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Urban-planning Criteria for Planning and Designing Public City Parks in the Regeneration of Waterfront Brownfields / Urbanistički kriteriji za planiranje i projektiranje javnih gradskih parkova u regeneraciji obalnih brownfielda

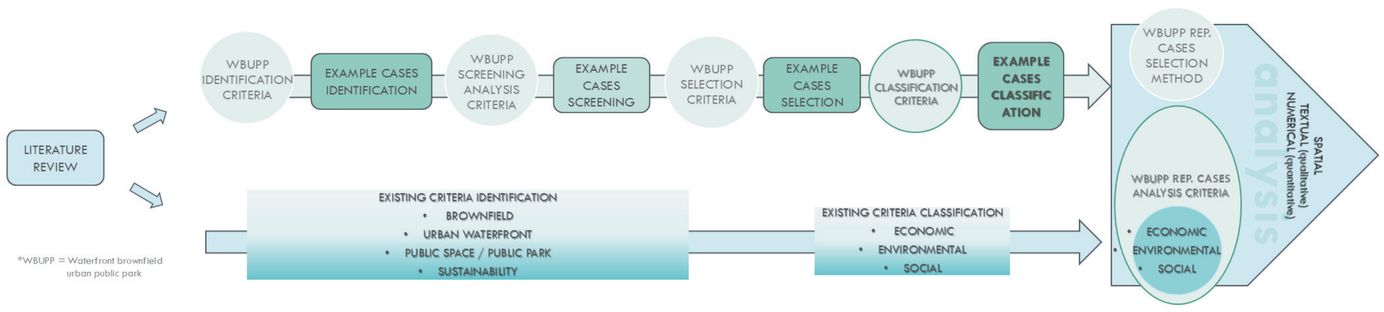
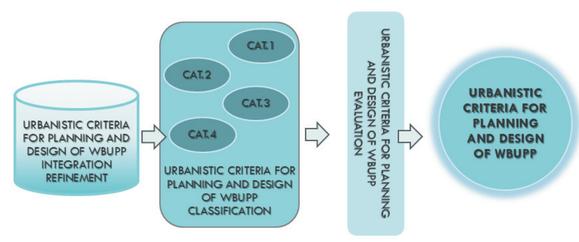


Figure 1. WBUPP research methodology



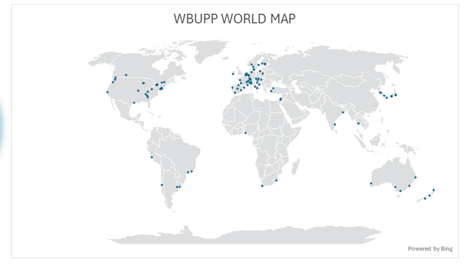


Figure 2. WBUPP example cases locations worldwide, Pseudo Mercator projection

Waterfront Brownfield Urban Public Parks, initial research

The research focuses on public parks adjacent to bodies of water such as rivers, seas, or lakes, located on previously developed, abandoned land. The topic is analyzed through the lens of urban sustainability. Following a comprehensive literature review using peer-reviewed articles and additional non-scholarly sources, parks within the urban waterfront brownfield range are identified and presented in an overview.

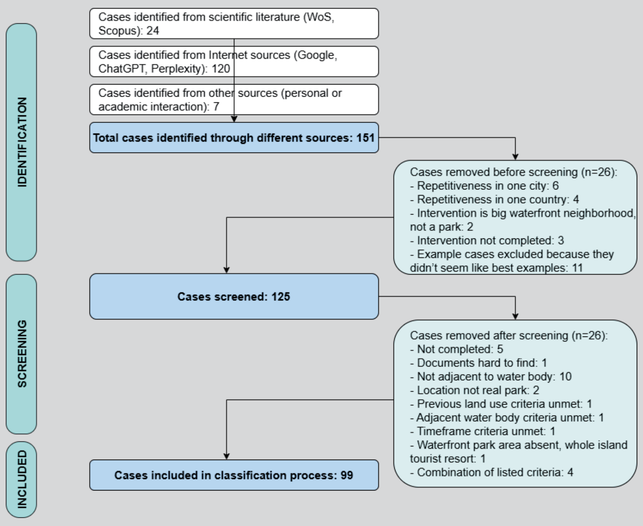


Figure 3. Diagram of the PRISMA 2020 flowchart for the WBUPP example cases screening[1], produced using draw.io diagramming online tool[2]

[1] WBUPP selection process using the PRISMA 2020 scheme, Page at al. (2021) Page M J, McKenzie J E, Bossuyt P M, Boutron I, Hoffmann T C, Mulrow C D et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews BMJ 2021; 372 :n71 doi:10.1136/bmj.n71
[2] https://www.drawio.com/ 2025-09-13

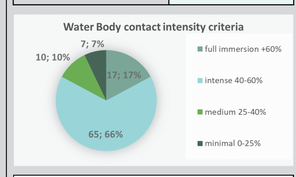
Javni gradski parkovi obalnih brownfielda, preliminarno istraživanje

Istraživanje je usmjereno na javne parkove smještene uz vodene površine kao što su rijeke, mora ili jezera, na prethodno izgrađenom, napuštenom zemljištu. Tema je analizirana kroz prizmu urbane održivosti. Nakon opsežnog pregleda literature korištenjem znanstvenih članaka i dodatnih neznanstvenih, stručnih izvora, parkovi unutar gradskih obalnih brownfield područja identificirani su i prikazani u pregledu.

No.	Countries by Region criteria (Africa, Asia Australia and Oceania, North America, South America, Europe)	Country	Location	Park / Project Name	Transformation Description	Size (ha)	Park size criteria (S small 0-5ha, M medium 5-20ha, L big 20-100ha, XL extra big 100+ha)	Completion Year	Timeframe completion criteria	Water Body	Water Body type criteria	Water Body contact intensity criteria	Photo	Park shape criteria	Park context type criteria	Park/City relationship criteria (within the urban tissue, outside the urban tissue)	Park/Neighborhood relationship criteria	Park/Infrastructure relationship criteria	Previous land use criteria (port infrastructure, infrastructure, industrial, landfill, reclaimed land, mixed use)	Park green spaces (minimal (0-10%), medium (15-20%), significant (21-100%))	World Bank Rank (GDP Per Capita, 2025)	GDP per capita ranking criteria
41	Asia	Hong Kong	Hong Kong	West Kowloon Cultural District waterfront park	Former industrial port transformed into cultural complex	23,00	L big	2019	the last decade	Victoria Harbor	sea	intense 40-60%		central	mostly heterogeneous	within the urban tissue	contact	intersecting	landfill	significant	16	first 25
42	Europe	Hungary	Budapest	Duna Plaza waterfront park	Former industrial area transformed into waterfront development	9,00	M medium	2017	the last decade	Danube River	river	intense 40-60%		longitudinal	mostly homogeneous	outside the urban tissue	contact	contact (relevant)	_industrial	significant	48	26-50
43	Asia	India	Mumbai	City Park, Bandra-Kurla Complex	Low-lying marshy land with poor surface drainage that was heavily affected by pollution. The land was reclaimed and	5,56	M medium	2010	early 21st century	Mahim Creek	sea	medium 25-40%		central	mostly homogeneous	outside the urban tissue	contact	contact (relevant)	reclaimed land	significant	137	75+
44	Asia	India	Kolkata	New Town Eco Park	Repurposing of underutilized agricultural and wetland land into a major ecological urban park	194,00	XL extra big	2012	early 21st century	East Kolkata Wetlands	lake	intense 40-60%		central	mostly heterogeneous	outside the urban tissue	contact	contact (relevant)	reclaimed land	significant	137	75+
45	Europe	Ireland	Cork	Marina Park Waterfront	Industrial waterfront zone transformed into modern park	32,00	L big	2025	the last decade	River Lee	river	intense 40-60%		longitudinal	mostly heterogeneous	outside the urban tissue	contact	contact (relevant)	_industrial	significant	2	first 25
46	Asia	Israel	Tel Aviv	Port of Tel Aviv	Former industrial port transformed into waterfront entertainment complex	30,00	L big	2018	the last decade	Mediterranean Sea	sea	full immersion +60%		irregular	mostly heterogeneous	within the urban tissue	integrated	intersecting	port infrastructure	minimal	16	first 25
47	Europe	Italy	Rome	Lungotevere delle Navi Park, Ostiense District	Former industrial area transformed into cultural quarter with parks	1,60	S small	2025	the last decade	Tiber River	river	intense 40-60%		linear	mostly homogeneous	within the urban tissue	contact	contact (relevant)	_industrial	significant	27	26-50
48	Europe	Italy	Turin	Parco Dora, Spina Centrale	Former industrial railway corridor transformed into linear park	10,00	M medium	2012	early 21st century	Po River	river	medium 25-40%		central	mostly heterogeneous	within the urban tissue	contact	intersecting	infra_structure	significant	27	26-50
49	Europe	Italy	Genoa	Porto Antico	Former industrial port transformed into waterfront promenade	23,00	L big	2004	early 21st century	Ligurian Sea	sea	intense 40-60%		irregular	mostly heterogeneous	within the urban tissue	integrated	contact (relevant)	port infrastructure	minimal	27	26-50
50	Asia	Japan	Osaka	Maishima Seaside Park	Former industrial island transformed into sports and recreation complex	4,40	S small	2001	early 21st century	Osaka Bay	sea	full immersion +60%		central	mostly heterogeneous	outside the urban tissue	contact	contact (tangent)	landfill	significant	34	26-50

Figure 4. WBUPP screening results extract

Water Body contact intensity criteria	No. Of WBUPP
full immersion +60%	17
intense 40-60%	65
medium 25-40%	10
minimal 0-25%	7
total	99



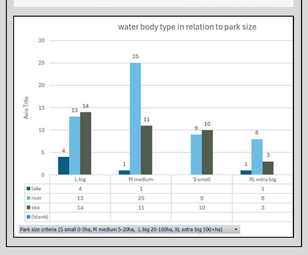


Figure 5. WBUPP classification by specific criterion and comparative analysis (2 criteria correlation), result extract

ECONOMIC	SELF-SUFFICIENCE
	ALL YEAR USE
	IMPLEMENT TOURIST ACTIVITY
	PUBLIC TRANSPORT
ENVIRONMENTAL	POLLUTION
	SPATIAL MORPHOLOGY
	PROGRAM/FUNCTION
	MOBILITY
	BIODIVERSITY
	ACCESSIBILITY
	NATURE-BASED SOLUTIONS
	WATER-SENSITIVE URBAN DESIGN
	CLIMATE CHANGE EFFECTS MITIGATION
	URBAN DESIGN
	DRINKING WATER FOUNTAINS (ACCESS
	ADAPTABLE SPACES
	WAYFINDING
	VISUAL IMPACT
	RESILIENT GREEN INFRASTRUCTURE
	SUSTAINABLE WASTE MANAGEMENT
	ECOSYSTEM
	ARCHITECTURE - AESTHETIC
SOCIAL	PROXIMITY OF SCHOOL FACILITIES
	WELL-BEING
	SECURITY (SAFETY)
	HERITAGE
	SOCIAL INCLUSION
	EDUCATIVE FACILITIES/SERVICES
	SHELTER AREAS
	IDENTITY / SENSE OF PLACE

Figure 6. Criteria for WBUPP representative example cases, extract



Figure 7. WBUPP representative cases selection

Waterfront Brownfield Urban Public Parks, core research

Structured theoretical framework organized within chapters Brownfields, Urban Waterfront, Public space / Public Park, and Sustainability provided a substantial number of scientifically grounded criteria (374), whose comparison process showed inconsistency and defiance of unification. Found criteria categorized in Environmental, Social and Economic section identified key sustainability criteria that can be related to the spatial aspect of a waterfront public park and applied in a detailed analysis of ten relevant cases.
The WBUPP relevant cases selection method is deducted using Flyvbjerg B. (2006), choosing Information-oriented selection type instead of the Random selection. The latter aims to avoid systematic biases in the sample and can include Random sampling to achieve a representative sample that allows for generalization for the entire population, or Stratified sampling to generalize for specially selected subgroups. Information-oriented selection type is used to maximize the utility of information from small samples and single cases. Cases are selected based on expectations about their information content. Specifically, the type can have four variants: Extreme/deviant cases, Critical cases, Paradigmatic cases, and the Maximum variation cases, chosen for the WBUPP relevant cases selection to obtain information about the significance of various circumstances for case process and outcome.
This research develops a novel set of urban-planning criteria for planning and designing waterfront public parks. The expected results seek to provide a transferable framework to guide future brownfield regeneration, integrating environmental, social and resilience perspectives.

Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. Qualitative Inquiry, 12(2), 219–245. https://doi.org/10.1177/1077800405284363

Javni gradski parkovi obalnih brownfielda, istraživačka jezgra

Strukturirani teorijski okvir organiziran unutar poglavlja Brownfieldi, Urbana priobalna zona, Javni prostor / Javni park i Održivost rezultirao je znatnim brojem znanstveno utemeljenih kriterija (374), čiji je proces usporedbe pokazao nedosljednosti i neujednačenost. Izdvojeni kriteriji, organizirani u kategorije Okolišni, Društveni i Ekonomski, identificirali su ključne kriterije održivosti koji se mogu povezati s prostornim aspektom obalnog javnog parka te primijeniti u detaljnoj analizi deset relevantnih slučajeva.
Metoda odabira relevantnih slučajeva WBUPP-a utvrđena je korištenjem Flyvbjerg B. (2006), s odabirom **Informacijski orijentiranog tipa** selekcije umjesto Slučajnog odabira. Potonji je usmjeren na izbjegavanje sustavne pristranosti u uzorku i može uključivati Slučajno uzorkovanje kako bi se postigao reprezentativan uzorak koji omogućuje generalizaciju na cijelu populaciju ili Slojevito uzorkovanje radi generalizacije za posebno odabrane podskupine.
Informacijski orijentirani tip selekcije koristi se za maksimizaciju korisnosti informacija iz malih uzoraka i pojedinačnih slučajeva. Slučajevi se biraju na temelju očekivanja o njihovom informacijskom sadržaju.
Konkretno, taj tip može imati četiri varijante: Ekstremni/odstupajući slučajevi, Kritični slučajevi, Paradigmatski slučajevi te **Slučajevi maksimalne varijacije**, koji su odabrani za ovo istraživanje radi dobivanja informacija o utjecaju različitih čimbenika na proces i ishod.
Ovo istraživanje uspostavlja novi skup urbanističkih kriterija za planiranje i projektiranje obalnih javnih parkova. Očekivani rezultati teže ponuditi prijenosivi okvir za usmjeravanje buduće regeneracije brownfield područja, integrirajući okolišne, društvene i perspektive otpornosti.

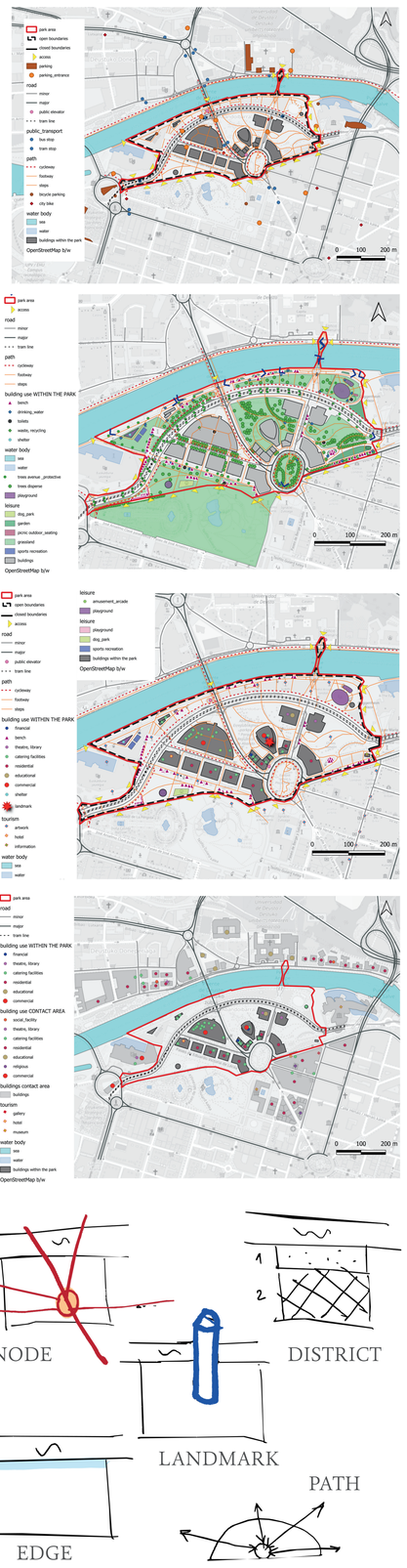


Figure 8. - 13. WBUPP representative case spatial analysis using QGIS and Open Street Maps as graphic tools, extract