

## Urban Infill Processes and Their Role in Achieving the Main Objectives within the Old Urban Fabric

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### Abstract

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The process of urban infill is one of the policies and processes of urban development at the old cities. The old view to this process was as a process of filling the urban void only, which is in harmony with the existing environment and all its physical properties only. This process deals with the empty, inactive, abandoned, neglected and uninhabited places. The research problem lies in the narrow classical view to the urban infill objectives with its implicit processes, weakness of the mechanisms of measuring the objectives achievement and the role of each processes. The research hypothesis that the process of urban infill includes five implicit processes (occupations, activation, reuse, redesign, environmental adaptation) each of which includes many procedures to achieve three main objectives: integration with the urban environment, development or redevelopment, and wise intervention to correct urban reality. The project of expansion of Imam Ali's Shrine was taken as a case study at the city of Najaf. A questionnaire was prepared which combines the role of the procedures of infill with its three main objectives. The sample was an elected sample consisting of (10) architects and planners. The research has many conclusions as know the role of the five processes to achieve the main objectives and have knowledge of the strengths and weaknesses of each procedure or action within those processes.

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### (i) Research Problem

The problem of research lies in the weakness of correction and evaluation of urban infill projects and the adoption of a narrow classical view to the urban infill objectives with its implicit processes, weakness of the mechanisms of measuring the objectives achievement and the role of each processes.

### (ii) Aim of the Research

Diagnosis of the implicit processes of the process of large urban infill and achieve integration with the urban environment, development or redevelopment, and wise intervention to correct urban reality.

### (iii) Hypothesis of the Research

The study assumes that the process of urban infill is a major strategy that includes five implicit processes within it (occupations, activation, reuse, redesign, environmental adaptation). Each of them is composed of detailed items or procedures and this process has three main objectives: (integration, wise interference, redevelopment or development).

### (iv) Methodology of the Research

The research was based on analytical descriptive methodology and included the adoption of a questionnaire form for a specialized sample to extract weights and values representing the role of each implicit process in achieving the goals of the main urban infill. The research structure was also divided into three axes:

- First: the definition of the process of urban infill, its implicit processes and its main objectives.
- Second: the method of evaluating projects of urban infill with the case study.

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Third: Conclusions and Recommendations.

## **Introduction**

It is known that urban infill is one of the processes of urban renewal and development. It is sometimes expressed as a strategy, as it is a process with important objectives aimed at the urban area and does not depend on its former definition as a process of filling a vacuum. It is beyond many dimensions, mechanisms and functions with its general framework raise the importance of that process and make thinking and adopting it with a higher and more comprehensive level.

**(1): First axis: Definition of the process of urban infill, its implicit processes and its main objectives.**

### **(1-1) The concept of urban infill**

Most studies dealt with the concept of urban infill refer to this subject as it represents (the addition of a new building or buildings that constitute a functional and visually linked fabric, and must be harmonious in terms of elevation, sky line, mass size, structural scale, façade treatment, finishing materials, openings, colors and recoil)(Mubarek, 2009). It is the process of filling and filling empty gaps within the urban fabric, it is a specific procedure that tries to perform two main functions:

1. Restores the old fabric to replace it
2. tries to connect the broken fabric by the presence of spaces between parts.

As it is a procedure linked to the old and new fabric alike, looking for the vacuum in order to in order to complete the physical image of form (urban) mainly in terms of style, architectural elements, finish materials, sky line and others as the building added functions similar to neighboring. One can say that the process of urban infill is the addition of a new building to an urban vacuum or to replace a building that was removed within the fabric. On the other hand, in terms of concept, the infill was associated with the existence of a vacuum or a spatial space for its work, and this place may be in several cases close to what they described as empty.

### **(1-2) Nature of attractive places to the process of urban infill**

The process of urban infill represents a type of (development or redevelopment of abandoned or vacant places or places that are misused, so the process of infill is in order to achieve development)(Williams, 2008). Therefore, the places that bring the process of urban infill can be classified into:

- 1- Empty place: It is a vacant place, which does not contain built and constructed building parameters or that have not been employed for some effectiveness, it is an area of empty land between several buildings or activities. The description is not different if this place was busy with buildings previously and has been removed. The place is empty or vacant. This type of place is based on the idea of infill and its concept was essentially in line with the basic functions that the previous projects and urban studies dealt with.
- 2- Inert place: a place that includes buildings and certain events, but it is not effective and inconsistent with the urban environment, despite the existence of possibilities that can be activated and motivated and therefore should do those places through the process of urban infill.
- 3- Abandoned place: is the place that was occupied by an effective building or then left for certain reasons and left abandoned of its inhabitants and occupants and even those who walk. Such places require intervention and urban action to bring life to it and the urban infill at the forefront of these procedures and the best.
- 4- Unoccupied place: is a place that includes events or buildings, but occupants or users are not the required level, i.e., these places are dense work or use or inappropriate access, which requires directing the process of urban infill to obtain appropriate densities.
- 5- The neglected place: a place that lacks attention, maintenance, rehabilitation and restoration, it becomes a neglected place and a negative space affects the region and its surroundings and thus directed to the process of urban infill to activate and sustain it to ensure the continuation of its role within its surroundings and region.

The urban location which calls for an intervention that adopts the process of urban infill is characterized by being empty, idle, abandoned, uninhabited or neglected. In other words, it is a negative urban space (dead space lands)(Abu Saada & Al Shater, 2013). It is also considered urban places. This conclusion can explain the most important processes implicit in the process or strategy of urban infill.

### **(1-3) Urban Infill Processes**

Urban infill is considered to be the major process of motherhood which includes a group of processes that join together to give urban maturity to the proposed infill project or implement and achieve its objectives and functions required in order to develop the urban area with the best solutions. We can call these processes (the five fingers). They represent (the key to intelligent growth and development and are often found in the central areas of cities or in the inner suburbs)(Depalma, 2006). The following (Scheme No.1):

#### **(1-3-1) Occupations Process**

Is the infill, occupation or settlement within a certain urban space and often this space is an urban vacuum is not busy and may be this place:

- 1 - Dedicated to a particular building or function not built
2. Urban gap between urban expansion.
- 3 - Old removed fabric.
- 4 - A space that is basically open.

On this basis, the urban infill will be a process directed at the urban space to fill the void with a function, or the addition of buildings to it or furnishing a space or employment for movement and assembly or fill it with users in accordance with the effectiveness of the previous or the proposed.

#### **(1-3-2) Activation Process**

Activation is to activate the urban location and motivate it to raise its performance efficiency through the addition or pumping of buildings or new activities or funds in an integrated manner with existing urban environment. The revitalization means (bringing new life reflected physically, socially and economically on the region)(Clegg, 2010). This does not mean the new addition only, but the integration with the old and the compatibility with it as much as possible, although (the old may mean a kind of disability in exchange for the aspirations of revitalization and the requirements of contemporary life, and the integrated revitalization focuses on the development of small centers of vibrant cities as a basic center for the living and work of all actors and groups)(Internet, Revitalization concept Vogtland, n.d.).

The activation process has three pillars:

1. Responding to contemporary urban requirements: This is related to both new jobs and occupations, the use of technology and its developments, economy and profitability.
2. Balancing the wishes of decision makers: This is linked to the desires and aspirations of the population on the one hand and the wishes and aspirations of investors and expatriates and state institutions and others on the other within the urban area, without this budget there was no urban integration and stimulate and interaction between what exists and what is new (added).
3. Protection of the urban and cultural heritage: Activating means to activate what is idle, to benefit of the existing possibilities and positive values which can be motivated and at the forefront of these values is the heritage of the urban and cultural values. Activation is not done unless there is an activation of the old through the new.

Through this, the process of urban infill revitalization will adopt several basic mechanisms, including:

- a. The adoption of mixed use mechanism: It is one of the mechanisms of activation of buildings and spaces through which the single function building or space transfer into a multi-functional building or space. This means increasing the intensity of frequency, occupation and use, and gives greater opportunities for integration with the urban environment. The mixed use increases the density of urban uses, diversity, and interaction and integration of separate events(Jill, 2002). The commercial artisanal use, and the commercial recreational or residential use is usually embodied in this mechanism. The urban infill projects of the traditional areas are often at the expense of the residents, so it is preferable to be added commercial activities accompanied by housing in the process of revitalization of the urban infill to return the inhabitants to their places of residence with jobs and revive their old crafts to preserve the urban area of its cultural and urban characterization.
- b. The creation of public and entertainment spaces: this means the possibility of leaving an empty space within the infill process to create open spaces to social interaction, assembly, to absorb the movement and the momentum of the returnees, a place to rest and others. The creation of an effective social space withdraws along with a lot of economic and professional patterns which increases the effectiveness of urban space and projects of infill and activate it.

- c. Construction and advanced construction: It means the construction with modern methods more robust, taking into account the urban character and harmony with the architectural context of the region if the area is a traditional old, modern construction and construction in large and even small spaces to achieve durability, durability and flexibility of the added structure and its proposed functions.
- d. Harmony with the urban context of the region: This is very much concerned with the formal dimensions and the nature of the architectural elements of proportions, sizes, measurements, heights, finishing materials, structural and adaptive elements and others, thus protecting the architectural heritage.
- e. Pumping capitals: It is through the revival of the population and investors with sufficient capitals to activate their activities and create small projects that develop the region.

### **(1-3-3) Reuse Process**

It means to re-employ the space or building or employ the urban space edges, i.e. (reuse makes it possible for communities, governments and developers to reduce the environmental, economic and social costs of continuous and extensive urban development, and the reuse of heritage areas contributes to sustainable regeneration)(Ball, 1999) This is done through the following:

- 1- Qualifying an old job and representing it in a new and appropriate manner.
2. Add new posts.
3. Combining new and old functions.

As the type of use and activities in the heritage areas are an essential part of the architectural heritage along with the architectural heritage. Thus, the types of trade, crafts and industries are an important part of the heritage and social considerations that need to be preserved and strengthened in the heritage areas in accordance with the international conventions in the field of preservation of architectural heritage(Mohiuddin & Abu Ghazala, 2010) as happened in the city of Aleppo where number of traditional houses were re-employed and restored and improved infrastructure was built and then re-qualified and converted into small hotels and restaurants(Yassin, 2011). In other words, this requires:

- Easy access and movement.
- Activation of services and infrastructure.
- Activation of chock jobs.
- Traditional crafts protection for old areas.

### **(1-3-4) Redesign Process**

It is the rearrangement of the implicit and regular processes of urban infill with urban assets in order to give greater flexibility and opportunity for development (Internet, City of Riverside, 2003). This means reorganizes and arrange spaces and places and furnish it in a different manner, taking advantage of the flexibility of space-based architectural schemes, the existence of transitional spaces and the capacity of open spaces. The procedures of redesign expand to delete and add parts of the building or its career program to include even the processes of urban infill itself and are done through:

- 1- Re-division of internal and external spaces.
- 2- Manipulation and change facades and sections of buildings and even manipulation and change materials termination.
- 3- Change and addition in the structural structures.
- 4- Adding or deleting parts of the previous design.

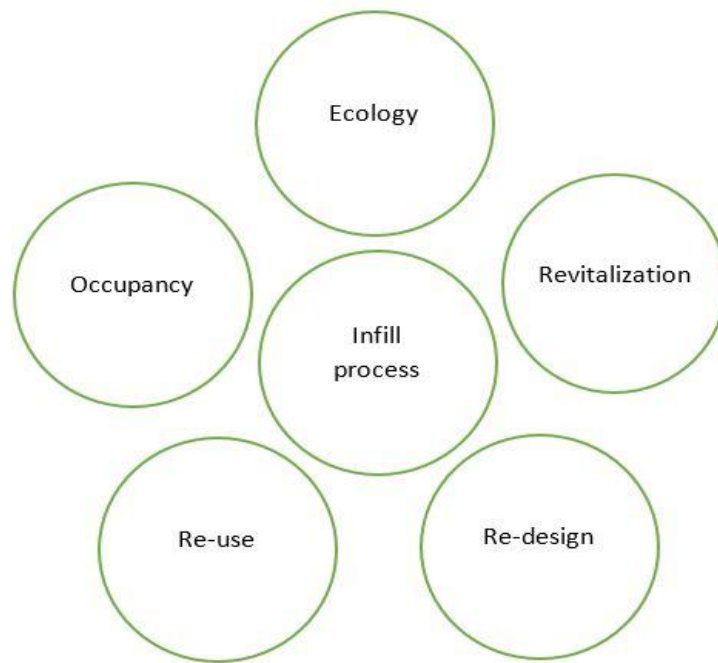
### **(1-3-5) Environmental Adjustment Process**

It is important to take into consideration the environmental aspects that deal with urban bodies and ancient sites. The ecological phenomenon is one of the contemporary trends(Akam & Al-Ani, 2009). In any urban development project, the psychological and environmental conditions of the urban place must be provided through climate adaptation and thermal comfort required for residents and users. One of the most important functions of the urban infill project is to achieve environmental protection while minimizing daily trips outside the urban area(Many consultants , 1998). It is also known that the general atmosphere of our traditional and contemporary cities enjoys high temperatures and low humidity so it was necessary to find ways to reduce the temperature and cool the atmosphere at the comfortable and required level. The traditional alleys and their meandering and narrowness provide air currents and shaded areas for the pedestrians.

The existence of the courtyard in the traditional houses enhances the ecological role with the atmospheric environment. Environmental adaptation is an instinctive characteristic of living organisms such as animals, we find that they take houses in different formations and materials and different environments and with different covers and skins, even other parts of their bodies and food. Thus climate adaptation becomes a science called (Ecology). We can sum up the basics of environmental adaptation to our contemporary cities to:

1. Reduce pollution.
- 2 - Achieve thermal comfort.
3. Rationalization of energy consumption.
- 4 - Harmony with the natural environment. Friendship with the environment.

These fundamentals are only achieved through several treatments, the most important of which is the investment of renewable energies, even if it requires the use of modern technological developments and equipment, conservation of natural resources, attention to the correct direction of the building and its windows and functions, trying to provide shaded areas and suitable air currents with the use of local building materials.



***Scheme No. (1): Urban Infill Procedures (Five Fingers)***

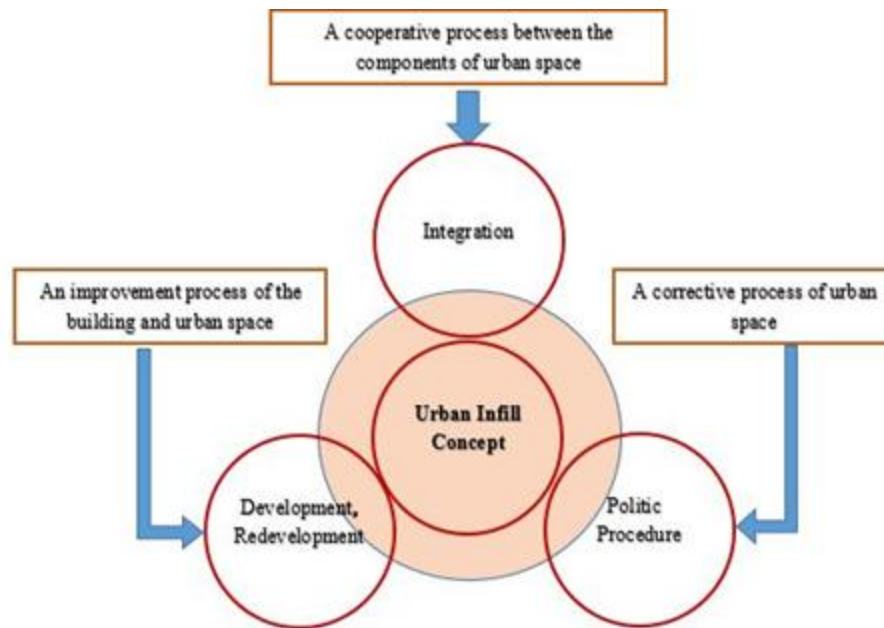
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#### **(1-4) Objectives of Urban Infill Process**

The design and urban planning (realize places and spaces for human activities, these spaces also support values and beliefs and express them, in addition to the characteristics of the physical components of the vacuum that distinguish the uses and areas of human activities)(Rapoport, 1982). Through this and linked to the implicit processes of the infill process we can identify the major goals of urban infill with the following (Scheme No. (2)):

1. Integration with the urban environment.
2. Take wise action within the urbanization process.
3. The process of development or redevelopment.

This brings us to a comprehensive and integrated definition of the concept of urban infill as: **a process of integrating with the environment, corrective urban procedures for the urban place, the process of improving the urban space with its fabric, buildings and spaces.**



**Scheme (2): Definition of the urban infill process and its main objectives**

**Ref.: Prepared by the researcher**

## **(2) Second Axis: method of evaluating urban infill projects with the case study.**

### **(2-1) Challenges and Justifications of Urban Infill Projects in Holy Historical Cities**

Some indicate that the most important problems and challenges of our traditional Arab cities result from several factors as (career transformation, performance of transport and transport, entertainment and commercial growth, cultural growth, migration of the indigenous population)(Al-Taweel, 2004). Through viewing and observing the state of our holy cities and specially Al-Najaf Holly City Center, we find that it suffers from several challenges as follows:

1- buildings and fabric is sooty because:

- a- weakness of building materials and the collapse of some structural structures.
- b- weak services and infrastructure.
- c- weak maintenance and maintenance operations.

2- Weakness of functional performance due to:

- a- the need for new jobs.
- b- violation of standards and design and planning densities.
- c- frequent irregularities and excesses.

3- inability to absorb the arrivals

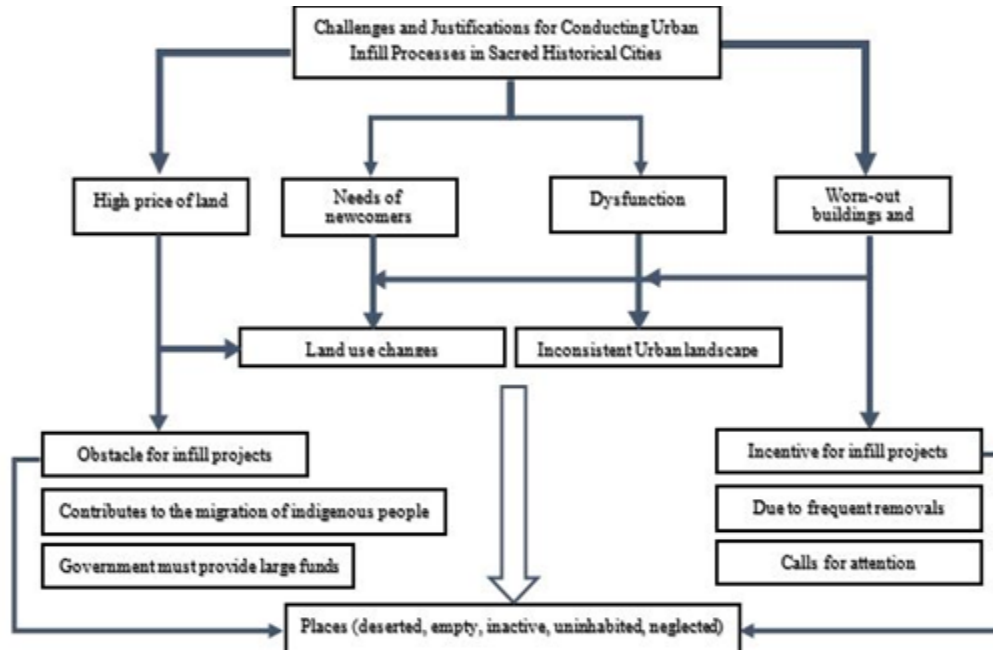
4- rise in land prices.

These challenges have resulted in the emergence of other symptoms and manifestations of functional stagnation and disruption of the urban scene and change in land uses.

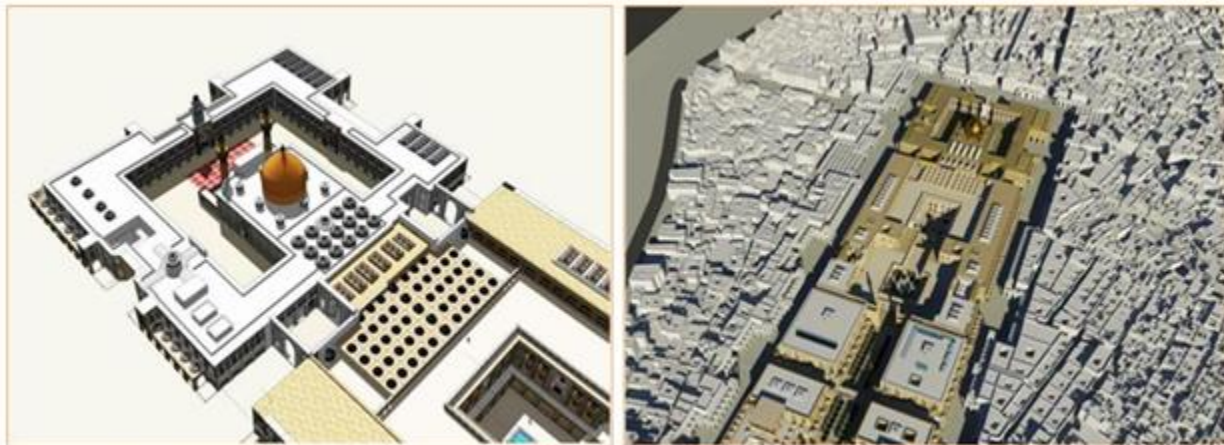
All these factors contributed to the emergence of two types of factors, one of the incentives (justification) of the process of urban infill and lies in the buildings and the fabric of the sediment that attracts attention and contribute to increase the areas removed to provide an urban place (vacuum) to set up infill projects and responding to contemporary requirements. While the others are the process of urban dictation, which is the high price of land and the change of urban uses according to the wishes of investors and the urban abuses and violations (Scheme No. 3)).

## (2-2) The Project of the development and expansion of Imam Ali Hotbed (peace be upon him)

- Site of the Project (Fig. 1): Located on the western side of the holy shrine and the old city within the locality of the architecture on the removed area, which was designated as a city for visitors, the site extends to the edge of Al- Najaf Sea at the mosque of Safi Safa and the holy shrine of Imam Zine El Abidine (PBUH).



Scheme No. (3): Condition of the traditional cities, catalysts and obstacles of the urban infill projects  
Ref.: prepared by the researcher



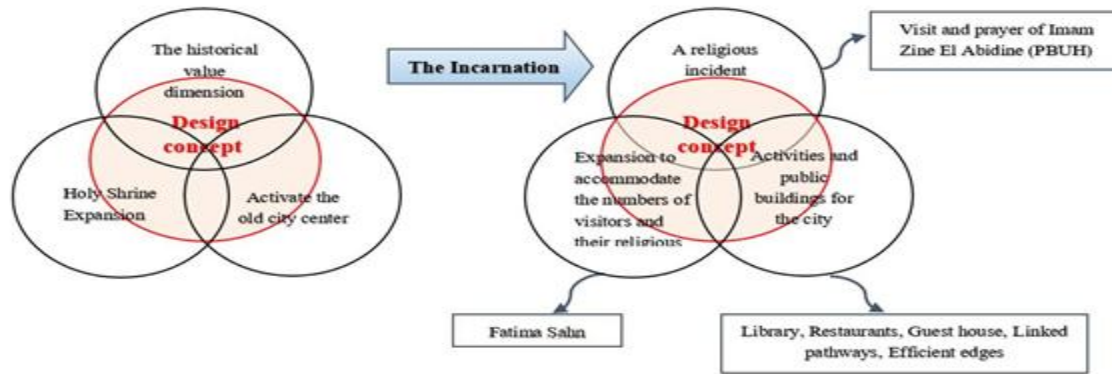
The project came in place of the visitors' city, which is three stories high and has the characteristics of traditional architecture, using patterns, materials and local finishes.

## Figure No. (1): A stereotypical perspective and the location of the project of urban infill and the expansion of the holy shrine.

Ref.: Office of Architectural Designer for Engineering Consultancy, 2010

- Idea of the Project: It came through a historical incident that Imam Zine El Abidine Ali ibn al-Hussein (PBUH) visited his grandfather Imam Ali (PBUH) and established the prayer near the holy shrine at Safi Safa. The researchers and the developers of the development project invested this incident as they found that the place of prayer was located in a straight line from the head of Imam Ali (PBUH) (500m)(Al-Shammari, 2010.). This is appropriate with the dimensions of the infill project and gave the excuse of extending the project of Imam Zine El Abidine (PBUH) (Scheme No.4).

- **Components of the Project (Fig. 2):** The project's functional program includes several spaces and activities including Fatima Al Zahraa\* (PBUH), Library, Restaurant, Large Kitchen, Guest House, Media Department and many rooms associated with the administration of the Holy Shrine.



Scheme No. (4): Dimensions of the idea of design and embodiment of the expansion project of Al-Alawy Sharif Al-Shrine  
 Ref.: prepared by the researcher

**(2-3) The Urban Environment of the Urban Infill Project**

The Holy Shrine and the Old City with its four residential buildings (Al-Huwaish, Amarah, Mashraq and Buraq) are the physical and social environment of the urban infill project. The city is described as a historical, traditional, religious, heritage and sacred city with all the meaning of the word and do not need to prove this (Fig. 3)).The site of the urban infill project was part of the traditional architecture Mahalla and was removed in the 1980s. In the 1990s, about 60% of the visitors' city project was proposed and implemented on the same site, but after 2003 the project was removed, until 2008 it was suggested and implemented the expansion project of Al-Alawy Holy Shrine.

**(2-4) Explanation of the Mechanism of Evaluation of the Project of Urban Infill in the old city of Holy Al-Najaf**

The mechanism for measuring and evaluating urban infill projects in the old cities depends on:

- 1- Diagnosis of urban infill processes.
2. Define the main objectives of the urban infill.



Figure No. (3): Old City of Najaf, traditional heritage features and the establishment of the expansion project (Urban infill), as a substitute for the project of the city of visitors partially implemented until 2003 and then removed.

Ref.: <http://www.alqurtasnews.com>  
<https://www.google.iq/search>



### 3- Preparing the questionnaire form and selecting the elected sample.

The steps were as follows:

First: the processes of urban infill (occupation, activation, reuse, redesign, climate adaptation) were identified.

Second: The items of each process were defined so that each process included five operational items to achieve the process on the one hand and achieve the three urban infill goals from the other hand.

Third: the objectives of the three urban infill process were identified (integration, development and redevelopment, wise intervention).

Fourth: Determination of the sample selected for the questionnaire. In this research, a specialized sample of (10) specialists was selected and acquainted with the urban infill project.

Fifth: The questionnaire was formulated as follows:

- A- The form consists of horizontal lines represent the processes of urban infill and its paragraphs as each process includes (5) paragraphs.
- B- The form consists of columns representing the three main objectives of the urban infill project and each goal was divided into three columns:
  - The first carries the value (+1) and represents the answer of the respondent to the active role and acceptable for each item of the Infill processes in achieving the goal.
  - The second carries the value (0) and represents the answer of the respondent with (I do not know).
  - The third and carries the value (-1) and represents the answer of the respondent in the weakness and absence of the role of the item in achieving the objectives of the process of urban infill.
- C- There are columns representing the positive and negative values achieved for each item of the questionnaire, with the sum of the total positive and negative values.
- D- There is a column representing the sum of each item, i.e. positive values plus negative values.

Sixth: The mechanism of calculation and conclusion of indicators as follows:

- By multiplying the number of votes obtained by the item in the value of the voting column we get positive and negative values.
- Since the number of respondents is (10) and each respondent puts his estimate of three goals and since the items for each process is (5), the largest value obtained by the project is  $(5 \times 10 \times 3)$  and equals (150) points.
- The possibility of extracting the percentage of the contribution of each process in achieving the three goals through the following mathematical equation (total positive values multiplied by (100) divided by (150)) and thus extracted.
- Through the percentage of contribution to achieve the objectives we find the role of the process stronger or weaker in achieving those goals and thus the possibility of directing the activation of the weak and strengthen the strong.
- Through the questionnaire and statistics mentioned in it we can diagnose the strengths or weaknesses of each item and each process of urban infill.
- The possibility of comparing the projects of urban infill and the extent of their success and effectiveness among them through the adoption of this mechanism and questionnaire ... As follows (table (1)):

**Table (1): A form for evaluating and measuring the efficiency of urban infill processes in achieving the main objectives.**

No.	Urban Infill Processes	Objectives of Urban Infill Processes									Positive Values	Negative Values	Sum. Of each Item	
		Integration with the surrounding			Developing and Re-developing			Wise Intervention						
		1	0	-1	1	0	-1	1	0	-1				
A	Occupations													
1	Occupation by Function	5	1	4	8	1	1	8	0	2	21	-7	14	
2	Occupation by Buildings	8	1	1	7	1	2	8	1	1	23	-4	19	
3	Occupation by Users	7	0	3	6	0	4	7	2	1	20	-8	12	
4	Vacuum Furnishing	2	1	7	3	0	7	1	0	9	6	-23	-17	
5	Occupation by movement and assembly	8	0	2	5	2	3	3	4	3	16	-8	8	
	Total	30		-17	29		-17	27		-16	86	-50	36	
	Percentage of achieving the goals of the urban infill project for the occupation process									Total positive values × 100 divided by maximum positive values of paragraphs (150)			57.3%	
B	Activation													
1	Mixed Use	5	1	4	7	0	3	7	1	2	19	-9	10	
2	Entertainment and Public spaces	5	1	4	4	1	5	2	1	7	11	-16	-5	
3	Heritage Protection	8	0	2	6	1	3	5	0	5	19	-10	9	
4	Advanced Construction Techniques	8	1	1	9	0	1	9	0	1	26	-3	23	
5	Pumping Capitals	2	2	6	1	3	6	2	4	4	5	-16	-11	
	Total	28		-17	27		-18	25		-19	80	-44	36	
	Percentage of achieving the goals of the urban infill project for the activation process									53.3 %				
C	Re-use													
1	Rehabilitation of old jobs	0	1	9	1	3	6	3	4	3	4	-18	-14	
2	Adding new jobs	8	0	2	7	0	3	5	1	4	20	-9	11	
3	Combining old jobs with new ones	4	2	4	7	0	3	5	2	3	16	-10	6	
4	Rehabilitation of infrastructure	7	0	3	4	2	4	3	0	7	14	-14	0	
5	Easy Access	7	2	1	5	2	3	7	1	2	19	-6	13	
	Total	26		-19	24		-19	23		-19	73	-57	16	
	Percentage of achieving the goals of the urban infill project for the re-use process									48.6%				
D	Re-design													
1	Redistribution of vacuums and spaces of buildings	2	0	8	3	0	7	5	2	3	10	-18	-8	
2	Redesigned facades	9	0	1	9	0	1	7	2	1	25	-3	22	
3	Maintain and re-use of finishing materials	8	1	1	9	0	1	8	1	1	25	-3	22	
4	Strengthening and sustaining structural structures	7	0	3	9	1	0	7	2	1	23	4	19	
5	Respect and design the edges of the project	4	1	5	3	0	7	3	0	7	10	-19	-9	
	Total	30		-18	33		-16	30		-13	93	-47	46	
	Percentage of achieving the goals of the urban infill project for the re-design process									62.0 %				
E	Environmental Adaptation													
1	Creating shaded areas	2	0	8	3	0	7	1	3	6	6	-21	-15	
2	Creating air streams	6	0	4	5	2	3	6	1	3	17	-10	7	
3	Using local materials	10	0	0	7	2	1	9	1	0	26	-1	25	
4	Reliance on renewable energies	3	2	5	3	3	4	6	2	2	12	-11	1	
5	Energy Consuming	2	3	5	3	3	4	4	2	4	9	-13	-4	
	Total	23		-22	21		-19	26		-15	70	-56	14	
	Percentage of achieving the goals of the urban infill project for the Environmental adaptation process									46.6 %				

**(2-5) Analysis of the evaluation and estimation results of the project of urban infill in the expansion of the Holy Alawy Shrine**

Through the results of the questionnaire we find the following:

- All five urban infill processes are present within the urban infill project.
- The three main objectives of the urban infill project are present within the project, each of them with its percentage.

- The role of each process of urban infill with its five items for each process in achieving the three objectives was in the following descending order (redesign, occupying process, activation and then reuse and climate adaptation).
- There is a clear weakness in the process of reuse and adaptation of climate in the integration of urban development and redevelopment of the region and the process of infill is a wise intervention and correct what exists.
- There are negative values of a number of items we have to pay attention to it and try to activate it at the level that promotes the project of urban infill, for example:
  - One Item of furnishing the urban vacuum for the occupation process was (-17).
  - Two items of interest in recreational spaces and pumping of capitals for the activation process as they were (-5, -11).
  - One item for the rehabilitation of the old functions of the reuse process was (-14).
  - Two items for the re-division of internal spaces and vacuums and pay attention to the edges of the project for redesign as it was (-8, -9).
  - Two items to provide shaded areas and rationalize the energy consumption of the environmental adjustment process as they were (-15, -4).
- If we collect negative indicators for all items, we find that the expansion project as an urban infill project was weak in furnishing the urban spaces and in the provision of shaded areas followed by weakness in the restoration of jobs and traditional crafts and not pumping enough capital to diversify the activities and in providing jobs for the residents and then the lack of interest in entertainment spaces and interest in energy saving, this is for the old urban center and not only for the holy shrine.
- It is possible that the project is very useful and responsive to the contemporary requirements associated with the lofty shrine itself, but does not necessarily mean that the project is the same degree of benefit to the old urban area (old center).

### **(3) Conclusions and Recommendations**

#### **(3-1) Conclusions**

- 1- The process of urban infill is not only a process of infilling a vacuum, but a major process of urban development.
- 2- The urban place includes both the building and the empty space and projects of urban infill includes cluster and the vacuum together and not limited to one of them.
- 3- Urban infill is sometimes as affective as the urban space, a building, furnishing or increase users and occupiers or stimulate movement and assembly.
- 4- The urban infill project has five implicit processes that can be called the five fingers for the success of the project and upgrading the old areas.
- 5- Urban infill is a major operation with three main objectives: integration with the environment, wise intervention, development and redevelopment.
- 6- Each implicit process of urban infill includes several items or procedures for each item contribute to the achievement of the main objectives.
- 7- Through the evaluation and estimation form we can identify the strength points of the project to strengthen them and the weaknesses to remove or strengthen.
- 8- The method and mechanism of the calendar leads us to the issuance of monetary judgment on the study area and project implementation.
- 9- More than one project can be compared to urban infills to choose the best according to the mechanism put forward.
- 10- Urban infill means to revitalize the old area and maintain its activities and respond to the requirements of the age.

#### **(3-2) Recommendations**

- The necessity of adopting the strategy of urban infill with all its implicit processes to achieve its main objectives.
- The necessity of diagnosing the state of the urban place in all its dimensions and information and suitable for the infill process.
- The need to preserve the indigenous people and buildings with the values of heritage considered.
- The need to reduce the removal in the old neighborhoods and wise intervention is a picture of urban intelligence and flexible cities.
- Attention should be paid to the indigenous peoples and to allocate the necessary funds for urban infill projects and preserve the previous trades and activities of the region.

- The need for local governments and urban institutions to maintain and maintain traditional areas developed without the need for new interventions and removals.

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