LANDSCAPING MULTIFUNCTIONAL RECYCLING CENTERS

PEISAGISTICĂ MULTIFUNCȚIONALĂ A CENTRELOR DE RECICLARE

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Abstract. *The low social involvement in delivering reusable materials to recycling is a shameful feature of transition societies – such as post-communist Romania. Beyond its environmental impact, this attitude is the symptom of the social cohesion and civic spirit loss. Urban landscape design provides ways to increase the efficiency of the reusable waste collection, starting with the causes up to the process management. This paper analyses the possibility of introducing multifunctional usage of recycling centers – such as for community queries support. Using modular landscape design there are created recycling center units suitable for easy urban integration. In this case, choosing a specific container transmits a message to the query organizer. Connecting the center to nearby playgrounds also ensures energy collection. The designs are assigned to real urban sites and their impact is anticipated in terms of landscape quality, management efficiency, social cohesion and community culture benefit.*
Key words: *environmental culture, integrated urban landscape, recycling centers, transdisciplinary design, urban wastes*

Rezumat. *Implicarea redusă a populației în aprovizionarea centrelor de reciclare cu materiale reutilizabile este o trăsătură negativă a societăților în tranziție – cum este cazul României post-comuniste. Dincolo de impactul de mediu, această atitudine constituie un simptom al degradării coeziunii sociale și a spiritului civic. Peisagistica urbană asigură modalități de sporire a eficienței colectării deșeurilor reciclabile, pornind de la abordarea cauzelor până la managementul procesului. Această lucrare analizează posibilitatea utilizării multifuncționale a centrelor de reciclare – cum ar fi cazul introducerii funcțiunii de infrastructură pentru sondarea opiniei publice. Prin utilizarea design-ului peisagistic modular sunt astfel constituite unități de colectare a deșeurilor, ușor adaptabile integrării în context urban. În acest caz, alegerea unui anumit container transmite un mesaj organizatorului sondajului. Proiectele sunt integrate unor situri urbane reale și impactul acestora este anticipat după criteriul calității peisajului, a eficienței managementului, a coeziunii sociale și al aportului cultura comunității locale.*
Cuvinte cheie: *Centre de reciclare, cultura de mediu, design transdisciplinar, deșeuri urbane, peisaj urban integrat*

INTRODUCTION

The gap that emerging societies need to fill in comparison with the old western civilizations raises growing costs and risks on the long run for

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environmental protection – mainly in matters of environmental culture. As a newcomer, Romania still needs to cover the EU's *communautaire acquis*, which involves integrating new features in the politic, administrative and popular culture.

The reuse of objects and wastes is connected to the peasant culture of efficiency, unfortunately losing ground to consumerism these days. The thing that is left relevant to contemporary society is that environmental protection was never an end in itself but a collateral result of the fight for survival, as recycling is associated to moderate living and large scale environmental protection (cultural landscapes) was achieved following painful historic experiences (floods, famine, pests or invasions).

MATERIAL AND METHOD

The paper approaches the role of landscape design in urban waste collecting, aiming to improve process efficiency. There is analyzed the possibility that increasing urban waste selective collection point (WCP) functionality would determine an improvement of their basic function. To test this hypothesis, the research uses a pool heterogeneous from urban, civic culture and management efficiency of the reusable waste collection – three sites in Bucharest (Romania): 1- Drumul Taberei district – proletariat residences from the 60's; 2 – Domenii Market – inter-war villas; 3 – Răzoare district, with blocks of flats built for the soviet army in the 50's, similar to Cotroceni district through accessibility, real estate value, life quality and crime rate (fig. 1). A WCP design is derived from the three site's analysis, through transdisciplinary (Cutler, 2009) and adaptive research.

Fig. 1 - Urban framing and site limits: 1- Drumul Taberei; 2- Domenii; 3- Răzoare

RESULTS AND DISCUSSIONS

There is started with the general assumption that in contemporary culture, reward is the basis of any sustainable social action. As a source of social and personal services, landscape could reward the effort for selective waste disposal.

Analysis:

Table 1 reflects the representativeness of the study sites for Bucharest opposing the recordings for each site to the minimum and maximum for the entire city. Considering its diversity, results can be extrapolated for most of the urban Romanian landscapes. The data has been obtained through empiric research and from independent researches (table 1).

Table 1

Site analysis

Cartier/WCP						
24	**WCPambient impact**	%	80	70	50
23	**Environm. Connect.**	%	20	15	20
22	**Green space serv.**	%	30	5	50
21	**Traffic impact**	%	90	100	0
20	**Winter comfort**	%	50	70	80
19	**Soc. diversity**	%	30	10	90
18	**Diversitatea soc.**	%	80	70	10
17	**Soc. cohesion**	%	35	35	75
16	**POS Accessibility**	%	40	30	50
15	**Civic activism**	%	5	15	30
14	**POS appropriation**	%	15	10	70
13	**POS security**	%	- 80	-30	+100
12	**Landscape identity**	%	10	30	60
11	**Landscape attract.**	%	10	30	70
10	**WCP visibility**	%	70	85	35
9	**Community sp. Erg.**	%	30	50	70
8	**Green spaces**	%	35	2	35
7	**Social POS**	%	10	40	80
6	**Beneficiaries (emp.)**	n X 10^3	20	5	5
5	**Max. limit distance**	[min.]	10	2	5
4	**Conflicts**	%	0	30	50
3	**WCP ergonomics**	%	40	60	30
2	**Use period**	%	60	85	70
1	**WCP accessibility**	Width [m]	1	1	7
Site	**Fear**	-1,7<1,18	0,36	0,27	1.04
	Delinquency	4,1>10	3,5	10	6.9
	Life quality	5<8	7	8	4.3
	Real estate value	1<10	1	8	6
	Accessibility	1,5>8,6	8	3.6	5
		Bucharest	Sit 1	Sit 2	Sit 3

WCP environmental efficiency (de Leeuw, 2012) was approached as urban integration and environmental culture impact. Thus, site analysis targeted the following indicators:

- General neighborhood accessibility (Asociația Urban 2020, 2011) – through psycho-social impact, it affects the people's perception toward the landscape identity of their own neighborhoods; at the same time, the inhabitants of accessible areas have superior levels of urban culture – they are more likely to explore the city; this also reveals the administration's level of concern for landscape's quality (Lazăr-Bâra A. P., 2011);
- The real estate value (ibid.) – affects the landscape appropriation level, thus influencing through civic responsibility the behaviors regarding the environment (Caves R. W., 2005) – the environmental protection concern;
- The subjective neighborhood life quality – the resident's satisfaction is proportional to the appropriated landscape's quality (Asociația Urban 2020, 2011) and therefore to the proper use of the urban facilities; this also indicates the perception towards public services' quality;
- Delinquency (ibid.) – was interpreted as public space vandalization risk;

- The public safety subjective level – *the fear map* (Ciobanu, 2011) – is interpreted as public facilities' abuse risk, considering that in an unsafe neighborhood the citizen's response to the disobedience regarding the rules of living together is low; the average fear index for each neighborhood were taken from the same author's study, in 2012 (ibid.);
- WCP functionality: pedestrian accessibility – the minimum access width to the nearest crossroads (1), the yearly effective usage time – on the basis of the maximum gathering efficiency (2), the WCP ergonomics impact on waste gathering (3), conflicting juxtaposings to other urban structure features – internal impact (4), maximum distances – in minutes – to the borders of the served areas are determined on the basis of the adjoining WCP, on the isochrone halfway between the target nucleus and each adjacent center, within the 5 minutes limit;
- Public open spaces (POS) in the served area: the social spaces' capacity (7), the total green space area (8), the community space quality (9), the landscape impact of the WCP (10), the site's landscape attractivity (11), the landscape identity (12), the POS security in the served area as compared to the neighborhood average (13);
- Social life: public space appropriation level (14), civic activism (15), social accessibility – possible exclusion of certain social categories from the served area (16), social cohesion (17), diversity (18);
- Environment – surroundings' impact: summer ambient comfort (19) and in the winter (20), traffic aggressiveness (21), green space services (22), green infrastructure integration – the environmental services transfer (23), the environmental aggressiveness of the WCP (24);
- Landscape – the psychological and instructive impact: landscape identity (mental landmark – Lynch K., 1960), perceptive impact (the distance at which it draws pedestrian's attention, the landmark value, the conflict juxtaposing perception, the mental impact of the natural elements (Cauquelin A, 2002), the perception of the surrounding's contribution, the semantic coherence of image and function, the urban and local representation.

Following the analysis there were found connections between environment's quality – according to the Urban Ecological Integrity Index – UEII (McDonnell et. al., 2009) and the landscape parameters as following:

- Vegetation – as a habitat structural feature – suffers diversity and structure decline as a consequence of the poor public space appropriation, inducing the surrounding's environment and aesthetic decay.
- The urban charismatic fauna – landscape quality feature – is poor in the analyzed areas; possible causes are the ecologic connectivity deficiencies within the green infrastructure, the absence of nearby suitable habitats (inappropriate vegetation architecture, urban predators – cats mostly, the pedestrian and road traffic aggressivity).

In their present shape, the WCP's inflict negative environmental impact on the surroundings; owing their negative attractivity they do not make efficient landscape landmarks.

Urban features' multifunctionality is the originator concept of the design. Aiming to build up a kit of modular elements for site reorganization (fig. 2) there is approached the transdisciplinarity concept, which integrates urban functionality, the social, the environmental and the landscape issues.

Proposals:

There are targeted modules complying with the following functional requirements: local landmark, urban rank – volume, chromatics, texture; sound reward (bell) for waste dropping in the appropriate container; canopy, shrubs, seating devices; the possibility to fit the CPTED – crime prevention through environmental design – requirements (Smith, 2012); bird micro-habitat creation – traffic proof green-blue shielding (plants, water); pedestrian environment enhancement; the selection and primal arrangement of the modules to comply the urban development strategies.

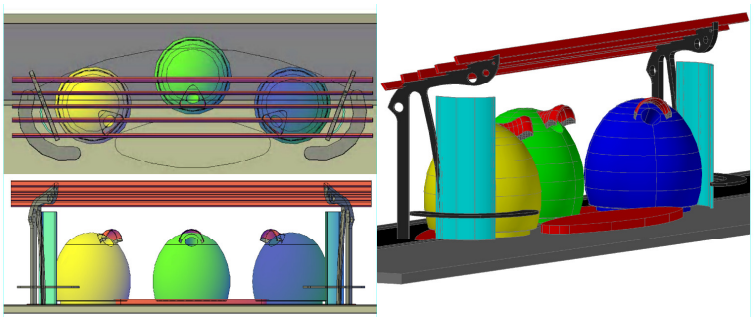

Fig. 2 - Proposals

Environmental impact design – EID (Turner, 1996) was considered in the site modulation, for landscape to point at one of the four cases: *identity, resemblance, differentiation* or *coalition*, on the basis of the environmental, urban and social set-up context.

The integration within the same structure of benches and community poster boards are meant to ensure social opening of the WCP; the surroundings' environmental impact is managed with the use of vines and juxtaposing green space strips – maintained as continuous structure in such way that containers' replacement would be ensured from the pedestrian side, eliminating the wastage of placing their disposal holes toward the road side. The WCP structure aims creating a screen against the aggressive zones – as car traffic is most frequent source of pedestrian discommode. The aesthetics are only suggested – design principles were the WCP signaling, the scaling of the general design volume and the creation of a repeatable structure – except for minor adjustments. According to the context, benches can be replaced with planters to increase planting area.

CONCLUSIONS

Including landscape quality among the standard objectives of urban management can drive the enhancement of the selective waste gathering efficiency, while answering environmental, social, cultural and economic quests.

1. WCP are an urban landscape feature, contributing to its diversity and identity. This way, through landscape, the WCP can support environmental culture.
2. Through their short-term potential – recovering energy from the wastes – mid-term – enhance public-space quality – and their long-term services – environmental culture support – the urban wastes selective gathering system raises contractors' interest (valorizing the waste energy) and the interest of the local and central administrations (responsible for the socio-ecologic system's sustainability).
3. The environmental impact of the urban imbalances – be they of social (economic or cultural segregation, criminality, community/neighborhood identity loss, low appropriation of the public open spaces), economic (real estate value), functional (in the specific case of the WCP and general at the POS scale) and cultural (urban and zonal identity, environmental culture) can be enhanced through WCP landscape integration – adaptive and participative – within the city's public open spaces.

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