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M M G A R O N

### Article

## Determination of urban regeneration project conflict causes for the Turkish construction industry

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### ABSTRACT

Urban regeneration projects come into prominence for various reasons such as the economic development of cities, earthquakes, urban decay, and lack of land for expansion. Due to the complexity of urban regeneration projects and the participation of multiple stakeholders, conflicts, which impede the successful implementation of projects, among stakeholders are unavoidable. There is limited knowledge about urban regeneration conflict causes in the literature. Existing studies have employed case study methodology and determined project-specific conflict causes. According to the literature review analysis, there has not been a single study to establish the priority orders of urban regeneration conflict causes based on risk severity, risk occurrences, and risk impact in urban regeneration projects. Therefore, this study aimed to identify and determine the urban regeneration conflict causes specific to Türkiye. In the article, the authors detected 69 urban regeneration conflict causes after a focus group discussion. The identified conflict causes were analyzed with the fuzzy TOPSIS methodology by considering the conflict causes' impacts on project cost overruns, delays in the project schedule, and project quality. The analysis showed that "Construction abandonment by a construction company" and "Bankruptcy of a construction company" are the most significant conflict causes for urban regeneration projects, respectively. The "Imperfect platform for appeal expression and public participation" conflict cause was found to be the least important conflict specific to Türkiye. Practitioners can use the study results to develop urban regeneration strategies and policy formulation, prevent conflicts, or mitigate tension among stakeholders.

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### INTRODUCTION

Capital cities and cities play a crucial role in the economic development and growth of developing countries. Moreover, cities are the driving forces behind innovation. However, cities and their living conditions are under pressure due to

rising real estate prices and rents, traffic congestion, land use conflicts, and environmental quality (Knippschild & Zöllter, 2021). In addition, fierce competition among cities is increasing to attract capital, investment, trade, and high-skilled labor (Kuyucu, 2022). In the face of positive economic development requirements, urban

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decline is highly possible and is already occurring due to economic decline, high unemployment, and deteriorating infrastructures. Furthermore, migration from cities to rural or village areas is increasing due to depopulation and aging issues. Vacant buildings are proliferating as the population in cities decreases due to migration from city to village (Jang, 2020; Knippschild & Zöllter, 2021). Therefore, urban regeneration projects are one of the significant parts of the economic transformation of cities.

Moreover, the lack of land for the expansion of cities plays a crucial role in turning their attention to existing building stock lands (Wang & Xiang, 2019). Thus, regeneration projects gain importance not only for the transformation of building stocks but also for enabling efficiency in terms of infrastructure, life quality, and use. From another perspective, urban regeneration projects gain momentum due to the increase in land income corresponding to the compensation mechanism of floor area ratio (Huang, 2023).

Urban regeneration projects aim to foster the change and development of the physical, socio-economic, and cultural aspects (Kim et al., 2023a). In other words, regenerated buildings, cities, or regions help to convert physical and social conditions into a more livable and robust economy (Erbey & Erbas, 2017). Additionally, Yu & Lee (2012) stated that urban regeneration projects involve a series of actions that enhance the economic, physical, social, and environmental conditions in the urban regeneration area. However, urban regeneration is not an effortless process for both residents and the public. It is challenging to address regional issues since urban regeneration projects involve “project planning, land expropriation, housing demolition, and resettlement of owners” (Wang & Xiang, 2019). The study findings indicated that most conflicts in urban regeneration projects are related to “self-immolations, violent demolitions, banner protests, and nail households” (Wang & Xiang, 2019).

In Türkiye, urban regeneration is one of the most complex and problematic project types. Urban regeneration projects have gained momentum after 2004. In that year, the Justice and Development Party participated in developing the first comprehensive law regulating urban regeneration. The government initiated and funded many urban regeneration projects, improving housing quality, infrastructure, living conditions, and economic development. Foreign capital has subsidized the Turkish market (Kuyucu, 2022). In urban regeneration, Istanbul has been a leading force as a city. Although numerous projects began between 2004 and 2019, the projects were either suspended or terminated due to illegality or conflicts (Kuyucu, 2022). However, renewed building projects are handled not only within the scope of urban regeneration but also the rebuilding of individual buildings is extensively used (Kuyucu, 2022). Evin (2021) & Genc (2008) noted that while landowners and contractors

agree to conduct small-scale building regenerations (on vacant land and private property), central or local governments undertake large-scale urban regeneration projects involving higher risk and cultural assets. In other words, in Türkiye, the public, cooperative, and private sectors play a joint role in urban regeneration practices (Yolcu, 2021).

According to Genç (2008), urban regeneration projects are extensively carried out in urban conservation areas, illegal and urban areas with a poor quality of life, prestigious new central business districts, exhibition centers, shopping and entertainment centers, international resorts, and golf courses in Türkiye. Moreover, urban regeneration has been implemented in both brownfield areas and historical urban environments in Türkiye (Erbey & Erbas, 2017). In other words, conflicts arise between economic redevelopment and the preservation of historical or cultural heritage, as seen in the case of Türkiye (Kim et al., 2023a). The central and city governments have endeavored to enhance cities to make them more resilient to earthquakes, availability of many depressed areas, fierce competition, and economic challenges (Erbey & Erbas, 2017). Following the Kahramanmaraş earthquakes in 2023, urban regeneration projects have gained increased momentum, and it is expected that urban regeneration will attract more attention going forward.

Urban regeneration projects are distinguished from other construction projects by their complexity and uncertainty (Yu & Lee, 2012). Conflict management is one of the most critical success criteria for the successful completion of urban regeneration projects (Yu & Lee, 2012). In these projects, disputes between developers, property owners, and the government are common. Such disputes pose significant challenges to sustainable urban regeneration efforts as well (Huang, 2023). In this context, Kuyucu (2022) noted that urban regeneration projects involve challenging tasks and risks that lead to conflicts among stakeholders. These conflicts result in delays, cost overruns, and reduced profitability (Yu & Lee, 2012). Additionally, conflicts exert “increased pressure on the government to maintain stability, increased costs to developers, and a reduced willingness among property owners to participate” (Wang & Xiang, 2019). The authors also observed that these types of conflicts have negative social impacts on the public. Therefore, identifying conflicts and facilitating their management before they occur is essential to prevent them. The literature review revealed that there is no comprehensive study identifying conflicts occurring during the execution of urban regeneration projects specific to the Türkiye case. Urban regeneration studies in Türkiye have used case study methodologies to elucidate conflicts during the project execution process. The only study employing a qualitative method, such as a multi-criteria decision-making method, was conducted specifically for South Korea. Consequently,

this study aims to identify the causes of urban regeneration conflict and determine the priority order of urban regeneration conflicts for Türkiye. The analysis of this study revealed that the reasons for urban regeneration conflicts specific to the Türkiye case differ from those in the Hong Kong case.

## RESEARCH METHODOLOGY

This research aims to identify conflict causes in urban regeneration projects and determine their ranking orders. To achieve the research objectives, the research flowchart followed in this study is depicted in Figure 1. The authors conducted a literature review to identify the conflict causes that arise in urban regeneration projects. The outcomes of the literature review were utilized in a focus group discussion to finalize the list of conflict causes for urban regeneration projects. Subsequently, the fuzzy TOPSIS method was employed to rank the priority orders of conflict causes specific to the Türkiye case.

### Literature Review and Identification of Urban Regeneration Conflict Causes

The term 'old city area' represents a building stock that was constructed between the 1960s and 1980s. These buildings had low construction standards, limited public service facilities, and lacked modern amenities (Huang, 2023). Therefore, numerous urban regeneration projects have been conducted worldwide to increase prosperity and improve living standards. Although there are many studies on urban regeneration in the literature, there are few studies on conflict causes in these projects.

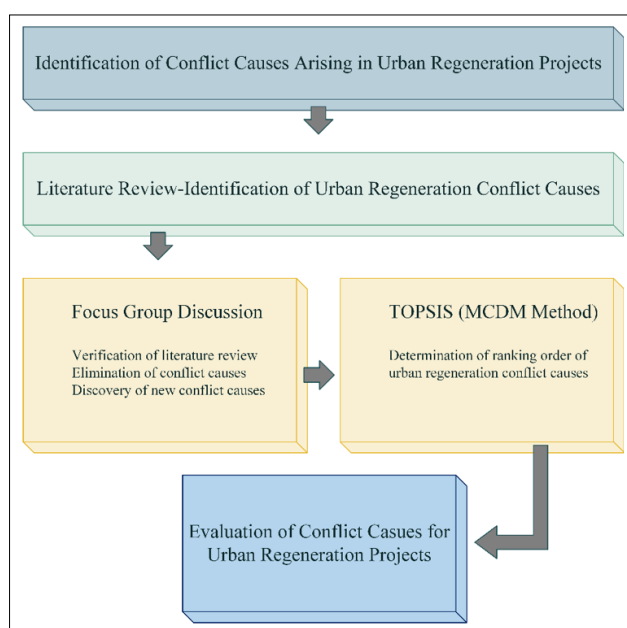


Figure 1. Research Flowchart.

Historical places often feature in urban regeneration projects. Many conflicts occur due to preservation regulations. In this context, Kim et al. (2023a) aimed to discover conflicts in urban regeneration projects conducted in historical districts using a case study methodology and proposed a framework. Another study by Huang (2023) investigated the process and core problems of the urban regeneration project in the old city of Shenzhen, focusing on explaining conflicts during project implementation. This study also combined a case study and literature review to determine urban regeneration problems. Knippschild & Zöllter (2021) developed a decision support tool to prioritize urban regeneration projects or buildings, considering the conflict between cultural heritage preservation and urban regeneration. Yung & Yu (2018) examined the urban regeneration process in Nga Tsin Wai old village through group meetings and interviews to explore challenges and processes.

Additionally, conflicts between stakeholders in urban regeneration projects are a common issue. Kim et al. (2023b) noted that stakeholder conflicts are a significant hindrance in urban regeneration projects in Korea and analyzed perception-related conflicts. Wang & Xiang (2019) investigated stakeholder-related conflicts using the Structural Equation Model for analysis. Urban regeneration projects can also cause tension between stakeholders due to conflicting interests. Jang (2020) looked into the role of universities in urban regeneration and the conflict between university students and residents caused by a decrease in rental income due to these projects. Conflicts between stakeholders often stem from differences in perception. Waite (2020) analyzed the displacement of tenants and their perceptions in urban regeneration projects using a case study methodology. Zhang et al. (2021) studied perception differences among local governments, residents, merchants, and all participants in urban regeneration projects.

Specific to Türkiye, many urban regeneration studies have been performed, but none focus solely on conflicts in urban regeneration. Generally, conflicts are mentioned in case studies. Erbay & Erbaş (2017) analyzed urban regeneration projects in Fener Balat, Türkiye, using technical expertise reports and theses from over ten years. Kuyucu (2022) investigated the reasons behind the unsuccessful urban regeneration projects of the government in Istanbul, Türkiye, attributing the reasons to poorly designed legal/institutional infrastructure and conflictual relations between stakeholders, based on a case study.

In the literature, only one study utilizes the Multi-Criteria Decision Making (MCDM) method, aiming to propose a conflict-risk assessment model for urban regeneration projects (Yu & Lee, 2012). The risk model was created based on the Fuzzy-Failure Mode and Effect Analysis, a well-known risk management concept. The authors identified leading causes of conflicts as the implementation

of urban regeneration projects in developing areas, a variety of construction works, the consideration of cultural and historical values, and the unawareness or misunderstandings of public bodies. However, this study was specific to South Korea, and the results showed many differences in conflict types between South Korea and Türkiye. Additionally, the study by Yu & Lee considered a limited number of conflict causes, and there are differences in institutional and urban regeneration processes between Türkiye and South Korea.

Urban regeneration conflict causes were identified following a literature review. For this review, the Scopus scientific search engine was chosen due to its comprehensiveness and reliability in comparison to the Web of Science search engine. It has been noted in the literature that although Google Scholar contains a more extensive collection of scientific documents, it is prone to errors owing to indexing issues. Hence, Google Scholar is not favored over its two competitors (Franceschini et al., 2016).

The keywords "urban regeneration," "conflict," "urban regeneration," and "dispute" were utilized for the literature review in the Scopus search engine. According to the analysis results, studies related to "dispute" and "urban regeneration" were not found to be of interest. However, 45 studies related to the keywords "urban regeneration" and "conflict" were discovered. Out of these, 16 studies were selected for an in-depth analysis to identify urban regeneration conflict causes. A total of 97 urban regeneration conflict causes were initially identified. These identified conflict causes were then consolidated and refined following a focus group discussion.

#### Focus Group Discussion Technique for the Verification of Identified Urban Regeneration Conflict Causes

The Focus Group Discussion (FGD) technique was employed to validate the urban regeneration conflict causes identified from the literature review. FGD is a widely-used technique for rapid evaluation. It allows for structured, semi-structured, and unstructured forms of data collection. Selected or purposively chosen experts discuss the key themes pinpointed by researchers. FGD is a qualitative method that often yields more comprehensible data compared to quantitative techniques (Escalada & Heong, 2007).

Originating from the field of sociology, conflicts between stakeholders in urban regeneration projects are closely linked with social behaviors. The number of FGD participants varies according to the study's scope and the availability of experts. As found in the literature review, a range of expert group sizes can be effective: two experts (dyad), three experts (triad), four to six experts (mini-group), seven to ten experts (small group), or eleven to twenty experts (super-group). However, to gather valuable insights, it is crucial that the invited experts have diverse backgrounds and experiences (Yu & Leung, 2015). In this context, the profiles of the invited experts are summarized in Table 1. Experts were selected from public institutions, universities, and the private sector to ensure a comprehensive evaluation.

The FGD aims to foster an environment where experts can share their perceptions, feelings, and experiences. To avoid moderator bias and the dominance of certain voices during FGD sessions, moderators must facilitate discussions that yield valuable knowledge (Yu & Leung, 2015). To this end, moderators first outlined the study's objectives to the experts. Then, they presented the urban regeneration conflict causes for evaluation, using a 1-5 Likert scale where 1 signifies "no importance" and 5 indicates "very important." Experts were also asked if they wished to introduce new conflict causes. However, rather than adding new causes, experts chose to amalgamate some of them. Conflict causes with an average rating below 3 were subsequently discarded.

Following the FGD analysis, 20 urban regeneration conflict causes that scored under 3 were removed. The eliminated conflict causes include "Conflict between economic redevelopment and historical or cultural preservation, Increase in additional charges of cooperative (Project developer) members, Delay in general meeting for the permit of management disposition plan, Controversy of permission process for management disposition plan, Impact of urban regeneration projects on views, Inadequate protection of historical heritage, Imperfect construction of public facilities, Controversy of permission process for cooperative/commission establishment, Claim of cooperative regarding legal regulation relaxation (such as business regulation so on), Opposition of other local/

**Table 1.** The expert profiles in the FGD session

Expert ID	Personal profession	Institution	Education	Years of experience
E1	Architect	Municipality	Architect (MSc degree)	CI: 10 years. UR: 10 years.
E2	Project manager	Private sector	Civil Engineer (MSc degree)	CI: 15 years. UR: 8 years.
E3	Project manager	Private sector	Civil Engineer (MSc degree)	CI: 20 years. UR: 12 years.
E4	Project manager	Private sector	Civil Engineer (MSc degree)	CI: 14 years. UR: 8 years.
E5	Academician	University	Architect (Ph.D. degree)	CI: 15 years. UR: Not applicable.
E6	Civil Engineer	Municipality	Civil Engineer	CI: 5 years. UR: 5 years.

CI: Construction Industry; UR: Urban Regeneration.

district government regarding the designation of urban regeneration district, Claim regarding legal regulation relaxation (related to construction), Lack of preferential policies (special consideration apart from the rest of society), Irregular democratic procedures, Non-standard procedure of administrative operation, Transparency issues, Volume rate changes dramatically, Lack of timely publication of information, Imperfect emergency mechanism, Large-scale demolition (civil society protests), and Disintegration of owners' social space and culture." After this process, 69 urban regeneration conflict causes remained as a result of the analysis and merging. The final list of urban regeneration conflict causes is presented in Table 2.

**Determination of Ranking Order of Urban Regeneration Conflict Causes—Fuzzy TOPSIS**

Another objective of this study is to determine the ranking order of urban regeneration conflict causes. In the literature, conflict causes are typically identified through qualitative studies, such as case studies, which are specific to each case. Consequently, generalizing conflicts to develop solutions for the most probable conflicts during urban regeneration projects is challenging. This study also aims to bridge this gap using quantitative techniques such as Multi-Criteria Decision Making (MCDM) methods. Bridging the gap will aid in predicting the most probable challenges in urban regeneration projects.

MCDM methods are applicable in various domains, including the economy, social sciences, and engineering. In an MCDM approach, the research problem consists of multiple alternatives and criteria that may be in conflict. The ranking order of alternatives is determined based on the weight of each criterion (Nädäban et al., 2016). Decision-makers, while evaluating the problem, face constraints and ambiguities. To address these issues, fuzzy set theory was introduced, accommodating constraints and incomplete or uncertain information. Furthermore, decision-makers typically employ precise numbers in non-fuzzy approaches. In this context, linguistic variables represented by fuzzy numbers can overcome the disadvantages of non-fuzzy approaches, such as definite meaning and incomplete or uncertain knowledge (Nädäban et al., 2016).

Fuzzy set theory has been integrated with various MCDM methods in the literature. One such method is the fuzzy Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). The fuzzy TOPSIS method possesses several advantages: there are no limitations on the number of criteria and options, it can accommodate both negative and positive criteria, it allows for the simultaneous consideration of qualitative and quantitative criteria, and it is an easy and faster problem-solving method (Maghsoodi & Khalilzadeh, 2018). The fuzzy TOPSIS method operates on the principle of “minimizing the distance from the ideal solution and maximizing the distance from the negative ideal solution” (Maghsoodi & Khalilzadeh, 2018). A group of seven or more experts can conduct the fuzzy TOPSIS method (Taylan et al., 2014). Table 3 outlines the expert profiles involved in the fuzzy TOPSIS analysis.

The TOPSIS technique was first introduced by Hwang and Yoon in 1981. This method has since been enhanced through the integration of fuzzy set theory. The steps for implementing the fuzzy TOPSIS methodology are outlined below, as summarized by Maghsoodi and Khalilzadeh (2018):

**Step 1:** The first step involves determining the weights of the evaluation criteria before analyzing the ranks of alternatives. Various methods are available in the literature to ascertain the weights of criteria, such as the Analytic Hierarchy Process (AHP) methodology, the TOPSIS method, or other Multi-Criteria Decision Making (MCDM) methods.

**Step 2:** A fuzzy decision matrix is constructed using the fuzzy triangular numbers corresponding to the verbal values provided in Table 4.

Each element of the created matrix given in Eq. 12 corresponds to  $(x_{ij})=(l_{ij},m_{ij},u_{ij})$ . As stated above, these values are taken from Table 4.

$$\tilde{D} = \begin{bmatrix} \tilde{x}_{11} & \dots & \tilde{x}_{1n} \\ \vdots & \ddots & \vdots \\ \tilde{x}_{m1} & \dots & \tilde{x}_{mm} \end{bmatrix}$$

**Step 3:** Normalization of the fuzzy decision matrix is created by using Eq. 2-3.

$$r_{ij} = \frac{l_{ij}}{u_j^*}, \frac{m_{ij}}{u_j^*}, \frac{u_{ij}}{u_j^*} \text{ and } u_j^* = \max_i u_{ij}$$

$$r_{ij} = \frac{l_j^-}{u_{ij}}, \frac{l_j^-}{m_{ij}}, \frac{l_j^-}{l_{ij}} \text{ and } l_j^- = \max_i l_{ij}$$

**Step 4:** Normalized decision matrix is multiplied with weights of criteria obtained in step 1.

$$v_{ij} = w_j r_{ij}$$

Where  $w_j$  represents the weights of the  $j^{\text{th}}$  criterion.

**Step 5:** The positive ideal and negative ideal solutions are determined by using Eq. 5 and 6.

$$A^* = \{v_1^*, \dots, v_n^*\}$$

$$A^- = \{v_1^-, \dots, v_n^-\}$$

**Step 6:** The negative and positive distance values are calculated by using Eq. 7-8, respectively.

$$d_i^+ = \sum_{j=1}^n d(v_{ij}, v_j^+)$$

$$d_i^- = \sum_{j=1}^n d(v_{ij}, v_j^-)$$

**Step 7:** Defuzzification of distance values is performed with Eq. 9.

$$d(v_1, v_2) = \sqrt{\frac{1}{3} [(l_1 - l_2)^2 + (m_1 - m_2)^2 + (u_1 - u_2)^2]}$$

**Step 8:** The relative closeness to the ideal solution is calculated by using Eq. 10;

$$CC_i = \frac{d_i^-}{d_i^+ + d_i^-}$$

**Table 2.** Urban Regeneration Conflict Causes

Conflict Causes	References
Disagreement between the cooperative and constructor about the general sale price	Yu and Lee (2012)
Bankruptcy of construction company	Yu and Lee (2012)
Deliberate sales delay by the construction company	Yu and Lee (2012)
Increase in construction unit costs	Yu and Lee (2012)
Disagreement about indemnification for tenants and measures for an emigration plan	Yu and Lee (2012)
Owners' income reduction	Wang and Xiang (2019)
Owners' living costs increased dramatically	Wang and Xiang (2019)
Excessive extra cost/Rising transaction costs during the urban regeneration project execution	Wang and Xiang (2019), Kuyucu (2022)
Unreasonable financing scheme	Wang and Xiang (2019)
Uncertain future returns of urban regeneration projects	Kuyucu (2022)
Environmental contamination (Claim regarding generated noise and dirt during construction)	Kim et al. (2023a), Yu and Lee (2012)
Owners' employment difficulties	Wang and Xiang (2019)
Forced evictions/Nail households' problem	Kim et al. (2023a), Can (2020), Huang (2023)
Forced demolition	Can (2020), Huang (2023)
Violence to coerce them to sign the contract	Can (2020), Huang (2023)
Die of old tenants	Huang (2023)
The Claim of Project developers regarding legal regulation relaxation (such as a business regulation)	Yu and Lee (2012)
Lawsuits of Sale Claim/Unreasonable compensation standard/ fair treatment in housing pricing	Yu and Lee (2012), Wang and Xiang (2019), Can (2020), Yung and Yu (2018)
Disagreement on transferring free-based facilities	Yu and Lee (2012)
Delay in purchasing national/public land	Yu and Lee (2012)
Controversy of permission process for project implementation plan	Yu and Lee (2012)
Lawsuit about disposition method (sales or adjusted amounts)	Yu and Lee (2012)
Lawsuits of trust registration	Yu and Lee (2012)
Tenants' emigration refusal/ Claim regarding legal measures for Tenants' emigration	Yu and Lee (2012)
Unable to continue the performance of the contract	Wang and Xiang (2019)
Obvious loopholes in the contract	Wang and Xiang (2019)
Illegal housing stock	Kocabas (2010), Waite (2020)
Strong policy change	Huang (2023)
Conflicts due to planning scheme (unclear change and improvement)	Huang (2023)
The opposition of landowners to the designation of urban regeneration district	Yu and Lee (2012), Kuyucu (2022)
The claim of landowners to the designation of urban regeneration district	Yu and Lee (2012)
Imperfect laws and regulations (ill-designed legal/institutional infrastructure) / Inconsistency with policy planning, unavailability of policy, and unavailability of guideline	Wang and Xiang (2019), Kuyucu (2022), Can (2020), Erbey and Erbas (2017), Yung and Yu (2018), Islam and Esa Abrar Khan (2017)
Political pressures	Ball and Maginn (2005)
Institutional clashes	Kuyucu (2022), Erbey and Erbas (2017), Yung and Yu (2018)
Excessive requirements	Huang (2023)
A claim regarding construction defects	Yu and Lee (2012)
Construction abandonment of the construction company	Yu and Lee (2012)

**Table 2.** Urban Regeneration Conflict Causes (Cont.)

Conflict Causes	References
Immature project management / Uncertainty of management subject	Wang and Xiang (2019)
Imperfect accountability mechanism	Wang and Xiang (2019)
Frequent adjustment of planning	Wang and Xiang (2019)
Violation of approval procedures	Wang and Xiang (2019)
Serious delays in demolition progress	Wang and Xiang (2019)
Unreasonable implementation plan	Wang and Xiang (2019)
Insufficient competence of managers	Wang and Xiang (2019)
Plan ambiguousness / Conflicts with spatial plans	Kuyucu (2022), Erbey and Erbas (2017)
Consideration of a sense of community	Kim et al. (2023a), Waite (2020)
Resettlement is not in place (including tenants)	Wang and Xiang (2019), Huang (2023)
The imperfect platform of appeal expression and public participation	Wang and Xiang (2019), Waite (2020)
Deterioration of public order	Wang and Xiang (2019)
Reduction of resources related to owners' education and healthcare	Wang and Xiang (2019)
Increase in migrant population	Wang and Xiang (2019)
Urban regeneration project acceptance by the community	Jang (2020)
Failure to improve living conditions in regenerated projects	Yung and Yu (2018)
Stakeholder collaborations, communication, and coordination issues conflicts between stakeholders	Kim et al. (2023a), Wang and Xiang (2019), Kuyucu (2022), Huang (2023), Waite (2020), Kim et al. (2023b), Zhang et al. (2021)
The interest pursuit (incompatible interests)	Huang (2023), Wang and Xiang (2019), Kuyucu (2022), Yung and Yu (2018)
Internal conflicts and contradictions among owners	Huang (2023)
Disorderly establishment of the tentative committee	Yu and Lee (2012)
Different opinions during the selection process of a contractor	Yu and Lee (2012)
Leadership disputes between members and representatives in the committee	Yu and Lee (2012)
Disagreement among property owners regarding project/ committee establishment/cooperative establishment	Yu and Lee (2012)
Controversy regarding legal validity during the selection process of subcontractor	Yu and Lee (2012)
Disagreement among cooperative/commission members regarding the project implementation plan	Yu and Lee (2012)
Delay in the general meeting for permit of the project implementation plan	Yu and Lee (2012)
Disagreement among members of the cooperative regarding equity ratio after a real estate appraisal	Yu and Lee (2012)
Insufficient capacity of developers	Wang and Xiang (2019)
Owners' loss of housing	Wang and Xiang (2019)
Participation of many NGOs	Can (2020), Waite (2020)
Excessive power of developers on owners	Yung and Yu (2018)
Relocation of settlers	Waite (2020), Islam and Esa Abrar Khan (2017)

According to the explanation of the fuzzy TOPSIS steps, data were analyzed. The analysis results are summarized in Table 5.

In the discussion section, the four most significant urban regeneration conflict causes will be analyzed.

## DISCUSSION

Urban regeneration projects are designed to revitalize brownfields and areas that have deteriorated. These projects encompass a range of activities aimed at enhancing

**Table 3.** The expert profiles participated in the fuzzy TOPSIS analysis

Expert ID	Personal profession	Institution	Education	Years of experience
E1	Architect	Municipality	Architect (MSc degree)	CI: 10 years. UR: 8 years.
E2	Project Manager	Private sector	Civil Engineer (MSc degree)	CI: 15 years. UR: 8 years.
E3	Project Manager	Private sector	Civil Engineer (Ph.D. degree)	CI: 20 years. UR: 12 years.
E4	Project Manager	Private sector	Civil Engineer (MSc degree)	CI: 14 years. UR: 8 years.
E5	Academician	University	Architect (Ph.D. degree)	CI: 15 years. UR: Not applicable.
E6	Civil Engineer	Municipality	Civil Engineer	CI: 5 years. UR: 5 years.
E7	Project Manager	Private sector	Civil Engineer	CI: 8 years. UR: 4 years.
E8	Planning Engineer	Private sector	Civil Engineer (MSc degree)	CI: 10 years. UR: 6 years.
E9	Civil Engineer	Municipality	Civil Engineer	CI: 7 years. UR: 4 years.
E10	Project Manager	Private sector	Architect (MSc degree)	CI: 9 years. UR: 4 years.
E11	Owner	Private sector	Civil Engineer	CI: 16 years. UR: 10 years.
E12	Project Manager	Private sector	Civil Engineer (MSc degree)	CI: 12 years. UR: 7 years.

CI: Construction Industry, UR: Urban Regeneration.

**Table 4.** “The Membership Functions of Fuzzy Triangular Numbers” (Maghsoodi and Khalilzadeh 2018)

Verbal Value	Triangular fuzzy number of the weight variable	Triangular fuzzy number of priorities
Too low	(0, 0.1, 0.3)	(0, 1, 3)
Low	(0.1, 0.3, 0.5)	(1, 3, 5)
Average	(0.3, 0.5, 0.7)	(3, 5, 7)
Important	(0.5, 0.7, 0.9)	(5, 7, 9)
Very important	(0.7, 0.9, 1)	(7, 9, 10)

the physical, socio-economic, and cultural dimensions, involving multiple stakeholders. However, conflicting interests among these stakeholders, financial constraints, land scarcity, complex and protracted processes, and various other challenges often give rise to conflicts. These conflicts may result in project suspension or termination, as well as common issues like delays and cost overruns. Hence, this study focuses on identifying the causes of conflicts in urban regeneration and establishing their priority orders specific to Türkiye.

The fuzzy TOPSIS analysis revealed that "Construction abandonment by the construction company" and "Bankruptcy of the construction company" are the most influential and frequent causes of conflict in urban regeneration, respectively. In Türkiye, since 2019, high interest rates and a decline in house sales have signaled the financial crisis's effects on the construction industry. The Turkish government has tried to counter these challenges by reducing VAT, promoting housing mobilization, and offering low-interest loans for housing through public banks (Yeşilbağ, 2020). Nevertheless, these measures have not led to price stability. Furthermore, the rise in construction material costs has had a direct impact on residential

housing prices (Çetin C, 2021). Consequently, construction companies face significant pressure to sustain or complete projects. Urban regeneration projects are particularly complex, increasing the likelihood of construction abandonment. Although there are guaranteed rates applied to urban regeneration projects, these rates should be reevaluated and potentially increased to address this issue. Additionally, construction project abandonment is prevalent in the construction industry, which is considered one of the most fraud-prone industries globally. This is often attributed to unethical practices such as overpricing, bid cutting, late or insufficient payments, unfair treatment during tender or final account negotiations, exaggeration of capacity, and falsification of experience and qualifications (Adnan et al., 2012; Kuoribo et al., 2023). Therefore, a meticulous tendering process is crucial to mitigate ethical issues and prevent the abandonment of construction projects.

Furthermore, the unethical practices mentioned earlier significantly contribute to the bankruptcy of construction companies. Companies that go bankrupt typically exhibit a high debt ratio, lower labor and asset productivity, negative profitability, and diminished cash liquidity (Spicka, 2013).



**Table 5.** Fuzzy TOPSIS Analysis Results

Conflict Causes	Fuzzy TOPSIS Results	General Rank
Disagreement between the cooperative and constructor about the general sale price	0,478	15
Bankruptcy of construction company	0,538	2
Deliberate sales delay by the construction company	0,444	30
Increase in construction unit costs	0,512	3
Disagreement about indemnification for tenants and measures for an emigration plan	0,451	28
Owners' income reduction	0,433	37
Owners' living costs increased dramatically	0,438	34
Excessive extra cost / Rising transaction costs during the urban regeneration project execution	0,473	19
Unreasonable financing scheme	0,488	10
Uncertain future returns of urban regeneration projects	0,445	29
Environmental contamination (Claim regarding generated noise and dirt during construction)	0,377	59
Owners' employment difficulties	0,399	50
Forced evictions/Nail household problems	0,457	24
Forced demolition	0,464	22
Violence to coerce them to sign the contract	0,426	38
Die of old tenants	0,384	57
The claim of Project developers regarding legal regulation relaxation (such as a business regulation)	0,386	54
Lawsuits of Sale Claim/Unreasonable compensation standard/ fair treatment in housing pricing	0,425	39
Disagreement about the transfer of free-based facilities	0,405	46
Delay in purchasing national/public land	0,451	27
Controversy of permission process for project implementation plan	0,477	17
Lawsuit about disposition method (sales or adjusted amounts)	0,421	43
Lawsuits of trust registration	0,401	49
Tenants' emigration refusal/ Claim regarding legal measures for Tenants' emigration	0,438	35
Unable to continue the performance of the contract	0,496	7
Obvious loopholes in the contract	0,485	12
Illegal housing stock	0,443	31
Strong policy change	0,424	41
Conflicts due to planning scheme (unclear change and improvement)	0,437	36
The opposition of landowners to the designation of urban regeneration district	0,440	32
The claim of landowners to the designation of urban regeneration district	0,407	45
Imperfect laws and regulations (ill-designed legal/institutional infrastructure) / Inconsistency with policy planning, unavailability of policy and guideline	0,486	11
Political pressures	0,473	18
Institutional clashes	0,472	20
Excessive requirements	0,455	25
The claim regarding the construction defects	0,481	13
Construction abandonment of the construction company	0,545	1
Immature project management / Uncertainty of management subject	0,494	8
Imperfect accountability mechanism	0,384	56

**Table 5.** Fuzzy TOPSIS Analysis Results (Cont.)

Conflict Causes	Fuzzy TOPSIS Results	General Rank
Frequent adjustment of planning	0,478	14
Violation of approval procedures	0,477	16
Serious delays in demolition progress	0,508	4
Unreasonable implementation plan	0,502	5
Insufficient competence of managers	0,497	6
Plan ambiguousness / Conflicts with spatial plans	0,494	9
Consideration of sense of a community	0,365	62
Resettlement is not in place (including tenants)	0,352	66
The Imperfect platform of appeal expression and public participation	0,308	69
Deterioration of public order	0,361	63
Reduction of resources related to owners' education and healthcare	0,386	55
Increase in migrant population	0,345	67
Urban regeneration project acceptance by the community	0,374	60
Failure to improve living conditions in regenerated projects	0,342	68
Stakeholder collaborations, communication, and coordination issues conflicts between stakeholders	0,463	23
The interest pursuit (incompatible interests)	0,440	33
Internal conflicts and contradictions among owners	0,452	26
Disorderly establishment of a tentative committee	0,388	53
Different opinions during the selection process of a contractor	0,469	21
Leadership disputes between members and representatives in the committee	0,372	61
Disagreement among property owners regarding project/ committee establishment/cooperative establishment	0,392	51
Controversy regarding legal validity during the selection process of subcontractor	0,404	47
Disagreement among cooperative/commission members regarding the project implementation plan	0,403	48
Delay in the general meeting for permit of the project implementation plan	0,425	40
Disagreement among members of the cooperative regarding equity ratio after a real estate appraisal	0,415	44
Insufficient capacity of developers	0,422	42
Owners' loss of housing	0,357	64
Participation of many NGOs	0,390	52
Excessive power of developers on owners	0,352	65
Relocation of settlers	0,381	58

During procurement, falsification of experience and qualifications, as well as overstated capacities, can lead to reduced labor productivity, profitability, and liquidity, making bankruptcy almost inevitable for some construction companies.

"Increase in construction unit costs" emerged as the third most critical conflict cause in urban regeneration projects. Since a substantial portion of resources in urban regeneration projects is directed towards construction, the investment in construction is considered a risk factor. The intricate nature

of urban regeneration projects, coupled with conflicts, makes cost increases an expected outcome, as these projects typically span longer durations than new constructions. Apollo and Miszewska-Urbańska (2015) observed an average cost increase of 15% in the refurbishment of 29 residential buildings, attributed to unexpected additional works such as stabilizing walls, foundation reinforcement, and earthworks. They also found that these cost hikes often stem from contractors who submit the lowest bids, leading to unforeseen issues during the planning stage.

"Serious delays in demolition progress" is the fourth most significant cause of conflict in urban regeneration. Delays in demolition pose a significant barrier to construction activities and can severely affect urban regeneration projects through cost escalations, safety hazards, increased crime rates, and community dissatisfaction. Wang and Xiang (2019) noted that developers might delay building demolitions to minimize resettlement compensation, causing conflicts and dissatisfaction among developers and property owners.

The fuzzy TOPSIS analysis also indicated that project and economy-related conflicts are the most likely causes of conflict in urban regeneration projects in Türkiye. Furthermore, the findings suggest that "Imperfect platform of appeal expression and public participation" and "Failure to improve living conditions in regenerated projects" are the least influential causes of conflict. This implies that social-based conflicts are less prevalent than other types. This could be due to the predominance of concerns related to feasibility and economic viability in urban regeneration projects.

## CONCLUSION

Urban regeneration projects are increasingly significant in Türkiye, driven by urban decay and earthquakes, and they are drawing more investors to spur economic development. Yet, such projects entail intricate and extensive interactions among stakeholders, where conflicts stemming from their differing interests are a common occurrence. Prior research has established the priority orders of urban conflict causes with a focus on South Korea, particularly from the perspective of risk management using Failure Mode and Effects Analysis (FMEA). This study identified 34 conflict causes. Research specifically on Türkiye has been limited to case studies, with conflict causes identified on a per-case basis. Thus, this study set out to identify urban regeneration conflict causes and establish their priority orders.

A three-phase approach was implemented to meet the study's objectives. The initial phase involved a literature review that uncovered 63 new conflict causes. The second phase saw experts evaluate 97 conflict causes, leading to the validation of 69 by the experts. The final phase involved analyzing the 69 confirmed conflict causes using the fuzzy TOPSIS method, incorporating evaluations from 12 experts. The analysis concluded that "Construction abandonment of construction company," "Bankruptcy of construction company," and "Increase in construction unit costs" rank as the most significant conflict causes in Türkiye, with economic and project-related conflicts being the most prevalent.

The findings of this study are valuable for both practical

and academic pursuits. Practically, developers of urban regeneration projects can craft effective strategies and plans to address these conflict causes, aiming to prevent or reduce stakeholder tension. Academically, the study contributes to a field where research on conflict causes in urban regeneration is limited, enriching the knowledge base and providing insights into the causes of conflict in Turkish urban regeneration projects. The analysis results can also inform policy-making. Future research will examine dispute factors in urban regeneration more closely and develop resolutions.

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