3	31.5	44.8	5.8	58 min
5	2.5	0.2	7.3	0	−0.8	80.2	66.0	14.2	−1.8	−18 min
6	3.7	4.2	2.2	0	1.2	79.7	19.5	60.2	13.2	2 hours 12 min
7	6.2	3.8	0.0	1.2	0	76.1	0.0	76.1	26.1	4 hours 21 min
8	5.0	5.0	0.0	1.5	1.5	86.4	0.0	86.4	36.4	6 hours 4 min
9	5.2	4.8	0.0	1.5	1.5	86.6	0.0	86.6	36.6	6 hours 6 min
total	×	×	×	×	×	719.9	135.0	584.9	170.9	28 hours 29 min

Source: the authors' own study.

Game 9

Number of participants: 6

The urban commons created by the student community and the division of the Game 9 participants' declared preferences:

A – a relaxation zone – the place to spend free time before and after classes, equipped with seats, the leisure zone where students' cultural events will be held (e.g. the reading club's meeting, chess competitions) – 2 people;

B – an activity zone – the place to free spend time before and after classes, equipped with sports equipment, a venue for sports and recreational activities (e.g. basketball games, yoga, outdoor gym exercises) – 4 people.

*In this game, the participants who declared their preferences for the B commons came in a greater number; however, this did not have a large impact on the results in consecutive rounds. The high profits in this game result from a high working time commitment for both the A and B commons and therefore, the 1.5 conversion factors used. In the last 3 rounds, the participants decided not to allocate any free time at all. This game demonstrates that the possibility of discussion and finding a common position results in consistent implementation, which contributed to the improvement of the result in rounds 3 and 6. **The average player's profit was 40 hours in total.***

Table 17. The results of Game 9

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work the commons	Average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	4.3	4.0	1.7	1.5	1.5	85.2	10.0	75.2	25.2	4 hours 12 min
2	4.2	4.7	1.2	1.5	1.5	85.2	7.0	78.2	25.2	4 hours 14 min
3	4.0	5.0	1.0	1.5	1.5	87.0	6.0	81.0	27.0	4 hours 30 min
4	4.0	3.3	2.7	1.2	0	80.4	24.0	56.4	12.4	2 hours 4 min
5	2.8	4.5	2.7	0	1.2	81.2	24.0	57.2	13.2	2 hours 12 min
6	3.2	4.8	2.0	0	1.2	99.4	18.0	81.4	33.4	5 hours 34 min
7	4.8	5.2	0.0	1.5	1.5	86.6	0.0	86.6	36.6	6 hours 6 min
8	5.0	5.0	0.0	1.5	1.5	87.8	0.0	87.8	37.8	6 hours 18 min
9	4.0	6.0	0.0	0	1.2	79.2	0.0	79.2	29.2	4 hours 52 min
total	×	×	×	×	×	772.0	89.0	683.0	240.0	40 hours 0 min

Source: the author's own study.

Game 10
Number of participants: 5
The urban commons created by the student community and the division of the Game 10 participants' declared preferences:
A – a relaxation zone – a place to spend free time before and after classes, equipped with seats, a leisure zone where students' cultural events will be held (e.g. the reading club meetings, chess competitions) – 5 people;
B – an activity zone – a place to free spend time before and after classes, equipped with sports equipment, a venue for sports and recreational activities (e.g. basketball games, yoga, outdoor gym exercises) – 0 people.

*In this game, more participants' preferences went to the A commons; therefore a greater work time allocation was observed precisely during the game. At the same time, there was no single instance when the players neglected investing in the B commons to such an extent that would result in the use of the -0.8 conversion factor. In this game, the players outperformed the previous rounds in each round which allowed for discussions and agreeing on a common strategy. **The average player's profit was 36 hours and 8 minutes in total.***

Table 18. The results of Game 10

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	5.0	2.4	2.6	1.2	0	61.0	13.0	48.0	11.0	2 hours 12 min
2	5.2	3.0	1.8	1.2	0	61.2	9.0	52.2	11.2	2 hours 14 min
3	6.0	4.0	0.0	1.5	1.5	71.0	0.0	71.0	21.0	4 hours 12 min
4	4.8	2.8	2.4	1.2	0	66.8	18.0	48.8	10.8	2 hours 10 min
5	4.8	3.2	2.0	1.2	0	80.8	15.0	65.8	25.8	5 hours 10 min
6	5.8	2.2	2.0	1.2	0	81.8	15.0	66.8	26.8	5 hours 22 min
7	6.3	3.0	0.8	1.2	0	62.3	3.0	59.3	22.3	4 hours 28 min
8	5.8	3.5	0.8	1.2	0	61.8	3.0	58.8	21.8	4 hours 22 min
9	5.0	5.0	0.0	1.5	1.5	70.0	0.0	70.0	30.0	6 hours 0 min
total	×	×	×	×	×	616.7	76.0	540.7	180.7	36 hours 8 min

Source: the authors' own study.

Game #11 – March 2019

Game 11
Participants: Urban planners working for the benefit of Stare Polesie district, Łódź
https://mpu.lodz.pl/
Mission: to prepare draft studies of the conditions and directions of spatial development and a draft of local spatial development plans for the city of Łódź and amendments to these documents
Number of participants: 7
The urban commons created by a community of urban planners who act for the benefit of the Stare Polesie District and the division of the Game 11 participants' declared preferences:
A – Greenspace – the creation of a friendly public space, a retreat full of greenery in this old, city district – 4 people;
B – Local trading zone – the creation of a place which brings together commercial activities, promotion of local entrepreneurs and craftsmen – 3 people.

*In this game, the working time preferences were more or less evenly distributed, with a slight advantage for the A commons reflected in the first two rounds. As late as round three, when discussion was allowed, there was a higher level of profits. In this game, rounds 4–6 produced no bonus for allocating 80% of the time on the A and B commons. A detailed analysis of the game (**see Appendix 2**) indicates that in rounds 4–6, one of the participants allocated 10 hours of free time each time, and thus achieved the 15 hours extra time. At the same time this participant jeopardised all the community members' chances of obtaining a bonus. **The average player's profit was 26 hours and 3 minutes in total.***

Table 19. The results of Game 11

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	5.9	3.1	1.0	1.2	0	87.8	7.0	80.8	17.8	2 hours 33 min
2	6.4	3.3	0.3	1.2	0	87.6	2.0	85.6	17.6	2 hours 31 min
3	4.3	5.4	0.4	1.5	1.5	100.6	3.0	97.6	29.6	4 hours 14 min
4	3.0	3.7	3.3	0	0	87.3	34.5	52.8	5.8	50 min
5	2.9	2.4	4.7	0	0	91.1	49.5	41.6	4.6	39 min
6	2.9	3.7	3.4	0	0	87.2	36.0	51.2	5.2	45 min
7	4.5	5.3	0.2	0	1.2	85.5	1.0	84.5	25.5	3 hours 39 min
8	5.2	4.8	0.0	1.5	1.5	98.1	0.0	98.1	38.1	5 hours 27 min
9	5.2	4.8	0.0	1.5	1.5	98.1	0.0	98.1	38.1	5 hours 27 min
total	×	×	×	×	×	823.3	133.0	690.3	182.3	26 hours 3 min

Source: the authors' own study.

Game # 12 and Game # 13 – March 2019

Game 12

Participants: Young activists working for the benefit of Stare Polesie district, Łódź

Mission: undertake actions aimed at the revitalisation of a neglected urban district.

Number of participants: 5

The urban commons created by a community of young activists who act for the benefit of the Stare Polesie District in Łódź and the division of the Game 12 participants' declared preferences:

A – Greenspace – the creation of a friendly public space, a retreat full of greenery in this old, city district – 2 people;

B – Local trading zone – the creation of a place which brings together commercial activities, the promotion of local entrepreneurs and craftsmen – 3 people.

In this game, the proportions regarding the time-preference allocated to work on the commons were slightly inclined to a preference for the B commons, which was mostly reflected in the results. On average, more working time was allocated to B. In rounds 4–6, the participants achieved a bonus related to allocating 80% of their time A and B twice. In the last three rounds, very few free-time hours allocated had an impact on the relatively high level of profits. **The average player's profit was 35 hours and 12 minutes in total.**

Table 20. The results of Game 12

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	3.8	3.8	2.4	0	0	54.2	12.0	42.2	4.2	50 min
2	3.6	5.0	1.4	0	1.2	61.8	7.0	54.8	11.8	2 hours 22 min
3	5.6	4.0	0.4	1.5	1.5	69.0	2.0	67.0	19.0	3 hours 48 min
4	4.2	4.2	1.4	1.5	1.5	87.3	10.5	76.8	34.8	6 hours 58 min
5	3.6	4.0	2.4	0	1.2	66.0	18.0	48.0	10.0	2 hours 0 min
6	3.0	5.4	1.6	0	1.2	80.4	12.0	68.4	26.4	5 hours 17 min
7	3.5	6.0	0.5	0	1.2	62.0	2.0	60.0	22.0	4 hours 24 min
8	3.3	6.5	0.3	0	1.2	65.0	1.0	64.0	25.0	5 hours 0 min
9	5.8	4.3	0.0	1.2	0	62.8	0.0	62.8	22.8	4 hours 34 min
total	×	×	×	×	×	608.5	64.5	544.0	176.0	35 hours 12 min

Source: the authors' own study.

Game 13

Number of participants: 7

The urban commons created by the community of young activists who act for the benefit of the Stare Polesie District in Łódź and the division of the Game 13 participants' declared preferences:

A – Greenspace – the creation of a friendly public space, a retreat full of greenery in this old, city district – 6 people;

B – Local trading zone – the creation of a place which brings together commercial activities, promotion of local entrepreneurs and craftsmen – 1 person.

*This game demonstrated a significant disproportion in preferences, and the A commons was the favoured one. Therefore, in each of the nine rounds, the number of hours allocated to this commons exceeded the investment in both B and leisure time. In this game, not a single bonus for allocating a total of 80% of your working time to commons was gained in rounds 4–6. A detailed results analysis (**see Appendix 2**) demonstrated that this resulted from 3 players' decisions, who allocated so many hours in their free time that it was impossible for the entire group to achieve good results. The game results also demonstrate that the discussion in rounds 3 and 9 resulted in improvement compared to the previous rounds.* **The average player's profit was 29 hours and 10 minutes in total.**

Table 21. The results of Game 13

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	5.1	3.0	1.9	1.2	0	86.4	13.0	73.4	16.4	2 hours 21 min
2	4.6	3.9	1.4	1.2	0	85.2	10.0	75.2	16.2	2 hours 19 min
3	5.1	4.4	0.4	1.5	1.5	99.6	3.0	96.6	29.6	4 hours 14 min
4	4.1	2.7	3.1	1.2	0	96.2	33.0	63.2	15.2	2 hours 10 min
5	4.9	2.4	2.7	1.2	0	95.5	28.5	67.0	16.0	2 hours 17 min
6	4.1	3.4	2.4	1.2	0	93.5	25.5	68.0	15.0	2 hours 9 min
7	5.2	4.3	0.5	1.2	0	87.3	3.0	84.3	27.3	3 hours 54 min
8	6.2	3.5	0.3	1.2	0	89.1	2.0	87.1	29.1	4 hours 9 min
9	5.3	4.7	0.0	1.5	1.5	99.4	0.0	99.4	39.4	5 hours 38 min
total	×	×	×	×	×	832.2	118.0	714.2	204.2	29 hours 10 min

Source: the authors' own study.

Game #14 – March 2019

Participants: Young activists working for the benefit of Stare Polesie district, Łódź
Mission: undertake actions aimed at the revitalisation of a neglected urban district.
Number of participants: 6
The urban commons created by a community of young activists who act for the benefit of the Stare Polesie District in Łódź and the division of the Game 14 participants' declared preferences:
A – Greenspace – the creation of a friendly public space, a retreat full of greenery in this old, city district – 4 people;
B – Local trading zone – the creation of a place which brings together commercial activities, promotion of local entrepreneurs and craftsmen – 2 people.

*In this game, most of the participants' preferences went to the A commons, however, this decision did not translate into the results achieved during the game. In the first three rounds, the community invested enough hours in A and B to achieve 1.5 conversion ratios and increase the effective working time. In rounds 4–6, the players achieved a 80% bonus for investing their working time in both commons; this happened twice. A detailed analysis of the results (**see Appendix 2**) indicated that this was achieved despite the fact that one of the players broke the collective action principle and earmarked a large number of hours to free time. In the last three rounds, a good result and profits were secured by not spending any hours on free time. **The average player's profit was 38 hours and 11 minutes in total.***

Table 22. The results of Game 14

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	Free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	4.0	5.0	1.0	1.5	1.5	83.8	6.0	77.8	23.8	3 hours 58 min
2	4.7	5.0	0.3	1.5	1.5	84.8	2.0	82.8	24.8	4 hours 8 min
3	5.7	4.3	0.0	1.5	1.5	86.4	0.0	86.4	26.4	4 hours 24 min
4	4.3	3.5	2.2	1.2	0	80.5	19.5	61.0	14.0	2 hours 20 min
5	3.8	4.5	1.7	0	1.2	96.4	15.0	81.4	31.4	5 hours 14 min
6	4.3	3.7	2.0	1.2	0	98.2	18.0	80.2	32.2	5 hours 22 min
7	6.0	4.0	0.0	1.2	0	76.3	0.0	76.3	26.3	4 hours 23 min
8	4.2	5.8	0.0	0	1.2	75.1	0.0	75.1	25.1	4 hours 11 min
9	5.4	4.6	0.0	1.2	0	75.1	0.0	75.1	25.1	4 hours 11 min
total	×	×	×	×	×	756.6	60.5	696.1	229.1	38 hours 11 min

Source: the authors' own study.

Game #15

Participants: Members of the Antyrama Foundation, Katowice
https://www.facebook.com/antyrama
Mission: Inspiring activities aimed at dissemination of new phenomena and theories for urban planning, architecture and broadly defined city design.
Number of participants: 6
The urban commons created by the "Antyrama" community and the division of the Game 15 participants' declared preferences:
A – Innovative city workshops – a series of meetings aimed at creating ideas for improving the quality of life in the city – 6 people;
B – Educational products for children and youth – a variety of educational offers aimed at increasing the environmental awareness of young city residents – 0 people.

In this game, all the players declared that they prefer the A commons, and thus the disproportion was reflected in the game results. Nevertheless, never did it lead to a situation in which the working time devoted to the B commons was less than 20%. The option to discuss in rounds 3, 6 and 9 led to better results compared to preceding rounds. The final results were largely influenced by the limited investments in free time. In rounds 4–6, the players achieved a bonus twice – for 80% investing their working time in the commons. In round 5, two players stoppped acting in concord and thus the whole community did not achieve better results. **The average player's profit was 33 hours and 3 minutes in total.**

Table 23. The results of Game 15

Rounds	Average work hours declared by game participants for the benefit of A, B and free time			Conversion factors resulting from the average number of work-allocated hours by the entire group		The whole group's effective time (all conversion factors included)	Free time (with conversion factors in rounds 4–6)	Efficient time spent producing A and B.	Profit in hours generated by A and B groups' work for the commons	The average player's profit in hours and minutes
	A	B	free time	A	B	A+B+free	free time	A+B+free time	A+B	Hours and minutes
1	4.8	3.2	2.0	1.2	0	73.0	12.0	61.0	13.0	2 hours 10 min
2	5.3	3.2	1.5	1.2	0	73.6	9.0	64.6	13.6	2 hours 16 min
3	5.2	4.2	0.7	1.5	1.5	84.2	4.0	80.2	24.2	4 hours 2 min
4	5.2	3.3	1.5	1.2	0	95.9	13.5	82.4	31.4	5 hours 14 min
5	4.5	2.8	2.7	1.2	0	80.6	24.0	56.6	12.6	2 hours 6 min
6	4.5	3.5	2.0	1.2	0	96.6	18.0	78.6	30.6	5 hours 6 min
7	6.4	3.2	0.4	1.2	0	74.9	2.0	72.9	24.9	4 hours 9 min
8	6.2	3.2	0.6	1.2	0	74.6	3.0	71.6	24.6	4 hours 6 min
9	5.0	4.6	0.4	1.2	0	73.4	2.0	71.4	23.4	3 hours 54 min
total	×	×	×	×	×	726.8	87.5	639.3	198.3	33 hours 3 min

Source: the authors' own study.

5.3. Case studies of urban commons games – conclusions

5.3.1. Collective action and preferences regarding particular urban commons

The research experiments assumed that more than one commons can be produced on the basis of shared resources and ensured that each community member was able to select which commons they found the best and were thus most willing to be involved in the creation of. All the experiment participants made their choices, and answers to the following questions were included in decision making:

– How are the experiment results impacted by distribution proportions in the group preferences for a particular commons?
– Do large disproportions generate lower profits?
– Do large disproportions lead to negligence in the development of the commons that was less popular among the experiment participants?
– Do small disproportions favour a more effective decision-making process of the whole group?

At the beginning of each experiment, the participants were requested to identify two commons; depending on the group, both the existing and potential commons were suggested. Often, the degree of necessary commitment differed. The commons met the individual community members' divergent needs. Each time, the proposed commons resulted from discussions and joint decisions of all the participants of a given experiment, who were supposed to indicate only two commons. However, in practice, it was possible to create many commons from a given shared resource pool, ranging from one (the statutory objective of the community's existence), to a dozen (mainly in large communities with over 100 members). In a later part of the experiment, the participants were obliged declare which of the two common they prefer. The situation in which one of the commons would not be preferred by any of the participants was also allowed.

The experiments have frequent preferences disproportions regarding the creation and use of commons. In three experiments, the participants chose the same commons, (preferences: 6–0, 5–0); in five cases, one of the commons had only one supporter (preferences distribution: 6–1, 5–1, 4–1). In three experiments, preferences demonstrated the mean disproportion values (4–2 and 5–2), and in the remaining four cases, there were the smallest possible differences in the distribution of the preferences (4–3, 3–2), i.e. there was only one person difference. Never was there a situation where the preferences were distributed evenly between the two commons (Fig. 6).

These results suggest frequent situations in which the majority of community members preferred a particular commons. In-city realities, coupled with the city characteristics, make it possible to deliver many more functions than rural areas – this can be used by the community to create numerous urban commons. Greater disproportions (e.g. 6–0) in the distribution of the preferences limit the attractiveness of the community's offer to some extent; otherwise, the community
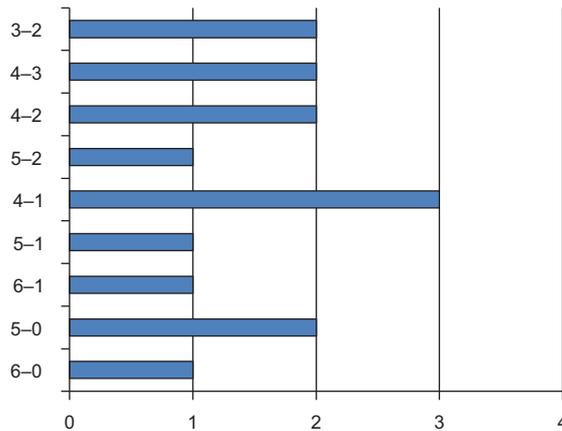
Fig. 6. The participants distribution in terms of the preferences for commons
Source: the authors' own study.

could make better use of the urban environment's richness. In such situations, some members of the community may also become a minority as far as their preferences are concerned, which may result in the marginalisation of these members. As a result, they leave the community, cease being involved in work for the commons. The fact that most participants prefer the same commons, however, may also be triggered by the selection of people involved in the experiment; in each game, there were 5–7 people-group whose members knew each other well and undertook joint activities. All these people were united by common interests, a willingness to spend free time together and to act for the benefit of the city, or at least the benefit of the neighbourhood. On the other hand, according to the the assumptions of the experiment, the participants had to choose which of the two indicated commons they preferred more. At the meetings, some participants argued that they had found this choice difficult because both commons were equally important to them.

All the results from the experiments were analysed in four groups; the groups were formed according to the distribution of the preferences declared at the beginning:
– Group no. 1: no supporters for one of the commons (distribution: 6–0, 5–0);
– Group no. 2: a significant disproportion of supporters of one of the commons (distribution 4–1, 5–1, 6–1);
– Group no. 3: a medium disproportion of supporters of one of the commons (distribution 4–2, 5–2;
– Group no. 4: a slight disproportion of supporters of one of the commons (distribution 4–3, 3–2).

In all the experiments, the number of hours earmarked to create and use the commons preferred by most participants of a particular game was greater than for the other commons. The results of the first six rounds were taken into account, as in the last three rounds (7–9) one player was excluded, which led to a change

in the proportions of the players' preferences. There were relatively larger differences in the average time spent on particular commons in the case of the first two groups when there was a predominance of participants preferring one of the commons, or when no one indicated their preferences for particular commons. There was a greater difference in group 2 – in the first 6 rounds, the players spent an average of 2.67 hours more on creating the commons which was preferred by a larger number of people. In group no. 1 this difference was 1.52 hours, and in the case of the group no. 2, it was 0.87 hours respectively. The smallest difference was observed in group 4, where the disproportions between the number of players preferring given commons were the smallest and amounted to 0.2 hours in the first 6 rounds (Fig. 7). The free-time distribution completes the data related to the groups' number of hours in accordance with the preferences, but does not seem to be related to the preferences.
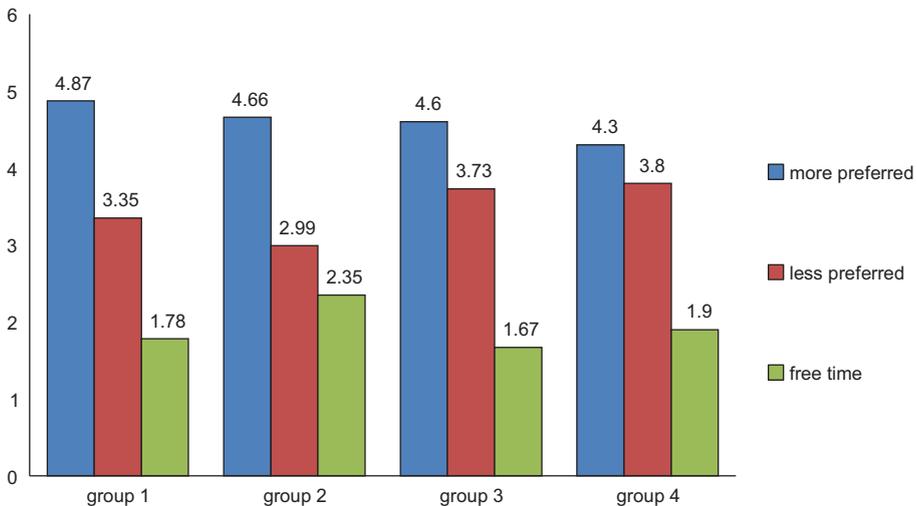
Fig. 7. The average number of hours earmarked for particular commons in the first 6 rounds in 4 groups of the experiments.
Source: the authors' own study

5.3.2. The learning effect during collective action for urban commons

The experiments included studies on collective actions and thus also provide information on changes in participants' behaviour as the activities progressed. The experiment consisted of nine rounds, and after each round, the participants obtained information on the collective results after a given stage, which was the basis for making further decisions. Moreover, each subsequent round increased their understanding of the rules of the game. Thus their choices were expected to improve, both from the point of view of the entire community's interests as well as their individual needs. Before the third, sixth and ninth rounds, there was an opportunity to have a discussion. The discussions indicated whether the

participants were able to agree and then declare which solution they found to be the best for all.

The aggregate results analysis for individual rounds in all fifteen experiments demonstrate that in subsequent rounds, the participants made decisions resulting in different conversion rates, i.e. a bonus for collective actions (Fig. 8). Apart from the three situations (A commons – rounds 1 and 2, as well as 4 and 5, B commons – rounds 8 and 9), the conversion factors value increased within consecutive stages. A decrease or increase after subsequent stages was associated with a significant change in the experiment conditions (stage two – the local authorities' intervention, stage three – the exclusion of one player). For this reason, the results obtained in each round should be interpreted separately.

	1	2	3	4	5	6	7	8	9
A	1.053	1.020	1.360	0.900	0.560	0.740	0.740	0.833	1.013
B	0.200	0.593	1.333	0.260	0.427	0.473	0.553	0.753	0.720
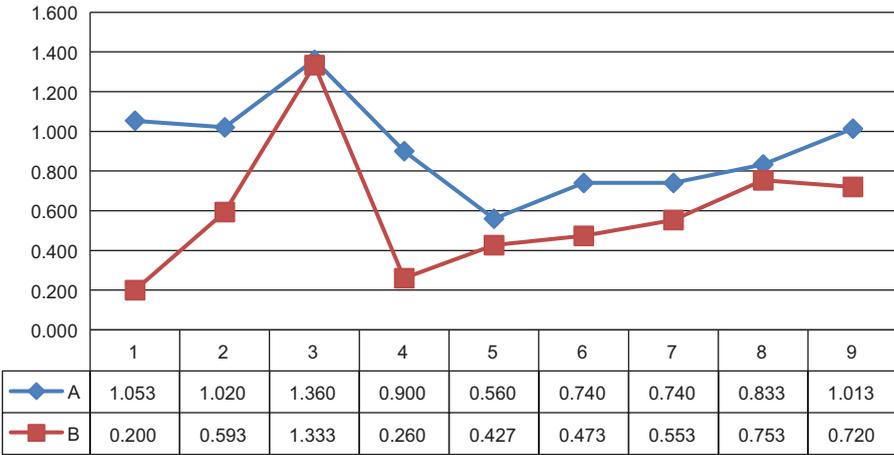
Fig. 8. Aggregated results of average conversion rates in individual rounds of experiments
Source: the authors' own study.

The learning effect and the increase in collective actions are most noticeable in the first three rounds, with the average conversion rates for the A commons increasing from 1.053 to 1.360; while the conversion rate for the B commons increased from 0.200 to 1.333. In the last, third round of the first stage of the experiment, the amount of time invested in both the A and B commons is almost equal, which means that the players evenly earmark their working time to support the development of the A and B commons in order to achieve the highest conversion rates. The third round was preceded by an opportunity to discuss and develop a joint action strategy. It was here that there was the greatest increase in average conversion rates, which resulted in a bonus being awarded for a large time investment in the commons, which means that the participants of the experiment agreed on the best solution for the working time division from the entire group's perspective, and they were able to achieve these solutions as declared. The increasing average conversion rates in rounds 1–3 also indicates the presence of a learning effect, mainly due to the understanding that spending a large number of hours on the commons brings additional benefits to everyone.

The second-stage rounds: 4–7 – initially, a decrease in the time investment in the commons was observed, and was particularly noticeable in comparison with the round 3 results. This was related to the change in the rules of the game, consisting in assigning a high value to the hours earmarked for free time (the experiment used the example of the so-called "long weekend", which favours out-of-the city trips and spending time with the family; this time is quite commonly perceived as an exceptionally valuable time of the year). As late as round 6, when players could engage in discussion and try to work out a common position, the commitment level for both commons increased.

In rounds 7–9 of the final, third stage, after excluding one of the game participants, the overall commitment to the development of the commons increased, which resulted in an increase in conversion rates, but to a lesser extent. This can be linked to the learning outcome; the knowledge generated in the previous steps was utilised. The conversion factors in round 7 (the first of this stage) for the A commons started from a lower level when compared to round 1, but the conversion rate for the B commons was higher, which can be explained by the fact that the participants of the experiment fully expressed their individual preferences only at the beginning of the game. Later they knew that this would really not pay off; they learned the limits of compromise and split their work time between the two commons to gain the most.

The results presented in Fig. 9 show that taking into account the three-stage experiment division, the participants act more and more collectively in subsequent rounds, allocate more time to the commons and thus obtain a greater value of time expressed in conversion factors. There is an exception – a particularly high value is attributed to free time, not related to involvement in commons-related activities (a decrease in rounds 3–4–5); this clearly demonstrated that the players "tempted" by an additional conversion factor for free time are willing to spend less time on the commons. Individual profit, mainly related to family
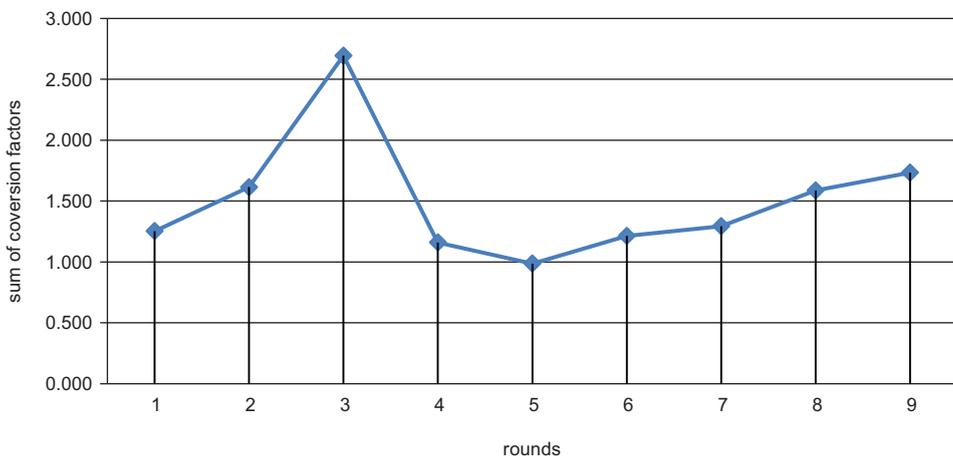
Fig. 9. The sum of conversion factors in individual rounds
Source: the authors' own study.

values, outweighs the collective benefits that can be obtained through voluntary membership in a community of strangers, the community which primarily attracts people of common interests and passions.

5.3.3. Collective actions whenever the value of free time is high

The specific feature of urban communities is that their members co-create and share commons. Members are primarily guided by the desire to pursue their passions and interests and to improve the quality of living – this most often relates to the immediate surroundings. They work together in a community; they utilise the time remaining after their professional or family duties. This work is not associated with any income. The analysis of the results from the experiments attempted to investigate the extent of the increase in the importance of free time; the time not related to the activities for the commons and how much the increase may have made the participants prefer to pursue individual benefits rather than obtain additional benefits related to group work.

In rounds 4–6, the participants of the experiment faced the dilemma of whether to choose between engagement in activities for the commons, rewarded with additional hours in the overall game balance, or to choose free time earmarked for family and people from outside the community, rewarded with a large conversion factor – 1.5 hours. If someone decided to earmark all 10 hours for free time, in accordance with the game rules this would have resulted in a gain of 15 hours of effective time. If, however, the group acted collectively and earmarked 40% of the time minimum to the creation of each common, i.e. A and B, each player would have received 3 additional hours to their personal score (a bonus resulting from the support of local authorities) and also conversion factors related to the preferences of the individual commons. According to the provisions of the experiment manual, from the point of view of the interests of the entire community, the optimal solution would have been to allocate 4 hours each for the A and B commons and the remaining 2 hours for free time. However, the success was dependent on all the players arriving at unanimous decisions because in the event of even one participant breaking away from the scheme (4–4–2), the benefits in the form of additional hours would not have been achieved. The players' decisions in rounds 4–6 served, therefore as a test of how many hours the city community is able to work together and how much time they want to spend on individual activity.

The aggregated results for rounds 4–6 demonstrate that the game participants found it very difficult to reach an agreement and act in a collective way which would bring additional benefits for all. The 4th round clearly demonstrates the goal of obtaining additional hours was not achieved (80% of the time had to be spent on the A and B commons), which made the round 5 results even poorer. Some of the experiment participants who adopted strategies for the commons in the previous round were discouraged this time and made more selfish decisions, and devoted more hours to highly scored free time. This attitude reflects a

	1	2	3
A	4.160	3.833	4.027
B	3.553	3.393	3.747
C	2.267	2.773	2.227
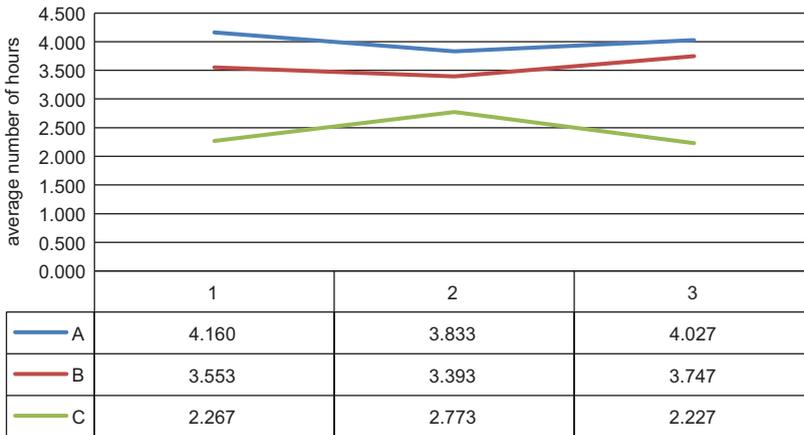
Fig. 10. The average number of hours spent on the A and B commons and C (free time) in rounds 4–6
Source: the authors' own study.

common situation when a city community becomes involved in the implementation of a project at an attractive leisure time, but in the course of implementation, the level of commitment turns out to be low because people do not come to work; instead they take an out-of-the city holiday. In such circumstances, a small part of the community finalises the project, or the project remains unfinished. In these situations, it is not possible to undertake any other further projects, as people who were previously very involved are now more reserved. In round 6, the participants were able to communicate before making their decisions, and usually one of the participants aired an opinion presenting the best solution from the point of view of the whole group. In order for the effect of additional hours to be achieved, everyone had to act in accordance with the adopted strategy. The aggregated results demonstrate that the round 6 results, compared to the previous round, are closer to the best result from the point of view of the entire city community. Out of the 15 experiments, only three reached the situation where the participants gained additional benefits resulting from devoting at least 40% of their time to both commons and decided not to use more than two hours of free time, though it generated high scores at this stage of the game. In one experiment, the players gained additional benefits in each of the three rounds. However, in the other two experiments, a good result was achieved once – in the fourth and sixth rounds.

In general terms, three attitudes are characteristic for the players at this stage of the experiment:
1. The first group comprises people who strove to achieve the best group result, adopting the 4–4–2 strategy (4 hours for the A and B commons and 2 hours for free time). In some cases, players were observed not earmarking free time at all, thereby increasing the chances of the entire community benefitting.
2. The second group comprises people who, although they limited their share of free time to 2 hours maximum, nevertheless yielded to the temptation and

devoted most of their time to the commons they declared to prefer, and thus they usually deprived the entire group of additional benefits. Such an attitude could have produced group effects if the preferences for individual goods were distributed evenly in a given experiment.

3. The third group comprised people who demonstrated an extremely selfish attitude, which at the same time guaranteed a high conversion rate related to their free time allocation. In several experiments, especially in round 6, preceded by a discussion and common strategy arrangements, individual players were observed violating the arrangements by devoting all 10 hours to free time. Thus they gained a maximum of as much as 15 hours of effective time but thereby deprived themselves and the other players of extra hours of collective action.

The summary of the experiments results makes it possible to state that:

– The preferences regarding the allocation of working time to individual commons declared at the beginning of the game affect the results and the profit level. In most cases, more time was allocated to the commons preferred by the majority of participants in a given game, and thus the conversion rates made it possible to increase the effective working time. It should be noted that only in games 1, 6 and 8 was there a situation where the time earmarked to a less preferred commons resulted in a loss in individual rounds, and the use of the conversion factor -0.8 as a result.

– The overwhelming majority of communities were able to achieve a bonus in rounds 4–6 as a reward for investing 80% of their working time in the A and B commons. In some cases, the score improved as late as round 6, during which it was possible to discuss and agree on a common game strategy. This stage of the experiment also showed a risk of one participant breaking out of collective actions for the benefit of the common when tempted by the prospect of individual effective working time improvement through earmarking it to leisure time. Such players were identified in a number of cases.

– Better results were obtained in the experiments in which players immediately realised that free time allocation, with the exception of rounds 4–6, did not produce any additional conversion factors which would improve the effective work time level, either individually or on the level of the entire community.

– In many cases, the best results were achieved in rounds which offered a discussion opportunity. This leads to the conclusion that communication for the establishment of a common position plays an important role in the activities of the community and leads to the enhancement of collective actions.

6. Commoning practices in cities

6.1. International survey results

A survey was carried out in the first six months of 2020. It was an online international survey. About six hundred invitations to fill the questionnaire were sent to the managers, employees and members of communities on all continents. The link to the survey was sent directly to the e-mail addresses of selected urban communities. Because of the difficult global circumstances caused by the coronavirus pandemic and the related constraints applying to social activities (including leaving home and the organisation of social events), fifty answers from twenty countries were collected **(Table 24)**.

Table 24. The number of urban communities taking part in the survey per country

Country	Number of communities taking part in the survey
USA	17
Poland	7
UK	5
Belgium	3
Netherlands	2
Canada	2
Albania, Belarus. Croatia, Estonia, Finland, Spain, Kenia, Germany, New Zeland, Luxemburg, Pakistan, Slovenia, Sweden, Italy	1

Source: the authors' own study.

The study participants included representatives of communities organising community gardens, urban farms, *Park Conservancies*, residential cooperatives, *Community Land Trusts*, *hackerspaces* and *fablabs*, *Repair Cafe*, and *Business Improvement Districts*. The questionnaire consisted of nine multiple-choice questions on the rules of designing self-organising institutions. The rules were formulated by Elinor Ostrom [1990]. Additional answers were also possible (the "Other" option). The relatively small number of answers does not allow fundamental conclusions to be drawn from the research. Still, the diversity of the urban communities whose representatives participated in the survey and its international range help us better understand how to manage urban commons. The study results are summarised in **Table 25**.

Table 25. Summary of the survey results

Question	Answer types	% of communi-ties partaking in the survey
1. Why was your communi-ty created?	common interests and shared passions	64
	sense of belonging to the neighbourhood	52
	physical upgrading of the neighbourhood	52
	preserving the natural environment	40
	restoring local resources (material or immaterial)	26
	protesting against an investment in your neighbour-hood	8
	reuse / appropriation of vacant land	46
	increasing the attractiveness of places	44
	sharing knowledge	56
2. Who are the users of your commons?	members of the community only	6
	members of the community as well as residents or workers staying in the neighbourhood	10
	members of the community as well as guests invited for the events organised in the community	24
	anybody, there are no limits	46
3. What are the rules for those who want to use the com-mons?	membership fee is obligatory	8
	working for the co-production of the commons is obligatory	18
	working for maintaining the commons is obligatory	26
	there are no rules	34
4. Who is eli-gible to modify the rules of using the com-mons?	anyone who belongs to the community	38
	the board of the community	50
	local authorities	22
	anyone interested in proposing changes of the rules (through the board)	24
	external experts	2
	members of other communities who share urban commons	5
	hard to say, there are no rules here	12
5. How do you control the use of the com-mons?	just by daily observation	40
	neighbourhood patrols	8
	CCT monitoring	4
	reporting by Facebook, Messenger, etc.	12
	there is a fence and gate that help us to control the use of our commons	34
	we have agreed on the limits of using the commons	20
	we do not control the commons	28

Question	Answer types	% of communities partaking in the survey
6. How is your community linked to the local administration?	the community participates in the decisions of the city/district	14
	the community directly supports the official goals of the city/district	14
	the community supports the delivery of local public services	16
	the community receives financial support from the city/district	24
	the community gets help in specific projects	44
	the community gets day-to-day support	2
	there is no direct connection/involvement of our community with the city/district	30
7. How do you manage conflicts in your community?	we discuss the issue and look for the agreement of the majority	74
	we refer to the peer court of the community	4
	we refer to the board of the community	36
	we refer to an external mediator	12
	there are hardly any rules on managing conflicts in our community	26
8. How do you motivate the community to work for the benefit of the commons?	people get higher priority to use the commons	12
	people get higher access (frequency) to use the commons	10
	people get rights to be identified as the community member outside (by using the community symbols, emblems, t-shirts, etc.)	10
	people get access to closed community events	2
	people get financial rewards	6
	there are no formal rules on getting the benefits / rewards	66
9. What are the penalties for not sticking to the rules of the community?	removal from the community	46
	limited access to the commons	14
	additional work for the community	0
	financial punishment	2
	there are no formal rules on punishment	52
10. When was your community born?	older than 2000	16
	2000–2011	26
	2012–2015	30
	2016–2018	24
	2019	4

Question	Answer types	% of communities partaking in the survey
11. What is the organisational form of the community?	Association	22
	Foundation	8
	community of residents	12
	housing community	4
	there is no legal form (informal community)	22
12. How many members belong to the community?	more than 100 people	22
	51–100 people	24
	21–50 people	28
	11–20 people	12
	2–10 people	14
13. What is the key profile of the community?	Leisure	14
	Sport	8
	Culture	36
	Heritage	10
	Social support	16
	Education	40
	Gardening	48
	Urban farming	30
	Environmental protection	30
	Public safety	8
	Tourism	4
	Co-working, hackerspaces, Fablab	14
	Recycling, reuse, Repair Café	8
	Co-housing	14
	Community Land Trust	18
	Business Improvement District	2
	Park Conservancies	10

Source: the authors' own study.

In response to the first question regarding the reasons for creating the urban community, the most popular answers included common interests and sharing passions (64%), knowledge sharing (56%) and sense of belonging to the community (neighbourhood) (52%). It shows that city dwellers feel the need to stay in touch with others, both to spend time together and collaborate to develop joint projects, where sharing knowledge and skills is a vital competence. The survey revealed that enhancing the place's attractiveness or developing an abandoned area into, e.g. a community garden, is the way to fulfil the objective of creating something that Botsman and Rogers [2010] called a collaborative lifestyle. City dwellers feel the need to stay together and create associations to do something they like after work rather than earn some money.

The answers to the second question on the users of urban commons reveal that access to the commons is relatively unlimited. Most answers confirmed that there were no limits to using the particular urban commons (46%). The second most common answer was that access to the urban commons was possible for the community members and guests invited for the events organised in the community (24%). This means a situation in which members of the urban community fulfil the roles of hosts who make their common space available based on pre-determined rules. In specific cases, typically in co-housing, CLT or allotment gardens, mainly the reference group members used the commons. A lack of precisely formulated operating rules is characteristic of urban commons. The research was a survey limited to fifty urban communities, but the answers in this and some successive questions suggest that urban commons are often developed based on informally operating inhabitant groups. Typically, in order to be perceived as a community member, it suffices to actively participate in the work for the co-creation and maintenance of commons. Sometimes membership fees or fees related to the common property maintenance are required (co-housing, CLT). The rules of using open spaces such as parks, gardens or yards are stipulated in regulations, e.g., "Do not throw litter", "Do not drink alcohol", or "Clean up after your dog".

Although the previous question suggests that the rules applicable to urban communities are underdefined and informal in many cases, the respondents indicate many entities that are authorised to change the rules of using urban commons. In the traditional, typically rural communities described by Elinor Ostrom, they were primarily the community members. For urban commons, most answers indicate the board competencies (50%), followed by the urban community members (38%), but some answers also suggest that proposals for modifying the rules can be submitted by anybody, even if the person is not a community member. It suffices to report such changes, e.g. to the urban community board. Moreover, local authorities are eligible to implement changes, which suggests their relatively greater power to create the rules of managing urban commons than the entities in charge of the generation and control of traditional commons.

The ways of using urban commons are diversified and depend on the kind of commons as well as the institutional form of the particular urban community. Daily observations were indicated by most respondents (40%). The observations are carried out by people involved in activities for the commons. Still, they are based on the intensive activity of the community members (which means that somebody is always present in the particular community garden or co-working space) rather than on scheduled duties or neighbourhood patrols (such answers were rare and given in the "Other" section). It is worth pointing out that in most cases included in the survey research, the borders of the commons were clearly defined (34%). The community gardens were fenced and had locked gates, while hackerspaces or *Repair Cafes* were situated in rooms with locked doors. This way, control of access to such urban commons can be easily organised. The respondents point out that locking the shared spaces is not meant to control their use by third persons but rather to restrict access. Typically, all community members get the key or access code. Over 12% of the respondents indicated that maintaining

current contact with the community members via Messenger, Facebook, or Whatsapp is a good way of controlling and monitoring. By keeping in touch, they can quickly respond to unpredicted and adverse situations in the shared space.

The answers to the question on the links to local administration highlight an essential difference between traditional and urban commons. Contrary to rural commons, the development of urban commons involves collaboration with public authorities. Urban communities may depend on the authorities' support in implementing specific projects (44%). The authorities often allocate special funds to the general support of urban communities' activities, based on a competition procedure. In addition to project and financial support, the respondents also mentioned that urban communities were directly involved in delivering local public services (16%) and supported the official public goals (14%). This means that urban communities replace or support local authorities in implementing tasks previously reserved for the public sector. In such cases, the authorities trust the communities and treat them as reliable partners in implementing public tasks, acknowledging broader experience and competencies in executing projects related to, e.g. culture heritage protection, the organisation of leisure events or knowledge transfer. The answers to this question reveal that solid relationships between urban communities and local authorities offer more opportunities for the authorities to intervene in the community's operation and control it to a greater extent.

The respondents mentioned discussing the issue and looking for the agreement of the majority (74%) as the most common way to handle conflicts. This means that despite having many members, urban communities can enter into direct dialogue and resolve conflicts during meetings. In more formalised communities, the role of the community or peer court, or possibly an external mediator, becomes more critical. It often happens in the communities with valuable assets that should be protected against waste resulting from wrong allocation decisions. A dispute between most active community members might arise, e.g. when some want to force their objectives through, without considering other people's interests.

Compared to the validity of sanctions used in traditional rural communities described by Elinor Ostrom, punishments do not seem to be the critical element for designing self-organising institutions in the case of urban commons. Over half of the respondents mentioned that there were no formal punishments for failing to follow the adopted operating rules, but a community member who does not observe or violates the rule can expect to be expelled from the community (46%). Such behaviour is typical of urban communities whose members are more loosely related. Their participation in the creation of common goods is aimed at improving the quality of urban life but does not determine the possibility of gainful employment or the income level.

A system of awards and encouragements seems more important in urban circumstances than punishments and sanctions. Although 66% of the respondents declared there was no particular motivating system in the communities, it is significant that the community members have the priority to access and use the

commons before guests or other city dwellers. Moreover, the benefit of being identified as a community member is perceived as another advantage. The very fact of being a community member and wearing its emblems, logo T-shirts, slogans, etc., is highly rewarding. The community members are also motivated by the right to enjoy the effects of the whole community's work, e.g. crops harvested in the community garden or the possibility to co-create products under *fablabs* or *makerspaces*. Each member's taking care of the residential resources offers another motivation confirming the significance of positive community benefits. In this way, the community is positively perceived and evaluated as an attractive living space.

A detailed analysis of the survey was carried out using three criteria describing the responses of a selected group of communities:

Criterion 1: The key profile of the community:
Among all communities participating in the survey:
– 24 declared gardening as the key profile (48%),
– 20 declared education as the key profile (40%),
– 18 declared culture as the key profile (36%),
– 7 declared co-housing profiles, and 9 declared Community Land Trust, which made 14 communities[9] (28%).

The division of the communities' characteristics is summarised in **Table 26**.

The communities that declared **gardening** as the key profile operate mainly in big cities, whereby as much as 70% of them are located in cities populated by over 500,000 people. These are large associations of city dwellers, as 55% of the communities have over fifty members. The establishment of such associations is most often motivated by common interests, shared passions and a sense of belonging to the neighbourhood (75% of such communities). The reuse or appropriation of vacant land, declared by 71% of the communities, is of equal importance. In most communities (58%), all interested persons can use community gardens without limitations. Still, in half of the communities participating in the survey, community gardens are controlled by daily observation and the presence of a fence and gate. In 79% of the communities, such activity does not constitute the only reason for establishing the community, but it supplements its other initiatives. Gardening takes time for the plants to grow and create the right ambience, which is confirmed by the fact that 58% of the communities declaring such a profile were established more than 10 years ago, while 21% have been operating for over 20 years. The community members typically (54%) do not obtain any benefits from working in the garden. It provides opportunities to meet with other people and spend time outdoors. According to over half of the respondents (54%), it matches the implementation of different projects initiated by local authorities.

The percentage of communities which declared **education** as the key profile is equally distributed among the identified city sizes, which means that the common goods they create find the developers and consumers in different cities. This

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9   Two communities selected both answers

Table 26. Community characteristics according to the key profile of the community, expressed as % share in the communities participating in the survey

Criterion	Response groups	Gardening	Education	Culture	Co-housing and Community Land Trust
City population	up to 200 K	17	25	17	43
	200–500 K	13	25	22	14
	500 K–1 M	28	20	22	14
	Over 1 M	42	30	39	29
Community size	Over 100 people	21	30	33	29
	51–100 people	34	15	22	22
	21–50 people	29	35	28	21
	11–20 people	8	10	11	7
	2–10 people	8	10	6	21
Why was your community created?	common interests and shared passions	75	80	89	43
	preserving the natural environment	58	50	44	29
	sense of belonging to the neighbourhood	75	45	72	57
	physical upgrading of the neighbourhood	63	45	67	71
	re-use/appropriation of vacant land	71	60	78	64
	sharing knowledge	58	80	89	29
	restoring local resources (material or immaterial)	33	20	33	29
Who are the users of your commons?	anybody, there are no limits	58	45	44	29
	members of the community only	0	0	0	14
How do you control the use of the commons?	just by daily observation	50	65	50	14
	there is a fence and gate that help us to control the use of our commons	50	40	50	7
	we do not control the commons	4	0	0	43
Diversity of the community's operation	Only a selected profile	21	5	0	64
	More profiles	79	95	100	36
When was your community born?	before 2000	21	5	17	7
	2000–2011	38	40	39	14
	2012–2015	25	35	22	29
	2016–2018	13	20	22	43
	2019	4	0	0	7

Criterion	Response groups	Gardening	Education	Culture	Co-housing and Community Land Trust
How do you motivate the community to work for the benefit of the commons?	there are no formal rules on getting the benefits/rewards	54	75	61	50
	people get higher priority to use the commons	21	5	22	7
How is your community linked to the local administration?	the community supports the delivery of local public services	13	15	11	29
	the community gets help with specific projects	54	25	39	43
	the community participates in the decisions of the city/district	17	25	22	21
	the community receives financial support from the city/district	17	15	11	29
	the community directly supports the official goals of the city/district	17	15	11	21

Source: the authors' own study.

kind of community activity profile is not related to the community size, although most declarations concerning such a profile were submitted by communities with a headcount between 21 and 50 people (35%). As much as 80% of the communities declared common interests and shared passions as well sharing knowledge as their key motivation. It is typical of urban communities, which essentially bring together people more open to knowledge and contact with others. Not only does education-oriented activity help people to catch up with any education deficiencies (e.g. in children or emigrants), but it also contributes to broadening the knowledge about selected issues, promotes new books and other publications, enables contact with authors of masterpieces and provides the opportunity for enthusiasts to study the topic of their interest together. Nearly a half (45%) of such communities declare an unlimited possibility of using their commons. Sixty-five per cent (65%) of the communities (which is more than in the case of the communities with a gardening profile) guard the places of their activity just by daily observation, whereas a fence and gate were installed in 40% of the cases. None of the communities with education as the key profile responded that they left their premises unattended, which seems to result from the fact that such an operation requires a room, a studio or laboratory which is closed when the classes end. It often complements the community's other activities; only 5% of the communities declared education as their only activity profile. Still, they last quite long, as 63% of the communities developing commons under education have been operating for 5 to 20 years. In 75% of them, the members work with

no formal rules on getting the benefits, sharing their knowledge and talents free of charge. The collaboration with the city authorities takes different forms. The communities get support in specific projects and participate in the decisions of the city or district (25% each). This results from the high popularity of education activities that raise the interest of both the providers (teachers, coaches, facilitators etc.) and students or course participants.

The communities that declared they had a **culture** profile operate mainly in the biggest cities, with a population of over a million inhabitants (39%). This activity profile prevails in the largest communities, i.e. those with over 100 associated members (33%), although it is declared by 28% of the communities with the number of members ranging from 21 to 50. Various motivations drove them, but as many as 89% of the communities declared common interests and shared passions as well as the need to share knowledge, while 78% of the communities selected the "reuse or appropriation of vacant land" answer. Less than half (44%) of the respondents indicated they were offering the unlimited possibility of using the produced commons, which is a value lower than in the communities with a gardening or education profile. In half of the surveyed communities, the buildings and venues where culture-oriented communities operate are controlled just by daily observation and by building a fence and gate. The culture-related activity adds to the communities' other functions, which is confirmed by the fact that none of the communities declared it as their only activity profile. It rather supplements and enriches activities oriented on other, e.g. educational, objectives. The communities which declared culture profile represent all timeframes, whereby most of them (39%) have been operating for 10 to 20 years. In 61% of the communities, there are no incentives in the form of benefits or rewards to get involved in common works. The situations in which the community gets help in specific projects prevail (39%) in the relations with the local authorities, whereas the cases of the community's participation in the decisions of the city or district are less common (22%).

The communities which declared that they had a **co-housing and Community Land Trust** profile prevail (43%) in the smallest cities of up to 200,000 inhabitants and in the biggest cities with a population of over 1,000,000 (29%). The number of the community members is nearly uniformly distributed among different community sizes, except for the communities which associate from 11 to 20 people (only 7 %). Contrary to the communities with other activity profiles, the need for physical upgrading of the neighbourhood was the most common motivation (71%) to establish a community. It was followed by reuse or appropriation of vacant land, ranked second (64%). It is a testimony to the fact that the features of neighbourhood space in the close vicinity of the inhabited buildings are the main factors integrating the community members. People form associations and work together to improve the quality of life in a particular place in the city, which mainly applies to a street or backyard, but some initiatives cover entire quarters or even districts or residential estates. The communities that declared that they had co-housing and Community Land Trust profiles were the only ones to indicate constraints in creating commons in their activity profile,

whereas 14% of them declared that the commons were for the community members only. Since the commons are situated in the direct physical vicinity of flats, they are not particularly controlled by special measures, whereas as much as 43% of the communities do not control the commons. The objectives of activity integration are well and clearly defined in such communities, and as much as 64% of them has only one activity profile, which differentiates them from culture-oriented (0% single-profile communities) or education-oriented communities (5% of single-profile communities). Their distinctive feature is that they have been operating for the shortest time. Most of them (43%) were established in 2016 – 2018, whereas 79% of the communities are no older than eight years. On the one hand, this seems to be the evidence of neighbourhood collaboration, and on the other hand, it confirms greater involvement in taking care of the surroundings of one's flat. As a closed and controlled space, the flat does not suffice to satisfy the needs of all its tenants. In half of the communities taking part in the survey, the members are not encouraged to work by any formal rules or getting the benefits or rewards. People feel like improving their living conditions, even if they have to share them with the people who do not engage in creating the commons. Their work matches the plans of local authorities that often help in specific projects (43%).

Criterion 2: City size

Among all surveyed communities:
– 15 communities operate in cities with a population of up to 200,000 people,
– 15 communities operate in cities with a population of over 1,000,000 people.

The distribution of the essential characteristics of the communities is summarised in **Table 27**.

The communities operating in cities with a population of up to 200,000 people were created primarily because of common interests and sharing passions (53%). The importance of the sense of belonging to the neighbourhood and physical upgrading of the neighbourhood was half lower (27%). Their members are integrated by the need to spend together the time devoted to personal development, which results from individual interests rather than a sense of belonging to the neighbourhood. In cities with a population of over 1 million people, the development of communities was mainly motivated by common interests and sharing passions (80%), while physical upgrading of the neighbourhood was declared by a slightly lower number of communities (73%), followed by a sense of belonging to the neighbourhood – 60%. Such cities ensure more anonymity, and that is why many inhabitants are more willing to establish neighbourhood relations, which promote more intimate contacts and establishing relations that build small social groups within a large group of all big city users.

The distribution of the possibilities to use the commons available for the community users is similar in small and big cities. In the cities with up to 200,000 inhabitants, nearly a half (47%) of the communities declare that they provide unlimited access to the commons to anybody, whereas 13% of the communities make the commons available only to its members. In cities populated by over 1 million

Table 27. Community characteristics according to the size of the city where they operate, expressed as % of the surveyed communities

Criterion	Response groups	Communities from cities with a population up to 200,000 inhabitants	Communities from cities with over 1,000,000 inhabitants
What are the reasons that your community was created	common interests and sharing passions	53	80
	sense of belonging to the neighborhood	27	60
	physical upgrading of the neighborhood	27	73
Who are the users of your commons?	anybody, there are no limits	47	40
	members of the community only	13	13
How do you control the use of the commons?	just by daily observation	20	47
	we do not control the commons	27	20
	there is a fence and gate that help us to control the use of our commons	7	47
How is your community linked to local administration?	the community supports the delivery of local public services	40	7
	the community gets help in specific projects	27	53
	the community participates in the decisions of the city/district	27	13
	the community receives financial support from the city/district	33	13
	the community directly supports the official goals of the city/district	20	20
When was your community born?	before 2000	7	40
	2000–2011	20	27
	2012–2015	47	13
	2016–2018	20	20
	2019	6	0
How do you motivate the community to work for the benefit of the commons	there are no formal rules on getting the benefits/ rewards	60	67

Criterion	Response groups	Communities from cities with a population up to 200,000 inhabitants	Communities from cities with over 1,000,000 inhabitants
How do you motivate the community to work for the benefit of the commons	people get higher priority to use the common	7	20
	people get higher access (frequency) to use the commons	13	20
	people get rights to be identified as the community member outside (by using the community symbols, emblems, t-shirts, etc.)	13	7
What is the key profile of the community?	co-housing/Community Land Trust	40	27
	gardening, urban farming	27	67
	co-working, hackerspaces, Fablab, repair café	27	13
	Culture	20	47

Source: own study.

people, slightly fewer communities (40%) declare that all city users can freely use the community's commons. At the same time, 13% of the communities reserve the use only to its members. It suggests that the size of the city does not determine making the commons available. The openness which characterises the urban commons is related to the cities' general characteristics, including the supralocal exchange of commons and services. It has economic significance and applies less to social relations that involve the development and activity of communities.

More significant differences between the communities operating in small and big cities can be observed in the activities related to the control of using the commons. The control tool of daily observation is used by 20% of the communities in cities with up to 200,000 inhabitants and 47% of communities operating in cities with over 1 million people. A fence and gate that help control the use of commons is used implemented only by 7% of communities in small cities and by 47% of communities in big cities, which seems to stem from the general higher accessibility of urban spaces, where the locations taken care of have to be protected against being captured by the functions that typically have difficulty finding sufficiently large undeveloped areas (e.g. for car parks). Similar per cent values in both types of cities apply only to a lack of control (27% and 20%, respectively).

In the relations with local authorities, the communities operating in cities with up to 200,000 inhabitants mainly support the delivery of local public services (40%) but also receive financial support from the city authorities (33%). They seem to be closely linked to the authorities' activity than the communities in cities populated by over 1 million people, which most often get help in specific

projects (53%), and enrich the general urban development plans with their initiatives. Only 7% of such communities declare that they support the delivery of local public services, which reveals their low interest in complementing the activities undertaken by public sector units (because a big city offers many facilities). The created commons are not developed instead of the public offer but constitute an addition resulting from the needs of the community members. They get public goods and services as citizens and members of the local government and additionally use the commons they create to improve the quality of city living.

In small cities, the highest number of communities partaking in the survey (47%) has been operating for no longer than 5 to 8 years, whereas 84% of the communities were established after 2012. Only 7% of the communities are more than 20 years old. In the biggest cities, as much as 40% of the surveyed communities operated before 2000, and 77% have been operating for over 10 years. Older communities in big cities seem to be crucial social life entities that experienced a lot, survived and became rooted in the awareness and physical spaces of their streets and districts. As time went by (e.g. in the case of the gardening key profile), they created characteristic development of particular places or (in the case of education or culture key profile) their offering, standing out in the urban reality.

In their answers to how the communities motivate their members to work for the benefit of the commons, the communities in both types of cities declared similarly (60% and 67%) that there were no formal motivation rules. In the cities with up to 200,000 inhabitants, the lowest percentage of communities (7%) mentioned higher priorities for the community developers to use their commons. In cities with over 1 million inhabitants, the lowest number of communities (7%) marked the answer related to getting the rights to be identified as the community member outside. The motivations seem not to depend on the city size, as communities associate those who want to join them, but working with people who share similar interests, opinions and hobbies is a desired and appreciated reward.

The communities operating in cities inhabited by up to 200,000 people declared that co-housing or Community Land Trust was the most common key profile (40%). It is a testimony that the community members are interested in solving their housing problems and want to invest their work to develop better living surroundings. The communities in cities with over 1 million people, most often (67%) selected gardening or urban farming key profile, which reveals environmental motivations of the community members, including the need for direct contact with nature, working outdoors or will to make preserves from home-grown fruit and vegetables. Nearly a half of the surveyed communities in those cities (47%) declared their interest in the production of cultural commons.

Criterion 3: year of the community establishment

Among all surveyed communities:
– 21 communities were established before 2011,
– 29 communities were established not earlier than in 2011.

The distribution of the communities' most important characteristics is summarised in **Table 28**.

Table 28. Community characterisstics according to the year of the community establishment, expressed as % of the surveyed communities

Criterion	Response groups	% of communities established before 2011	% of communities established not earlier than in 2011
Why was your community created?	common interests and shared passions	81	55
	sense of belonging to the neighbourhood	57	48
	physical upgrading of the neighbourhood	57	48
	preserving the natural environment	52	31
Who are the users of your commons?	anybody, there are no limits	48	45
	members of the community only	5	7
How do you control the use of the commons?	just by daily observation	38	41
	we do not control the commons	14	21
	there is a fence and gate that help us to control the use of our commons	52	21
How is your community linked to local administration?	the community supports the delivery of local public services	14	17
	the community gets help with specific projects	43	45
	the community participates in the decisions of the city/district	19	10
	the community receives financial support from the city/district	10	31
	the community directly supports the official goals of the city/district	14	14
How do you manage the conflicts in your community?	we discuss the issue and look for the agreement of the majority	81	69
	we refer to the board of the community	33	38
	there are hardly any rules on managing conflicts in our community	24	28

Criterion	Response groups	% of communities established before 2011	% of communities established not earlier than in 2011
How do you motivate the community to work for the benefit of the commons?	there are no formal rules on getting the benefits / rewards	57	72
	people get higher priority to use the commons	19	7
	people get higher access (frequency) to use the commons	19	3
	people get rights to be identified as the community member outside (by using the community symbols, emblems, t-shirts, etc.)	19	3
What is the key profile of the community?	co-housing/Community Land Trust	14	38
	gardening, urban farming	67	41
	co-working, hackerspaces, Fablab, repair café	19	24
	Culture	43	28
	Education	38	28
	environmental protection	38	24

Source: the authors' own study.

The communities established before 2011 mainly (81%) derived from common interests and shared passions. In over a half of the surveyed communities, such aspects as the sense of belonging to the neighbourhood (57%), physical upgrading of the neighbourhood (57%) and preserving the natural environment (52%) turned out to be vital. In the case of communities established no earlier than in 2011, the essential motivations included common interests and shared passions (55%), followed by a sense of belonging to the neighbourhood (48%), and physical upgrading of the neighbourhood (48%). Such a distribution of answers seems to confirm that urban commons primarily enrich the public offer with individually selected possibilities of executing the preferred tasks in free time. Furthermore, as a critical component of satisfying individual needs, they are durable and last, despite changes in the public offer[10]. People have always sought opportunities to develop their interests and share their passions with others, sometimes by creating local pressure groups that effectively defend their interests.

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[10] Which must have occurred in each of the surveyed cities in the 20-year period, although at varied intensity.

The opportunities to use common goods are similarly distributed in older and younger communities. Both in the communities established before 2011 (48%) and in or after 2011 (45%), the declaration that there are no limits on using the community's commons dominates. A low percentage of both community types implement restrictions to make the commons available only to the community members (5% and 7%, respectively). This way, they seem to confirm that urban communities are not embedded in the urban social reality in order to build their privileged position. They do not build their brands for the members' privilege but take into account the needs of the city's other inhabitants. They associate the interested parties but also influence the living conditions of everybody who encounters their offering.

The use of commons in the communities established before 2011 is primarily (52%) controlled with a fence and gate, which the communities installed and considered desirable. If a community has lasted for many years, its offering must be valuable for its members, who feel motivated to preserve its advantages and protect it against behaviour that might reduce the offered benefits. Daily observation is also important in both community types (38% in older ones and 41% in younger ones), which is relatively easy to implement if it applies to areas near the places of residence. It does not require any additional investments (e.g. purchasing CCTV cameras) and becomes relatively objective when many people observe what is happening on the premises.

The communities operating for more than 10 years declared that their contacts with local authorities are most often related to getting help with specific projects (43%). The declarations concerning other relationship forms in such communities were quite uniformly distributed (10–19%). The respondents from the communities established in 2011 or after also most often selected the answer about getting help with specific projects (45%), followed by receiving financial support for their activity from the city/district (31%). The duration of the community's existence can be significant for the relationships with local authorities, when the communities become representatives of the local interests, owing to many years of their activity and recognition among the city's inhabitants, by supporting the authorities' efforts (e.g. to introduce a new urban function – building a park) or bringing together those who protest against them (e.g. building a residential estate in a park area). The members of communities operating for a short period of time have to convince neighbours and other inhabitants of their part of the city that their zeal can be an important power in creating development initiatives.

The preferred solution among the communities with over 10 years' history is to discuss the issue and look for the agreement of the majority (81%). Since they survived so long, their methods of commons management are essentially based on democratic opportunities to agree on the common goal. Thirty-three per cent of such communities declared that they referred to the board of the community in the event of conflict, whereas only a quarter of them follow no rules at all. The long-lasting communities developed effective conflict management procedures, which is confirmed by their uninterrupted operation. The communities established no earlier than in 2011 also point out a more common use of the strategy

to discuss the issue and look for the agreement of the majority (69%) and similar use of other ways to manage conflicts, whereby these are first and foremost declarations that can sometimes (e.g. in the case of formalised Community Land Trust) be determined by the rules set out when the community is developed.

More often than younger ones, the long-lasting communities declared the presence of rules that motivate activity (19% in three communities). A lack of such rules is observed in 57% of older communities but in as much as 72% of younger communities that did not manage to consolidate relevant decisions. Their members can use the commons regardless of the number of hours they worked to create the common goods. They do not get privileges because the community's brand is not well-established, and belonging to the community is not perceived as status-enhancing. Limitations in the freedom to use may be implemented with time, which might entail some privileges that motivate people to engage in activity.

Communities established before 2011 most often declared that they had a gardening or urban farming key profile (67%). The culture profile was ranked second (43%). The two profiles seem to promote long-lasting operation because gardens grow for many years, whereas cultural activity includes children and young people growing up, disseminating artistic achievements and maintaining the tradition. The communities established in 2011 or after also indicate gardening or urban farming profiles, though their percentage is lower (41%). A similar number of them declared a co-housing/Community Land Trust profile (38%). All other available profiles (co-working, hackerspaces, Fablab, repair cafe, culture, education, and environmental protection) were declared to be the core activity by 25% of the communities.

The following conclusions summarise the survey:
–   members of urban communities have common interests, share passions and are concerned about the physical upgrading of their neighbourhood,
–   the vast majority of urban communities declares they have several activity profiles,
–   gardening, followed by culture and education, are the dominating activity profiles of urban communities,
–   urban communities are typically open for all city users; they restrict the use of their commons and offer privileges only to its members only to a limited extent,
–   punishments related to a lack of the community member's activity are rarely used; if the punishments are used at all, they involve excluding the member from the community,
–   urban communities that create and use the commons together often operate without any established formal rules or principles,
–   urban communities cooperate with local authorities mainly by implementing their projects, which enrich the city's offering and supplement public goods and services. Still, the communities often receive financial support from the city/district,
–   daily observation by neighbours is the best way to control the commons,

– internal conflicts are resolved through dialogue and democratic discussions on the decisions to be implemented,
– the activity of the longest-lasting urban communities is motivated by the common interests and passions of their members.

6.2. The collective activity of urban communities – case studies

6.2.1. Columbia Heights Green in Washington DC

Initially, this was an area of dilapidated garages and illegal waste dumping. In 2006, neighbourhood residents initiated positive changes in collaboration with the Washington Parks & People organisation and members of the Ward 1 Council[11]. The most significant initial constraint was more than 25 tax liens imposed on the site[12]. Their exemption required special legislation of the DC Council and the assistance of the local law office. Afterwards, the community could take over the site as its property, and in 2010 a community garden was opened.

Photo 1. Columbia Heights Green in Washington DC
Author: A. Polko.

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[11] Ward – an administrative division of the city that elects and is represented by councillors.
[12] Tax lien is a legal claim against the assets of an individual or business that fails to pay taxes owed to the government.

Between 2010 and 2020, Columbia Heights Green evolved from a traditional community garden with individually managed plots to a community agriculture model. This involves a group of volunteers running an urban farm. All the products are weighed and distributed among the volunteers. Moreover, some products are given to organisations providing food to the people in need. Columbia Heights Green collaborates with Martha's Table organisation, which operates in Washington with the aim of improving the quality of education and health, including food justice and access to healthy food.

Columbia Heights Green has implemented innovative organic food production solutions for the local community. To that end, it established collaboration with AgroEcoLab from the University of Maryland. The scientists examined nutritional profiles of crops in connection with a dietary survey in the local community. This enabled the development of a planting plan that would contribute to the maximisation of the products' micronutrient value and provide better food quality for the local community.

The activity of Columbia Heights Green leads to the development of the following common goods:
– education classes aimed at improving awareness of sustainable development and food justice;
– sharing knowledge on the establishment and running of community mini-farms;
– the production of healthy food and sharing it in the community, and handing over the excess to those in need;
– creating a place to spend free time, e.g. a meditation bench and picnic tables;
– beekeeping to make honey, to encourage pollination, and to protect bees.

6.2.2. Wangari Gardens in Washington DC.

Wangari Gardens is a park and community garden inspired by Professor Wangari Maathai's[13] legacy, with a mission to create a garden to everyone's benefit. Wangari Gardens is a 501(c)(3)[14] corporation led by a rotating volunteer Board of Directors. The Friends of Wangari Gardens, being a 501(c)(3) non-profit organisation, is the team that supports the community's activity.

The organisation's mission is as follows: *The Friends of Wangari Gardens is a community-led non-profit organisation that promotes neighborhood enrichment and environmental sustainability by protecting, managing, and increasing accessibility to Wangari Gardens, a public garden and park, while working with local communities to develop and*

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[13] Professor Wangari Maathai (1949–2011), Kenyan activist for environment and social justice. Laureate of the Nobel Peace Prize in 2004. The founder of The Green Belt Movement that has spread in many African countries. The Green Belt Movement is an organisation which enables societies, and women in particular, to enhance their living conditions by improving the environment's quality, using tree planting as an entry point.

[14] 501(c)(3) are commonly referred to as charitable organizations exempt from federal tax under section 501(c)(3).

implement educational, recreational, therapeutic, environmental, and agricultural pro-grams throughout the DC area.[15]

Photo 2. Wangari Gardens in Washington DC
Author: A. Polko.

The Wangari Gardens can be used in any of the following three ways:
– Personal plots
  • for people living within a 1.5-mile radius from the garden,
  • 50 USD membership dues,
  • the possibility to use shared resources (water, seeds, tools),
  • plant the plot by April 15,
  • control the weeds,
  • plant a cover crop at the end of the season,
  • attend a team's workday once a month.
– Public gardens
  • free public gardens situated on the other side of the fence that surrounds personal plots,
  • the public gardens include vegetable gardens, a herb garden, a 50-fruit-tree forest garden, a medicinal garden, a strawberry garden and berry bushes,
  • garden plot holders maintain the public gardens as a way to give back to the community,
  • anybody can pick products from the public gardens outside the fence.

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[15] The website of Wangari Gardens https://wangarigardens.wordpress.com/about-2/about/

– The Compost Cooperative
  • working together to create high-quality compost,
  • the cooperative members meet every first Sunday of the month to train new members,
  • the members have to come on scheduled days, process food waste and rotate the bins,
  • never use a compost bin without adequate training,
  • all bins are locked to ensure compost quality control.

The Wangari Gardens' activity leads to the creation of the following common goods:
– products (vegetables, fruit), cultivated and grown by all community members,
– a shared compost bin,
– DC's first public hammock,
– neighbourhood festivals,
– yoga,
– block parties – featuring community design workshop with EnviroCollab (architecture and urban planning studio focusing on sustainable design, collaborative engagement and community advocacy).

6.2.3. La REcyclerie in Paris

La REcyclerie is a place in Paris, located in the former Petite Ceinture station and along the closed down municipal railway line. In 2014 the building and its surroundings were transformed into a space devoted to community initiatives. La REcyclerie is primarily aimed at increasing social awareness of the value of the environment and environmental responsibility. The community members promote and practice recycling by reducing resource use, processing waste, and reusing things instead of disposing of them.

The community members operate under the Les Amis REcycleurs association. In April 2021, the group had 625 members. The annual membership fee ranges from 20 to 30 EUR (lower fees apply to students, the unemployed, and social care beneficiaries).

La REcyclerie's activity focuses on four types of activities:

1. **Ecoculture programme** – a set of regular or one-off culture events, thematic workshops and study visits. Radio REcyclerie is an auxiliary initiative – a series of podcasts including interviews and debates on the development of urban communities.

2. **Urban farm** – ca. 1,000 m² of environmental corridor instead of the former municipal railway line in a densely populated district of Porte de Clignancourt. Hens and ducks are bred in the urban farm; there are over 170 cultivated plant species, bee-hives, birdhouses and an insect hotel. There are two regular employees and 100 active volunteers taking care of the farm. Children and adults can enjoy workshops, study visits and projects related to collective work on the urban farm.

Photo 3. La REcyclerie in Paris
Author: A. Polko.

3. **L'Atelier De René** – a repair workshop for the association members, where they can use tools, repair defective equipment or create new objects from materials considered useless. The aim is to share knowledge and skills, and to restore a love for manual work and the processing of different materials. The workshop is open from Monday to Friday and on every first Saturday of the month. Bosch provides the tools for the workshop.
4. **Corner of the REcyclerie** – a cafe and canteen serving organic, local, seasonal food based on fruit and vegetables. The food residues are sorted and used in the garden or composted. The meals are not free. The chef and his/her team prepare the meals, but there is no service.

La REcyclerie spaces can be booked for events related to working for the community or implementing objectives convergent with those of La REcyclerie. Wedding or birthday parties, or commercial events, are not allowed on the premises.

The La REcyclerie's activity leads to the creation of the following common goods:
– shared cultivation of vegetables and fruit, and honey production,
– workshops that enhance environmental awareness and improve the skills related to urban agriculture,
– podcasts, including debates and discussions on environmental protection, development of site communities etc.

– sharing the knowledge and skills related to DIY activities and repairs under L'Atelier De René,
– cultural and social events that integrate the local society,
– a shared library that offers books free of charge on community collaboration, citizenship development, etc.

6.2.4. Mad About Cork

Mad About Cork is a community whose members call themselves a guerrilla group. Their objective is to implement positive changes in the degraded and derelict public spaces of Cork through street art, guerrilla gardening, and similar activities. The group members organise meetings on Wednesday and Saturday afternoons, mainly in summer, and regularly work on successive projects spread all over Cork. The group's work is supported by representatives of business, charities, local clerks and local society.

The activities undertaken by the Mad About Cork volunteers are not time- or capital-consuming. They do not require that the group take over exclusive ownership of the space because their activities typically do not interfere much with public space. They are meant to make the sites look more beautiful and to improve aesthetics. Owing to graffiti, murals and flower chests, the places vibrate with colours. **Photo 4** shows Coleman's Lane, which was renovated by the group.

Photo 4. Mad About Cork
Author: A. Polko.

The volunteers do not abandon the renovated area, and once the project is finished, they regularly look after the plants and the street art pieces they created. The group uses street art to honour heroes and people related to Cork, including but not limited to Cillian Murphy (actor) or Mary Elmes, called the Irish Schindler, who was involved in humanitarian aid and saved at least two hundred Jewish children during the Holocaust. Mad About Cork also collaborates with Cork Samaritans and places the organisation's telephone number on their art pieces. Anybody who needs free of charge support services can contact the organisation.

People can become group members in either of two ways. First and foremost, you can devote some time and join the group to create street art or make the city more beautiful through gardening. Experience is not required. The will suffices. The group members promise to teach the novices everything they need. Secondly, you can support the group by giving them materials, such as plants, plant boxes, gardening tools, paints (in cans or spray), brushes, etc.

The Mad About Cork's activity leads to the creation of the following common goods:
– street art that improves the quality and aesthetics of the public spaces,
– small gardens and flowerbeds that improve the quality and appearance of public spaces,
– graffiti paying tribute to and promoting important people related to Cork, strengthening the city inhabitants' local identity.

7. Conclusions and recommendations on urban commons management

7.1. General conclusions concerning the management of urban commons

A list of general conclusions concerning the management of urban commons was formulated, based on studies of the literature presenting previous scientific accomplishments and field experiments; and surveys and case studies carried out as part of a research experiment.

– The urban commons is a complex concept which refers to the actions and results of urban communities commoning their resources. A community's decision to make conscious use of shared urban resources is the starting point for commoning. A collective action results in common goods created and distributed on a non-market basis rather than market products.

– The diversity of communities and urban resources and the different contexts of their functioning make it challenging to develop a complete package of urban commons management solutions that could be used anywhere and anytime. Learning the historical background and circumstances of urban communities' operation is of pivotal importance, as it helps to understand specific local features of commoning.

– Contrary to the majority of traditional commons, natural resources are not the basis of urban commons. This means that urban commons have to be created entirely by a community. A high level of community members' engagement in creating and maintaining the usability of the urban commons is the key success factor.

– Overconsumption and overuse of resources do not seem to be the most significant problem in urban commons because the number of people interested in the urban commons is typically not high. Too low a level of involvement in the creation of common goods constitutes the biggest problem.

– Individual cities are characterised by different shares of the four kinds of goods. In some cities, most areas and facilities are private properties or club goods, whereas there are plenty of public spaces in other cities. Some are characterised by low development quality and not are not highly valued by the inhabitants. This can provide an impulse for the establishment of urban communities and the creation of common goods. Individual urban commons vary in terms of the saturation of two features: excludability and rivalry. The two features can be treated as variables that are to a certain extent controllable.

The resource owners or users can decide if the resources should be of a type closer to private commons, public commons, club commons or common-pool resources. The results of the surveys and case studies reveal that communities control access to their urban commons using fences, locking rooms, or having fixed opening hours. Such procedures are implemented not to exclude anybody but rather to have control and protect the commons when no community members are on the premises.

– The communities working for the creation of commons in cities can exist, but they do not have to. Engaging in the urban community is always an auxiliary activity for its members, in addition to gainful employment. In order to work for the urban community, one has to demonstrate high motivation and be ready to devote one's spare time. The number of retired people in cities has been growing. Pensioners have a lot of free time and still enjoy good health and condition, which often makes them the drivers of urban community initiatives. Working for the creation of urban commons is voluntary and does not guarantee the community's survival. People willingly and easily join urban communities but may leave them equally easy. The relationships between such community members are looser and less durable. Some community members can engage a great deal, while others only occasionally.

– Shared passions, common interests and knowledge development are the critical motivations for the establishment of urban commons. People in cities form groups to spend time together doing things related to their interests. It can be a group of people who meet to go running together or work in the garden. They can be people who share hobbies, e.g. DYI or computer programming. Some operate in fablabs and makerspaces, and others become associated under hackerspaces.

– The desire to improve the quality of the living space is another important motivation. In such cases, the inhabitants do not choose communities to join but create their communities with people from the neighbourhood. When you live in a city, it is worth living on friendly terms with your neighbours, considering their proximity and the frequency of contacts. Such communities are most often established because of dissatisfaction with the development of the surroundings.

– The field experiments revealed that the opportunity to discuss, which leads to agreeing on a common strategy favourable for the whole group, often improves the outcomes of the community's activity. Surveys also demonstrated that discussion is a common way to solve conflicts and misunderstandings concerning urban commons.

– The surveys and case studies showed that many urban communities are multi-functional, meaning that several common goods are created, often complementary, based on shared resources.

– Cultural commons are often described as complementary to other common goods. Cultural events help to integrate urban community members and are an attractive offering for the communities' visitors.

– Urban communities often operate on the basis of non-formalised rules and standards. Urban communities have their regulations or charters, but they often apply to essential issues related to using their premises. They stipulate the rules of behaviour in the shared space, and specify who can access it and when. The list of rules placed at the entrance to a community garden or co-working space is primarily intended for visitors. The standards of collective activity in a community tend to be more complex and result from the personal relations of the community members.

– Most communities are open to all city users. In addition to the community members, they invite people living in the neighbourhood, special guests or social groups (youngsters, seniors, etc.) who can take advantage of the community's cultural or educational events and integration meetings.

– Urban commons are localised goods, which means they are co-created and co-used in a specific place. The spatial borders are sometimes clearly demarcated by a fence, a room in a building, information boards etc. A name or accurate definition of an urban community also marks the borders of urban commons.

– Most urban commons, such as community gardens, fablabs or Business Improvement Districts, have their own names, emblems, logos etc. They are placed on information boards, documents and the uniforms of the community members. Urban communities run their websites and are present in social media. All this fosters the promotion of commons and makes the city users aware that the given place functions as the urban commons.

– People should be convinced that collaboration as part of the urban community offers additional profits in the form of collective benefits.

– Flat renters do not get engaged in the community's activity as much as property owners. Residential estates with a high turnover of residents and a high share of flats for rent do not foster the establishment of a long-lasting and stable urban community.

– Urban communities often use derelict or abandoned sites, or places that do not function properly. In such cases, the communities' operations generate positive externalities for people living in the neighbourhood, resulting in, e.g. improving the appearance of the surroundings and the public safety level.

– Urban communities enter into different types of relationships with local authorities. First and foremost, they operate in the formal and legal conditions created by local authorities. That is why they have to take local policies into account, including spatial planning, housing, environmental protection and social policies. Secondly, cities provide conditions for NGOs to operate in their areas. The conditions may include but are not limited to support from grants, making land available for use, exemption from property tax, and substantial support with project implementation. Thirdly, local authorities may commission some demanding public tasks to urban communities; this applies particularly to cultural, educational, sports and leisure events. Finally, urban communities may fulfil a counselling and opinion-giving function during the development of strategic, programme and planning documentation.

– The process of urban commons development can be treated as a process in which local authorities reveal their openness to the communities' activity and take the role of a transformation process leader, coordinator and facilitator of changes. This always concerns the inclusion of citizen milieus (groups and urban communities) in the process of co-deciding about the activity directions or collaboration for the realisation and common evaluation of the outcomes produced owing to the offered urban commons or local commons. The first process represents co-management and the other – governance.

7.2. A list of recommendations for urban communities

The list of recommendations has been formulated for urban communities that govern urban commons, based on the conducted empirical research, case studies and the literature review. The list should be considered as a collection of advice that is open to further suggestions. The recommendations are formulated broadly enough to be widely used in various types of commons, and in various places.

1. Understanding the motivation to act together is the most important factor in attracting people to urban communities and sharing passions and interests are the most important motivation.
2. Urban community members, especially their leaders, must constantly strive to maintain a high level of activity inside the community.
3. Efforts should be taken to make the community attractive for its current and potential new members.
4. A community should be open and present its offering to the city inhabitants. The activities and attitude of the urban community members can change the city dwellers' awareness and behaviour by promoting a pro-community and environmentally friendly approach.
5. In the case of urban communities established on the basis of a place, neighbours should be the first group to be invited and integrated; they should become aware of the immediate neighbourhood's significance, value, and usefulness.
6. The context of urban community activity matters a lot. That is why every community should independently develop its own rules of commons management. The rules should be flexibly adjusted to the changing circumstances.
7. The community members should influence the creation and modification of the rules and standards.
8. Communication is essential in an urban community. Ways should be established for the community members to communicate easily, quickly and frequently. The community should meet regularly.
9. Efforts should be made to create different common goods based on the shared resources. The creative potential of the community members should be used as much as possible.

10. An urban community should not operate with strict rules. They should not discourage people from joining the community. The set of rules should focus on the principles of cooperation and collective activity standards rather than instructions and prohibitions.
11. For promotional purposes, urban communities should name their urban commons and create logos, emblems, information boards, etc.

7.3. A list of recommendations for local authorities

Both scientific research and practical experience show that in the case of urban commons, the importance and influence of local authorities cannot be ignored. Municipal commoners operate in the realities created by public authorities. City authorities should be aware that through an appropriate policy of incentives and creating a legal, financial and organizational environment, they can contribute to the development of the urban commons.

1. It is beneficial for local authorities to have well-developed communities, as they turn the city into a more attractive place to live.
2. In their efforts to reduce the problem of regulatory slippage, local authorities should support the grass-root activities of urban communities by making problematic sites available for communities and letting them decide how to manage them.
3. Local authorities should let urban communities experiment in public spaces that are abandoned, derelict or do not function properly.
4. Depending on specific situations, local authorities should get involved in developing urban commons, as a coordinator and institutional mediator, a leader of transformation processes or facilitator.
5. Local authorities should create an institutional framework for a dialogue towards co-management and governance concept development, including for the urban commons.
6. Local authorities should seek partners for institutional work in the political, technical and cultural dimensions.
7. Local authorities should create a platform for collaboration with urban communities that would function as a forum for discussion, exchanging ideas, and creating common projects.
8. Local authorities should develop a network partnership format to learn more about good practices in the urban commons, maintaining the ability to adapt solutions according to the local context as their priority.
9. Local authorities should develop entrepreneurial co-management and governance skills through mechanisms of co-production of services and the co-creation of new services; and should focus on shifting the emphasis from "power over" to "power to".
10. A proactive role of local authorities means supporting the generation of many sources of nested leadership, community leaders, and self-governed organisa-

tions, and encouraging learning and experimenting with forms and resources. This way, the authorities, including the milieus represented by the communities, can focus on creating a culture of change (cultural transformation) and mutual learning.

11. The recognition of commoning components is vital for the co-management and governance executed by local authorities.

12. Local authorities should consider long-lasting benefits rather than short-term economic calculation in their evaluation of urban commons.

13. Local authorities should treat tangible public resources (land, infrastructure, financial capital, etc.) and/or intangible resources (knowledge, skills etc.) as a contribution to urban commons (the additivity principle).

14. Local authorities should be particularly sensitive and ready to take actions in the case of dilemmas concerning conflicting functions of resources that need to be managed by commoning, the problem of free-riders, and negative externalities.

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Appendices

Appendix 1. Urban Commons Game Form

Week/ Round	Individual hours – commons A	Individual hours– commons B	Individual hours– free time	Average hours of the group – commons A	Average hours of the group – commons B	Average hours of the group – free time	Individual Result	Average result of the group	Sum of individual results
1									
2									
3									
4									
5									
6									
7									
8									
9									

Appendix 2. The results of the experiments – the declared distribution of hours devoted to work related to the creation of urban commons

Game 1 – Members of the "Napraw Sobie Miasto" Association, Katowice

Player 1			Player 2			Player 3			Player 4			Player 5			Player 6			Player 7		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	4	5	4	4	2	2	4	4	3	4	3	6	0	4	5	4	1	5	1	4
1	5	4	0	8	2	2	6	2	2	5	3	6	0	4	5	4	1	6	1	3
1	5	4	0	10	0	0	6	4	2	6	2	4	0	6	6	4	0	5	2	3
0	5	5	3	5	2	0	10	0	2	7	1	3	7	0	7	3	0	6	2	2
0	5	5	2	4	4	0	8	2	2	7	1	5	0	5	6	3	1	4	3	3
0	5	5	2	6	2	0	8	2	1	8	1	8	0	2	5	5	0	5	3	2
1	5	4	3	4	3	1	7	2	0	8	2	7	0	3	×	×	×	5	4	1
2	4	4	2	5	3	0	8	2	0	8	2	2	3	5	×	×	×	3	3	4
0	7	3	2	6	2	0	6	4	0	9	1	0	0	10	×	×	×	6	1	3

Game 2 – Urban activists from 3 Maja Street in Dąbrowa Górnicza

Player 1			Player 2			Player 3			Player 4			Player 5		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
4	3	3	4	1	5	8	2	0	3	3	4	4	3	3
4	4	2	3	2	5	7	3	0	4	4	2	4	4	2
4	5	1	5	1	4	5	5	0	4	4	2	4	4	2
5	5	1	5	2	3	5	5	0	5	5	0	4	4	2
5	5	0	4	4	2	5	5	0	4	5	1	3	4	3
4	4	2	4	4	2	4	4	2	4	4	2	5	5	0
×	×	×	5	4	1	4	4	2	5	5	0	4	3	3
×	×	×	5	5	0	5	5	0	5	5	0	4	3	3
×	×	×	5	5	0	5	5	0	5	5	0	5	4	1

Games 3 and 4 – Members of the "Pogoria Biega" Association from Dąbrowa Górnicza

Player 1			Player 2			Player 3			Player 4			Player 5		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
4	4	2	0	2	8	0	2	8	2	6	2	2	4	4
4	4	2	3	6	1	2	4	4	1	8	1	2	7	1
5	5	0	3	4	3	4	5	1	5	5	0	3	7	0
4	4	2	3	3	4	3	4	3	1	6	3	4	6	0
4	6	0	4	5	1	4	4	2	4	4	2	1	4	5
6	4	0	5	4	1	5	3	2	2	4	4	2	4	4
×	×	×	3	5	2	3	4	3	2	8	0	4	4	2
×	×	×	4	4	2	4	4	2	3	7	0	2	7	1
×	×	×	5	5	0	5	5	0	1	9	0	5	5	0

Player 1			Player 2			Player 3			Player 4			Player 5		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
6	2	2	4	3	3	5	3	2	7	1	2	2	6	2
5	2	3	3	4	3	5	3	2	6	3	1	3	5	2
6	2	2	4	4	2	5	4	1	8	2	0	3	6	1
4	3	3	4	4	2	4	4	2	6	1	3	5	5	0
4	3	3	4	4	2	4	4	2	8	0	2	4	4	2
4	4	2	4	3	3	5	4	1	1	1	8	5	4	1
6	3	1	x	x	x	4	4	2	6	3	1	3	6	1
6	4	0	x	x	x	5	3	2	4	6	0	4	6	0
6	4	0	x	x	x	5	3	2	5	5	0	4	6	0

Games 5–10 – Students from the University of Economics in Katowice

Player 1			Player 2			Player 3			Player 4			Player 5		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
8	2	0	3	5	2	3	5	2	2	6	2	5	1	4
6	4	0	4	4	2	4	5	1	2	5	3	6	2	2
6	3	1	1	7	2	5	5	0	3	5	2	5	5	0
6	0	4	5	5	0	2	7	1	3	5	2	6	2	2
5	1	4	5	4	1	3	7	0	1	7	2	5	3	2
4	4	2	4	4	2	4	5	1	4	4	2	4	4	2
7	3	0	4	6	0	3	6	1	2	6	2	×	×	×
8	2	0	3	7	0	3	6	1	1	6	3	×	×	×
10	0	0	4	6	0	2	7	1	0	9	1	×	×	×

Player 1			Player 2			Player 3			Player 4			Player 5		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
6	2	2	4	1	5	6	3	1	5	2	3	4	4	2
6	1	3	5	1	4	7	3	0	5	1	4	6	4	0
4	1	5	4	1	5	7	2	1	4	2	4	1	4	5
3	3	4	6	0	4	6	2	2	3	1	6	2	8	0
4	4	2	7	1	2	5	4	1	4	4	2	4	4	2
4	5	1	8	0	2	7	1	2	7	1	2	3	3	4
5	3	2	6	2	2	6	2	2	5	1	4	×	×	×
5	1	4	4	1	5	7	2	1	4	0	6	×	×	×
9	1	0	8	2	0	6	4	0	4	4	2	×	×	×

Player 1			Player 2			Player 3			Player 4			Player 5			Player 6			Player 7		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
5	2	3	6	4	0	3	6	1	6	4	0	5	1	4	3	5	2	4	1	5
5	4	1	5	4	1	4	5	1	10	0	0	6	2	2	5	4	1	4	2	2
4	6	0	10	0	0	4	5	1	5	5	0	6	3	1	4	5	1	4	4	2
7	0	3	6	4	0	4	4	2	6	4	0	8	0	2	4	5	1	3	2	5
5	3	2	0	0	10	1	6	3	4	4	2	9	0	1	5	3	2	4	2	4
2	2	6	0	0	10	5	5	0	6	4	0	8	0	2	4	5	1	4	4	2
6	4	0	10	0	0	4	6	0	6	4	0	10	0	0	×	×	×	5	3	2
7	3	0	10	0	0	6	4	0	6	4	0	10	0	0	×	×	×	4	4	2
6	4	0	10	0	0	5	5	0	5	5	0	6	4	0	×	×	×	3	5	2

| Player 1 | | | Player 2 | | | Player 3 | | | Player 4 | | | Player 5 | | | Player 6 | | |
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
8	1	1	3	5	2	4	3	3	6	2	2	5	3	2	8	2	0
8	2	0	4	5	1	4	3	3	5	3	2	6	4	0	7	3	0
7	3	0	2	8	0	4	4	2	6	4	0	5	5	0	10	0	0
8	0	2	0	7	3	4	4	2	4	4	2	6	2	2	0	0	10
0	0	10	0	0	10	1	1	8	8	0	2	6	0	4	0	0	10
5	3	2	0	8	2	4	3	3	4	4	2	4	4	2	5	3	2
7	3	0	2	8	0	×	×	×	6	4	0	8	2	0	8	2	0
2	8	0	0	10	0	×	×	×	5	5	0	9	1	0	9	1	0
7	3	0	0	10	0	×	×	×	4	6	0	7	3	0	8	2	0

| Player 1 | | | Player 2 | | | Player 3 | | | Player 4 | | | Player 5 | | | Player 6 | | |
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
4	5	1	5	0	5	3	4	3	2	8	0	4	6	0	8	1	1
6	4	0	4	2	4	3	5	2	1	9	0	3	6	1	8	2	0
2	7	1	6	1	3	3	6	1	1	9	0	2	7	1	10	0	0
4	3	3	5	3	2	4	3	3	2	5	3	3	4	3	6	2	2
3	5	2	2	1	7	4	5	1	1	8	1	2	5	3	5	3	2
0	8	2	7	1	2	4	4	2	1	7	2	0	8	2	7	1	2
3	7	0	8	2	0	1	9	0	×	×	×	5	5	0	7	3	0
2	8	0	9	1	0	2	8	0	×	×	×	3	7	0	9	1	0
0	10	0	10	0	0	0	10	0	×	×	×	0	10	0	10	0	0

| Player 1 | | | Player 2 | | | Player 3 | | | Player 4 | | | Player 5 | | |
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
5	4	1	5	3	2	5	2	3	6	1	3	4	2	4
5	5	0	6	3	1	6	1	3	5	3	2	4	3	3
6	4	0	6	4	0	6	4	0	6	4	0	6	4	0
4	2	4	5	3	2	5	3	2	5	4	1	5	2	3
5	2	3	6	4	0	4	2	4	5	4	1	4	4	2
6	2	2	5	3	2	6	2	2	6	2	2	6	2	2
7	2	1	×	×	×	7	3	0	6	4	0	5	3	2
6	2	2	×	×	×	6	4	0	5	5	0	6	3	1
5	5	0	×	×	×	5	5	0	5	5	0	5	5	0

Game 11 – Urban Experts from Stare Polesie, Łódź

Player 1			Player 2			Player 3			Player 4			Player 5			Player 6			Player 7		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
5	4	1	10	0	0	6	2	2	10	0	0	2	6	2	4	4	2	4	6	0
8	2	0	9	1	0	6	3	1	8	2	0	4	6	0	5	4	1	5	5	0
5	5	0	6	4	0	5	4	1	6	4	0	1	9	1	3	6	1	4	6	0
4	4	2	0	0	10	5	4	1	4	2	4	2	6	2	3	5	2	3	5	2
5	5	0	0	0	10	4	4	2	6	0	4	3	5	2	0	0	10	2	3	5
4	4	2	0	0	10	4	4	2	4	4	2	1	5	4	3	5	2	4	4	2
5	5	0	5	5	0	×	×	×	8	2	0	1	8	1	4	6	0	4	6	0
5	5	0	5	5	0	×	×	×	10	0	0	3	7	0	4	6	0	4	6	0
5	5	0	5	5	0	×	×	×	10	0	0	3	7	0	4	6	0	4	6	0

Game 12 and 13 – Young urban activists from Stare Polesie, Łódź

Player 1			Player 2			Player 3			Player 4			Player 5		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
5	3	2	4	4	2	3	4	3	3	3	4	4	5	1
6	4	0	5	3	2	2	5	3	5	3	2	0	10	0
5	5	0	5	5	0	4	5	1	4	5	1	10	0	0
4	4	2	6	3	1	4	4	2	4	6	0	3	4	2
4	4	2	5	5	0	4	6	0	5	5	0	0	0	10
4	4	2	4	4	2	4	4	2	3	5	2	0	10	0
5	5	0	×	×	×	4	5	1	2	8	0	3	6	1
10	0	0	×	×	×	3	6	1	0	10	0	0	10	0
10	0	0	×	×	×	5	5	0	3	7	0	5	5	0

Player 1			Player 2			Player 3			Player 4			Player 5			Player 6			Player 7		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
6	2	2	2	6	2	6	3	1	6	2	2	7	3	0	4	3	3	5	2	3
6	1	3	1	8	1	5	4	1	5	3	1	6	4	0	5	4	1	4	3	3
7	3	0	1	8	1	6	4	0	6	4	0	6	4	0	6	4	0	4	4	2
1	1	8	0	5	5	6	3	1	7	1	2	5	4	1	5	4	1	5	1	4
3	2	5	1	5	4	6	1	3	8	0	2	4	4	2	7	3	0	5	2	3
5	3	2	1	5	4	6	1	3	4	4	2	4	4	2	5	3	2	4	4	2
6	2	2	1	8	1	6	4	0	×	×	×	6	4	0	6	4	0	6	4	0
7	2	1	0	9	1	9	1	0	×	×	×	6	4	0	8	2	0	7	3	0
7	3	0	3	7	0	6	4	0	×	×	×	5	5	0	6	4	0	5	5	0

Game 14 – Urban activists from Stare Polesie, Łódź

Player 1			Player 2			Player 3			Player 4			Player 5			Player 6		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
5	4	1	4	5	1	2	8	0	4	3	3	7	2	1	2	8	0
5	5	0	5	4	1	2	8	0	5	4	1	8	2	0	3	7	0
4	6	0	5	5	0	2	8	0	7	3	0	9	1	0	7	3	0
4	6	0	7	2	1	1	7	2	8	2	0	1	1	8	5	3	2
3	7	0	7	2	1	2	6	2	3	7	0	2	1	7	6	4	0
2	7	1	7	2	1	2	6	2	3	7	0	3	0	7	9	0	1
3	7	0	×	×	×	3	7	0	8	2	0	9	1	0	7	3	0
2	8	0	×	×	×	2	8	0	6	4	0	8	2	0	3	7	0
5	5	0	×	×	×	2	8	0	5	5	0	5	5	0	10	0	0

Game 15 – Members of the "Antyrama" Group, Katowice

Player 1			Player 2			Player 3			Player 4			Player 5			Player 6		
A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
6	3	1	4	2	4	5	4	1	4	4	2	4	3	3	6	3	1
6	3	1	4	3	3	8	1	1	5	3	2	4	4	2	5	5	0
4	5	1	4	3	3	7	3	0	6	4	0	5	5	0	5	5	0
4	4	2	4	3	3	5	4	1	6	4	0	4	5	1	8	0	2
4	5	1	3	4	3	4	0	6	5	4	1	4	4	2	7	0	3
4	4	2	4	4	2	6	2	2	4	4	2	4	4	2	5	3	2
5	3	2	5	5	0	10	0	0	6	4	0	×	×	×	6	4	0
7	2	1	4	6	0	8	2	0	5	3	2	×	×	×	7	3	0
5	5	0	5	5	0	5	5	0	4	4	2	×	×	×	6	4	0

Appendix 3. International Survey Questions

Dear Colleagues

The University of Economics in Katowice is running a research project on "Economics of Urban Commons". The research team has investigated both the theoretical and practical issues associated with commoning in cities. Nevertheless, we want to learn more about urban commons thanks to your input. We believe that your activity fits into the commoning process and your knowledge is highly appreciated. I am sure that the time you spend on the short survey will eventually help many urban communities. It takes about 5–7 minutes to complete the survey.

With this survey we want to know how different local communities co-produce and co-consume common goods in cities. The questions in this survey relate to the principles of governing the commons, as developed by Elinor Ostrom, the Nobel Prize winner in economics. She focused on traditional commons such as pastures or fisheries, but we would like to know if the principles she proposed could also be applied in urban contexts.

The request to complete the survey has been sent to different urban communities around the world that run collective initiatives such as: neighbourhood commons, community gardens, community urban parks, Community Land Trust (CLT), Business Improvement Districts (BIDs) etc.

Once again, thank you very much for your time. Should you be interested in the results of our research project or would simply like to share your experience, please contact us by email.

Best regards,

Dr Adam Polko
Project Leader
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1. Why was your community created? (more than 1 answer can be selected)
   □ common interests and shared passions
   □ sense of belonging to the neighbourhood
   □ physical upgrading of the neighbourhood
   □ preserving natural environment
   □ restoring local resources (material or immaterial)
   □ protesting against an investment in your neighbourhood
   □ re-use / appropriation of vacant land
   □ increasing the attractiveness of places
   □ sharing knowledge
   □ Other:

2. Who are the users of your commons?

   ☐ members of the community only
   ☐ members of the community as well as residents or workers staying in the neighbourhood
   ☐ members of the community as well as guests invited for the events organized in the community
   ☐ anybody, there are no limits
   ☐ Other:

3. What are the rules for those who want to use the commons? (more than 1 answer can be selected)*

   ☐ a membership fee is obligatory
   ☐ working for the co-production of commons is obligatory
   ☐ working for maintaining the commons is obligatory
   ☐ there are no rules
   ☐ Other:

4. Who is eligible to modify the rules of using the commons? (more than 1 answer can be selected)*

   ☐ anyone who belongs to the community
   ☐ the board of the community
   ☐ local authorities
   ☐ anyone interested in proposing changes to the rules (through the board)
   ☐ external experts
   ☐ members of other communities who share urban commons
   ☐ hard to say, there are no rules here
   ☐ Other:

5. How do you control the use of the commons? (more than 1 answer can be selected)

   ☐ just by daily observation
   ☐ neighbourhood patrols
   ☐ CCTV monitoring
   ☐ reporting by Facebook, Messenger, etc.
   ☐ there is a fence and gate that help us to control the use of our commons
   ☐ we have agreed on the limits of using the commons
   ☐ we do not control the commons
   ☐ Other:

6. How is your community linked to the local administration? (more than 1 answer can be selected)

   ☐ the community participates in the decisions of the city/district
   ☐ the community directly supports the official goals of the city/district
   ☐ the community supports the delivery of local public services
   ☐ the community receives financial support from the city/district
   ☐ the community gets help with specific projects

□ the community gets day-to-day support
□ there is no direct connection/involvement of our community with the city/ district
□ Other:

7. How do you manage conflicts in your community? (more than 1 answer can be selected)

□ we discuss the issue and look for the agreement of the majority
□ we refer to the peer court of the community
□ we refer to the board of the community
□ we refer to an external mediator
□ there are hardly any rules on managing conflicts in our community
□ Other:

8. How do you motivate the community to work for the benefit of the commons? (more than 1 answer can be selected)

□ people get higher priority to use the commons
□ people get higher access (frequency) to use the commons
□ people get rights to be identified as a community member outside (by using the community symbols, emblems, t-shirts, etc.)
□ people get access to closed community events
□ people get financial rewards
□ there are no formal rules on getting the benefits / rewards
□ Other:

9. What are the penalties for the not abiding by the rules of the community? (more than 1 answer can be selected)

□ removal from the community
□ limited access to the commons
□ additional work for the community
□ financial punishment
□ there are no formal rules on punishment
□ Other:

10. When was your community born?

□ 2019
□ 2016–2018
□ 2012–2015
□ 2000–2011
□ older

11. What is the organizational form of the community?

□ association
□ foundation
□ community of residents
□ housing community
□ there is no legal form (informal community)
□ Other:

12. How many members belong to the community?
    - □ 2–10
    - □ 11–20
    - □ 21–50
    - □ 51–100
    - □ more

13. What is the key profile of the community? (more than 1 answer can be selected)
    - □ leisure
    - □ sport
    - □ culture
    - □ heritage
    - □ social support
    - □ education
    - □ gardening
    - □ urban farming
    - □ environmental protection
    - □ public safety
    - □ tourism
    - □ co-working, hackerspaces, Fablab
    - □ recycling, reuse, Repair Café
    - □ co-housing
    - □ Community Land Trust
    - □ Business Improvement District
    - □ Park Conservancies
    - □ Other:

14. Please, explain your role in the community
    - □ founding member
    - □ member
    - □ employed
    - □ leader / president
    - □ project leader / animator
    - □ Other:

15. Please provide the name of the city your community is based in: