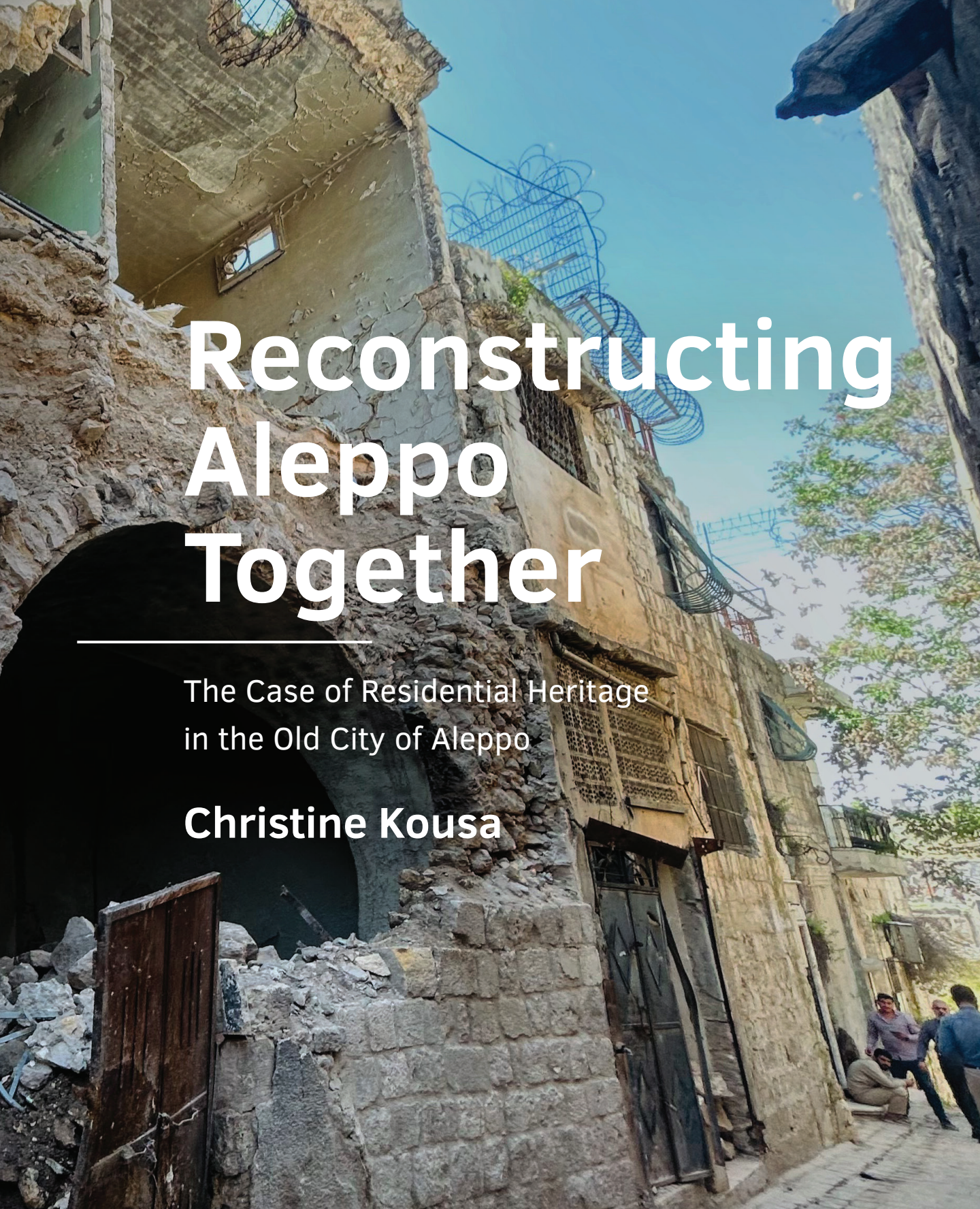

Reconstructing Aleppo Together

The Case of Residential Heritage in the Old City of Aleppo

Christine Kousa

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TOC

A+BE | Architecture and the Built Environment | TU Delft BK

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Design | Sirene Ontwerpers, Véro Crickx

Cover photo | A photograph by Christine Kousa captures residential buildings in the Old City of Aleppo, showcasing the layers of history etched into its stone walls. Broken windows and remnants of rooms cling to the façade, bearing the visible scars of war. Despite the damage, the enduring signs of everyday life can still be seen.

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TOC

Reconstructing Aleppo Together

The Case of Residential Heritage in the Old City of Aleppo

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at Delft University of Technology
by the authority of the Rector Magnificus, prof.dr.ir. H. Bijl
chair of the Board for Doctorates
to be defended publicly on
Thursday, 12 March 2026 at 17:30

by

Christine KOUSA

TOC

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Preface

In 2012, on the day before my final exam in the Master's programme on Rehabilitation of Historical and Islamic Cities at the Faculty of Architectural Engineering, University of Aleppo, I prepared a presentation about interventions in the Traditional Arab City. While finalising my presentation, I heard clashes and shelling. News quickly spread on social media, with Facebook being the primary platform at that time, about the onset of conflicts in the Old City of Aleppo; after clashes in the vicinity, a blaze swept through the Old Souk (medieval covered market). During shock and sorrow, I felt obliged to continue my work and decided to add a section addressing the fire in the traditional markets.

The next day, I took the exam and was the only student who mentioned the market fire, earning appreciation from everyone. At that moment, I decided that my master's thesis would focus on the reconstruction of the Old City of Aleppo, and indeed, my work became the earliest Master's thesis written in Syria (specifically, at the University of Aleppo) that clearly addresses the destruction caused by the Syrian war and discusses the potential approaches for reconstruction of public/historic buildings, titled "Reconstruction of Historical Buildings in Old Aleppo City: Public Buildings as a Case Study." (Kousa, 2015). Despite not being used to the sounds of conflict and shelling at that time, that experience later became a part of our life and lifestyle.

At that moment, Aleppo was divided into two parts: the western and the eastern. A pedestrian crossing point was established, allowing limited and intermittent movement of people, goods, and products. I lived in Western Aleppo amidst a blockade that continued for thirteen months. There was a severe shortage or complete absence of electricity, water, food, and communication services. This isolation resulted in a significant increase in living costs. The eastern part, including the Old City of Aleppo, was largely militarised.

The division of the city and the military operations not only disrupted daily life but also led to the destruction and neglect of the iconic heritage (e.g. the Great Mosque of Aleppo, old market, etc.), and the ordinary residential heritage (the traditional courtyard houses) dating back thousands of years. The same counts for the modern residential heritage, and although it is not the scope of this thesis, it is an essential part of Aleppo and was affected by the Syrian war as well.

Beyond the physical destruction, no one seemed to care about the victims or the families who lost their loved ones. There was no concern for the displaced individuals who lost their houses and became homeless in just a matter of moments, and our needs were ignored.

Therefore, this thesis seeks to find a way to assist residents to play a more active and aware role in maintaining, adapting, and modernising their traditional courtyard houses, and support the hope for the population's return, especially after December 8, 2024, and hopefully the conclusion of the Syrian war.

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Acknowledgments

Despite the war, the distance, and the many moments when I doubted this research could ever be completed, here we are.

This thesis stands as a testament to resilience, love, and the unwavering support of those who believed in me when everything around us seemed impossible.

I would like to express my deepest gratitude to my supervisory team, Prof. Dr.-Ing. Uta Pottgiesser and Dr. Ir. Barbara Lubelli, for their invaluable guidance, constant support, and inspiring mentorship throughout this journey.

My heartfelt thanks go to Prof. Dr.-Ing. Salman Ajib, who first believed in my potential, supported me from the very beginning and served as the bridge that made my academic path possible.

I am deeply thankful to the Katholischer Akademischer Ausländer Dienst (KAAD), the Gerda Henkel Stiftung “Patrimonies”, and the Graduiertenzentrum OWL for their generous financial and institutional support, without which this research would not have been possible.

I also wish to thank my colleagues at the Section for Heritage and Architecture (H&A) at TU Delft and the Institute for Design Strategies (IDS) at TH OWL, Abeer, Alvaro, Anica, Hedieh, Marcel, and Victoria, for their collaboration, valuable insights, and for creating a genuine sense of academic community that made this experience so meaningful.

To my mother, Samar Habash, whose wisdom, sacrifice, and boundless love have shaped who I am, to my husband, Rami Shakour, whose quiet strength and unwavering patience anchored me through moments of doubt and fatigue, and to my daughter, Daniella, whose laughter turned exhaustion into joy. This journey, with all its trials and triumphs, is ours.

Finally, this work is lovingly dedicated to the memory of my father, Zuhair Kousa, and my grandfather, Faiz Habash, two extraordinary men whose kindness and integrity continue to guide and inspire me every day.

TOC

TOC

Contents

List of Tables

List of Figures

Glossary

These terms have been used in the entire thesis according to the following definitions.

- **Co-creation** – A collaborative process in which multiple stakeholders, such as researchers, community members, and policymakers, actively contribute their knowledge, expertise, and ideas to design solutions, knowledge, or services jointly. It emphasises equal partnership and shared power (Waller, 2017).

- **Co-diagnostic** – The first phase of the co-creation process, in which the problems or needs of a specific context are identified and analysed jointly.

- **Co-design** – The second phase of the co-creation process, in which solutions, based on identified common needs, are developed jointly.

- **Co-implementation** – The third phase of the co-creation process, in which well-informed solutions are executed jointly.

- **Co-monitoring** – The fourth phase of the co-creation process, in which the progress of the co-creation process and its outcomes are evaluated jointly.

- **Conservation** – All the processes of looking after a historic building to retain its cultural significance; an umbrella term, which includes actions such as preservation, rehabilitation, restoration, and reconstruction.

- **Courtyard House** – A traditional residential building common in Arab cities, usually consisting of one or two floors, featuring simple exterior façades and richly decorated interiors. The house is organised around an internal open courtyard (sahn) and often includes an iwan (a vaulted hall opening onto the courtyard) (Osou, 2012).

- **Intervention** – The term includes all the man-made actions applied to a historic building to ensure its survival over time. An intervention may range from repair, preservation, restoration, rehabilitation, minimal addition or modification to full-scale reconstruction (Feilden and Jokilehto, 1998; Lin et al., 2023).

- **Participation** – The process by which stakeholders take part in decision-making, planning, implementation, or evaluation activities (Arnstein, 2019).

- **Preservation** – An intervention aiming at maintaining a historic building in its existing state and retarding its deterioration (Croft and Macdonald, 2019).

- **Reconstruction** – An intervention aiming at the restitution of destroyed or severely damaged historic buildings based on historical documentation. Reconstruction may include improvements to remediate problematic situations, adaptation of the building to new living requirements, and/or enhancement of the setting of what has survived (ICOMOS, 1964, 2017).

- **Rehabilitation** – An intervention aiming at fixing and improving a historic building within its present functions or directed toward new functions. This also includes related essential infrastructure improvements, such as water, electricity, and transportation (Windelberg, J.; Kelzieh, T.; Hallaj, 2001).

- **Repair** – An intervention at returning dislodged parts to their original location and replacing any decayed or lost material with new material (Croft and Macdonald, 2019).

- **Restoration** – An intervention aiming at returning a historic building to a known earlier state by removing alterations or by reassembling existing elements, working from actual evidence and respecting original materials (ICOMOS, 1964).

- **Socio-cultural sustainability in housing** – One of the sustainability dimensions focusing on providing affordable, safe, and healthy homes to people. It supports diverse communities, respects cultural traditions and ways of life, and helps people live with dignity. It focuses on creating inclusive neighbourhoods where everyone can participate, feel secure, and access the services they need, both now and in the future (UN Habitat, 2012).

- **Stakeholder** – People who have a direct or indirect interest in, or who affect or are affected by, the implementation and outcome of interventions (International Federation of Red Cross and Red Crescent Societies (IFRC), 2010).

- **Sustainable Reconstruction** – "The medium- and long-term rebuilding and sustainable restoration of resilient critical infrastructures, services, housing, facilities and livelihoods required for the full functioning of a community or a society affected by a disaster, aligning with the principles of sustainable development and "build back better", to avoid or reduce future disaster risk" (UN Secretary-General, 2016).

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TOC

Summary

The Syrian war has caused extensive destruction to the country's architectural heritage, resulting in a significant loss of history, collective memory, and cultural identity. This war has also displaced millions of Syrians and forced them to flee or seek refuge elsewhere. Among the areas most severely affected is the Old City of Aleppo, which is not only Syria's oldest city but also one of the longest continuously inhabited urban settlements in the world. Reconstructing its historic residential fabric is not only a critical technical challenge but also a cultural necessity, as it represents a crucial step towards stabilising the collective memory and giving continuity to the city's residents, and towards providing functional living space to original and new residents.

Despite this urgency, most studies on post-war reconstruction of Aleppo have focused on selected monuments while overlooking traditional residential heritage, which plays a crucial role in ensuring a sense of security, belonging, stability, and identity for the residents. To address this gap, this research investigates the current condition of traditional courtyard houses and analyses the legal, administrative, social, and economic aspects that affect the reconstruction process. It aims to develop a participatory, residents-based approach to the reconstruction of residential heritage in the Old City of Aleppo.

To pursue this aim, the research starts with an empirical investigation of the traditional courtyard houses in the historic centre and the experiences of their residents. This includes a survey of the houses, followed by interviews and questionnaires with original residents and new occupants, aiming to understand their needs and the difficulties they face while planning and implementing reconstruction interventions on residential heritage after military activities in Aleppo City ceased (December 2016). (Chapter 2). The questionnaire shows that a lack of public services (e.g., electrical system, drinking water, waste management, transportation, etc.), strict licensing regulations, and costly and time-consuming procedures for obtaining licences are the main difficulties residents experience in post-war reconstruction. The interviews with residents indicate that these difficulties are exacerbated by a lack of awareness within the local community about the historic significance of the traditional courtyard houses. As a consequence, residents' interventions on houses are often limited to emergency repairs, executed without sufficient documentation and appropriate licences. Generally, interventions fail

to consider the historical significance of the residential heritage. This research shows the need to approach the post-Syrian-war reconstruction in a different and more sustainable way and to address the reconstruction of residential heritage in its complexity, while integrating general conservation principles: this means considering the needs of the residents, the houses' historic significance, and also social, economic, administrative, and legal constraints. For example, administrative procedures (e.g., licensing) and policies prove to be one of the limitations to sustainable reconstruction.

While residents' perspectives reveal the administrative obstacles and the urgency of sustainable and inclusive reconstruction, it is also important to get a clear background on the Syrian policies concerning residential heritage in the Old City of Aleppo and their implementations. To do so, an extensive review of the policy documents regulating interventions on residential heritage is carried out. Besides, an analysis of case studies is conducted to assess the actual implementation of these policies, and Syrian experts in the field of architecture, archaeology, and conservation of historic cities are interviewed (Chapter 3). This study shows that generally, policies are not flexible enough to accommodate the needs of the residents, a finding confirmed by the interviews. Besides, it emerges that little information is available about the residents' needs, and that there is no inventory of the state of the residential heritage after the Syrian war. The interviews with experts show that those implementing the interventions are often young and inexperienced in the technical, historical, and legal aspects of the reconstruction procedures; additionally, a lack of experienced craftsmanship is reported. The difficult economic situations and the absence of people's participation make the reconstruction process even more challenging. Based on these findings, some proposals for improvement are made; these include adopting flexible policies and enhancing the quality of interventions.

To enhance this local analysis and to define more detailed strategies, international policy documents and practices from comparable post-war contexts are reviewed (Chapter 4). Several approaches are identified which, with suitable adaptation, could be beneficial when addressing the reconstruction process of residential heritage in the Old City of Aleppo. These include improving the administrative process (e.g., simplified and faster licensing procedure) and developing education and training programmes for both residents and professionals. In particular, residents' participation in decision-making through participatory planning emerges as a crucial element to enhance the sense of belonging and to create employment prospects. Similarly, the partnership between local communities and international organisations, along with external financing support, plays a relevant role in post-war reconstruction in other international contexts.

Together, these local and international findings motivated an in-depth analysis of how local stakeholders can be effectively engaged in reconstruction efforts. The analysis of the specific situation in Aleppo (Chapters 2 and 3) and of international approaches (Chapter 4) both suggest that activating local stakeholders, such as architects, residents, and craftsmen, contributes to a more socially sustainable reconstruction of the residential heritage in the Old City of Aleppo. Building on these findings, in Chapter 5, recent international programmes enabling education and co-creation are critically analysed to extract those elements, in terms of methodology, teaching/participatory methods, which, suitably adapted to the local situation, contribute to a novel participative approach to the reconstruction of the residential heritage in the Old City of Aleppo. As result, a new educational programme is proposed, focusing on raising awareness and empowering residents. This novel programme foresees the active engagement of the residents through several participatory methods (e.g. walkthrough, photovoice, brainstorming, gaming, etc.) with different levels of engagement (inform, consult, involve, collaborate, and empower). Through such a programme residents are engaged in playing an active role in the different phases (co-diagnostic, co-design, co-implementation, and co-monitoring) of the post-war reconstruction process of their residential heritage.

TOC

Samenvatting

De Syrische oorlog heeft grootschalige vernietiging veroorzaakt van het architecturaal erfgoed van het land, wat heeft geleid tot een aanzienlijk verlies van geschiedenis, collectief geheugen en culturele identiteit. Deze oorlog heeft ook miljoenen Syriërs ontheemd en gedwongen om te vluchten of elders onderdak te zoeken. Eén van de zwaarst getroffen gebieden is de Oude Stad van Aleppo, die niet alleen de oudste stad van Syrië is, maar ook een van de langst continu bewoonde stedelijke nederzettingen ter wereld. Het reconstrueren van haar historische woonweefsel is niet alleen een kritieke technische uitdaging, maar ook een culturele noodzaak. Het vormt een cruciale stap richting het stabiliseren van het collectieve geheugen, het waarborgen van continuïteit voor de inwoners van de stad en het bieden van functionele woonruimte aan zowel oorspronkelijke als nieuwe bewoners.

Ondanks deze urgentie hebben de meeste studies over de naoorlogse wederopbouw van Aleppo zich gericht op geselecteerde monumenten, terwijl het traditionele woonerfgoed over het hoofd wordt gezien. Dit erfgoed speelt juist een cruciale rol bij het waarborgen van een gevoel van veiligheid, verbondenheid, stabiliteit en identiteit voor de bewoners. Om deze leemte te overbruggen, richt dit onderzoek zich op de huidige staat van traditionele binnenplaatswoningen en analyseert het de juridische, administratieve, sociale en economische factoren die het wederopbouwproces beïnvloeden. Het heeft als doel een participatieve, op bewoners gebaseerde benadering te ontwikkelen voor de reconstructie van het woonerfgoed in de Oude Stad van Aleppo.

Om dit doel na te streven, begint het onderzoek met een empirisch onderzoek van de traditionele hofwoningen in het historische centrum en de ervaringen van hun bewoners. Dit omvat een huisenquête, gevolgd door interviews en vragenlijsten met zowel oorspronkelijke als nieuwe bewoners. Het doel is om hun behoeften en de moeilijkheden te begrijpen waarmee zij worden geconfronteerd bij het plannen en uitvoeren van reconstructie-ingrepen aan het woonerfgoed nadat de militaire activiteiten in de stad Aleppo waren stopgezet (December 2016) (Hoofdstuk 2). De vragenlijst laat zien dat een gebrek aan openbare voorzieningen (bv. elektriciteit, drinkwater, afvalbeheer, vervoer, etc.), strikte vergunningenregels en kostbare en tijdrovende procedures voor het verkrijgen van vergunningen de belangrijkste moeilijkheden zijn die bewoners ervaren in de naoorlogse reconstructie. De interviews met bewoners geven aan dat deze moeilijkheden worden verergerd door

een gebrek aan bewustzijn binnen de lokale gemeenschap over de historische betekenis van de traditionele hofwoningen. Daardoor blijven ingrepen van bewoners aan de woningen vaak beperkt tot noodreparaties, uitgevoerd zonder voldoende documentatie en passende vergunningen. Over het algemeen houden ingrepen geen rekening met de historische betekenis van het woonerfgoed. Dit onderzoek toont de noodzaak aan om de naoorlogse wederopbouw in Syrië op een andere en duurzamere wijze te benaderen, en de reconstructie van woonerfgoed in al zijn complexiteit aan te pakken. Daarbij worden algemene conserveringsprincipes geïntegreerd, wat betekent dat rekening wordt gehouden met de behoeften van bewoners, de historische betekenis van de woningen, én met sociale, economische, administratieve en juridische randvoorwaarden. Bijvoorbeeld de administratieve procedures (bv. vergunningverlening) en beleidsmaatregelen blijken één van de beperkingen voor duurzame reconstructie.

Hoewel de perspectieven van bewoners de administratieve obstakels en de urgentie van een duurzame en inclusieve reconstructie onthullen, is het ook belangrijk om duidelijk inzicht te krijgen in het Syrische beleid met betrekking tot woonerfgoed in de Oude Stad van Aleppo en de uitvoering ervan. Hiervoor is een uitgebreide review uitgevoerd van de beleidsdocumenten die ingrepen aan woonerfgoed reguleren. Daarnaast is een analyse gemaakt van gevalstudies om de feitelijke uitvoering van deze beleidsmaatregelen te beoordelen, en zijn Syrische experts op het gebied van architectuur, archeologie en bescherming van historische steden geïnterviewd (Hoofdstuk 3). Dit onderzoek toont aan dat het beleid over het algemeen onvoldoende flexibel is om in de behoeften van bewoners te voorzien; deze conclusie wordt bevestigd door de interviews. Daarnaast blijkt dat weinig informatie beschikbaar is over de behoeften van bewoners, en dat er geen inventaris bestaat van de toestand van het woonerfgoed na de Syrische oorlog. De interviews met experts laten zien dat degenen die de ingrepen uitvoeren vaak jong en onervaren zijn in technische, historische en juridische aspecten van de reconstructieprocedures; daarnaast wordt een gebrek aan ervaren vaklieden gerapporteerd. De moeilijke economische situatie en het ontbreken van participatie van bewoners maken het reconstructieproces nog uitdagender. Op basis van deze bevindingen worden enkele verbeteringsvoorstellen gedaan; deze omvatten onder andere het aannemen van flexibeler beleid en het verbeteren van de kwaliteit van ingrepen.

Om deze lokale analyse te versterken en meer gedetailleerde strategieën te definiëren, worden internationale beleidsdocumenten en praktijken uit vergelijkbare naoorlogse contexten onderzocht (Hoofdstuk 4). Er worden verschillende benaderingen geïdentificeerd die, mits goed aangepast. van nut kunnen zijn bij het aanpakken van het reconstructieproces van woonerfgoed in de Oude Stad van Aleppo. Deze omvatten het verbeteren van het administratieve proces (bv.

vereenvoudigde en versnelde vergunningverlening) en het ontwikkelen van onderwijs- en trainingsprogramma's voor zowel bewoners als professionals. In het bijzonder blijkt dat de participatie van bewoners in besluitvorming via participatieve planning een cruciale factor is om het gevoel van verbondenheid te versterken en werkgelegenheidskansen te scheppen. Evenzo speelt de samenwerking tussen lokale gemeenschappen en internationale organisaties, samen met externe financiering, een relevante rol in naoorlogse econstructie in andere internationale contexten.

Gezamenlijk hebben deze lokale en internationale bevindingen geleid tot een diepgaande analyse van de manier waarop lokale belanghebbenden effectief kunnen worden betrokken bij de reconstructie inspanningen. De analyse van de specifieke situatie in Aleppo (Hoofdstukken 2 en 3) en van internationale benaderingen (Hoofdstuk 4) suggereert dat het betrekken van lokale belanghebbenden, zoals architecten, bewoners en vaklieden, bijdraagt aan een sociaal duurzamere reconstructie van het woonerfgoed in de Oude Stad van Aleppo. Gebaseerd op deze bevindingen wordt in Hoofdstuk 5 een kritische analyse uitgevoerd van recente internationale programma's die onderwijs en co-creatie mogelijk maken. Daarbij worden die elementen geïdentificeerd die, in termen van methodologie, onderwijsmethoden en participatieve methoden, na aanpassing aan de lokale situatie, kunnen bijdragen aan een nieuwe participatieve benadering van de reconstructie van het woonerfgoed in de Oude Stad van Aleppo. Als resultaat wordt een nieuw onderwijsprogramma voorgesteld, gericht op het vergroten van het bewustzijn en het versterken van bewoners. Dit vernieuwende programma voorziet in de actieve betrokkenheid van bewoners via verschillende participatieve methoden. (bv. walkthrough, photovoice, brainstormen, gamen etc.) met verschillende niveaus van betrokkenheid (informeren, raadplegen, betrekken, samenwerken, en machtigen). Door een dergelijk programma worden bewoners actief betrokken in verschillende fasen (co-diagnose, co-ontwerp, co-implementatie en co-monitoring) van het naoorlogse reconstructieproces van hun woonerfgoed.

1 Introduction

1.1 Research Background

The history of the city

Aleppo, located in the northwestern part of Syria, is one of the oldest continuously inhabited cities in the world. Its historical centre expanded through six major periods: the Roman-Hellenistic period (64 BC–395 AD), the Byzantine period (395–636 AD), the Umayyad, Abbasid, and Hamdanid dynasties (end of the 11th century), the Seleucids, Crusaders, Zangid and Ayyubid dynasties (mid-13th century), the Mameluke dynasty (beginning of the 16th century), and the Ottoman Empire (19th century) (Figure 1.1) (Sauvaget, 1941; Hadjar, 2006). The succession of these periods has left a layered urban fabric and a unique architectural heritage that reflects the city's cultural diversity and historical significance (Figure 1.2). Owing to this outstanding universal value, the Old City of Aleppo, within its ancient city wall, was inscribed as a historic urban site in the World Heritage List in 1978. This was followed by the inscription of the northern part in 1983, and subsequently the eastern section in 1986 (Figure 1.3). As a result, its boundaries were formally defined, and the entire Old City of Aleppo, which covers more than 350 hectares (Fischer, M.; Gangler, 2012), including the residential areas, was designated as a UNESCO World Heritage Site (Gaube, H. and Wirth, 2007) (UNESCO World Heritage Centre, 2008, 2014). This international recognition laid the groundwork for later conservation efforts, particularly the launch of the Rehabilitation of the Old City of Aleppo project as a joint Syrian–German initiative between 1992 and 2011 (Vincent, 2004).

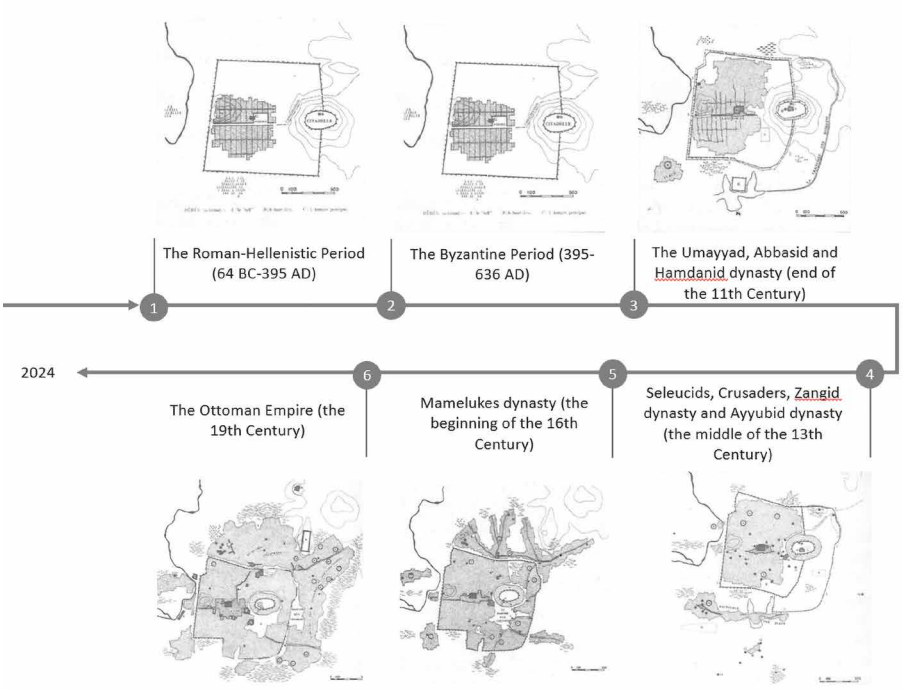

FIG. 1.1 The growth of the Old City of Aleppo and its historical layers throughout the different periods. (Hadjar, 2006).

FIG. 1.2 Left to right: the entrance of the Aleppo Citadel, the minaret of the Great Umayyad Mosque, and narrow alleyways in the Old City of Aleppo before the Syrian war.

TOC

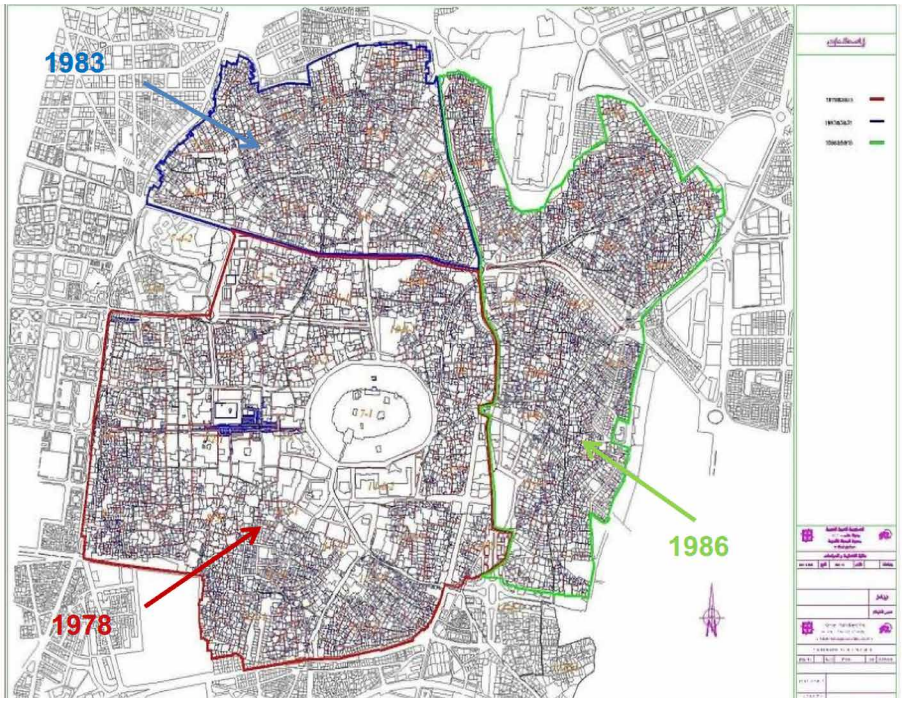

FIG. 1.3 Stages of the inscription of the historic fabric of the Old City of Aleppo on the World Heritage List 1978-1986. Adapted by the Author

Traditional courtyard houses

A distinctive feature of Aleppo's historic urban fabric is its traditional courtyard houses, which account for the majority of the city's 16,000 buildings (Windelberg, J.; Kelzieh, T.; Hallaj, 2001). The traditional courtyard house is the only type of historical residential buildings in the Old City of Aleppo. These houses are organised around an internal courtyard and often incorporate a space known as the *iwan*, an open vaulted space used for seating and social interaction. These houses comprise one or two floors, featuring a design marked by the simplicity of the external façades and the rich decoration of the internal façades (Figure 1.4). The buildings vary in size and historic significance. They have been classified according to size (Figure 1.5) into small housing (Type 1), medium (Type 2), large (Type 3), and palaces (Type 4) (David, 1975; Haretani, 2005b), or according to their historic significance into important historic residences, historically valuable houses, houses with historically valuable architectural features, and houses without historical importance (GTZ, 1999; Windelberg, J.; Kelzieh, T.; Hallaj, 2001).

FIG. 1.4 Left to right: Alleys and simple external façades in the residential neighbourhoods and the richly ornamented internal façade of Jumblatt's courtyard house (iwan and fountain).

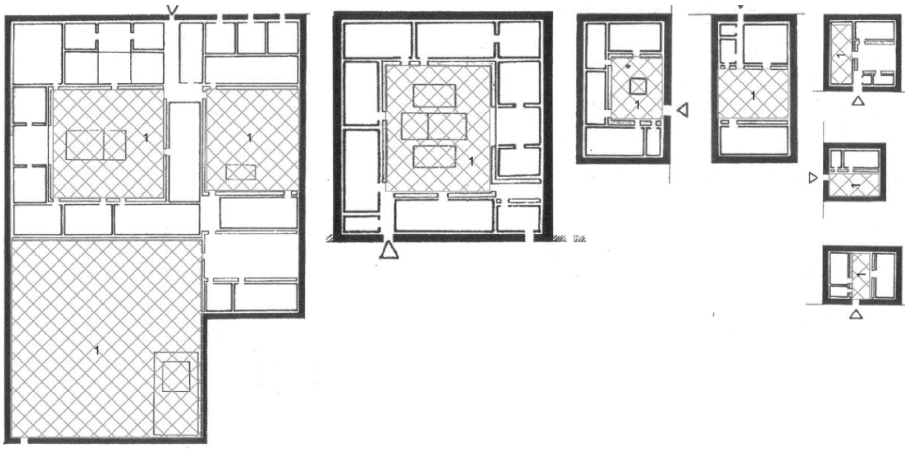

FIG. 1.5 Left to right: The basic types of traditional courtyard (1) housing according size: Palaces (Type 4), Large housing (Type 3), Intermediate housing (Type 2), and Small housing (Type 1). (Haretani, 2005b).

TOC

War and destruction

Following the Arab Spring protests in March 2011 the Old City of Aleppo experienced the most difficult period in its history which escalated into a brutal civil war in July 2012. A lively and densely populated city became a battleground until December 2016. Its infrastructure and hundreds of historically significant residential, religious, and commercial buildings were destroyed or heavily damaged, leading UNESCO to list the Old City of Aleppo as a World Heritage site in danger in 2013 (Hinz, H.M. and Richard, A., 2013). Initial documentation in 2014, based on satellite images, revealed extensive destruction (UNITAR (United Nations Institute for Training and Research), 2014). By 2016, surveys reported damage to 518 cadastral-plotted buildings, with most courtyard houses severely affected (UNESCO and UNITAR, 2018). A 2017 damage assessment confirmed that of the 15,410 buildings, one-fifth were destroyed, three-fifths had severe structural damage, and only one-fifth remained without structural damage (Figures 1.6 and 1.7) (Kousa and Pottgiesser, 2019). Beyond the physical destruction, most of the residents in the Old City of Aleppo were forced to abandon their houses and relocate somewhere else. The population dropped from 586,000 in 2011 to around 128,000 at the end of 2014 (UN-HABITAT, 2014). More recently, the 2023 heavy earthquake further worsened the situation, damaging already fragile historical buildings and infrastructure, and intensifying the challenges of reconstructing the courtyard houses.

To summarise, the large-scale destruction caused by the Syrian war and the recent earthquake has severely damaged the urban fabric of the Old City of Aleppo, threatening both its historical identity and its social cohesion. In this context, sustainable post-war reconstruction of its architectural heritage remains a complex challenge, despite the increasing attention and local and international attempts to effectively address this problem (Figures 1.8). For example, rehabilitation, as carried out with GTZ's initiatives before the Syrian war, and restoration according to the licensing procedure prescribed by the Syrian law, were proven to be inadequate in the context of the post-Syrian war situation, as shown by the many traditional courtyard houses which are still unusable.

FIG. 1.6 Destruction of residential neighbourhoods in the Old City of Aleppo in 2017.

FIG. 1.7 Level of destruction in the Old City of Aleppo. From left to right: destroyed buildings, buildings with severe structural damage, and buildings without structural damage. (Kousa and Pottgiesser, 2019).

FIG. 1.8 Drone imagery of the Old City of Aleppo shows large-scale destruction to its urban fabric. (SyriaTV, 2024).

TOC

1.2 Problem Definition

Surveys of Aleppo, conducted by the author before the Syrian war, revealed that many traditional courtyard houses, particularly those inhabited by low-income families, were in a severely deteriorated condition. This deterioration was exacerbated by shifts in lifestyles, declining family incomes, and limited government support. Efforts to regulate and guide interventions were initiated during the GTZ-led Rehabilitation of the Old City in the 1990s and ended in 2011, shortly before the start of the Syrian war. In this period, legal and administrative instruments were introduced, along with technical annexes to the Rehabilitation Fund, in line with the principles of the Venice Charter (ICOMOS, 1964). While these frameworks established internationally recognised standards, their practical implementation was limited and negligible compared to the size of the Old City of Aleppo, and the residents were often unable to comply with the formal requirements (GTZ, 1999; Windelberg, J.; Kelzieh, T.; Hallaj, 2001; Fischer, M.; Gangler, 2012; Osou, 2012).

Approximately nine years after the end of the heavy fighting in Aleppo in 2016, local and international reconstruction efforts in the Old City of Aleppo have mainly addressed monumental buildings with religious or commercial functions. Residential heritage continues to be largely neglected by official reconstruction measures (Fansa and Hajjar, 2020). On one hand, traditional courtyard houses were often subject to interventions and alterations by residents without proper licences or technical and legal guidance. On the other hand, although some residents are obtaining permits, the quality of these interventions is sub-optimal and often reflects a haphazard understanding of traditional building techniques (Chibli, 2024). Besides, based on the author's fieldwork and direct observations in the Old City of Aleppo, it became evident that those interventions were not in line with any guidelines for the conservation of historical buildings in Syria, such as the Syrian Law of Antiquities, Building Control System (Aleppo City Council, 1990, 2007, 2020; Syrian Arab Republic, 1999), or the Renovation and Restoration Guidelines (GTZ, 1999), in accordance with the principle of the Venice Charter. The interventions were and still are driven by the need to keep the buildings functional and to meet contemporary hygiene, communication, or design requirements. The absence of clear and coordinated efforts creates the risk that improvised interventions by individual residents could gradually become the accepted norm for conservation. UNESCO (UNESCO United Nations Educational Scientific and Cultural Organization, 2021) has already warned against this tendency, emphasising the urgent need for a comprehensive plan aligned with the 2011 Recommendation on the Historic Urban Landscape (UNESCO, 2011). Despite this consideration, specific strategies for the

sustainable reconstruction of the Old City of Aleppo's architectural heritage are still underdeveloped (UNESCO, 2019) as well as an all-encompassing approach that would bring together the different actions and initiatives under a single coordinated vision (Chibli, 2024). Without it, scattered and unregulated interventions on residential heritage may unintentionally cause long-term damage and might establish new standards on the ground that undermine sustainable reconstruction.

The gap between formal conservation instruments and the socio-economic realities of everyday life in post-war settings, as well as its limited good practical implementation, underscores the need for approaches that not only uphold international conservation standards but also respond to the realities of local communities and their ability to participate in conservation, and in particular in reconstruction.

1.3 Aim of the Research and Research Questions

The aim of this dissertation is to support the development of a participatory, residents-based approach to the reconstruction of residential heritage in the Old City of Aleppo, by integrating conservation principles, local knowledge, stakeholder engagement, and international insights. To achieve this main aim, the research takes subsequent steps, each addressing specific objectives.

The first phase of this research aims to clarify the factors related to the conservation, and in particular the reconstruction of the residential heritage in the Old City of Aleppo. This goal is pursued by: 1) investigating the condition of traditional courtyard houses in the Old City of Aleppo, 2) identifying the needs of the residents and the challenges they encounter in the reconstruction of their traditional houses, and 3) pointing out the limitations of current Syrian policies and licensing procedures.

The second phase of this work aims to get input from international post-war reconstruction examples, for the definition of legal, administrative, social, and educational approaches that, when suitably adapted, can support the sustainable reconstruction of the residential heritage in Aleppo.

Finally, based on the knowledge gained from examining both the local situation and the international examples, this work aims to develop proposals for an educational and participatory framework that empowers residents by intertwining participatory educational approaches with community engagement in the conservation of residential heritage, and in particular its reconstruction.

The main research question that this research aims to answer is:

— **How can the concept of socio-cultural sustainability be applied to the reconstruction of residential heritage in the Old City of Aleppo?**

To answer this main question, this research is designed around four sub-questions:

— **SQ1:** How is socio-cultural sustainability considered in interventions on residential heritage in the Old City of Aleppo carried out following the Syrian war? (Chapter 2)

— **SQ2:** What are the current Syrian policies concerning interventions in residential heritage in the Old City of Aleppo, and how do they consider socio-cultural sustainability? (Chapter 3)

— **SQ3:** Which socio-cultural sustainable approaches have been developed in theory and adopted in practice in the reconstruction of residential heritage internationally? (Chapter 4)

— **SQ4:** How can educational initiatives contribute to the reconstruction of residential heritage in the Old City of Aleppo, promoting socio-cultural sustainability? (Chapter 5)

1.4 Research Methodology

The research objectives have been addressed by several qualitative (literature review and interviews) and quantitative (survey and questionnaires) research methods, including:

1 Literature review

- Scientific literature: This included peer-reviewed journal articles, conference papers, academic books, doctoral theses, and research projects, related to the following topics: a. post-war situation in Aleppo and Syria, b. sustainability concepts and in particular socio-cultural sustainability and sustainable reconstruction of residential heritage, c. international examples of post-conflict reconstruction, and e. capacity-building and co-creation projects and courses related to heritage reconstruction and residential areas (ICCROM, ICOMOS, UNESCO, DAI, ERASMUS+, CBHE, CORDIS, and T-AP).

- Professional literature/policy documents: This included policy documents and framework referring to: a. Syrian policies and regulations concerning interventions on residential heritage in the Old City of Aleppo, and b. international guidance documents on the topic of post-disaster sustainable reconstruction of built heritage (UNESCO, ICOMOS, Council of Europe, OWHC, UN, and CEN).

- Gray literature and media: This included digital newspapers, websites and reports relevant to the topics mentioned in the preceding paragraph.

- Archival sources: This included consultation of archival documents from the Old City Directorate in Aleppo, related to the process of obtaining licences for the reconstruction or restoration of the residential heritage. These documents included licence applications and procedural records for reconstruction and restoration activities.

2 Data collection on-site

Data on the neighbourhoods of Al-Jalloum, Al-Farafra, and Al-Aqaba were collected on-site, in collaboration with students of the University of Aleppo and local stakeholders within the Directorate of the Old City, the Directorate of Antiquities and the Museums of Aleppo, in the period 2020-2023. Different methods were used, including:

- Survey of traditional courtyard houses and infrastructures in the neighbourhoods. The survey included taking notes and pictures of the conditions of the houses and making sketches.
- Questionnaires and interviews, on-site, with residents in the Old City of Aleppo to gather information about their needs and expectations regarding the conservation of their houses.
- Interviews, both on-site and online, with decision-makers from both academia and practice, to gain insight into the policy and its implementation process.

1.5 Thesis Structure

This thesis combines different peer-reviewed articles published in international journals, each of which constitutes a chapter, and reports the results of the different steps of the research (Figure 1.9).

- Chapter 1 introduces the doctoral research by providing the background, outlining the research problem, aims, and questions, as well as the structure of the dissertation.
- Chapter 2 reports a review of the post-Syrian war situation, including the damage assessment and residents' needs and interests. It highlights the main problems and factors that have affected the recent interventions in traditional courtyard houses in the Old City of Aleppo.
- Chapter 3 examines Syrian policies related to residential heritage in the Old City of Aleppo and their process of reconstruction and restoration, analysing specific cases and interviewing decision-makers from academia and practice. It highlights the main limitations of current policies and areas for improvement.

- After the analysis of the specific situation in Aleppo in Chapters 2 and 3, Chapter 4 reports a review of official international policy documents focused on sustainable reconstruction following disasters and wars. This chapter presents a comparative analysis of international contexts facing similar issues to inform how to address the situation in Aleppo.

- Chapter 5 starts from a review of projects and courses developed in the framework of international initiatives promoting cultural heritage conservation through education, building capacity, and co-creation, to come to a proposal of an educational programme developed for the specific case of residential heritage in the Old City of Aleppo.

- Chapter 6 summarises and discusses the main results, highlighting the key contributions of this research, including scientific advancements and societal impacts, as well as its limitations. It concludes with recommendations for future research aimed at heritage practitioners and decision-makers.

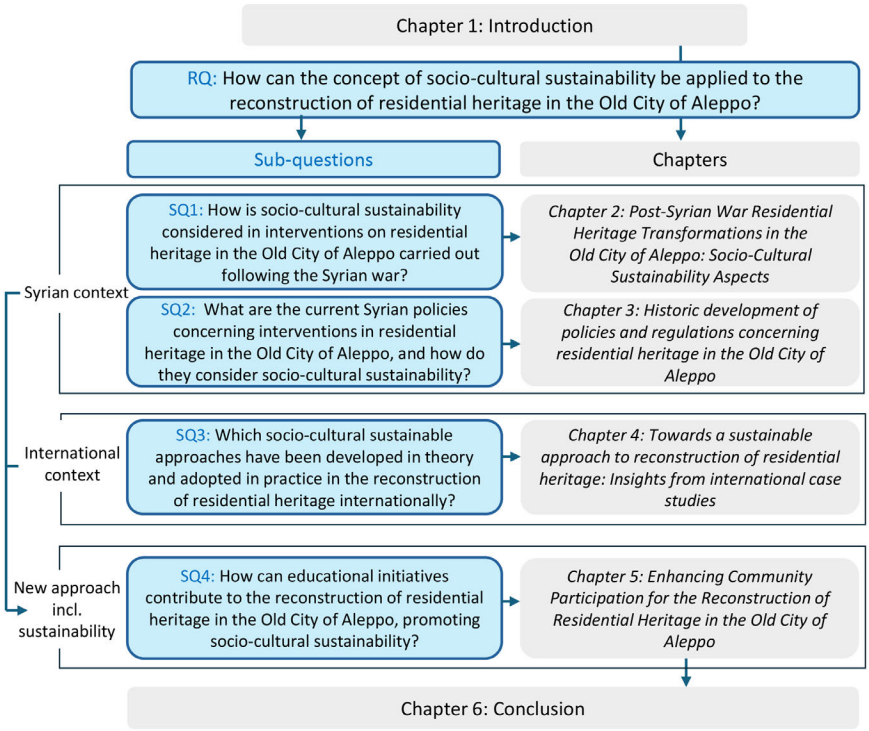

FIG. 1.9 Thesis outline.

TOC

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TOC

2 Post-Syrian-War Residential Heritage Transformations in the Old City of Aleppo

Socio-Cultural Sustainability Aspects

This chapter is a slightly modified version of the paper published in the Sustainability Journal:
Kousa, Christine, Pottgiesser, U., & Lubelli, B. (2021). Post-Syrian War Residential Heritage Transformations in the Old City of Aleppo: Socio-Cultural Sustainability Aspects. *Sustainability*, *13*(21). https://doi.org/10.3390/su132112213

ABSTRACT The reconstruction and sustainable transformation of the residential heritage in the Old City of Aleppo (Syria) is one of the most pressing issues to regain the livability of this city. This research paper aims to gain insight into the residents' conditions and needs by studying/mapping/analysing the status of residential heritage and the interventions on it during the aftermath of the city's devastation. It also intends to provide a better understanding of the residents' attitude towards living in the Old City, their expectations for its reconstruction and transformation, and the difficulties they encountered in the process. In fact, in order to start a collective reconstruction and transformation process, it is important to understand the readiness of the residents and their financial capabilities to engage in this process. A combination of research methods was used to explore the above-mentioned issues and their relation to the socio-cultural sustainability. These methods included: gathering data in the field (specifically, Al-Jalloum, Al-Farafra, and Al-Aqaba, three neighbourhoods in the Old City of Aleppo, were used as case studies), setting up a questionnaire (Winter 2020) and conducting interviews (Summer 2021) with 39 returnees and their families. AutoCAD and Excel programmes were used for data visualisation. This research has highlighted the main problems and factors that have affected the interventions on courtyard houses in the Old City of Aleppo since 2012, the outbreak of the Syrian-war in Aleppo City. Lack of funds and craftsmanship, high costs, and long bureaucratic procedures related to the enforcement of the regulations have been identified as the main causes that discouraged the residents from carrying out repairs in a proper way.

KEYWORDS post-Syrian-war; Old City of Aleppo; residential heritage; courtyard housing; socio-cultural sustainability; case study; questionnaire; interviews.

2.1 Introduction

2.1.1 Historic Background

In the 20th century, the traditional courtyard housing in the Old City of Aleppo was characterised by several phases of transformation. A first phase can be identified as starting in the middle of the 20th century; this phase was marked by negligence of maintenance and unregulated renovation of the housing, mainly due to the lack of regulations and a low awareness of the housing's artistic and historical significance. The last part of this period, in the 1970s and 1980s, was marked by urban chaos, with a large number of traditional courtyard houses being reused for commercial or tourism purposes (David, 1975).

The second phase of transformation began in the early 1990s, with the start of the Rehabilitation of the Old City of Aleppo project; in this phase, some regulations were enacted, and the interventions were supervised by local authorities. This phase was marked by a decrease in both traditional courtyard housing division and reuse for new purposes (Kourdi, 2003). At the beginning of the 21st century, in the years preceding the Syrian-war, some traditional courtyard houses were destroyed and replaced with modern high-rise apartment blocks. The traditional courtyard houses were often used by their old owners or their heirs; some traditional courtyard houses were rented out and used by middle- or low-income families, while some others were left unoccupied. Already before the Syrian-war, parts of the residential neighbourhoods were altered by modernisation of the traditional courtyard houses that affected the original, sustainable design of this traditional residential architecture (Haretani, 2005b; Osou, 2012). The living conditions of the residents in the Old City of Aleppo were sub-standard already before the war (Corsten, 1995; Windelberg, J.; Kelzieh, T.; Hallaj, 2001; Fischer, M.; Gangler, 2012). and became worse due to the Syrian-war (2012-2016). A survey of the Old City of Aleppo showed that traditional courtyard houses are under threat (UNESCO, 2017).

The third phase of transformation of the traditional courtyard housing includes both war and postwar reconstruction period (2012-2021). This paper focuses on this phase, with the objective of analysing the transformations and investigating the reasons behind them.

Between 2012 and 2016, Aleppo was the centre of the war between the opposition and the Syrian government. Due to this war, the damage to the buildings in the eastern part of the city, especially in the old city, was very large. According to UNESCO information, 70% of the buildings, especially the historical ones, were damaged, and some of them were destroyed along with the land around them. The destruction affected 60% of the markets, including many caravanserais, mosques and residences (UNESCO, 2017). The devastation of the built cultural heritage was so extensive that the Old City has been placed on the list of endangered world heritage sites (Hinz, H.M. and Richard, A., 2013).

With the end of the heavy fighting in Aleppo in December 2016, people started to return to their houses. At this moment, the question arises about what should be reconstructed and what efforts should be made to conserve the traditional courtyard housing. As the Old City of Aleppo has been registered on the World Heritage List in 1986, reconstruction is subject to UNESCO's instructions, and uncontrolled interventions on architectural heritage and historical buildings are prohibited. However, currently, no concept of how to deal with housing and the historical districts exists; all current policies are restricted only to monuments (Fansa and Hajjar, 2020). Besides, the ongoing reconstruction projects of monuments (e.g., markets, mosques, churches) are not implemented within the framework of a comprehensive strategic plan for the reconstruction of the Old City of Aleppo. As only the presence of residents ensures the sustainability of life in the Old City of Aleppo, it is important to take care of residential architecture and to encourage the return of the residents, next to the restoration work on the monuments.

2.1.2 Background on Sustainable Housing

The concept of sustainable development was introduced by the Brundtland Report of the World Commission on Environment and Development (WCED) in 1987: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"(United Nation General Assemby, 1987). The root of this concept is embodied in sustainable development as a multidimensional concept that links environmental protection with economic, social and cultural issues, with emphasis on the need for people to preserve the environment for future generations.

Housing is one of the basic social conditions that determine the quality of life and welfare of people and places (UN Habitat, 2012). Housing has been identified as an essential asset to the well-being and development of most societies, which is linked

to livelihood, health, education, security and social stability (Barakat, 2003; Harris and Arku, 2007). According to the Sustainable Development Goals (SDGs) access for all to adequate, safe and affordable housing and basic services, and upgrade slums should be ensured by 2030 (United Nation General Assemby, 2015).

Sustainable housing has been defined as housing that is economically viable, socially acceptable, technically feasible and environmentally compatible (Choguill, 2007). Different researchers compiled sustainability criteria for residential buildings based on environmental, economic and social performance (Choguill, 2007).

In this research, the focus is on the social and cultural sustainability. The concept of social and cultural sustainability of housing has been defined by the following points: 1. Affordability, dignity and resilience of housing; 2. Social and spatial justice; 3. Empowerment, participation and inclusion; 4. Social infrastructure and facilities; 5. Residence as a coping strategy; 6. Adaptable housing for present and future needs (UN Habitat, 2012; Ibem and Aduwo, 2015). Therefore, social sustainability of housing is not just about producing better quality houses and environments, but also about fostering community capacity, building bonds and trust between responsible leadership and citizenship, and engaging people in the process of city building, making them aware of their right to be involved and make decisions. It is clear that sustainable development, to be successful, needs the involvement and participation of citizens, not only of the government.

The priorities in the design of more sustainable housing are dependent on the specific social context. In developing countries, the priorities in the residential buildings sector are quite different from the ones of the developed countries, since there are still basic needs to answer, especially in a post-war situation. In the case of Aleppo after the war, poverty is the main challenge to sustainable development (World Bank, 2005). For example, the main concern of the population is the right to housing, whereas energy-saving in buildings is not a priority, as energy consumption is already low due to the lack of the necessary infrastructure. Therefore, in this situation, providing sustainable housing is mainly about ensuring a better quality of life for occupants and promoting a better balance between the individual needs (including the social dimension) and the environmental and economic dimensions of sustainable development. In developing countries, social, cultural, environmental, and economic facets of housing are not always addressed in an integrated fashion. For example, affordable housing is commonly considered on a cost basis, while environmental and social issues, including people's preferences, lifestyles, and cultural aspirations, are addressed separately or totally ignored (UN Habitat, 2012).

2.2 Research Objective and Approach

The main objectives of the research are the following:

- Document the current situation after the destruction due to the Syrian-war. This facilitates the reconstruction of residential heritage, as, with the availability of reliable documentation, even totally destroyed houses and entire neighbourhoods can be reconstructed.
- Gain insight into the difficulties encountered by the residents in the reconstruction process as well as into their needs and expectations. This is the starting point for a socially sustainable, participatory reconstruction of residential heritage.

The research approach consisted of:

- Selection of case-studies neighbourhoods;
- Survey of the buildings and neighbourhoods, including questionnaire and interviews with the residents.

The research approach is described in detail in Section 2.3.

2.3 Field Visit Arrangement

2.3.1 Selection of case-studies

Case studies were identified based on the author's prior knowledge and fieldwork conducted in Aleppo. The selection of case studies in this research is not aiming to be exhaustive, but is designed to provide examples of a wide range of traditional courtyard housing sizes (small, medium, large and palaces) (Haretani, 2005b), with different historic and artistic values (Bitar, 1998) and which underwent different types of intervention.

The neighbourhoods on which the study focused were Al-Jalloum, Al-Farafra and Al-Aqaba. These were selected based on:

- Location in the Old City of Aleppo, within the city walls (Figure 2.1)
- Presence of infrastructure, such as main roads, as this makes the neighbourhoods economically viable parts of the old city
- Presence of traditional courtyard houses with different levels of destruction after the Syrian-war, to be able to account for different possible interventions.
- Presence of different functions, such as workshops and commercial activities already in the period, to be able to account for possible solutions to conserve the residential function. Before the Syrian-war, residential buildings were occupied by crafts, industry and commerce. This proves the neighbourhood was lively and diverse.
- Presence of distinctive elements of historical value in large traditional courtyard houses and palaces, in order to consider traditional courtyard houses with high historical value next to more "diffuse" heritage.
- Presence of houses with different types of interventions, ranging from the addition of a bathroom and a toilet in small and medium houses to subdivision or interventions intended at reuse the large houses and palaces for tourism purposes.

Among the studied neighbourhoods, Al-Jalloum is the closest to the "Al-Madina Souq", in the southwest of the Old City "inside the wall". The street pattern in this part of the city is – untypically for the Old City – rectangular and of Roman origin, dividing the neighbourhoods into regular blocks.

The neighbourhood of Al-Farafra is characterised by neglect of the residential buildings and a modification of their use into workshops and warehouses; this change of function occurred most probably because they are located next to the commercial centre.

The neighbourhood of Al-Aqaba is the oldest one in Aleppo (Al-Nawah); it still maintains its traditional urban fabric and its original buildings, except for the addition of a few modern buildings (Haretani, 2005a).

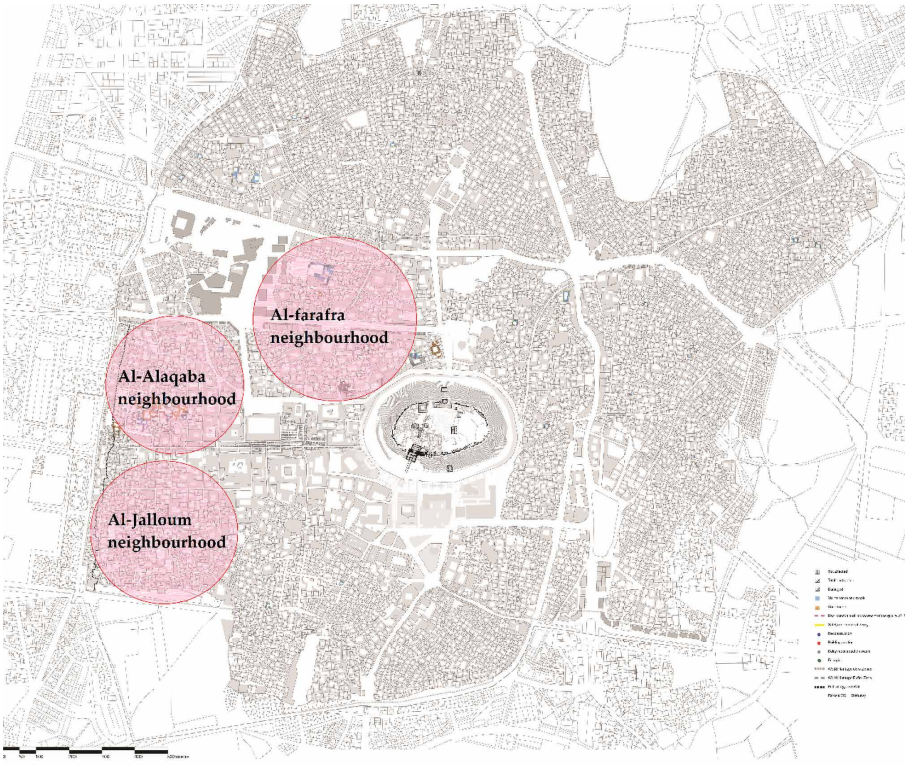

FIG. 2.1 Case studies location: the three neighbourhoods of Al-Jalloum, Al-Farafra and Al-Aqaba. Author.

2.3.2 Survey of the Buildings and Neighbourhoods, Including Questionnaire and Interview with Residents

A survey was conducted to evaluate the population's housing situation in the Old City of Aleppo following the Syrian-war. Both the situation inside the traditional courtyard houses themselves and in relation to neighbourhoods were considered. Next to a survey of the state of conservation of the buildings, the attitudes of the residents towards living in the Old City of Aleppo, their wishes and interests concerning the preservation, rehabilitation, restoration, and reconstruction and their readiness and financial capacity to participate in it were assessed by a questionnaire and interviews with residents.

In total, 79 houses were surveyed in the three mentioned neighbourhoods, using pictures and physical inspection of the building, supported by questionnaires and interviews with residents. The number of houses surveyed in each neighbourhood varies (Table 2.1), and it depends on the number of occupied and accessible houses and on the availability of the residents to participate in the survey.

TABLE 2.1 Number of houses and interviewed residents in the three studied neighbourhoods

Neighbourhood	Studied houses	Questionnaires	Interviews
Al-Jalloum	15	9	3
Al-Farafra	11	9	1
Al-Aqaba	53	17	2
Total numbers	79	34	6

The survey comprised two survey campaigns.

In a first survey campaign, inspection of the traditional courtyard housing, sketching plans and photographing the site were all part of the first field visit to the studied areas. Next to these, a simple questionnaire in Arabic was prepared and distributed to the residents. Because of the frequent subdivision of houses into more units, it was never clear in advance how many households a house would comprise; there could be a single or several housing units in the same house, some being inhabited, some others empty. The questionnaire was conceived by the authors to ensure a rapid assessment of the residents' demands for social services as well as the difficulties they face. Within the framework of the ERASMUS+ Mobility Project, Ostwestfalen-Lippe University of Applied Sciences (OWL UAS) and the University of Aleppo (UA), undergraduate students from the University of Aleppo, Faculty of Architecture, helped in distributing the questionnaire to the residents, in the period between November and December 2020.

The questionnaire comprises, next to questions about personal information (gender, age, and occupation, including the number of years of residence in Old Aleppo), questions about 5 main points:

1. Ownership and licence application;
2. Relation between residents and traditional courtyard house;
3. Problems with the physical condition of the house and infrastructure, and reconstruction obstacles;
4. Reconstruction priority for improvement;
5. Residents' satisfaction towards housing.

The questionnaire contains mainly multiple-choice questions, aiming at clarifying the attitudes of people towards the Old City, the situation of the house after the war, the problems and obstacles faced by the inhabitants. Besides, its enquiries to which extent residents would support a reconstruction process with their own means.

In addition, the satisfaction level with the current traditional courtyard housing situation was measured using a 5-point Likert scale: 5 (not at all satisfied), 4 (not satisfied), 3 (moderately satisfied), 2 (satisfied), and 1 (very satisfied).

Since the number of filled-in questionnaires was not statistically relevant, a second survey campaign was carried out in August – September 2021, supported by the Director of the Citadel of Aleppo, district mayors and two members of the RAHA Company for Ancient Cities. During this second campaign, open interviews with a selection of six additional residents were conducted. As the social life of men and women in the Old City of Aleppo has always been subject to a certain segregation, care has been taken to interview both men and women.

It should be mentioned that due to the post-Syrian-war circumstances, it was not always possible to access the traditional courtyard houses, and the survey had to be adapted to the situation and obtain approvals from the security services. The plans of the traditional courtyard houses were redrawn using AutoCAD software, based on both actual measurements and the cadastral and/or other available plans.

2.4 Result and Discussion

2.4.1 State of the Traditional Courtyard Houses After the Syrian-War

During the investigation in the three neighbourhoods of Al-Jalloum, Al-Farafra and Al-Aqaba, a total of 79 traditional courtyard houses were visited.

The survey showed that many traditional courtyard houses were either destroyed or abandoned. In these cases, obviously, no questionnaire or interview with the residents was possible, as during the Syrian-war they were forced to abandon their houses and relocate somewhere else in the city or even outside it. Other traditional courtyard houses were modernised or partly reconstructed by returnees; however, the reconstruction was shown to have occurred without an appropriate reconstruction licence from the responsible authorities.

Documentation and damage due to the Syrian-war

Figure 2.2 shows the plans of the studied traditional courtyard houses, redrawn also thanks to manual measurement techniques, simple sketches, pictures and notes of observations made during inspections.

Among the 15 traditional courtyard houses surveyed in Al-Jalloum neighbourhood, three were classified “totally destroyed” and one was under reconstruction at the moment of the visit. Three houses were classified as “not affected”. Only one house was classified “partially damaged” (Figure 2.3).

Among the 11 traditional courtyard houses surveyed in Al-Farafra neighbourhood, six houses were classified as “totally destroyed, and five were classified “not affected”.

Among the 53 traditional courtyard houses surveyed in Al-Aqaba neighbourhood, 16 houses were “totally destroyed”, while 8 houses were classified “partially damaged”. The 29 remaining houses were classified as “not affected” (Figure 2.4).

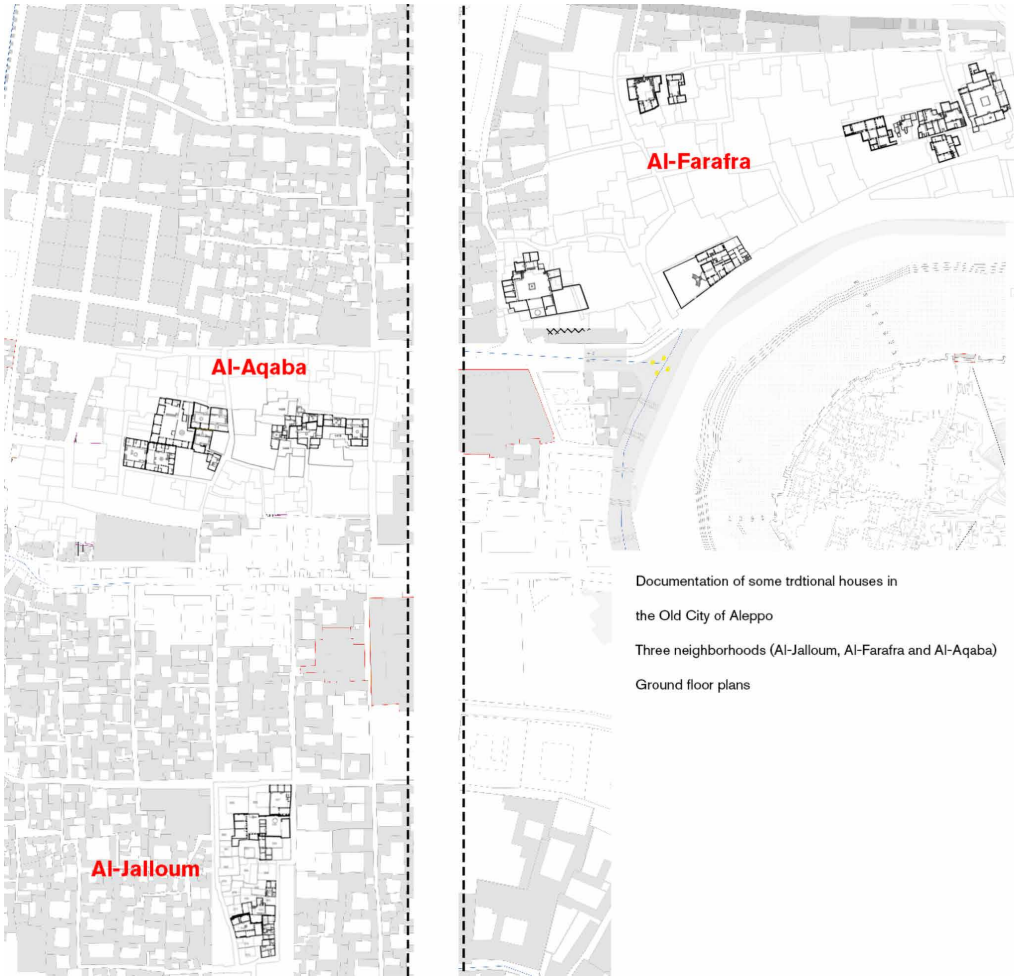

FIG. 2.2 Plans of houses as documented by on-site survey and redrawn using AutoCAD software, Al-Jalloum, Al-Farafra and Al-Aqaba neighbourhood, Old City of Aleppo. Author and students' work, Winter 2020.

FIG. 2.3 A house that was completely destroyed, Cadastral number 558 (left), a house that was severely damaged, Cadastral number 568 (centre), a house that was not affected, Cadastral number 576 (right); Al-Jalloum neighbourhood, Old City of Aleppo. Author and students' work, Winter 2020.

TOC

This overview shows that the destruction of external walls, partition walls, rooms or ceilings occurred in most traditional courtyard houses in the studied neighbourhoods. The majority of the houses are empty and have been robbed.

The survey showed that some of the traditional courtyard houses had recently got a different function, been reused as, e.g. a roastery building, a hotel, a factory, a charitable organisation, a shop, etc. (Figure 2.5). Other houses proved to be empty (Figure 2.6).

The survey showed that residents made changes to their traditional courtyard houses to meet their current needs; the questionnaire and interviews confirmed that these changes were mostly made without seeking permission from the appropriate authorities. Examples of these interventions are the addition of the roof of the inner courtyard, raising the height of the building above the permitted urban limit, using modern building materials, and subdivision of the property into several parts to be used for different activities. The splitting of the property is frequently done at the expense of the inner courtyards.

The reasons for these changes are the following:

A Need for additional space (enlarging): this is visible, for example, in the addition of wings to the existing house.

B User comfort and improvement of the quality of life: in some of the traditional houses being visited, a bathroom, a toilet, and a kitchen have been added, and active heating and cooling systems and electricity by solar energy have been installed.

C Safety and severe material decay: in almost all the visited traditional courtyard houses, some parts were reconstructed, as they were in bad structural conditions. The main interventions consisted of the completion and reconstruction of a demolished roof, the replacement of the wooden ceiling, reconstruction of the walls after the removal of the affected parts.

D Need of maintenance and repair: in this case, interventions consisted mainly of replacing or restoring the wooden and metal carpentry and the stone tiles, plumbing and electrical works and painting of walls (Figure 2.7)

FIG. 2.4 A house that was completely destroyed, Cadastral number 1426 (left), a house that was severely damaged, Cadastral number 1429 (centre), Bullet holes from the fighting, on the façade of the house at Cadastral number 1424 (right); Al-Aqaba neighbourhood, Old City of Aleppo. Author and students' work, Winter 2020.

FIG. 2.5 A house that has been reused as a roastery building, Cadastral number 1479 (left), a house that has been used as a hotel, Cadastral number 1514-1515 (centre), a house that has been used as a factory Cadastral number 1427 (right), Al-Aqaba neighbourhood, Old City of Aleppo. Author and students' work, Winter 2020.

FIG. 2.6 Examples of houses that have been abandoned: Cadastral number 1453 (left), Cadastral number 1480 (centre), Cadastral number 1429 (right), Al-Aqaba neighbourhood, Old Aleppo. Author and students' work, Winter 2020.

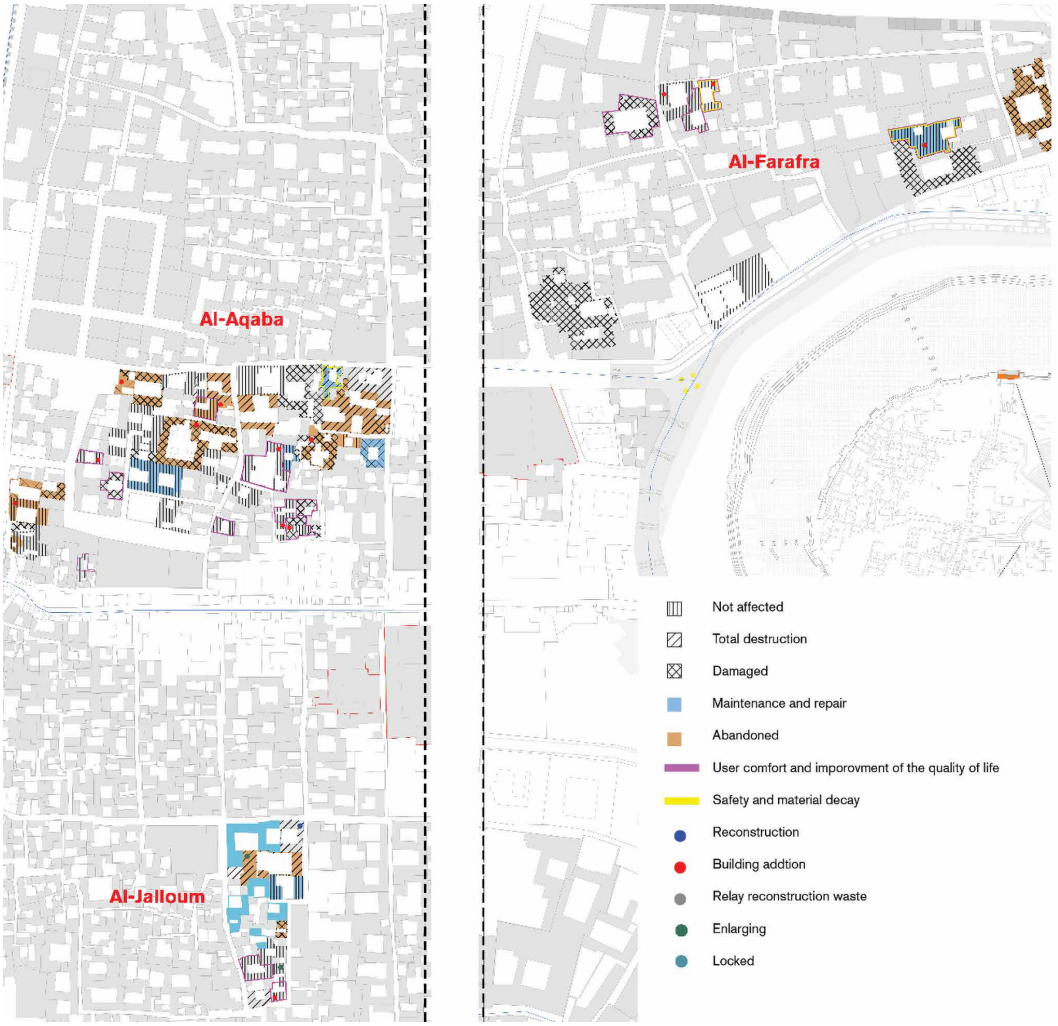

FIG. 2.7 Map case studies visualisation in the three neighbourhoods of Al-Jalloum, Al-Farafra and Al-Aqaba. Author.

TOC

2.4.2 Social Distribution of the Panel

Most of the respondents to the questionnaire and the interviews are male and owners, and the predominant age is older than 55 years. There is a wide range of professions represented. There are nine different professions with a total of 39 families (Table 2.2). The largest group of professional activities is related to commercial (14 persons), including the trade of food, clothes, etc. The closeness of these neighbourhoods to the markets justifies this. Among the crafts, the construction sector is another important branch in which interviewees work. There is one construction worker, one electrician and two carpenters. The presence of workers in the construction sector in the Old City could be of special interest for the reconstruction process, for example, these people could be contracted for reconstruction works, providing income for members of the target group. Another group (four persons) is constituted by government department employees. Out of the nine women interviewed, five are housewives.

TABLE 2.2 Demographics of respondents based on the location of respondents.

Description	Al-Jalloum (%)	Al-Farafra (%)	Al-Aqaba (%)
Gender			
Male	100	44	100
Female	0	56	0
Ages			
17–25 years old	22	11	0
25–40 years old	56	0	9
40–55 years old	22	33	55
>55 years old	0	56	36
Jobs			
Unemployed	11	56	0
Merchant	78	33	50
Employee	0	11	30
Handicraft	11	0	20
Ownership			
Owner	67	44	67
Inherited	22	56	25
Tenant	11	0	8

Some respondents mentioned: “Parents refuse to send their daughters to school as there are no secondary schools in the area.” Three women, working at Aleppo University and basic education schools in modern neighbourhoods, report being unable to move easily due to a shortage of public transportation. Because of this lack, most people work within the boundaries of the Old City of Aleppo, either in their houses or elsewhere in the Old City.

Residents were questioned about their reasons behind not leaving the traditional courtyard houses. The results show that the majority (56%) of residents in Al-Jalloum neighbourhood prefer to stay, as they are satisfied with their current traditional courtyard house (Table 2.3). Differently, residents of Al-Farafra and Al-Aqaba neighbourhood report more often to stay because they cannot afford to move or because of the family living in the same area.

TABLE 2.3 Reason behind not leaving at the Old City of Aleppo based on the location of respondents.

Reason	Al-Jalloum (%)	Al-Farafra (%)	Al-Aqaba (%)
Satisfied with my current house	56	0	33
The house can’t be sold	11	11	0
Don’t have enough money to leave	11	67	33
Can’t find a suitable place to live	11	0	11
The family is here	22	22	67
Need to find a new job	11	0	0

All respondents reported that the cost of reconstruction of their traditional courtyard houses is the main problem they experience. They did not receive housing reconstruction funds. As a result, they used their own private funds and chose to renovate only those parts of their traditional courtyard houses that were in more urgent need. Almost all families would be interested in a loan to finance urgent measures in their traditional courtyard houses. However, this is not possible, as all banks in Syria refuse to give a mortgage with the only guarantee of a severely damaged house.

2.4.3 Problems with the Condition of the Traditional Courtyard House

All interviewees in the studied areas reported problems caused by the Syrian-war. 75% of the residents in Al-Aqaba neighbourhood complained about the lack of security in neighbourhood streets: residents have a sense of fear of theft, crime or kidnapping that is widespread in post-war societies. 69% of the residents in Al-Jalloum neighbourhood complained about the house´s destruction; the problems most frequently mentioned were structural problems, above all, damaged roofs and walls. Besides, they mentioned that the traditional courtyard house needs modern facilities and repairs, which the resident could not afford (Table 2.4).

TABLE 2.4 Problems in the Old City of Aleppo based on the location of respondents.

Reported problems	Al-Jalloum (%)	Al-Farafra (%)	Al-Aqaba (%)
Lack of security in neighbourhood streets	0	33	75
The house's destruction	69	44	33
Increased prices	11	44	58
Damage to infrastructure	11	11	67
The house needs repairs I can't afford	22	67	11
The house needs modern facilities	11	0	11

The residents often complained about having to cross the inner courtyard to get from one room to the other and about the lack of space; they often solved the first problem by covering the courtyard and the second by adding a floor to the buildings.

2.4.4 Problems with Public Infrastructure

Besides the bad condition of the traditional courtyard houses, respondents complain about the lack or bad performance of the public infrastructure (Table 2.5 and Table 2.6). The bad performance of the electrical system seems to be the most important problem. Next to this, roughly one out of four of the interviewees mentioned the problem of insufficient quantities of drinking water. Other problems were the lack of dedicated waste places and the spread of waste on the roads. The lack of services in terms of transportation, fuel and heating materials, and fixed phones was also mentioned as a recurrent problem. Moreover, residents feel unsafe.

TABLE 2.5 Physical infrastructure with immediate impact on the households.

No.	Responses		Themes	*
1	Insufficient quantities of drinking water	p	Public and private physical structures	p
2	Power outage due to damaged electrical facilities	p	Economic infrastructure	e
3	The lack of fixed phones	p	Affordable house	a
4	No markets nearby	e	Waste management	w
5	The lack of fixed phones	p	Security	s
6	No markets nearby	e	Non-renewable resource	n
7	The lack of services	p	Transportation	T
8	The lack of cleanliness	w		
9	Power outage due to damaged electrical facilities	p		
10	Insufficient quantities of drinking water	p		
11	No markets nearby	e		
12	Insufficient availability of electricity	p		
13	The lack of electricity	p		
14	The lack of transportation	t		
15	The house rent	a		
16	The cost of living	a		
17	The limited income that is not enough	a		
18	The lack of security	s		
19	The lack of water	p		
20	The lack of electricity	p		
21	The lack of electricity	p		
22	The lack of electricity	p		
23	The lack of electricity	p		
24	The lack of electricity	p		
25	The lack of electricity	p		
26	The lack of electricity	p		
27	The lack of heating materials and fuel	n		
28	The lack of electricity	p		
29	The lack of water sometimes	p		
30	The lack of electricity	p		
31	The lack of transportation	t		
32	The lack of electricity	p		
33	The lack of heating materials and fuel	n		
34	Insufficient quantity of potable water	p		
35	Power cuts due to damage to electrical installations	p		
36	Insufficient quantity of potable water	p		
37	Power outages due to damage to electrical installations	p		
38	Insufficient quantity of potable water	p		

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TABLE 2.5 Physical infrastructure with immediate impact on the households.

No.	Responses		Themes	*
39	Power outages due to damaged electrical installations	p		
40	Lack of dedicated waste places	w		
41	The lack of electricity	p		
42	The spread of waste on the roads	w		

** Codes*

TABLE 2.6 Recurrent problems of physical infrastructure (%)

Statistics			
Frequency		Proportion	
Public and private physical structures	28	Public and private physical structures	67%
Economic infrastructure	3	Economic infrastructure	7%
Affordable house	3	Affordable house	7%
Waste management	3	Waste management	7%
Security	1	Security	2%
Non-renewable resource	2	Non-renewable resource	5%
Transportation	2	Transportation	5%
Total	42	Total	100%

2.4.5 Satisfaction Levels

Regarding the level of residents' satisfaction with their traditional courtyard houses in terms of meeting needs and achieving sustainability, the following conclusions can be drawn based on the survey.

In the category of health and comfort, many residents (67% of respondents in the Al-Farafra neighbourhood) report a low satisfaction with the protection from the weather in the traditional courtyard houses. This is in line with the complaint about having to cross the inner courtyard to get from one room to the other. Often, this has already been solved by the resident by covering the courtyard.

The highest satisfaction level is reported for ventilation and noise protection (67% of the residents of Al-Farafra are happy with this). The courtyard seems to be effective in providing ventilation. Residents are also quite satisfied with thermal comfort and visual comfort (56% of residents in Al-Jalloum neighbourhood mentioned this). This can possibly be explained by the fact that the Al-Jalloum neighbourhood has preserved its original spatial structure, without major changes to the street and to the spatial alternation of built and empty areas. This area of Al-Jalloum neighbourhood is also the most harmonious in terms of floor height, with most buildings being two floors up and only a few being one or three floors up (Figure 2.8).

TOC

In the category of accessibility, 88% of the respondents in Al-Farafra are not satisfied with the availability of parks and public spaces. While 67% of the respondents in Al-Aqaba are not satisfied with the availability of schools nearby. Unfortunately, this last issue most common causes for girls to drop out of school (Figure 2.9).

In the category of functional quality of the housing, the majority of respondents in Al-farafra (63%) and in Al Aqaba (50%) neighbourhoods are very satisfied with the privacy provided by the traditional courtyard house. These results can be possibly explained as the spatial organisation of the traditional courtyard house's elements around the inner courtyard provides the desired privacy (in this area, there are no high-rise buildings nearby overlooking it) (Figure 2.10).

When considering cultural sustainability, in the category of heritage considerations, the lowest satisfaction level is reported for "allowable intervention level", i.e. the possibility of carrying out intervention on a traditional courtyard house. This is valid for all three neighbourhoods to a similar extent: Al-Jalloum (67%), Al-Aqaba (63%) and Al-farafra (56%). This complaint can possibly be explained by the strict regulations and guidelines and the bureaucratic process, preventing traditional courtyard housing interventions without proper licences. As a result, residents made changes to their traditional courtyard houses to match their needs (such as covering a part of the inner courtyard, raising the building height above the permitted urban limit, and utilising new building materials) without the proper permits.

A high satisfaction level (56%) is reported in Al-Alaqaba neighbourhood for the "historical environment characteristics", i.e. the presence of large traditional courtyard houses and caravanserais. This reflect the appreciation of the residents for this historic neighbourhood, which is the oldest one in Aleppo, still keeping its historical monuments and traditional urban fabric (Figure 2.11).

In the context of economic sustainability, in the category of life cycle cost, the lowest satisfaction level is reported for the cost of house reconstruction (100% in Al-Alaqaba neighbourhood and (78%) in Al-farafra neighbourhood). This response can be explained by the lack of financial resources (Figure 2.12).

In the context of environmental sustainability, in the category of waste, the lowest satisfaction level is reported for recycling and use of backfill for reconstruction (67% in Al-Jalloum neighbourhood and (63%) in Al-farafra neighbourhood) This is motivated by the lack of waste recycling equipment in the Old City of Aleppo. In the category of materials and resources, the lowest satisfaction level is reported for the availability of electricity (100% in Al-Alaqaba neighbourhood). This response can be understood, as both electricity transfer stations in the Old City of Aleppo are currently out of order (Figure 2.13 and Figure 2.14).

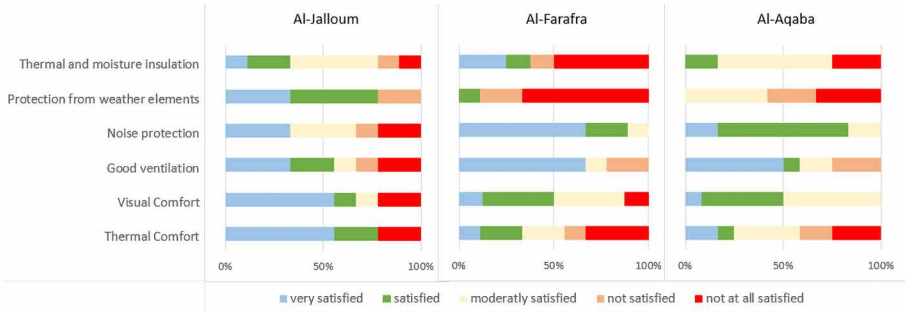

FIG. 2.8 Satisfaction level (%) of respondents in the category of health and comfort.

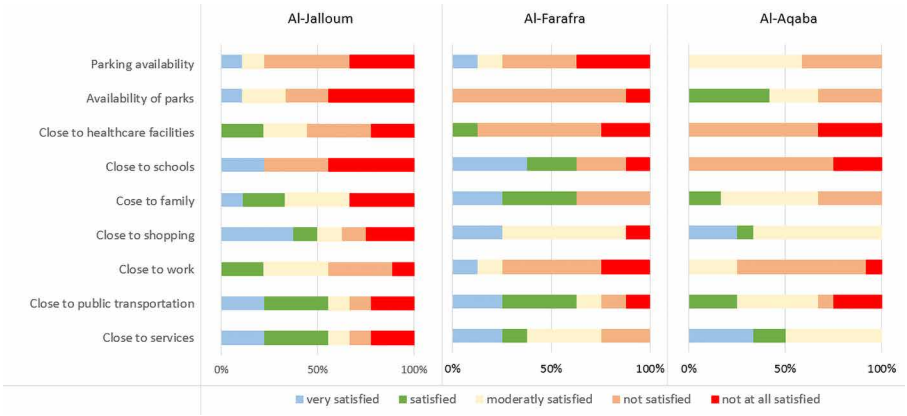

FIG. 2.9 Satisfaction level (%) of respondents in the category of accessibility.

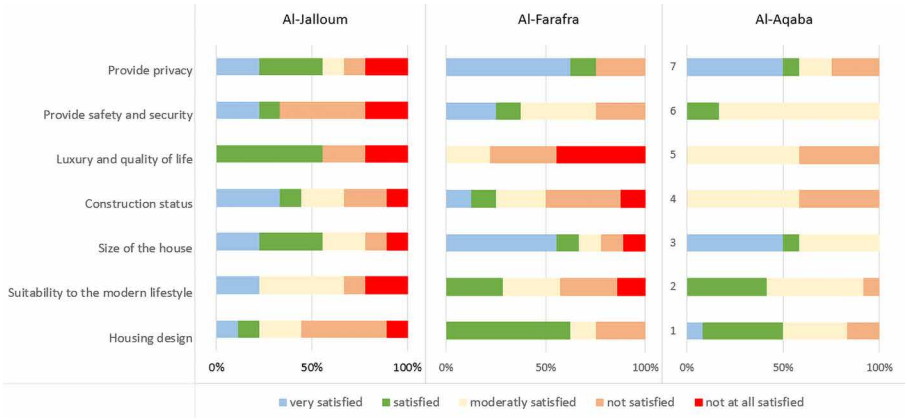

FIG. 2.10 Satisfaction level (%) of respondents in the category of functional quality.

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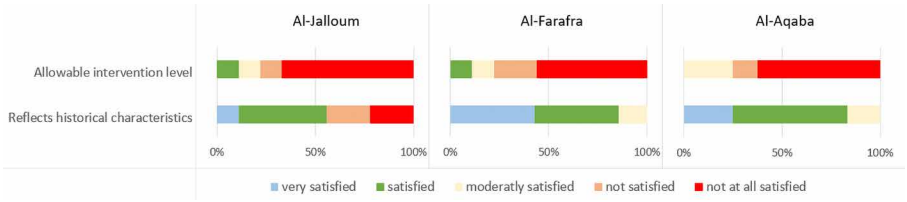

FIG. 2.11 Satisfaction level (%) of respondents in the category of heritage considerations.

FIG. 2.12 Satisfaction level (%) of respondents in the category of life cycle cost category.

FIG. 2.13 Satisfaction level (%) of respondents in the category of waste.

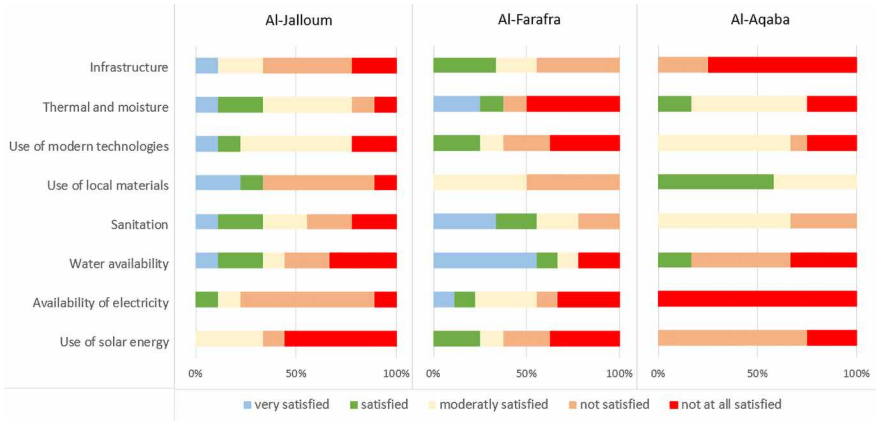

FIG. 2.14 Satisfaction level (%) of respondents in the category of materials and resources.

TOC

2.5 Conclusions

The long duration of Syrian-war has made a huge impact on the residential sector in the Old City of Aleppo. The survey of the Old City of Aleppo reported in this paper shows that the damage ranges from partial damage to total destruction of traditional courtyard houses, and it is proportional to the intensity of the clashes witnessed by the neighbourhood. Similarly, infrastructure and public services, such as electricity, public transport, etc. are reported to be lacking or insufficient.

Following the end of the heavy fighting in Aleppo in 2016, the Old City witnessed several interventions on the traditional courtyard houses, consisting often in the addition of floors, roof structures, reconstruction of damaged parts with new materials, etc. Most of these interventions were carried out without proper licences. The strict regulations and the costly and time-consuming procedures for obtaining permits made it hard or impossible for the residents to follow the legal process. The examined case studies in the three neighbourhoods show that the primary goal of the residents' interventions was not the preservation of architectural and cultural heritage, history or identity, but it was limited to emergency repairs. Unfortunately, this has as a consequence that significant historical architectural elements were replaced or destroyed during these repairs, such as windows and doors, and original building material.

The lack of a strategic reconstruction plan resulted in ad-hoc interventions, different from house to house. This approach was effective in bringing back people, but not in preserving the heritage value of these traditional houses. This underlines the need to start thinking about how the policy could approach post-war reconstruction differently and in more sustainable way.

The urgency of this need is stressed by the threat of abandonment of the Old City of Aleppo by its residents. Most residents of all ages plan to leave their traditional courtyard houses in the coming years; this decision is only postponed by their present bad economic situation. Poverty and difficulty in accessing credit for reconstruction, together with diffuse destruction and lack of public infrastructures, are all factors increasing the risk of abandonment of the Old City of Aleppo by the current residents.

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3 Historic Development of Policies and Regulations Concerning Residential Heritage in the Old City of Aleppo

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ABSTRACT Housing interventions carried out in accordance with current regulations in the Old City of Aleppo, both before and after the Syrian war, are minor in comparison to those carried out without a licence and illegally. This suggests current policies are inadequate and needs upgrading. This article critically reviews current Syrian policies and their implementation on residential heritage in the Old City of Aleppo with the aim of identifying gaps and proposing directions for modifications. Next to a review of the text of official policies and implementation documents, the archive of the Directorate of the Old City has been consulted, and licence applications, presented in the period 2018-2022, have been examined. Moreover, interviews with decision-makers from academia and practice were conducted. Major limitations of these policies and relative application procedures have been identified: these involve legal/administrative, economic and social aspects. The specific needs have been highlighted, and some proposals for improvement have been made.

KEYWORDS post-Syrian-war, Old City of Aleppo, residential heritage, courtyard housing, policies, case study, interviews

3.1 Introduction

Interventions on residential heritage in the Old City of Aleppo, carried out both before and after the Syrian war, have been rarely executed in accordance with current regulations. More often, interventions have been carried out without a licence and illegally (Kousa, Pottgiesser and Lubelli, 2021). The long bureaucratic procedures related to the enforcement of the regulations have been identified as one of the main causes that discourage residents from carrying out repairs in a proper way (Kousa, Pottgiesser and Lubelli, 2021). The efforts of the Directorate of the Old City of Aleppo to upgrade these policies have shown to be ineffective. Moreover, it's debatable whether existing Syrian policies and regulations can be applied to a post-Syrian-war context without any change. The extent of devastation, involving 70% of the buildings (Kousa and Pottgiesser, 2019), the urgency for reconstruction, and the costly and time-consuming procedures for obtaining permits suggest that policies might need to be significantly modified (Kousa, Pottgiesser and Lubelli, 2021).

In order to provide direction for improvement, a critical analysis of current policies and their implementation procedures is necessary.

In this article, current Syrian policies, and specifically those related to residential heritage in the Old City of Aleppo, are critically reviewed with the aim of identifying obstacles to their application, gaps, and improvable points to be considered when advancing a proposal for their improvement.

3.2 Research Methods

The research methods consisted of an analysis of the historic development of Syrian policies related to intervention on (residential) heritage, starting from the 19th century, necessary to understand how and why recent policies and regulations have been established.

Next, a critical review of the current Syrian policies and regulations related to traditional courtyard housing in the Old City of Aleppo and the process of obtaining reconstruction and restoration permits in the field has been carried out. This review has been complemented by case studies and by interviews with decision-makers from academia and practice.

Based on the results obtained, obstacles to the application, gaps, and improvable points to be considered in proposals for their modification have been identified.

3.3 Historic Background on Heritage Policies in Syria

In order to understand how and why recent policies and regulations have been established, the historic development of heritage-related policies cannot be ignored. This section provides a short summary of the developments of policies and regulations concerning (residential) heritage in the Old City of Aleppo in the period from the 19th century up to 2020 (Figure 3.1).

A first regulated approach to residential heritage in Aleppo dates back to the first half of the 19th century. At that time, following the earthquake of 1822, which destroyed approximately 60% of the urban fabric of the Old City of Aleppo, new systems for the administration of endowed buildings were devised. These included, e.g. long-term rents and replacement contracts, meant to attract private capital and facilitate restoration and reconstruction work. Later on, with the Ottomans establishing the first municipal authority in Aleppo in 1866, further radical changes took place in the city's social, administrative and economic life. The Ottoman law of 1884 dealt with

the protection of historical monuments and established the foundations of the work of the Directorate of Antiquities, an institution that developed during the French mandate in Syria (1920 – 1946) (UNESCO and UNITAR, 2018).

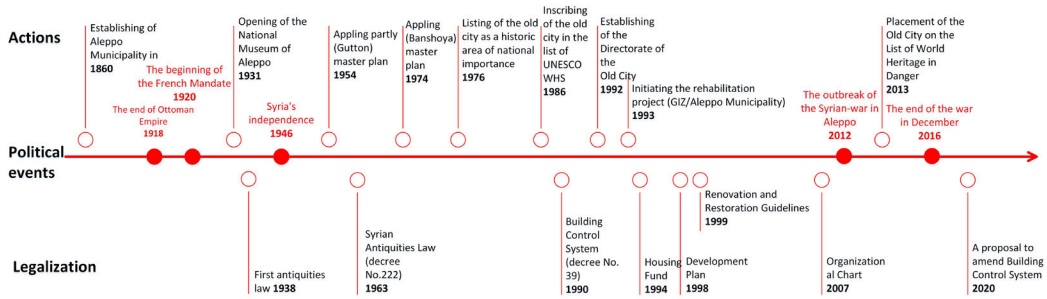

FIG. 3.1 Timeline of main political events (full dots) and Syrian policies and related actions (empty dots) in the Old City of Aleppo between 1860 and 2020. Author.

In the early days of the French Mandate in 1923, the French art historian and archaeologist Jean (Sauvaget, 1941) drew up a list of Islamic monuments to be protected in Aleppo and the National Museum of Aleppo was opened in 1931. Moreover, new master plans were developed with the aim of regulating Aleppo's modern expansion. The initial independence period, following the end of the French mandate in 1946, was marked by radical modernisation. In 1954, the master plan of the French urban planner André Gutton, aiming at establishing two major east-west wide axes, was developed and partly implemented. This intervention caused serious damage to one-tenth of the ancient fabric inside the city walls; entire neighbourhoods of the Old City of Aleppo outside the walls were destroyed, and many important historical monuments were lost (Windelberg, J.; Kelzieh, T.; Hallaj, 2001). In 1954, under the auspices of UNESCO, Syria signed the first Hague Convention and Protocols, which regulate the protection of cultural property in the event of armed conflict (Sarhan, 2014).

In 1963, the Syrian Antiquities Law No. 222 was enacted: this is the first Syrian law to govern the protection of cultural heritage, with special attention to historic monuments (Syrian Arab Republic, 1999). However, despite this law being already in force, large sectors of some residential neighbourhoods were demolished in the 1960s and early 1970s. In this period, random interventions were common in the Old City of Aleppo: some neighbourhoods were partially destroyed by the implementation of master plans between the 1950s and 1970s, and new high-rise buildings were built in their place (Windelberg, J.; Kelzieh, T.; Hallaj, 2001).

The new high buildings undermined the quality of the traditional courtyard houses by preventing cool winds from ventilating the courtyards and thus negatively affecting their microclimate. In addition, the height difference, which allows a view inside the courtyards from above, deprived the traditional courtyard houses of their privacy (Jaber, 2013). As a result, residents were motivated to emigrate from the Old City of Aleppo to new districts, and light-industrial and commercial functions appeared along the new wide streets.

In the same period, the Japanese urban planner Gyoji Banshoya suggested limiting the impacts of Gutton's plan. However, he planned a new north-south axis, which would have demolished more monuments and further segregated the historic quarters. His plan met the strong opposition of society, and its implementation was stopped. Similarly, other proposals, which aimed to open streets in the historical urban fabric or remove areas from the Old City of Aleppo, were rejected. In 1976, the General Directorate of Antiquities and Museums (DGAM) declared the whole Old City of Aleppo inside the walls as a historic area of national importance (Khirfan, 2014). In this area, demolition and construction were prohibited, except by order of the authorities. At that point, however, about 25% of the historic buildings had been permanently lost (Khanji, 2017). Following this declaration as a historic area of national importance, Law No. 222 was put into effect to guide and control interventions in the Old City of Aleppo, and a Protection Committee was established to supervise its application (UNESCO and UNITAR, 2018) (Further details will be described in Section 3.4).

Between 1978 and 1986, new neighbourhoods were added outside the walls of the Old City of Aleppo, including the northern part (1983) and the eastern part (1986). In stages and through a long decision process, the city inside the walls and part of its early expansion, which is now known as the Old City of Aleppo were declared a UNESCO World Heritage Site (Gaube, H. and Wirth, 2007) (Figure 3.2).

In 1990, the Building Control System (decree No. 39) was issued by the Aleppo municipality. This system was the compass guiding the building and conservation works in the old city, and was adopted on the cadastral maps of the Old City of Aleppo dating back to 1927 and 1931 (Aleppo City Council, 1990).

Following this declaration as a UNESCO World Heritage Site, the Old City Technical Committee was formed, and the Directorate of the Old City (DOC) was established in 1992. In 1993, in collaboration with the Gesellschaft für Technische Zusammenarbeit (GTZ), (DOC) developed an integrated project for the Old City of Aleppo. Later on, other international organizations were involved e.g. Arab Fund for Social and Economic Development and Aga Khan Trust for Culture (UNESCO and UNITAR, 2018).

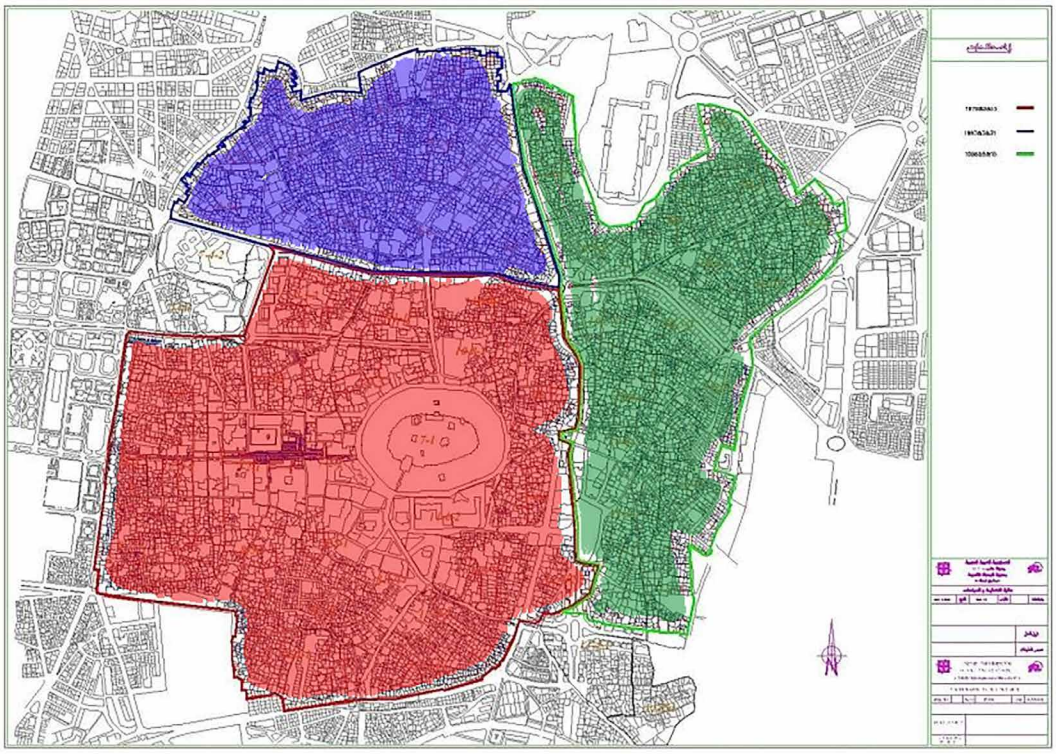

FIG. 3.2 Stages of inscribing the Old City of Aleppo on the World Heritage List.

- *The Old city inside the walls (1978), The Old city outside the walls*
- *the northern part (1983) and,*
- *the eastern part (1986). Adapted by the Author.*

Following a rigorous inspection of the factors that contributed to the deterioration of the urban fabric of the Old City of Aleppo (1993-1997), in 1999, the Development Plan for the old city was completed, and the strategies and tools used for implementation were defined (Knefaty, 2015). Especially with regard to traditional courtyard housing, a survey conducted in 1993 on Old City of Aleppo households showed that approximately one-third of the total traditional courtyard housing stock was in such poor conditions that structural repair was urgently needed to avoid collapse. In response to the urgent need for action, in 1994, the rehabilitation project established a micro-credit scheme (housing fund) (Fischer, M.; Gangler, 2012).

In 1999, the Syrian Antiquities Law No. 222 was amended to address the protection of the Old City of Aleppo and the treatment of encroachments on it (Republic, 1999). Aleppo's organisational chart and the building control system of the Old City of Aleppo were released in 2007 (Aleppo City Council, 2007).

In the summer of 2012, the Syrian war escalated in Aleppo and resulted in the Old City of Aleppo being placed on the List of World Heritage in Danger in 2013 (Hinz, H.M. and Richard, A., 2013). In December 2016, the city's heavy fighting came to an end, leaving massive destruction in its aftermath. In January 2017, UNESCO conducted a rapid assessment mission to Aleppo to evaluate the damage to its World Heritage Site caused by the Syrian-war. During a meeting held in Aleppo in January 2019, the "Vision and Planning Framework" for the reconstruction and recovery of the property was presented. This framework includes key objectives, such as developing a reconstruction and recovery plan, establishing a new governance and planning framework with special area plans, building operational and financial tools for reconstruction, and financing reconstruction within a specified timeframe. The document also emphasises the need to reassess the property's integrity and authenticity, in light of the damage. However, no corrective measures or timeframe for their implementation have been identified (UNESCO, 2019). In 2020, a project to amend the building control system in the Old City of Aleppo was proposed (Aleppo City Council, 2020). It is worth mentioning that in February 2023, UNESCO led a mission to Aleppo to learn about the city's rescue needs, because of the earthquake that hit the area on February 6th, 2023.

3.4 Current Laws and Procedures Applicable to Residential Heritage in the Old City of Aleppo

This section includes: (1) a comprehensive description of currently valid Syrian policies and laws, promulgated between 1963 and 2020, with a focus on those applicable to residential heritage in the Old City of Aleppo; (2) classification of residential buildings; (3) responsible authorities and their role in the application process for a licence; and (4) application process for a licence.

3.4.1 Policies in the Old City of Aleppo

3.4.1.1 Syrian Law of Antiquities 1963 (decree No. 222), amended in 1999

The Syrian Law of Antiquities No. 222, in place since 1963, is the main policy regulating all heritage management issues in Syria. After the Old City of Aleppo was inscribed on the UNESCO World Heritage List in 1986, the Antiquities Law was updated in 1999 to address the protection of the Old City of Aleppo and deal with infractions. According to this law, all immovable properties built by man more than two hundred years ago are considered “antiquities” and fall thus under the jurisdiction of the antiquities authorities, which are represented by the General Directorate of Antiquities and Museums (DGAM). Properties from a more recent period which have historical, artistic, or national characteristics, may also be considered antiquities if the Antiquities Council has given its approval and a ministerial decision to register them has been issued. A group of neighbourhoods, buildings, one building, or a portion of them may be included in this decision.

Ownership of land does not confer the right to dispose of any immovable antiquities that may exist on its surface or within its confines. Immovable antiquities include historic buildings, such as traditional houses. This law does not consider interventions on antiquities. Anyone who modifies an antiquity without permission faces penalties (Syrian Arab Republic, 1999).

3.4.1.2 Building Control System 1990 (decree No. 39), amended in 2007

The Building Control System is a set of regulating laws to prevent uncontrolled interventions in the Old City of Aleppo. This system was developed based on Resolution No. 39 of 1990. It consists of ten chapters, which this paper classified into four basic levels of (1) definitions and legal reference; (2) urban requirements; (3) requirements related to licensing works; and (4) violations and penalties (Aleppo City Council, 1990, 2007). (Figure 3.3) summarises the content of the Building Control System, with a focus on building classification and the aspects connected to residential heritage in terms of urban indicators.

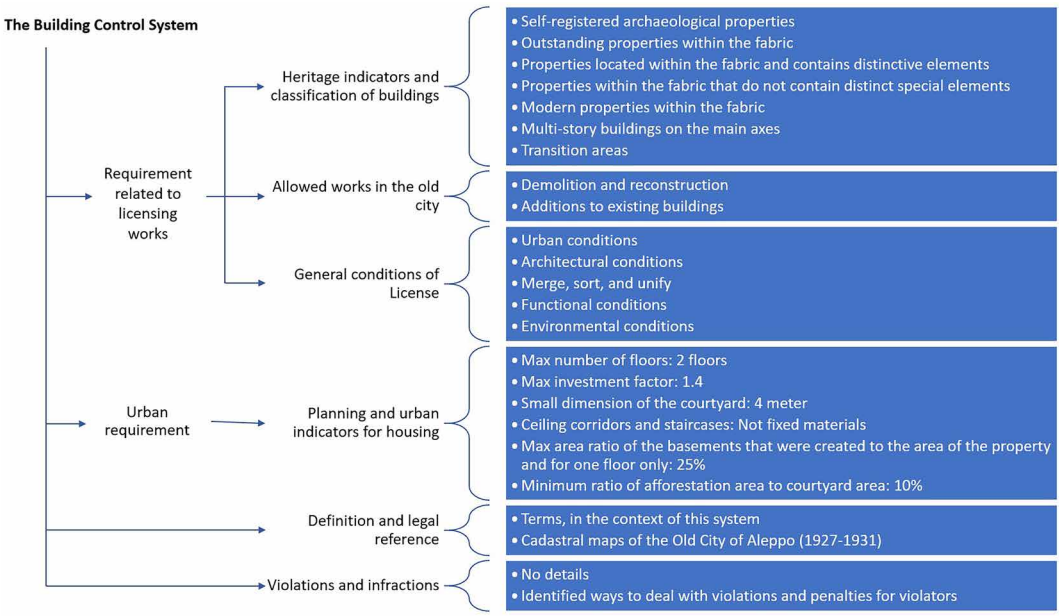

FIG. 3.3 The content of the Building Control System of the Old City of Aleppo. Author.

According to the Building Control System, any change in the Old City of Aleppo requires a licence. Owners of buildings can apply for a licence for restoration ("ترميم") and/or reconstruction ("إعادة البناء"), provided that the original external boundaries of the properties are respected and the internal architectural spaces, as specified on the cadastral map, are kept. The cadastral map, dating back to 1931 and having never been updated, serves as the basis for determining the planning and elevations of properties in the Old City of Aleppo. Restoration refers to work done on buildings

TOC

whose structures are not permitted to be demolished. Reconstruction is the process of rebuilding buildings whose structures are permitted to be demolished because of building safety (Aleppo City Council, 2007).

According to the Building Control System, it is permitted to entirely or partially demolish buildings in the Old City of Aleppo only in exceptional circumstances, depending on their classification, solely with the requirements of construction safety, and with the approval of the relevant authorities. In the case of partially destroyed buildings, the damaged parts must be rebuilt in an original state using traditional materials.

Additions to existing buildings can only be applied to buildings with residential and tourist functions. It is not permissible to demolish or alter the basic architectural elements, such as *iwan*, decorations, etc., in any way. The additions should consider the continuity of the original building material, using minor differences to make visible a distinction between the original material and the updated one.

All work on heating, air conditioning, solar energy, and communications systems must be approved by City Council management and done in accordance with restoration standards. These lasts include the technical conditions and dimensions of the architectural elements, the quality of materials, and the method of use.

3.4.1.3 Restoration with the Help of the Housing Fund 1994

From 1994 to 2006, the Municipality of Aleppo, in collaboration with the GTZ project “Rehabilitation of the Old City of Aleppo”, was able to secure financial resources for restoration through emergency and rehabilitation loans, with local and international support from a number of organisations, in the form of donations or investments. Initially, the micro-credit scheme (“emergency fund”) was reserved for the most urgent residential repair works on residential heritage. The primary target group consisted of families living in extreme poverty in the Old City. Overall, the Emergency Fund began financing housing with an amount of fifty thousand Syrian pounds without additional benefits, in addition to providing the necessary technical advice and facilitating licensing procedures. The Emergency Fund contributed until 2001 to the restoration of more than 270 housing units. In 1997, a second, larger credit scheme (“rehabilitation fund”) allowed homeowners or tenants to engage in larger restoration work. This fund targeted the attention to the restoration of distinctive architectural elements and the addition of service facilities in the housing, according to the Building Control System. An outright grant of one hundred

and fifty thousand Syrian pounds was allocated without recovering any part of it, in addition to providing the necessary technical advice and facilitating licensing procedures. This second fund was initially restricted to the projects in pilot areas for which detailed master plans had been developed (Bab Qinnasreen, Al-Farafra and Al-Jdayde neighbourhoods). Both funds were merged into a single "Housing Fund" in 2004, and the area of interest expanded to include the entire Old City of Aleppo. Besides, technical support for construction works was provided free of charge until 2006 and included a cost estimate, engineering advice on construction and restoration techniques in accordance with building regulations, and construction work supervision.

A Technical Committee formed by a municipal decree was involved in the issuance of restoration permits, in addition to the core team from the fund section. The committee was in charge of reviewing applications at regular meetings, identifying issues that need clarification during inspections, and approving or rejecting applications (Fischer, M.; Gangler, 2012).

3.4.1.4 Development Plan 1998

Within the framework of the rehabilitation of the Old City of Aleppo project, a comprehensive development plan was issued; this provides a general framework and includes ten strategies for upgrading the historical urban fabric in line with the scope of sustainable development. This article focuses on the strategy related to traditional courtyard housing and social development. This strategy aimed to improve the conditions of the traditional courtyard housing stock in the Old City of Aleppo and operated on two levels: (1) improvement of the quality of single residential buildings and (2) improvement of the overall quality of residential neighbourhoods, based on the assumption that rehabilitation of the housing stock is crucial for urban conservation and development.

By improving the living conditions, this strategy aimed to reverse the trends of migration and to contribute to the conservation of the residential function in historic neighbourhoods. Unfortunately, the actual achievements were limited and negligible compared to the size of the Old City of Aleppo and its population (Windelberg, J.; Kelzieh, T.; Hallaj, 2001).

3.4.1.5 The Renovation and Restoration Guidelines 1999

In 1996, an additional informal framework of laws, the Renovation and Restoration Guidelines were developed and formally adopted in 1999. These Guidelines were developed by local experts in collaboration with the Gesellschaft für Technische Zusammenarbeit (GTZ), as a comprehensive guideline for all interventions in the traditional courtyard houses in the Old City of Aleppo. They consist of a set of standards, including a list of detailed criteria for restoration of traditional courtyard housing, with a focus on preserving its elements and using traditional construction techniques and materials. These guidelines were drafted in accordance with the principles of the Venice Charter (GTZ, 1999). The renovation and restoration guidelines have been incorporated into the Building Control System as binding requirements. These guidelines can improve the accuracy of decision-making, as the Building Control System 1990 (decree No. 39) does not address specific scenarios, such as the allowable changes to the building and the specific principles for each building component. More details are given in (Figure 3.4).

3.4.1.6 Building control system (proposal 2020)

Following the devastation caused by the Syrian-war, amendments to the Building Control System were proposed in 2020, this system incorporates conditions for reconstruction that are similar to those in the old system. However, it allows for the use of modern technologies and appropriate materials in the reconstruction of property. In the absence of necessary documents for reconstruction, the system permits designing structures that resemble buildings with a similar function during the original era of construction. In relation to general conditions for licensing, in particular urban conditions, the system is concerned with preserving public spaces, mainly limited to preservation of the façades overlooking public spaces, and prohibits any intervention in them without permission from special committees. One of the shortcomings of this system is that it fails to provide guidance on how to handle the buildings to be reconstructed, which could result in non-uniform application of the conditions (Aleppo City Council, 2020).

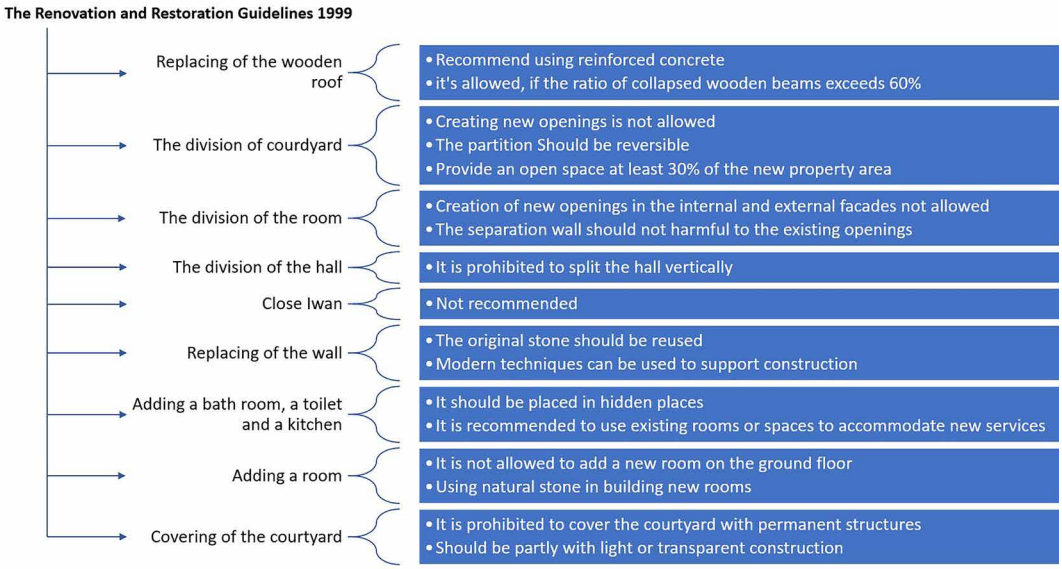

FIG. 3.4 Main regulations in the Renovation and Restoration Guidelines (1999). Author

3.4.2 Implementation of the Laws

In this section, the implementation of the laws reported in Section 3.4.1 is analysed. In order to understand this complex process, the classification of traditional courtyard housing is reported, the responsible authorities are identified, and the process of requesting a licence for intervention on a residential heritage located in the Old City of Aleppo is elucidated.

3.4.2.1 Classification of Traditional Courtyard Houses and Allowed Interventions

According to Guidelines 1999 and the Development Plan, residential heritage in the Old City of Aleppo are classified as follows (GTZ, 1999; Windelberg, J.; Kelzieh, T.; Hallaj, 2001):

I Important historic residences (palaces),
II Historically valuable houses,
III Houses with historically valuable architectural features,
IV Houses without historical importance.

TOC

Depending on the building´s categories, different types of interventions are allowed or not with respect to specific conditions, as reported in (Table 3.1).

TABLE 3.1 Residential heritage categories and allowed interventions are summarised based on restoration guidelines and development plan

House category	General principle	Replacement of original materials	Partitioning of floor plan
I – Important historic residences (palaces)		Not permitted (exceptions require examination)	Not permitted (exceptions require examination)
II – Historically valuable houses	Houses should be restored as closely as possible to their original state	Permitted in case of structural safety, with permission of the Antiquities Dept.	Permitted provided original materials are not damaged
III – Houses with historically valuable architectural features	Valuable architectural elements should be restored in accordance with the guidelines	Permitted for not valuable architectural elements, provided historically significant architectural elements are preserved	Permitted in accordance with the guidelines
IV – Houses without historical importance	The façade should be restored according to the historical ideal model	Permitted	Permitted in accordance with the guidelines

3.4.2.2 Responsible Authorities

Several authorities are involved in the conservation of residential heritage located in the Old City of Aleppo. The responsible authority at the national level is the Presidency of the Council of Ministers; the involved ministries are the Ministry of Culture, the Ministry of Tourism, the Ministry of Endowment “Awqaf”, and the Ministry of Local Administration and Environment. These are represented by the Aleppo Governorate’s affiliated institutions or Directorates, which are the Antiquities and Museums Directorate, Tourism Directorate, Endowments Directorate and the Municipality of Aleppo (Figure 3.5). The Directorate of the Old City (DOC) was established under the Municipality of Aleppo to guide the conservation of the Old City of Aleppo. It includes three departments (the department of permits, emergency and monitoring, the department of implementation and maintenance, and the department of urban studies and planning) covering studies and planning; permits and monitoring, and implementation and maintenance (Figure 3.6) (Knefaty, 2015).

The involvement of authorities in the conservation of a residential heritage depends on the ownership of the building.

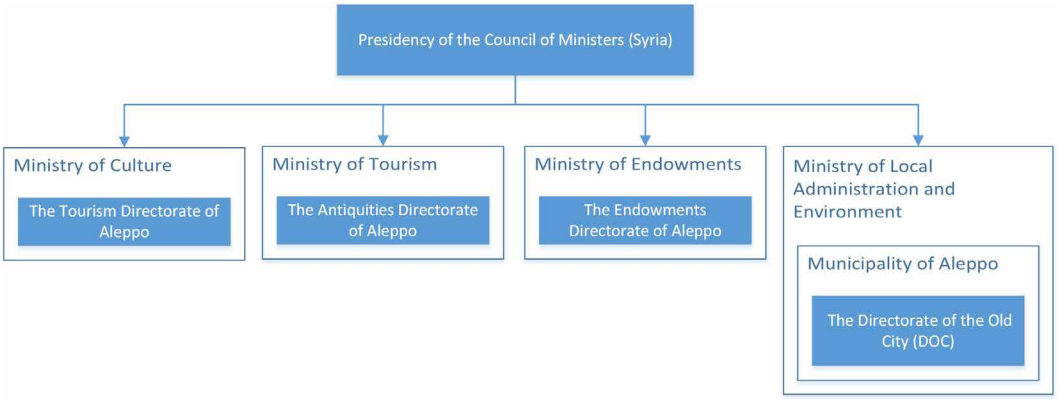

FIG. 3.5 Authorities involved in decision-making regarding the development of the Old City of Aleppo. Author.

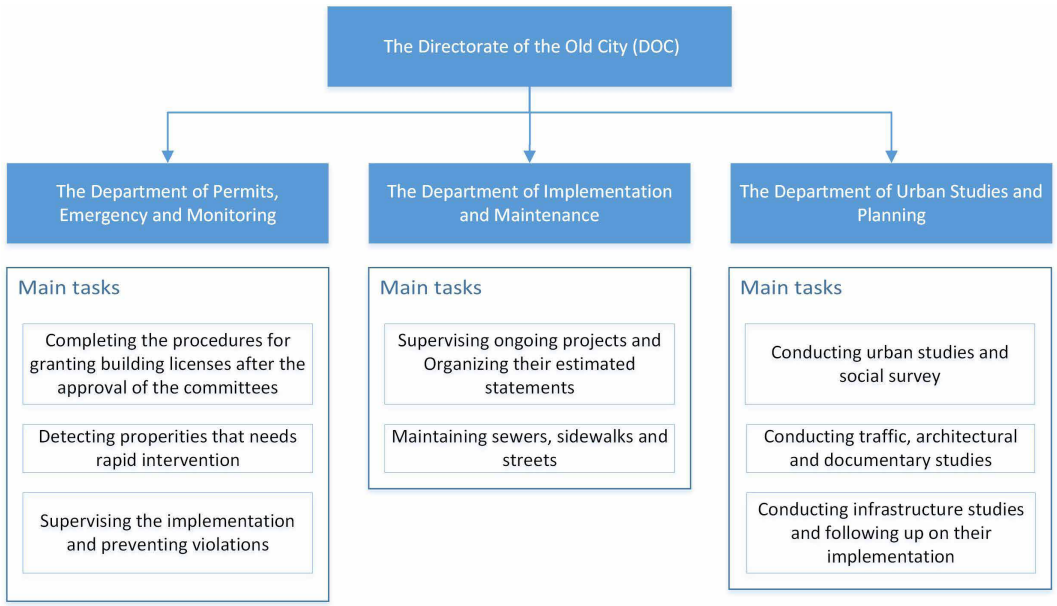

FIG. 3.6 Organisational structure of the (DOC) and main tasks of the different departments. Author.

TOC

3.4.2.3 Process from Application to Completion

In this section, the application process for obtaining a licence for intervening on a residential heritage in the Old City of Aleppo is described. In the case a resident decides to restore or reconstruct his/her traditional courtyard house, a request must be submitted to the Directorate of the Old City (DOC) before any action is taken. More specifically, the request needs to be submitted to the single window initiative (one-stop-shop), which is aimed at facilitating the procedures of obtaining licences, making it easier for residents. The single window system allows residents to submit all necessary documents and applications in one place, which reduces the time and effort required to obtain permits. This initiative is a tool of the Development Plan's strategies. Afterwards, the (DOC) makes an on-site investigation and takes a preliminary decision on whether to approve the project or not, according to Syrian laws (Table 3.2).

In addition to what is stipulated in the Building Construction System, the procedure steps mentioned below must be followed when requesting a licence for restoration or reconstruction:

1 A licence application is prepared by the resident and submitted to the Directorate of the Old City (DOC). This request should include (1) a description, photographs, and architectural plans for the current situation of the building, illustrating the problems; (2) architectural plans for the proposed situation, certified by the engineer who conducted the study, and a report justifying the request to restore or reconstruct in whole or in part.

2 The office of the Old City of Aleppo inspects the property subject of the application and prepares a detailed report with justified suggestions. In addition to a review of the licence request, this detailed report, prepared by the office of the Old City of Aleppo, must include: (1) a list of the parts that are subjected to be restored or reconstructed, the interior additions that must be removed and detailed pictures of the ceiling, windows, etc. (2) proposals for to be reconstructed parts, including heights and sizes, considering e harmony with the surrounding area and preservation of underground connections.

3 The licence request and the report by the office of the Old City of Aleppo are submitted to the Technical Committee, this committee provides a recommendation.

4 The Directorate of the Old City issues the licence, following the recommendation of the Technical Committee and paying the fees.

5 Depending on the type of work residents need to do, there are some limitations:

5.1 In the case of excavation works in connection with construction or demolition works, these are supervised by a representative of the Directorate of Antiquities and Museums and carried out under the supervision of an architect from the DOC, who submits a weekly report to the Directorate of the Old City.

5.2 In case of demolition, intervention on the building or part of it, or change of the use of any property without the necessary licence, the property is sealed with red wax, and the violator is due to return the property to its original condition. In the event of refusal to return the property to its original condition, the city council shall return the property to its original condition at the expense of the person concerned, with a seizure sign placed on the property until the return expenses, in addition to the fees and fines incurred, are collected (Aleppo City Council, 1990).

In the above-mentioned procedure steps, many authorities are involved in the process, and a detailed application legislation is used to explain the entire procedure and the role of the responsible parties (The Directorate of the Old City, 1990). (Figure 3.7 and Figure 3.8) illustrate the whole procedure (two phases) and the responsible parties involved in each step.

TABLE 3.2 Residential heritage categories, related procedures and responsible authorities. Author.

House category	Procedures	Responsible authorities
I – Important historic residences (palaces)	– A historical study – A study of all interventions by experts in accordance with the principles of the Venice Charter	Technical Committee and Antiquities Directorate
II – Historically valuable houses and III – Houses with historically valuable architectural features	– A study of all interventions by experts in accordance with the principles of design criteria	Technical Committee
IV – Houses without historical importance	– A study of the façades, which are the main element with direct influence on the old quarter	Technical Committee

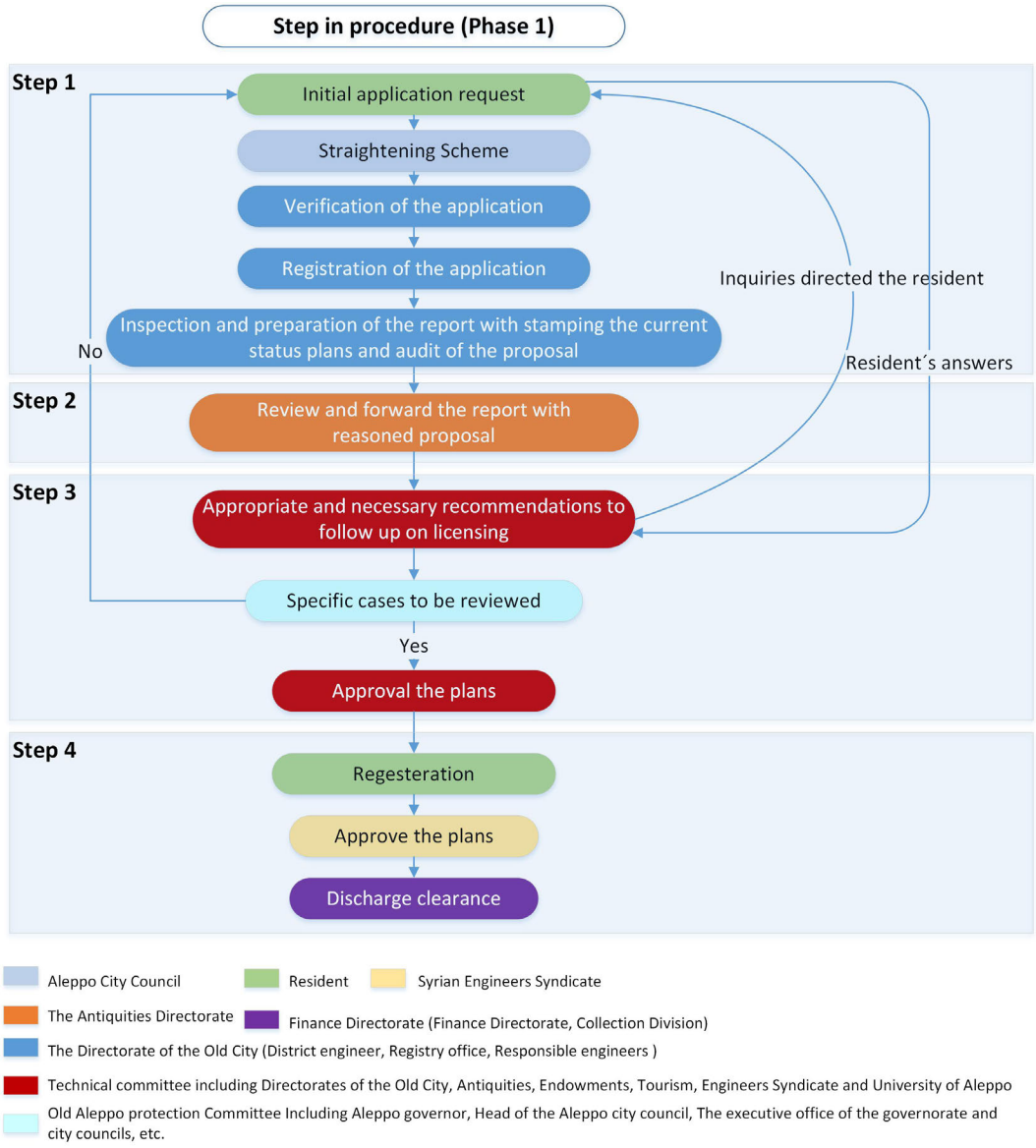

FIG. 3.7 Steps in the procedure and responsible parties by colours in the first phase of the approval process of the licence, according to the Building Control System and its application legislation. Author.

TOC

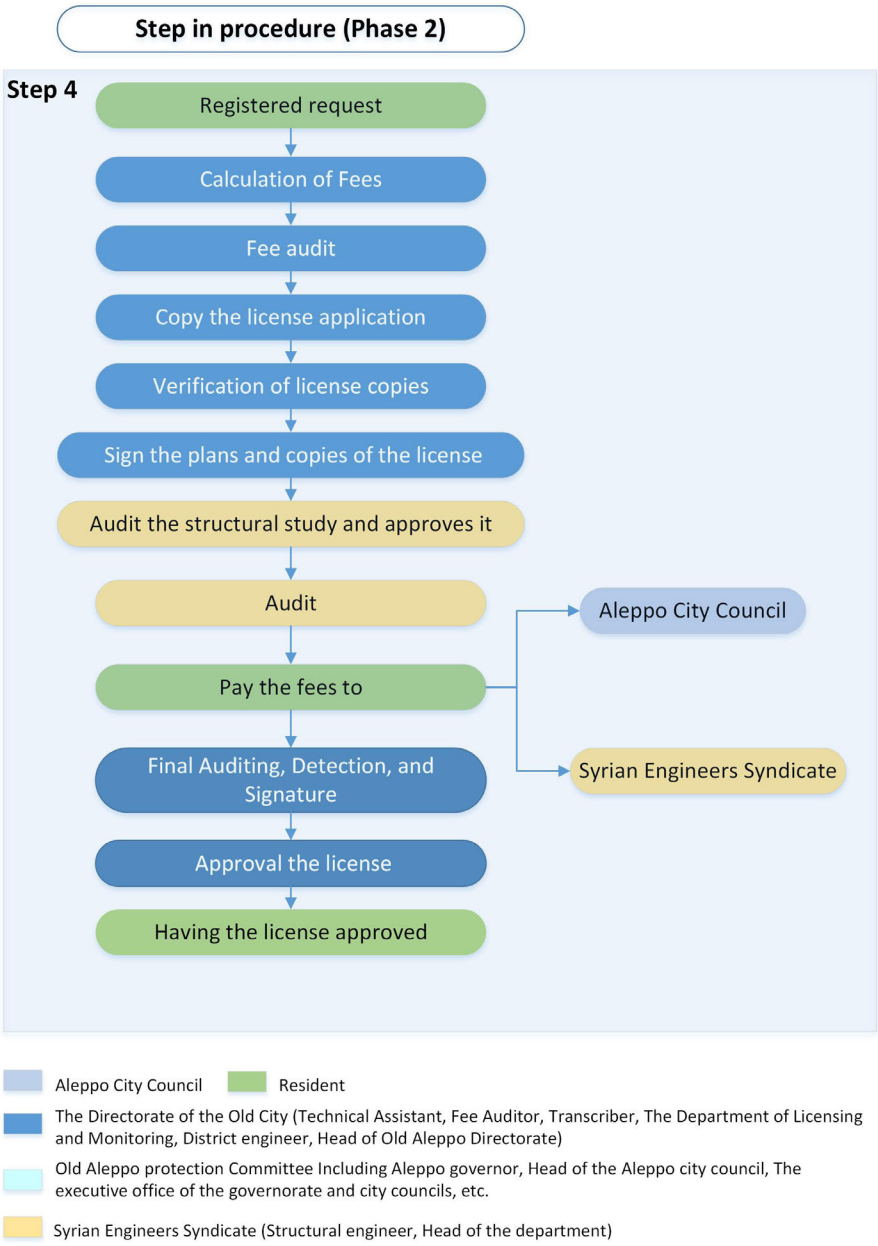

FIG. 3.8 Steps in the procedure and responsible parties by colours in the second phase of the approval process of a licence, according to the Building Control System and application legislation. Author.

TOC

3.4.3 Review of Case Studies and Expert Interviews

3.4.3.1 Case Studies

The case studies research consisted of the analysis of requests for licences for interventions on residential heritage in the Old City of Aleppo, presented in the period 2018-2020 and found in the Directorate of the Old City archive.

In Winter 2020, the archives of the Old City Directorate were consulted. 107 licences for traditional courtyard houses were granted in 2018, 81 in 2019, and 92 in 2020. The number of licences required over a three-year period is small in comparison to the number of traditional courtyard houses in the Old City of Aleppo, which make up the majority of about 16,000 buildings. This can be explained by residents refusing to return to the city's neighbourhoods and by the fact that owners often carry out interventions without licences. 16 cases were examined (Table 3), selected based on the following criteria:

- Licences for different types of intervention (reconstruction and restoration work).
- Presence of building violations (old/new).
- Types of ownership: full ownership, co-ownership and endowment ownership.

Based on the examined cases, the following conclusion can be drawn:

- The applicants are most often the owners.
- In the case of co-ownership, if one or more owners are not present, the remaining shared owners must submit a pledge to the Aleppo City Council agreeing to bear all of the restoration's consequences and effects.

In case of endowment ownership, the tenant must apply to the endowment directorate before beginning the licensing procedures to obtain "no objections" to the restoration work.

- The main reasons for requesting a licence are minor restoration work, restoration or rebuilding.
- The licensing procedures can take from one month for minor restoration works to six months or more for restoration and rebuilding.

TABLE 3.3 Analysis of the selected case studies. Author – data collected during the fieldwork in the Old City of Aleppo (2020/2021)

Case study	Average duration of licensing procedures in Months			Type of licence			Validation of the licence		Applied law			Procedures										
Cadastral number	One	Three	Six	Minor restoration	Restoration	Reconstruction	6 months	One year	Restoration Guidelines	Building Control System	Syrian Antiquities Law	Property registration request	Straightening scheme	Licence request	Architectural inspection and proposal	Payment of fees	Quittance	Submit a rebuilding proposal	Study the proposal	Approval	Control of work by the Directorate of Antiquities	Control of work by Police
1068	•			•			•		•		•	•		•	•					•	•	
3033	•			•			•		•		•	•		•	•					•	•	
1702	•			•			•		•		•	•		•	•					•	•	
2216	•			•			•		•		•	•		•	•					•	•	
2133	•			•			•		•		•	•		•	•					•	•	
4113	•			•			•		•		•	•		•	•					•	•	
1651		•			•				•	•	•	•	•	•	•	•	•			•	•	•
3157		•			•				•	•	•	•	•	•	•	•	•			•	•	•
495		•			•				•	•	•	•	•	•	•	•	•			•	•	•
1437		•			•				•	•	•	•	•	•	•	•	•			•	•	•
632		•			•				•	•	•	•	•	•	•	•	•			•	•	•
3850		•			•				•	•	•	•	•	•	•	•	•			•	•	•
4008		•			•				•	•	•	•	•	•	•	•	•			•	•	•
1985		•			•				•	•	•	•	•	•	•	•	•			•	•	•
1844			•			•		•		•	•	•	•	•	•	•	•	•	•	•	•	•
320			•			•		•		•	•	•	•	•	•	•	•	•	•	•	•	•

TOC

The renovation and restoration guidelines 1999 are followed in the minor restoration works, while the rules reported in the Building Control System and its appendices are followed in the restoration and reconstruction works.

- The licence is valid for six months for minor restoration works, but one year for reconstruction.

- Many institutions, including the Aleppo City Council, the Technical Committee, the Directorate of the Old City, the Directorate of Antiquities and Museums, the Syndicate of Engineers, the Directorate of Finance, and the Police, are involved in licensing procedures and monitoring implementation.

3.4.3.2 Interviews

A diverse group of participants with a range of academic and professional backgrounds having a variety of perspectives were selected based on their presence in Aleppo and their involvement with the current reconstruction process. The participants from academia included historians, professors and faculty members from the Faculty of Architectural Engineering and engineers who have a master's degree in the field of Archaeology and Conservation of Historic Cities. Additionally, the group from practice included practitioners such as the director of the Directorate of Antiquities and Museums of Aleppo, members and the director of the Directorate of the Old City, the president of the Al Adeyat Archaeological Society, technical committee members, economists, members and the chairman of the real estate involved in the reconstruction of some projects in the Old City of Aleppo, the director of the Citadel of Aleppo, contractors who have experience in the restoration of numerous historic buildings in the Old City and engineers who have received awards for their work on reconstruction projects in the Old City.

During interviews, a series of open-ended questions was asked, and topics for discussion were raised using an interview guide. The following topics were covered: barriers to the implementation of Syrian legislation related to residential heritage, and barriers to the successful implementation of sustainable traditional courtyard housing restoration and/or reconstruction. Regarding the barriers to the implementation of Syrian legislation on residential heritage, all respondents agreed on the need to upgrade the Syrian legislation. Specifically, they highlighted the need to reduce the restrictive and bureaucratic procedures that hinder the issuance of licences.

Some experts from academia pointed out that too many committees are involved in the approval process, and the lack of knowledge among certain committees or certain committee members hinders licensing procedures.

Experts from practice reported that the Building Control System is an inapplicable law, as it is better suited for museum artefacts rather than for restoration or rebuilding of housing. They also referred to the exceptions and violations of the laws by other government agencies, such as the Ministry of Education, the Ministry of Tourism and the Ministry of Endowed *"Awqaf*", which owns some buildings. These exceptions are often due to corruption or other interests. According to experts, measures to modify the Building Control System and simplify procedures have been initiated, but they are few and ineffective.

Regarding the barriers to the successful implementation of sustainable traditional courtyard housing restoration and/or reconstruction, experts were asked whether they thought that the restoration and/or reconstruction of the residential heritage has been be approached from a sustainability standpoint, and whether successful initiatives had been taken to meet the requirements outlined in the Development Plan 1992 because of the Development Plan's time limitations.

The experts from academia emphasised that the topic of sustainability is a wide-ranging topic which requires expertise, which is currently lacking. They also pointed out that the current legislations for the Old City of Aleppo do not address the issue of sustainability, especially in regards to social aspects. Despite the brief mention of sustainability in the Development Plan´s strategies, almost all respondents reported that no social aspects were considered in the implementation of these strategies. Although a survey conducted on Old City of Aleppo households in 1993, only one respondent mentioned a social survey conducted as part of the Pilot Project in Al-Bayada Neighbourhood, which was part of the GTZ project "Rehabilitation of the Old City of Aleppo", as a preparation phase prior to the issue of the Development Plan.

There was a conflicting opinion among the experts interviewed about the role of the community in decision-making. From the point of view of the interviewed academics, involvement of residents in decision-making is crucial for the implementation of programmes that meet the needs of the community. Differently, from the perspective of the responsible authorities, residents are partners not in decision-making, but in notifying the *mukhtars*[1] about their problems that need to be addressed.

1 The neighbourhood *mukhtar* is a person that serves as a bridging link between the neighbourhood residences and public bodies including particularly the municipality.

The respondents, including experts from academia and practice, were also asked to comment and explain the reasons for barriers to the use of alternative energies. The experts from academia cited that there is no objection to the use of alternative energies, but because of their high expense and the lack of specific rules, alternative energies are not provided.

The experts from practice stated that institutions do not have the capacity to rebuild houses, so it is a privilege and unrealistic to secure resources such as solar energy.

When asked whether restoration and/or reconstruction of the residential heritage can be reconciled with broader reconstruction plans that address sustainable development, and about the main challenges that the laws need to address in this regard.

All respondents reported that only the physical aspect is currently being worked on. While “reconstruction” should include social, health, environmental, and economic factors, these aspects are not addressed by the law and are being ignored in practice.

Other experts, primarily economists, pointed out that the sanctions imposed on Syria have resulted in an increase in prices that are not proportionate to people’s income. At the same time, the cost of enforcing the regulations is high and transferring money to Syria is complex, particularly since the adoption of Caesar’s legislation, which in turn led to the declining economic condition and rising exchange rate. As a result, many residents in the Old City of Aleppo have lost hope and want to leave.

3.5 Discussion and Conclusion

This research critically reviews the current policies and their development over time, and assesses their current application by means of an analysis of some case studies and of interviews with key stakeholders in the process, such as authorities and decision-makers from academia and practice. The main goal of this research is to identify gaps and improvable aspects in current policies and their application, to be considered when advancing proposals for their improvement.

The policies and their application have shown to have some major limitations, concerning legal/administrative, economic and social aspects.

A first problem of the policies is the long bureaucratic procedure (up to six months) needed for any intervention. This can be particularly challenging in the cases of co-ownership, i.e. when traditional courtyard houses are owned by the Endowment Ministry or different parts of the same traditional courtyard house are owned by different persons, who are often not resident anymore in Aleppo. Streamlining the procedure, such as reducing the number of steps and institutions involved in the licensing process, could help to speed up the intervention and encourage owners to follow the prescribed procedure. Additionally, legal clarification of the ownership structure is an important and essential component of reconstruction.

When analysing the current policies and applications in the case studies, they appear not to be flexible enough to accommodate the needs of the residents, which have evolved in the last decades. Until today, the entire building asset in the Old City of Aleppo is subject to the Syrian Law of Antiquities (1963); this prescribes strict protection measures that do not take into account contemporary living needs. For example, regulations do not allow or restrict some types of intervention, such as installing heating systems, adding service spaces, etc., which are among the most common reasons for intervention (Kousa, Pottgiesser and Lubelli, 2021). Possibly, alternative policies focusing on requirements and quality of the interventions rather than prescribing specific techniques and materials could provide some flexibility while still preserving historic values.

In general, it emerges that a lack of knowledge negatively affects the policies. First of all, not enough information is available about the residential heritage, and even less about its state of conservation after the Syrian war. In fact, the cadastral maps are not updated and only a few detailed surveys of the residential heritage in the

Old City of Aleppo are available, covering only a limited area (e.g. recent research paper on post-Syrian-war housing in the Old City of Aleppo (Kousa, Pottgiesser and Lubelli, 2021). These surveys should be extended to include other neighbourhoods and the entire of Old City of Aleppo.

Next to this, there is currently no inventory of the residents' needs, apart from a few examples (Corsten, 1995; Kousa, Pottgiesser and Lubelli, 2021). These needs are not taken into account in the current regulations. This lack has contributed to uncontrolled interventions on many traditional courtyard houses to meet the needs of privacy, new infrastructure, and services, as well as the urgent need to repair roofs and walls damaged by the Syrian-war. In order to improve regulations concerning residential heritage in the Old City of Aleppo, it is crucial to involve the local community in the decision-making process and to consider their needs in upcoming policy modifications. All relevant parties, including local communities, academic authorities, unions, and the private sector, should be given the opportunity to participate.

Next to a lack of information on the state of conservation of the residential heritage and the needs of the residents, it emerges from the interviews that there is also a lack of background knowledge among those responsible for implementing the interventions, who may be young and inexperienced in technical, historic, and legal aspects. Knowledge support from academia and NGOs could help to provide adequate competencies to the committee members, for example, by means of workshops and seminars.

There is a lack of knowledge also at the level of execution of the intervention. Due to the war, traditional knowledge of building materials and construction techniques has been lost, and the current craftsmanship is often not specialised enough to work on residential heritage. New education programmes would help to create specialised craftsmen. Suitable documentation of the old techniques, e.g. by involving old craftsmen, would make this knowledge available to younger people.

In addition to the legal, administrative, and social issues discussed above, there are also economic challenges that make reconstruction difficult. The reconstruction costs are high and, at present, there is no economic support available. Banks refuse to give loans to residents, and it can be difficult to transfer money from other countries to Syria, so financing interventions is difficult. Possibly, the development of incentives, such as emergency funds, soft loans, legal services, tax exemptions, etc., could improve residents' ability to restore and reconstruct their traditional courtyard houses.

In conclusion, this paper highlighted the main limitations of current policies. The specific improvement needs have been addressed, and some general proposals have been made. In future research, approaches to similar international situations will be assessed, with the aim of coming to suitable and feasible suggestions for the improvement of procedures for the restoration and/or reconstruction of residential heritage in the Old City of Aleppo.

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4 Towards a Sustainable Approach to Reconstruction of Residential Heritage

Insights from International Case Studies and Guidance

This chapter is a slightly modified version of the paper published in the Heritage and Sustainable Development Journal:
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ABSTRACT Reconstruction of historic cities after destruction due to wars or natural disasters is getting increasing relevance in the last decades. The investigation of international examples of reconstruction after war or natural catastrophic events can provide knowledge for improving guidance and strategies for sustainable reconstruction/ intervention in similar cases in the future. This paper aims to identify and analyse the legal, administrative, social, and economic factors that can favour the reconstruction and recovery processes of the historic city and its residential neighbourhoods. An extensive review of international examples and literature on guidance has been conducted to provide insight into best practices and potential solutions. As a result, a set of lessons learned that can be used to address post-war and post-disaster reconstruction in similar situations is given.

KEYWORDS Residential heritage, post-war reconstruction, post-disaster reconstruction, international guidance, sustainability

4.1 Introduction

The process of post-crisis reconstruction presents an opportunity to revise existing planning regulations and ensure the development of building codes and regulations that promote sustainability and resilience in urban areas. (UNESCO; World Bank Group, 2018). Cultural heritage transforms into a strong symbol and tool for rebuilding communities during times of recovery and is essential for building peace, dialogue, and sustainable development. Therefore, it is crucial to develop a vision for reconstruction, based on theoretical guidance, methodologies, and operational frameworks. This requires extensive research and multidisciplinary cooperation involving various actors (Pelletier and Thomas, 2016). For these reasons, there has been an acknowledged need to draw lessons from case studies. This need was highlighted in international conferences and meetings, prompting ICOMOS and ICCROM to launch a joint project called "Analysis of Case Studies in Recovery and Reconstruction" in 2019/2020 to discover effective approaches to gaining knowledge from past experiences in order to offer insights that might enhance guidance (ICCROM and ICOMOS, 2020). In a specific context, residential heritage, as tangible cultural heritage, plays a crucial role in the housing sector. Housing is a particularly vulnerable asset, with the demolition of houses or the loss due to displacement or dispossession as one of the most the maximum seen outcomes of wars and natural disasters. Housing is at once influencing livelihoods, healthcare, education, security, and stability in social and familial structures. Beyond functioning as a familial and social hub, housing serves as a symbol of cultural identity and pride, playing both a politically and economically significant role. Given these factors, the housing sector assumes a pivotal role in the reconstruction of cities post-crisis (Barakat, 2003). Housing reconstruction within post-war and post-disaster programming must consequently get excessive prominence. However, currently, there exists no dedicated agency for housing reconstruction, and only very few major NGOs working in relief have specific expertise in this domain. Housing interventions are met with significant challenges that cannot simply be disregarded. Therefore, it is crucial to find out guidelines for executing it more effectively.

This paper aims to identify and analyse the legal, administrative, social, and economic factors that can favour reconstruction processes of historic cities and their residential neighbourhoods.

To this scope, a detailed examination of the development of residential heritage reconstruction guidance (Section 4.3) and its implementation through case studies (Section 4.4) has been carried out. Based on the results, the legal, administrative, social, and economic factors that can favour reconstruction processes of residential heritage are discussed (Section 4.5).

4.2 Research Method

The methods used in this research consisted of:

Analysis of official international guidance documents from UNESCO, ICOMOS, the Council of Europe, the World Heritage Cities organisation, the United Nations, and the European Committee for Standardisation. Documents dealing with one or more of the following subjects were looked for: conservation of a heritage urban area, town, or city; post-war or conflict and/or post-disaster reconstruction and/or recovery; heritage and sustainable development and/or sustainability. To this scope, documents were screened using the following keywords: “city”, “house”, “reconstruction”, “recovery”, “sustainability”, “sustainable development”, “documentation”, “training”, “craftsmanship”, “need”, “participation”, and “financing” and then chequing specific sections of the document.

With the focus has been laid specifically on the aspects of socially sustainable housing reconstruction, case studies were selected based on several criteria among places of historical significance that have undergone reconstruction after civil war. The following criteria were used for the selection of the cases:

- Criterion 1: **Region:** To capture a wide range of practical experience of post-war cultural heritage reconstruction, the selection covered different regions in i) Asia and the Middle East (Kabul, Beirut, Nablus, and Iraq) and ii) in Europe, mainly Eastern Europe (Dubrovnik and Mostar).

- Criterion 2: **Divided City:** Priority was given to cities that have undergone division, either via physical separation or social fragmentation.

- Criterion 3: **Housing:** The traditional housing types impacted by conflict and addressed during the following reconstruction were taken into consideration.

A review of the literature on the topic of international examples of post-war reconstruction was conducted; both primary and secondary sources, such as governments and international organisations’ documents and websites, were examined; additionally, contemporary publications, e.g., academic papers, books, reports and online newspapers in English and Arabic, were consulted. This review supported the understanding of the specific local context.

Observations (in the case of Beirut) and interviews with experts (in the cases of Beirut and Mosul) were part of data collection.

A comparative analysis of case studies was conducted to examine different strategies and how different variables interact within each case.

A theoretical framework to guide the analysis of the case studies was developed; in this, several aspects have been considered: historical context, organisational structure and legal framework governing the reconstruction, financial support, social participation and impact, and monitoring and evaluation of the reconstruction process.

4.3 International Guidance Documents Addressing Residential Heritage Reconstruction

Sustainable reconstruction of (built) heritage after wars and natural disasters is an object of debate at the international level, by UNESCO, ICOMOS, and other international organisations. Charters, declarations, conventions, and guidelines are being established and/or updated with specific focuses and goals. This section provides a short overview of the evolution of the aspects addressed in these documents in time (1964-present). It is worth mentioning that these documents include 1) binding legal documents, which are intergovernmental agreements and conventions that obligate signatory countries to adhere to specific principles and regulations. 2) scientific/ guidance documents, which provide recommendations and best practices and serve as references for decision-makers. (Table 4.1) reports the analysed documents, while (Table 4.2) summarises the aspects considered.

TABLE 4.1 Overview of guidance documents analysed.

Reference number	Release year	International guidance documents	Organization	Scope
1	1964	International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter)	ICOMOS	Scientific/guidance document
2	1972	Convention Concerning the Protection of the World Cultural and Natural Heritage	UNESCO	Binding legal document
3	1979	The Australia ICOMOS Guidelines for the Conservation of Places of Cultural Significance ("Burra Charter")	ICOMOS Australia	Scientific/guidance document
4	1982	The Declaration of Dresden	ICOMOS	Scientific/guidance document
5	1989	Recommendation on the Safeguarding of Traditional Culture and Folklore	UNESCO	Binding legal document
6	1996	The Declaration of San Antonio	ICOMOS	Scientific/guidance document
7	2000	The Charter of Krakow Principles for Conservation and Restoration of Built Heritage	Bureau Krakow	Scientific/guidance document
8	2007	INTBAU Venice Declaration on the Conservation of Monuments and Sites in the 21st Century	INTBAU	Scientific/guidance document
9	2009	ICOMOS World Heritage in Danger Compendium II	ICOMOS	Scientific/guidance document
10	2009	The Kit of the Convention for the Safeguarding of the Intangible Cultural Heritage	UNESCO	Scientific/guidance document
11	2010	ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value	ICOMOS New Zealand	Scientific/guidance document
12	2013	Burra charter The Australia ICOMOS Charter for Places of Cultural Significance	ICOMOS Australia	Scientific/guidance document
13	2015	Integration of a sustainable development perspective into the processes of the world heritage convention	UNESCO	Binding legal document
14	2017	Guidance on post-trauma recovery and reconstruction for world heritage cultural properties	ICOMOS	Scientific/guidance document
15	2018	Warsaw recommendation on recovery & reconstruction of cultural heritage	UNESCO	Scientific/guidance document
16	2018	Culture in city reconstruction and recovery	UNESCO/ World Bank	Scientific/guidance document

TABLE 4.2 Overview of aspects considered in different guidance documents over time

Reference number	Addressing reconstruc-tion	Attention to sustainability	Need of Docu-mentation	Attention to People need	Need of craftsman-ship	Attention to People participation	Need of funding instruments
1	•						
2					•	•	•
3	•		•				
4	•					•	
5					•	•	
6			•				
7	•	•			•	•	
8			•				
9					•		
10	•	•					
11			•				
12						•	
13						•	•
14	•	•	•			•	•
15	•	•	•		•	•	
16	•	•		•		•	•

4.3.1 Historical Evolution of the Sustainable Reconstruction Concept

The concept of "reconstruction" has evolved during the last decades, towards the broadening of the object addressed by reconstruction and considering reconstruction as a fundamental aspect of sustainable development. The International Charter for the Conservation and Restoration of Monuments and Sites (the Venice Charter) of 1964 (ICOMOS, 1964) is the first international document that addresses the reconstruction in the heritage context. In this charter, reconstruction is limited to the context of excavations; it states that reconstruction work should be ruled out, except in cases of anastylosis (the reassembling of existing but dismembered parts). About 15 years later, in 1979, the Australia ICOMOS Guidelines for the Conservation of Places of Cultural Significance (Burra Charter) (Australia ICOMOS, 1979) enlarges the concept of reconstruction to include all the physical material of the place. In this charter, reconstruction is defined as returning a place as closely as feasible to a previously recognised state; additions should be distinguished by the introduction of materials (new or old) into the fabric. In 1982, the Declaration of Dresden (ICOMOS, 1982),

which emerges from the experience in post-war reconstruction, changes many concepts in dealing with historical buildings. This charter underlines the link between the task of the reconstruction of towns and villages, the need for social development after the war, and the task of protecting monuments.

With the beginning of the 21st century, the need for sustainable reconstruction was explicitly mentioned and addressed. The first example is given by the Principles for Conservation and Restoration of Built Heritage (the Charter of Krakow) of 2000 (Icomos, 2000). According to this charter, it is only permitted to reconstruct an entire building that has been completely destroyed by an armed conflict or a natural disaster if there are exceptional social or cultural motives connected to the identity of the entire community. It enlarges the concept of reconstruction to include contemporary architecture, and it considers the potential social and economic changes deriving from reconstruction for the community and the heritage site. In 2009, the concept of reconstruction was further broadened by the Kit of the Convention for the Safeguarding of the Intangible Cultural Heritage (UNESCO, 2009) to include intangible cultural heritage, important for conserving cultural diversity and contributing to the sustainability of communities.

More recently, after the conflicts in the Middle East and North Africa, several guidance documents have been developed to guide reconstruction efforts with a focus on the sustainability and preservation of cultural heritage sites. For example, the Guidance on Post-Trauma Recovery and Reconstruction for World Heritage Cultural Properties of 2017 (ICOMOS, 2017) states that the recovery of cultural heritage attributes ought to aid and power sustainable development and community well-being. In a wider context, the Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage of 2018 (UNESCO World Heritage Centre, 2018) states that people-centred approaches should be used when making decisions on reconstruction, and local communities should be fully engaged. A similar attention to social sustainability can be found in the People, Places, and Policies (3Ps) approach defined by the Culture in City Reconstruction and Recovery of 2018 (UNESCO; World Bank Group, 2018). This document integrates cultural heritage and creativity as essential elements for sustainable urban development, social cohesion and resilience, and reconciliation. Finally, the definition of Sustainable reconstruction reported by the United Nations International Strategy for Disaster Reduction (UNISDR) (United Nations General, 2017),(UNESCO, 2018) underlines this attention to sustainable reconstruction of heritage addressed in its broader sense. In this document, reconstruction is described as the medium- to long-term rebuilding and sustainable recovery of the infrastructure, services, housing, facilities, and livelihoods necessary for the complete functioning of a community or society that has been impacted by a disaster.

4.3.2 Evolution of the Documentation, Education, Training, People's Needs and Participation Concepts in Guidance Documents

Another aspect in the guidance on conservation, incl. reconstruction, which evolved in time, is the relevance given to documentation and the broadness of the aspects to be documented. The Burra Charter of 1979 (Australia ICOMOS, 1979) sets the foundation for this evolution. This Charter emphasises the importance of a thorough documentation of the existing, supported by professional supervision of the documentation process, and the need to make the collected documentation publicly available. Subsequently, other guidance and declarations have further developed this approach. The Declaration of San Antonio of 1996 (ICOMOS, 1996), for instance, highlighted the need for proper documentation and the importance of using traditional techniques in reconstruction works. Similarly, the INTBAU Venice Declaration on the Conservation of Monuments and Sites in the 21st Century of 2007 (INTBAU, 2007) recognised the importance of scientific investigation and accurate documentation. The ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value of 2010 (ICOMOS New Zealand, 2010) emphasises the importance of research and documentation in the conservation process; it underlines the importance of identifying and understanding all relevant cultural heritage values and of carrying out physical investigation and recording of a place. In 2017, the Guidance on post-trauma recovery and reconstruction for world heritage cultural properties (ICOMOS, 2017) enlarges the concept of documentation to include recording of the surviving and lost attributes of Outstanding Universal Value (OUV), both tangible and intangible. In 2018, the Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage (UNESCO World Heritage Centre, 2018) reports that documentation of building techniques is essential for a successful cultural heritage reconstruction. For effective site management, documentation must be updated regularly while utilising the opportunities provided by new technologies. In the case of a disaster, records will then be available as a foundation for post-traumatic growth. It further states that in the lack of technical documentation, traditional knowledge and memories of the community could be used to direct reconstruction (UNESCO and World Heritage Convention, 2018).

Another trend which can be identified in guidance documents is the increasing importance given to education and training as crucial aspects for the conservation of heritage. The Convention Concerning the Protection of the World Cultural and Natural Heritage of 1972 (United Nations Educational, 1972) is one of the first documents to address this need: it emphasises the importance of educational campaigns, research, and modern technologies in promoting appreciation and respect for heritage. The Recommendation on the Safeguarding of Traditional Culture and Folklore of 1989 (UNESCO, 1989) highlights the importance of specialised training for

those involved in the conservation of folklore, from physical conservation to analytic work. The Principles for Conservation and Restoration of Built Heritage (also known as the Charter of Krakow) of 2000 (Icomos, 2000) recognises the significance of craftsmanship in reconstruction projects and recommends improving vocational training to enhance the quality of craft and technical work. The Kit of the Convention for the Safeguarding of the Intangible Cultural Heritage of 2009 (UNESCO, 2009) emphasises the transmission of knowledge and skills to future generations as well as the conservation of intangible cultural heritage. More recently, the Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage of 2018, in order to guarantee that heritage places have a sustainable future, emphasises the necessity for building long-term capacity in disaster risk management and conservation techniques, particularly for craftspeople (UNESCO World Heritage Centre, 2018).

Likewise, guidance has increasingly recognised the importance of addressing people's needs in the context of heritage reconstruction. While previously only a few guidance documents focused on this issue, recent reports emphasise the importance of prioritising people's needs. For example, the Culture in City Reconstruction and Recovery report of 2018 and its CURE framework (UNESCO, 2018a) priorities, people's needs, values and social practices.

This increased attention to people's needs has led to a growing recognition of the importance of involving local communities and stakeholders in guidance related to heritage conservation, incl. reconstruction. International guidance documents, such as the Convention concerning the protection of the world cultural and natural heritage of 1972 (United Nations Educational, 1972), the Declaration of Dresden of 1982 (ICOMOS, 1982), the Washington charter of 1987 (ICOMOS, 1987), and the Recommendation on the Safeguarding of Traditional Culture and Folklore of 1989 (UNESCO, 1989), all emphasise the want for people's participation. More recently, the Charter of Krakow of 2000 (Icomos, 2000) advocates for the establishment of mechanisms to facilitate such participation. The Burra Charter of 2013 (Australia ICOMOS, 2013) highlights the importance of involving people who have significant associations with a place in the conservation, interpretation, and management of the place. Similarly, the guidance document for the integration of a sustainable development perspective into the processes of the World Heritage Convention of 2015 (UNESCO, 2015) and the Guidance on post-trauma recovery and reconstruction for world heritage cultural properties of 2017 (ICOMOS, 2017) both emphasise the importance of involving local communities in the reconstruction process. The Warsaw Recommendation on Recovery and Reconstruction of Cultural Heritage of 2018 (UNESCO World Heritage Centre, 2018) advocates for people-centred approaches that fully engage local communities and relevant stakeholders, while considering social justice and property titles too. In a wider context, the Culture in City Reconstruction and

Recovery report of 2018 (UNESCO, 2018a) emphasises the importance of participatory approaches that ensure the full involvement of beneficiaries and stakeholders, including communities and local governments. In particular, the Culture in City Reconstruction and Recovery report of 2018, including its CURE framework (UNESCO, 2018a) and its implementing document, emphasises the importance of charrettes; a public meeting or workshop held as part of a coordinated attempt to address an issue or create a plan, interviews, focus group discussions, and community forums as tools to generate input and ensure that the community has a say in decision-making.

4.3.3 Evolution of the Financial Instruments Concept in Guidance Documents

All the mentioned developments towards a more sustainable reconstruction process can hardly be feasible without adequate financial instruments. An increasing understanding of the significance of adequate funding and resources to support reconstruction efforts is evident in guidance documents. The first convention to highlight the necessity for financial measures, like tax concessions, grants, and loans, is the Convention concerning the Protection of the World Cultural and Natural Heritage of 1972 (United Nations Educational, 1972). In more recent guidance documents, such as the Integration of a Sustainable Development Perspective into the Processes of the World Heritage Convention of 2015 (UNESCO, 2015), the range of possible economic investment in and around heritage properties has been broadened to include, e.g. the development of sustainable economic activities related to craftsmanship and the promotion of sustainable tourism. In addition, the Guidance on Post-Trauma Recovery and Reconstruction for World Heritage Cultural Properties of 2017 (ICOMOS, 2017) emphasises the importance of utilising local resources in the reconstruction process, and warns against the risk of imported labour. The Culture in City Reconstruction and Recovery Report of 2018 (UNESCO; World Bank Group, 2018) and its CURE Framework offer a broad overview of financial models, able to balance short-term and long-term needs and to consider the possible contributions of different stakeholders, including public and private funding sources and public-private partnerships.

In conclusion, the process of developing guidelines for reconstructing built heritage after wars and natural disasters has been dynamic and continuous. In time, a clear shift towards a more holistic approach to reconstruction can be observed; attention to documentation, education, training, community well-being, and active participation of local communities has gained recognition as critical aspects for the successful reconstruction of cultural heritage. Besides, emphasis has been put on the importance of adequate financial instruments and sustainable economic activities.

4.4 International Case Studies Addressing Residential Heritage Recovery and Reconstruction

In this section, some case studies of post-war reconstruction are analysed, in order to get some lessons for future reconstruction processes. The analysis also assesses whether and how the aspects mentioned in the guidance documents (section 3) have been actually implemented in practice. An overview of the aspects and relatively specific actions implemented in the case studies is given in (Table 4.3).

4.4.1 Beirut, Lebanon (1975-1990)

Beirut, a coastal city with a history dating back to 5,000 years ago, underwent a wave of modernization during the late Ottoman (1900–1916) and French Mandate periods (1920s–1930s); this led to the partial destruction of the Medieval urban fabric of Beirut Central District, the city's historic district, which covers about 150 hectares (Figure 4.1). The residential architecture of Beirut gradually shifted from the suburban bourgeois house, characterised by the triple-arched central-hall design and ornate mansions, to the peri-urban apartment house, characterised by being a multi-story residential building to accommodate a larger number of units, and ultimately to the speculative urban apartment building. In 1954, the implementation of a Zoning Law created ten concentric zones of diminishing floor-to-area ratio (FAR) extending from the centre of the city outward. This law is still enforced, and stipulates that the highest allowable densities must occur in the historic core and its immediate periphery (Saliba, 2013).

From 1975 to 1990, the Beirut Central District was a site of fierce conflict during the Lebanese Civil War (ILYÉS, 2015). As a consequence, 83% of the district and its historical urban landmarks, such as the Khans and old markets, were destroyed. A quarter of all residential properties were either damaged or completely destroyed, and half of the population was displaced from their homes, either temporarily or permanently (Sawalha, 1998).

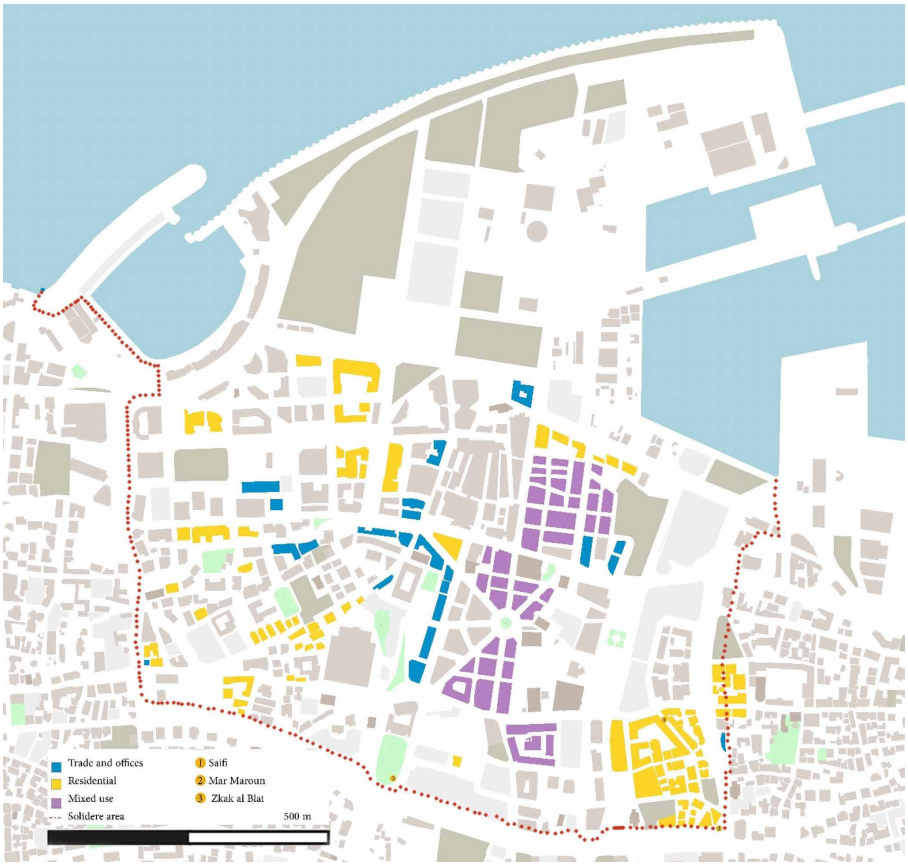

FIG. 4.1 Ground plan of the Beirut Central District M 1:5000. Author – OpenStreetMap

In 1991, the Lebanese government appointed a private Real Estate Holding Company, “Solidere”, to reconstruct the Beirut Central District. The Master Plan for the reconstruction and development of the Beirut Central District was formulated by a large regional architecture and engineering consultancy. Although this plan faced harsh opposition from civil society and experts, the Council of Ministers officially ratified it in its final version in 1995. In this Master Plan, 37% of the area was allocated to “new developments”, 31% to “infrastructure and highways”, whereas 12% only was reserved for “heritage buildings”. 42% of the facilities in the Beirut Central District were consecrated for “High End Housing“ and 34% for offices for the “Upper Social Layer”.

This Master Plan intended to transform the city centre into an economic hub, supporting the interests of the banking sector. This phenomenon created an island for the rich in the middle of the Beirut Central District and caused further segregation. Consequently, the cost of 1 sqm became equivalent to 10 times the minimum wage in Lebanon (Chami and Rizk, 2021). Thus, the *Solidere* project did not actually contribute towards the reconciliation and reintegration of Lebanese society (Makarem, 2014). Regarding the residential housing, the Master Plan aimed at the conservation of three residential neighbourhoods (Saifi, Mar Maroun and Zkak al Blat), including the reconstruction of traditional Lebanese houses and the development of new projects and public areas, for improving the quality of life in these neighbourhoods (Habitat II, 1996). *Solidere* used the concept of facadism "historic exterior, modern interior" as a conservation strategy, i.e., the façades of the buildings were kept, and the interiors were modernised. Particularly in the Saifi neighbourhood, another strategy was used: a "neo-historical" structure that emulates surrounding buildings, changed into created, however contradictions among plans and elevations frequently occurred. For example, the symmetrical central hall elevation, characteristic of the traditional Beiruti house, was maintained, which, however is now no longer correspond to the building's cutting-edge plan, and consequently residual spaces resulted from this arrangement (Saliba, 2013). The company's reliance was on international finance and a lack of public consultation. The *Solidere* project has type A stockholders and type B stockholders. The original proprietors of the residences in the Beirut Central District make up Type A stockholders. These shares were received based on an evaluation of their property. Type B stockholders are recent investors who purchased equity in the company. The original owners were given the option of getting back their houses through conservation of the housing themselves. However, to avoid losing possession of their houses, they had to adhere to a fixed completion timeline and strict plan standards. As a consequence, many residents were not able to fulfil these requirements and were forced to sell their property, and more than half of the houses were sold to wealthy foreigners and expats, leaving the Beirut Central District empty for most of the year (Chami and Rizk, 2021). Solidere's focus was on luxury stores and high-end restaurants, its focus being on attracting international investors and tourists, rather than catering to the original residents' needs. Because of this approach, the area became unaffordable for most Beirutis. Solidere's approach caused a lack of affordable housing, displacement of residents, and a lack of representation and participation of local communities in the planning and development process.

4.4.2 Dubrovnik, Croatia (1991-1992)

Dubrovnik is a coastal city and a sought-after tourist destination with a rich history and well-preserved historical structures, dating back to the 13th century. The Old City is listed as a World Heritage Site since 1979, appreciated for its essential elements of a medieval fortified town, including ramparts, street and square layout, churches, palaces, impressive public buildings and private houses (Figure 4.2). Following its inscription as a World Heritage Site, the city was protected under the provisions of the Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict (UNESCO, the Institute for the Protection of the Cultural Monuments and Natural Environment of Dubrovnik, 1994).

During the 1991-1992 war in Croatia, Dubrovnik was under siege and suffered significant damage, also affecting the Old City. Direct hits caused damage to roof structures, façades, and public monuments. Some 68% of the 824 buildings in the Old City sustained damage. Even throughout the seven-month siege, conservation work started as soon as UNESCO listed Dubrovnik as a World Heritage in Danger (UNESCO, the Institute for the Protection of the Cultural Monuments and Natural Environment of Dubrovnik, 1994). UNESCO dispatched experts to help local conservation professionals in conducting a detailed survey of the damage and estimating the cost of reconstruction. These operations took place during the war and required the development of a standard method for registering and estimating the destruction. Their work during the siege contributed greatly to the reconstruction of the Old City. So too did the existence of a valuable archive of architectural, textual and photo documentation that had been created during the meticulous reconstruction which followed a devastating earthquake suffered by Dubrovnik in 1979 (Mahečić, 2014).

Local inhabitants, with the Institute for the Rehabilitation of Dubrovnik and the Institute for the Protection of Cultural Monuments, were actively involved in the reconstruction through the preparation of documentation and in carrying out the demanding works and through supervision of the reconstruction works. These Croatian groups partnered with UNESCO in order to devise a strategy for the restoration; this included creating training programmes to educate restorers in historical building and decorating techniques, from stonework to painting. The process was guided by an “Action Plan” that prioritised the use of traditional construction techniques and materials, conservation of original structures, and strengthening of historical buildings with contemporary systems, and avoiding the use of new, reinforced concrete construction (Mahečić, 2014). In 1993, the financial capacity of the government to reconstruct housing was very limited, and reconstruction with traditional materials was impossible. With the war still ongoing, the thorough reconstruction had to wait, and the priority was to preserve the structure of the damaged buildings, to keep them safe and in use and maintain the

life in the city (Mahečić, 2014). The reconstruction was overseen by the committee for reconstruction of Dubrovnik and was funded mostly by government funds and loans, with some support from donations by former residents, admirers of the city, and international foundations. In the ten years following the siege, the Croatian government supplied about $2 million per year for reconstruction efforts; UNESCO gave a one-time payment of $300,000; and many other organisations helped raise money for the cause (UNESCO, 2018b). The reconstruction of the city's architectural heritage was completed in 2008. This reconstruction took place while the country and its society were simultaneously in transition to a market economy. While the reconstruction of national cultural and architectural heritage was conducted with great care and attention, with many experts taking part, some of those living in damaged houses in the Old Town wanted not only to reconstruct their houses but also to increase their market value and the rules of reconstruction respecting original construction techniques and materials were, sometimes, bent (Mahečić, 2014). The need for reconciliation was not recognised during the reconstruction phase. Although Dubrovnik had experienced reconciliation, it was only a public performance carried out for the benefit of economic and cultural stability through tourism (Bishop, 2014).

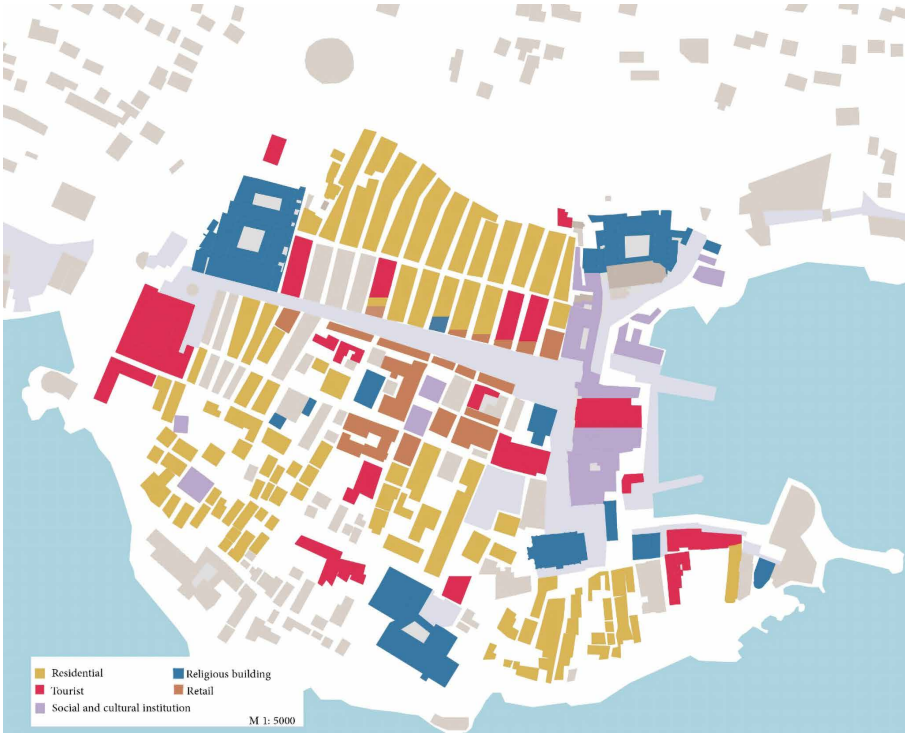

FIG. 4.2 Ground plan of the Old City of Dubrovnik M 1:5000. Author – OpenStreetMap

TOC

4.4.3 Mostar, Bosnia and Herzegovina (The Bosnian War 1992-1995)

The historic city of Mostar in Bosnia-Herzegovina has a rich cultural and historical heritage, with strong influences from the Ottoman Empire and the Austro-Hungarian Empire (Figure 4.3). The Old City has been protected by the 1985 Law on the Protection and Use of the Cultural, Historical, and Natural Heritage of Bosnia and Herzegovina. The old Turkish houses and the Old Bridge were the major attractions and symbols of the city (ICOMOS, 2005).

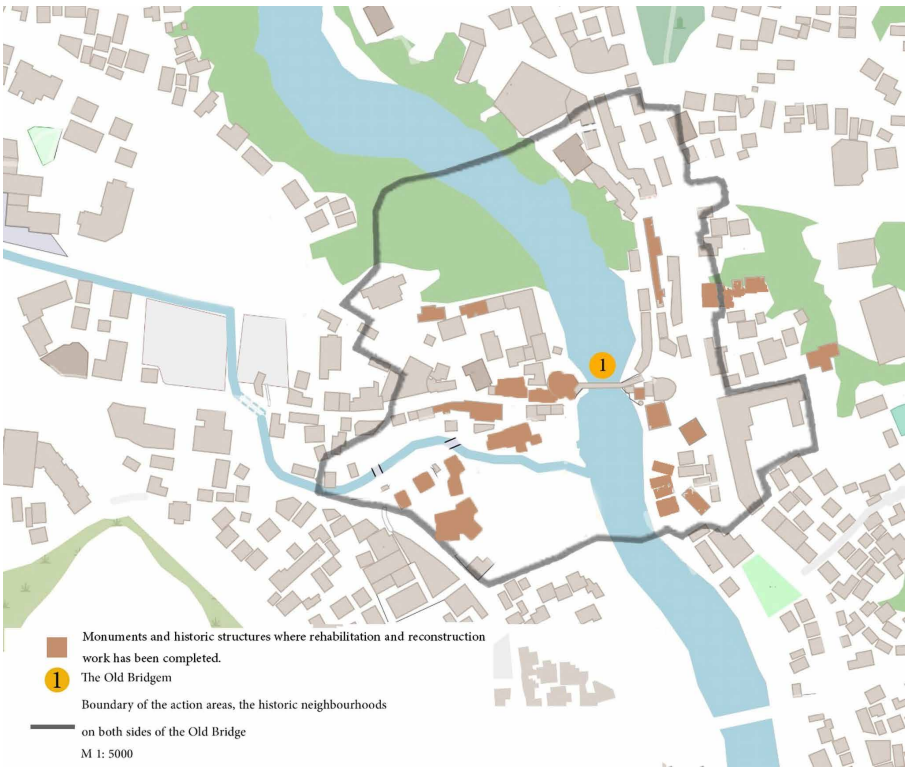

FIG. 4.3 Ground plan of the historic city of Mostar M 1:5000. Author - OpenStreetMap

Between 1992-1995, the city underwent two sieges resulting in widespread damage and destruction. 90% of the buildings in the city centre was damaged, with a third of the historic buildings being completely destroyed. Thousands of residents were killed, and many more were displaced from their homes. Religious, cultural, historical, and architectural landmarks were specifically targeted during the bombings and either badly damaged or completely destroyed. All of the historic core's buildings

TOC

were significantly impacted. The Old Bridge, which had survived the first siege, was targeted and shelled point-blank for days during the second siege. For the international community many residents, the destruction of the Old Bridge and the division of the city came to symbolise the war's threat to Bosnian multiculturalism (Makaš, 2012).

After the war, various organisations, including the government, UNESCO, the World Bank, the European Union, the Aga Khan Trust for Culture (AKTC), and the World Monuments Fund (WMF), offered technical and financial aid for the reconstruction. In 1998, the Aga Khan Trust for Culture/ World Monuments Fund group formulated a "Conservation and Development Plan for the Old Town", which was officially adopted by the authorities in 2001. The plan's goal was to create a long-term programme for conservation, including reconstruction, that would conserve the area's identity and prevent further damage. The plan also included regulations for traditional land use, recommendations for building reconstruction, and measures to discourage conflicting land uses. For example, in any situation where the original use was obviously residential, the conservation of buildings for use as housing is advised. While restricting certain land uses, notably those that introduce activities that conflict with or that will lead to the significant transformation of the character and environmental quality of the historic neighbourhoods. The plan provided guidelines and proposals for restoring the historic core of Mostar, as well as adaptive reuse plans for the most important historic buildings and measures to manage the Old City (Aga Khan Trust for Culture, 2004). The Stari Grad Agency was established to oversee these projects, which worked according to the approach developed by the Aga Khan Trust for Culture/ World Monuments Fund team. The city administration and the World Bank further refined and agreed upon this approach. Despite being under the city administration's authority, the Stari Grad Agency was given more integrated, direct, flexible, and community-oriented powers, enabling it to address issues arising when reconstructing in historic areas. In parallel, the Mostar Municipal Council made decisions regarding the conservation of buildings in the protected area of the city. They prohibited unauthorised interventions and focused on conserving the Old Bridge and the surrounding historic neighbourhood. It is worth mentioning that the reconstruction of the Old Bridge is a symbol of reconciliation and the reconstruction of metaphoric bridges among Bosnia's divided people (Makaš, 2012). The reconstruction efforts concentrated on selected Action Areas, which are the historic neighbourhoods on both sides of the Old Bridge. The criteria for intervention on individual buildings and plots were determined through plot-by-plot assessments and detailed surveys. Building permits were issued based on compliance with established norms and guidelines, and incentives and support were offered to aid compliance. Knowledge of traditional construction techniques was disseminated among residents, building professionals and tradespeople through

training and apprenticeship programmes. The Agency put the money made from the buildings' commercial re-use back into the historic district, either to pay for other reconstruction projects or to keep its properties in good repair. Soft loans provided to owners who were willing to invest in the improvement of their properties were used to fund the repair of residential and commercial constructions. For urgent repairs and interventions, the Aga Khan Trust for Culture/ World Monuments Fund also provided design assistance and minor grants (Aga Khan Trust for Culture, 2004).

4.4.4 Kabul, Afghanistan (1992-1996)

The Old City of Kabul, Afghanistan, has a long history dating back to its existence as a Buddhist settlement in the 1st to 5th century AD. There are three different sorts of houses: classic, mixed, and modern. The majority are traditional houses and have a central courtyard with summer and winter quarters (Figure 4.4).

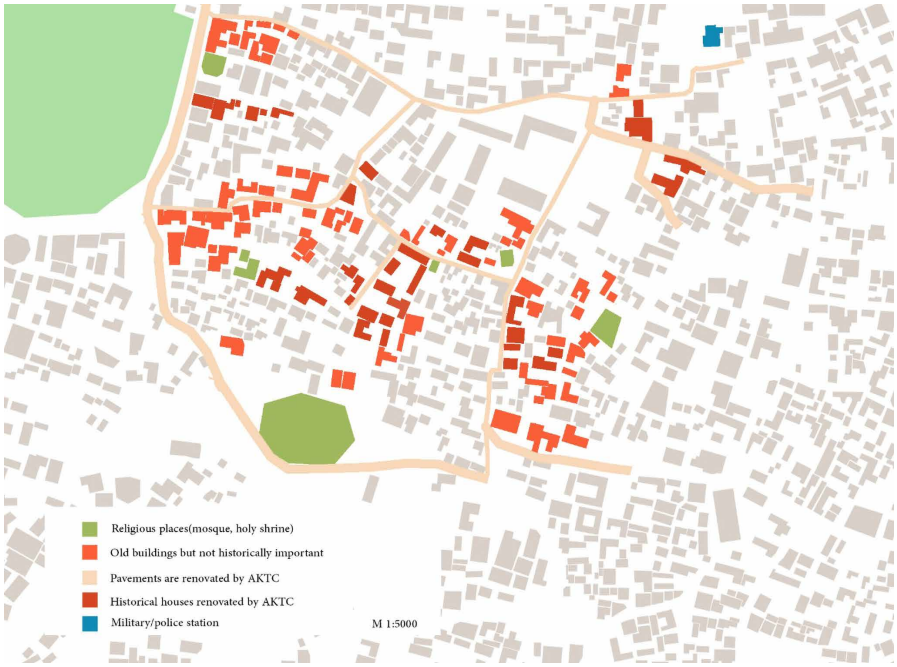

FIG. 4.4 Ground plan of the historic city of Kabul M 1:5000. Author - OpenStreetMap

TOC

Three master plans for Kabul's urban planning were created between 1960 and 1978. The third master plan dates back to 1978 and proposes to replace the majority of Kabul's residential and commercial sectors with public use, like parks and factories. However, due to ongoing warfare until 1996, the plans were not effectively carried out; 80% of the Old City of Kabul was destroyed, and many of the historic buildings were damaged during the civil war that lasted from 1992 to 1996 (Azizi and Ando, 2019) (UNESCO, 2001).

The Aga Khan Historic Cities Programme (AKTCP) was introduced in 2002 through Aga Khan Trust for Culture (AKTC), which is an organisation of the Aga Khan Development Network (AKDN). It focuses on the physical, social, cultural, and economic regeneration of Muslim communities, especially in Asia and Africa. The Aga Khan Historic Cities Programme was established in 1988 and is officially recognised as a private non-denominational philanthropic foundation in Geneva, Switzerland. The Aga Khan Historic Cities Programme chose three areas for conservation of historic sites in Kabul, one of which was the historic residential area of the Asheqan wa Arefan neighbourhood. In 2002, the Aga Khan Historic Cities Programme carried out detailed documentation of the neighbourhood's historic fabric, mapping land use, infrastructure, and services. They also conducted surveys of key historic buildings and consulted with residents, community leaders, and municipal staff to determine reconstruction priorities.

Intensive participatory planning exercises were then held with municipal staff and community representatives in order to identify priorities and needs for the ensuing five years. Extensive participatory planning exercises were then performed with municipal officials and community representatives. Despite being well-received by the ministry and municipality, the planning framework's efficacy as a tool to direct and control neighbourhood development has been severely hindered by the government institutions' severe lack of planning capacity.

To address these problems, in 2004 the Aga Khan Historic Cities Programme extended its direct support by establishing a historic cities department within the Ministry of Urban Development. Together with departmental workers, joint data gathering and analysis projects were carried out, including an effort to create a community environmental action plan. Several houses were identified for conservation, based on their architectural value and vulnerability. In the Asheqan wa Arefan neighbourhood, the Aga Khan Historic Cities Programme repaired 15 traditional houses between 2003 and 2009 and helped 50 other houses get fixed up with small-scale grants. Conservation work was done while families were in residence, providing opportunities to record oral histories. The Aga Khan Historic Cities Programme also made use of skilled craftsmen, who trained more

than 50 apprentices. Young Afghan professionals and apprentices were trained in documentation, site supervision, and project management. A small household grant system was established to assist owners in completing reconstruction, with on-site building advice being offered (Aga Khan Trust for Culture, 2007).

4.4.5 Nablus, Palestine (2002-2004)

The Old City of Nablus has a rich history dating back to the third millennium B.C. The city is known for its traditional architecture, narrow alleyways, and unique residential buildings, which are composed of multi- and split-levels, small rooms, stairs and courtyards (Figure 4.5). The city´s economy has been built on traditional handicrafts (ICOMOS, 2003).

FIG. 4.5 Ground plan of the Old City of Nablus M 1:5000. Author – OpenStreetMap

Since 1966, buildings constructed before 1700 have been protected by the Antiquities Law No. 51. However, the challenging political and economic conditions in Palestine have resulted in insufficient attention being given to architectural preservation. Following the signing of the Oslo Accords in 1993, civil society

TOC

associations and projects were established to restore significant buildings, supported by funding from donor countries and executed with local involvement. Unfortunately, with the outbreak of the Al-Aqsa Intifada in 2000, the progress in architectural rehabilitation projects experienced a decline once again (Mohammed A F Itma, 2007).

In 2002, the Israeli military conducted an 18-day air and ground bombardment of Nablus, resulting in significant damage and destruction to the city. The historic core area in central Nablus, which was home to 16,000 residents and numerous economically viable businesses, was particularly affected (ICOMOS, 2003). The majority of destroyed buildings in Nablus were residential (70%), followed by religious buildings (8%), traditional industrial buildings (7%), commercial buildings (3%), educational buildings (3%), mixed-use buildings (18%), recreational buildings (1%), and vacant buildings (5.2%) (Abujidi and Verschure, 2006).

A preliminary damage assessment report was prepared with the help of a steering committee consisting of representatives from Nablus Municipality, UNDP, Annajah University, Palestinian Engineers Association, and the Palestinian Contractors Union. The data was collected through questionnaire surveys, interviews with residents, and on-site observations. The plan for the city's restoration initially seemed unachievable. Relief efforts and the reconstruction of what had been destroyed were the main priorities. With the exception of one project that attempted to raise awareness of the value of old techniques and materials, works were restricted to building-related issues alone. The Municipality sponsored projects mainly with the aim of providing employment to the jobless, without caring about providing the workers with sustainable skills. Besides, in reconstruction works, often building elements were replaced by modern, sometimes imported, products. The Repair of the Houses of the Poor project was established by the National Committee for the Governorate of Nablus, in cooperation with the Ministry of Social Affairs and with funding from the Arab Fund for Economic and Social Development in Kuwait. This project aimed to make houses of poor families in Nablus safer and healthier, e.g., by removing humidity. In this project, an evaluation methodology was adopted to select the recipient households, giving priority to families in need, such as those who lost their breadwinner or had members who were ill or disabled. The work was to be performed by the beneficiaries themselves in different stages. Beneficiaries received the initial payments through cheque. The owner of the house started working upon receiving this first instalment. The second instalment was only released following a site visit to assess the project's progress; the third instalment was paid upon successful completion of the work (Arafat, 2023). The project also took into consideration the financial limitations of the beneficiaries and encouraged contributions from well-to-do relatives. The housing needs of disabled persons were addressed by improving accessibility with wheelchairs provided by the Governorate

of Nablus. The project also provided educational opportunities for high-achieving children. However, poverty in Nablus still remains a problematic issue, with a high number of unemployed young people and a need for financial management and family planning education for low-income households. Because of the limited financial resources, priorities of the government have shifted from the conservation of cultural heritage to more pressing issues, such as providing shelter for the homeless and rebuilding the infrastructure (Arafat, 2023).

4.4.6 Mosul, Iraq (ISIL/Da'esh occupation 2014-2017)

Mosul is located in the Nineveh Governorate and is regarded as one of Iraq's most culturally diverse cities, with a history dating back to several centuries BC. The historic structures in the city are renowned for their decorative carvings, which combine elements of Egyptian Fatimid and regional Christian Nestorian architectural styles. The city still has its markets, courtyard houses, and narrow alleyways from the Ottoman era. The city has been protected by the National Antiquities and Heritage Law No. 55 of 2002 (Al-Jawadi, Saleh and Younis, 2022).

From 2014 to 2017, the city was occupied by ISIL/Da'esh, causing significant damage to its cultural heritage. During the occupation and subsequent liberation of West Mosul, cultural heritage sites were intentionally destroyed, leading to the destruction of more than 80% of the buildings in the old city, with significant loss of integrity of constructions within the historic core along the Tigris River (Al-oraibi, 2022).

After the war, in 2018, UNESCO introduced the "Revive the Spirit of Mosul" initiative, which aimed to support the city's reconstruction and foster social cohesion by empowering residents. This initiative has the opportunity to engage residents and owners in constructive dialogue about their past and shared values, which is the cornerstone of peacebuilding and reconciliation (UNHABITAT, 2018). UNESCO with the United Arab Emirates, in partnership with 13 donors from the European Union, is working to bring the Old City back to life by restoring and rebuilding historic houses (Ernesto Ottone R., 2023). At the moment of writing, in 2023, the reconstruction of the first group of selected heritage houses is nearly completed, allowing 67 families to return to their houses. The second phase of the project aims to reconstruct double the number of houses from the first phase. The primary focus of the initiative is to revive the educational and cultural domains, creating employment prospects and imparting skills to the youth, encouraging them to join an apprenticeship programme, to favour reconstruction of prominent landmarks in Mosul's historic centre (UNESCO, 2022).

However, the governorate of Nineveh has expressed concern that the reconstruction of the city without a comprehensive plan could lead to negative long-term effects on sustainable development. To address this, the governorate proposes:

- Cleaning the city of debris and explosive remnants of war (implementing a debris management plan that provides economic and social benefits to the population as proposed by the United Nations Environment Programme in integrating explosive hazard management and recycling work).
- Adopt a private licensing process, evaluation of building applications is carried out through the "standard track" by a committee that includes representatives from the municipality, the Urban Planning Directorate and the provincial council. For buildings with minor damage, a 'fast track' can be used which involves submitting a simple application followed by approval or rejection directly from the municipality.

  As for the conservation of buildings of high architectural and heritage value, the "heritage path" must be followed, which requires approval of the application by a committee similar to the Standard Path Committee, which also includes representatives from UNESCO and the State Council of Antiquities and Heritage).

- Support the ongoing self-reconstruction process i) establishing a warehouse for building materials using traditional building bricks and recycled materials. ii) establish a self-contained reconstruction facility that can provide technical support and advice and expedite the licensing process. iii) develop and deliver on-the-job training modules in self-construction techniques. iiii) develop extensive recruitment plans).
- Support the residents of the Old City with property i) creation of a special quasi-judicial/administrative body dedicated to resolving property disputes through mediation, conciliation and negotiation, ii) coordination and exchange of information with the Land Registry Office, iii) compare ownership boundaries with a pre-existing documentation.
- A block-based approach, a reconstruction strategy tailored to the specific context of the old city.

  It is the division of areas through a group of residential blocks legally stipulated by the municipality. The outlines of each urban "block" are defined by several criteria including the maximum number of houses, the current layout of roads, and the recognition of legislative boundaries. The stakeholders involved in this plan include the Old City Working Group, the United Nations Development Programme (UNDP), and the Mosul Self-Relief Fund (MSRF), as well as the local government and United Nations agencies.

The plan outlines the following steps: i) developing and implementing a reconstruction plan based on the “large residential blocks” in the Old City; ii) coordinating the reconstruction activities of government and international agencies in the Old City; iii) starting the reconstruction process based on a pilot “large residential block.” The “Large residential Blocks” refer to a group of urban housing blocks defined by the municipality in the Old City, based on criteria such as the maximum number of houses, road planning, and legal boundaries. 48 large residential blocks, each with a capacity of between 150 to 450 land plots and a maximum of 3500 residents, have been identified. The plan highlights the benefits of the “large residential blocks” approach, such as the opportunity to clean up organised rubble and war debris, form community organisations and resources, and receive support from international donors due to the high cultural heritage value of the areas (UNHABITAT, 2018).

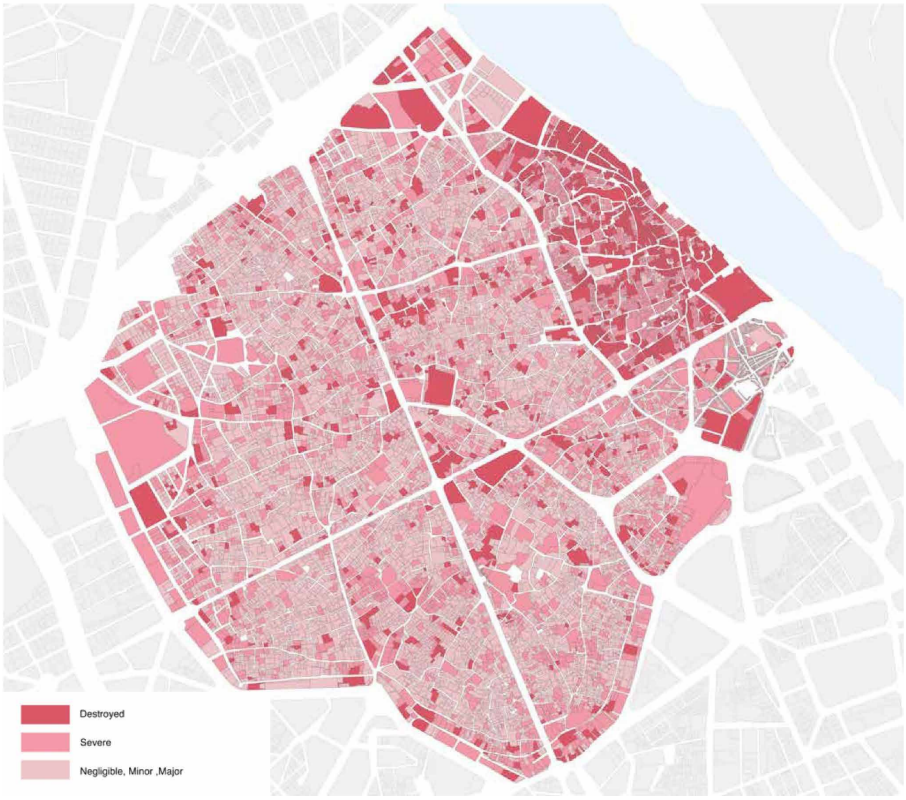

FIG. 4.6 Level of destruction in the Old City of Mosul M 1:5000. (UNHABITAT, 2018)

TABLE 4.3 Summary of the implemented actions in reconstruction approaches in the analysed case studies

	Beirut	Dubrovnik	Mostar	Kabul	Nablus	Mosul
Planning process	long-term planning - Focus on economic considerations	Short to medium-term goals. -Focus on conservation	- Multiple projects aimed at achieving specific long-term objectives - Focus on conservation	- Short to medium-term goals. - Focus on community	- No plan	- Long-term planning - Focus on - Focus on multiple aspects
Documentation	- No documentation efforts - Imposing a new city landscape	- Detailed surveys of damage - Availability of an archive of architectural, textual and photos of the situation before the war	- Plot-by-plot conditions assessment - Detailed surveys	- Mapping and recording oral histories	- Question-naire surveys, interviews, and on-site obser-vations.	- So far, no enough documentation efforts
Attention to people's needs	- Neglecting people's needs	- limited consideration of people's needs	Consideration of people's needs via community-oriented powers agency	Consideration of people's needs via consultation with residents	Consideration of people's needs via implementation of the Repair of the Houses of the Poor project	Consideration of people's needs via proposing solutions that consider urgent issue such (e.g. bureaucratic procedure and property dis-putes)
Involvement of the population	- No people involvement	- involvement of residents via joint preparation of documentation	- involvement of residents via a training programme	- Involvement of community representatives via joint analysis exercises and skilled craftsmen via a training programme	- Active direct involvement of residents via execution of construction work	- Involvement of residents via on-the-job training modules
Involvement of international organisations	Solidere (pri-vate company)	- UNESCO	- Aga Khan Trust for Culture	- Aga Khan Trust for Culture	-United Nations Agency	-UNESCO
Financial instruments for support	- Private financing - International investment	- International and local financing - Donations - Loans	- International financing - Grants - Loans	- Grants	- National financing	- International financing - Donations

TOC

4.5 Discussion

The analysis of the case studies has highlighted that, in post-war reconstruction, several types of plans have been used, based on each city's capacity and organisational structure. These include a master plan for the reconstruction and development, an action plan, a conservation and development plan, a land use plan, and a reconstruction plan based on "large residential blocks". The choice of the most suitable plan depends on the specific context and needs of each city. Some plans are sound choices for long-term urban revitalisation; others address specific considerations related to heritage conservation and sustainability, as in the cases of Beirut, Dubrovnik, Mostar, Kabul, and Mosul. The review suggests that a well-devised plan needs to consider cultural identity as a significant asset for city development, highlighting the significance of the city's historical centre and the pressing need to maintain its spatial elements. Such a plan needs to offer a comprehensive and long-term approach to urban revitalisation. This means that it should consider multiple aspects, such as infrastructure, housing, and public spaces. Examples which have been able to do so (e.g. Dubrovnik and Mostar) have resulted in being more successful than others (e.g. Beirut). Approaches which reduce heritage conservation to facadism, as in the case of Beirut, have clearly shown their limitations.

A good documentation of the damage has shown to be crucial for the success of the reconstruction process (e.g. Dubrovnik). Creating an archive of architectural, textual, and photo documentation provides a useful historical record which can serve as a reference for the reconstruction efforts, as in the case of Dubrovnik. The use of plot-by-plot assessments and detailed documentation, including mapping land use, infrastructure, services, and surveys of key historic buildings, can be a valid support to intervention criteria for individual buildings and plots (e.g. Mostar). Consulting with residents, community leaders, and municipal staff has enhanced the accuracy and relevance of the documentation. The execution of conservation work while families were in residence has provided opportunities to record oral histories, thereby conserving valuable intangible heritage, as in the case of Kabul. In fact, in the absence of technical documentation, traditional knowledge and communal memories associated with the site could also be used to guide reconstruction, as it happened in the case of Kabul.

A detailed survey of damages has allowed for estimation of the cost of reconstruction (e.g. Dubrovnik). Summarising, a comprehensive documentation, mapping, surveys, participatory planning exercises, and data collection is an initial, crucial step for a sustainable reconstruction.

Other aspects which proved to be of paramount importance for sustainable reconstruction are the attention to people's needs and the involvement of residents in decision-making. Reconstruction focused on luxury stores and high-end restaurants, such as in the case of Beirut, failed to address the local community's priorities. On the contrary, attention to people's needs, for example, through the establishment of the agency with integrated, direct, flexible, and community-oriented powers, as in the case of Mostar, had a positive impact on problem-solving and decision-making during the reconstruction process. Similarly, participatory planning exercises with municipal staff and community representatives have shown to be an effective way for identifying priority issues, as in the case of Kabul. Also, data collection through questionnaires, interviews, and on-site observations can contribute to a comprehensive understanding of residents' needs and preferences, as in the case of Nablus. Concluding, a balanced consideration of the needs and interests of multiple stakeholders showed to favour a sustainable reconstruction process.

Involvement of the population, also by the use of training programmes, has shown to be particularly effective. For example, the partnership between local groups and international organisations, as done in Dubrovnik, has ensured that restorers possess the necessary knowledge and skills to undertake restoration work. Similarly, in the case of Mostar, the establishment of the community-oriented agency had a positive role in the dissemination of knowledge of traditional construction techniques among residents and professionals through training and helped to conserve the traditional building techniques and materials. In the case of Kabul, the appointment of skilled craftsmen for the training of young professionals has resulted in the successful transfer of traditional knowledge to younger generations. This can also have a positive economic impact by creating employment prospects, as in the case of Mosul. Summarising, a suitable and participatory training programme is crucial for conserving and passing on knowledge of traditional construction techniques, enabling to proper application of traditional material and techniques during reconstruction.

For reconstruction, consistent funding and effective instruments for planning and distributing funds are required. When this is missing, the risk exists that owners are forced to sell their properties as they cannot fulfil the strict time and budget requirements, as happened in the case of Beirut. In some cases, property disputes may arise; in these cases, the establishment of a special quasi-judicial/administrative body dedicated to resolving property disputes through not only the use of documentation, but also of mediation, conciliation, and negotiation, can be of help, as demonstrated by the case of Mosul.

In general, the limited financial capacity of the government to reconstruct housing is one of the most relevant challenges in reconstruction processes, leading to delays or limiting the extension of reconstruction. External support, such as loans, donations, and participation of international foundations, may offer a solution, as it happened in the case of Dubrovnik. However, the case of Beirut underlines that the reliance only on international finance by the private company can lead to a lack of local control and ownership over the reconstruction process. A financial instrument which was shown to be able to encourage community participation and empower property owners consists of the provision of soft loans to homeowners willing to invest in property improvement. These loans were financed through government funds and loans, with some support from donations by former residents and international foundations. Similarly, design assistance and a small household grant system have been proven to enhance the effectiveness of the reconstruction efforts and community participation. The case of Kabul is an example of how small-scale interventions can lead to significant improvements in a neighbourhood's condition. In some cases, as in Mosul, the reinvestment of funds generated by the commercial reuse of buildings in historic areas has created a self-sustaining mechanism, where revenue generated from commercial activities supported other conservation work or property reconstruction.

Summarising, the financing of post-war reconstruction remains a crucial issue; a combination of public and private funds, with the use of financial instruments involving as much as possible residents and owners, was shown to effectively support sustainable reconstruction.

The discussed cases reflect the increasing focus of guidance on education and training in heritage conservation, including reconstruction. The investment in specialised training programmes, distribution of traditional technique knowledge, and capacity building corresponds with the goal, mentioned in the international documents, of conserving cultural heritage through skill and expertise transmission. These initiatives contribute to the sustainability of heritage reconstruction efforts and the promotion of traditional practices.

Although some cases align with the guidance, prioritising the needs of the people and engaging communities, there are occurrences where guidance recommendations were not fully implemented, leading to contradictory actions against the guidance's principles as in the cases of Beirut.

The guidance's information on documentation and the broader aspects of conservation, including reconstruction is closely related to the practices followed in the discussed cases. The investigated cases demonstrate efforts for conducting

detailed surveys, assessments, and documentation, including the participation of professionals, experts, and local stakeholders. They correspond with guidance focus on comprehensive documentation, public availability, norm adherence, and involvement of relevant parties in decision-making.

The executed strategies in the highlighted cases display varying alignment levels with sustainable reconstruction principles and cultural heritage preservation. The Dubrovnik and Mostar cases indicate robust ties to sustainable practices and community well-being, whereas the case of Beirut indicates potential authenticity compromise. The block-based approach in Mosul reflects a strategy which considers both the physical aspects and legislation of the historic city.

Although some cases, like Kabul, reflect favourable alignment with the guidance's focus on public participation, there have been actions, such as the failure to formally endorse the planning framework, that do not fully comply with recommended approaches. This underscores the importance of contemplating the unique context and challenges each case presents, and emphasises the need for stronger local community collaboration in decision-making for heritage conservation, particularly reconstruction.

The guidance and cases share common aims and principles, highlighting the importance of adequate funding, diversified financial sources, stakeholder involvement, and the promotion of sustainable reconstruction approaches. The provided cases illustrate practical, real-world applications of these principles.

4.6 Conclusions

The international debate and the development of guidance related to sustainable reconstruction of built heritage after wars and natural disasters reflect an evolution towards a more comprehensive approach that considers multiple dimensions, including sustainability, documentation, education and training, community involvement, and financial instruments.

The investigated case studies of reconstruction after wars have shown that this guidance has been considered in the implementation of reconstruction, although in varying degrees and aspects.

The reconstruction strategies employed in Beirut, Dubrovnik, and Mostar varied significantly. Beirut prioritised modernisation and development, resulting in gentrification, displacement, and a lack of public consultation. In contrast, Dubrovnik and Mostar prioritised conservation of historical structures and traditional construction techniques, involving local communities and international organisations to conserve the cities' identities and cultural heritage while promoting sustainable development. The still ongoing reconstruction of Kabul, Nablus, and Mosul made use of a combination of efforts and strategies, involving multiple stakeholders, including governments, international organisations, NGOs, and residents. Limited financial resources, security concerns, and political instability were identified as factors often hindering the reconstruction progress.

Overall, these cases emphasise the significance of conserving cultural heritage during times of war, and the need for comprehensive post-war reconstruction plans. The involvement of local communities, government, international organisations, and funding bodies is critical to ensure the success and sustainability of these reconstruction efforts.

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5 Enhancing Community Participation for the Reconstruction of Residential Heritage in the Old City of Aleppo

This chapter is a paper published in the Heritage Journal:
C. Kousa, B. Lubelli, and U. Pottgiesser, “Enhancing Community Participation for the Reconstruction of Residential Heritage in the Old City of Aleppo”, Heritage 2025, 8(8), 319; https://doi.org/10.3390/heritage8080319

ABSTRACT This research investigates how community participation can be enhanced to support the sustainable reconstruction of residential heritage in the Old City of Aleppo. In the aftermath of the Syrian war, reconstruction interventions on traditional courtyard houses have been affected by several issues, such as a lack of knowledge among junior architects and craftsmen (regarding houses' conditions, relevant regulations, and residents' needs), and limited residents' participation in decision-making processes. Drawing on international experiences in similar post-war contexts that highlight the role of education and a participatory approach as critical components for sustainable reconstruction efforts. This research conducts a comparative analysis of several international capacity-building and co-creation initiatives to identify effective methods of stakeholder engagement. Building on these findings, the study proposes an education programme tailored to the socio-cultural and regulatory context of the Old City of Aleppo. The proposed programme integrates academic knowledge with community perspectives using validated teaching and participatory methods, such as photovoice, walkthrough, and lectures, etc., within a co-creation framework. It aims to raise awareness, build capacity, and enable residents through participation in all phases of the programme: co-diagnostic, co-design, co-implementation and co-monitoring. This way, residents are empowered to play an active role in interventions on residential heritage and to align these interventions with their needs and current regulations. Thus, the research presents a scalable model for cultural and socially sustainable residential heritage reconstruction.

KEYWORDS residential heritage; post-Syrian-war; reconstruction; the Old City of Aleppo; education; capacity building; co-creation; participation

5.1 Introduction

Since 2012, the Syrian civil war has caused huge destruction in the Old City of Aleppo, threatening its residential heritage and resulting in the displacement of its residents (UN-HABITAT, 2014; UNESCO, 2017). Residential heritage "traditional courtyard houses" form the majority of the 16,000 buildings in the Old City of Aleppo (Windelberg, J.; Kelzieh, T.; Hallaj, 2001). The houses represent the only type of historical residential buildings in the Old City of Aleppo. These houses are organised around an internal courtyard and comprise one or two floors, featuring a design marked by the simplicity of the external façades, with the richness of the internal façades. These houses vary in size and historic significance. However, international organisations and local authorities in the Old City of Aleppo have paid attention mainly to its iconic monuments, neglecting its residential heritage. After the end of fighting in the Old City of Aleppo in December 2016, there was an urgent need to reconstruct the traditional courtyard houses to provide shelter for returning residents and refugees. Since 2017, residents have implemented various interventions in the traditional courtyard houses, often without the required licences. Unfortunately, these interventions have not succeeded in preserving the value of residential heritage (Kousa, Pottgiesser and Lubelli, 2021). Next to the urgency of reconstruction, the main reasons for this circumstance are a lack of documentation of the traditional courtyard houses' conditions and values, and a lack of information about the residents' needs, exacerbated by the lack of residents' participation in the decision-making process. Both factors align with a lack of awareness of the value of traditional courtyard houses and the associated regulations among residents (Kousa, Lubelli and Pottgiesser, 2023a). The lack of technical and legal knowledge among junior Syrian architects (licenced architects and practitioners) and the lack of knowledge of traditional construction methods among Syrian craftsmen have further compounded these difficulties (Kousa, Lubelli and Pottgiesser, 2023a). The current situation of the residential heritage in the Old City of Aleppo highlights the urgent need for targeted solutions to tackle these reconstruction[2] challenges.

2 Reconstruction refers not only to the physical rebuilding of traditional courtyard houses in the Old City of Aleppo, but also to their improvement and adaptation to residents' current needs, while safeguarding their heritage values.

In (Kousa, Lubelli and Pottgiesser, 2023b), the authors reviewed and analysed international approaches that address post-war reconstruction of residential heritage in comparable situations, to gain insights into the legal, administrative, social, and economic factors that influence such a process, specifically best practices, potential solutions, and lessons learned, that can support the post-Syrian-war reconstruction of residential heritage. The international comparative research showed that, in most cases, these solutions have involved the residents taking a central role and have applied specialised training programmes to share knowledge of traditional techniques and build capacity (Kousa, Lubelli and Pottgiesser, 2023b). More specifically, in the cases of Dubrovnik and Mostar, a survey of the damage and the creation of an archive that includes architectural details, texts, photographs, maps, and surveys of historic buildings has provided a valuable reference for reconstruction efforts and intervention criteria (Aga Khan Trust for Culture, 2004; Mahečić, 2014). In the cases of Mosul and Kabul, records of oral history, dialogue about residents' past, traditional knowledge, and communal memories associated with the site have been effective solutions to preserve valuable heritage (Aga Khan Trust for Culture, 2007; UNHABITAT, 2018). Other important solutions that have had a positive impact on understanding and solving problems are attention to residents' needs and involving them in decision-making through questionnaires, surveys, interviews, and consultation, as in the cases of Nablus and Kabul (Aga Khan Trust for Culture, 2007; Rantisi, 2022). Similarly, participatory planning exercises with municipal staff and community representatives have been shown to be an effective way of identifying priority issues, as in the case of Kabul (Aga Khan Trust for Culture, 2007).

Involvement of different stakeholders through training programmes has been shown to be particularly effective. For example, the partnership between local groups and international organisations, as done in Dubrovnik, has ensured that restorers possess the necessary knowledge and skills to undertake damage assessments and restoration work (Mahečić, 2014). Similarly, in the case of Mostar, the collaboration between different stakeholders had a positive role in the dissemination of knowledge of traditional construction methods among residents and professionals through training and helped to preserve the traditional building techniques and materials (Makaš, 2012). In the case of Kabul, the appointment of skilled craftsmen for the training of young professionals has resulted in the successful transfer of traditional knowledge to younger generations (Aga Khan Trust for Culture, 2007). A similar training programme had a positive economic impact in the case of Mosul, by creating employment prospects (UNHABITAT, 2018).

In summary, the adoption of inclusive, community-driven solutions that prioritise education and active participation has played a crucial role in the reconstruction process.

Starting from this evidence of the relevance of the need and efficacy of community driven approaches, this research reviews capacity-building programmes and co-creation projects (Sections 5.3 and 5.4) and it proposes an educational programme for the empowerment of relevant stakeholders (residents, architects, and craftsmen) (International Federation of Red Cross and Red Crescent Societies (IFRC), 2010), aiming at improving the quality of interventions in the traditional courtyard houses in the Old City of Aleppo. The main aim and distinctive character of this programme is co-creation, by connecting education with the active participation of residents in all phases of the programme.

5.2 Methodology

The research methodology consisted of a review and analysis of annual reports, catalogues, funded projects, summary documents, research publications, and the websites of capacity-building and co-creation courses and projects. The research was conducted in two distinct rounds (Figure 5.1).

The first round of review and analysis involved screening capacity-building projects and courses developed in the framework of international initiatives that promote cultural heritage preservation through education and building capacity. The databases searched included ICCROM, ICOMOS, UNESCO, German Archaeological Institute (DAI), and ERASMUS+ Capacity Building in Higher Education (CBHE) official websites, and the search terms used were as follows: war, capacity building, cultural heritage, housing, reconstruction, and sustainability. These terms were used separately to ensure comprehensive coverage of the literature. In total, 123 projects were identified. After excluding duplicates and sources with irrelevant titles, 49 were left, which were screened based on the abstract/summary. Among these, ten projects and courses were further selected for a more in-depth analysis; the criteria behind this selection of these projects were the following:

- focus on cultural heritage; target post-war regions, mainly the Middle East and Ukraine;
- address recovery and disaster risk reduction;
- use diverse teaching methods, including digital formats, online lectures, workshops, practical sessions, and field visits;
- involve various stakeholders;
- focus on the post-2015 period, as it follows the Arab Spring and marks a period of initiatives to protect Middle Eastern heritage.

During this analysis, it became clear that, although these initiatives addressed different stakeholders, they often lacked a strong participatory approach and did not actively involve residents. Therefore, the research was expanded with a second round of review and analysis, in which participatory co-creation initiatives were considered. In this second round, projects were identified among international initiatives that implemented participatory co-creation practices and empowered local communities (participatory design process) in the process of designing interventions in the housing sector (residential areas and housing projects). The databases searched were Community Research and Development Information Service (CORDIS) and the Trans-Atlantic Platform for Social Sciences and Humanities (T-AP). The following search terms were used: co-creation, social inclusion, housing, sustainable neighbourhoods and cultural heritage. These terms were combined, e.g., “sustainable neighbourhoods” AND “housing” AND “co-creation” AND “social inclusion” AND “cultural heritage” to capture specific intersections relevant to the research focus. A total of 249 projects were identified; after excluding projects with irrelevant titles, twelve projects were left, which were screened based on the abstract/summary. Among these, four projects were further selected for a more in-depth analysis; the criteria behind this selection were the following:

- focus on residential areas and/or social housing;
- engage residents in co-creation;
- address quality of life in residential areas
- address cultural identity
- use diverse co-creation methods and tools
- focus on the post-2015 period.

The results of this review and the knowledge of the specific situation in the Old City of Aleppo gained in previous research (Kousa, Pottgiesser and Lubelli, 2021; Kousa, Lubelli and Pottgiesser, 2023a) were the basis for the educational programme developed in this research.

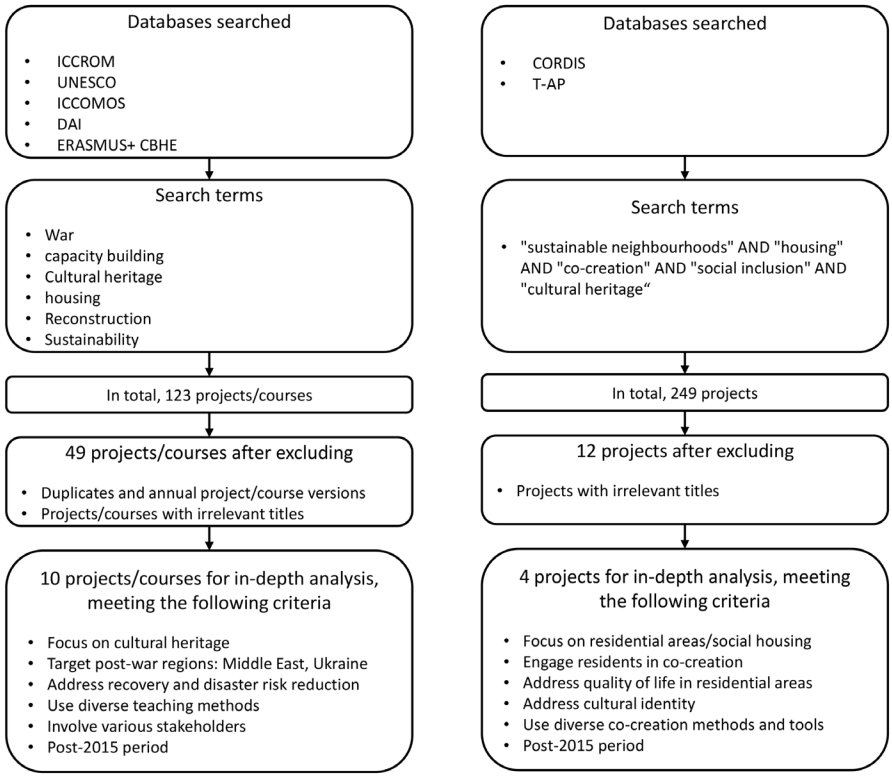

FIG. 5.1 First review and analysis round: selection of international capacity building projects and courses (left); Second review and analysis round: selection of international co-creation projects (right).

TOC

5.3 Results from the Analysis of Capacity-Building Projects

The curricula of ten capacity-building projects and courses were selected (Table 5.1), according to the criteria specified in Section 5.2. The curricula were analysed by considering: the methodological framework, the stakeholders addressed, the teaching methods used, and the educational scope.

TABLE 5.1 Overview of reviewed capacity-building projects

International Initiative (Project/Course)	Year	Scope	Organised/Funded	The Geographic Area Addressed	Reference
Traditional Craft Heritage Training, Design and Marketing in Jordan and Syria (HANDS)	2019–2022	Traditional vocational crafts	ERASMUS+	Syria and Jordan	(ERASMUS+ Program for the European Union, 2022)
Heritage: Beyond Walls	2021	Cultural heritage recovery, peacebuilding, and development	Fondazione Santagata and UNESCO	Syria	(Re, 2021)
Cultural Heritage Documentation Using Qfield	2021	Software for cultural heritage documentation in crisis	German Archaeological Institute (DAI)	Middle East and North Africa	(KulturGutRetter, 2021)
First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR) Project/Courses: International Training	2021	Reduce disaster risk for cultural heritage during crises for early recovery	ICCOROM and ICOMOS	Global	(ICCROM, 2012; ICCROM, Aparna Tandon, 2018)
Heritage Recovery Programme in Mosul	2021–2022	Building back better	ICCOROM, UNESCO and Fondazione Santagata	Global (Arab States)	(ICCROM, 2022)
Documentation of Cultural Heritage Using GIS	2022	Software for cultural heritage documentation in crisis	German Archaeological Institute (DAI)	Middle East and North Africa	(KulturGutRetter, 2022)
International Training Course (ITC) on Disaster Risk Management of Cultural Heritage	2023	Develop disaster risk management plans for cultural heritage sites	ICCOROM	Asia	(Ritsumeikan University in collaboration with ICCROM, 2023)

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TABLE 5.1 Overview of reviewed capacity-building projects

International Initiative (Project/Course)	Year	Scope	Organised/Funded	The Geographic Area Addressed	Reference
Capacity Development in Ukraine	2023	Disaster risk reduction, emergency preparedness, and documentation	ICOMOS, ICCROM and UNESCO	Europe (Ukraine)	(Yurchenko, 2023)
Capacity Building (CB) for Holistic, Sustainable and Resilient Heritage Recovery of Mosul	2024	Co-creation for cultural heritage recovery in crisis	UNESCO and ICCOROM	Mosul (Iraq)	(UNESCO and ICCOROM, 2024)
International Training Course on Post Crisis Recovery of Cultural Heritage	2024	Protect and restore cultural heritage in conflict and disaster-affected areas	ICCROM, Fondazione Santagata and ALIPH Foundation	Global (Africa, Asia, Europe, and the Middle East)	(ICCROM, 2024)

5.3.1 Methodological Framework: Educational Structures in Capacity-Building Projects

The analysis shows that all courses share a common methodology. They cover both formal and non-formal educational types: formal education, which takes place within universities and is organised by age groups, and non-formal education, which takes place outside universities but still involves structured learning. Generally, each course is divided into modules or units, and, in turn, each module or unit covers specific topics related to the course objectives. Foundational concepts are introduced first, before moving on to more complex or advanced topics. Each course has clear learning objectives and specifies what participants should know or be able to do by the end of the course. In this context, most of the analysed projects and courses follow a top-down approach. However, the "First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR) Project: international training" stands out by combining research, training, and field applications, though its overall structure remains a top-down and expert-driven approach (ICCROM, 2012; ICCROM, Aparna Tandon, 2018). This project aligns with the design thinking model and its five phases: empathise, define, ideate, prototype, and test, which together emphasise understanding user needs through empathy, generating solutions collaboratively, and improving them through iterative testing and refinement (Meinel and Krohn, 2022). Another example is the "Capacity Building (CB) for Holistic, Sustainable and Resilient Heritage Recovery of Mosul" course, which aligns with the design thinking model and its five phases (UNESCO and ICCOROM, 2024) (Figure 5.2).

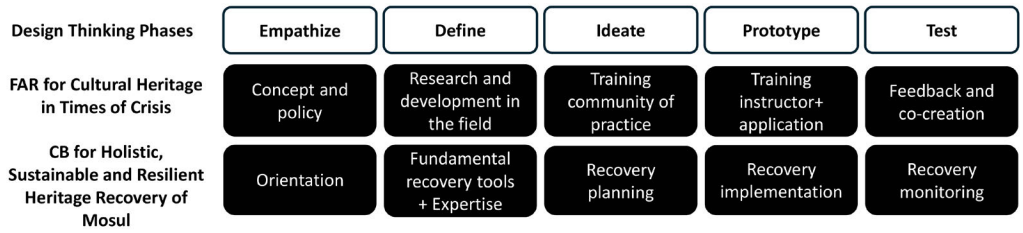

FIG. 5.2 The application of design thinking phases in the "First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR) Project: International Training" and the "Capacity Building (CB) for Holistic, Sustainable, and Resilient Heritage Recovery of Mosul".

This first round of review and analysis highlights the potential of the design thinking model as a promising methodology in the development of a participative approach for the reconstruction of residential heritage in the Old City of Aleppo. This model is valuable as it offers a structured and flexible approach, ensuring that reconstruction efforts address both physical aspects and community needs, which are often neglected in top-down approaches.

5.3.2 Stakeholders in Capacity-Building Projects

The "First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR) Course: international training" provides two key criteria for identifying relevant stakeholders: (1) their level of influence on decision-making (low, medium, high) and (2) the strength of their relationship with the community (weak, moderate, strong). These criteria will be adopted in this research as well.

The different courses/projects reviewed address different stakeholders (Table 5.2). For example, the (FAR) course considers professionals with three to five years of professional experience in the field of cultural heritage (mid-career). The teaching team delivering the (FAR) course consists of international experts who have experience in the rescue and safeguarding of heritage during emergencies (ICCROM, 2012; ICCROM, Aparna Tandon, 2018). The "Traditional Craft Heritage Training, Design, and Marketing in Jordan and Syria (HANDS)" targets undergraduate students in architectural design, interior design, and conservation and preservation of architectural heritage, and the teaching team includes faculty of the partner universities (ERASMUS+ Program for the European Union, 2022). The "Capacity Building (CB) for Holistic, Sustainable and Resilient Heritage Recovery of Mosul" targets (non-resident) stakeholders, including early-career experts, mid-career professionals, university students, graduate students, and local government authorities (UNESCO and ICCOROM, 2024).

TOC

Summarising, it can be concluded that these capacity-building initiatives are adapted to different stages of professional development, including professionals, experts, and students. However, an approach to involving residents as active stakeholders, especially in knowledge exchange, remains limited or underdeveloped.

TABLE 5.2 Overview of stakeholders involved in the reviewed capacity-building projects

International Initiative (Project/Course)	Stakeholders				
	Experts	Professionals (Incl. Architects, etc.)	University Students (Incl. Architects, etc.)	Representatives of the Municipalities, etc.	Craftsmen
Traditional Craft Heritage Training, Design and Marketing in Jordan and Syria (HANDS)			•		
Heritage: Beyond Walls			•		
Cultural Heritage Documentation Using Qfield	•				
First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR) Project/ Courses: International Training		•		•	
Heritage Recovery Programme in Mosul		•			•
Documentation of Cultural Heritage using GIS	•				
International Training Course (ITC) on Disaster Risk Management of Cultural Heritage		•			
Capacity Development in Ukraine		•			
Capacity Building (CB) for Holistic, Sustainable and Resilient Heritage Recovery of Mosul	•	•	•	•	
International Training Course on Post Crisis Recovery of Cultural Heritage		•			

• *indicates the stakeholders targeted in each project*

5.3.3 Teaching Methods

Most of these projects/courses use a variety of teaching methods to transfer knowledge (Table 5.3). For example, the "Cultural Heritage Documentation Using Qfield" course uses online live lectures and practical training sessions to teach participants how to use the QField software for cultural heritage documentation (KulturGutRetter, 2021). These methods are effective for teaching digital tools that require both conceptual understanding and practical experience in resource-limited contexts. The "First Aid and Resilience for Cultural Heritage in Times of Crisis

Course: International Training" uses group discussions, demonstrations, interactive lectures, site visits, case studies, and simulation (ICCROM, 2012; ICCROM, Aparna Tandon, 2018). This combination of teaching methods strengthens the participant's learning experience and soft skills, such as working in a team and communication with others in times of crisis, which are often overlooked but are crucial in war-torn contexts. The "International Training Course (ITC) on Disaster Risk Management of Cultural Heritage" course incorporates a hybrid mode comprising both online and on-site methods, such as fieldwork, online live sessions, workshops, lectures, site visits, and mentoring sessions for participants' case study projects (Ritsumeikan University in collaboration with ICCROM, 2023). Besides, using a combination of methods, mentoring sessions for case study projects enable (non-resident) stakeholders from various regions to obtain support and participate in contextual case study development. This adaptability of the case study makes it suitable for application in post-war contexts and private case study development.

TABLE 5.3 Overview of the classification of methods used in the reviewed capacity building

International Initiative (Project/Course)	Methods Used in Capacity-Building Projects/Courses								
	Lecture (Hybrid/Live Online)	Practical Training (Onsite/Online)	Site Visits	Case Studies	Classroom Exercises	Group Discussion	Fieldwork (Analysis/ Documentation, etc.)	Workshop	Pilot Project
Traditional Craft Heritage Training, Design and Marketing in Jordan and Syria (HANDS)	•	•							
Heritage: Beyond Walls	•								
Cultural Heritage documentation using Qfield	•	•							
First Aid and Resilience for Cultural Heritage in Times of Crisis (FAR) Project/courses: international training		•		•			•	•	•
Heritage Recovery Programme in Mosul	•	•					•		
Documentation of Cultural Heritage using GIS	•	•							
International Training Course (ITC) on Disaster Risk Management of Cultural Heritage	•		•	•			•		
Capacity Development in Ukraine	•							•	
Capacity Building (CB) for Holistic, Sustainable and Resilient Heritage Recovery of Mosul	•		•	•	•	•	•		
International Training Course on Post Crisis Recovery of Cultural Heritage	•	•						•	

• *indicates the methods used in each project*

TOC

Most common teaching methods are: (i) lectures (9 out of 10 projects/courses use them), in online, live, interactive, and hybrid form. Lectures are used for structured dissemination of essential information (e.g., legal frameworks, heritage values) to participants; (ii) practical training (6 out of 10 projects/courses) meant to facilitate translation of theoretical content into tangible interventions. This method is especially beneficial in heritage contexts where understanding construction techniques, materials, and site conditions is essential; and (iii) case studies (3 out of 10 projects/courses) aiming at enabling participants' engagement with real-world scenarios.

Despite the large variety of teaching methods, these primarily remain formal and top-down. Residents are not involved as active stakeholders and co-creators of knowledge.

5.3.4 Educational Scope of Capacity-Building Projects

Each course has been designed to cover a specific educational scope, such as enhancing disaster risk management skills, raising awareness of cultural heritage as a resource for development and recovery, or documenting cultural heritage using various software. For instance, the "Capacity Development in Ukraine" aims to strengthen the knowledge and expertise of Ukrainian heritage professionals in disaster risk reduction and emergency preparedness (UNESCO and ICCOROM, 2024). The "Heritage: Beyond Walls" course seeks to break isolation by creating an online platform for Syrian university students to improve access to knowledge resources on cultural heritage (Re, 2021).

Summarising, the educational scope of the analysed projects and courses reflects the potential of education to meet different learning needs and goals and reach a diverse audience. However, despite the broad variety of educational scope, none of the analysed projects and courses focus directly on residential heritage, but their structural models offer adaptable components, and there is a potential for organised instruction can be made relevant and practical for residents by tailoring these components to the specific historical, social, and residential fabric.

5.4 Results from the Analysis of Co-Creation Projects

In the second round of literature research, four co-creation projects were selected (Table 5.4), according to the criteria specified in Section 5.2. The curricula of these four projects were analysed by considering: the methodological framework, the stakeholders addressed, the participatory methods used, and the educational scope.

TABLE 5.4 Overview of reviewed co-creation projects

International Initiative (Project)	Year	Focus	Organised/Funded	The Geographic Area Addressed	Reference
SUNRISE Sustainable Urban Neighbourhoods—Research and Implementation Support in Europe	2017–2021	Residential neighbourhoods	HORIZON 2020	Bremen (Germany), Jerusalem (Israel), Malaga (Spain), Malmo (Sweden), Southend-on-Sea (UK), Thessaloniki (Greece)	(Franta, 2017), (Koucky, 2021)
CLEVER Cities—Co-Designing Locally Tailored Ecological Solutions for Value Added, Socially Inclusive Regeneration in Cities	2018–2023	Diverse urban spaces, ranging from abandoned lots to residential neighbourhoods	HORIZON 2020	Milan (Italy), Hamburg (Germany) London (United Kingdom)	(Davis, 2018)
URBiNAT—Healthy Corridors as Drivers of Social Housing Neighbourhoods for the Co-Creation of Social, Environmental and Marketable NBS	2018–2024	Social housing	HORIZON 2020	Nantes (France), Porto (Portugal), Sofia (Bulgaria), Brussels (Belgium), Høje-Taastrup (Denmark), Nova Gorica (Slovenia), Siena (Italy), Khorramabad (Iran)	(Moniz *et al.*, 2022), (Leader, 2021)
uVITAL – User-Valued Innovations for Social Housing Upgrading through Trans-Atlantic Living Labs	2020–2023	Social housing	The Trans-Atlantic Platform for Social Sciences and Humanities	Campinas (Brazil), Leipzig (Germany), Groningen (Netherlands), Northern Ireland (United Kingdom)	(Bridi *et al.*, 2024)

TOC

5.4.1 Methodological Framework: Design Thinking in Co-Creation Projects

The analysis shows that all co-creation projects share a common methodology that emphasises iterative processes that evolve from the initial identification of the problem to the evaluation of implemented solutions. All these co-creation projects were found to closely align with the design thinking model and its five phases, empathise, define, ideate, prototype, and test (Meinel and Krohn, 2022), despite grouping them and/or naming them in a different way (Leader, 2021)(Bridi *et al*., 2024) (Figure 5.3). This indicates once again that the design thinking model can support understanding of user needs and the iterative process of design and testing of solutions throughout the co-creation process. These examples illustrate how the design thinking model can be effectively adapted to address real-world urban challenges.

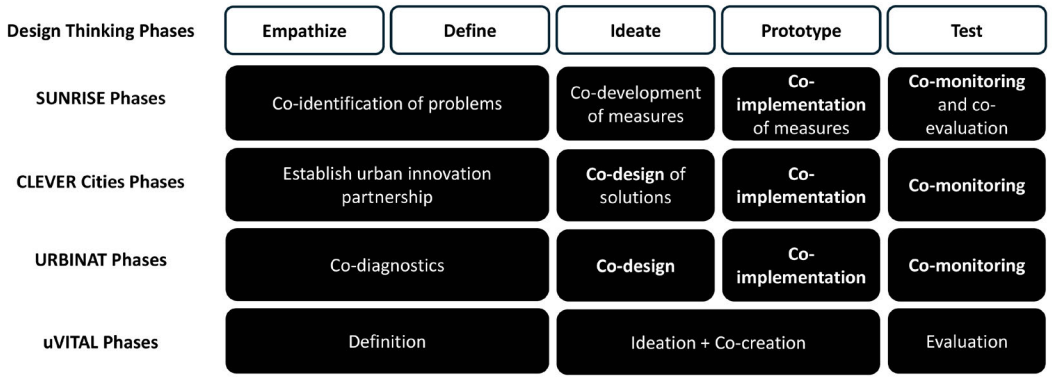

FIG. 5.3 The application of design thinking phases in the reviewed co-creation projects.

5.4.2 Stakeholders in Co-Creation Projects

Each of these four co-creation projects is designed to target a specific group of stakeholders (representatives of the municipalities, experts, professionals, and university students with different levels of experience), and residents of all ages, including schoolchildren (Table 5.5).

TABLE 5.5 Overview of stakeholders involved in the reviewed co-creation projects

International Initiative (Project)	Stakeholders					
	Experts	Professionals (Incl. Architects, etc.)	University Students (Incl. Architects, etc.)	Representatives of the Municipalities, etc.	Residents	Schoolchildren
SUNRISE	●			●	●	●
CLEVER Cities		●	●	●	●	●
URBiNAT	●		●	●	●	●
uVITAL	●	●	●		●	●

● *indicates the stakeholders targeted in each project*

In this context, the SUNRISE project provides an interesting way to categorise the influence of residents in participation processes depending on the levels of participation, depending on how much residents' interests are considered, and on the willingness of decision-makers to engage residents in information, consultation, and decision-influencing (Franta, 2017; Koucky, 2021). This classification aligns with the level of participation defined by the International Association for Public Participation (see Figure 5.4), a widely adopted international framework that aims to support the selection of the appropriate level of public participation in any participation process (Michaelson, Rozelle and Sarno, 2024), and it will be considered in this work as well. Similarly, the URBINAT project highlights the four key roles that residents can play in participatory processes: the interacting role, focusing on communication and engagement; the group-oriented role, fostering collaboration and community building; the task-oriented role, centred on achieving specific objectives; and the production role, aiming at creating tangible outcomes (Leader, 2021). These roles, together with an appropriate participation level, provide a practical framework for guiding residents' participation and ensuring that their participation becomes a real component of the planning and implementation process.

FIG. 5.4 Levels of participation and related aims according to the International Association for Public Participation (Michaelson, Rozelle and Sarno, 2024).

5.4.3 Participatory Methods

In the selected co-creation projects, a total of 55 participatory methods have been identified (as shown on the right side of Table 5.6). Each project applies its own selection criteria to determine which methods are most appropriate for its specific context. For example, the SUNRISE project selects participatory methods based on factors such as duration, purpose, target group, and the required level of participation for the specific phase of the co-creation process (Franta, 2017; Koucky, 2021). This highlights the importance of contextual adaptation in the selection of methods and the need for a flexible, criteria-driven selection.

After consolidating overlapping and closely related methods, 16 distinct participatory methods, out of a total of 55, were identified (as shown on the left side of Table 5.6). Table 5.7 highlights the projects in which these methods have been applied.

These 16 methods have been categorised according to their purpose into six classes: Observation, Data Collection, Idea Generation, Discussions, Analysis and Visualisation, and Joint Practice, referring to the project phases in which they have been most commonly applied (Table 5.8). These 16 methods have been assessed concerning their feasibility and level of participation they support, criteria critical for application in post-war residential heritage contexts (Table 5.8).

TABLE 5.6 Overview of participative methods used in the reviewed co-creation projects.

Main Method	Methods Used in the Reviewed Co-Creation Projects
Brainstorming	Brainstorming, Brainstorming with experts, Brain Walking, Scenario Shopping
Walkthrough	Walkthrough
Workshop Sessions	Workshops, Co-creation sessions, Focus groups, Future Workshop, Mapping workshop, Open Space Event, World Café, Charrette
Venn Diagrams	Venn Diagrams, Living Diagrams
Mapping	Community Asset Mapping, Illustrative map
Geo-referenced Crowdsourcing	Thematic and/or Geo-referenced crowdsourcing
Games	NBS Card Game, Serious Games, Gaming Tools, SuperBarrio, Carousels, Illustrative Cards, Design Patterns, Artistic Approaches for Children
Citizen Juries/Panels	Jury Members, Citizen Jury, Citizen Advisory Committee/Core Groups
Focus Groups	Focus Groups, Strategic Mobility Assessment
Surveys/Questionnaires	Questionnaire, Opinion Survey, Promoting the Living Lab and survey
Problem-Tree Analysis	Problem-tree analysis, Consensus Conferences, Dialogue Centre Tool
Field Trips	Field Trips, Site Visit
Photovoice	Photovoice, Photographic survey
Public Events	Public Meeting, Round Table, Open Space Event, World Café, Dialogue Events, Information-Publication, Information Centre, Poll "Vote Your Favourite", Transport Visioning Event, Message Board
Delphi Method	Delphi Method
Prototype	Prototype, Physical experiments in place

TABLE 5.7 Overview of the classification of methods used in the reviewed co-creation projects

International Initiative (Project)	Methods Used in Co-Creation Projects															
	Brainstorming	Walkthrough	Workshop Sessions	Venn Diagrams	Mapping	Geo-Referenced Crowdsourcing	Games	Citizen Juries/Panels	Focus Groups	Surveys/Questionnaire	Problem-Tree Analysis	Field Trips	Photovoice	Public Events	Delphi Method	Prototype
SUNRISE	●		●			●		●	●	●		●		●		●
CLEVER Cities	●			●	●			●	●		●		●	●	●	●
URBiNAT		●			●		●						●			●
uVITAL	●	●	●					●		●						

● *indicates the methods used in each project*

TOC

TABLE 5.8 Co-creation methods categorised according to their main purpose, effort required, participation level, and phase of the process in which they have been applied

Method	Main Purpose	Effort Required	Participation Level and Phase (1–4) in Which the Method Has Been Applied				
			Inform	Consult	Involve	Collaborate	Empower
Walkthrough	Observation	●			1, 2, 4 ü		
Field Trips		●●	1, 2, 3 ü				
Survey	Data Collection	●		1, 2, 4 ü			
Questionnaire		●●		1, 2, 4 ü			
Delphi Method		●●●		1, 4 ü			
Photovoice		●●		1, 4 ü	1, 4 ü		
Brainstorming	Idea generation	●		1, 2 ü			
Brain walking		●●		1, 2 ü			
Charrette		●●●		1, 2, 4 ü	1, 2, 4 ü	1, 2, 4 ü	
Games		●		1, 2 ü	1, 2 ü	1, 2 ü	
Citizen Jury	Discussions	●●●	1, 2 ü	1, 2 ü			
Consensus Conference		●●●			2 ü	2 ü	
Focus Groups		●		2 ü	2 ü		
Round table		●●		2 ü			
Geo-referenced Crowdsourcing		●●			1, 2 ü	1, 2 ü	
Mapping	Analysis and Visualization	●		1 ü			
Venn Diagrams		●●			1 ü		
Problem-Tree Analysis		●●●			1 ü	1 ü	
Workshop	Joint practice	●●			1, 2, 3 ü	1, 2, 3 ü	
Prototype		●●●			1, 3 ü	1, 3 ü	

effort required: ● low; ●● medium; ●●● high
phase of the process: 1 = phase 1; 2 = phase 2, etc.; ü indicates the participation level achieved by each method

Some of these methods are adaptable and applicable across multiple phases of a co-creation process. For instance, walkthroughs are used in both phase 1 and again in phase 4, serving both initial observation and follow-up assessment. A walkthrough can foster direct dialogue between residents, architects, and craftsmen. It includes observing, asking, listening, making photographs, and taking notes, thus documenting the current conditions on-site. It facilitates visiting each plot individually along a route. It requires medium effort, minimal skills, and short preparation time, making it suitable for the early phases of the co-creation project. Similarly, surveys are used in phases 2 and 4, with the purpose of needs identification and programme evaluation. This method is particularly suitable for gathering feedback, thanks to its cost-effectiveness, short preparation time, moderate effort requirement, and ability to quickly reach a broad group of residents,

making it ideal for late phases to gather feedback. Methods such as photovoice, Delphi method, focus groups, brainstorming, and games show up in multiple phases to collect data and generate ideas. For example, photovoice enables residents to visually capture and share their concerns and understand the context by gathering/sharing photos, and it requires moderate preparation time and effort. Likewise, brainstorming encourages creative input from participants in an informal and open environment, while being a quick and low-effort method to implement. In the same context, games are good to simplify complex topics and make participation attractive to all age groups. With medium effort and preparation, games can enhance involvement and collaboration effectively, especially during early and mid-phases. Workshops and prototyping are used in phases 2 and 3. Prototype helps identify practical challenges and improve solutions before full-scale implementation. Its cross-phase applicability supports the participation of residents, architects and craftsmen by re-engaging them through familiar methods at each phase of the project. None of the reviewed methods achieves, in selected projects/courses, "empower" as a participation level. This is likely because the initiatives examined have not yet advanced to a stage where full decision-making power is transferred to residents (Table 5.8).

5.4.4 Educational Scope of Co-Creation Projects

Considering the educational scope, all projects are centred on enhancing residential neighbourhoods. Many of these projects specifically target the improvement of living conditions and the promotion of social inclusion within these communities. An essential aspect of several of these ventures is their focus on cultural enrichment. For instance, the CLEVER Cities project is particularly noteworthy as it prioritises the development of public spaces that not only reflect but also amplify the unique cultural identity of the local community (Davis, 2018). These examples focus on residents' involvement but do not specifically address heritage.

5.5 Proposal for an Education Programme to Support the Sustainable Reconstruction

In this section, building upon the result of the review and analysis presented in sections 5.3 and 5.4, and on the knowledge of the specific situation in the Old City of Aleppo (Kousa, Pottgiesser and Lubelli, 2021; Kousa, Lubelli and Pottgiesser, 2023a), an educational programme is proposed. This educational programme aims to improve the quality of reconstruction interventions on traditional courtyard houses in the Old City of Aleppo following the Syrian civil war by stimulating the active participation of residents. It attempts to favour the transition from traditional top-down approaches common in Syria to a more inclusive, bottom-up approach that supports democratisation of decision-making processes. A key aspect of this proposed shift is the concept of co-creation, in which residents work together with architects and craftsmen to shape the interventions in post-Syrian war residential heritage in the Old City of Aleppo.

Following the classification proposed in (ICCROM, Aparna Tandon, 2018), this research categorises the stakeholders according to their roles, seniority as follows:

- Residents of different ages: Elderly (65+ years), Middle-aged (35–64 years), Youth (19–34 years) and Schoolchildren (6–18 years)
- Architects with different levels of expertise: Senior architects in residential heritage, junior architects, and final-year architecture students.
- Craftsmen with different levels of expertise: Senior craftsmen in stonemasons and carpenters, junior craftsmen and trainee craftsmen.

It is important to note that these categories are not always mutually exclusive. For example, some craftsmen are also residents of the Old City of Aleppo, and certain resident architects may be actively involved in both professional and community roles.

Taking inspiration from other participatory programmes (Figure 5.3), the co-creation process proposed is structured into four phases: co-diagnostic, co-design, co-implementation, and co-monitoring. Each phase requires different levels of resident participation, which include informing, consulting, involving, collaborating, and empowering (Michaelson, Rozelle and Sarno, 2024). Each level of participation demands different roles for residents: interactors, coordinators, task-oriented contributors, and producers (Leader, 2021). These roles reflect varying degrees of resource commitment, skill requirements, and involvement intensity (Figure 5.5).

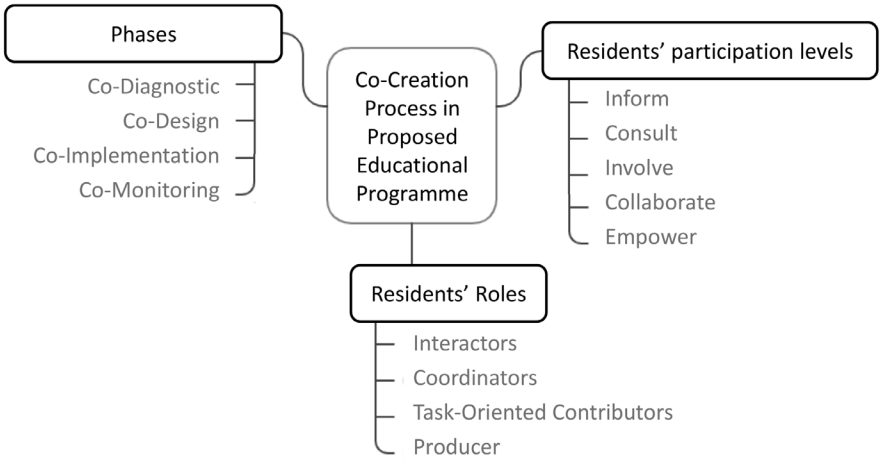

FIG. 5.5 Co-creation process (phases, residents' roles, and residents' participation levels).

Each phase uses specific participative methods, selected among those applied in capacity building courses and projects (see Section 5.3) and co-creation projects (see Section 5.4), based on their feasibility, in terms of time and costs, suitability to satisfy specific purposes and participation level (Table 5.8). This way, the internationally recognised capacity-building approach relevant to post-war World Heritage contexts is integrated with a participatory co-creation approach applied to housing and community development.

In the following sub-sections, the different phases of the proposed co-creative educational programme are presented and discussed in detail.

5.5.1 Co-Diagnostic Phase: Documenting the Conditions of Traditional Courtyard Houses and Identifying Residents' Needs

The co-diagnostic phase focuses on documentation and assessment of residents' needs related to traditional courtyard houses in the Old City of Aleppo. This phase ensures that the interventions will be formulated to satisfy the residents' needs while aligning with the permitted interventions as regulated by Syrian regulations. In this phase, the level of participation achieved by the resident is "involved" (see Figure 5.6).

TOC

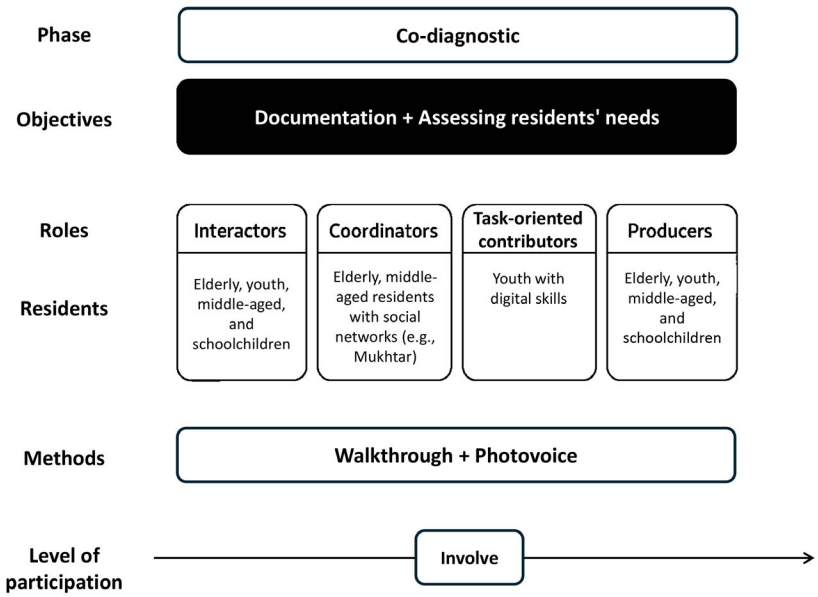

FIG. 5.6 Co-diagnostic phase and related residents' roles, methods, and level of participation.

Walkthrough and photovoice are identified as suitable methods for this phase. Through these methods, all residents (elderly, youth, middle-aged, and schoolchildren) act as interactors to identify their needs. For example, elderly and middle-aged residents, who have strong social networks, such as the mukhtar (the head of the neighbourhood), could serve as coordinators in the walkthrough and facilitate the connection between residents and architects (junior architects and final-year architecture students). Youth residents who have specific knowledge or digital skills could serve as task-oriented contributors to observation and data collection activities by teaching other residents how to use cameras or smartphones to document the state of their houses. All residents, including the elderly, youth, middle-aged, and schoolchildren, could participate in creating visual and audio materials such as photographs, videos, and recordings to establish an archive.

The walkthrough aims to engage residents (elderly, youth, middle-aged and schoolchildren), initiating an on-site dialogue about their residential neighbourhoods and traditional courtyard houses. Emphasis is placed on collecting residents' knowledge of what has already been tried to solve the problems; for example, residents might be invited to document what they see and tell their stories about the courtyard houses. The walkthrough could follow a structured sequence and could include setting objectives, identifying action areas and targeted neighbourhoods,

establishing the route to be followed, and listing the specific traditional courtyard houses to be visited. Architects (junior architects and final-year architecture students) will be in charge of leading the discussions, taking notes and taking pictures along the way.

Photovoice allows residents, with facilitation/support by junior architects and final-year architecture students, to share their lived experiences and memories through images. This could be implemented by using existing photos of courtyard houses before the Syrian war to stimulate dialogue between architects and residents, as well as by capturing real-time photos that represent the destruction or residents' interventions on their traditional courtyard houses. In this case outcome of the walkthrough method could serve as a base for the photovoice session. The photovoice begins with a preparation step, defining the objectives and identifying key topics to explore (neighbourhood safety, interventions in courtyard houses, and the lack of infrastructure, etc.). The photovoice might take place in a courtyard house in the Old City of Aleppo, being this is an accessible location. All residents (elderly, youth and middle-aged, and schoolchildren) can bring photos of their courtyard houses and neighbourhoods. During the photovoice sessions, all residents can share their photos and describe what they mean or answer questions about them. The photovoice sessions can involve discussions that emphasise valued elements, areas of improvement needed, and potential interventions. The sessions could also be tailored to different target groups, such as children, elderly residents, or mixed generations, encouraging interactions and discussions across age groups, like between schoolchildren and grandparents.

5.5.2 Co-Design Phase: Collaborative Design of Educational Materials and Interventions

The co-design phase focuses on building a foundational understanding among all stakeholders before generating ideas, in order to develop actionable proposals for well-informed interventions. This phase involves learning from residents, architects and craftsmen, as well as developing educational materials to facilitate dialogue. This phase encourages residents to transition from merely identifying problems to actively contributing to the creation of solutions. Additionally, architects can use the collected data to develop structured educational materials. In the context of this phase, inform, consult, involve, and collaborate reflect the level of participation achieved (Figure 5.7).

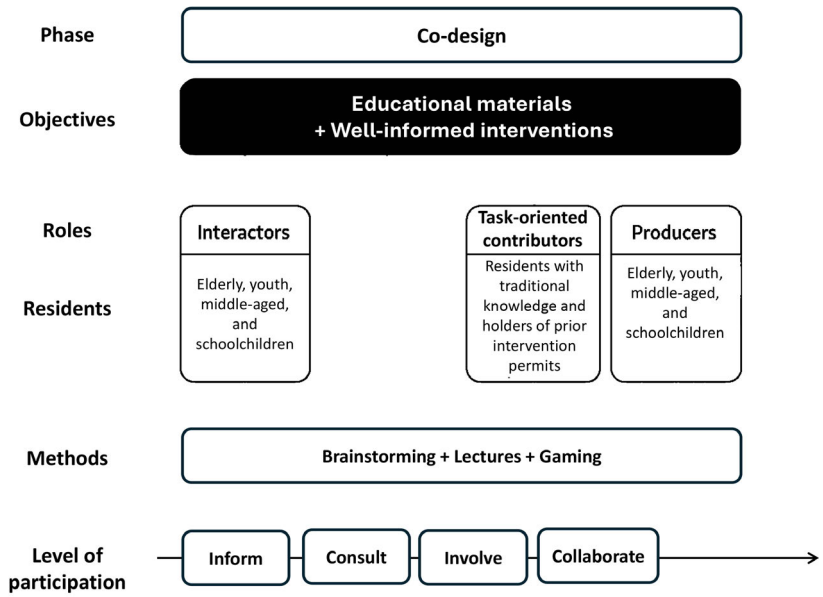

FIG. 5.7 Co-design phase and related residents' roles, methods, and level of participation.

In this phase, brainstorming sessions are facilitated by the participation of senior architects specialising in residential heritage, and junior architects, who may help guide the discussions; final-year architecture students could contribute, e.g., by recording the residents' answers, etc. Brainstorming sessions serve as a preparatory stage that empowers residents to make informed contributions later on in the process. During a brainstorming session, a general list of solutions (potential and preliminary interventions) is generated, e.g., for adapting elements like roofs or walls, based on regulatory limitations and community needs.

Lectures are offered to all participants, particularly residents, and are delivered by senior architects to support knowledge exchange and provide a shared foundation. These sessions introduce essential topics, such as permissible interventions in traditional courtyard houses and the licensing procedure currently in place (Kousa, Pottgiesser and Lubelli, 2021; Kousa, Lubelli and Pottgiesser, 2023a). For example, a matrix could be proposed to help clarify which interventions are allowed and what type of licence may be required, based on the classification of residential buildings and the state of conservation of the house. Lectures help ensure that residents, architects, and craftsmen begin with a common knowledge base; this, in turn, helps ensure that proposed reconstruction interventions are grounded in clearly defined principles, rather than being driven by unverified assumptions or personal interpretations of what the residents might prefer.

Residents (elderly, youth, and middle-aged) participate in lectures led by senior architects. In this context, residents might act as interactors, by asking questions, and providing feedback, etc., and gradually becoming more aware of the technical and regulatory aspects related to the interventions. This helps them understand the possibilities and constraints of the proposed interventions and better integrate their needs into the educational materials. Residents (elderly, youth, and middle-aged) who have previously obtained intervention licences may act as task-oriented contributors by sharing their lived experiences related to their case studies (their traditional courtyard houses) and the interventions they implemented. Additionally, residents (elderly and middle-aged) with experience in local building practices, materials, and spatial customs could also share their insights.

Through gaming methods, residents of all age groups, including schoolchildren, act as producers and visualise, discuss, and co-create solutions related to the traditional courtyard. The gaming methods build on the knowledge gained during earlier brainstorming and lecture sessions, allowing residents to easily engage with permitted intervention ideas. Residents (elderly, youth and middle-aged and schoolchildren) act as interactors and debate potential solutions and evaluate the feasibility of different interventions in a gamified setting. For example, the game might include a large, illustrated map or a 3D model of a neighbourhood with traditional courtyard houses. It could feature “Intervention Cards”, each representing a proposed solution, such as adding a bathroom or subdividing space. Each card might display an icon, a brief description, and a list of potential impacts to help participants weigh the benefits and challenges of each option.

5.5.3 Co-Implementation Phase: Implement Resident-Driven Interventions

The co-implementation phase involves transforming the potential solutions proposed during the co-design phase into tangible interventions. At the beginning of this phase, each participating resident (elderly, youth and middle-aged) is encouraged to bring forward his/her own traditional courtyard house as a case study and to express the need for e.g., reconstructing damaged walls or roofs, etc. The focus during this phase includes both the exploration of a feasible and specific plan for interventions and the licensing process. Later on, in a practical training session, a selection of these proposed case studies, showing diverse conditions, different levels of destruction, unique elements, or significant heritage value, is chosen by the organisers for partial implementation. In this phase, involve, collaborate, and empower reflect the level of participation achieved (see Figure 5.8).

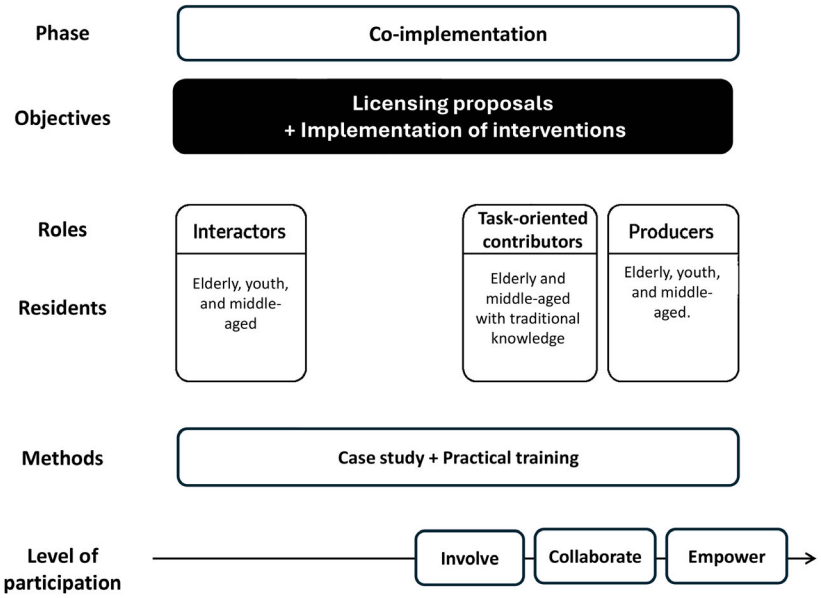

FIG. 5.8 Co-implementation phase and related residents' roles, methods, and level of participation.

In more detail, this phase might involve preparing licensing applications for interventions related to traditional courtyard houses (case studies). As part of this phase, a plan for the proposed intervention could be developed, refined, and evaluated in collaboration with authorities before moving toward full implementation. In this way, the initial stage of the application process for obtaining a licence (Kousa, Lubelli and Pottgiesser, 2023a) becomes simpler and feasible for the residents. Residents would no longer need to visit the Old City Directorate to gather information about the required documents or to obtain a copy of the forms to be filled in. Instead, a simplified explanation of the licensing procedure would be introduced during the co-design phase, with the necessary forms potentially distributed directly to residents. Furthermore, approval from the relevant authorities would become more feasible, as the forms would be completed by licenced and practitioner architects, who are familiar with the regulations through their involvement in the co-design phase.

Besides, the case study method could be used in implementing the interventions during practical training sessions led by skilled craftsmen. In this phase, residents (elderly, youth and middle-aged) can participate as interactors. Besides, those elderly and middle-aged residents with relevant traditional knowledge can participate as task-oriented contributors, offering local expertise. They might also be engaged as producers in on-site construction and maintenance activities.

5.5.4 Co-Monitoring: Co-Enhancing the Programme

The co-monitoring phase marks the final phase of the proposed educational programme following the completion of all other phases. Its purpose is to assess the effectiveness of the interventions implemented during the co-implementation phase, while also knowing that the educational process continues to run smoothly and remains reflective of the residents' needs throughout all phases of the project. In the context of this phase, consult reflects the level of participation achieved (Figure 5.9).

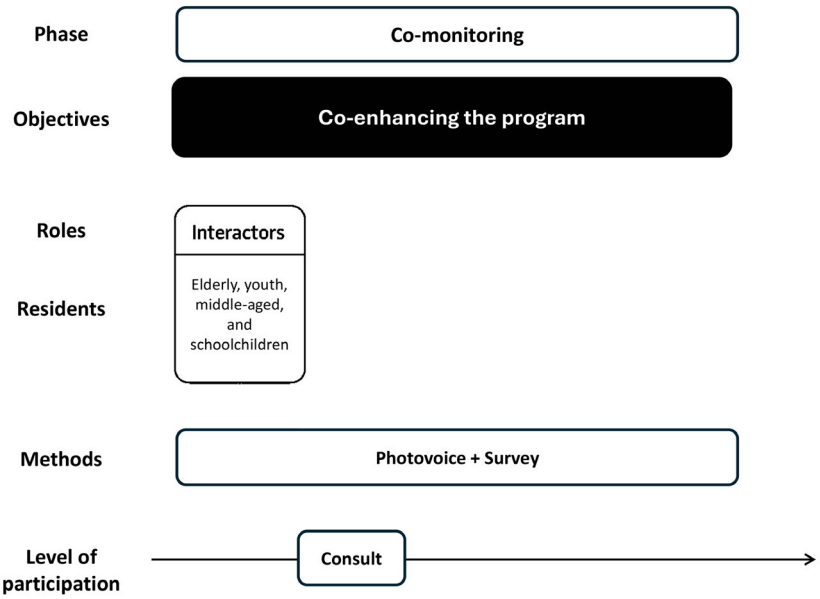

FIG. 5.9 Co-monitoring phase and related residents' roles, methods, and level of participation.

One of the methods suitable for this phase is photovoice, which engages residents in assessing the outcomes of the interventions implemented during the co-implementation phase. For example, in these sessions, residents of different ages can present photographs of their courtyard houses, documenting the physical changes resulting from the interventions. These images could then be shared and discussed, allowing residents to reflect on whether the problems and needs identified during the diagnostic phase have been adequately addressed through the interventions. This visual method helps residents identify shortcomings and propose further improvements based on everyday use and experience. Therefore, by integrating photovoice into this phase, residents are encouraged to engage more actively in the iterative cycle of co-creation.

TOC

In addition to photovoice, feedback on the educational components of the programme could be collected through surveys, which help capture residents' perceptions of the training content, delivery methods, and applicability of what they have learned. Such a feedback loop serves as a valuable mechanism for continuously shaping and enhancing the educational approaches.

Within this co-monitoring phase, residents, including the elderly, youth, middle-aged, and schoolchildren, participate as interactors, offering input, observations, and reflections based on their everyday engagement with the built environment.

5.6 Discussion

Post-Syrian-war efforts for the reconstruction of traditional courtyard houses have faced several challenges, including a lack of knowledge about the conditions of these houses, the residents' needs, and the relevant regulations, as well as limited community participation in the decision-making processes. International examples from similar post-war contexts show that education and community participation are crucial for sustainable reconstruction. By examining collaborative initiatives internationally, including capacity-building and co-creation courses and projects, this research proposes and investigates the potential implementation and contextual adaptation of capacity-building and co-creation approaches to support the reconstruction process of residential heritage in the Old City of Aleppo, in particular following the Syrian war. Specifically, it examines how co-creation (participatory) methods, such as walkthroughs, photovoice, surveys, games, and brainstorming, etc., can be integrated with structured (teaching) capacity-building methods like lectures and case studies, etc., throughout various phases of an education programme to actively involve residents, architects and craftsmen in all phases of the programme. In this way, data gathered through participatory activities is converted into organised educational content. Besides, residents are enabled to play a more active role in interventions on traditional courtyard houses, aligning these interventions with their needs and current regulations, and promoting the sustainable reconstruction of the residential heritage in the Old City of Aleppo. This process supports long-term knowledge transfer and facilitates informed residential heritage reconstruction efforts.

The research draws on capacity-building and co-creation frameworks to identify parallels between several real applied projects and the proposed programme for Syria. The methods used in the proposed education programme are selected based on specific criteria, such as their ability to foster inclusivity, support skill development, and take into account the limited timeframe and scarce financial and human resources, which are typically found in post-war contexts.

The validation of the applicability and effectiveness of participatory methods within the context of the post-Syrian-war will be a critical aspect in the actual implementation of the proposed programme in the field. However, several limitations constrain the implementation of this educational programme. Due to ongoing political instability in Aleppo, organising and overseeing participatory activities on-site is not currently feasible. Furthermore, unclear administrative procedures, the closure of numerous government departments, and limited financial resources present additional barriers to implementation. Besides, the cost of permits, construction materials, and professional services (e.g., architects, craftsmen) presents a considerable challenge for many residents in the Old City of Aleppo.

It has to be considered that most co-creation projects have been developed in stable European contexts and might not be directly translated to contexts impacted by war, displacement, and a breakdown of institutional trust, like in Syria. However, by incorporating feedback loops (co-monitoring phase), the programme may ensure that both the process and the outcomes remain relevant to the Syrian socio-cultural realities and the up-to-date needs of the residents.

5.7 Conclusions

This research contributes to the field of participatory post-Syrian-war reconstruction of residential heritage in the Old City of Aleppo. It presents a co-creation model that integrates validated teaching and participatory methods, shifting the focus from merely physical reconstruction to a more holistic, socially inclusive, and participatory approach. This model proposes the involvement of residents not as a one-time event, but as a phased and evolving process.

The structure of the proposed educational programme consists of four key phases: co-diagnostic, co-design, co-implementation, and co-monitoring, which are crucial to ensure that the entire reconstruction process is shared with the residents who are most affected by the war, while attempting to bridge the gap between top-down Syrian policies, related to residential heritage, and the bottom-up needs of the community.

Although the implementation of the full programme in the field remains a prospective task due to socio-political and resource challenges, the study lays the foundational groundwork for future field applications and testing.

This research does not explore detailed financial models; future research may investigate potential funding mechanisms, including subsidies, international aid, NGO involvement, and diaspora contributions. Additionally, this research applies to the design thinking model as a guiding framework for structuring participatory educational interventions. It is important to note that design thinking is one of several possible models, with multiple formulations of its phases, and future research could explore the subject in more depth.

Finally, this research contributes to the broader discourse on participatory residential heritage reconstruction in post-war contexts, highlighting the transformative potential of co-creation processes in the reconstruction not only of traditional courtyard houses but also in the reestablishment of social and cultural resilience.

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6 Conclusions

This final chapter reflects on the main findings of this work, answering the main research question of "How can the concept of socio-cultural sustainability be applied to the reconstruction of residential heritage in the Old City of Aleppo?" and the related sub-questions formulated in the introduction of this dissertation (Chapter 1) (Figure 6.1).

Besides, this chapter summarises the main contributions of this research, both in terms of scientific advancement and societal impact, as well as its limitations. It concludes by offering recommendations for future research to scientists, heritage practitioners and decision-makers.

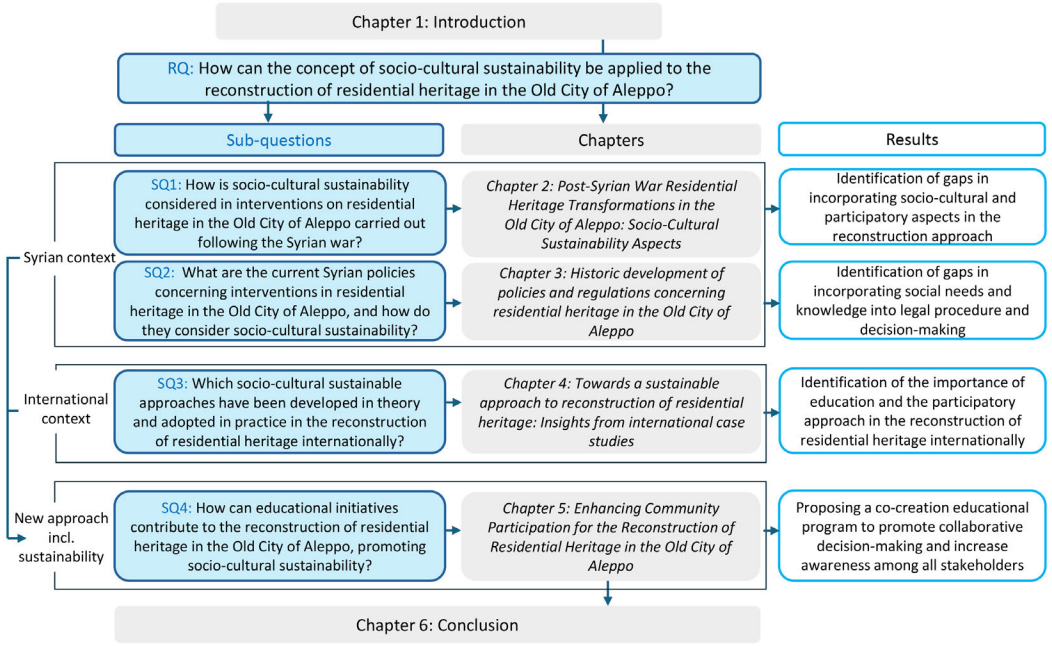

FIG. 6.1 Thesis outline, research questions, and related results. Author, June 2025.

TOC

6.1 Revisiting the research questions

— **SQ1: How is socio-cultural sustainability considered in interventions on residential heritage in the Old City of Aleppo carried out following the Syrian war?**

This question aimed at gaining insight into the traditional courtyard houses' physical situation in the Old City of Aleppo, in particular, the level of destruction and the reconstruction interventions. It also wanted to explore the attitudes of the residents towards living in the Old City of Aleppo after the Syrian war, their needs, and the challenges they faced related to the reconstruction process.

This question has been answered and discussed in detail in Chapter 2 through fieldwork conducted in three neighbourhoods in the Old City of Aleppo: Al-Jalloum, Al-Aqaba, and Al-Farafra. The fieldwork included a survey of traditional courtyard houses, questionnaires, and interviews with the returnees and new residents, mapping and analysing the state of conservation of the residential heritage after the Syrian war. The results showed that the majority of traditional courtyard houses were destroyed, with the damage ranging from partial to complete destruction. There was a significant lack of documentation of the interventions and/or of the original status of the building, and the status of use, etc., making the reconstruction of residential heritage particularly difficult. Some houses were abandoned due to structural instability, while others were modernised or partly reconstructed by returnees or new residents, who made emergency repairs or adaptive modifications, including incorporating new materials or layouts, mostly without an appropriate reconstruction/restoration licence from the responsible authorities. The residents reported that the strict regulations and the costly and time-consuming procedures for obtaining a licence were not compatible with the urgency of the interventions. Residents expressed dissatisfaction with the lack of essential services, and with their living conditions that failed to meet their basic social and cultural needs. Additionally, a lack of awareness was observed within the local community about the historic significance of the traditional courtyard houses. All these factors contributed to the observed limited consideration of the socio-cultural sustainability aspects, and to the neglection of the historical values in the reconstruction processes of this residential heritage. These gaps, identified in this phase, will inform the development of a more inclusive, participatory framework for residential heritage reconstruction proposed in later chapters.

To summarise, the findings from Chapter 2 highlighted an extensive destruction of the residential heritage, a lack of community participation in the reconstruction process, a lack of sufficient documentation on the state of conservation of the housing, and dissatisfaction of the residents with respect to their living conditions and current regulatory procedures for reconstruction of their houses. These results underscored the need for an approach that not only focuses on the physical reconstruction of the residential heritage, but also takes into account social, cultural, and participatory aspects in the process.

— **SQ2: What are the current Syrian policies concerning interventions in residential heritage in the Old City of Aleppo, and how do they consider socio-cultural sustainability?**

In Chapter 3, a critical review of the Syrian policies that shape interventions in residential heritage in the Old City of Aleppo was carried out. The process of obtaining reconstruction and restoration licences was analysed by screening licence applications and by investigating case studies, to assess the actual implementation of the policies. The research showed that preserving the integrity and the historic architectural features is the primary focus of the current Syrian policies and regulations. Social aspects, relevant to the needs of the residents in the Old City of Aleppo, are not taken into account. Moreover, the analysis confirmed that, as reported by residents, obtaining the reconstruction licence is a complex and lengthy procedure. These findings were further confirmed by insights gained from interviews with Syrian experts from academia and practice; they reported that Syrian policies and their application have some major limitations, concerning legal and administrative, economic, and social aspects. Residents are not actively involved in the decision-making processes, and the policies and procedures lack the flexibility needed to address the specific situations. A lack of knowledge regarding residential heritage among those charged with implementation, has resulted in a decline in traditional knowledge, techniques, and craftsmanship. In combination, these factors have led to the widespread disconnect between policy intent and practical implementation. Also, economic hardships faced by residents further complicate compliance with the formal reconstruction procedures. These findings highlighted the urgent need for a more flexible, inclusive, and context-sensitive policy approach that addresses the realities of post-Syrian-war reconstruction and point out once again the importance of integrating social needs and knowledge into residential heritage planning and decision-making.

To summarise, the findings from Chapter 3 emphasised that the gap between legal processes and the realities faced by residents has resulted in informal and often undocumented interventions, which risk undermining the heritage value of traditional courtyard houses.

— **SQ3: Which socio-cultural sustainable approaches have been developed in theory and adopted in practice in the reconstruction of residential heritage internationally?**

In Chapter 4, post-war reconstruction interventions implemented at the international level were investigated. It was found that a clear shift towards a more holistic approach to reconstruction exists, both in the international guidance documents and in practice implementation. The study identified that comprehensive documentation of damage and historic features is a crucial starting point in post-war reconstruction, as it can serve as a reference for guiding accurate and meaningful reconstruction and help in maintaining the historical and cultural aspects of residential heritage. Moreover, the analysis of international examples of post-war reconstruction highlighted the need for a participative approach to education. In this, the involvement of local communities in decision-making processes is crucial, as it empowers residents to contribute actively to reconstruction efforts, ensuring that interventions are well-informed and reflect local needs. In the examples studied, these objectives were accomplished through training programmes, participatory planning exercises, and community consultations. These approaches were effective in fostering community involvement and facilitating the transfer of knowledge between generations and across various levels of expertise. The examples also showed how partnerships between local governments, international organisations, and residents can create shared ownership of reconstruction efforts. The study also highlighted the importance of financial sources and instruments, such as soft loans, grants, and donations, in supporting property owners and encouraging community participation in reconstruction efforts.

To summarise, Chapter 4 emphasised that successful heritage reconstruction often relies on community empowerment and the transmission of local and traditional knowledge. These findings provided a foundation for a critical investigation of educational initiatives and for developing the educational programme proposed in Chapter 5.

— **SQ4: How can educational initiatives and building capacity contribute to the reconstruction of residential heritage in the Old City of Aleppo, promoting socio-cultural sustainability?**

This question emerged from the identified gaps in heritage knowledge, local expertise, and community participation in the reconstruction process. Chapter 5 incorporated the findings of the previous chapters with international examples of participatory educational approaches to develop an educational programme tailored to the specific situation of Aleppo. The educational programme aims to serve as support to the post-Syrian-war reconstruction of residential heritage in the Old City of Aleppo. It helps to bridge gaps in knowledge and capacity,

by activating residents, architects, and craftsmen as key actors in the sustainable reconstruction of residential heritage. It also allows residents to engage actively in decision-making and guide the reconstruction of their traditional courtyard houses. Through this educational programme, residents assume roles as interactors, task contributors, group coordinators, and even producers of design and implement reconstruction interventions on the traditional courtyard houses in the Old City of Aleppo. Therefore, the programme enables a shift from uncontrolled interventions and top-down reconstruction models to inclusive, co-creation approaches that foster socio-cultural sustainability. As elaborated in Chapter 5, the programme offers a scalable, pragmatic model for knowledge transfer and empowerment, supporting a long-term vision for residential heritage reconstruction in Aleppo.

To summarise, Chapter 5 outlines a proposal for an educational programme that includes a series of phases: co-diagnosis, co-design, co-implementation, and co-monitoring, all of which involve residents with the aim of promoting collaborative decision-making and increasing awareness of residential heritage reconstruction.

6.2 Research Impact

This section outlines the scientific and societal contributions of this doctoral research, focusing on how the study addresses existing gaps and the research's potential impact in both the short and long term.

6.2.1 Scientific advancement with respect to the state of the art

Given the lack of documentation of the current condition of traditional courtyard houses in the Old City of Aleppo, which was identified in Chapter 2 as one of the main limitations, this research contributes new empirical data gathered through on-site surveys, questionnaires, and interviews conducted in three neighbourhoods. This includes a detailed record of damage levels, various types of reconstruction interventions, the four types of tradtional courtyard houses, and the original status of the building, thus contributing to updating the existing archive and offering input for future reconstruction efforts in the Old City of Aleppo (Figure 6.2, Figure 6.3, Figure 6.4 and Figure 6.5).

FIG. 6.2 The documentation for the traditional courtyard house (Type 1), cadastral number 1430, located in the Al-Aqaba neighbourhood, includes an AutoCAD-drawn plan and photographs of the interior façade and the room. The structure has been altered by returnees; Photo (2) illustrates the closure of openings using buillding blocks.

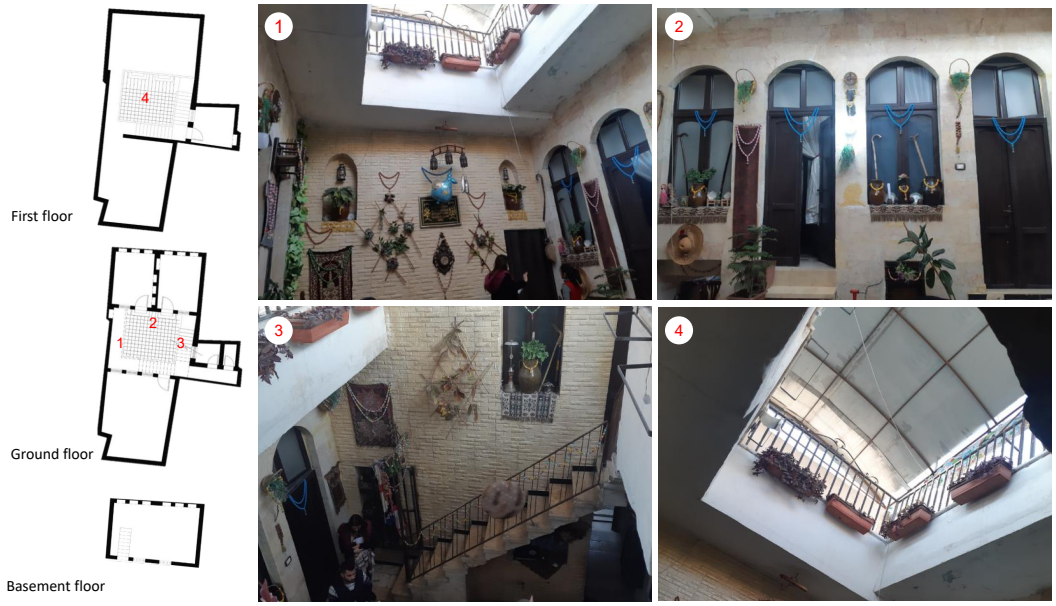

FIG. 6.3 The documentation for the traditional courtyard house (Type 2), cadastral number 1450, located in the Al-Aqaba neighbourhood, includes an AutoCAD-drawn plan and photographs of the interior façade. The house has been modernised by returnees; Photo (4) illustrates the covering of the inner courtyard.

TOC

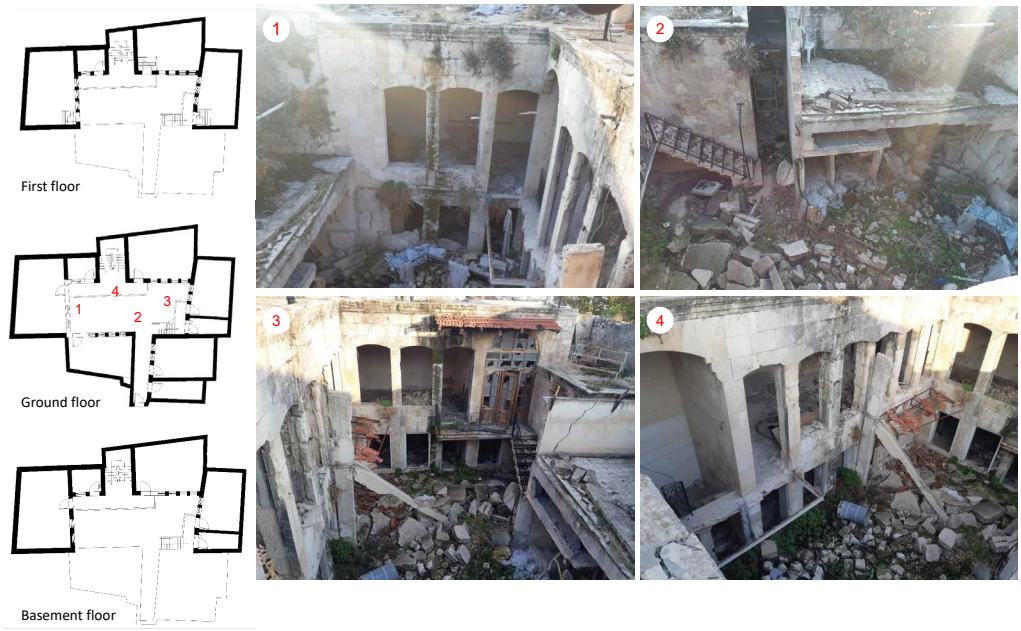

FIG. 6.4 The documentation for the traditional courtyard house (Type 3), cadastral number 1452, located in the Al-Aqaba neighbourhood, includes an AutoCAD-drawn plan and photographs of the interior façade. The house house has been partially destroyed.

FIG. 6.5 The documentation for the traditional courtyard house (Type 4, with two courtyards), cadastral number 1520, located in the Al-Aqaba neighbourhood, includes an AutoCAD-drawn plan and photographs of the interior façade. The house has been partially destroyed; Photo (1) illustrates a new floor added by returnees.

TOC

It is important to note that the on-site investigation was specifically designed for this doctoral research and was conducted in collaboration with the Faculty of Architecture at the University of Aleppo, involving the active participation of undergraduate students. This collaboration not only supported the research objectives but also strengthened the integration between academic teaching and applied research. Moreover, it contributed to expanding the students' collective knowledge of the current condition of residential heritage in the Old City of Aleppo.

In light of the absence of a detailed analysis of socio-cultural sustainability within current Syrian policies related to residential heritage in the Old City of Aleppo, this research conducted a critical examination of these policies and found that they tend to prioritise the physical reconstruction of houses' structures while neglecting the evolving social and functional needs of residents. This reflects a notable disregard for socio-cultural dimensions in current policy frameworks. By addressing this underexplored aspect, the doctoral research contributes to identifying specific limitations, in terms of legal, administrative, social, and economic aspects, in Syrian residential heritage policies.

6.2.2 Societal relevance of impact

One of the core contributions of this doctoral research is the development of a co-creation educational programme that guides individuals and institutions in selecting appropriate methods for engaging residents, architects, and craftsmen at various phases of the reconstruction process for traditional courtyard houses. It introduces a decision-making approach, structured around co-creation phases (co-diagnostic, co-design, co-implementation, and co-monitoring), residents' roles (interactors, coordinators, task-oriented contributors, and producers), and levels of participation (inform, consult, involve, collaborate, and empower). The expected societal impact of this proposal and the route to impact are discussed hereafter.

Short-term Impact: The research provides methods and structured phases that can be used as input to design small-scale pilot projects and can support NGOs, local authorities, and heritage-related institutions in developing more resident-centred, participatory reconstruction efforts. A pilot project could concentrate on two or three selected traditional courtyard houses, involving a small group of residents, architects, and craftsmen. This approach would allow for the testing of specific phases of the programme and/or methods before scaling up.

Long-term Impact: The proposed educational programme, if piloted, could foster inclusive, co-creation reconstruction practices in the Old City of Aleppo through:
a. improving formal licensing procedures for intervention on residential heritage, to make them less costly and time-consuming. This could be achieved through improved coordinated collaboration between senior/junior architects affiliated with the Directorate of the Old City, the Directorate of Antiquities and Museums, the Aleppo City Council, Aleppo University, and other relevant organisations. These architects can volunteer to provide administrative support and technical guidance.
b. facilitating communication among stakeholders and favouring the transition from top-down decision-making processes in Syria toward more inclusive, co-creation approaches. This could be achieved by establishing joint committees and digital platforms that bring together residents, architects, and craftsmen to support the exchange of knowledge, address community concerns, and provide feedback channels for decision-makers. Thus, the implementation of the programme could reduce uncontrolled or unsafe construction, build trust among residents and other stakeholders, and serve as a scalable model for other parts of the city and eventually other cities as well. In areas where buildings are to some extent intact, the participatory and educational aspects of the programme can serve as a model for different conservation interventions, including preservation, rehabilitation, and restoration.

The model could, for example, be applicable to other Syrian cities, mirroring some of the challenges observed in Aleppo. For example, in Homs, a city which, unlinke Aleppo, has received limited international attention, post-Syria-war reconstruction has faced a lack of structural damage assessment, inadequate documentation of the state of conservation, limited heritage classification, weak infrastructure, and limited institutional coordination, all factors which resulted in fragmented and largely resident-led interventions, similar to those which took place in Aleppo. Here, the proposed education program could be adapted to complement the existing regulatory framework of the Old City of Homs, which includes the Building Control System 1997 and licensing procedures involving the Municipality of Homs and, when relevant, the Directorate of Antiquities. The co-creation model could therefore support Homs by providing structured methods for navigating the licensing procedures, helping residents understand whether their houses are classified, and clarifying the distinctions between ordinary and heritage-related permits. For example, Co-diagnostic activities, such as walkthroughs and photovoice, could prioritise rapid documentation of classified houses, thereby compensating for the absence of comprehensive assessments/documentation and informing both municipal decisions and future updates of the Building Control System in Homs.

In other villages, such as the Christian village of Maaloula, characterised by exceptional architecture and location, presents a different but related challenge. Although its built fabric suffered less extensive destruction, reconstruction efforts have until now struggled to balance physical aspects with the preservation of unique cultural identity, and have been affected by earlier rehabilitation mistakes, which, in the first place, ignored local expertise. The proposed participative approach could help the reconstruction and conservation processes in Maaloula, where almost all houses, whether officially classified or not, fall within a highly sensitive heritage zone governed by the Directorate of Antiquities of Rural Damascus. Given that residents must obtain approval from both the municipality and the antiquities authority, the programme could provide structured guidance that clarifies procedural steps for residents, helping them understand when archaeological approval is required, what documents must be submitted, and how decisions are made. For example, it could also support knowledge transfer by bringing skilled local craftsmen, whose techniques are essential for maintaining the traditional stone-carved aesthetic, into practical training sessions, ensuring that reconstruction avoids past mistakes, such as inappropriate materials or interventions that weakened cultural identity.

These examples, where residential heritage faces a combination of different levels of physical damage, social disruption, and weak institutional support, reinforce the need for approaches that integrate community knowledge, traditional skills, and local socio-cultural values.

6.3 Limitations of the Research

The findings of this dissertation are based on observations, fieldwork, and document analysis conducted from 2017 to 2023 in the Old City of Aleppo.

Research limitations

Due to the war, the socio-political instability, and the security situation in Syria, direct engagement with some key stakeholders, such as displaced residents and craftsmen, was difficult; in some cases, participants could not be easily reached for interviews or could not speak freely due to political sensitivities. This may have limited the range of viewpoints included to varying degrees. For example, residents, the primary target group of this dissertation, were willing to participate in interviews and questionnaires. However, in two of three studied neighbourhoods, there was no representation of women due to cultural norms and mentality. Most interviews were conducted with male heads of households, which might incompletely represent household needs and preferences. Children were not directly involved in this phase, but their needs were considered through the responses of parents. Besides, craftsmen and architects presented another layer of complexity; some craftsmen, particularly those with traditional knowledge, stonemasons, had migrated or could not be contacted. Some architects were only reachable through online platforms.

To mitigate these limitations, the research used several data collection methods, including remote interviews, informal conversations, and archival consultations from the Old City Directorate in Aleppo.

Limitations to future implementation

While the dissertation proposes a co-creation and educational programme for the reconstruction of residential heritage, the programme is still conceptual and has not been validated through implementation. Due to the ongoing political instability and changing situation in Aleppo, organising and overseeing participatory activities on-site currently is not possible. Furthermore, the unclear administrative procedures, along with the closure of numerous government departments and limited financial resources, created additional barriers to implementing the programme.

6.4 Recommendations for Future Research

When considering the documentation of residential heritage in the Old City of Aleppo carried out in this work, future research could extend the documentation of traditional courtyard houses beyond the three neighbourhoods of Al-Jalloum, Al-Farafra, and Al-Aqaba investigated in this research. Out of a total of 14 neighbourhoods, the majority remain undocumented, where the historical importance of housing, levels of war damage, and reconstruction activities may differ significantly. Expanding the scope of documentation would offer ongoing updates and capture the evolving condition of these houses. This would provide a resource for future reconstruction efforts and enable researchers and stakeholders to evaluate the long-term impacts of the proposed programme and adjust it accordingly.

When considering the co-creation education programme proposed in this work, future research could focus on validating and refining the proposed programme, its stages, and its methods through a two-step process. First, a simulated session could be organised in collaboration with a university (preferably, if possible, the University of Aleppo) where students would assume the roles of stakeholders such as architects, craftspeople, and residents. This initial exercise would provide a controlled environment to test the programme's feasibility, anticipate challenges in stakeholder interaction, and collect feedback for refinement. Following this, a second stage could involve actual stakeholders in Aleppo, including architects, craftsmen, and residents' representatives. This step would allow to assess not only the applicability of the programme in practice and to further adjust it based on local realities, but also the institutional readiness of local authorities to support resident-driven reconstruction processes. These sessions would help assess the usability and clarity of the methods before their actual field implementation. This would allow for identifying any potential difficulties and suggest the necessary modifications to ensure their effectiveness in a practical context. This way, the participatory methods could also be evaluated for cultural appropriateness, especially in terms of engaging marginalised groups such as women, elderly residents, and youth.

Based on the outcome of this validation, the proposed co-creation model can be refined, and further adapted to be applied to other conservation interventions, such as preservation, rehabilitation and restoration, addressing those cases where residential heritage is still physically intact but functionally or socially at risk. Moreover, the model, following the necessary adjustments, could be further tested in different post-war heritage contexts; this way, the flexibility of the model across varying socio-political and economic settings could be assessed.

Appendix

This survey targets individuals who live/lived in the Old City of Aleppo. Please answer the following questions:

Name:
Age:
Job:
How many years have you lived in the Old City of Aleppo?
Please tell us where you currently reside: Old City of Aleppo / Neighbourhood:
What type of housing do you currently live in?
☐ Traditional courtyard house (Arab house)
☐ Modern house
Which of the following best describes your current housing situation?
☐ Homeowner
☐ Renter
☐ Living with others/family without paying rent (inheritance)
☐ Living with others/family and assisting in paying rent
Do you intend to stay in the Old City of Aleppo?
☐ No plans to leave
☐ Yes, but planning to move within the next few years
☐ Yes, do not plan to move
☐ Already left
If your answer is no, what are the three main reasons for not moving yet? (Select all that apply)
☐ Satisfied with current housing
☐ Unable to sell the house
☐ Lack of sufficient funds to leave
☐ Unable to find suitable housing
☐ Family here
☐ Need to find a new job
☐ Other (please specify)
Are you satisfied with your current living arrangements?
☐ Yes
☐ No

If your answer is no, please tell us why? (Select all that apply)

☐ House needs repairs I cannot afford

☐ House needs modern facilities

☐ Other (please specify)

What are the main problems caused by the war that have affected your current housing?

☐ Destruction of housing

☐ Infrastructure damage

☐ Increased costs ☐

☐ Loss of security

What are the infrastructure problems and services that are not available after the Syrian war?

What are the main problems and obstacles you have faced/are facing during the restoration and reconstruction process of your housing affected by the Syrian war?

☐ Cost

☐ Complex licensing (approval) for reconstruction or renovation

☐ Other (please specify)

To what extent does your house contribute to meeting your needs and achieving sustainability?

Please rate your satisfaction with the courtyard house. For each element mentioned, we suggest that you indicate whether you are satisfied as follows: 1 (very satisfied) to 5 (not satisfied at all).	1	2	3	4	5
Thermal comfort	☐	☐	☐	☐	☐
Visual comfort	☐	☐	☐	☐	☐
Good ventilation	☐	☐	☐	☐	☐
Noise protection	☐	☐	☐	☐	☐
Protection from weather conditions	☐	☐	☐	☐	☐
Housing design (meets resident functional needs)	☐	☐	☐	☐	☐
Suitability of housing for modern resident lifestyle	☐	☐	☐	☐	☐
Reflects historical environment characteristics	☐	☐	☐	☐	☐
Home size (number of rooms)	☐	☐	☐	☐	☐
Construction status	☐	☐	☐	☐	☐
Housing cost	☐	☐	☐	☐	☐
Energy use cost	☐	☐	☐	☐	☐
Housing maintenance cost	☐	☐	☐	☐	☐
Luxury and quality of life	☐	☐	☐	☐	☐
Use of solar energy for electricity generation, heating, and water heating	☐	☐	☐	☐	☐
Electricity availability	☐	☐	☐	☐	☐
Water availability	☐	☐	☐	☐	☐
Sanitation	☐	☐	☐	☐	☐
Waste disposal and war debris	☐	☐	☐	☐	☐
Recycling and reuse of rubble in reconstruction	☐	☐	☐	☐	☐
Use of local building materials	☐	☐	☐	☐	☐
Use of modern technologies	☐	☐	☐	☐	☐

Thermal insulation and moisture insulation for roofs and walls	☐	☐	☐	☐	☐
Infrastructure	☐	☐	☐	☐	☐
Close to services	☐	☐	☐	☐	☐
Close to public transportation	☐	☐	☐	☐	☐
Close to work	☐	☐	☐	☐	☐
Close to shopping	☐	☐	☐	☐	☐
Close to family/friends	☐	☐	☐	☐	☐
Close to schools	☐	☐	☐	☐	☐
Close to healthcare facilities	☐	☐	☐	☐	☐
I/we are disabled and need access facilities	☐	☐	☐	☐	☐
Safety and security availability	☐	☐	☐	☐	☐
Privacy availability	☐	☐	☐	☐	☐
Gardens and courtyards availability	☐	☐	☐	☐	☐
Parking availability	☐	☐	☐	☐	☐

TOC

Curriculum Vitae

Christine Kousa is a Ph.D. researcher at the Faculty of Architecture and the Built Environment, Delft University of Technology in the Netherlands, in partnership with the Detmold School of Design at Technische Hochschule Ostwestfalen-Lippe (TH OWL) in Germany. She is affiliated with the Centre for Global Heritage and Development and is a member of the Doctoral School for Applied Research in North Rhine-Westphalia (Doctoral School NRW), "Building and Culture" department.

From 2021 to 2024, she was a Gerda Henkel Stiftung "Patrimonies" scholar, following her earlier scholarship with the Katholischer Akademischer Ausländer Dienst (KAAD) from 2017 to 2020. Between 2018 and 2020, she worked as a research assistant and lecturer in the Master's programmes MIAD/MID at the Detmold School of Architecture and Interior Architecture, TH OWL.

Before starting her Ph.D., she built her academic career in Syria. She earned her Bachelor of Architectural Engineering in 2011 and her Master's in the Rehabilitation of Historical and Islamic Cities in 2015, both at the Faculty of Architectural Engineering, Aleppo University. From 2012 to 2016, she served as an administrative engineer and academic researcher at Aleppo University, and from 2014 to 2016, she was also a lecturer at the Faculty of Fine and Applied Arts from 2016 to 2017, she coordinated university affairs at the Presidency of Damascus University.

Education

01.09.2019 to present
PhD Candidate
Delft University of Technology, Faculty of Architecture and the Built Environment, Heritage & Architecture, Delft, the Netherlands

2011 to 2015
Master of Science in Rehabilitation of Historical and Islamic Cities
Thesis entitled "*Reconstruction of Historical Buildings in Old Aleppo City Public Buildings as a Case Study*". Aleppo University, Faculty of Architectural Engineering, Aleppo, Syria

2006 to 2011
Bachelor's degree in Architectural Engineering
Aleppo University, Faculty of Architectural Engineering, Aleppo, Syria

Professional Experience

2012 to 2016
Research Assistant and Administrative Engineer
Aleppo University, Faculty of Architectural Engineering, Aleppo, Syria

2014 to 2016
Lecturer
Aleppo University, Faculty of Fine and Applied Arts, Aleppo, Syria

2016 to 2017
Administrative engineer at the Presidency of Damascus University
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2018 to 2019
Research Assistant
Technische Hochschule Ostwestfalen-Lippe (TH OWL), FB1, Institute for Design Strategies (IDS), Detmold, Germany

2019 to 2020
Teaching Associate
Technische Hochschule Ostwestfalen-Lippe (TH OWL), FB1, Master Programme MIAD/MID: Master of Integrated Architectural Design and Master of Integrated Design, Detmold, Germany

List of Publications

2025

— C. Kousa, B. Lubelli, and U. Pottgiesser, “Enhancing Community Participation for the Reconstruction of Residential Heritage in the Old City of Aleppo”, Heritage 2025, 8(8), 319; https://doi.org/10.3390/heritage8080319

2023

— Kousa, C., Lubelli, B. and Pottgiesser, U. (2023b) ‘Towards a sustainable approach to reconstruction of residential heritage : Insights from international case studies’, *Heritage and Sustainable Development*, 5(2), pp. 315–338; https://doi.org/10.37868/hsd.v5i2.254

— Kousa, C., Lubelli, B. and Pottgiesser, U. (2023a) ‘Historic development of policies and regulations concerning residential heritage in the Old City of Aleppo’, *Journal of Cultural Heritage Management and Sustainable Development*. doi: https://doi.org/10.1108/JCHMSD-05-2022-0072

2021

— Kousa, C., Pottgiesser, U. and Lubelli, B. (2021) ‘Post-Syrian War Residential Heritage Transformations in the Old City of Aleppo: Socio-Cultural Sustainability Aspects’, *Sustainability*, 13(21). doi: https://doi.org/10.3390/su132112213

2021

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2019

— Kousa, C. and Pottgiesser, U. (2019) ‘Post Syrian-war material recovery, reuse and transformation in the Old City of Aleppo’, *Journal of Cultural Heritage Management and Sustainable Development*, 10(1). doi: 10.1108/JCHMSD-07-2019-0085.

2018

— Kousa, C., Pottgiesser, U. and De Vos, E. (2018) 'Modern residential architecture in Aleppo City transformations and potentials for the reconstruction of Old-Aleppo', in *Proceedings of the 15th International Docomomo Conference - Metamorphosis: The Continuity of Change, IDC 2018*.

2015

— Kousa, C. (2015) *Reconstruction of Historical Buildings in Old Aleppo City Public Buildings as a Case Study*. Master's Thesis, Aleppo University.
مكتبة العتبة العباسية الرقمية | اعادة اعمار المباني التاريخية في مدينة حلب القديمة : المباني العامة انموذجا
[Reconstruction of Historical Buildings in Old Aleppo City Public Buildings as a Case study]

Presentations at Conferences

2025

- Narratives and Relevance of Seemingly Worthless Fragments in Rome and Elsewhere, International Seminar MicroRuins, organised by the Department of History, Drawing and Restoration of Architecture, ISAP Institute for Advanced Studies on Heritage, Rome, Italy, (June 16, 2025).
  Contribution: Post-Syrian-War Material Recovery, Reuse, and Transformation in the Old City of Aleppo

2024

- The FCIC'24 | Faro Convention International Conference 2024: Transforming Through Co-Creation: Participatory Heritage Practices Tackling Urban Challenges, organised by the Faculty of Architecture of the University of Porto (FAUP), Porto, Portugal, (from January 29 to February 2, 2024).
  Contribution: Participatory Approach in Post-War Syria: Policy Recommendations for Residential Heritage Reconstruction in the Old City of Aleppo

2023

- Heritage Politics and Calamities: Cases from the Middle East and North Africa Conference, organised by Erasmus University, Rotterdam, Netherlands, (December 12-13, 2023).
  Contribution: Post-Syrian-War Preservation of Residential Heritage in the Old City of Aleppo
- Detmold Conference Week 2023: Change or Just Crisis?, organised by Detmold School of Design, Technische Hochschule Ostwestfalen-Lippe (TH OWL), Detmold, Germany, (November 14-16, 2023).
  Contribution: Post-Syrian-War Preservation of Residential Heritage in the Old City of Aleppo: Towards Positive Change
- Post-conflict Reconstruction of Cultural Heritage in the Middle East and North Africa, International Conference, organised by the Doha Institute for Graduate Studies and the Centre for Conflict and Humanitarian Studies, Doha, Qatar, (March 7-8, 2023).
  Contribution: Approaches Development for Reconstruction of Historical Buildings in the Old Aleppo City

2021

- After the damages. Prevention and Safety Solutions Through Design and Practice on Existing Built Environment. The Italian Experience, Summer School, organised by the Department of Architecture, University of Ferrara and After the damages International Academy, Online, (July 05-20, 2021).
  Contribution: Involving communities in the processes of reconstruction/re-appropriation of their places of life: Comparing experiences between Italy and Syria, between earthquakes and wars, between symbols and daily needs

2020

- Detmold Conference Week, The Human Habitat in Times of Transformation, organised by Technische Hochschule Ostwestfalen-Lippe (TH OWL), Online, (November 16-27, 2020).
  Contribution: The impacts of Local Interventions on Residential Heritage Sustainability, The Case of Old Aleppo City

2019

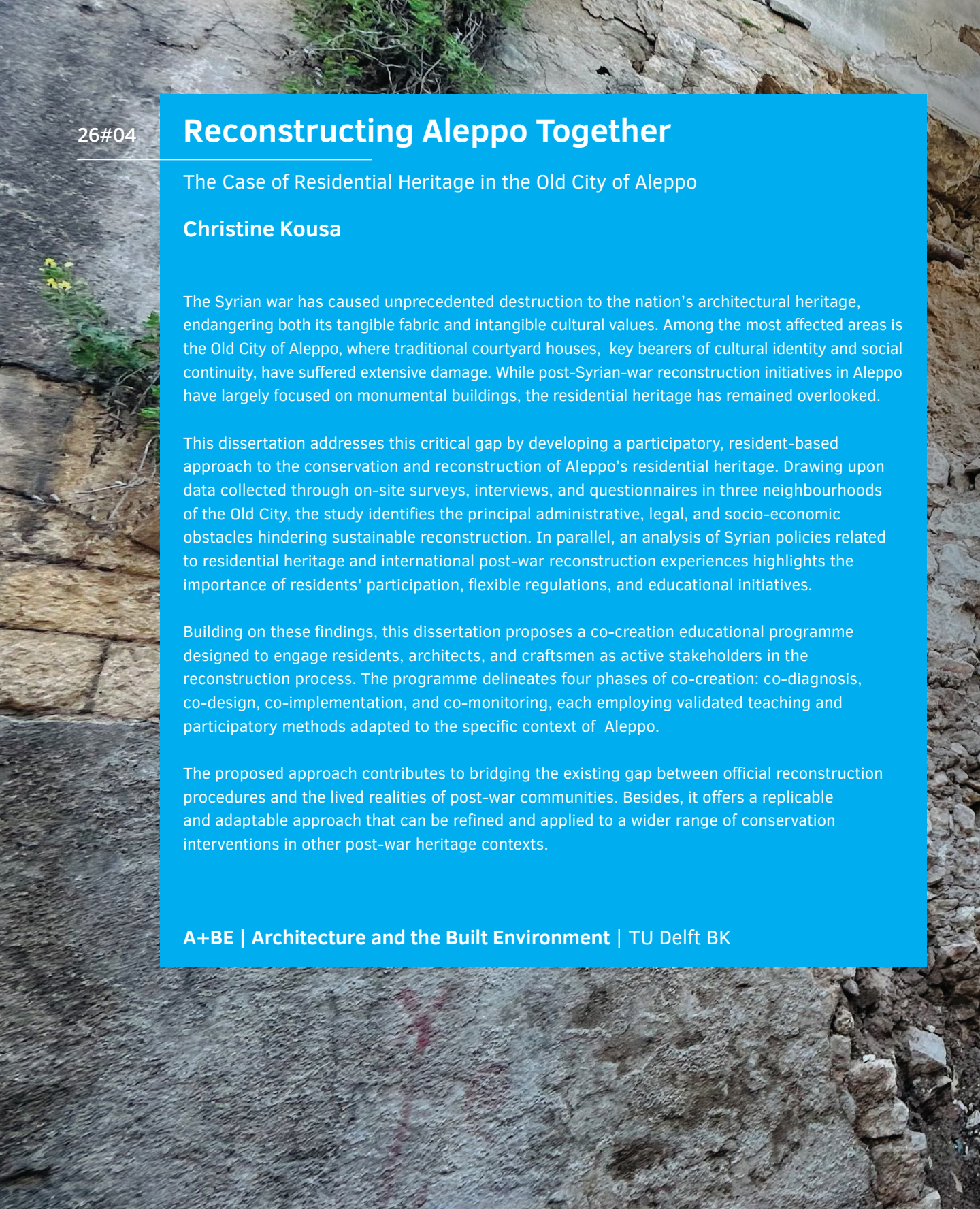
- LDE Heritage Conference on Heritage and the Sustainable Development Goals, organised by Delft University of Technology, Delft, the Netherlands, (November 26-28, 2019).
  Contribution: Development Plan Strategies of Old Aleppo City and Sustainable Development Goals

2018

- The 15th International DOCOMOMO Conference: Metamorphosis, organised by DOCOMOMO Slovenia, Ljubljana, Slovenia, (August 28-31, 2018).
  Contribution: Modern residential architecture in Aleppo City: transformations and potentials for the reconstruction of Old-Aleppo
- History and Theory of Architecture: Re-Use Workshop, JDS – 32nd Joint Doctoral Seminar, organised by The Faculty of Design Sciences of Antwerp University, Antwerp, Belgium, (September 13, 2018).
  Contribution: Conceptualise Strategy and Guidelines for the Preservation of Housing in Old Aleppo City Based on Renewable Energies

2017

- Enhancing Urban and Architectural Cultural Heritage in the Middle East, organised by Technische Hochschule Ostwestfalen-Lippe (TH OWL), Detmold, Germany (April 12-13, 2017).
  Contribution: Post-war Techniques and Alternatives of Energy in the Reconstruction of Historical Buildings: Old Aleppo City in Syria as a Case Study



26#04

Reconstructing Aleppo Together

The Case of Residential Heritage in the Old City of Aleppo

Christine Kousa

The Syrian war has caused unprecedented destruction to the nation's architectural heritage, endangering both its tangible fabric and intangible cultural values. Among the most affected areas is the Old City of Aleppo, where traditional courtyard houses, key bearers of cultural identity and social continuity, have suffered extensive damage. While post-Syrian-war reconstruction initiatives in Aleppo have largely focused on monumental buildings, the residential heritage has remained overlooked.

This dissertation addresses this critical gap by developing a participatory, resident-based approach to the conservation and reconstruction of Aleppo's residential heritage. Drawing upon data collected through on-site surveys, interviews, and questionnaires in three neighbourhoods of the Old City, the study identifies the principal administrative, legal, and socio-economic obstacles hindering sustainable reconstruction. In parallel, an analysis of Syrian policies related to residential heritage and international post-war reconstruction experiences highlights the importance of residents' participation, flexible regulations, and educational initiatives.

Building on these findings, this dissertation proposes a co-creation educational programme designed to engage residents, architects, and craftsmen as active stakeholders in the reconstruction process. The programme delineates four phases of co-creation: co-diagnosis, co-design, co-implementation, and co-monitoring, each employing validated teaching and participatory methods adapted to the specific context of Aleppo.

The proposed approach contributes to bridging the existing gap between official reconstruction procedures and the lived realities of post-war communities. Besides, it offers a replicable and adaptable approach that can be refined and applied to a wider range of conservation interventions in other post-war heritage contexts.

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