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Reflective planning towards conservation and future of Sille

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Abstract
This study addresses the renewal of the Conservation Development Plan and Urban Design Guidelines for the rural settlement of Sille. Employing a reflective planning approach, it integrates mixed methodologies, including archival research, oral histories, and both analog and digital measurements. The research critiques conventional, top-down planning practices, proposing instead a dynamic, cyclical process informed by pilot projects and stakeholder participation. Key findings highlight the inadequacies of rigid planning methods in conserving rural heritage and underscore the need for multi-scalar, participatory strategies tailored to local contexts. This paper demonstrates how reflective integration of lessons from implementation phases can reshape planning decisions, contributing to sustainable, adaptive conservation frameworks. The insights from this study provide a replicable model for achieving holistic and resilient rural conservation.

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Keywords
Cyclical planning approach, Participatory conservation, Reflective planning, Rural heritage conservation, Sustainable rural development.

1. Introduction

Rural areas worldwide face significant transformations, driven by factors such as population decline, urban sprawl, loss of biodiversity, and shifts in agricultural practices (Scazzosi, 2018; Ruben & Pender, 2004). These changes, coupled with the growing urban population projected to double by 2050 (United Nations Habitat, 2022), place increasing pressure on rural settlements to adapt to new socio-economic and ecological realities. Yet, conventional planning approaches often fail to address the unique challenges of rural areas, leading to homogenization and the erosion of local identity (García-Esparza, 2015). Addressing these issues requires innovative methodologies that integrate heritage conservation with sustainable development.

Understanding and conserving rural heritage and local architecture has long been the subject of research and policy (Rapoport, 1969; Oliver, 2006; International Council on Monuments and Sites (ICOMOS), 1999). Traditional buildings in rural areas and their associated cultural practices and social rituals (Rapoport, 1969; Maudlin 2010), as well as vernacular architecture, which refers to traditional, anonymous, indigenous or regionally specific architectural forms (Oliver, 2006), are widely recognized.

In this study, rural conservation refers to the safeguarding and revitalization of the cultural, architectural, ecological, and social assets of rural settlements in a manner that respects their traditional forms while allowing for sustainable development. Drawing on the ICOMOS "Principles for Rural Landscapes" (2017), rural conservation is approached as a multi-dimensional practice encompassing tangible elements, such as vernacular architecture, topography, and agricultural infrastructure, and intangible aspects including community practices, local knowledge systems, and cultural identities (Elagöz & Baturayoğlu Yöney, 2020). It addresses not only the protection of individual structures, but also the preservation of the settlement's spatial organization, environmental context, and socio-economic resilience.

1.1. Rural heritage planning and legal framework in Türkiye

Rural heritage in Türkiye is under increasing threat due to population decline, displacement, and rapid urbanization. These pressures have led to the erosion of traditional values and weakened local economies, particularly in rural areas that lack institutional support (Akgün et al., 2014; Gülümser et al., 2011). In this context, conventional, building-centered conservation approaches are proving inadequate for addressing the complex challenges facing rural settlements.

Recent studies have proposed more holistic frameworks that go beyond the physical preservation of buildings. Güler and Kâhya (2019) introduce a five-stage model that emphasizes community participation, adaptive reuse, and ecological sensitivity. Their approach integrates local values and encourages heritage-informed planning. Similarly, Bilgin Altınöz (2023) stresses the layered nature of rural heritage and calls for management strategies that respect cultural identity, historical continuity, and governance dynamics. The reflective planning approach developed in the Sille case builds on these perspectives by promoting adaptability, feedback mechanisms, and iterative decision-making. It treats rural heritage not as a static artifact but as a living system shaped by cultural practices and ecological relationships.

Despite these evolving frameworks, implementation in Türkiye remains constrained by legal and institutional limitations. Law No. 2863 on the Conservation of Cultural and Natural Assets (Law on the Conservation of Cultural and Natural Property, 1983, Art. 3) defines four main site types: archaeological, historical, urban, and mixed (complex) conservation areas. Although urban conservation areas may include landscape or ecological features, many rural settlements, such as Sille and Cumalıkızık, are still categorized under urban designations, despite their strong environmental and topographical characteristics (Bursa Metropolitan Municipality, 2021).

This creates overlapping classifications and fragmented responsibilities. The separation between cultural and natural heritage governance, admin-

istered through distinct mechanisms, poses a major barrier to integrated planning (Elagöz & Baturayoğlu Yöney, 2020). Although the law allows for interpretive flexibility, its vague terminology can limit site-specific strategies grounded in landscape-based heritage understandings.

This study does not aim to provide a comprehensive legal review. Rather, it acknowledges that many rural areas with ecological and cultural significance are still managed through legal tools designed for urban or monumental contexts. The Sille case illustrates how rigid classifications and divided jurisdictions hinder adaptive planning. In response, the proposed model suggests a reflective and cyclical process that links planning with implementation through stakeholder engagement, pilot projects, and flexible tools, without requiring immediate legal reform.

The lack of rural-specific planning theories and forward-looking frameworks further complicates conservation efforts. Although rural sites often include architectural, ecological, and archaeological values, these are rarely managed through integrated strategies. For example, interim conservation guidelines issued by local committees are meant to guide interventions until full conservation plans are adopted. However, such instruments are usually generic and temporary, leaving heritage areas vulnerable during long delays in formal planning.

To address these gaps, flexible and locally grounded planning tools are needed. Village design guides are one such tool, as seen in cases like Balıkesir (Çorapçıoğlu et al., 2010) and Küre-Ersizdere (Öğdül & Olgun, 2015). These guides integrate local knowledge, ecological context, and community input. Yet scholars argue that a one-size-fits-all approach is not viable; each guide must be tailored to the specific character of the settlement (Boyacıoğlu et al., 2015). Ongoing participation and iterative revisions are essential to ensure their relevance and effectiveness over time (Öğdül et al., 2018).

1.2. Precedents in reflective rural planning

Reflective practice, as employed in this study, is grounded in the theory of reflection-in-action (Schön, 1984) and is further developed through its application in participatory and adaptive planning contexts (Willson, 2020). This approach prioritizes experiential learning through the iterative testing, evaluation, and modification of planning decisions based on site-specific feedback. Reflective planning treats conservation not as a linear, static process, but as a cyclical one, where pilot implementations generate new insights, shaping future design and regulatory strategies (Friedmann, 1987; Janssen et al., 2017).

To better contextualize the Sille case, several international and national rural planning models provide useful precedents. The European Union's Liaison Entre Actions de Développement de l'Économie Rurale (LEADER) Programme illustrates community-led rural development via Local Action Groups that promote site-specific strategies blending conservation, economic diversification, and adaptive governance (Dax & Oedl-Wieser, 2016). In Scotland, rural frameworks support skills transfer, adaptive reuse of heritage assets, and phased project implementation shaped by stakeholder input and evolving needs (Shucksmith, 2010). England and Ireland treat rural areas as core to national identity. Ireland's Village Design Statements, which gained traction in the 1990s, emerged from valuing local distinctiveness and community-scale planning (The Heritage Council, 2012). These are supported by a hierarchy of tools; Local Plan, Village Development Framework, Village Design Framework, and Village Action Plan, that structure planning comprehensively (Çevik & Eminağaoğlu, 2007).

Since the 2000s, guides have emphasized community involvement, reflecting shared values and local character. Ireland, in particular, centers "place," "character," and "community" in its design approach (The Heritage Council, 2012), often integrating participatory principles and sensitivity to local identity. The Village Design Framework and Village Action Plan are developed collaboratively with residents. The Landscape Character Assessment method, first created by the British Countryside Agency for village

guides, identifies distinct landscape features (Öğdül et al., 2018). In Türkiye, the Küre-Ersizdere Village Design Guide demonstrates how local engagement and tailored design regulations can preserve rural identity through a participatory, site-sensitive process (Öğdül and Olgun, 2015). The management framework of Cumalıkızık (Bursa Metropolitan Municipality, 2021), a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site in Bursa, reflects a reflective trajectory wherein the original conservation approach has been periodically revised in response to monitoring outcomes, evolving tourism dynamics, and resident participation.These practices exemplify how village design tools integrate with broader planning strategies and underscore the importance of participation and local specificity.

Across these examples, several parameters emerge as critical for reflective and sustainable rural conservation: (i) participatory engagement with local communities; (ii) integration of traditional knowledge and ecological data; (iii) iterative design and policy revision based on real-world outcomes; (iv) interdisciplinary collaboration among planners, ecologists, historians, and residents; and (v) the linking of conservation strategies to long-term socio-economic viability.

The Sille case both adopts and adapts these parameters. It aligns through its participatory design process, documentation of local construction knowledge, and implementation of pilot projects. Uniquely, it institutionalizes reflection as a central tool for planning revision, making the planning instruments themselves—Urban Design Guidelines and Conservation Development Plan—open-ended, adaptive, and grounded in implementation feedback. This approach positions Sille as a model for cyclical and participatory rural conservation planning.

This study discusses the potential of reflective, participatory, site-specific, and site-relevant planning approaches in contemporary conservation literature through the revision of Sille's existing conservation plan by asking the following questions: What tools and methods can support planners' reflective practice in rural conservation planning? How can reflective planning contribute to sustainable and resilient rural development? What are the obstacles and limits to the practical implementation of reflective planning approaches?

Sille is a rural settlement in north-western Konya, a major city in Central Anatolia in Türkiye (Figure 1). The proposed Conservation Development Plan (CDP) for Sille was designed with a multi-disciplinary, multi-layered and multi-scale approach in contrast to the two-dimensional and top-down approach of the existing plan. The CDP aims to create a holistic approach to conservation by incorporating landscape, natural areas, infrastructure, street use, lighting and urban identity as key components of the plan and considering local dynamics. In addition, Urban Design Guidelines (UDG) were prepared and integrated into the CDP to provide guidance to property owners, authorities and designers. In parallel, several pilot projects were conducted in the region to test the planning process. The design and implementation of the pilot projects considered the unique characteristics of the region, and local construction techniques were documented and applied in collaboration with local artisans. The participatory approach of the pilot projects provided new insights and experiences that helped to revise the CDP and UDG decisions. Unlike general approaches that focus only on protecting monuments and individual buildings, the new CDP proposal is designed to be flexible and adaptable to different circumstances. By establishing a circular relationship between planning and design guideline decisions and implementation experiences, this study sets an example of a reflective planning process that can be replicated in similar contexts to achieve comprehensive and sustainable rural conservation plans.

2. Mixed methodological approach

The built environment of Sille has suffered a significant loss due to past migrations. In heritage areas like Sille, which are severely damaged,

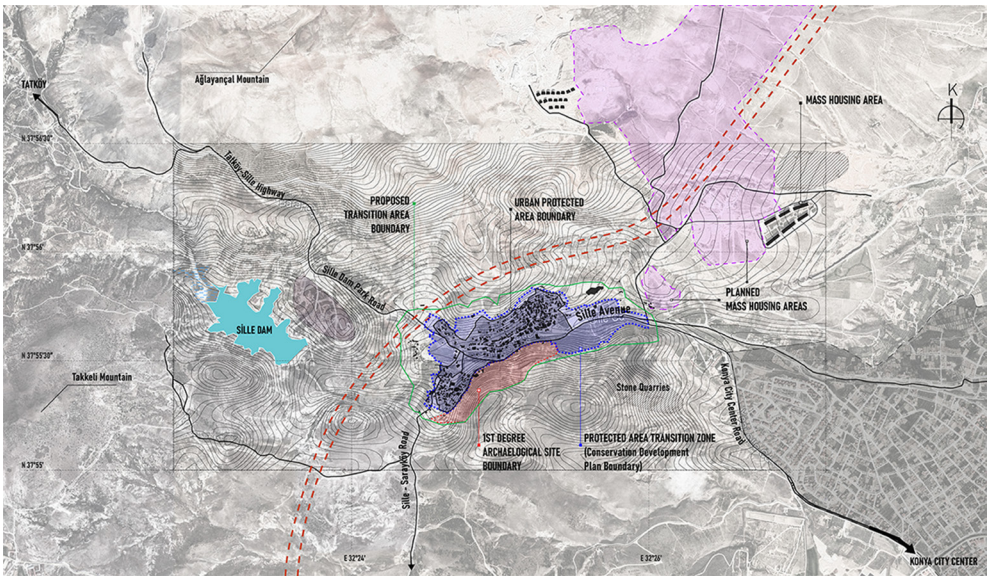

Figure 1. *Sille settlement and its surroundings.*

characterized primarily by vernacular architecture and unique geographical conditions, conventional planning methods and modern technologies alone are insufficient. To provide a comprehensive understanding of the built environment, manual methods, such as archival reseco arch, field analysis, oral history, and on-site inspections, must be employed in conjunction with contemporary digital tools. To this end, the study uses a mixed methodology that combines three-dimensional (3D) mapping, comparison of archival and current data, field research, and in-depth interview techniques. The study was carried out by a large project team composed of experts from different disciplines working simultaneously at different scales (Figure 2). The project team consisted of architects, heritage consultants, planning consultants, landscape consultants, lighting consultants, visual identity and orientation consultants, infrastructure consultants and fire safety consultants. During the process, the project team collaborated with various experts from the local municipality.

We started the process with a comprehensive documentation to analyze the region and the settlement. This was done in three steps. First, we recorded, compared and confirmed all relevant written sources and recent measurements of the area. Then, we created a 3D model base layer that accurately depicted the entire topography by integrating orthographic drone imagery. Finally, we supplemented the drone imagery in areas not captured, including regions under edges, corners and trees, with analogue measurements.

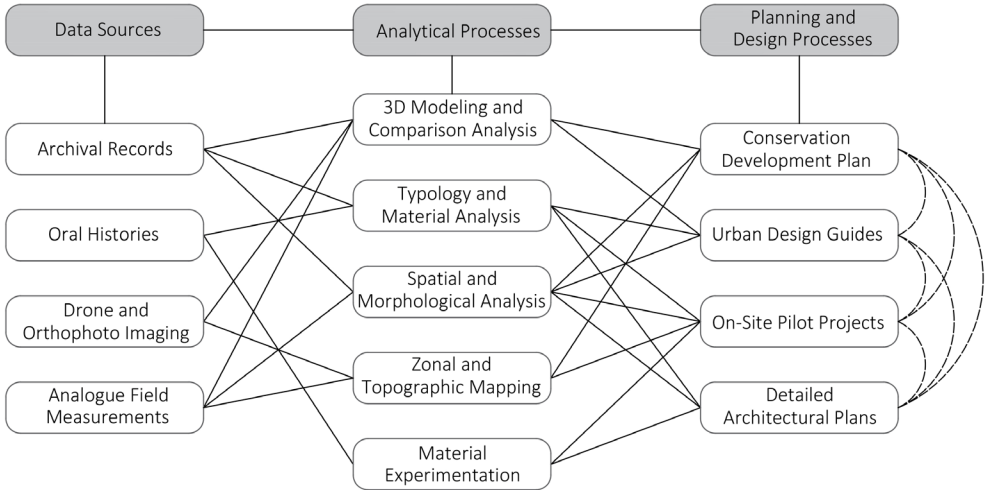

Figure 2. *Methodologic network diagram.*

The result of this work was a detailed record of the existing situation of the study area in 2022, depicting the settlement and its natural valley with minimum deviation. Following this study, we carried out a thorough analysis of the terrain, using data from sources that can be grouped into four categories; (i) dissertations, books and research on Sille, (ii) interviews with local government employees who used to work in the village, the local authority (village headman) and village inhabitants, as well as the results of surveys conducted by the local government, (iii) maps, old land use plans and aerial photographs used by local and central authorities (data on population, topography, cultural values, vegetation, climate, development/decay of the village over the years, permits issued, number of shops opened, etc., (iv) findings from observations made during visits to the village and workshops conducted in the village office.

In order to identify the lost building fabric, we adopted a multifaceted approach, based on the analysis of various historical sources and field studies. In the first phase, photo albums of the municipality and aerial photographs from the General Directorate of Mapping, dating from 1951 to 1998 were scrutinized to identify changes in the building fabric and to provide an approximation of the appearance of the village in the early 20th century. In addition, we compared 3D drone scans and recent photographs taken from similar perspectives with historic photographs to identify the deterioration of buildings. To fill in missing information, we conducted a comprehensive field study that lasted 18 months. In the process, two researchers meticulously examined each building, extracted information from old cadastral plans and conducted interviews with the village headman and building owners. The data obtained from these various sources was then combined to create a comprehensive and detailed 3D model of the settlement, including the relationships between buildings, blocks and the surrounding topography, allowing for a more complete understanding of the lost building fabric.

The existing conservation development plan of Sille was found to be inadequate for a number of reasons. It failed to address the traditional design criteria of the old town, such as the steep terrain, asymmetrical topography and historic building techniques. To address these deficiencies, we first studied the revised development plan in three dimensions and then transformed into two dimensions by considering the massing relationships between the buildings located on the plots. Then we combined the island-based designs incorporating the data obtained from the three-dimensional study to complete the overall planning layout.

In the planning process, we first divided the entire study area into sub-areas. Each sub-area was then assessed based on its individual requirements and potential, considering conservation principles and user needs. In the planning process, the conservation zoning plan, the urban design guide and the implementation of the pilot projects, were carried out simultaneously, rather than in a conventional, hierarchical and linear process. Throughout the decision-making and design process, we reflected upon cyclically the findings and experiences from these simultaneous studies, and revised the planning and design principles when required. This approach enabled the revised development plan to overcome the limitations of the previous plan and provide a more comprehensive and inclusive framework that respects the unique characteristics of the settlement.

3. Findings and analysis

The findings presented in this section build upon a reflective planning framework that integrates historical, spatial, and socio-cultural analyses with iterative feedback from site-specific implementations. Rather than proposing a prescriptive or fixed solution, the approach emphasizes cyclical learning, allowing planning strategies to evolve in response to contextual dynamics, an idea rooted in Schön's theory of reflection-in-action and further developed in adaptive planning discourse (Schön, 1984; Willson, 2020). By dividing the

settlement into sub-areas based on topography, typologies, and land use patterns, the planning process sought to align conservation principles with user needs while remaining open to revision. This method aimed not to replace previous planning efforts but to address their limitations, particularly the rigidity of hierarchical processes, by embedding participatory mechanisms and spatial diagnostics into a more responsive and localized conservation strategy. The following subsections discuss the analytical foundations of this approach and the resulting planning and design interventions.

3.1. Sille as a shrinking historical settlement

Sille, located in a valley approximately 8 km west of Konya in Central Anatolia, traces its origins to the Phrygian civilization in the 8th–7th centuries B.C., as evidenced by archaeological discoveries at the Sizma Tumulus (Belke & Restle, 1984). Known as Sylata or Sylla in antiquity, the settlement was a key stop along the King's Road from Ephesus to the east during the Roman era (Dawkins, 1916). During the Byzantine period, its position on the pilgrimage route to Jerusalem enhanced its religious significance, exemplified by the construction of Aya Eleni Church in 327 A.D., the largest church in Sille (Sarıköse, 2008).

Sille's prominence grew during the Seljuk and Ottoman periods. Under Sultan Alaeddin Keykubad (1220–1237), a structured settlement policy facilitated its expansion (Konyalı, 1964, while the Ottoman era transformed Sille into a vibrant, diverse community along the Silk and Spice Routes (Özönder 1998). Historical records from the 19th century document its population as a blend of Turkish and Greek residents, both Muslim and Christian, reflecting its inclusive social fabric (Aklanoğlu, 2009). The Lausanne Peace Treaty of 1923 marked a turning point, as the compulsory population exchange led to a social and cultural collapse. The departure of Sille's Greek population and the arrival of new settlers with limited resources disrupted community cohesion and accelerated the decline of its historic environment.

Losses in population were followed by losses in the physical environment. Insufficient resources and the lack of a sense of belonging among the new settlers from surrounding villages gradually damaged Sille, but the structures that have survived to the present day still provide an environment worth protecting. During the last two decades, some of the monumental buildings were restored and the population was encouraged to engage in trading activities. Although these measures have made Sille an alternative destination for day tourists, the settlement has not progressed beyond the status of a weekend destination, centered on a main street where commercial activities are concentrated, and has not been able to realize the potential of its history and topography.

Sille has become a popular tourist destination since it was declared a protected area in 2001 due to its proximity to Konya city center and its cultural values. The number of commercial enterprises for day and short-term tourists has increased day by day, and efforts have been made to integrate Sille into the popular tourist routes in Central Anatolia along with Cappadocia and Konya. Some restoration and renovation work carried out for this purpose have caused irreversible damage to the building fabric. Especially in the last 10 years, many buildings that form the historical fabric of Sille have disappeared or been rebuilt using new construction techniques, although it was possible to preserve them through partial reconstructions and appropriate restorations. These lost buildings have left a large gap in the urban fabric and interrupted the historical continuity of the built environment. Some of the lost buildings have been replaced by reconstructions that are incompatible with the original in terms of materials, construction techniques, dimensions and measurements. This has led to a deterioration of the historic building fabric that is difficult to restore. In addition to the destruction of the historic fabric, the lack of basic social facilities for the needs of the inhabitants has gradually increased, so that Sille has become a settlement that is inadequate for the people living here and only serves tourist visitors.

Based on aerial photographs showing the historical change of the built environment and data from official sources (General Directorate of Mapping, 2020), we found that the physical boundaries of the settlement gradually shrunk, the population decreased [1], the economic and social development weakened in the past periods and this change was reflected in the physical space. The 1925 photograph (Figure 3) shows that Sille was a densely populated settlement. Comparison of aerial photographs from 1951, 1975 and 2022 shows the fragmentation and vacancy of the settlement (Figure 4). The lost building fabric in the Karataş area, the southern section of Hacıali Ağa Street and the archaeological site are clearly visible. These changes reflect the broader socio-economic decline of the settlement. Residential areas remain compact and close-knit in the northern and eastern parts of Sille, while commercial activities are concentrated along the flat areas near the Sille stream.

3.2. Analyses of the built environment

Sille's physical environment, shaped by its valley location and surrounding mountains, including Takkeli, Ardış, and Gevenli, has profoundly influenced its built form and spatial organization. The Sille stream, fed by snow and rainwater, historically structured the settlement's layout. The tuff rock formations and microclimatic conditions allowed for the use of local materials and distinctive construction techniques. Due to the terrain structure, there are mainly sloping areas and the settlement structure is proximal and compact (Figure 5). The flat areas are located on both sides of the Sille Creek and are mainly the sections where commercial uses are found. The residential areas are located close to each other in the northern and eastern parts of the settlement [2].

The first conservation development plan for Sille was prepared in 1999 and this plan was renewed in 2016.

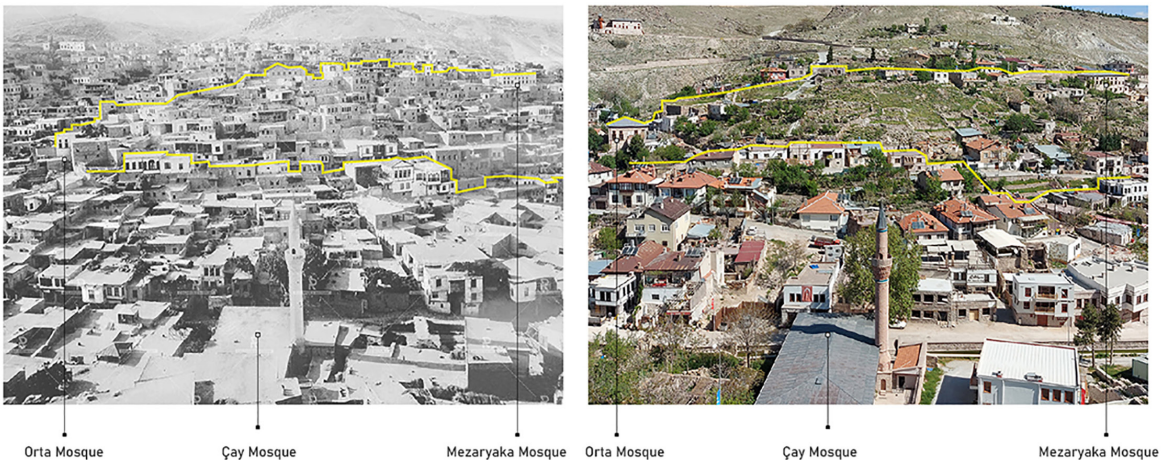

Figure 3. *Sille settlement in the early 20th century (left) and in 2022 (right).*

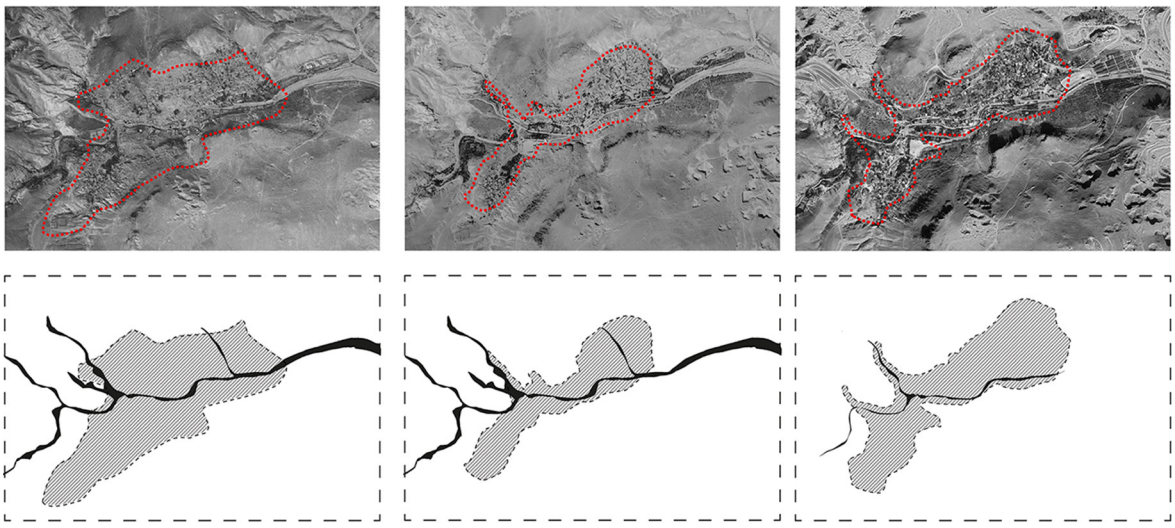

Figure 4. *Sille settlement trace in 1951, 1975 and 2022.*

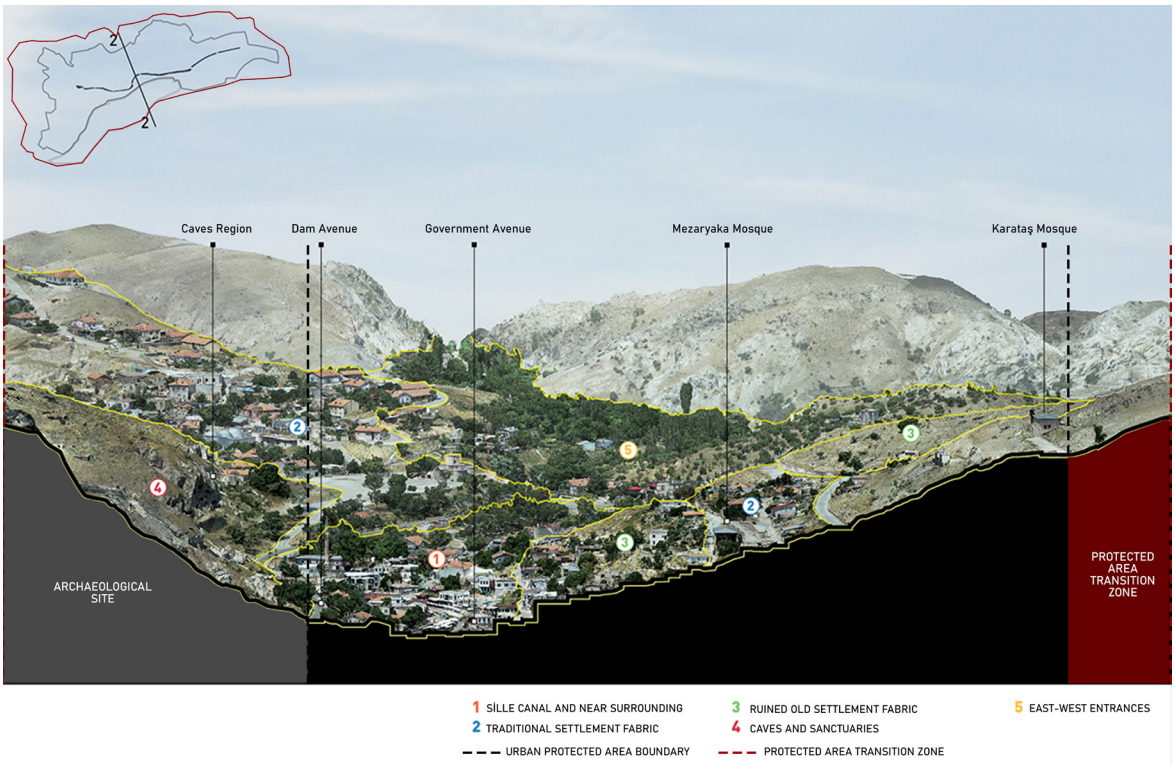

Figure 5. *North-south section of the settlement.*

The 2016 updated plan is still in force today. As its content and components (zoning plans and urban design guide) were not able to solve the problems that arose during the validity of the plan, the need for its renewal became apparent. The study was developed based on this need. One of the objectives of the proposed plan is to ensure the preservation and renovation of buildings on the one hand, and to make changes to provide the missing facilities and commercial diversity on the other. Based on this objective, we have adopted a holistic planning approach, encompassing not only the preservation of the historic buildings, but also all levels of the physical environment of the settlement, from waste collection and storage to the communication network. Another approach of the revised plan, based on the idea that the built environment forms a unity with its cultural and natural surroundings, is to protect Sille's historic values and natural resources by keeping them alive. To this end, we have given priority to the protection and preservation of values such as gastronomic culture, carpet production with root dye raw materials and the unique landscape. In line with these objectives, the revision of the planning aimed at preserving the historic fabric, repairing the worn parts and connecting them with the landscape, meeting the different user needs, and increasing the quality of the built environment and the open spaces.

The revised CDP addresses these issues by subdividing the settlement into characteristic zones based on topography, land use, and current conditions. This zonal strategy enables targeted, context-sensitive interventions. The plan emphasizes reconnecting fragmented urban spaces, preserving historic values, and integrating Sille's cultural and natural resources. Urban design guidelines complement the plan by providing detailed recommendations for restoration, landscaping, and wayfinding, ensuring consistency in conservation practices. Through these measures, the plan seeks to establish a sustainable framework for preserving Sille's unique identity while meeting contemporary needs.

Within the Sille Historic Site Area, there are a total of 60 registered cultural properties [3] (Figure 6 and 7). Substandard residential buildings without traditional architectural features are located in the existing Historic Site Area (Figure 8). The lack of conservation targets on the building pattern of

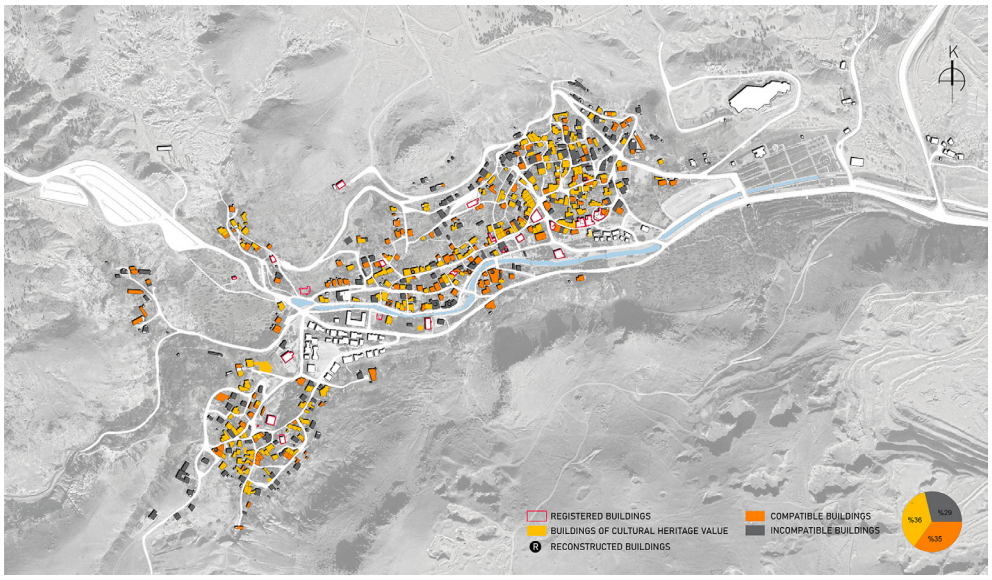

Figure 6. *Cultural value analysis of the buildings.*

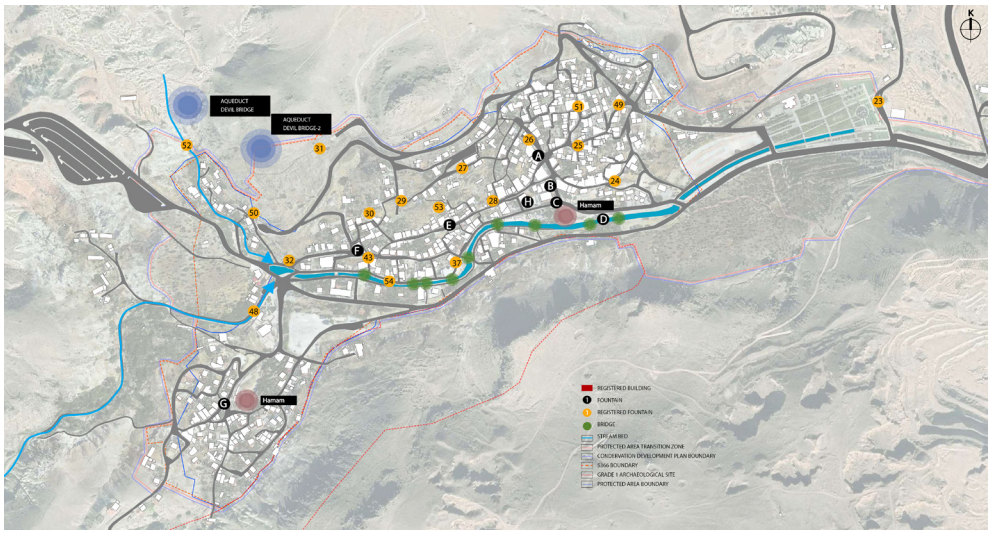

Figure 7. *Water resources of the settlement.*

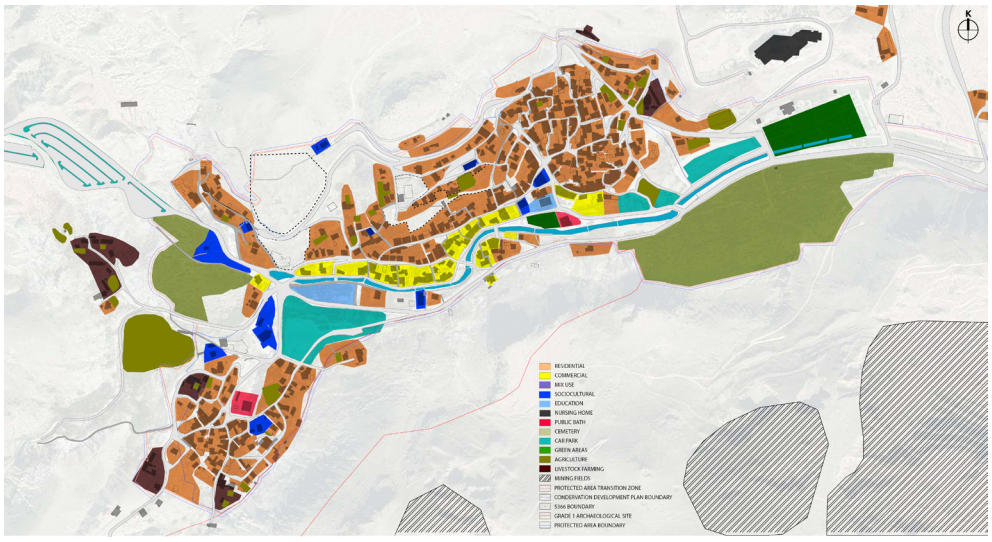

Figure 8. *Land use analysis of the settlement.*

non-traditional structures results in a decline in the quality of historic building fabric and street texture in the area. The streets in the Historic Site Area are quite narrow and reflect the traditional street pattern. There are no designated parking areas in the area. There is a Grade 1 Archaeological Site located on the southern boundary of the Sille Historic Site Area.

The analysis of the urban block patterns in Sille, based on their architectural configurations, reveals three main typologies: (i) high-density blocks characterized by attached row houses, (ii) low-density blocks where gardened dwellings are positioned centrally within the parcel, and (iii) courtyard-type blocks in which structures open directly onto the Street (Table 1). In addition to building typology, the street cross-sections also play a decisive role in shaping settlement patterns. The characteristic streets of Sille, defined by their topographical alignment, spatial orientation with respect to slope, relationship with the built fabric, and patterns of development across opposing façades, are illustrated through schematic sections in Figure 9. The analysis of the legal status revealed that land in Sille is owned by private individuals, municipalities, state treasuries and foundations. The current ownership status with a majority of individual parcels was taken into account in the preparation of building proposals in the CDP.

3.3. Planning and design studies

We divided the planning and design studies for Sille into four main categories: CDP, UDG, Projects, and Pilot Studies on-site. We first approached these studies within a scale hierarchy and based on the extensive analyses conducted in the study area. Macro-level plans were developed through ongoing field surveys, and information gathered was continuously integrated into the creation of UDGs. Throughout this process, new findings and knowledge from the implementation of projects and pilot studies in the region were used to revise macro-level planning decisions. The planning and design decisions made under these four categories are briefly outlined in the following subsections, followed by the examples of cyclical transitivity between categories.

Table 1. *Building block typologies.*

TYPE	TOP VIEW	AXONOMETRIC VIEW
TYPE 1 *High density attached row houses* *(Plot no: 29507)*		
TYPE 2 *Low density gardened houses* *(Plot no: 29452-53)*		
TYPE 3 *Attached houses with courtyards* *(Plot no: 29472)*		

3.3.1. Conservation development plan (CDP) renewal

The scope of the CDP includes both the existing urban conservation area, which is 32.8 hectares, and the transition area proposed for protection, resulting in a total planning area of approximately 107.2 hectares. The CDP aims to identify and protect the values that make up the urban fabric. These include registered cultural monuments, traditional buildings of historical significance, monumental trees, fountains, bridges and the unique characteristics of the settlement, such as the design of buildings, number of storeys, construction methods, relationships between buildings and parcels, and relationships between neighbors.

However, preserving the heritage of listed buildings in Sille has become a challenge due to various factors such as additions to the structures, interventions with inappropriate materials and techniques, porches, garages, changes in the proportions and materials of the cornices, alterations to the roofs and the forced incorporation of commercial functions into traditional buildings. As a result, the CDP aims to identify the values that give heritage significance to buildings that have been altered over time and have lost their original character, and the measures needed to revitalize them. Thus, the conservation approach adopted in the revision study is based on the findings of research in lost traditional building fabric.

The CDP study aims to identify methods for enhancing the visibility of the existing heritage through the selection of an appropriate function, followed by interventions utilizing suitable materials and techniques that improve the quality of life in the prevalent building fabric. In addition, a transportation analysis was conducted to understand the traditional street network of Sille. This involved comparing historic aerial photographs with old cadastral data to plan for pedestrian and vehicular access. The CDP focuses on preserving the environment and listed buildings as a whole, as opposed to protecting each building individually. The data collected on site was re-evaluated to create urban design guidelines. Furthermore, to understand the original construction techniques and materials of the listed buildings; original wall weaving techniques, stone-wood construction, Sille-specific joining techniques and materials were investigated through interviews with local experts and field research.

To ensure the CDP reflected spatial specificity and implementable strategies, the entire settlement was subdivided into eleven character areas based on landform, building typology, and existing conditions (Figure 10). For each area, design and conservation decisions were developed with tailored proposals and phased projections. For example, in the Karataş Valley Area, due to steep slopes and its position as a natural basin, the plan avoided intensifying development pressure and instead proposed the reactivation of traditional viticultural practices. Drawing from historical land use records, the area was designated for urban agriculture, incorporating vineyard terraces constructed using locally sourced stone. Where public land allowed, development rights were relocated to more suitable parcels through a land-swap strategy. This approach preserved the valley's landscape identity while offering ecological and economic regeneration opportunities.

The Ruins Area, located on a ridge between two residential clusters, was addressed as a strategic site for combined archaeological research and infill development. Historic photographs and site surveys confirmed the presence of a lost civic structure, and the masterplan designated a sub-zone for controlled excavation. Based on findings, the plan projected a mixed-use redevelopment scenario, combining cultural, residential, and green space programs. This area-based intervention illustrates the alignment between archival research, spatial analysis, and adaptive reuse strategies.

The basic approach of the plan and the project proposals focuses on the concepts of continuity, diversity and conservation. We emphasized the creation of green spaces, vehicular and pedestrian access, diversification of commercial activities, renovation of buildings and construction techniques, and preservation

of monuments, urban architecture and archaeological values. In line with these objectives, we divided the proposed plan into different layers to show the future development of the settlement. These layers include plans for land use, transport, tourism, landscape, lighting, way finding and infrastructure.

3.3.2. Urban design guidelines (UDG)

The Sille UDGs have been prepared and integrated into the Sille CDP to provide guidance to property owners, authorities and designers. The aim of the guidelines is to preserve the heritage of the settlement while meeting current and future needs with sustainable approaches. We consider the guidelines as reflective and evolving documents that can be adapted to new uses, changing needs and user feedback. Through the implementation of pilot projects, the guidelines will be further developed based on lessons learned. In conjunction with the CDP, we have developed four guidelines; on Building, Landscape and Amenities, Lighting, Visual Identity and Orientation.

The development of the UDG was strongly influenced by the differentiated needs and spatial conditions across the character areas. In Ak Neighborhood, one of the densest districts, the design guidelines were directly shaped by field surveys and resident feedback. Here, four

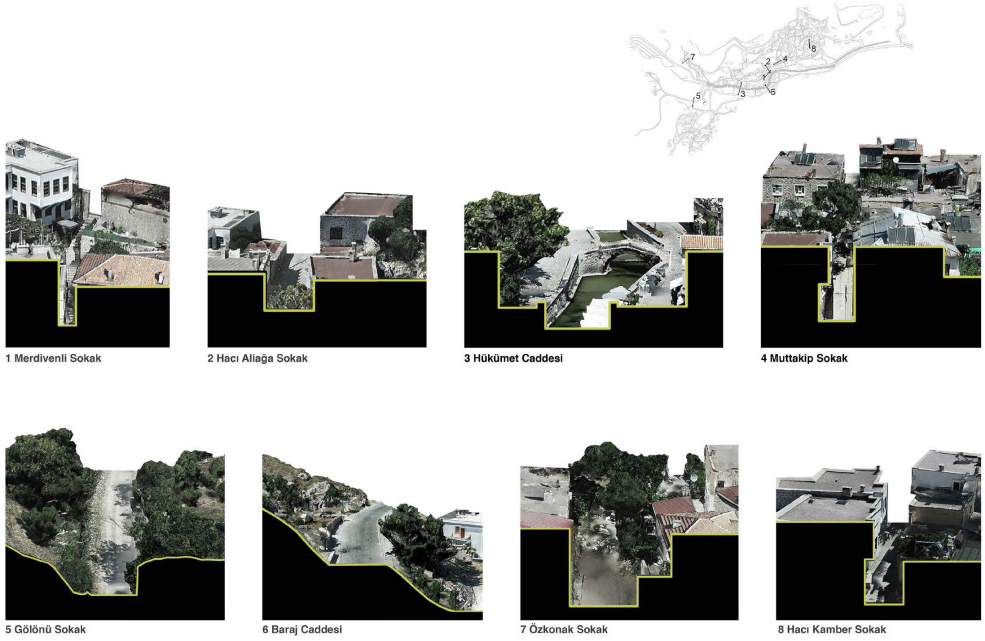

Figure 9. *Characteristic street sections.*

Figure 10. *11-character areas in the CDP proposal.*

civic squares (M1–M4) were defined at strategic street intersections. Each was programmed with specific uses, ranging from public seating and fountains to commercial kiosks, and material and signage typologies were adjusted accordingly. Plot-level design rules were derived from 3D massing studies, considering light penetration, visibility, and historic alignment with adjacent garden walls.

Likewise, the stone masonry standards and joinery details tested in stepped street rehabilitation in the Government Avenue Region were translated into material-specific clauses in the UDG. The participatory implementation process led to revisions in façade treatments, parapet heights, and allowable deviations for window openings, all of which were documented through comparative plan notes. The guidelines thus moved beyond descriptive instruction to become performance-tested regulatory tools, responsive to real-time field conditions.

In conjunction with the studies aimed at comprehending the settlement on macro scale and resolving its issues, we conducted investigations on micro scale to comprehend the structural solutions and details. Along with the compiled stone knitting catalog, we examined wooden and iron fabrications of complementary nature Interior elements such as wooden doors, windows, mirrors and cabinets in Sille houses were recorded and exemplified. We scrutinized the materials and characteristics utilized in flooring and roofing, as well as the fabrication techniques. In addition, some windows and doors made in Sille in various forms and styles were measured in detail and used as complementary system details. These measurements formed a model for the production of joinery with original shapes and details as specified in the UDG. We used all these specifications, which are relevant for the construction of new buildings or for renovations, to establish conservation principles.

3.3.3. Projects

In accordance with the CDP and UDG, we designed several pilot projects at different scales. These projects include the conversion of an old inn into a school, a 15-unit housing project built on the stone foundations of an old neighbourhood, and an urban design project for a main pedestrian axis along the Sille stream (Figure 6 11) that forms the backbone of the settlement. Through these projects, legally binding macro-level decisions were subjected to implementation, to test their relevance. In addition, various architectural firms were commissioned to restore four municipality-owned houses in order to test the overall studies from a perspective other than planning. These architectural restoration projects will

Figure 11. *Government Avenue Region project proposal.*

be prepared as a whole, from concept to tender documents. This method contributes to our understanding of the effectiveness of planning studies and design guidelines in practice and informs future planning and design initiatives.

In the Government Avenue Region, which serves as the main pedestrian and commercial axis, the CDP strategies were operationalized through an urban design and infrastructure project spanning nearly 3 kilometers. The initiative included the rehabilitation of stone-paved streets, creation of pocket parks, integration of public seating, and façade restoration guidelines. Projects such as the adaptive reuse of a historical inn into an educational facility, and the development of a multi-use square near Ak Hamam, tested the feasibility of both regulatory and design frameworks. This spatial testing helped refine the macro-level plan in terms of accessibility, material durability, and spatial continuity.

3.3.4. On-site pilot studies

Four stepped streets were reconstructed, and best practices for stone and paving identified during the construction process were standardized and incorporated into the UDG (Figure 12). Inappropriate practices were also documented as negative examples. A team of local stonemasons was trained in updated techniques through site visits and experimentation.

These interventions did not merely aim at physical improvement but functioned as live laboratories for testing the applicability of planning guidelines. Their implementation prompted real-time revisions in regulatory documents such as the UDG and CDP. In this sense, the stepped street restorations exemplify how pilot projects serve as reflective mechanisms within a cyclical planning system, enabling continuous feedback between design, application, and policy refinement.

In the Karataş Housing Zone, an infill residential cluster was designed based on the historic layout. Before construction, volumetric studies were conducted to harmonize with the topography and existing urban silhouette. Window sizes, cornice lines, and roof pitches were fine-tuned during the application phase, and the feedback informed updates in both UDG and CDP documents. Similarly, in the Subaşı (Kârhane) District, square designs and street furniture details were prototyped and revised in response to usage patterns and material availability.

Overall, the stepped street implementations provided tangible spatial improvements and brought immediate benefits to residents. They also reinforced community trust in the planning process and highlighted how iterative applications can strengthen planning tools through direct experience.

The reflective planning approach shed light on the interplay between four different categories as described in the subheadings, during the simultaneous planning and design work for Sille. The following examples illustrate this interaction.

We conducted UDG studies, often considered independent of the planning, in parallel with the planning process from the beginning. This involved digitally reconstructing the settlement in 3D and making decisions about massing. As part of UDG, we made decisions

Figure 12. *Stepped streets, on site studies.*

about the surface, color, stone texture, wood color, height of garden walls, and relationships between houses and garden walls in conjunction with the CDP. The layout and footprint of each lot was determined individually based on the topography, village silhouette and relationships between garden views and light penetration into neighboring plots.

During the implementation of the streets with staircases, we found that the houses opening to and accessed from these streets do not comply with any of the UDG and CDP regulations and are exceptions. We have included additional plan notes to the UDG and CDP to address the exceptions. Collaboration with local experts led to the exploration of various stone types from different quarries, masonry techniques, and paving options for the stepped streets. UDG choices were informed by these investigations.

While working on the urban design project for Government Avenue, an axis about 3 kilometers long, we developed solutions for any exceptional cases that might occur in other parts of the village. UDG was shaped by the outcomes of this experience.

In parallel with the CDP, another group of architects worked on two small houses in the settlement. They used the draft version of CDP and UDG and noted their comments and reviews with the planning team. This feedback led to flexible adjustments in window sizes, parapets, capstones, and garage door dimensions. Similarly, while conceptualizing a project for 15 parcels in the Karataş area, we adjusted bay window specifications, that gave designers more flexibility in choosing window sizes, balcony dimensions, and wall heights around the lots.

The cultural heritage of Sille is a complex mixture of various historical, natural, topographical, cultural and endemic features. Developing a conservation plan for the area is crucial to its future, and as such, requires great care to ensure that the settlement's structure does not become rigid. To this end, we conducted a series of projects and pilot applications in parallel with the CDP, utilizing different techniques, scales, and programs to adequately define the limits of flexibility. These processes took place over a period of more than 1.5 years, and while the above examples illustrate some of the interactions within the process, the contributions of the reflexive planning approach are too multi-layered to list individually.

3.4. Reflections on research questions

Reflective tools and methods used in the Sille case were characterized by their iterative, site-responsive nature. The combination of archival documentation, comparative aerial photograph analysis (1925–2022), 3D digital modelling, and typological assessments of urban and building fabric created a comprehensive base for understanding past and present conditions. These tools were not used in isolation, but embedded in a cyclical workflow, linking analysis, planning, and implementation. The multi-scalar mapping techniques and character area zoning enabled planners to test assumptions, revise priorities, and adapt conservation strategies. Moreover, pilot studies and material-specific experiments (e.g., stonework trials) functioned as real-world laboratories for verifying planning hypotheses. Thus, reflective practice was supported not just by representational tools, but by a hybrid methodology that embraced feedback loops between planning instruments and built interventions.

Reflective planning in Sille enabled a shift from rigid preservation to a more adaptive and sustainability-oriented framework. By embedding trial-and-error processes into the plan, particularly through pilot projects and onsite implementations, the approach fostered locally grounded solutions rather than prescriptive, one-size-fits-all policies. This method supported social resilience by actively involving local craftspeople, adapting design guidelines based on real-time feedback, and prioritizing public use areas, such as stepped streets and pedestrian corridors, which immediately improved accessibility and community engagement. The integration of environmental assets (e.g., natural water flows, endemic vegetation) into the planning layers further enhanced long-

term ecological viability. Ultimately, sustainability was not treated as an abstract goal but as a practical outcome of repeated reflection, calibration, and dialogue with the physical and cultural context of the settlement.

While the Sille case demonstrates the promise of reflective planning, it also reveals structural limitations that constrain its broader applicability. One significant obstacle was the challenge of monitoring implementation in a topographically complex and spatially fragmented environment. Although the planning team introduced detailed material guidelines and typological classifications, the absence of clear and enforceable supervision mechanisms led to inconsistencies on site, particularly during periods of political transition when regulatory oversight weakened. Moreover, reflective planning requires institutional continuity and learning capacity, which are often disrupted in local governance contexts lacking long-term administrative support. Another limitation lies in the difficulty of translating iterative, small-scale insights into formalized policies that operate across scales. In the absence of integrated governance and cross-sectoral coordination, the reflective approach risks remaining localized and vulnerable to reversal. These constraints underline the need to embed reflexivity not only in planning tools, but also within the operational structures of governance.

4. Conclusion

This study explored how reflective planning methodologies can be applied to rural heritage conservation, using the case of Sille as a comprehensive field of experimentation. It began with three interrelated research questions: (i) What tools and methods support reflective practice in rural conservation planning? (ii) How can reflective planning contribute to sustainable and resilient rural development? (iii) What are the obstacles and limitations to the implementation of such approaches?

The findings demonstrated that combining analog and digital documentation methods, typological analysis, and multi-scalar zoning can serve as a robust methodological base for reflection-in-action. These tools were not only analytical, but instrumental in iteratively shaping both the Conservation Development Plan (CDP) and Urban Design Guidelines (UDG). Their effectiveness was tested and validated through material experiments and built pilot projects. This integration of theory and practice underscored how reflective planning facilitates sustainability, not as an abstract goal, but through measurable improvements in spatial quality, community engagement, and ecological responsiveness. The outcomes also align with Schön's (1984) conception of reflection-in-action, in which practitioners iteratively redefine problems and test ideas through real-time engagement with the built environment. In the Sille case, this occurred through feedback-informed revisions of the CDP and UDG, grounded in lessons from site-specific pilot applications.

At the same time, the Sille case revealed key implementation challenges. These include the difficulty of monitoring in a complex terrain, inconsistent enforcement of design guidelines, and the fragility of institutional memory under shifting political conditions. Perhaps most critically, the findings point to a gap between the adaptability embedded in planning tools and the rigidity of bureaucratic and legal structures that often prevent responsive action. Bridging this gap requires not only technical revisions to planning tools, but also institutional learning structures capable of translating localized experimentation into regulatory transformation. Without formal mechanisms for integrating implementation feedback, the adaptive potential of reflective planning risks remaining isolated or episodic.

Despite these challenges, the case confirms that reflective planning can produce adaptive, grounded, and replicable models of rural conservation, when operationalized through site-based testing, iterative adjustments, and stakeholder dialogue. It calls for institutional frameworks that treat plans not as static instruments but as evolving tools responsive to feedback and change. Future studies could further investigate mechanisms for scaling up

reflective planning insights, exploring how such models can be formally embedded within national heritage policies or adapted to other rural contexts with layered cultural landscapes. Ultimately, this study suggests that conservation planning in rural heritage contexts should be conceived not as a conclusive act but as an evolving dialogue between space, society, and governance. The reflective planning approach tested in Sille offers a replicable model for designing open-ended, site-responsive, and participatory conservation frameworks in similar geographies.

Endnotes

[1] It is estimated that Sille had a population of 18,000 people with about 3600 households around 1900 (Tapur, 2009). Today, Sille has 1291 people living in 358 households, where the traces of the dense settlement structure of the past have been lost.

[2] According to the land use analysis within the planning area, 24.62% of the land is allocated for residential use, 30.19% for roads, 5% for commercial use, 0.97% for mosques, churches and bath houses, 0.46% for schools, 1.62% for social amenities, museums and community services, 18.93% for parks, 14.68% for cemeteries and 3.53% for the area surrounding the creek and fountains.

[3] Including 18 dwellings, 11 religious' buildings (4 churches and 7 mosques), 27 water structures (2 bathhouses, 1 laundry, 1 cistern, 3 bridges and 20 wells), 3 cemeteries and 1 military structure (barracks).

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