

The uses and abuses of Elinor Ostrom's concept of commons in urban theorizing

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Why an interest in commons?

What characterize a good city we would like to live in? Most of us should probably mention things like the possibilities to find good housing and good schools and a safety and healthy environment. We would also probably appreciate nice parks and squares where we could be out for a stroll and meet friends, streets with open-air cafés, libraries or other kinds of public places. We may also look for a creative and inviting atmosphere – those kinds of elusive things that are hard to put one's finger on, but at the same time are something that makes a city attractive. These things have in common (so to speak) that they are of shared resources in an urban setting. These shared resources may in turn be governed in variety of different ways.

In recent years there has been a great upswing of interest in collective and participatory management regimes for governing shared resources. This interest has been fueled by Elinor Ostrom's seminal work that demonstrated, in the context of natural resources such as fisheries, watersheds, woodlands and the like, that common resources could be managed effectively without recourse to privatization or direct government control (Ostrom 1999). These collective governance arrangements do not always lead to the sorry end foretold in the 'tragedy of the commons'. In certain circumstances collective management seems, on the contrary, advantageous in providing greater responsiveness to local need and greater knowledge of local conditions and thus outperforming more distant government control. Collective management arrangements thus provide an alternative when privatization of a resource is either impractical or undesirable.

Another reason for the upswing of interest in commons and collective management regimes has been the extraordinarily demonstration that collective production of knowledge on the Internet. Open-source software and the likes of Wikipedia have made it evident for most that this is a powerful way of organizing in certain areas and the where the potential has only begun to be tapped (Hess, Ostrom 2007). There is also a range of privately owned commons that will be familiar to most readers. These are services like Google search and

Facebook that rely on user input to build value available to other users. These firms privately owned of course but while ownership is not irrelevant, commons are perhaps primarily about use rights (Ghosh 2007).

Interest in the commons also has roots in technological changes that potentially allow privatization of things that were previously never conceived of as possible to own. Some claims to ownership e.g. seed lines have been met with substantial resistance and the response has often been that these kinds of resources should remain a common resource. The notion of commons becomes a rallying point (Bollier 2006)

In urban settings commons have been studied in a wide variety of ways but interest in the commons has undoubtedly been stoked by the privatization of public space and the widespread experience of what Sheila Foster calls regulatory slippage (Foster 2011). Regulatory slippage refers to “ a gap between regulatory standards and the enforcement of these standards on regulated parties” In Fosters examples this slippage occurs primarily in open-access public space such as parks and streets when cities or regions lack the will or resources to maintain a previous or stipulated level of control. When the gap becomes painful enough for parties there is an incentive for both government agencies and other stakeholders to organize forms of collective management. Foster argues that this kind of phenomena is so widespread that introducing a notion of urban commons should be seen as an effort to bring theory to an already ubiquitous practice (Foster 2011).

In general there is also a recognition that modern cities have given rise to numerous common resources: transportation systems, public parks and leisure areas, waste disposal facilities etc but these have not been studied to a very large extent as commons (Bravo, Moor 2008)

This paper is an exploration and overview of the notion of urban commons as the term has been used in existing academic literature. The original intent was to overview also more popular sources but this has proven quite demanding. Although the presented overview of literature on urban commons is far from complete it may still serve as a basis for developing an understanding of what, if any, characteristics are specific to *urban* commons. This in turn is step in better understanding the particular challenges and potential of collective management regimes in an urban setting.

Traditional commons

The concept of traditional commons refers to the kind of shared resources that have been studied traditionally within the scientific work on commons. These arrangements are often also traditional in the sense of having a reasonably long history. The duration over time of collective management was an important part of the empirical argument as to their viability. Studies of traditional commons were typically related to natural resources such as watersheds, fisheries, forests, grazing lands, land tenure and use, wildlife and village organization (Hess 2008).

A key feature of these resources is that they are subtractible (rivalrous) such that one person's use depletes the resource for others. The other key feature is that the resource is difficult to divide into neat parcels (excludability). Thus for instance water for irrigation from a river is not easy to divide beforehand but one person's use does detract from others' use. Thus traditional studies of the commons were concerned primarily with what is termed common-pool resources. Common-pool resources can be contrasted to other types of economic goods as in table 1 below.

	Low subtractability	High subtractability
Difficult to exclude	Public good	Common-pool resource
Easy to exclude	Club good	Private good

table 1: different types of economic goods, from Ostrom and Hess 2007

The term commons is a shorthand to refer to goods that have the characteristic of being difficult to package (excludability) but can vary in along the dimension of subtractability from being a purely public good to a being a common-pool resource.

Before serious empirical studies and the development of a theoretical framework for understanding the management of commons, conventional economic wisdom held that shared resources (commons) would be dissipated or destroyed in a tragedy of the commons. Thus common-pool-resources were seen to be inherently unstable. The primary managerial challenge in traditional commons is to regulate who may use a resource, how much, and in what ways so as to avoid overuse and pollution. It is true that common resources are not easy to manage and that many times there is degradation of a resource under collective management regimes. This is however also true of resources managed privately or by governments.

Elinor Ostrom's demonstrated the empirical viability of collective management of resources in traditional commons given that certain criteria were met (Ostrom 1999). Simply stated she argued that if appropriators of a resource can communicate fairly easily and create common rules of use, and if the appropriators can monitor each others' use without too much cost then there is good reason to expect that they will develop locally appropriate rules and put them in use. For the system to work appropriators should also have access to low cost means of conflict resolution and their system of administration needs some level of recognition by relevant external parties. These principles are encapsulated in the design criteria for collective management (Ostrom 1999):

1. Clearly defined boundaries (effective exclusion of external unentitled parties);
2. Rules regarding the appropriation and provision of common resources are adapted to local conditions;

3. Collective-choice arrangements allow most resource appropriators to participate in the decision-making process;
4. Effective monitoring by monitors who are part of or accountable to the appropriators;
5. There is a scale of graduated sanctions for resource appropriators who violate community rules;
6. Mechanisms of conflict resolution are cheap and of easy access;
7. The self-determination of the community is recognized by higher-level authorities;
8. In the case of larger common-pool resources: organization in the form of multiple layers of nested enterprises, with small local common-pool resources at the base level.

We will return to these criteria in the discussion specific challenges for urban commons.

Starting points

It is necessary in starting a review to define some aspects of what we mean by urban commons. First, it should be clear that urban commons refer to shared resources in an urban setting. However we also wish to restrict the field further by specifying that the resource in question should be available primarily on a citywide or smaller scale. Thus the internet may provide valuable resources for many city dwellers but we would not include this as an urban common. Similarly the radio spectrum would not be conceived of as an urban common but a specific radio station might be.

In Charlotte Hess (Hess 2008) mapping of what she calls the new commons urban commons are not considered as a separate category but would be included in certain aspects of what she categorizes as knowledge, cultural, infrastructure and neighborhood commons. Our notion of urban commons does not in any way contradict her categorization, which is based on broad empirical fields of research. Our intent here is to elucidate a category that we believe has specific characteristics and managerial challenges despite variation in the type of resource.

A further important starting point of this overview has been to concentrate on existing empirical examples of collective or participatory management of shared resources in the urban setting. Positing that something is or should be understood as a common resource is potentially radical (Harvey 2011). This may be a starting point for recapturing certain important social values. However it is easy to understate the complexity of actually governing common resources (Bakker 2008). In an urban setting we expect that even defining what constitutes a resources and what groups might have rights to it is likely to be highly contested. Thus although it can be argued, that many kinds of resources should be treated as common resources. From a research perspective it seems most fruitful to concentrate on urban commons that exist empirically in the sense that the resource is already perceived by a set of relevant actors to be shared and that the resource is governed accordingly. This often entails some kind of participatory management. In this context then our interest is in existing

collective or participatory governance of shared citywide or smaller scale resources.

Methodology

We have sought to create an overview of the subject of urban commons by means of various general and more specific searches including the following:

1. google scholar: search for “urban commons”
2. digital library of the commons: free text search for “urban”
3. back issues of the international journal of the commons
4. snowballing of references
5. google scholar searches using terms that might be related to urban commons but more specific e.g. commons and social capital, public space, security, infrastructure

As noted previously the review is still in process and we have not yet treated all the materials available in these sources. However, we have made a first attempt to structure the contemporary research around urban commons.

In the reviewed articles so far, we have found it useful to categorize urban commons in the following way: urban space as commons, ecosystem services as commons, urban intangibles as commons.

Urban space as commons

Urban space is highly regulated, some areas are designated for public access others are restricted for private use. There is a spectrum of different forms where different kinds of restrictions apply for entrance and use of a space. Of interest here are spaces where appropriators have a significant part of the management of a space and where there are forms of collective management but regardless of whether these are officially recognized or not. Perhaps the most intuitive example of an urban space as urban commons is a market place where different vendors contribute to the value of the marketplace but also have to agree on ways of solving collective management issues of the space. In the case of town market we expect that this is most often recognized and regulated by relevant authorities. Below we will discuss examples of urban commons that vary considerably in the degree that they are formalized, recognized as legitimate and in the extent of their openness.

Mark Sproule-Jones recognized many years ago that lack of effective monitoring, of public space often led to degradation. What had been a public good became a public bad (Sproule-Jones 1979) this could for instance take to form of some group monopolizing the space for their own use but detrimental to public interest. Owners of beachfront houses privatize access to beaches and gangs monopolize street corners. Foster generalizes this argument and posits that lack of effective monitoring of regulation, or ‘regulatory slippage’, is at the root of many modern attempts to implement collective management strategies (Foster

2011). Among her examples is the widespread phenomena of Business Improvement Districts (BID) which exist in different forms across the US, Europe and Africa. In the US variety businesses within a designated area are given the right to tax themselves and collectively manage aspects of the common urban environment, typically sanitation and security issues (Hoyt 2004) but also aspects of general attractiveness. BIDs are not uncontroversial, there are issues of transparency and equity. The form of organizing urban space as a common though is widespread.

Lee and Webster (Lee, Webster 2006) argue for an increased privatization of urban space as a result of failed regulations and eroded public goods. Gated communities may be seen as the antithesis of a common, and indeed the prevalence of gated communities has been a rallying point for exploring alternatives to privatization (Foster 2011). Some authors such as Webster (Webster 2007) view privatization of larger areas of urban land as the creation of club goods that allows for greater entrepreneurship in the creation of urban space. In an interesting critique of this work Chen develops the argument that condominiums are not strictly club goods. Chen (Chen 2008) argues that condominiums can be seen as club goods on one level (easy excludability of outsiders, high subtractability) but seen from the inside, among the members, the situation is more like one of common-pool resources (difficult excludability). Thus condominiums require an adequate collective management structure. The author discusses the interesting case of Chinese privatized housing and shows how governance is undermined by regulation of fees and interference with housing organization by the authorities. This makes it very difficult to organize adequate governance and the privatized housing, as a result quickly degrades.

Parks as public spaces are subject to degradation by overuse just as other public spaces. Municipalities often lack means and perhaps interest in maintaining them at levels that citizens may desire. Forms of co-production and cooperative management are therefore not unusual. Delshammar (Delshammar 2005) found that most municipalities in Sweden practices some form participant management in their park facilities. Central Park in NY has had a substantial element of co-operative management since the 1920s. More recently the (Central Park) Conservancy, a non-profit, has taken over management of day-to-day maintenance and operation (Foster 2011).

Community gardens provide a further and important example of urban commons. Community gardens are developed by more or less well-organized neighborhood groups who simply begin to cultivate the land on vacant lots. They seldom own the land, the sites have usually been abandoned by former property owners.

Management of a community gardens also demonstrate some of the differences between urban commons and traditional common-pool resources. A successful management of a community garden does not imply the need for a strictly bounded community of appropriators. Community gardens have many users, and some of them, like young people from the surrounding neighborhood, are just visitors who do not contribute to the tending of the garden. They use the resource without taking part in the management of it (Saldivar-Tanaka, Laura &

Krasny, Marianne, E. 2004). In a traditional management of a CPR, responsibility for management is a condition for the right of use the resource. A manager of an urban common, like a community garden, must accept users who not taking part in the managing. It is enough if they refrain from vandalizing it. A criterion of a successful management of an urban common may thus simply be the absence of vandalism.

Community gardening is often much more than collectively growing produce on abandoned land, it is often much more about creating local social capital (Saldivar-Tanaka, Laura & Krasny ,Marianne, E. 2004, Foster 2006). The social capital generated in these efforts 'purchases' social goods such as increased safety, reduced crime rates and meaningful participation of youth. Establishment of community gardens has also been shown to result in a rise of property values (Voicu 2008).

Clapp and Meyer (Clapp, Meyer et al. 2000) have examined the conditions for large-scale development of brownfields and argue that there are reasons to believe that allowing some degree of collective management of these 'urban bads' might speed redevelopment and direct it to better serve those living proximate. While it is unclear to what extent this has been put in practice the idea resembles some aspects of the creation of community land trusts in the US notably the Dudley Street Neighborhood Initiative where a community was endowed with rights to manage land development in the area and has done so since the late 1980s.

Blomely relates a contested development in Vancouver (Blomely 2008) which set a group of homeless in conflict with real estate developers. The homeless used a declined block in central Vancouver as their gathering point. For the homeless people the vacant lots were an important common. For the developers it was something that needed to be transformed in order to increase the value of the area (Blomely 2008). This examples of course serves to highlight the importance of how areas in the city are defined. An urban common is always an urban common for someone. An overgrown brownfield could be seen as something worthless – an urban wilderness but it could also be viewed as a part of an evolving urban green belt, which could supply ecosystem services and therefore should be, treated as an urban common. An understanding of what characterize urban commons must pay regard to this tension between ownership and multiple uses of land in cities.

Ecosystem services as urban commons

People in cities are, whether they are aware of it or not, dependent on different ecosystem services that can be considered shared resources. Such ecosystem services could for instance be in the form of green areas or street trees that clean the air and regulate temperatures within the city, or lakes and rivers close to the city that receive and help to clean wastewater. These kinds of ecosystem services could be a result of deliberate management of green areas in the city (Barthel, Colding et al. 2005) but they could also derive from 'urban wildernesses' like old industrial sites, brownfields or wasteland, which become overgrown, areas in

between parts of the city, neglected parks or abandoned redevelopment areas. This may not be used by the public but offers important ecosystem services, which could be viewed as an urban common good (Jorgenson, Tylecote 2007).

Economic and socio-cultural changes in urban areas also impact on the surrounding ecosystem and the services they provide. In their study of the use of an urban common in the form of a natural stream close to the city, Stave and Armijo, (Stave, Armijo 2000) describe both use of different management initiatives as a feed-back loop. People in the urban area surrounding the stream channel use both the channel and the area around it for many different purposes, from recreation to illegal trash dumping.

Groups who use the area for recreation saw the increasing illegal dumping as a degradation of the common, and regularly organized voluntary clean-up actions. This is an example of how initiative for collective management of urban commons is dependent on how different users perceive the qualities of the common, and degradation of these qualities. In the case of the Las Vegas Wash, over 20 local, regional and federal entities, as well as local businesses and residents, have interests in the Las Vegas Wash ecosystem, each identifying different system characteristics as desirable and different management issues as problematic. In this case, voluntary groups step in and take responsibility for keeping the common clean and valuable for recreation (Stave, Armijo 2000) . This also illustrates the challenge of managing an urban common with a diversity of users.

Another example is the management of the National Urban Park in Stockholm. A recent survey identified 69 local user and interest groups currently involved in management of the park area. Of these, 25 are local stewardship associations that have a direct role in managing habitats within the park that sustain aspects such as recreational landscapes, seed dispersal, and pollination. The diversity of different interest groups involved in the National Urban Park serves to highlight not only managerial challenges but also the challenge of sufficient knowledge for valuing these kinds of common resources. The analysis of the survey identified a need of better coordination and dialog between different users in order to avoid conflicts (Barthel, Colding et al. 2005).

Another challenge when it comes to managing urban commons which provide ecosystem services is the miss-match of scales. An analysis of the collective management of five green areas in and nearby Stockholm shows a miss-match of scales at three levels: time, space and function. Ecosystem services are developed during a long time, and when they are affected it often takes time to restore them. The administrative boundaries seldom follow the boundaries of ecosystem, and often many different agencies are responsible for or have different interests in the same ecosystem. Sometimes the agencies responsible for managing the common lack sufficient knowledge about the ecosystem services provided by different green areas. Therefore, increasing knowledge among different appropriators could be seen as one condition for a successful collective management of these kinds of urban commons (Borgström, Elmqvist et al. 2006).

Even the well-developed urban landscape could lodge natural resources, like birds, flowers and other kinds of species that form ecosystems that the city could benefit from. One example of this is street trees. Street trees have an important role of creating a healthy environment in a city. There is however an ongoing loss of street trees in American cities, mainly because single trees are not understood as an urban common resource which could provide valuable ecosystem services. Here, knowledge about the role of street trees could be seen as one condition for developing a common understanding for the need for collective management. This is also an example of the problem of mismatching scales. Cutting down a couple of trees in order to develop a block is not a problem. But when the tree cover in Washington DC has declined by 50%, there is a problem. It also illustrates institutional constraints, because no one has an overall responsibility for managing all single street trees (Steed, Fischer 2008).

As mentioned above, increasing the knowledge about the need of ecosystem services and which areas in the city that provides them, could clear the way for collective management of those. This could be done by engaging different groups in collective knowledge production – so called citizen science. This is a general term for strategies where citizens help researchers with monitoring and collecting data. Participants in citizen science projects related to ecology often develop an interest in conservation issues (Cooper, Dickinson et al. 2007). Thus citizens help science but may learn as part of the process to value aspects of the environment.

In sum, there are interesting examples of ecosystem services as urban commons but many struggle to meet formidable challenges in that the value of these commons are highly indirect, that sufficient knowledge might often be lacking and difficulties in relating to administrative structures created for other purposes. It is not clear that there is the capability of managing them as a common resource.

Infrastructure commons

The subject of infrastructure as commons is important but has only been explored to a limited extent in this paper. Little puts forward the argument that critical infrastructure suffers from commons dilemmas: both as public good not sufficiently monitored (creating slippage) and as common-pool resource (Little 2005). Private firms that supply most utilities like electricity use a common grid but lack incentive to maintain the grid on adequate levels. The profit maximizing focus of each individual firm leads to problems of maintenance and easily disrupted systems, vulnerable to collapse. The article underlines the importance of tackling the problem of infrastructure maintenance but stops short of suggesting solutions to this problem (Little 2005).

The subject of ownership and management of water supply systems has been stormy particularly in the developing world. The proposed privatization of water supply in regions of Bolivia led to the famous ‘water wars’ of the early years of the new millennium. In a review of the case of Cochabamba and similar struggles Bakker (Bakker 2008) brings up a discussion of how both governments and

private firms have failed in creating water supply systems in many parts of the developing world. She critiques romantic notions of community ownership as a panacea but explores the variety of different ownership structures that exist in this area. It is clear that some forms of collective management strategies have worked very well, it less clear if and how these can be transferred to other areas as an essential component seems to lie in the political culture rather than formal structure (Bakker 2008)

Roads have also been studied as commons or more precisely efforts to create an awareness of roads a shared resource. A condition for a successful management of urban commons, like roads, is the establishment of psychological willingness to accept, at least in part a collective responsibility for the resource.(Gutscher, Keller et al. 2000). This example points at the importance of cognitive and psychological aspects of the management of urban commons. If people do not see something – like a road or a park – as a shared resource, then it will be difficult to accept limited use of the resource in order to maintain its quality. The challenge of creating awareness is augmented in this case by challenges of scale (Giordano 2003)

Intangibles

There are many intangible urban goods such a sense of security allowing people to move freely in the city, a sense of belonging, collective ability to mobilize to solve problems or general buzz of a place. Some of these intangible goods may usefully be understood as shared resources in the urban setting. A difficulty, it would seem, lies in defining the resource in a way that allows a collectivity to organize for the management of a resources that seems so difficult to pinpoint.

Foster (Foster 2006) argues for an approach in which social capital can be understood as connected to specific spaces. Her argument revolves around two court cases. The first concerns N.Y. City's decision to sell hundreds of "vacant" lots that had been used as community gardens, sometimes for many years. The second case concerned a dispute over the establishment of a Walmart superstore that residents argued would irreparably damage interaction and identity of the historic city center. Foster's argument is thus that these places can be understood as loci of social capital, a capital that in turn 'purchases' important social effects. Therefore, urban planning should account for this place based social capital in its process. These cases are also interesting in that they demonstrate struggles of what should be considered a resource in a given place and how a perceived threat sometimes works to mobilize a community.

Crime prevention and enhancing feelings of security have been the focus of the neighborhood watch initiatives which are wide spread in the US and UK. These simple regimes have a long history and evidence seems to support their ability to reduce crime in an area (Bennett, Holloway et al. 2006) Neighborhood crime patrols and the famous example of the Guardian Angels in NY provide instances of government enabled collective/participatory management of this kind of common resource (Foster 2011).

Perhaps a more unusual understanding of common resources is an argument made by Kenneth Olwig that landscapes are an important cultural symbol of how the land is collectively managed and thus a landscape commons (Olwig 2010). Landscapes are protected in various EU conventions but it is questionable to what extent this is implemented at present. It is to be expected however that landscape protection would have to rely heavily on citizen involvement to monitor transgressions.

Discussion

Urban commons differ from traditional commons in several ways. Each of these differences is relevant to governance schemes in that they provide challenges but also potential in terms of collective or participatory management of the urban commons.

Indirect value

Urban commons like parks and community gardens but also good public schools have been shown to have an indirect positive effect on housing prices. Thus people living proximate to urban commons could be seen to have a stake in the resource apart from the value they attach to their direct use. Nonetheless, and in contrast to traditional commons these resources are unlikely to form an essential part of people's livelihood. Urban commons often have an indirect and less conspicuous connection with people's livelihoods. This creates a challenge for collective governance in that the people who have the most stakes in the resource do not, as part of their daily activities, monitor the use of the resources by others. The lines of communication amongst appropriators are thus less likely to be established in daily practice and monitoring by appropriators is likely to be less intense. This aspect of urban commons however also provides a certain potential in that work in maintaining the resource may be seen as civic virtue and provide a complement to work life. As such work in maintaining a urban common may attract even those who are not local. Foster notes for instance the capacity of urban gardens to create bridging capital precisely because the gardens attract people also from other communities (Foster 2006)

Contested resources

In most cases urban commons have no history to fall back on as a justification for their existence, in this they share attributes of new commons in general (Hess 2008). A further challenge in an urban context arises from struggles over space. It would seem to be in the nature of cities they juxtapose different class, ethnic, gender and racial differences as well as differences in other types of ideals among the populace. It is therefore to be expected that what constitutes a resource, how it is to be valued and who has the right to use a resource is intensely contested. Whereas in traditional commons the focus of collective management is on who has a right to use a given resource and how it can be used, in urban areas there is also a struggle to define what the resource is and how it might relate to other conceptualizations.

That the resource itself is contested brings uncertainty in the viability of using the resource and makes it more difficult to motivate people to invest in long-

term development. However the contested nature of a resource may also be a motivating factor in the short term. Many groups laying claim to urban commons have been formed in response to perceived threats. These groups once formed may then transition more easily to work with long term issues. A certain degree of struggle is also a potentially positive factor in decreasing risks of what Foster calls ossification (Foster 2011). Ossification refers to a situation where established forms of collective management may persist despite that circumstances have been changed in significant ways and where alternate groups and governance forms might be more beneficial.

Openness

Another central aspect of urban life would seem to be mobility. A high degree of mobility is commonly understood to make (bonding) social capital more difficult to build and therefore collective organizing more difficult. One can understand this in that mobility makes it more difficult to clearly define the actors and for these actors to develop norms for governance of an urban commons. If mobility is very high there may not even be a widespread interest in long-term development of local resources. In short residents may not have a shared past or sense of future. The challenge created by openness can be met in several ways. One way would be an increasing formalization so that people can come and go more easily. Formalization is not a substitute for involvement but may help to build from short-term involvement toward the long term. Formalization may however decrease spontaneous civic involvement by creating the sense that governing the common is not a general issue for a population but rather the responsibility of a formal organization. The potential that openness entails is related to that collective management may provide forms of integration between different groups of residents thus creating bridges of social capital in the city rather than fragmenting it further. Openness is also related to one potential benefit of collective governance in that civic engagement is promoted in a more distributed pattern in the city, enabling broader groups to be meaningfully involved.

Cross-sector collaboration

Foster notes that a characteristic of urban commons is that they often enabled and operated in co-operation with local authorities. She notes that this is to be expected when urban commons have arisen due to regulatory slippage (Foster). The loss of effective regulation is what provides incentive for both citizens and governing body to find new means of addressing governance. Urban commons are therefore likely to have an important component of cross-sector collaboration and have to deal with the particular management challenges that this in known to imply. (McGuire 2006, Vangen, Huxham 2003). A related challenge caused by cross-sector collaboration is the need to conduct a balancing act so as not to crowd out civic engagement by overmuch governmental presence (Ostrom 2000) yet maintaining enough governmental control to avoid pitfalls of collective management such as lack of accountability. The potential in cross-sector collaboration though should not be understated. It is evidently the case that government can fill an important role in enabling the creation of collective resource management in urban settings. There may therefore be a greater potential for collective management of urban commons than has been realized due to lack of knowledge in this area. In certain areas collective management of

resources offers hope of increased knowledge input and responsiveness in governance and this could be exploited (e.g. Foster 2006)

Urban commons in relation to traditional commons

If our identification of these managerial challenges and potential of urban commons is holds true, and we are early in the process, then we would expect a slightly modified list of criteria for successful management than in traditional commons. This can be summarized in the table below in which we review Ostrom's criteria (Ostrom 1999)

0. Appropriators need sufficient knowledge to understand the value of the resource
This is an addition to the classic list, awareness of the resource is not a problem in classical common-pool resources but may certainly be so in the case of urban ecosystem services.
1. Clearly defined boundaries (effective exclusion of external unentitled parties);
for urban commons we expect this criteria to be relaxed. Effective exclusion is unlikely for practical reasons and may not be desirable from a citywide perspective. Furthermore it is to be expected that people other than direct appropriators of the resource may contribute to its management.
2. Rules regarding the appropriation and provision of common resources are adapted to local conditions;
The criteria is expected to hold unchanged
3. Collective-choice arrangements allow most resource appropriators to participate in the decision-making process;
The criteria is expected to hold but modified to an extent by difficulties of clearly delimiting appropriators.
4. Effective monitoring by monitors who are part of or accountable to the appropriators;
The criteria is expected to hold unchanged but we note that mutual monitoring is likely to be more difficult in many cases in that value of the resource in the urban common often is indirect.
5. There is a scale of graduated sanctions for resource appropriators who violate community rules;
The criteria is expected to hold unchanged
6. Mechanisms of conflict resolution are cheap and of easy access;
The criteria is expected to hold unchanged
7. The self-determination of the community is recognized by higher-level authorities;

The criteria is expected to hold with the slight modification that urban commons are likely to have a more active presence of government enabling in order to overcome increased difficulties of meeting some of the criteria above and the additional uncertainty caused the contested nature of the resource. A new critical challenge arises for collective management of urban commons in making the cross-sector collaboration function well.

8. In the case of larger common-pool resources: organization in the form of multiple layers of nested enterprises, with small local CPRs at the base level.

The criteria is expected to hold unchanged

Conclusions

Shared resources are an integral part of urban life and perhaps a large part of what is deemed valuable in urban life. Governing shared resources by means of collective or participatory management regimes is already a wide spread practice.

Despite the fact that there is a highly developed body of theory and empirical research on traditional commons such as fisheries, watersheds and like, urban common resources have seldom been viewed in this light. Here is a strong theoretical approach that may help to constructively re-conceptualize aspects of the urban environment and address pertinent issues of participation and governance. There is, at present however very little research that seeks to develop and contrast urban commons with more traditional commons so as to uncover if there are specific challenges or potentials in an urban setting. This paper has sought to provide an overview of urban common as they have been treated in scientific literature and to glean what characteristics, if any, set urban commons apart their traditional counterparts. Our attempt at overview of the literature on urban commons has identified four specific characteristics of urban commons that we argue make them distinct from traditional commons and which create managerial challenges but also offer important opportunities. These aspects are indirect value, contested resources, openness and cross-sector collaboration. Clearly, these characteristics may be present in different degrees in different urban commons. Our argument is that this will help to refine our understanding of different kinds of urban commons and what might constitute appropriate forms of governance.

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