

BUILDING RESILIENCE THROUGH URBAN COMMONS: A POLICY RECOMMENDATIONS FOR ATOMIC SHELTER MANAGEMENT

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Abstract: This paper presents set of arguments for incorporating urban commons as a way to increase resilience of the city. Vacant fallout shelters in residential neighborhoods are suitable case study, i.e. type of public place which could benefit from establishing commons management regime. Based on literature review on urban commons and site analysis, policy recommendations for developing urban commons on those sites are focused on needed actions from the local government and other stakeholders in "commons associations". Assigning bundles of rights to local user groups in order to stimulate self-organizing and long-term investments in active place management is a precondition for an urban common to succeed. The work presented here has implications for future studies of applicability of urban commons.

Keywords: fallout shelters; policy; resilience; urban commons

1 URBAN COMMONS IN THE RESILIENCE BUILDING OF CITIES

System's resilience is characterized by amount of change it can undergo while retaining the same controls on function and structure, and by its capacity of self-organization, learning, and adaptation. In the resilience discourse, key peculiarity for building resilience in complex systems is diversity management [1]. Diversity disperses risks, develops buffers, and diverse strategies from which humans can learn in situations when uncertainty is high. Diversity also helps by reorganization and renewal processes of disturbed systems [2] by allowing creativity and adaptive capacity to constructively deal with disturbance and change [1].

Analogously, if diverse groups of stakeholders, e.g. resource users from different ethnic and religious groups, scientists, community members with local knowledge, NGOs, and government officials, share management of a resource, it is stated in literature that they are making higher quality decisions, because stakeholders are more involved and can recognize better worth of the decisions [2, 3].

Nonetheless, group diversity can cause hardship for individuals to identify with the group, e.g. the greater the diversity in a group, the less integrated the group is likely to be, with higher level of dissatisfaction and loss of members [4].

Commons as a governing model which includes large spectrum of diverse stakeholders has been re-examined in last 25 years by scholars and practitioners. Until then economists and historians regarded the commons as a model exclusively tied to a feudal society. The reason for re-evaluation of that model is that it might offer a practical organizational model for todays' transitioning economy where "centralized command and control of commerce is capitulating to disturbed, laterally scaled, peer to peer production, where property exchange in market is becoming less relevant than access to sharable goods and services in

networks, and where social capital is becoming more valued than market capital in modelling economic life" [5].

The literature review on urban commons shows that UCs are building urban resilience through [6]:

- Reducing potential social conflicts by offering arenas for management of cultural diversity, and therefore promoting cultural integration.
- UCs represent institutional re-development designs for cities to deal with crises (e.g. unemployment, economic recessions, underfunding of public area management).
- UCs represent institutional re-development designs for cities to deal with spatial changes such as when cities shrink or become too densely built.
- Long-enduring UCs can promote social - spatial memory in cities, important during periods of crises and/or urban renewal and reorganization.
- UCs may provide economic benefits for local governments to manage urban public space by drawing upon civic voluntary management and therefore reduce economic vulnerability. There is a positive correlation between funding and management capability of areas under common management, suggesting that local governments with restricted financial capacities should consider voluntary site-management approaches like those offered by urban commons [6].
- Promote positive place making in cities, community empowerment and development [7], social integration, and democratic values [8].
- Case studies analysis of existing urban commons are showing that they promote social learning, in areas of gardening and local ecological conditions, learning about social organization, integration and participation, about the politics of urban space, and learning about social entrepreneurship [9].

Vacant fallout shelters in residential neighborhoods are suitable type of public place which could benefit from establishing commons management regime.

2 TYPOLOGY OF FALLOUT SHELTERS IN URBAN RESIDENTIAL NEIGHBORHOODS

Awareness of the fatal consequences of possible atomic explosions led to the construction of fallout shelters as the main typology of defense architecture during the Cold War in the former Yugoslavia.

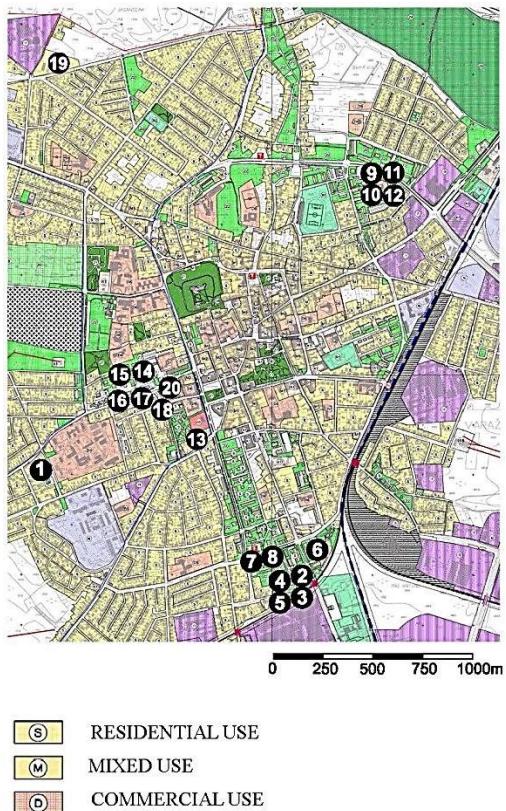


Figure 1 Location of fallout shelters in relation to land use types in Varaždin

Table 1 Fallout shelters built since 1965 to 1990 in Varaždin. The capacity of shelters calculated by one user per meter net area [10].

	Street	Net area (m ²)
1	Franje Galinca	150
2	Zagrebačka 13 - north	200
3	Zagrebačka 13 - south	200
4	Zagrebačka 15 - north	200
5	Zagrebačka 15 - south	200
6	Zagrebačka 73	300
7	Miroslava Krleže 1 (north)	200
8	Miroslava Krleže 1 (south)	200
9	Rudera Boškovića 14c (north)	180
10	Rudera Boškovića 14c (south)	180
11	Rudera Boškovića 16 (north)	200
12	Rudera Boškovića 16 (south)	200
13	Jalkovečka 10	100
14	Trakošćanska 14 (north)	200
15	Trakošćanska 14 (south)	200
16	Braće Radić 6	200
17	Braće Radić 31	100
18	Miljkovićeva 3	100
19	Augusta Harambašića 32	250

With the development of modern weaponry and the ability to attack with a very short prior warning, an attack

could happen at any time and in any place. There could not be much time for citizens to escape to other places, but only to the adjacent underground shelters. If the first wave of explosion was survived, further radioactive radiation would be equally deadly, so these shelters should support longer stays. For all of the stated reasons the construction of underground shelters in residential quarters was mandatory and it led to great changes in the urban landscapes (Tab. 1 and Fig. 1).

Mixing two different uses - military and housing - led to the development of a unique typology of fallout shelters in planned residential settlements built between the Second World War to 1990 (Figs. 3 and 4). Each residential building has its own underground shelter which is connected with underground hallways to a central shelter, above which the central public space is usually located. Atomic shelters have to be placed under the ground and protected by a layer of earth for better protection against radiation. These structures are hidden, cannot be seen from the pedestrian perspective, and the only indications of their presence are entrances, emergency exits, and ventilation pipes [10, 11], (Figs. 2 and 3).



Figure 2 Fallout shelter Ruder Bošković in the center of residential quarters, with visible side entrances. A public square is on the roof of the shelter.



Figure 3 Fallout shelter Braće Radić in the center of residential quarters, with visible side entrances. A public square is on the roof of the shelter.

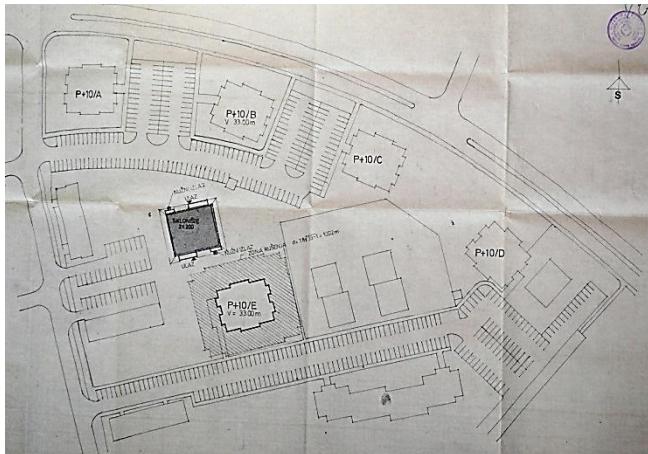


Figure 4 Site plan of the fallout shelter Ruđer Bošković [15].

The plan of the shelters is committed to their primary function. Shelters of the residential building are connected to the central room of the central shelter from which it is possible to access smaller accommodation rooms, sanitary facilities, water tanks, storages, etc. (Fig. 5).

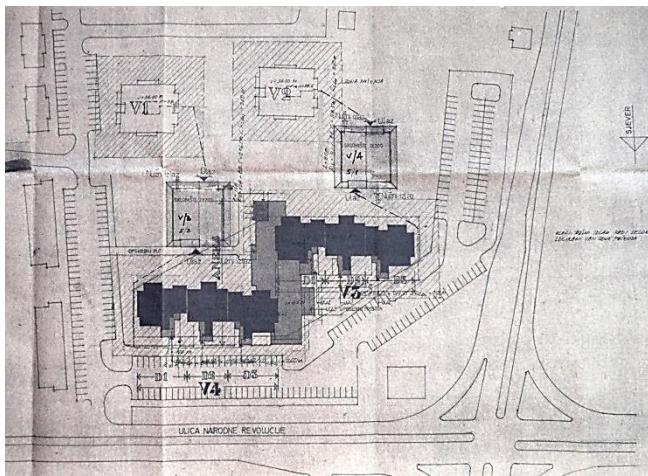


Figure 5 Site plan of the fallout shelter Miroslav Krleža [15].

The maintenance of shelters is financed by the City of Varaždin [12]. The primary function of atomic shelters is nowadays irrelevant. A few of the shelters today are used by non-profit organizations or are treated as storage spaces, but most of the potential that shelters provide due to their quality sites and their good construction status are largely neglected.

3 POLICY RECOMMENDATION FOR VACANT PUBLIC FALLOUT SHELTERS MANAGEMENT

This paper relies on the definition of urban commons as "physical spaces in urban settings of diverse land ownership that depend on collective organization and management and to which individuals and interest groups participating in management hold a rich set of bundles of rights, including rights to craft their own institutions and to decide whom they want to include in such management schemes" [6].

The main argument for managing fallout shelters and belonging parcels as urban commons is that governments may reduce maintenance and management costs by devolving management rights down to local user groups [6]. In those recommended institutional arrangements, governments retain their ownership, while assigning other rights to local user groups that will carry most of the costs

related to maintenance and management. In that manner, urban commons are likely to enable a significant proportion of urban public space to be adequately used, maintained, managed and preserved.

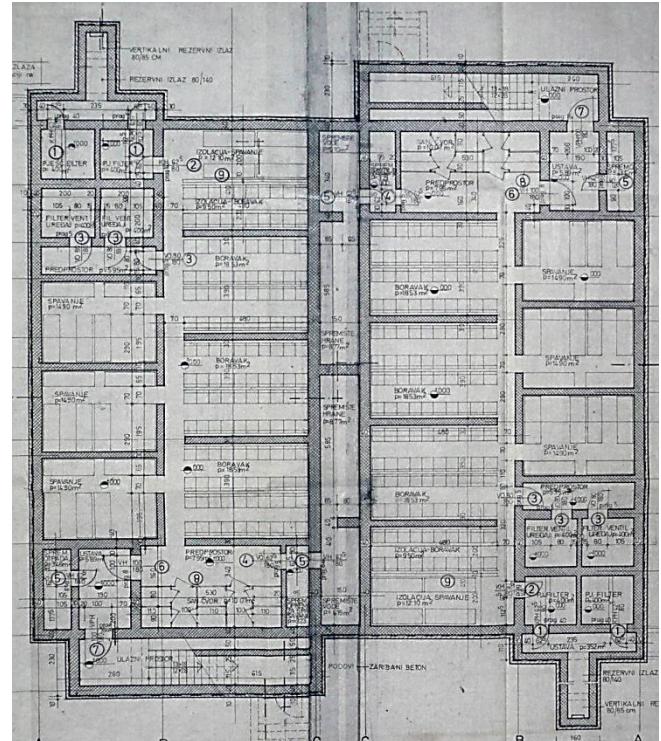


Figure 6 Plan of the fallout shelter Ruđer Bošković [15]

The critical feature of UCs rests on their practical management of land rather than on land ownership per se, implying that land used for urban commons may be owned by a number of potential owners, in this case by a local municipality.

The main condition for well-functioning urban commons is providing sufficiently stable property rights conditions in order to stimulate self-organizing, long-term investments in active place management. That is an obligation of local government and such incentives include the establishment of long-term leaseholds and incorporating urban commons in local development plans and strategies.

Participants in urban green commons are given critical bundles of rights by local government [13], including access rights, withdrawal rights, management rights, and exclusion rights to urban commons.

After property rights conditions and inclusion in local development plans are fulfilled, the design of the commons by the commons association is taking place. It is vital that government jurisdictions endorse the legitimacy of the rules established by the commons association.

Further recommendations for commons design are based on Elinor Ostrom's [13] "design principles" which are integral to every effective commons:

- Commons have to have clearly defined boundaries and "a commons association"; that is, it has to be clearly decided who (which individuals, groups, organizations, institutions, officials) is allowed to appropriate (in

- further text: appropriators) from the commons and who is not.
- The time, place, technologies and quantity of the resources that can be used should be specified. Rules on amount of labor, materials, and money that can be allotted to the appropriation (urban common) should be precisely determined.
 - Commons association needs to guarantee that those who are affected by the rules jointly and democratically determine those rules and their modifications over time.
 - Commons association should ensure that those monitoring the activity on the commons are the appropriators or officials under an obligation to account to them.
 - Appropriators who violate the rules should be gradually sanctioned by the other appropriators or officials accountable to the appropriators, and be guarded against overly vindictive punishment that questions their future participation and creates ill will in the community.
 - Commons association has to design and practice procedures for prompt access to low cost private mediation to quickly resolve conflict among appropriators or between appropriators or public officials.

4 CONCLUSION

Main theme of the urban commons is that the people who know best how to govern their own lives are the community members themselves. If there are resources or services that are public, as in the case with fallout shelters in residential neighborhoods, and are best benefited by public access and use, then they are often best managed by the community as a whole.

Common property systems are also a beneficial option for local governments to consider when they lack funding for public space management [14], because they hold potential to reduce management and maintenance costs due to that they rely on volunteer-based engagement and on the self-interest of the participants.

This paper argues for adopting urban commons as a framework to restore vacant residential fallout shelters located in the valuable central areas in residential quarters, and it recommends diversity of institutional options for their arrangement in a city. Policy makers and planners should stimulate the self-development of UCs, and support their evolution in urban areas through creating institutional space where urban residents are given management rights, while ownership rights are retained by the city.

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