

Preserved built heritage assessment as dead or living: An assessment study regarding built heritage safeguarding approaches in Erbil

Mohamed Yahya Mohamed Al-Barzngy¹, Mahmood Ahmed Bakr Khayat²

¹ Architectural Department, Engineering College, Salahaddin University, Erbil, Kurdistan region/Iraq

² Architectural Engineering and Sustainability Program Director, School of science and Engineering, University of Kurdistan-Hewler, Erbil, Kurdistan region/Iraq

ABSTRACT

Erbil city is recognized by its historical monuments. The citadel which is believed to be one of the oldest continuously inhabited civilized settlements was listed on UNESCO's permanent World Heritage List (2014). A comprehensive preservation plan for the citadel was approved by the local authorities in 2006. This plan included recommendations for what was later called the Citadel's buffer zones. The buffer zone includes the traditional sectors of Erbil. Enormous efforts were done during the last decade by local authorities, UNESCO, NGOs, and local individuals. This study aims to assess and categorize preservation efforts implemented in these areas. The literature review diagnosed three main approaches for preservation that are followed in various parts of the world. These approaches can be categorized into two main approaches (dead and living heritage approaches). The preservation methods followed in the selected maintained structures within Erbil's traditional sectors were assessed by detecting 40 criteria that represent both approaches. The assessment was conducted through fieldwork in which 222 samples (vernacular and traditional buildings) were included. Statistical analysis depicted that the local authorities' approaches can be regarded as a dead heritage approach, while the recommended approach in the approved plan for the revitalization of Erbil Citadel and other traditional sectors can be regarded as a living heritage preservation approach. The paper recommends the living heritage preservation approach as a rescue from the at-risk status of built heritage structures of traditional sectors in Erbil city.

Keywords: UNESCO, Traditional architecture, vernacular architecture, preservation, preservation approaches, living heritage, value-based, monumental heritage

Corresponding Author:

Mohamed Yahya Mohamed Al-Barzngy

Architectural Department, Engineering College, Salahaddin University, Erbil, Kurdistan region/Iraq

Email: mymbarznji@gmail.com, mahmood.khayat@ukh.edu.krd

1. Introduction

Historically Erbil citadel was representing Erbil (capital of Kurdistan region in Iraq) which Historians trace back to 3000-4500 BC, approximately more than 6000 years ago. This justifies its description as one of the longest continuously inhabited settlements globally [1]-[3]. Later, Erbil expanded and included the Citadel and lower town (figure 1) [4]. Currently, the remaining Vernacular and Traditional Buildings in Erbil Citadel and the historic neighbourhoods around it are either from the Ottoman Empire period or newer [5], representing a quarter of a millennium of its 6000 age.

Erbil and other areas in the region have suffered from economic and political instability, accompanied by the lack of awareness of local communities towards built heritage, which in turn reflected on the situation of local vernacular and traditional architecture. This resulted in abandonment, demolition and improper reconstruction leading to the disastrous situation of traditional and vernacular architecture in Erbil both physically and conceptually [6]. Erbil citadel as one of the longest inhabited settlements globally, was a living place (inhabited)

until the government started the process of displacing its inhabitants in 2006 to nominate the Citadel for the World Heritage List (WHL). Squatter settlement of deprived families, difficult socio-economic and health conditions in the Citadel urged authorities to consider inhabitant’s evacuation and establishment of the Higher Commission for Erbil Citadel Revitalization (HCECR) [5].

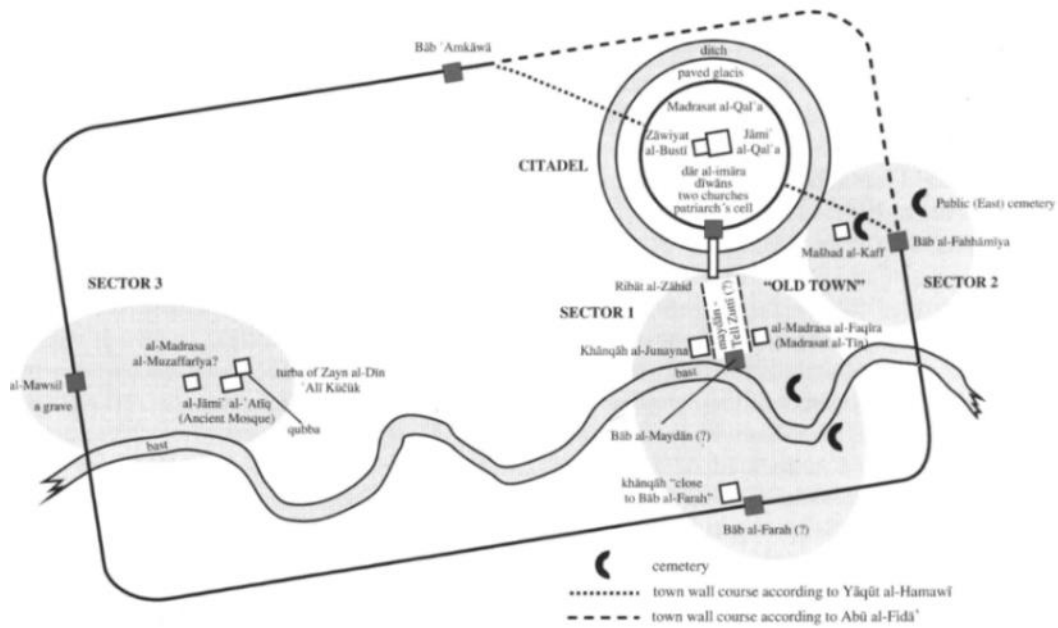


Figure 1. Erbil in medieval topography in which the old town below Citadel exists, source [2]

Later on the citadel was inscribed on WHL in 2014. However, this action (displacing inhabitants) extended to include three other traditional quarters surrounding the Citadel namely: Tajeel, Khanaqa and Arab quarters. Meanwhile, a significant portion of the Bazaar (Erbil’s traditional market) was revitalized and renewed in a historic style and kept its function. The significance of these areas mentioned as Buffer Zone around Erbil citadel, is in the vast number of traditional and vernacular buildings located in this area (figure 2) categorized as high-quality heritage buildings, heritage buildings and vernacular buildings, and the fact that Erbil in 1920s consisted of the Citadel and these neighbourhoods (figure 3) [3].

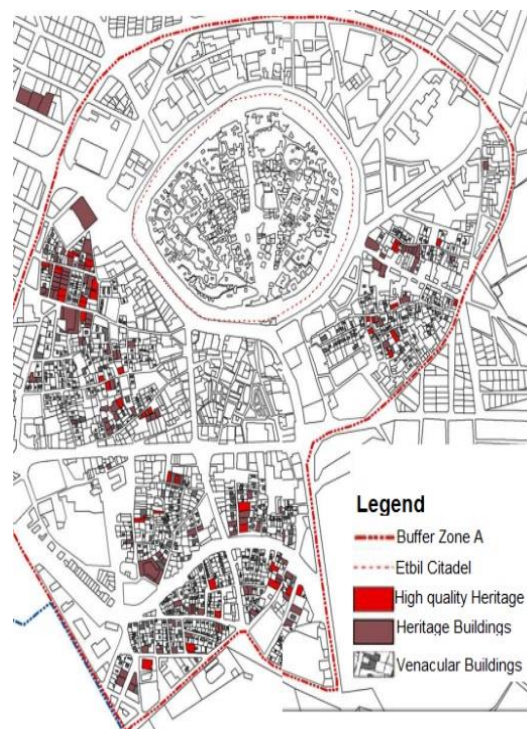


Figure 2. Built heritage distribution in Buffer zone A around citadel, source [5]

These Quarters (Buffer Zone A) are subject to strict regulations through which reconstruction and rehabilitation of any structure in this area is very limited due to its historic significance [5], especially Buffer zone A which is the focus of this study.



Figure 3. (Left) Aerial View of Erbil showing massive urbanization around citadel, source [5] and (Right) Erbil in 1920s which comprised only of the Citadel surrounded by the four neighbourhoods, source [3]

1.1. Aim of the research

- 1- Determine (monumental) dead heritage preservation approach criteria.
- 2- Determine living heritage preservation approach criteria.
- 3- Examine preservation efforts in Erbil traditional sectors.
- 4- To what extent can preservation efforts in Erbil traditional sectors be regarded as dead or living heritage preservation approaches

1.2. Research hypothesis

Living heritage preservation approach can be a rescue from the at risk status of built heritages' structures of traditional sectors in Erbil city.

2. Literature review

2.1. Living approaches

2.1.1. Living heritage approach

Madrid Conference in 1904 for the first-time classified monuments /sites into Dead or Living monuments. The former refers to those monuments or sites that belong to the past and their function is outdated. The latter refers to those monuments and sites that continue to serve their purpose or to be kept in use as use is one of the pillars of beauty in architecture [7, 8]. Depending on this classification, in the last decade of 20th century, living dimension of the heritage sites became the focus and interest of many heritages related organizations, among them is the International Centre for the Study of Preservation and Restoration of Cultural Property (ICCROM) which in 2005 started Living Heritage Site Program. This program emphasized the role of communities and their associations with heritage sites. Their objective was the development /implementation of a new approach internationally, different to conventional approaches, in which living dimension or functional continuity of heritage site was a fundamental theme and recognized communities as true owners of their heritage site [9]. This community can be living on or near/around the heritage site [10], [11], using the site for different context from original context [12], and have a special connection/association with the site e.g. social, cultural and spiritual [13]. The term community shows a range of flexibility/potential, but communities association with the site is valid in all types. Among these associations, community's original association and continuity (original function), is historically valid and the strongest association [9]. This approach may embrace changes such as modernization and it is succeeded by embracing non-western cultures [14]. Thus, living heritage approach is more flexible in terms of intervention (figure 4), ensuring the continuity of life of monument/site and more applicable when dealing with heritage site as it is clear from its name (Living Heritage Site program).



Figure 4. Mchko Cafe (ground Floor) and Ancient Citadel Cafe (first floor) recently reconstructed keeping original function using traditional material and techniques in Erbil city center Bazaar, photo by the (Author).

Appreciating and making use of traditional architecture is rooted from European renaissance. Contrary to the Middle Ages in which these buildings disappeared with the disappearance of their creators. This led to the concept of (present-day value) [15]. According to Riegl this present-day value satisfies sensory/intellectual needs. [8] Argues that Riegl's use-value depends on physiological (functional) and psychic (cognition). Therefore, when a traditional building is not in use it gives the impression of destruction or even appears older than its age (figure 5). For Riegl, authentic heritage object is not original form concept, rather it is the building that is transmitted to current generation through history [16]. These principles became essential concepts for both Athens Charter 1931 and Venice Charter 1964 (two leading 20th century international charters of architects and experts in built heritage preservation) [8]. These two charters depict that built heritage conservation (always) can be facilitated through making use of them. Providing traditional and vernacular buildings with function, requires change and flexibility. As Vernacular architecture is 'traditional buildings' that developed (forms, functions) over time and transferred from a generation to another through common knowledge, differs from one place to another [19] and is similar to culture in its dynamic nature and changes as a response to local environmental, social and technological changes [17]. Paul Oliver argues that traditional architecture are '*buildings that embody tradition*'. Change in traditional and vernacular architecture are mostly through innovations (figure 6), and military conquest/colonization as the case in the Ottoman Empire invasions or Architectural Islamizing of West Africa by North Africa and using their forms and plans in reconstruction [18].



Figure 5. Abandoned traditional building in Tajeel quarter



Figure 6. Alleys in Erbil Traditional Market in 2022 (left) and 1920s (right). the level of Change in a century, source (Author and Erbil Museum)

2.1.2. Functional/value -based approach

Functional conservation emphasizes other functions in addition to historic or artistic namely; economic and tourist. Moreover, representing different types of interests such as political, economic and cultural interests (figure 7) for different stakeholders like experts, academics, authorities and communities [20]. Therefore, built heritage conservation can be assessed through the condition of its function [21]. Functional conservation is a part of more comprehensive contemporary approach which is Value-based approach (values that people attach to cultural heritage) [22]. The emergence of this approach dates back to 1980s, focused on aesthetic, historical, economic and functional values.

“In the field of cultural heritage conservation, values are critical to deciding what to conserve... how to conserve.... think of the artistic and aesthetic values of an old building, as well as the historical values of its associations, plus the economic values tied up in its use”. [22] (p.1)



Figure 7. Open Theatre in Erbil Citadel, photo by the (Author).

Thus, function is considered as a value parallel to other values in contemporary built heritage conservation (value-based and living heritage approaches), the former through the value that communities ascribe to built heritage and the latter emphasizing the community’s association with the heritage site. Communities are the core of contemporary conservation approaches.

2.2. Monumental or dead heritage approach

As referred to in the Madrid conference, Classical or dead approaches are the earliest approaches of conservation known for their objectivity, fabric/material, scientific attitudes and making the use of built heritage considerably limited like Museums, galleries, exhibitions or mentioned as museumification (figure 8). Monumental approaches are mostly top-down as decisions are made by experts and utilize hard science to deal with material matters [22]. These approaches can be categorized into three main domains of integrity: historical (objects history), aesthetic (aesthetic feeling towards the object) and physical (material/fabric integrity or authentic material) [23]. Preservation of the remnants of ruined building is another value for the built heritage in these approaches [24]. These approaches referred to as stylistic, aesthetic, scientific, and material-based are all criticized for their purpose in preserving the integrity/true nature of heritage (object) and overlooking immaterial/intangible aspects [8]. These practices usually result in breaking the ties between communities and their built heritage in which they have almost no role. The displacement of inhabitant (figure 9) is a common practice of these approaches [25]. The focus is handing this built heritage to future generations while ignoring the role of present generation. Finally, a quote from Charles Peers in 1913 as a reflection on Madrid Conference can summarize the whole discussion about living and dead heritage approaches as follows:

“Buildings which are in use are still adding to their history; they are alive. Buildings which are in ruin are dead; their history is ended. There is all the difference in the world in their treatment.” [26](p.110)

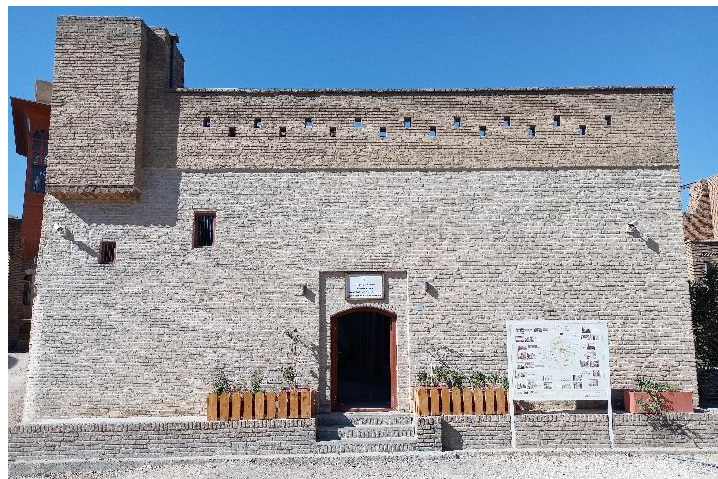


Figure 8. Erbil museum for stones and gems in Erbil Citadel, photo by (Author)



Figure 9. Inhabitants displaced from their traditional areas in Buffer Zone A, Arab Quarter, photo (Author)

From the literature, criteria of both approaches can be summarized as shown in Tables 1 and 2. The merge of value-based approach with living heritage approach is considered for various reasons, namely; both approaches are contemporary approaches and ensure necessity of a function (use), local communities have more role/contribution in decision-making, both approaches are more flexible and permit medium and maximum intervention.

Table 1. Criteria of Dead heritage preservation approach extracted from literature, adapted by (Author).

Criteria Category	no.	Dead Approach Criteria	References
<i>Intervention</i>	1	Minimum intervention	
	2	Traditional fixation	[9]
	3	Traditional material & technique	[8]
	4	Visibility of old structure (Authentic material)	[23]
	5	Maintained old structure	[27]
	6	Authentic layout (no layout change)	[28]
	7	Distinguishability (no unity of style)	[24]
	8	No reconstruction (only adding missing parts)	[26]
	9	Relation of mass & colour preservation	
<i>Function</i>	10	No function (vacant)	[29]
	11	Function respect historic characteristic	[30]
	12	Socially useful function	[28]
	13	Accessibility of Site in a seemly manner	
<i>Objective</i>	14	Protection of fabric (physical structure)	[24]
	15	Belongs to the past(the function is outdated)	[7]
	16	Acquisition (public ownership)	[9]
	17	Preservation of aesthetic & historic values	[25]
<i>Practices</i>	18	Displacement(Depopulation)	[31]
	19	Top-Down decision making	[22]
	20	No local role in preservation	[25]

Table 2. Criteria of Living heritage approach extracted from literature, adapted by (Author).

Criteria Category	no.	Living Approach Criteria	References
<i>Intervention</i>	21	Medium intervention	
	22	Limited layout change	[22],
	23	Maximum intervention	[32],[16],[8]
	24	Change (made during preservation)	[9],[24],[33]
	25	New structure (constructed)	
	26	Non-distinguishable (unity of style)	
	27	Maximum layout change	
	28	Renewal (respect ancient setting)	
<i>Function</i>	29	New Function (meaning of place redefined)	[34],[20],[35]
	30	Original function	[9],[10],[36]
	31	Function benefits locals	[15],[37],[21]
	32	Kept In-use/inhabited	
	33	Function retains cultural significance	
<i>Objective</i>	34	Linking heritage to community's wellbeing	[32],[9]
	35	ownership (owned by local community)	[35],[33]
	36	Locals using the site	[12]
	37	Communities living near/around the site	
<i>Practices</i>	38	Traditional areas having a function in the life of	[14],[20]
	39	communities	[34]
	40	Bottom-up decision making	[38]
		Local's participation in preservation	

From Tables 1 and 2, a checklist was prepared for assessing local preservation efforts in Erbil traditional city centre neighbourhoods which is filled by the researcher during the fieldwork (survey). These 40 criteria were observed during the fieldwork for all 222 samples of traditional and vernacular buildings/structures.

3. Field work

In this study, field work was employed for data collection parallel with documents and literature available about Erbil historic city centre. The field work was conducted in two weeks including taking photos of all traditional and vernacular buildings in the five areas of the study, visiting the related governmental directorates such as HCECR, land registration directorate and municipality directorate. The field work included questioning local communities and owners as well as the responsible personnel and experts in the above-mentioned governmental directorates. The significance of selecting these traditional city centre neighbourhoods as case studies are in its location in Buffer Zone A, which is indicated by UNESCO as conservation areas (figure 10), housing massive amount of traditional and vernacular buildings and the fact that only a century ago, Erbil consisted of these areas (figure 11).

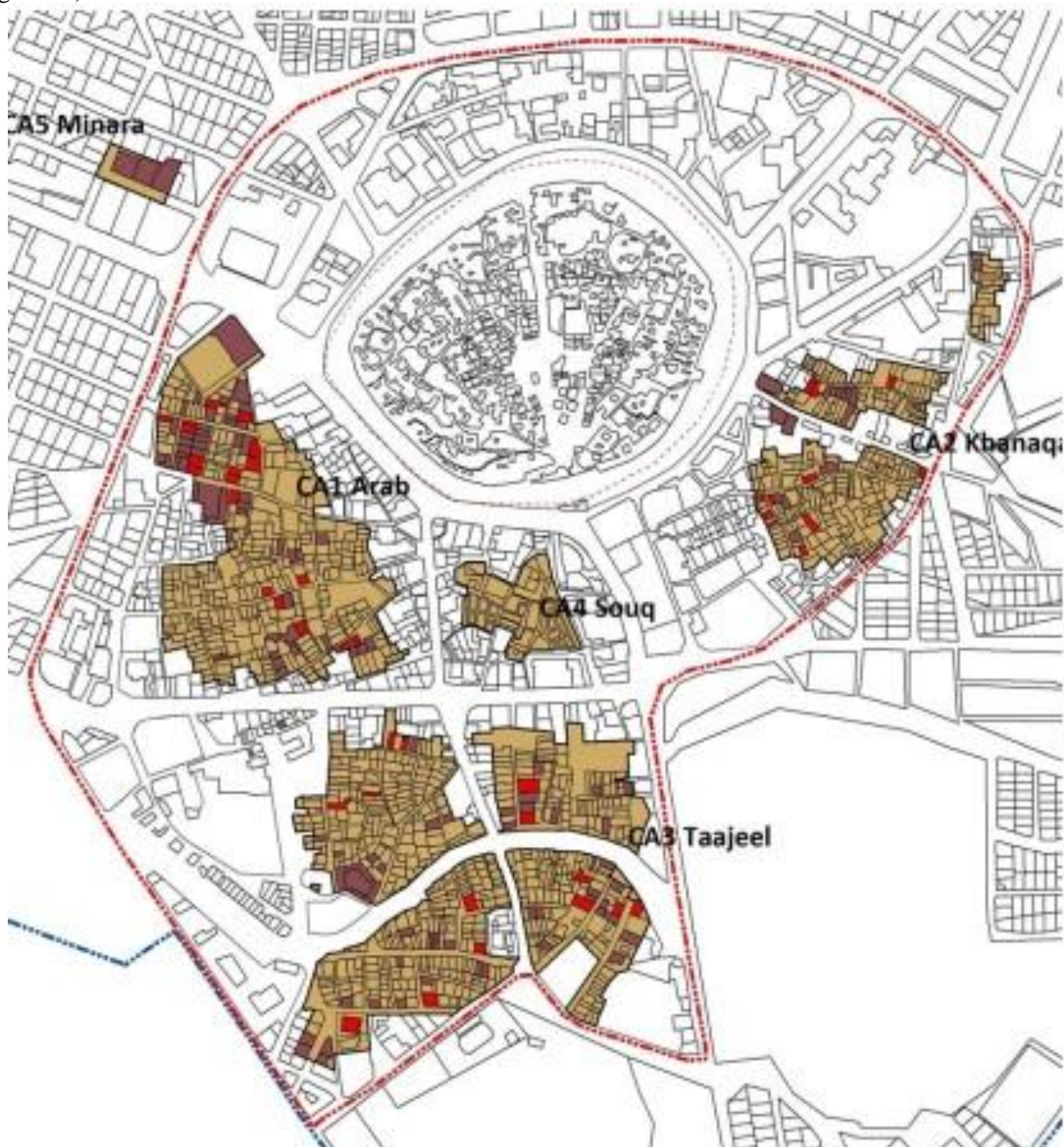


Figure 10. Conservation Areas in Buffer Zone A, source [5]

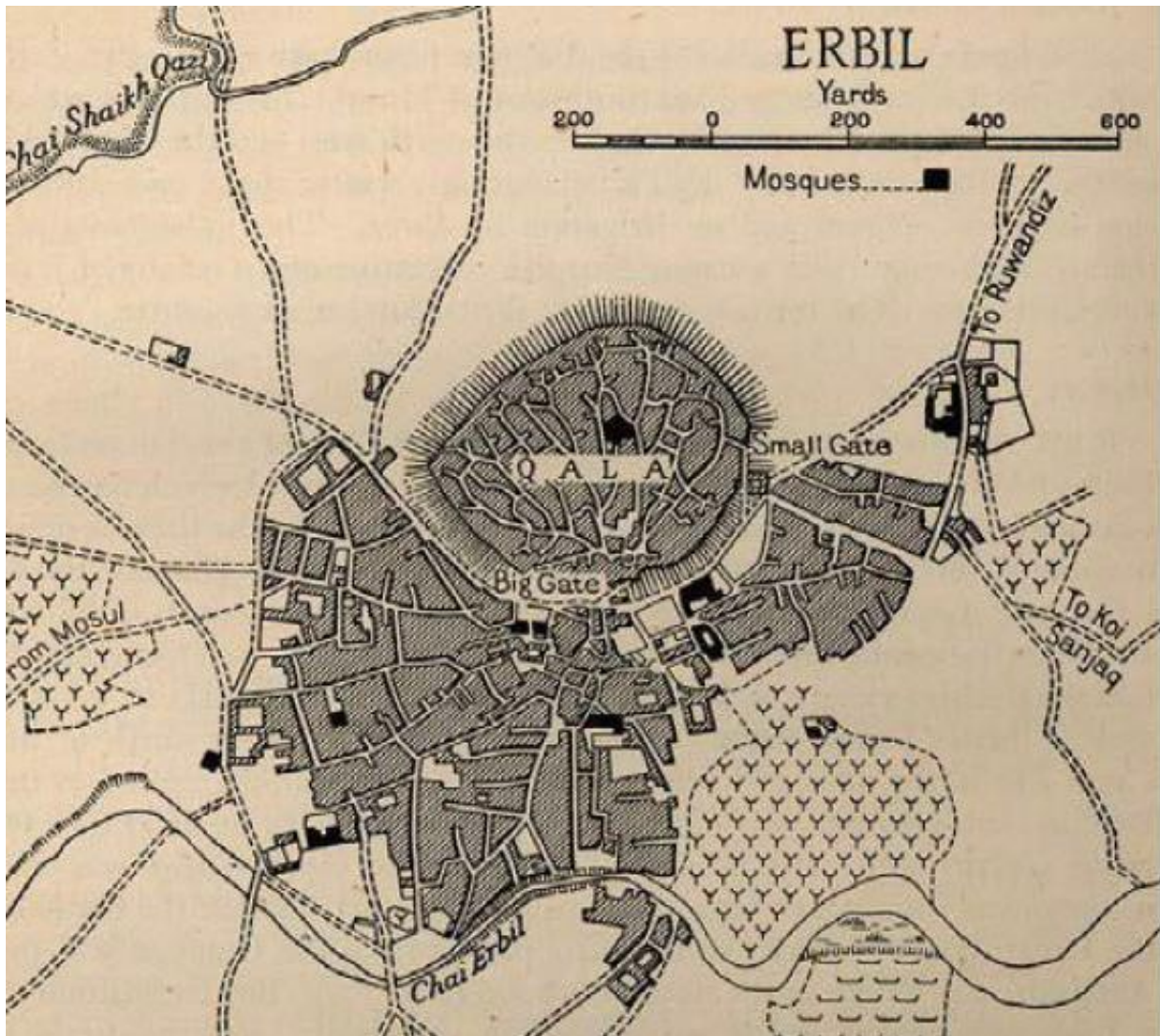


Figure 11. Map of Erbil city in 1920s which consists of the same areas selected for this study source [3] Heritage preservation efforts would be assessed through 40 criteria indicated in the literature review that represent dead and living heritage preservation approaches. The data obtained consists of primary and secondary data (Figure 12). Primary data includes the observation of criteria during the fieldwork and questioning locals and responsible personnel in related governmental directorates. Secondary data consisted of documents approved by Authorities and UNESCO especially for the revitalization and rehabilitation Buffer Zone A.

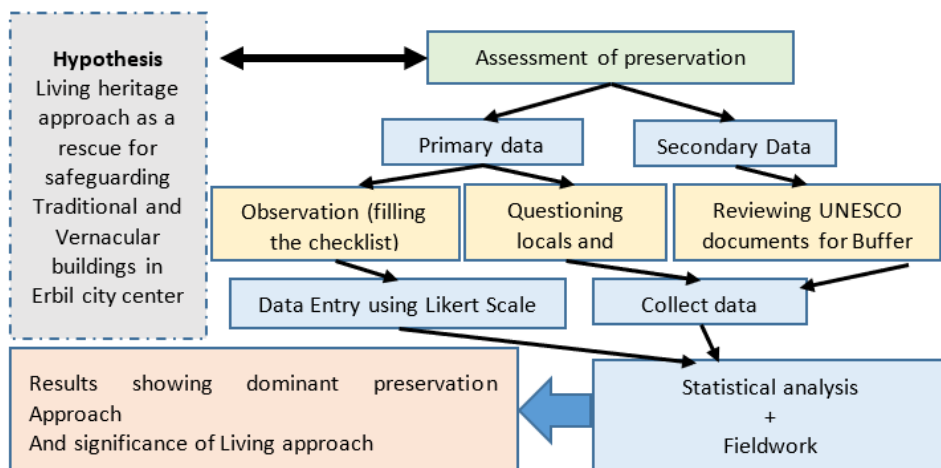


Figure 12. Research flow chart, source (Author)

3.1. Sampling

According to Citadel Nomination Document for WHL of UNESCO there are 1175 traditional graded buildings in the four sites Citadel, Khanaqa, Arab and Tajel quarters. These buildings are categorized by the document as High-quality built heritage, built heritage and vernacular buildings in Arab, Tajeel and Khanaqa Quarters. While the categorization of Citadel's buildings is based on the building's significance (Very Important, Important and Less important). Meanwhile, there is no categorization of buildings in Bazaar as the case is different and units are consisted of blocks including small size shops. This was the first challenge in sampling process as through categorization, stratified sampling can be easily implemented which saves time and efforts [39]. Thus, the optimal scenario for sampling is Two-stage cluster sampling to reduce the sample size to a feasible level while representative of the whole population. In order to provide a representative sample for the whole population, cluster sampling as a probability sampling divides the population into clusters in which heterogeneous units are sampled [40]. To reduce the sample size, Two-stage cluster sampling is applied, first; through simple random sampling a cluster will be selected. Second, the desired size of sample will be indicated by the equation ($n=N/1+N(e^2)$). Then through simple random sampling within sampled cluster the samples will be selected. This method of probability sampling is common in research related to defined geographic areas in which clusters include urban blocks, neighbourhoods, and towns and referred to as area sampling [41]-[43]. As shown in (figure 13) the study area is divided into two equal clusters, both of which share similar distribution of characteristics. In sample selection process inside the cluster, diversity of samples to provide maximum variations is employed to represent the whole population. Thus, high quality heritage building, heritage building, vernacular building, and traditionally revitalized buildings and structures included.

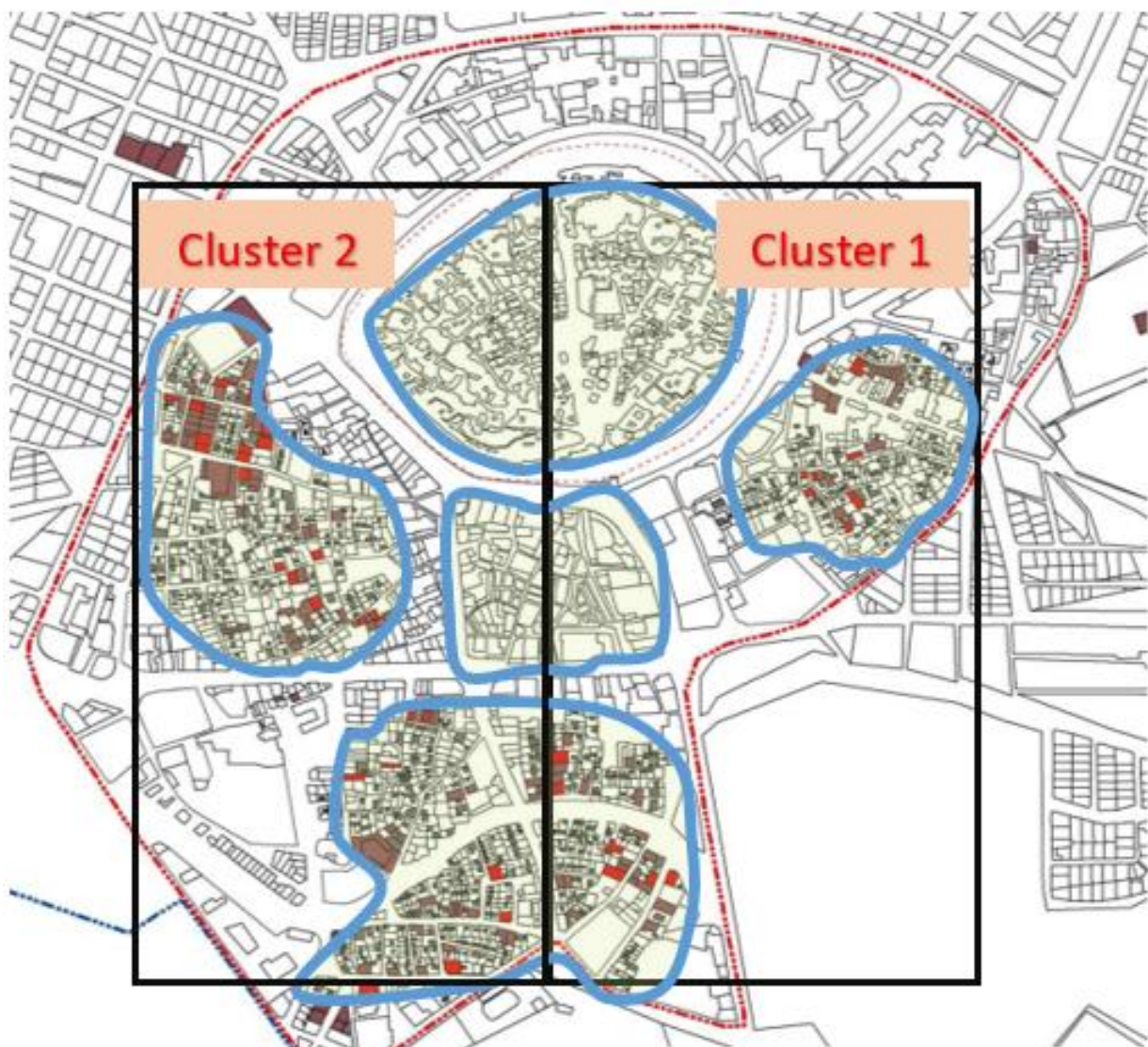


Figure 13. Cluster sampling for indicating sample size, source [5] adapted by Author (author)

Total population (N) for selected cluster (cluster 1) is 502; Bazaar 48, Tajeel 134, citadel 169, and Khanqa 151 samples. Therefore, sample size will be 222 with confidence level of 95% and 5% margin of error ($n = N/1+N(e^2) = 502/1+502(0.05^2) = 502/2.255 = 222$). Desired sample size for each area according to the weight of its units will be as follows: Tajeel 59, Bazaar 23, Khanaqa 66 and Citadel 74 (table 3).

Table 3. Indicating Sample size, source (Author) property categorization and quantity, source [5]

Building type	High quality Heritage buildings	Heritage buildings	Vernacular	Total	Cluster 1 samples and (Weight of each area)	sample size
Areas						
Khanaqa	10	17	124	151	151 (%30)	66
Tajeel	14	45	297	356	134 (%26.6)	59
Arab	18	47	175	240	-	
	Very important	Important	Less important			
Citadel	11	82	227	320	169 (%33)	74
	Revitalized/Remodelled Units					
Bazaar	114			114	48 (% 10)	23
Total number of buildings/units				1175	N=502	n=222

4. Results and discussions

4.1. Living and dead heritage approaches

The first twenty criteria belong to dead approach (1-20) and the second part (21-40) belong to living approach (figure 14). Mean value of dead approach criteria record much higher figures than living approach which clarify that the dominant approach implemented in preservation is dead approach. The highest figures (criteria 3) belong to preservation efforts and practices in which traditional material and techniques are used. However, this does not reflect the level of preservation conducted by preservation initiatives by authorities alone. As in Arab, Tajel and Khanaqa quarters, interventions by authorities is limited to depopulation, acquisition, locking down the buildings and regulations for prohibiting reconstruction. It is locals or former inhabitants' efforts in these three areas prior to their displacement who maintained and preserved these buildings using local traditional materials and techniques.

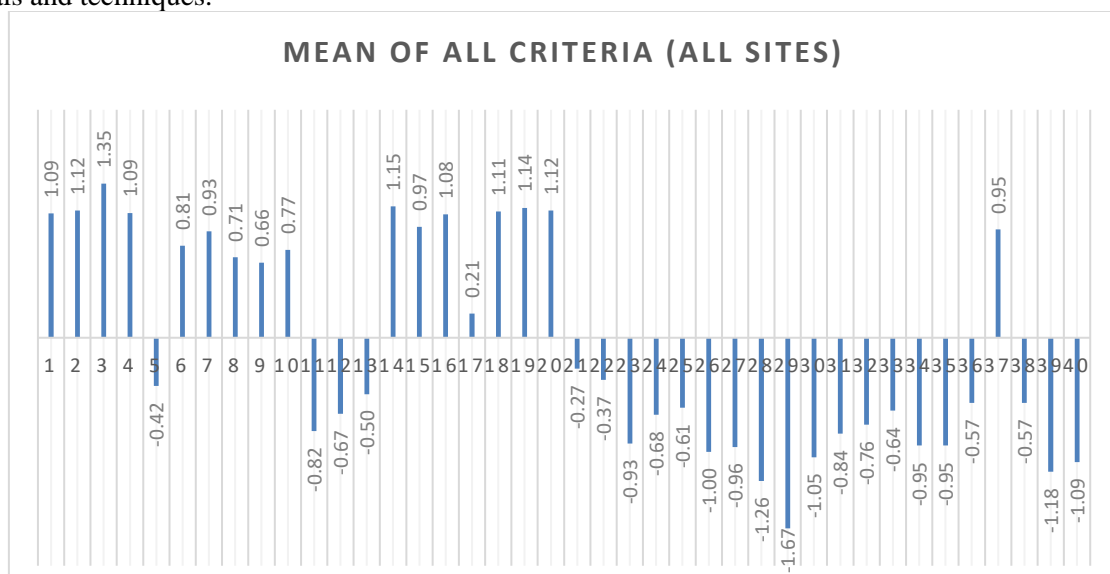


Figure 14. All sites criteria means, source (Author)

First 9 criteria (intervention category) show high figures of dead approach except criteria number 5 which is (maintained old structure) which represent the necessity of urgent need for maintenance. Criteria 10,11,12,13 represent category of function. Criteria 10 belongs to no function or abandonment which also shows that among all samples, criteria of function is highly overlooked contrary to all approaches requirements for providing a function. The figures of criteria 11, 12 those represent function typology depicts that almost no or very few properties are provided with functions. While criteria 13 shows that most of the sites are not clear and accessible in a seemly manner. The absence of these criteria justifies why there mean value are in (-) on the contrary to other criteria.

Criteria 14,15,16,17 represent objectives of dead approach. The criterion of physical protection (14) records high mean value which explains the emphasis on protection of physical structure. Criterion 16 (acquisition) shows that majority of the sites are acquired by the government. It is obvious from criterion 15 that most of the sites are treated as belonging to the past and their functions are outdated. Meanwhile, an important criterion (17) which is (historic and aesthetic value preserved) record low figure which depicts that historic and aesthetic value is at risk. The last three criteria of dead heritage 18, 19, 20, reveal that, massive area is evacuated from its residents, communities had no role in decision making and preservation.

While criteria of living approach almost show relatively absence in practice in the overall means. But, in (figure 14) the only criteria which shows high value in living approach is criterion 37 (communities living near or around the site). Which exemplify the potential of implementing living approach as according to literature, living approach is more applicable in sites in which communities are living on, near or around the site. Meanwhile, cases if taken individually as shown (Table 4), means of Citadel, Khanaqa and Tajeel quarters show similar figures to means of all sites (figure 14) except Bazaar which shows high means for living approach.

Means of living approaches (21-40) which include value-based criteria (21, 22, 29, 33) and living heritage approach criteria (the rest except those four) show similar trend in figures of all sites' means (Figure 14). Which justifies their combination within the category of living approach. Through descriptive table of One way ANOVA test for the data as shown in (Table 4) the figures of (sites) group mean, standard deviation, confidence interval will be more obvious and the data is statistically significant as $p\text{-value} < 0.05$.

Table 4. One way ANOVA, descriptive statistics showing individual (each site) and overall means, source (author).

	Sites	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		p-value
						Lower Bound	Upper Bound	
Dead approach	Tajeel	59	0.7661	0.45679	0.0594	0.6471	0.8851	0.000
	Bazar	23	-0.4370	0.37966	0.0791	-0.6011	-0.2728	
	Citadel	74	1.0068	0.48529	0.0564	0.8943	1.1192	
	Khanaqa	66	0.5091	0.49450	0.0608	0.3875	0.6307	
	Total	222	0.6453	0.62762	0.0421	0.5623	0.7283	
Living approach	Tajeel	59	-0.9347	1.00023	0.1302	-1.1954	-0.6741	0.000
	Bazar	23	1.4630	0.22924	0.0478	1.3639	1.5622	
	Citadel	74	-1.1493	0.85886	0.0998	-1.3483	-0.9503	
	Khanaqa	66	-0.9735	1.06775	0.1314	-1.2360	-0.7110	
	Total	222	-0.7694	1.19729	0.0803	-0.9277	-0.6110	

4.2. Physical condition and ownership

Sometimes referred to as damage assessment or inventory, can provide an overview in the light of on-going preservation efforts. However, through reviewing documents and visiting related directorates, it was obvious that such assessment has not been undertaken for all these five sites of Buffer Zone (A) together and in the same

time. The last survey which was prepared in 2012 for the Nomination of Citadel included Buffer Zone A, contained the number and categorization of the traditional buildings. While the physical condition survey was only undertaken in Citadel and included three categories good, reasonable and derelict or empty site. Thus, for assessing physical structure three grades were used Good (the structure is in a good condition /preserved), Moderate (the physical structure is intact, and Bad (The structure is partially or fully demolished). In addition the issue of ownership is also considered as these areas of Buffer Zone (except Bazaar) is under acquisition process since 2011 however not finished yet.

Table 5. Physical condition of all sites, source (author) and acquisition progress source (Land registration Directorate).

Sites	Physical condition			Ownership	
	Bad	Moderate	Good	Acquisition	Owned by locals
Tajeel	27%	68%	5%	75 %	25 % (13% Unknown)
Bazaar	4.5 %	8.6 %	87%	0	100 %
Citadel	42 %	18 %	40 %	100 %	0
Khanaqa	45.4 %	45.4 %	9%	55 %	44 % (21% unknown)

Figures in the (Table 5) show high levels of damage among traditional and vernacular architecture as in some cases more than 40% of properties are either fully or partially demolished. After more than a decade since the authorities' acquisition decision, the process has not finished yet and it was obvious from the survey that it may take a longer time than expected. Meanwhile, authorities' strict regulations were not successful in preventing deliberate destruction as in some cases, buildings are razed to the ground and converted to car parks by locals. High ownership (100%) by locals in Bazaar in relation to (87%) Good condition properties, shows that public participation can play a vital role in safeguarding these built heritage. On the other hand, areas with high rates of acquisition like Citadel and Khanaqa show relatively higher levels of damage.

4.3. Necessity of Use (function) and intervention (change)

Among criteria of approaches, there are some indicative and primary criteria like function types and level of intervention. Through statistical analysis of the relation between these criteria correlation coefficients figures derived as shown in (Table 6):

Table 6. Correlation Coefficient table, source (Author)

Criteria	Criteria	Correlation coefficient
(24) Changes made during preservation	(32) Property is in-use/inhabited	0.66
(17) Aesthetic and historic values preserved	(10) Vacant or no function	-0.47
(17) Aesthetic and historic values preserved	(32) Property is in-use/inhabited	0.48
(17) Aesthetic and historic values preserved	(1) Minimum intervention	-0.28
(17) Aesthetic and historic values preserved	(21) Medium intervention	0.58
(17) Aesthetic and historic values preserved	(23) Maximum intervention	0.43
(17) Aesthetic and historic values preserved	(30) Original Function	0.35
(17) Aesthetic and historic values preserved	(11) A use that respect historic value	0.53
(17) Aesthetic and historic values preserved	(12) Socially useful function	0.54
(17) Aesthetic and historic values preserved	(29) New function meaning of place redefined	0.30
(30) Original function	(32) To be kept in use	0.84
(29) redefine meaning of place (new function)	(32) To be kept in use	0.39

As it can be noticed from (Table 6), for a heritage property to be kept in-use or inhabited, change is inevitable as the two criteria have a moderate positive correlation at 0.66. Another important criteria which is criteria 17 or (aesthetic and historic value preserved) positively correlate with all function criteria 32, 30, 11, 12, 29 at 0.48, 0.35, 0.53, 0.54, 0.30 respectively. Thus, aesthetic and historic value can be preserved through keeping the property in-use. Criteria 17 also positively correlate with medium and maximum intervention (criteria of living approach). Meanwhile, negatively correlate with minimum intervention (criteria 1) and vacant property

(criteria 10) those are key criteria of dead approach. In terms of the type of function, criteria 32 (heritage property to be kept in use) has a high positive correlation with original function at 0.84 while having relatively lower positive correlation with criteria 29 (new function) at 0.39 which exemplifies the significance of original function as the main criterion of living heritage approach.

5. Conclusion and recommendations

Based on criteria derived from Literature, preservation efforts in Erbil traditional sectors (case studies located in Buffer Zone A) were assessed through an intensive fieldwork. The results show that the prevalent preservation approach within these sectors is dead heritage approach in three cases of Citadel, Khanaqa, Tajeel. While the Bazaar (as the only fully functioning site) is an exception in which living heritage approach is dominant. Emphasis is mainly on physical protection through a top-down decision-making process in which locals have played almost no role. Damage assessment figures indicate massive loss of built heritage especially in areas of higher acquisition rates by government. While, Bazaar figures with higher ownership by locals showed highest figures of (Good) condition. Thus, it can be summarized that acquisition of these traditional areas reduces the potential of community participation in preservation and consequently maximising the burden on public budget which could be behind the abandonment of these areas. Therefore, any preservation or rehabilitation of these areas can be best facilitated through community participation, providing more roles for locals and local to be the first beneficiary. However, this level of damage could act as an opportunity and more applicability of living heritage approach which permits maximum intervention including reconstruction of fully or partially demolished heritage properties unlike dead heritage approach which allows minimum intervention level. Statistical analyses indicated two important criteria; (change) for keeping a specific traditional and vernacular building in use and (function) for safeguarding aesthetic and historic value. While abandonment and displacing inhabitants may result in further loss of historic and aesthetic values. In addition, significant role of original function was also portrayed along with other types of function, but original function as an important living heritage criterion outweighed other types of function. Thus, it can be concluded that living heritage approach could be considered as a rescue from the at risk status of traditional and vernacular properties of historic sectors in Erbil. This approach also complies with the available building regulations of Buffer Zone A, which ensures repopulation, conservation, revitalization, comprehensive renewal, communities participation, provision of function (original or new) in Citadel Nomination Document [5] (p: iii, x, 15) and other documents which depicts that the recommended plan for these areas can be regarded as living approach while the ongoing efforts as analysed in this study can be considered as dead heritage approach.

Declaration of competing interest

The authors declare that they have no any known financial or non-financial competing interests in any material discussed in this paper.

Funding information

No funding was received from any financial organization to conduct this research.

References

- [1] D. Al-Yaqoobi, A. Khorsheed, S. Mohammed, S. Hussein, M. Shepperson, and J. MacGinnis, "Archaeological investigations on the Citadel of Erbil: Background, Framework and Results," in *The Archaeology of the Kurdistan Region of Iraq and Adjacent Regions*, K. Kopanias and J. MacGinnis, Eds. Oxford: Archaeopress Publishing Ltd, 2016, pp. 23–27.
- [2] K. Nováček, N. A. M. Amin, and M. Melčák, "A Medieval City Within Assyrian Walls: The Continuity of the Town of Arbīl in Northern Mesopotamia," *Iraq*, vol. 75, no.1, pp. 1–42, 2013.
- [3] Naval Intelligence Division, *Iraq and the Persian Gulf*. Oxford, 1944.
- [4] B. N. Porter, "Ishtar of Nineveh and Her Collaborator, Ishtar of Arbela, in the Reign of Assurbanipal," *Iraq*, vol. 66, no.1, pp. 41–44, 2004.
- [5] W. H. C. UNESCO, "Erbil Citadel," *UNESCO World Heritage Centre*, 2014.

- [6] M. Khayat and B. Khaznadar, "Erbil City's Traditional and Vernacular Architecture Disastrous Status (A Perception Survey using Semantic Differential Scale)," *ZANCO Journal of Pure and Applied Sciences*, vol. 28, no. 2, pp. 2–5, Jul. 2016.
- [7] W. J. LOCKE, "Abstract: Recommendations of the Madrid Conference (1904)," *www.getty.edu*, 1904. https://www.getty.edu/conservation/publications_resources/research_resources/charters/charter01.html (accessed Jun. 13, 2022).
- [8] Jukka Jokilehto, *A history of architectural conservation*. London; New York (N.Y.): Routledge, 2018.
- [9] I. Poullos, "Discussing strategy in heritage conservation Living heritage approach as an example of strategic innovation," *Journal of Cultural Heritage Management and Sustainable Development*, vol. 4, no. 1, pp. 17–24, 2014.
- [10] K. Miura, "Conservation of a 'living heritage site' A contradiction in terms? A case study of Angkor World Heritage Site," *Conservation and Management of Archaeological Sites*, vol. 7, no. 1, pp. 3–18, Jan. 2005.
- [11] R. Robertson, "Time-space and homogeneity-heterogeneity," in *Global Modernities*, M. Featherstone, S. Lash, and R. Robertson, Eds. Thousand Oaks, London: Sage Publications, 1995, pp. 25–44.
- [12] B. E. van Vucht Tijssen, "Linking Universal and Local Values: Managing a Sustainable Future for World Heritage," in *Netherlands National Commission for UNESCO, in Collaboration with the Netherlands Ministry of Education, Culture and Science*, Netherland, 2004, pp. 11–13.
- [13] F. Matero, "Exploring conservation strategies for ancestral puebloan sites: Tsankawi, Bandelier National Monument, New Mexico," *Conservation and Management of Archaeological Sites*, vol. 6, no. 2, pp. 67–84, Jan. 2004.
- [14] G. Wijesuriya, "The past is in the present Perspectives In Caring For Buddhist heritage sites In Sri Lanka," in *ICCROM 2003 forum on Living Religious Heritage: conserving the sacred*, 2005, vol. 3, pp. 31–34.
- [15] A. Riegl, "The Modern Cult of Monuments: Its Characteristics and its Origin," *A Journal for Ideas and Criticism in Architecture*, vol. 25, no. Fall, pp. 21–51, 1982.
- [16] C. Ahmer, "Riegl's 'Modern Cult of Monuments' as a theory underpinning practical conservation and restoration work," *Journal of Architectural Conservation*, pp. 1–16, Mar. 2020.
- [17] C Greig Crysler, C. Greig, S. Cairns, and H. Heynen, *The SAGE handbook of architectural theory*. London: Sage, 2012.
- [18] P. Oliver, *Built to meet needs: cultural issues in vernacular architecture*. Amsterdam: Elsevier, 2006.
- [19] H. Nooraddin, "Mediterranean and Southeast Asia," in *Encyclopedia of Vernacular Architecture of the World*, Cambridge, United Kingdom: University of Cambridge, 1997, p. 1590.
- [20] G. Westheim, S. Fitz, and M. J. Foot, "Values and Artifact," in *Rational Decision-making in the Preservation of Cultural Property*, Berlin, Germany: Dahlem University Press, 2001, pp. 211–222.
- [21] G. Urbani, "The science and art of conservation of cultural property," in *historical and Philosophical Issues in the Conservation of Cultural Heritage*, Los Angeles, United States: The Getty Conservation Institute, 1996, pp. 445–450.
- [22] E. Avrami, R. Mason, and M. de la Torre, "Values and Heritage Conservation," Getty Conservation Institute, Los Angeles, CA, 2000.
- [23] M. Clavir, *Preserving what is valued: museums, conservation, and First Nations*. Vancouver: Ubc Press, 2002.
- [24] S. Muñoz Viñas, "Contemporary theory of conservation," *Reviews in Conservation*, vol. 3, no. 1, pp. 25–32, 2002.
- [25] R. Anyon and R. Layton, "Conflict in the Archaeology of Living Traditions," *Ethnohistory*, vol. 44, no. 2, p. 389, 1997.
- [26] K. Emerick, "The Conservation and Presentation of Ancient Monuments From 1882 to the Present," PhD Thesis, University of York, 2003. Accessed: Sep. 17, 2022.
- [27] M. S. T. T. Del and S. K. Tabrizi, "A methodological assessment of the importance of physical values in architectural conservation using Shannon entropy method," *Journal of Cultural Heritage*, vol. 44, no. July-August 2020, Feb. 2020.

-
- [28] ICOMOS, "International Charter for the Conservation and Restoration of Monuments and Sites (THE VENICE CHARTER 1964)," *ICOMOS*, 1965.
- [29] X. Yiran, "Living Heritage Conservation: from commodity-oriented renewal to culture-oriented and people-centred revival," in *The 18th International Planning History Society Conference*, Yokohama, Jul. 2018, vol. 18, pp. 1–4.
- [30] I. Maticic, "Specific Characteristics of the Tangible Cultural Heritage Valuation Process In Tourism," *Acta Turistica*, vol. 28, no. 1, pp. 76–81, 2016.
- [31] G. Wijesuriya, "Living Heritage," in *Sharing Conservation Decisions: Current Issues and Future Strategies*, Italy: ICCROM, 2018, pp. 43–55.
- [32] M. Istasse, *Living in a World Heritage site : ethnography of houses and daily life in the Fez Medina*. Cham, Switzerland: Palgrave Macmillan, 2019.
- [33] S. Court and G. Wijesuriya, "People-Centred Approaches to the Conservation of Cultural Heritage: Living Heritage," *ICCROM*, Apr. 10, 2015. <https://www.iccrom.org/publication/people-centred-approaches-conservation-cultural-heritage-living-heritage> (accessed Dec. 06, 2022).
- [34] R. Mason, "Assessing Values in Conservation Planning: Methodological Issues and Choices," The Getty Conservation Institute, Los Angeles, 2002. Accessed: Oct. 01, 2021.
- [35] K. Stovel and S. Warrack, "Living Heritage Sites Programme," in *First Strategy Meeting, SPAFA headquarters*, Bangkok, 2003, vol. September 2003: Summary Report.
- [36] A. Sedky, *Living With Heritage in Cairo: Area Conservation in the Arab–Islamic City*, 1st ed. Cairo: The American University in Cairo Press, 2009, pp. 61–70.
- [37] M. De la Torre, "Assessing the Values of Cultural Heritage: Research Report," 2002. Accessed: Oct. 01, 2021.
- [38] UNESCO, "Operational Guidelines for the Implementation of the World Heritage Convention," *World Heritage Centre*, Paris, Jul. 2019. Accessed: Dec. 09, 2022.
- [39] R. N. Forthofer, Eun Sul Lee, and M. Hernandez, *Biostatistics: a guide to design, analysis, and discovery*. Amsterdam; Boston: Elsevier Academic Press, 2007.
- [40] T. A. Williams and D. J. Sweeney, "Statistics | science," *Encyclopædia Britannica*. Feb. 25, 2019.
- [41] R. M. Al_airaji, I. A. Aljazeera, and S. K. Al_dulaimi, "Generation of high dynamic range for enhancing the panorama environment," *Bulletin of Electrical Engineering and Informatics*, Article vol. 10, no. 1, pp. 138-147, 2021, doi: 10.11591/eei.v10i1.2362.
- [42] N. A. jassim, and H. Salim, "Design and Implementation of Smart City Applications Based on the Internet of Things," *iJIM*, vol. 15, no. 3, 2021.
- [43] S. McCombes, "Sampling Methods | Types and Techniques Explained," *Scribbr*, Sep. 19, 2019.