The Role of Sustainable Development Approaches in Addressing Urban Tensions in Cities

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Abstract. In the stages of their development, cities become a grouping of different urban contexts as a result of development projects of all kinds, which generates, over time, spatial tensions at different levels and dimensions within cities in their different contexts. Previous literature have pointed out the phenomenon of urban tension, between the existing systems and the process of withdrawing them towards sustainability, or as a result of globalization and rapid urbanization that brought with it many tensions and contradictions in urban environments. The research has classified these tensions into: economic, such as the effects of the recent global financial crisis; social tensions that have been exacerbated by persistent poverty and discrimination worldwide; migration pressures and social disintegration as a result of economic restructuring; and environmental tensions due to ecosystems threatened by uncontrolled flows of energy and waste. The research indicated the tension between any two entities during the development process, where the tension occurs between what is added and what is existing of urban systems. The research aims to clarify and explain the urban tension, its causes and manifestations, and to present global experiences to reach a comprehensive theoretical framework for sustainable development approaches and ways to activate them to address urban tension in local contexts to achieve sustainable, safe, and livable cities.

1. Introduction
Urban tension is a phenomenon that arises in various urban contexts because of stress between any incompatible or conflicting entities. It has emerged in global propositions such as proposals for sustainability and sustainable development amongst the existing environments, and the process of withdrawing them towards sustainability. The concept of tension has adopted in many different urban trends, it was associated with a number of related concepts, and thus, the views of contemporary intellectual propositions have been diversified and varied, which called for a field of research. From here came the problem of research as “the existence of a knowledge deficiency about tension and spatial tensions in urban design and its causes, levels, types and treatment strategies”. The research objective was to introduce a comprehensive knowledge for tension and spatial tensions in cities, and to achieve that, the research adopted a descriptive and analytical approach for a number of previous urban studies according to the following steps:

- Building a theoretical framework on the concept of urban tension or stress, its causes, manifestations and sustainable development approaches to address urban tension in different contexts to attain safe, sustainable and liveable cities.
- The application of the features of a theoretical framework to selected samples of urban development projects.
- Achieving recommendations and conclusions.
2. Defining urban tension.
Through the definition of tension in the English, we find that there is a congruence in meaning between tension, stress or/and attraction as well, therefore it can be defined linguistically as “a force that affects a specific formation that changes its physical or moral characteristics. It is a comprehensive concept that indicates stress, and pressure, expansion or strength. [1]

3. Tension in Urban Design.
The concept of tension in urban discourse was associated with spatial tensions and shifts in opposing cities and systems.
Özarslan referred to the tension or stress in historical environments between old and new and the fundamental rupture happening between the past and the present because of the ideology of the times represented by modernity. The study emphasized that tension occurs in historical cities at the level of the urban structure between what is added and what is existing [2]. Spatial tensions also appears at the smart cities level, as a result of adopting smart urban infrastructure, where not all of the city's residents can coexist and adapt to it. This creates tension between the goals of sustainable development, which call for social and environmental justice, and the goals of smart cities to include these tensions as follows: promoting neoliberal economic growth; focusing on the wealthy population; neglecting and marginalization of citizens; neglecting environmental protection [3].

Smas & Fredricsson pointed to the tensions within planning systems due to the concentration of people and capital, and the expansion of the city. These urbanization processes, expansion and population explosion challenge the traditional forms of planning and thus create increasing tensions between the transparency and democracy of planning processes, and on the other hand, the efficiency and management forms targeted towards the market, the requirements of the market and the investor, as well as between the public and private sectors. This tension increases the pressure on the authorities to accelerate municipal planning operations, in addition to this, experimenting with existing dialogue models based on improving public participation that aims for a joint planning approach with the promotion of integrated urban planning activities [4].

Madanipour, also addressed the tension that occurs due to differing perspectives, the challenges urban design faces within the urban development process and the tension between the three main sides, administrators and the users of urban centres. The interests and expectations of each group threaten to exclude the interests and expectations of others, and therefore, the overall challenge is how to achieve balance, and that the new developments represents a challenge to the existing capable of destabilizing the fragile balance often or undermining and displacing the weak. The importance of urban design has been demonstrated, that deepened on the role of the developers in the overall transformation, from an economic and social point of view. Because political, economic and cultural changes, have given new importance to centres. Urban space has reshaped to accommodate the new urban situations, Urban design is considered a tool for this reshaping, and therefore its structural significance.[5]

Accordingly, the concept of urban tension theoretically, defined as “an urban phenomenon that occurs in cities or part of the city at different time stages. Its causes are economic, social and urban. Urban tension occurs as a result of unbalanced urban development projects that create spatial tensions at several levels (City level, texture level and urban space level”.

4. Literature Review.
To clarify the concept, its associated terms, and to achieve a comprehensive definition, the studies that pointed to the urban tension or spatial tensions will be reviewed, in a comprehensive or implicit manner. They will be discussed to reach a theoretical framework that includes the most important causes, manifestations and levels of tension in cities, to suggest a method for addressing the manifestations of spatial tensions in urban environments through a preliminary conclusion of terms and indicators affecting stress.

4.1 Mashhadi & Lejeune (2013) “Tension and Urban Sustainability”
This study discusses the tensions in the urban escape of Mashhad, which arose between two opposing systems, the Islamic urban form on the one hand and a form that represents modernity and progress on the other hand. The transformation in many ancient cities in response to contemporary attitudes led to
contradictions that greatly reduced their initial sustainable performance, but Mashhad, second most populous city in Iran, has developed an interested urban scene, having maintained a symbiotic balance between the two systems. The expressing tension between the two sides represented by a sacred event in the center that generated a complex genetic and radiological form led to a busy and irregular fabric. For the axis, on the contrary, the one separated from the center to provide a path for movement outside, stimulate the mental and physical freedom that yields to linear and networked patterns. The center of these two powers: the axis as the symbol of movement, development and modernity, and what represent the center (the shrine) of sincerity for the past where the religious idea centred with all its related concepts in the middle, while all non-religious interests were linked to the pivotal arrangement. Sustainability has not grown from ideal components, but from the balance between opposing forces.

The tacit competition reflected on: first - the physical characteristics of the city's fabric; second - the difference embodied in the personality of the prominent citizens. The mutual effect of both never turned towards extremism, it remained moderate, and the state of stress played a gradual role in the sustainability, despite their attitude to domination, neither of the two was able to maintain the main dominance for a long time. The city's development was through a balance between the two systems.

The reciprocity of the center and axis has had an effective role in forming a strong economy, in terms of adapting to different economic situations; the shrine and the axis economy, achieving economic flexibility through thriving real estate values and the diversity of the city market as a result of the balance between the two complementary systems, the dual economy. The center (the shrine) has always been the objective strength; however, the axis from time to time expanded the capabilities and entered new points and capabilities. The axis is independent, diversified and pluralistic in the commercial and investment economy, started as an additional system of the center, including services, facilities and shops to host pilgrims. The mechanism of the street economy adapts easily as changing uses in response to evolving circumstances by giving many forms of commercial activities and land uses, such as huge mixed-use complexes, hotels, shopping malls, cinemas and entertainment facilities. It is noticed that the study pointed to the tension between an axis and a node in the city where the religious node and the open axis towards globalization, that is, between two opposing systems, and how the city can maintain a balance between opposing systems through the adaptation, economic flexibility and economic integration of the two systems [6].

4.2 Ukabi (2016) "Harnessing the Tension from Context-duality in Historic Urban Environment". The study focuses on showing what happens in historical urban environments, when developments cross the historical boundaries HL1, as the endeavor to improve the historical urban environment through coexistence between the historical contexts and the new. This has introduced tension over the previous years and these resulting flows put the harmonious layers of historical establishment (HUE2) at risk through conservative plans. Therefore, it must adopt conservation plans in the historic urban landscape as a harmonic design strategy to address stress in context. The inclusion of events in development projects must be in certain proportions that do not deviate from "Hooke's law in physics3." The study used the law to measure elasticity provided the added building does not exceed the elastic limit of the material carrier, so the applied pressure equals the stress. The added building represents pressure, and the current context constitutes the impact receiver while HUE is the stress-exposed foundation.

The study looks for a balance that enhances the chronology of continuity of historical urban neighborhoods, which requires solidarity towards maintaining integrity and originality in the facility and adopting a design approach appropriate for all types of multifunctional developments integrated with HUE for coherence and continuity with the context. This can be achieved through three methods: standardization of context, context continuity and context coherence. The study elected the Military History Museum in Dresden, Germany as a case study for Libeskind architecture. The study concluded that the development exceeded the HL limit in terms of the ratio, where the form is technically superposed, but it lacks the proportionality with the current building and deviates from the context. The tension determined by the study results with the duplication of adding a new context to the old setting, when the appendix exceeds the flexible limits of HUE. The result will be the difference as
assessed in the case study and leads to the emigration of the local population because of the psychological state, loss of interest and identity of the place and convergence and harmony are promoted through the continuity and intersection. The study showed that tension takes place at historical environments when adding a building to the context and the developments exceeding the historical limits that they indicated to, through the concept of a limit of flexibility and that the balanced and integrated development is what enhances the continuity of historic urban neighborhoods [7], as shown in Figure 1.

4.3 Madanipour (2004) "Marginal Public Spaces in European Cities". The study examined the concept of tension in marginal urban spaces in Europe, which was generated by the intense competition that occurs between stakeholders in the neighborhood over space in terms of use and development, where competition creates tension, fear and threat, which exposes the social fragmentation trapped within the neighborhood. Two types of competition was identified around public places; competition for the use and competition for the development. The first is a display of general incompatible behavior of individuals and groups, the second is a manifestation of institutional competition for space control. In response to the challenges of globalization and to make Europe competitive in the global economy. The European integration process has linked European economies to each other, creating a unified dynamic space in which capital and labor move easily, which has led to a high risk of inequality between regions, that is why the European Union is particularly interested in promoting social inclusion and maintaining the traditional social model.

The study concluded that tension is a multi-dimensional phenomenon that requires multi-dimensional responses, which include providing public spaces of good quality and good management, social inclusion of the disadvantaged population, providing places to meet and communicate with others, and facilitate communication with the larger social environment. If the urban administration is working well, this can provide a contract to communicate with others and display their identity codes and make it easier to feel that they are legitimate recipients of services rather than unwanted or abandoned residents of the city. The best spaces are the more flexible, can serve many purposes.[8]

4.4 Noha (2003), "Planning For Urban Heritage Places: Reconciling Conservation". The study discussed tensions that arise in the context of planning in historical environments between heritage, preservation and the contemporary urban form within the sustainability trends, where the division appears between preserving the past for its own value and the need for development. The conflicts arise between the ideas of conservation, heritage and tourism that defends a sustainable approach for management and planning of heritage sites based on society and culture-driven agenda. This conflict stems from a new and romantic historical sense and nostalgia for the past, which stems from the psychological need to know the past as a reference point. The study referred to Larkham's theses (1996), where he assessed the tensions abound in discussions between traditions and conservation, and the urban form that there is a clear inconsistency of attitude in the design and production of the environment. Some of these conflicts can be due to changing approaches, and professions over time, such as movement from the urban area, renewal for rehabilitation and preservation. Some conflicts may arise in this step in architectural orientations.

The study identified four objectives to address conflict of development projects in areas of heritage and historical value: (1) long-term planning, (2) protection of cultural heritage as a natural resource, if overexploited, it will degrade, (3) change and development to ensure continuity and (4) Fair access to heritage resources by the local community and visitors. In this context, changing management becomes difficult to the long-term viability of heritage sites. The change came with historic buildings must depend reuse and reconstruction in order to resist both structural and functional obsolescence that happens with changing needs. The study found that this study dealt with tensions at the level of strategic planning in traditional environments between conservation and the call for renewal and change. It pointed to work on managing change to keep on heritage places in the long term within the discourse of sustainability [9].see Figure.1
5. Theoretical framework for the urban tension

Based on what the studies and specialized proposals presented in the concept of spatial tensions and the stress taking place in cities, which highlighted that tension may appear in two trends; negative propositions, which is the result of economic and social reasons, when there is a difference in the levels between the two contexts at different levels. Tension can be considered a positive phenomenon, as it opens up prospects for urban development. The proposals point to a number of strategies to address the aspects of tension. Thus, the most important terms of urban stress may be summarized in the theoretical framework summarized in Table 1.

Table 1. The theoretical framework of urban tension/ (Source: The researchers)

| Main terms | Secondary terms | Indicators |
|------------|-----------------|------------|
| Levels of urban tension | Architectural | Accommodates Add an entity to an entity between different contexts / historical or heritage environments |
| | | The tension between the axis and the center (two systems that are formally opposed) / between traditional, religious, and contemporary centers |
| | | The tension between vertical and horizontal / adding a tall building to an urban landscape |
| | Social | Between different usages |
| | | Between different religions |
| | | Between different social groups |
| | | Between the countryside and the urban |
| | Economical | The formal and informal economy |
| | | Between the different economic levels |
| | | High and low income |
| | | A sustainable and traditional economy |
| Causes of | Economic | Transfer of capital |

Figure 1. Images of Libeskind military history museum, showing a visual ideology presented by triple tectonic clear glass widely indicating the atmosphere. (Source: Ukabi, 2016, p.83)
urban tension restructuring
Lack of manufacturing
Technological development
Create dynamic spaces in which capital moves (polarization)

Social changes
Competition between the land use in public spaces
Pressure on development
Adaptation pressure to new lifestyles in the new global economy
Inequality and conflict, separation and exclusion

Development projects
Where there is a tension between development and society policies in managing change
Between old and modern

The tension between the active forces
Different views between producers, users and administrators of the urban environment

Addressing strategies
Balanced urban growth
Balance Integration
Resilience and Adaptation Through A diversified and varied economy (economic resilience), which changes in response to the new conditions
Coexisting Giving many options to commercial activities and land uses

Harmonic design
Communication Continuity Interconnectedness - Good urban management - A common planning approach

6. The Case Study
The research depends, in the formulation of its hypothesis, on the terms that were achieved to reveal the spatial tensions and the tension-taking place in the cities. Hence, the research hypothesis was determined that "the phenomenon of tension occurs in cities or part of the city in different contexts as a result of unbalanced urbanism developments that creates tension at several levels and dimensions".

The tension occurs for various reasons at various social, economic and urban levels, and there are several mechanisms to address the spatial tensions and stresses in cities with its various within urban development projects. To exam the hypothesis, the theoretical framework (tension levels, causes of tension, addressing strategies) will be adopted to fit them with research objectives and be applied to urban development projects that have adopted strategies to address spatial tensions. The projects are:

6.1 Bordeaux development project.
Bordeaux, a coastal city in southwestern France has included in the World Heritage List, as historic city. The city has presented spatial tensions between conservation and change management for development, as the relevant authorities have developed a set of curious policies to avoid “Misusing” the inner city with to ensure achieving a “historic, lively city”, capable of developing itself in a sustainable manner, in accordance with the city heritage. According to these reasons, the city has become a symbol to show the potential adaptation of urban conservation tools in order to consider sustainability goals, as preserving new tools through better integration and framing strategies for preserving urban heritage within the framework of the overall goals of comprehensive sustainability and development.

The city offers the best possible practice, taking into account the efforts to integrate and coordinate sustainable planning, heritage and preservation in order to stimulate the exchange of knowledge and experiences. The complete area is covered by historical monuments, protected by buffer zone. Else ways, there was a risk of the city's “misuse” by focusing in particular on preserving and rejecting any kind of transformation and change. This danger has been avoided by the city through an intensive urban development's process, with the realization of many projects involving many different active aspects. Among the different procedures and programs that were implemented abroad, were two of the
main issues: the transportation system, with the implementation of the tram network and the creation of pedestrian areas in the Historical center, spatial, and the perception and cultural reconnection of the urban system to the river. All these proposed projects added great importance to the sustainable urban development of urban heritage through achieving coexistence between a strong and complex organizational system for conservation and a sustainable urban transformation project, where:

- The conservation and development plan is consistent with the sustainable development plan. The city administration and development project includes the strategic directions for each region in terms of economic, social, cultural, and environmentally sustainable development. Thus, reviewing this tool maintains the required coordination with the five main sustainability objectives for the entire city: urban quality based on the protection and promotion of identity and heritage, environmental preservation, economic investments, attractively, green traffic, social fairness and renewal of vital buildings.

- The Bordeaux [Re] Centers program also affected the city, which is an attitude for sustainable development, covering the entire historical urban area in response to new requirements and needs of the citizen. The objectives of sustainable development is accomplish by increasing the social and functional mix by rehabilitating public places, and protecting biodiversity and reducing energy consumption through public participation while preserving the healthy urban heritage and traditional values through this project. The city of Bordeaux aims to "create" urban activity in the city center to allow sustainable development over time. It is concluded from the above that the city follows a series of urban policies that the sustainable planning focus on, in addition to protection of urban heritage, in an attempt to achieve a balance between these two cases. The plan includes four main goals: preserving the city's history, identity and heritage, the development yielded by the city center and coordinating planning tools. Consequently, in the Bordeaux Management Plan, there was already a goal to create a sustainable convergence between conservation and development and to integrate protection and sustainability goals, policies, active aspects and tools to demonstrate potential adaptation for urban conservation tools in order to take into account the goals of sustainability as shown in Figure 2. and Figure 3.[10]

6.2 Development project of Istanbul, Sulukule district.
The project proposes to address the tension in informal settlements in Istanbul, as a city in a dynamic developing country that has long been distinguished by tension between the formal and informal sectors. The tension appears due to the growth of disparities in the distribution of income, urban poverty, separation and exclusion. The project focuses on the development of informal settlements and their social-spatial and economic conditions.

Turkey has gone through various migration process since the 1950s, with the massive influx of immigrants from Anatolia and foreigners, which caused severe problems unprecedented in housing and services. The impact of the migration was on the economic dimensions, as the urban economy and industry became appropriate to the services provided by poor families. This had significant impact on the city's physical environment, followed by the establishment of slums in a rural-like lifestyle, as the government was unable to provide shelter and services in line with the population growth. Many residents of these slums earn their living from the informal economy; the informal economy covers all types of activities, while there is no clear line between this sector and the formal economy. Since informal settlements are unjustified in their legal status, with a fragile economy and poor financial condition, they are an ideal target for transformation. The projects implemented without taking into account the cultural, social, historical and most important aspects of city life. For example, the Sulukule neighborhood project, which is a historic district in Istanbul occupied by Roman citizens.
In 2009, the historic neighborhood of was demolished to make way for a huge real estate residential development project. The residents were forcibly evacuated to some areas outside the city. Istanbul succeeded in achieving its goal, but it failed socially, meaning that it did not prioritize equality for all in access to education, public services and employment.

Istanbul has adopted alternative policies and methods towards the slums, applying the concept of urban retrofit in slums. The strategies have shifted from large-scale intervention to the promotion and improvement, improving the social and economic conditions of slum residents through integrating informal settlements into their larger urban context, and developing a strategy called 'urban retrofitting'. Which tries to address the needs of the population with minimal interference in their...
lifestyle and the destruction of their economic and social infrastructure for all their development project types by providing appropriate public places and activities as an urban link between the formal and informal parts of the city. These types of interventions provide a place for social interaction and life for the city, and respond to the collective needs of people from both sectors, while they do not attempt to interfere in a lifestyle. For Istanbul, since the unplanned areas forms half of the city, it is almost impractical to demolish these entire settlements, instead urban transformation projects in slums require policies that serve many purposes, such as finding solutions for social, economic and physical ecological problems, improving the standard of life and ensuring the participation of the local people in strengthening their community [11] see Figure 4. And Figure 5.

Figure 4. Sulukule location in Fatih district, Istanbul (Source: Sahinkaya et al, 2018, p7 & p8)

Figure 5. Sulukule before and after the urban regeneration. (Source: Sahinkaya et al, 2018, p14)

From the foregoing, it is possible to observe the extent to which the items of the theoretical framework has been achieved in the selected projects, where the difference in levels and causes of spatial tensions and methods of addressing them appears, as shown in Table 2.
Table 2. The indicators of theoretical framework in the two projects/ (Source: The researchers)

| Main terms | Secondary terms                                                                 | Case 1 | Case 2 |
|------------|----------------------------------------------------------------------------------|--------|--------|
| Levels of urban tension | Urban physical Add an entity to an entity between different contexts (historical or heritage environments) | •      |        |
|           | The tension between the active forces Between conservation and the desire to change | •      |        |
|           | Economic Between formal and informal economies                                   | •      |        |
| Causes of urban tension | Development projects Where tension between development and society in the management of change | •      |        |
|           | Economic restructuring Technological development                                 | •      |        |
|           | Social changes Different cultures Inequality, separation and exclusion            | •      |        |
| Balanced urban development | Coexistence Increase the social and employment mix                               | •      |        |
|           | Merging Cultural relinking of the urban system                                   | •      | •      |
|           | Balance Rehabilitation of public places                                         | •      |        |
|           | Communication Providing active spaces as an urban link between the formal and informal parts of the city | •      |        |

7. Conclusions

Urban tension is a phenomenon, with multiple causes, dimensions and levels, on the physical level: urban tension occurs in the context of the heritage environments, because of development projects and new additions to the existing context. Tension also occurs between conservation and the development polices, and at the level of developing informal urban settlements, where it occurs between the formal and informal economy of these settlements. When economic tension in cities occurs due to unbalanced distribution of income, followed by the expansion in urban poverty, separation and exclusion, which leads to social tensions as a result of economic restructuring due to technological development reasons. The tension also between a strong and complex conservation regulatory and rules, and a sustainable urban project because of transformation in urban conservation areas.

The practical study clarified several mechanisms to address tensions and stress in cities by achieving sustainable and balanced urban development, including integration by re-establishing an urban link between the formal and informal parts of the city at the level of informal settlements development by providing appropriate public places and activities. The strategies and mechanisms vary according to the specificity of tension levels and dimensions.

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