



URBAN REGENERATION POTENTIAL AND TYPOLOGICAL SELECTION OF PUBLIC CATERING FACILITIES IN TASHKENT: AN ADAPTIVE MULTI-CRITERIA PLANNING FRAMEWORK

Zilolaxon Azizova

Tashkent Institute of Architecture and Civil Engineering

Abstract: *The transformation of Tashkent into a larger metropolitan system creates a need for evidence-based methods for locating public catering facilities in ways that support urban regeneration, social interaction and functional diversity. This article develops an adaptive multi-criteria framework for evaluating regeneration potential and selecting the most appropriate typological formats of public catering facilities, including cafes, food courts, food streets, tea-house clusters, seasonal terraces and mobile units. The study is positioned as a methodological pilot for the architectural and urban-planning topic of public catering systems in the urban environment. The proposed model integrates seven indicator groups: territorial-functional compatibility, access convenience, public-space integration, gastronomic activity, seasonal-spatial adaptability, time-based pedestrian flow and regeneration potential. A weighted index is used to compare urban prototypes and to translate scores into typological recommendations. The pilot results show that post-industrial and underused areas require flexible mixed formats, transit nodes are more suitable for compact food courts and rapid-service units, while central and heritage-adjacent zones require fine-grained, image-sensitive gastronomic streets. The contribution of the article is the connection between public catering typology and regeneration-oriented urban design. Instead of treating restaurants and cafes as isolated commercial objects, the framework interprets them as spatial catalysts capable of activating streets, courtyards, transit edges and recreational frontages. The proposed approach is applicable to Tashkent and can be adapted to other Central Asian cities experiencing rapid urbanization, new master planning and increasing demand for inclusive public environments.*

Keywords: public catering facilities; urban regeneration; typological selection; Tashkent; public space; adaptive assessment; architectural planning

1. Introduction

Public catering facilities are usually classified as service or commercial objects, yet in contemporary urban planning they also function as active components of everyday public life. Cafes, canteens, food courts, tea-houses, street-food clusters and seasonal terraces influence pedestrian rhythms, public-space safety, local identity and the economic vitality of surrounding streets. In rapidly changing cities, their distribution is not merely a question of market demand; it is also a question of urban form, social accessibility, microclimate and regeneration potential.

Tashkent provides a relevant case because the city is undergoing simultaneous processes of densification, transport restructuring, new development and renewal of public spaces. Official planning discourse has emphasized balanced development of the capital, engineering and transport infrastructure, protection zones and the preparation of design guidance for the urban environment. In this context, the placement of public catering facilities can either contribute to coherent urban life or intensify congestion, visual disorder and functional imbalance.

The problem addressed in this article is that typological decisions are often made after land-use or investment decisions, rather than being integrated into early spatial assessment. A food court, a neighborhood cafe, a seasonal terrace and a mobile food truck have different spatial requirements, different user groups and different impacts on pedestrian flows. A planning framework is therefore needed to connect regeneration potential with typological selection before detailed architectural design begins.

The aim of this article is to develop an adaptive multi-criteria framework that evaluates urban regeneration potential and identifies suitable public catering typologies for different urban contexts in Tashkent. The framework is designed for PhD-level research in architecture and urban planning and can be used as a

methodological component in district analysis, zoning proposals and design recommendations. The research question is formulated as follows: how can public catering facility typologies be selected according to the regeneration capacity and spatial characteristics of urban areas?

The article contributes to the literature by linking three bodies of knowledge: public-space assessment, urban regeneration and service-facility typology. While existing studies emphasize walkability, compact urban form or food environments, fewer studies translate these concepts into an operational matrix for architectural and urban-planning decisions regarding public catering objects. This article therefore proposes not a universal prescription, but a decision-support framework that can be calibrated with local data.

2. Literature Review and Theoretical Background

The literature on public-space planning emphasizes that streets, squares and open spaces should be considered as connected systems rather than as isolated beautification projects. UN-Habitat documents highlight the importance of accessibility, distribution, quantity, quality, governance and community assessment in public-space strategies. For public catering facilities, this means that location decisions should respond not only to commercial viability, but also to the capacity of an area to support inclusive and safe public life.

Urban regeneration studies show that active ground-floor uses are essential for transforming underused or mono-functional areas into socially attractive environments. Gastronomic functions can support regeneration because they extend the time of use, provide informal surveillance, attract diverse users and create small-scale economic opportunities. However, unregulated concentration may generate noise, waste, traffic and conflict with residential functions. Therefore, regeneration-oriented catering development requires typological differentiation.

The concept of the compact and proximity-based city adds another dimension. Public catering facilities serve daily, periodic and episodic needs. A small cafe or

canteen may be part of a 400-500 m daily-access radius, while a food street or destination restaurant may serve broader city-level trips. This distinction is especially important in Tashkent, where traditional neighborhood structures, metro corridors, bazaars, parks and new mixed-use developments create different patterns of demand.

Typology in architecture is not only a list of building types; it is a method for connecting spatial form, function and social practice. In public catering, the typological spectrum ranges from fixed architectural objects to transformable and mobile formats. The proposed framework treats typology as a planning variable that can be selected according to regeneration score, flow intensity, public-space capacity and environmental sensitivity.

3. Materials and Methods

3.1. Research Design

The study uses a design-oriented methodological approach. It does not claim to replace detailed GIS, cadastral, traffic or market studies; rather, it establishes a structured framework that can organize such data when they become available. The method combines multi-criteria assessment, expert weighting and typological matching. The unit of analysis is an urban micro-area, which may be a street segment, block, transit-node catchment, park edge, market frontage or regeneration site.

Five urban prototypes were used for the pilot demonstration: central core, residential belt, metro corridor, recreational/park edge and post-industrial or underused regeneration area. These prototypes correspond to typical spatial situations observed in large metropolitan areas and are suitable for the dissertation's broader zoning logic.

3.2. Indicator System

Seven indicator groups were selected. Each indicator is normalized on a 0-1 scale, where 0 indicates weak suitability and 1 indicates strong suitability. The

framework allows each indicator to be calculated through GIS measures, field observation, survey scores or expert evaluation. The general index is calculated as: $RPI = \sum(w_i \times x_i)$, where RPI is the regeneration potential index, w_i is the indicator weight and x_i is the normalized score of indicator i .

Code	Indicator group	Planning meaning	Possible measurement	Suggested weight
HFM	Territorial-functional compatibility	Compatibility with surrounding land use and urban role	land-use mix, frontage continuity, conflict risk	0.16
QQI	Access convenience	Ease of access for pedestrians, public transport users and service logistics	distance to transit, sidewalk quality, delivery access	0.15
JMI	Public-space integration	Ability to activate streets, squares, courtyards and open spaces	active frontage, seating potential, visibility	0.15
GFI	Gastronomic activity	Existing or potential concentration of food-related functions	density of catering points, evening activity, local identity	0.14
MMM	Seasonal-spatial adaptability	Capacity for terraces, shade, winter adaptation and transformability	microclimate, outdoor area, modularity	0.12
VOI	Time-based pedestrian flow	Temporal intensity and diversity of users throughout the day	morning/noon/evening flows, event peaks	0.13
RSK	Regeneration capacity	Ability of catering functions to revitalize underused land or buildings	vacancy, heritage value, investment readiness	0.15

3.3. Typological Matching Procedure

After calculating the regeneration potential index, a typological selection matrix is applied. Each typology receives a suitability value according to the urban context. The typological suitability function can be expressed as: $TSF_t = \alpha RPI + \beta A_t + \gamma C_t - \delta K_t$, where TSF_t is the suitability of typology t , A_t is the accessibility match, C_t is the context and image match, K_t is the conflict risk, and α , β , γ and δ are calibration parameters.

The framework differentiates between six main formats: neighborhood cafe, traditional tea-house, compact food court, gastronomic street/quarter, seasonal

terrace/pavilion and mobile food unit. The final recommendation is not automatically the highest commercial option; it is the option with the best balance of regeneration impact, spatial compatibility and public-space quality.

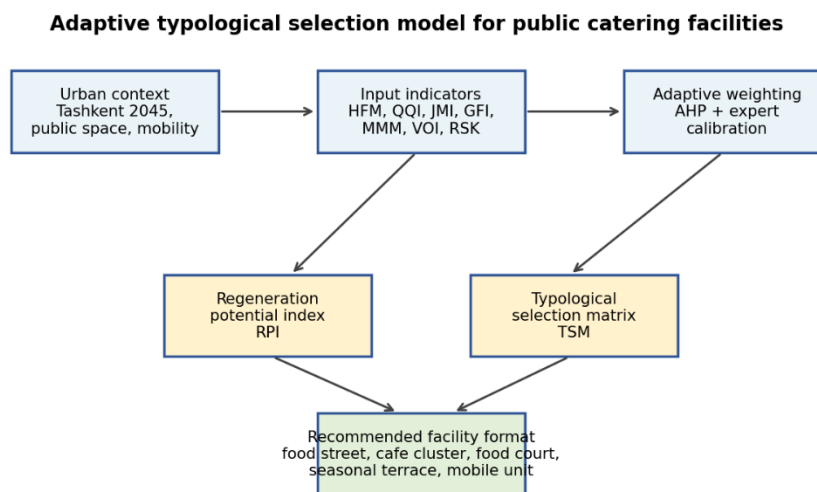


Figure 1. Conceptual framework of the adaptive typological selection model.

4. Results

4.1. Pilot Index Values by Urban Prototype

The pilot evaluation demonstrates how the framework can identify different planning priorities. The post-industrial regeneration prototype receives the highest regeneration potential score because vacant or underused sites can be reactivated through mixed gastronomic and cultural functions. Central areas show high public-space integration and gastronomic activity but require stricter image and conflict control. Residential belts have lower intensity but high need for daily-access formats. Transit nodes show high access convenience and time-based flow, making them suitable for fast, compact and high-turnover formats.

Urban prototype	HFM	QQI	JMI	GFI	MMM	VOI	RSK	RPI	Recommended strategic direction
Central core	0.82	0.76	0.84	0.88	0.62	0.83	0.76	0.79	Fine-grained cafe cluster and image-sensitive food street
Residential belt	0.70	0.61	0.58	0.52	0.55	0.47	0.63	0.58	Daily neighborhood cafe, canteen and family tea-house

Urban prototype	HFM	QQI	JMI	GFI	MMM	VOI	RSK	RPI	Recommended strategic direction
Metro corridor	0.75	0.91	0.70	0.69	0.55	0.86	0.70	0.74	Compact food court, rapid-service cafe and transit kiosk
Park edge	0.68	0.64	0.87	0.61	0.88	0.62	0.65	0.69	Seasonal terrace, pavilion and recreational cafe
Post-industrial regeneration	0.77	0.69	0.74	0.65	0.81	0.72	0.95	0.86	Mixed gastronomic hub, adaptive reuse and event-based format

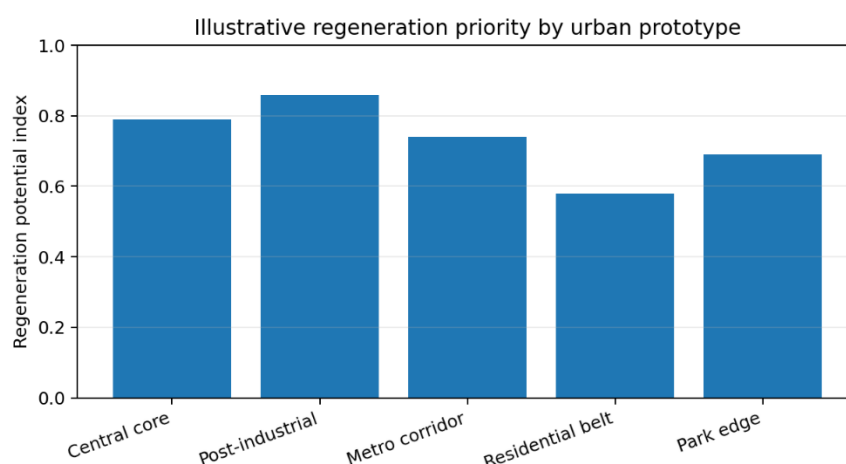


Figure 2. Illustrative regeneration priority by urban prototype.

4.2. Typology Suitability Outcomes

The typology matrix clarifies that the same high regeneration score does not always lead to the same object type. For example, a post-industrial site may be suitable for a mixed gastronomic hub or event-based food street, whereas a transit node may require smaller, high-turnover formats to avoid congestion. A park edge has strong potential for seasonal terraces, but excessive permanent construction may reduce landscape value. Thus, the model supports differentiated urban design rather than uniform commercialization.

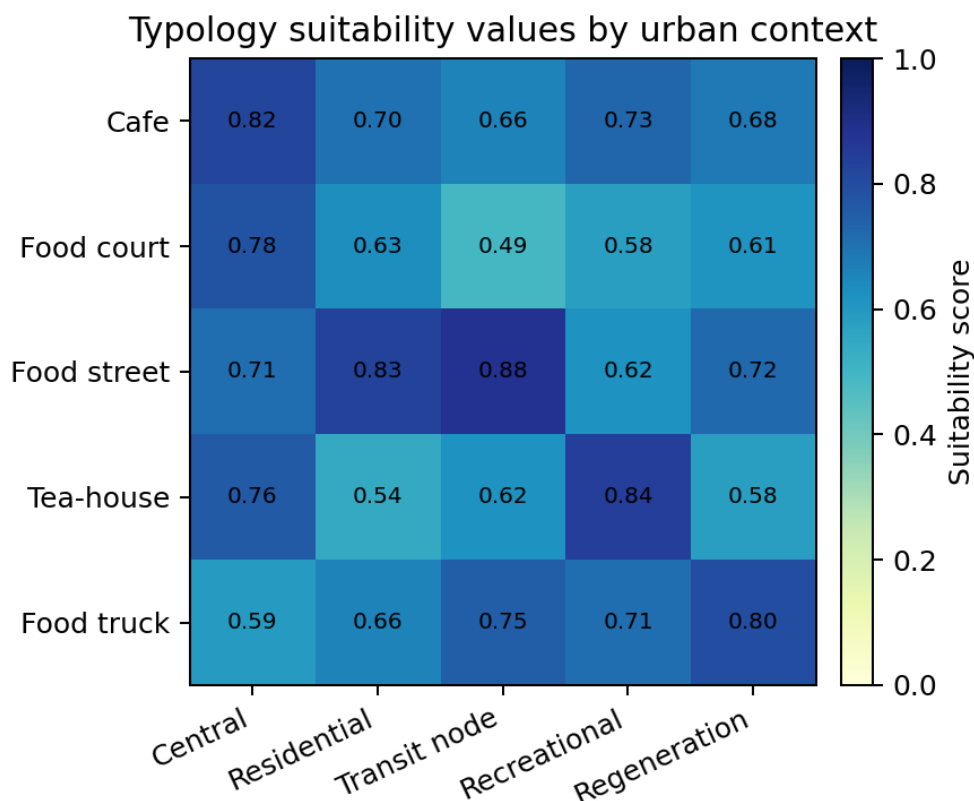


Figure 3. Typology suitability values by urban context.

Context	Dominant issue	Most suitable typology	Design-control requirement
Central streets	High pedestrian density and visual identity	Cafe cluster / gastronomic street	Facade discipline, waste logistics, night-time conflict control
Residential neighborhoods	Daily service and social comfort	Neighborhood cafe / family tea-house	Noise limitation, family accessibility, small scale
Transit nodes	Peak flows and short dwell time	Compact food court / rapid-service unit	Queue management, transparent circulation, fire safety
Recreational zones	Seasonality and landscape quality	Terrace / pavilion / mobile seasonal unit	Shade, removable structures, ecological surface treatment
Underused sites	Need for activation and reuse	Adaptive reuse gastronomic hub	Phased investment, heritage-sensitive rehabilitation, event programming

5. Discussion

The results show that public catering facilities can be planned as instruments of urban regeneration rather than as isolated commercial insertions. In Tashkent, this is especially important because rapid development may produce a mismatch

between new construction, public-space quality and everyday service accessibility. A typological selection framework can reduce this mismatch by translating urban analysis into architectural programming.

The proposed framework also addresses a methodological gap in conventional facility planning. Traditional approaches often use demand density or commercial visibility as primary criteria. The present model adds public-space integration, seasonal adaptability and regeneration capacity. These criteria are essential in a continental climate where summer shade, winter usability and microclimatic comfort strongly influence the success of outdoor and semi-outdoor catering spaces.

Another implication is that regulation should be differentiated by urban context. In central and heritage-adjacent areas, architectural image and street continuity are crucial. In transit corridors, circulation, safety and service speed dominate. In residential districts, compatibility and social comfort are more important than maximum intensity. In regeneration areas, flexible formats and adaptive reuse can help test demand before permanent capital-intensive construction.

The framework has limitations. The pilot values are illustrative and should be replaced by measured GIS, pedestrian-count, transport and field-observation data before final municipal decision-making. The weight coefficients should also be calibrated with expert panels, local residents and business stakeholders. Nevertheless, the methodological structure provides a reproducible basis for future empirical research.

6. Conclusion

This article developed an adaptive multi-criteria framework for evaluating the regeneration potential of urban areas and selecting suitable public catering facility typologies in Tashkent. The framework combines seven indicator groups and links the resulting regeneration potential index to a typological selection matrix.

The main scientific contribution is the integration of architectural typology with urban regeneration assessment. The model shows that public catering facilities should be selected according to their spatial, social and environmental compatibility, not only according to market demand. This is relevant for Tashkent's ongoing transformation into a larger metropolitan system, where food-related public environments can become catalysts of street life, adaptive reuse and inclusive public space.

Future research should apply the model to all districts of Tashkent using GIS layers, transit stops, population density, pedestrian-flow counts and a database of existing public catering objects. The model can then be incorporated into the proposed IRPA Navigator decision-support tool as a module for typological recommendation and regeneration forecasting.

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