

INNOVATIVE URBAN INTERVENTIONS AS AN APPROACH FOR LIVABLE AND SUSTAINABLE CITIES

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ABSTRACT

Cities are the arenas for all human activities, by the middle of this century they will be home to 65 percent of the world's population, meanwhile they face multi-dimensional challenges regarding how to balance the needs of its population growth and the environmental requirements, in other words, to be both livable and sustainable cities. Thus, this study argues that urban interventions that based on innovative tools contribute to both sustainability and livability in cities. Innovative urban interventions can contribute positively in the city long-term planning, they represent incremental planning initiatives that seek to regenerate the urban tissue, as well as the study argues that this type of interventions encourages the community engagement in decision making and funding the regeneration plans, moreover it works in harmony with the environmental requirements. This study investigates the potentials of urban interventions in supporting city's livability and sustainability, also to set a broader definition of this type of urban interventions that based on innovative urban tactics. The study based on an analytical study of two practical cases, the findings represent lessons from practice, which reveals how innovative urban interventions have efficient impact as a regeneration approach that boosting both livability and sustainability of the city.

KEYWORDS: Urban interventions, Regeneration participative approach, Livable and sustainable cities

1. INTRODUCTION

No doubt that cities of the World have become the dominant type of human settlements where more than half of the World population lived, the attractiveness of living in cities is comprised through the fact that while cities only occupied 2% of the earth's surface, 53% of the world's population lives in cities. Meanwhile, they are witnessing continues population growth [1, 2]. Cities are facing real multi-dimensional

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challenges, which are not only limited to the common socio-economic and environmental aspects. Cities have to plan for their future under the threats of continuous population growth, rapid urbanization process, and global changes such as climate change. Thus, cities of world according to the United Nations (UN) are increasingly faced with global challenges besides their local challenges that affect their efforts towards achieving a HQL for their citizens (where the term HQL or what is so-called quality of urban living refers to description of the general well-being of societies, this includes many indicators such as the quality of the physical components of the urban context, the infrastructure, the urban mobility, the environment, and the socio-economic aspects) among these challenges the achievement of sustainability and livability in cities have become a mandatory need particularly in the large cities that characterized by high density of population. In other words and according to Livability and sustainability within large, densely populated urban areas need to be addressed, as they are increasingly becoming the conditions for survival in the global knowledge economy – and for human well-being [3]. Indeed the achievement of sustainability and livability in cities are currently strongly linked to the future of the planet [4] In this context this paper is discussing the role of urban interventions as a new approach to achieving sustainability and livability in cities, the study's main hypotheses is that urban interventions that depend on innovative urban and architectural tools contribute directly to the enhancement of the QUL and the achievement of sustainable and livable cities, where urban interventions considered as urban regeneration participatory approach.

The study investigates the definitions of urban intervention from an urban perspective, it focuses on the contemporary understanding of urban intervention as a trend urban approach that is increasingly used in the domain of urban redevelopment as a wide umbrella for varies terms that include regeneration, rehabilitation, renewal, revitalization, restructuring, requalification, and other relevant terms. As well as to highlight the advantage of urban intervention as a participatory urban approach that provides an effective engagement of the community in shaping the plans that seek to achieve sustainability and livability in cities. The study followed a theoretical

framework that seeks to investigate the validity of the study argument through scholar literature, as well as through the analyzing of selected practical cases that clarified through actual lessons from practice how innovative urban interventions managed to promote and support sustainability and livability in their cities.

2. SUSTAINABILITY AND LIVABILITY IN CITIES FROM AN URBAN PERSPECTIVE

No doubt that cities (from diverse scales, and as defined locally in each country) have become the primary type of human settlements. Since 2007 more than the half of the World population is living in cities, and it is estimated to exceed 70% by 2050. This vast continuous growth of urban population leads to a rapid urbanization process which adds more challenges to the future of today cities. *“Rapid urbanization is arguably the most complex and important socio-economic phenomenon of the 20th and 21st centuries”* [5].

Besides the threat of fast urbanization process, cities of the World already increasingly faced with multi-dimensional threats which include all the aspects that associated with their socio-economic functions and related environmental issues. In other words, cities of the World have to struggle to reach harmony between the achievements of sustainable livable urban communities and to sustain their socio-economic vitality.

Thus, sustainability and livability in cities (which characterized as densely populated urban areas) need to be considered as the conditions for human well-being, and for survival in the global knowledge economy [3]. Indeed, the achievement of sustainability and livability in cities has been no longer a question of communities' luxury that can be dispensed. The current threats that face cities of the world have a direct impact on the QUL and meanwhile, they have a negative impact on the future of the cities of the World. *“The livability and sustainability of cities are now recognized as critical issues for the future of the planet”* [4].

The achievement of sustainability and livability in cities play a key role in enabling them to provide their communities with access that is not limited to only the basic socio-economic and environmental demands, but also to reach the goal of

achieve harmony between the enhancement of QUL and the preservation of economic vitality [6] as shown in Fig.1.

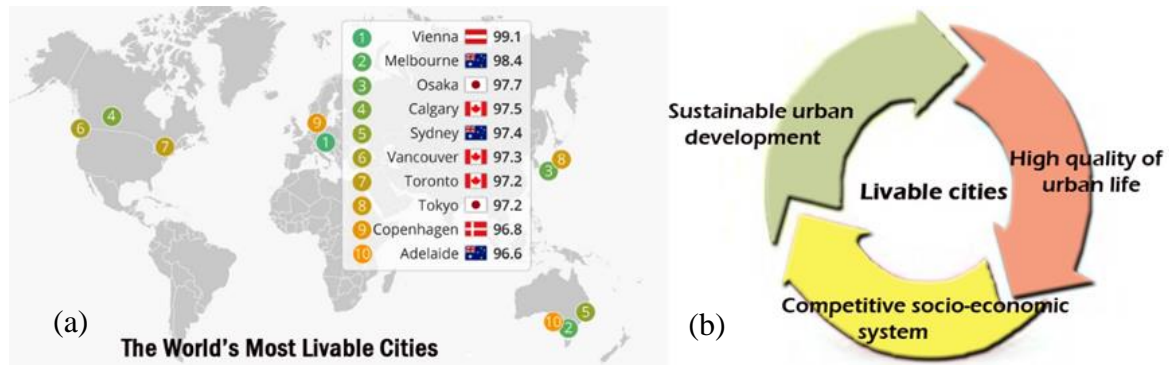


Fig. 1: (a)The World's most livable cities. (b): The relationship between urban livability and SUD, high QUL and the socio-economic system.

Moreover, it is notable in the recent research and scholar professional literature during the last decade that the notion of sustainability is often comes accompanied by livability in cities. Theoretically, both of them share the same aims regarding the establishment of good well-being in cities. The 11th goal of the sustainable development goals (SDG) by the United Nations (UN) action in 2015 was to make cities inclusive, safe, resilient, and sustainable, meanwhile the UN promotes livability in cities as a key to sustainable development. Secretary-general stresses in a message for International World Cities Day [7-8]. Indeed, sustainability and livability have similarities and shared concepts regarding their agendas and initiatives which according to Mohamad Kashef they often meet the same environmental, equity and economic goals [6]. As well as sustainability and livability through the last two decades have become common and trendy terms in the contemporary domain of urban planning. From urban perspective sustainability, livability and other all-encompassing terms such as resilient, ecosystem represent associated terms that are strongly linked to the recent urban planning approaches [9]. Thus why innovative urban interventions as an urban tool can contribute to the achievement of sustainable livable cities.

2.1 Urban Livability in Cities, an Urban Approach

Livability through the recent decades of the new Millennium has emerged as a widely used concept in the field of planning for sustainable urban development (SUD),

the debate about the achievement of livability in cities is a growing research topic. Thus, this is why the term is increasingly used at all levels of governance through policies and strategies that describe long-range goals that seek to achieve livability in cities [10]. However, livability as a term still has no clear definition, livability was described as *an ambiguous term* [6]. Livability is a multi-disciplinary term that is used in diverse contexts within the domain of planning for urban communities, such as SUD, urban mobility, resilience, and many other sub-disciplines that associated with livability. As well as the term livability is often associated with the achievement of QUL in cities it is commonly accompanied with the notion of the measures and indicators of quality of urban life (QUL) in cities [10]. Research and professional literature in the domain of livability have developed specific instruments and conceptual thoughts of urban livability resulting in what is so-called ‘quality of life rankings’ [11]. *“There are various measures and indices promoted which allocate rankings of a livability Index (LI) to cities across the world”* [12].

As livability is a multi-disciplinary term, therefore livability has several definitions that there is no standardized definition of livability [13]. Livability, in general, refers to several developed views associated with QUL in any urban community environment. This concept is concerned with the achievement of an optimized and integral urban life that provide a high QUL for the urban community's inhabitants [6, 14]. Livability appeared for the first time in the 1950s in Vancouver with The Electors Action Movement (TEAM), it had the same contemporary concept as it used today. [15, 16, 12]. Then in the 1980s the term “livable cities” appeared as a widely used term in scholar literature, it was associated with the growing environmental awareness [6]. However, for the purpose of this study, livability is discussed from an urban perspective, so in this study, the focus is on urban livability. Livability as a term is strongly linked to urbanity, Donald Appleyard in his book *Livable Streets* published in 1981 stated that livability is related to the domain of urban planning, particularly as it related to streetscapes and urban transportation [10]. Harm Kaal in his article “A conceptual history of livability, Dutch scientists, politicians, policy makers, and citizens and the quest for a livable city” published in 2011

summarized the conceptual history of livability which promotes the claim of this study regarding the strong relationship between livability and urbanity. *“The quest for livability is currently a key urban issue throughout the world”* [16].

During the 1970s and 1980s livability was used by governments to promote a new type of active citizenship, while in the 1990s livability was increasingly used by urban government and housing corporations to influence the social composition of urban neighborhoods [16]. In 1999 the Gore/Clinton Livability Agenda promoted the strong nexus that connects livability with urbanity. This livability agenda embodied the usage of livability in the domain of urban planning. It represented a framework of providing massive funding that seeks the preservation of green areas, pursue regional smart growth strategies and to mitigate traffic congestion through new tools and resources [10].

Urban livability has been defined from an urban perspective through many research and professional literature, for instance, urban livability is perceived as a creative design process which aims to produce iconic physical models and themes that contributes to urbanity through their socio-economic functions that boost the urban context. This approach is one of the prevalent views regarding urban livability, as well as it is widely used in the field of architectural and urban design. In which it concerns the physical and moral characteristics of the urban context form through buildings, urban spaces, streets etc. [6]. Also, urban livability was defined as: *“It consists of the development of attributes and resources that help make the city pleasant to live in, and attractive for people, visitors and businesses”* [3].

This definition clarified the contemporary understanding of the term and linked it with the enhancement of QUL in cities. Also relevant to the previous definition, urban livability has a pivotal role in the improvement of the urban identity of cities, making them an attractive focal point to their residence, visitors, businessmen, and talented people [4]. In light of the above discussion urban livability in this study refers to an urban term that concerned with tools and strategies related to urban plans that seek to achieve a high QUL in cities. In other words, urban livability is a term that refers to cities that managed to make harmony between their socio-economic progress and the environmental preserving in a way that making them attractive and competitor in a global scale.

2.2 Urban Livability as a Way for Urban Sustainability, the Characteristics of Livable Sustainable Cities

One of this study arguments is that any livable city must be sustainable and resilient, while a sustainable city is not always livable. The reached understanding of the definition of urban livability provides evidence for the validity of this argument. As urban livability is concerned with tools and strategies of a high QUL achievement. While urban sustainability does not grant livability, which means simply to be attractive for the living. *“Communities cannot be sustainable unless they are places where people want to live”* [17].

Some literature is relatively in line with this argument, Meghan Gough in his article titled *“Three Reasons to Use Livability as a Vehicle for Sustainability”* promotes the usage of urban livability as a vehicle for urban sustainability [17]. Another relevant example is the establishment of a sustainable urban community is critically linked to achievement of livability [18] also as discussed before urban sustainability and urban livability often meet the same environmental, equity and economic goals [6]. In this sense, in the recent two decades increasingly a number of scholar literature engaged urban sustainability and urban livability as terms-mate that often appeared together in the notion of the characteristics of sustainable and livable cities (see Fig. 2). For instance: *“Livable and sustainable cities provide citizens with access to educational opportunities, healthcare, affordable housing, and basic services; they improve demand management with efficient infrastructures for energy security, transportation or waste”* [6].

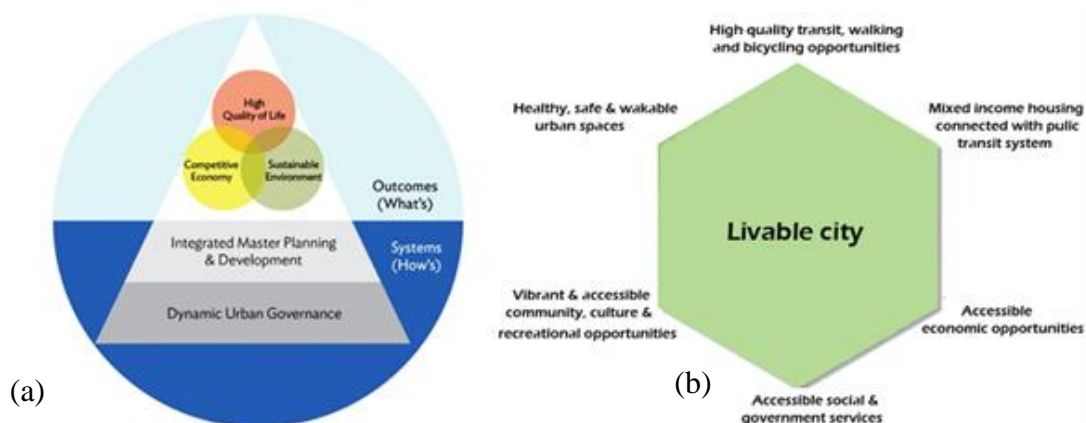


Fig. 2. (a): a framework for planning and developing a livable city. (b): the strategies that are needed for a livable city. [21]

Also a livable and sustainable city comprises diverse aspects that are entirely related to both physical and moral demands of the inhabitants of any urban community, this includes the provision of community's' physical amenities such as vibrant economy, jobs opportunities, public green spaces, cultural recreational activities, and a safety community, as livability is strongly linked to the achievement of sustainability and efficient infrastructure [19, 18]. In the same line with the previous thoughts of the characteristics of sustainable and livable cities: A livable and sustainable community is one that has supportive community features and services, adequate urban mobility options, affordable and appropriate housing, community amenities such as cultural, recreational and other socio-economic services, which together facilitate personal independence and the engagement of residents in civic and social life. Meanwhile, there is a harmony between its socio-economic vitality and the conserving of its environment [20, 3 and 10]. So to conclude the above debate; a livable and sustainable city characterized by a high QUL that supports all the aspects of human socio-economic functions and meanwhile it supports the environmental issues in a way that it has an urban appeal that is attractive to inhabitants, visitors, talents, as well as businesses, developers and investors [4].

3. URBAN INTERVENTION AS AN URBAN REGENERATION PARTICIPATORY APPROACH FOR LIVABILITY AND SUSTAINABILITY IN CITIES

Despite the fact that urban intervention started as a type of urban art, nevertheless, urban interventions nowadays is considered one of the contemporary urban tools that are widely used in terms of urban regeneration. According to Minh-Chau Tran, the term urban intervention is often related to the art's domain, where intervention represents a social activist form of art that takes place in the reality of cities as it attributes social responsibility [22]. Moreover, the term urban intervention is a multi-disciplinary term associated with various practices in the fields of urban planning, urban design, architecture, city marketing, social development, and urban art. *"It is considered as a collective term for a "generous amount of different*

practices" and for "new subversive uses of space" in architecture, urban planning, strategic marketing, art, and also activist and socio-cultural strategies" [23, 24].

However urban interventions have been increasingly defined from an urban perspective through the recent two decades, which is in line with the main argument of this study where innovative urban interventions considered as a regeneration participative tool for sustainability and livability in cities. Also according to Marta Silva currently, urban interventions play a key role in the regeneration of cities [25]. Also, Renée Tribble denotes urban interventions as a methodology of urban practice [24].

Indeed, urban interventions recently have become a trend issue in the domain of urban planning in different levels from just small-scale urban design cases in public spaces (which often represent temporary actions) up to large-scale urban projects that cause a paradigm shift in the cityscape in the long term [22]. In this context urban interventions vary from temporary urban interventions often in the case of small-scale interventions to permanent large urban planning projects. According to Fernanda Sotelo urban interventions in the small-scale usually being integrated into larger, incremental planning initiatives that aim to support the redevelopment process and achieve long-term planning goals. Moreover, even the temporary urban interventions explore solutions that contribute directly to the enhancement of the redevelopment process and transform these temporary initiatives into permanent changes [26]. There are many diverse definitions of urban interventions that emphasize the claim of this study regarding the usage of urban interventions as urban regeneration and participatory approach that is strongly linked to redevelopment plans that seek to achieve sustainable and livable cities. *"There are several definitions and interpretations in the context of urban regeneration" [25].*

In other words, urban interventions related to all the terminologies that deal with the enhancement and redevelopment of the urban context, this include regeneration, renewal, rehabilitation, revitalization, restructuring, requalification, and restoration. [27]. Urban intervention as an urban approach for urban regeneration have as well a broader role that extends to be an efficient approach for urban upgrading

through a specific urban interventions tools, for instance, the usage of infrastructure interventions or social interventions in the case of urban poverty areas and slums. *“Upgrading projects focus on providing basic services to improve the well-being of low-income communities, including a range of infrastructure interventions frequently undertaken in conjunction with social interventions, such as the regularization of areas with insecure tenure. They clarified the growing need for these specific urban interventions in cities notably in the emerging and developing world: With the projected increases in slum population, the demand for urban upgrading interventions is expected to grow”* [28].

Thus, urban interventions contribute directly in the domain of regeneration, redevelopment, and upgrading of urban communities under the umbrella of the enhancement and improvement of the QUL in cities, which is linked as well to the achievement of sustainability and livability in cities. Marta Braga de Miranda Duarte There is a need for urban intervention in supporting a better QUL: *“Architectural and urban intervention is needed in a city. The city should not only be a place in which we live and is part of our daily lives, but also a subject worthy of ongoing attention and should be preserved and taken care of”*[25].

Also, according to the European council urban interventions as an approach to rehabilitation and regeneration have an initial role in the improvement of QUL in cities, aimed at the improvement of the whole urban space's components and the citizens' well-being and QUL [29]. Thus the Senate Department for Urban Development in Berlin since 2010 awards the Urban Intervention Award for European urban intervention projects which *“radiate positively in their surroundings”* [22]. The notion of urban interventions as well is accompanied with community participatory. Urban interventions provide a participatory approach that allowed the citizens of cities to contribute effectively in planning for what they really need. Urban interventions depend on public engagement which ensures the achievement of affordable and quick urban improvements in cities. Urban interventions represent powerful forms of efficient actions by community participatory that generate regeneration activity at grassroots levels [26]. In line with the concept that urban interventions is an urban

approach that depends on community participatory, the urban interventions award introduced by the Senate Department for Urban Development and Housing of Berlin in 2010, emphasized the concept of considering urban interventions as an urban approach that has potential innovative force contributes directly in encouraging new efficient ways of involving all the community's stakeholders in the participatory process of designing urban development [24]. *“The definition of urban intervention in urban planning was extended to include cooperation and participatory design, in light of the fact that architects and planners have adapted urban interventions as tools for urban development but also as strategies for working within social space.”* [24].

In light of the above debate, from a theoretical point of view and based on the scholar literature, urban intervention is a regeneration participatory urban approach that contributes directly to the achievement of sustainable and livable cities.

4. PRACTICAL CASES

All the selected cases were awarded or nominated for the Urban Intervention Award Berlin in 2010, awarded by the Senate Department for Urban Development in Berlin, Germany. These cases represent what is meant by interventions in this study, and clarified their role as urban regeneration and participative approach to achieve sustainable and livable cities. The criteria for analyzing the cases based on the hereunder aspects:

- A brief about the case basic demographic information and the socio-economic circumstances that characterized the urban context.
- A description and purpose of the urban intervention.
- The Project program and components' description.
- Learned lessons

4.1 A Public library and Reading Park

The project is a public library and reading park that was accomplished in 2007, on an area of 2475.0 m² (about one Egyptian acre). The project located in Torre Pacheco, Murcia in south-eastern Spain. Torre Pacheco is a municipality in the autonomous community of Murcia. It covers an area of 189.4 km², and its population

in 2017 was 35,198 [30]. The urban area of Torre Pacheco is witnessing an evolution process that leads to accelerated changes as shown in Fig. 3.



Fig. 3. (a): an aerial view of the project and its urban context. (b): the project layout and its spatial position in the city of Torre Pacheco. [31,32].

These changes accompanied with urban and architecture actions that contribute directly to a development process in an organized, joint and integrated way, in which all the parameters of the QUL affected by the socio-economical, demographic, cultural, multi-racial, and touristic growing process. This approach proposes a new urban model for the city that depends on the potentials of innovative urban intervention [31, 32]. In such an emerging context the need for urban intervention as a regeneration participatory approach (that is enforced by an innovative urban tool) is initially needed to deliver sustainability and livability to the urban community.

4.1.1. Description and purpose of the urban intervention

The project is an example of the usage of urban intervention as a regeneration participatory urban approach. The project aims through its innovative mix of the urban and architectural components to establish an attractive urban architecture area that contributes positively to the livability and sustainability of the city. The Library Torre Pacheco is just the main part of an urban intervention project for the promotion, management, and planning of Torre Pacheco. The project represents the results of a community participatory process through several workshops that gathered all the stakeholders. The program responded to the community real needs, which includes a school, a bus station a public park and an art gallery for exhibitions [33]. According to Martín Lejarraga (The architecture designer of the project) the main issue regarding

urban interventions is efficacy, as well as to support sustainability through approaches like low cost, low technology, low consuming, and low keeping, urban interventions should produce urban impact that makes users realize a different city, in which even without knowing why, citizens feel better [33]. The purpose of urban intervention embodied through the creation of a new topography that indexes and qualifies this zone of expansion in Torre Pacheco to be an attraction multi-functions zone that supports sustainability and livability of the city. As well as the project through this urban intervention action aimed at regenerating the city through transforming a plot of state-owned land into a plot of public equipment that host an urban-cultural, and enjoyment hub providing an alternative for the citizens [32]. The importance of the participatory role of urban intervention that is not limited to just responding to what the citizens suggest but also to think in an innovative way to provide what no one asks for: *“I understand that the real value of projects is to give what no one asks from us.”* [31, 32]

Moreover, the plans of the project's main buildings; Library, school and their adapted relative positions were designed to create innovative urban spaces that provide protection for multi-uses purposes; reception, communication, and stay in dynamic urban spaces which support urban livability. For the architecture designer: *“The public space contains and protects the building – “two faces of the same coin”* [32]. Urban intervention, in this case, represents the usage of urban intervention as an urban regeneration participative approach, it is a new urban concept creates an urban context that generates new programmatic and social opportunities [31] as shown in Fig. 4.



Fig. 4. (a) An aerial view of the project. (b) The public amenities distribution in the master plan and the ground floor [31, 32].

4.1.2. Project program and components' description

The project represents an urban architecture case where the project's buildings are well connected and interacted with their urban context, forming significant urban spaces that support and promotes the action of urban intervention on the city. The project consists of a public library, reading park with recreational areas, sports center, school, and art gallery for exhibitions. The library was designed to be integrated with the landscape architecture of the project. The different levels of the library are accessible through a central ramp which located in the inner court of the library [33]. The project as well characterized by its urban public spaces which were designed to be integrated with the buildings and meanwhile with the surrounding urban context. These public spaces include a reading park, a forest's sports area which consists of a climbing wall and an acoustic park [33] as illustrated in Fig. 5.



Fig. 5. The major urban space that provides vital and dynamic outdoor activities within the project's program [31, 32].

The project's program, its associated buildings, and urban spaces are completed with an art gallery for exhibitions, it occupies a unique position as it's the only area that overlooking over the general topography of the site [31].

4.1.3. Project program and components' description

The project was awarded the Urban Intervention Award in 2010, awarded by the Senate Department for Urban Development in Berlin. The case embodied how a well-designed urban intervention contributes to the achievement of a sustainable a livable city. *“A city without humor is grey, sad and boring”* [32]. That is what was provided to

the city through urban intervention in this case. The case showed some learned lessons and concepts that are associated with the embodying of urban intervention in this case:

- The positive impact of the urban intervention on the urban context of Torre Pacheco has two levels, the Planning strategies and projects of higher scale configure which represents the beginning base of urban intervention. And the diary works that concerning the details which can be observed and experienced on the citizens' everyday life in the city. In other words; the one which at the end, reaches the consolidation of ideas [32].
- The organizing of the urban resources is one of the reasons for the project's success, which include all the elements that contain public spaces that are shared through common management avoids use incompatibilities. Simply all the public urban spaces include: streets, squares, courts, library, sports center, school are opened for everyone 24 hours a day. This way of managing urban spaces of the project promotes the social impact of the urban interventions and leads to the achievement of a livable sustainable urban community [31, 32].
- According to Martín Lejarraga to achieve a sustainable society through community participatory in urban interventions, it is crucial to re-thinking, from the beginning, what is really necessary and leaves out everything else. This also means that it is not enough to respond to what the citizens suggest but also to think in an innovative way to provide what no one asks for [32].
- Urban livability usually associated with attractive and urban spaces that provide respectful, comprehensible among equals that brings people together and releases the idea of education, help, defense, relief. These urban spaces invite to get in, move, get out, to walk a city thousand and one times, and making it each time in a different way. Simply beauty is the relief, and that is what makes cities livable [31, 32].
- SUD through urban interventions as a process integrating answers for the whole citizens of the city. However, each other social acceptance of citizens will be reached if the urban planners and decision makers understand the

others social needs, and accept that city is fair when it brings respect and favors the rights of people and social groups to live together [32]. That is why urban interventions must be associated with community participatory.

- Even though that actions of urban intervention is punctual and targeted a specific area of the city. However, the impact of the urban intervention through its physical result (the project) arises in the whole city.

4.2 Regeneration of City Center under an Elevated Highway

The project showed a unique case of the usage of urban intervention in transforming a meaningless urban space (under an elevated highway) into a multi-use synergistic urban space that contributes to a livable and sustainable city. The case is located in Koog aan de Zaan, a charming small city on the banks of the river Zaan near Amsterdam. During the 1970s the A8 (an elevated freeway) was constructed, the purpose was to link the two banks of the river as they were densely built up. The highway A8 passes through the city center on seven meter high pillars. The A8 slashed the urban fabric of the city, formed a physical barrier between the church and city hall, as well as it divided the city civic center into two separated parts with a strip about 40 meters wide, and 400 meters long [34, 35]. The area under the A8 remained for over 30 years used as cars' parking and partially occupied by a small shooting range. Moreover, A8 blocked lower level apartments and townhouses of their river view and access [33, 34]. The claims to redesign the urban context within A8 was advocated primarily by the neighborhoods' residents and the owners of private businesses. In 2003 the city council undertook an urban intervention initiative to create a new city square. The project sought to reactivate the space under the A8 [35] (see Fig.6).



Fig. 6. (a) the project area (under the highway and an adjacent area of the city center). (b): a google map of the A8 crossed Koog aan de Zaan. [35].

4.2.1. Description and purpose of the urban intervention

Urban intervention, in this case, illustrates its use as an urban regeneration and participative approach that based on innovative urban and architecture tools. The main purpose of the urban intervention was to attempt to restore the connection between both sides of the city in an innovative way (without any modification in the existing construction) and to activate the space beneath the A8 in order to regenerate the city center to be livable and sustainable. Meanwhile to try to compensate the residents regarding their loss of the river view [33]. The city council in 2003 took a decision of implementing an urban intervention that aimed at reconnecting the city center and to regenerate the striped area beneath the A8 into a dynamic and livable urban space for the community. The urban intervention approach represented a highly participatory process. The drafted project titled A8ernA contained the citizens' demands [34]. Urban intervention through the proposed project was based on an optimistic attitude that considered the A8 as an opportunity, not as a physical barrier. In other words the urban space beneath A8 was considered as meaningful urban space for several reasons, its central location which is close to the waterfront, the slab of A8 can be considered as a large structure that can host all the land uses that was proposed through the community participatory role, which characterized the process of this urban intervention [33, 35]. Thus, through an urban intervention approach for urban regeneration A8 transformed from a waste urban space to a new socio-economic hub for the city center (see Fig.7).

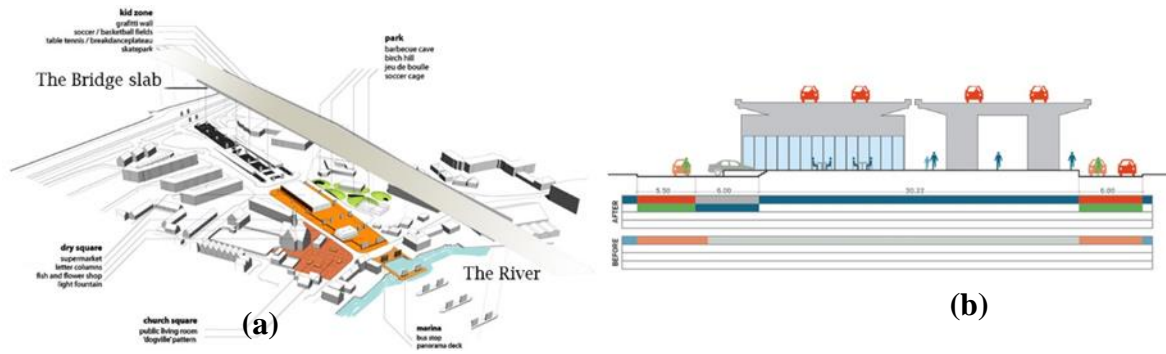


Fig. 7: (a): a model of the project's components. (b): a conceptual section through the A8 and the project [35].

4.2.2. Project program and components' description

The project program embodying the meaning of the participatory role of urban interventions in this study, as well as the intended meaning of the innovative urban interventions. The drafted document of project A8ernA represented the demands of the community and determined the program contents which include a varied mix of land uses. According to the community point of view, these land uses had to reconnect with the waterfront on the river Zaan. Meanwhile the program of the project based on the usage of the available urban space as an opportunity and without any major construction which illustrated the usage of the innovative urban and architecture tools.

Thus a small marina was established to provide citizens with direct access to the river, a platform with public gathering area was associated with the marina, and it occupied an area of land where A8 lifts over the river allowing a significant panoramic view of the river [33-35]. The program was designed to provide attractive activities and land uses that fit the different ages of the community. Thus there is children's, teenagers' playgrounds. These activities consist of what is so-called "ramp scape" and toys area for children [33]. A graffiti gallery that used as a public exhibition space, a skateboarding park, basketball courts, a seven-a-side football pitch size (55 x 36.5m), a football cage, ping pong tables, tabletop football table a break dance stage, and lovers' benches [33]. In addition to the shooting range that already existed before the urban intervention project, which has been kept as a community demand [33]. The program as well provided some retail activities, a supermarket, a flower and pet shop, some letterboxes, a light fountain and a car parking with 120 cars capacity [33-35] as illustrated in Fig. 8.



Fig. 8: The program's components gathering a mix of attractive socio-economic activities, which made the success of this urban intervention case [33-35].

4.2.3. Learned lessons

The project was awarded the European Prize for Urban Public Space in 2006 [36]. As well as it was nominated to the Urban Intervention Award in 2010, awarded by the Senate Department for Urban Development in Berlin [33]. Moreover, the project cost was only 2.7 million €, meanwhile, it managed to regenerate the city center and to transform a waste urban space into a livable attractive urban space and to be a focal point of the city, as well as to reconnect the city with the river views. And that is what makes urban interventions considered as an efficient urban regeneration approach, in which for low budgets it makes significant urban positive changes. The case represented some lessons from practice regarding the usage of urban interventions as urban regeneration participatory approach as clarified hereunder:

- The project A8ernA showed how urban interventions contribute to solving one of the common urban issues regarding elevated structures that pass through urban contexts. The case clarified how to transform an elevated motorway from an urban barrier into an attractive urban space, meanwhile without any modification to the motorway construction. Urban intervention represented an economic approach to urban regeneration.

- The case highlighted the essential role of urban intervention as a participative approach that allowed all the stakeholders to effectively participate in the design process, as well as the case, proved that the diverse desires of the stakeholders can be embedded into the implemented project with a high-quality design process, *The project is a small scale project guided by a highly participatory planning process* [35].
- According to David Bravo Bordas: *The outstanding merit of this intervention—both the commission and the resolution—lies in the treatment of a great paradox.* [34]. In other words, this case represented the real intended meaning of urban interventions which is not limited to establishing new constructions but it has a broader understanding to be understood as a new way to regenerate and rehabilitate a pre-existing urban space.
- This case revealed the intended meaning by the usage of innovative architecture and urban tools in the achievement of successful and efficient urban interventions projects.

5. CONCLUSIONS

The study illustrated the understanding of urban interventions as a Regeneration Participative Approach for Livable and Sustainable Cities. In this sense, the study discussed how urban interventions that based on the usage of innovative urban and architecture tools can be efficiently used as an urban approach for the achievement of livable and sustainable cities.

The study represented a broader understanding of urban interventions as a trendy term in the field of urban planning. Urban interventions from an urban point of view are associated with urban redevelopment as an umbrella for all other relevant terms such as regeneration, rehabilitation, renewal, revitalization, restructuring, requalification, and restoration. Moreover, the study clarified that the understanding of urban interventions is not only limited to small-scale and temporary urban actions. On the contrary, but urban interventions vary from large-scale projects that may impact the entire cityscape to small-scale projects. However, the cases showed that urban

interventions represented an economic way that even small-scale urban interventions (Like the case of A8) had a deep positive impact on their urban context.

As well as the study clarified the nexuses that link urban interventions with the achievement of livability and sustainability in cities. The study determined the characteristics of livable and sustainable cities as they marked by a high QUL that supports all the aspects of human socio-economic functions and meanwhile it supports the environmental issues in a way that it has an urban appeal that is attractive to inhabitants, visitors, talents, as well as businesses, developers and investors. Thus, urban interventions contribute directly in the domain of regeneration, redevelopment, and upgrading of urban communities under the umbrella of the enhancement and improvement of the QUL in cities which lead to the achievement of livable and sustainable cities.

Finally, the study analyzed two cases which provided lessons from practice regarding the usage of innovative urban interventions as urban regeneration and participative approach for livable and sustainable cities. These lessons supported the validity of this study arguments.

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التدخلات الحضرية المبتكرة كنهج للتجديد العمراني التشاركي من أجل مدن صالحة للعيش ومستدامة

يفترض البحث أن التدخلات الحضرية التي تعتمد على الأدوات المعمارية والعمرانية المبتكرة يمكن أن تسهم في تحقيق كلا من جاذبية وملائمة المعيشة والإستدامة بهذه المدن في آن واحد. وأن تساهم إيجابيا في دعم المخططات العمرانية بعيدة المدى لهذه المدن، حيث أنها تتكامل مع هذه المخططات تدريجيا كمبادرات تسعى إلى تجديد النسيج الحضري للمدينة عبر دعم جاذبية المعيشة بها بتعزيز الأنشطة الإجتماعية والإقتصادية اليومية، كما يفترض البحث أن هذا النوع بالذات من التدخلات يشجع على مشاركة المجتمع في صنع القرار وتمويل مخططات التجديد الحضري، ويتوافق مع المتطلبات البيئية للإستدامة. يهدف البحث إلى التحقق من إمكانات التدخلات الحضرية التي تعتمد على الأدوات الحضرية المبتكرة في دعم جاذبية المدينة واستدامتها، مع وضع تعريفا أكثر شمولاً لهذه التدخلات الحضرية مستندة إلى التكتيكات الحضرية المبتكرة ومن الناحيتين النظرية والعملية تعتمد الدراسة على دراسة تحليلية لحالتين عمليتين مختلفتين، وتمثل النتائج الدروس المستفادة منهما، موضحة كيف أن لهذه التدخلات تأثيراً فعالاً كنهج تجديد يعزز من جاذبية المدينة واستدامتها، و يتناسب مع الاحتياجات الحقيقية للمجتمع والمتطلبات البيئية من خلال الدور المجتمعي التشاركي.