



RESEARCH THEME

Minimal Dwellings in Extreme Conditions: Georgian vernacular Architecture on the Edge
of the Caucasia

RESEARCH QUESTION

How have extreme climate conditions, geographic isolation, and geopolitical forces shaped the evolution of vernacular architecture in the mountainous borderlands of Georgia, and what insights can these architectural typologies offer for contemporary heritage conservation and sustainable design?

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Cover Image - Graphics inspired from Petroglyph found in Pharsma, Tusheti (For original petroglyph see appendix)

This petroglyph, symbolising the cycle of life, depicts the eternal struggle and unity of opposing forces, life and death, male and female, rationality and emotion.

Interpreted by ethnographer Nugzar Idoidze, the two heads in the image represent the harmony of dual principles: the upper head symbolising the male, good, and consciousness, and the lower head symbolizing the female, evil, and subconsciousness. This duality reflects the traditional balance and distinct roles within Tushetian society, such as men's and women's complementary contributions to daily life. This symbolism aligns with my dissertation, emphasizing how the interplay of environmental, social, and cultural factors shaped vernacular architecture in Tusheti. It serves as a reminder of the delicate balance between human life and nature, which this research seeks to explore and honor.

ABSTRACT

The dissertation examines the evolution of vernacular architecture in Georgia's remote mountainous region, Tusheti. The study explores how the interaction between extreme climate, geography, and historical forces shaped unique architectural typologies. Defensive towers (koshki), Agricultural winter dwellings (Boslebi), castle-dwellings (Tsikhe-sakhli), Religious shrines and communal graves (Akldama), also reflect broader cultural and social narratives. Eastern Caucasian Regions have long served Georgia as both a natural defense and a challenging environment for habitation. The architectural solutions that arose in regions like Tusheti and Khevsureti, areas bordering the northern Caucasus from the east, show how humans understood this landscape.

One of the main arguments of the dissertation is that architecture in this region serves as a living archive of knowledge, yet to be studied. These buildings retain the ethos of the people who built them and the history they lived through, as well as a broader political picture of Georgia (Another name of Georgia is Sakartvelo). The borderlands, long defined by wars and occupations, have left a mark on the architectural landscape, however, memories and traditions embedded within these architectural forms are slowly decaying with time.

The research takes a step further by engaging with this architectural legacy through practical experience. During a summer architectural workshop (funded by *goetheinstitut_georgien* and by *eungeorgia*) in Tusheti, I visited some of the Tushetian villages, talked to locals, engaged in building techniques, cooked traditional dishes and through all of these learned the social significance of architecture in Tusheti.

A key part of the study involves connecting different threads in research and reflecting on my personal experience. My experience highlights potential relevance for contemporary architectural discourse and research to inform us how to use minimal, local materials in extreme conditions that we are facing today. The dissertation argues for the urgent need to preserve or reinterpret this heritage, drawing on both historical research and contemporary interventions. By filling a gap in existing research and asking important questions to increase awareness of the fragmented, incorrectly interpreted history of Georgia, it seeks to promote a dialogue about the future of Georgia's architectural identity, as well as about its history and heritage that is sacred for every Georgian.

The research also highlights the need to share and reinterpret Georgia's architectural heritage on an international stage, as one of the world's oldest civilisation (McGovern et al., 2017)(Stoellner and Gambashidze, 2014) (Gambashidze et al., 2006) with great achievements, who remained rooted in its geographic cradle, preserving extraordinary examples of ancient architectural solutions in extreme climatic and living conditions.

FOREWORD

I would like to extend my heartfelt thanks to AQtushetii Residency for their support throughout this process. I am especially grateful to Aleksandre Zatiashvili for hosting us, Nini Mamaladze for organising the workshop, and Nugzar Idoidze for guiding us through the region's remarkable villages. I also want to thank the workshop participants for their valuable contributions and my tutor, Professor Tom Coward, for his guidance and encouragement. Finally, I am deeply thankful to everyone who believes in the importance of preserving Georgia's architectural heritage, you continue to inspire me to pursue this work with purpose and hope.





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INTRODUCTION

Nestled in the rugged slopes of the Caucasus, Tusheti stands as a remarkable example of human ingenuity in the face of extreme geographic isolation and harsh climatic conditions. This remote Georgian highland region is known for its unique vernacular architecture, which reflects centuries of adaptation, resilience, and cultural identity. From the defensive towers that guarded its borders to the winter dwellings that sustained livelihoods, Tusheti's built environment offers a fascinating lens through which to explore the interplay of environmental, historical, and social forces. Yet, as Tusheti faces the dual challenges of depopulation and modern development initiatives, its architectural heritage risks being reduced to artefacts of the past, stripped of their purpose and vitality.

This dissertation seeks to illuminate the hidden story of Tusheti's architecture by addressing the research question:

How have extreme climate conditions, geographic isolation, and geopolitical forces shaped the evolution of vernacular architecture in the mountainous borderlands of Georgia, and what insights can these architectural typologies offer for contemporary heritage conservation and sustainable design initiatives?

To answer this question, this study employs a combination of primary and secondary research, rooted in both lived experience and critical analysis:

Primary Research: Engaging directly with the people and landscapes of Tusheti through site visits, informal conversations with local residents and guided tours with experts, plus hands-on participation in an architectural workshop. This immersive approach provided invaluable insights into the social, cultural, and functional significance of Tushetian architecture.

Secondary Research: A critical review of the scarce primary literature and archeological resources on Tusheti, historical records, and architectural studies. This effort required navigating gaps and contradictions in existing research to form a coherent narrative.

By blending ethnographic observation, historical and critical analysis this dissertation aims to uncover connections between the region's architectural past, its current challenges, and potential future.

Chapter 1 provides the historical and geographical context of Tusheti, tracing its evolution from a strategic borderland to a sparsely populated region. It also examines existing literature on Tushetian architecture, identifying gaps and inconsistencies in the historical record.

Chapter 2 is more like a journalistic commentary. Through a critical analysis of recent initiatives and preservation efforts, this chapter explores contemporary challenges facing Tusheti's architectural heritage. It highlights successful interventions as well as mismanagement, offering a perspective on the role of tourism, policy, and community action.

Chapter 3 will talk about personal experience. Drawing on my participation in an architectural workshop in Tusheti, this chapter intertwines lived experience with discussions of traditional building techniques, local perspectives, and opportunities for adaptive reuse. It argues for the importance of preserving Tusheti's architectural function and purpose to sustain its cultural identity and future relevance.

Thesis Statement

Tusheti's vernacular architecture is not just a collection of structures but a living archive of knowledge and identity. Its preservation must extend beyond aesthetic restoration to encompass functional and cultural renewal, bringing vitality back to a region at risk of fading into insignificance.

With its combination of critical analysis and firsthand engagement, this dissertation aims to inspire a rethinking of what architectural preservation can achieve, not just as a tool for memory, but as a foundation for a sustainable and meaningful future for Tusheti.

WHERE IS TUSHETI LOCATED?

Tusheti, one of Georgia's most elevated and secluded mountain regions, holds a mysterious status among the lowland communities. Renowned for its rugged terrain, mythological folk architecture built in stone, sheep farming traditions, and ethereal beauty, it is barely inhabited year-round. When the road is blocked by snow, Tusheti falls into its winter sleep again, only border guards and a few people stay here during this period to look after abandoned villages. Yet, its settlements reflect a rich historical significance and the resilience of daily life, showcasing how people have adapted to thrive in the harsh, remote environment of the Caucasus highlands for centuries (Sumbadze, 2024).

Tusheti is situated beyond the Main Ridge of the Greater Caucasus, on its northern slope. The region spans an elevation range from 1,650 to 4,493 metres above sea level, covering approximately 896 square kilometres (Makalatia, 1931). Tusheti is bordered by Dagestan to the east, Pshav-Khevsureti to the west, Chechnya-Ingushetia to the north, and Eastern Kakheti to the south (Makalatia, 1931). (Figure 1, map) High peaks like Mount Tebulo (4,492 m) and many more form the Tushetian Alps, serving as a natural divide between Tusheti and Chechnya-Ingushetia (Makalatia, 1931). Because of its geographic position in the Caucasian mountains, Tusheti was almost completely cut off from the country's main communication and cultural centres (Sumbadze, 2024).



Figure 1 - Location of Georgia (BBC)

WHO LIVES IN TUSHETI?

The Tushetians are a semi-nomadic people, known in Georgian as Momtabare, a term derived from Mta (mountain) and Bari (lowlands), reflecting their seasonal migrations between the highlands and valleys. This movement was essential for their way of life and deeply rooted in Georgia's history, where the mountainous regions and lowlands were interdependent. The mountains provided resources and protection, while the lowlands offered fertile lands and access to trade. This dynamic created a continuous exchange of goods, skills, knowledge, and people. Their unique culture and customs, shaped by the challenges of their environment, were distinct from the rest of Georgia. Yet, their mobility ensured they brought knowledge and resources from the lowlands to the mountains and vice versa. This interdependence highlights their integral role in Georgian history, particularly as guardians of the northern borders. The Tushetians, one of Georgia's ancient tribes, have inhabited the region since antiquity. Georgian historical records first reference Tusheti during the First King and enlightener of Georgia Parnavaz, The 3rd century B.C. (Idoidze, 2006).

(Sumbadze, 2024) also writes that the Tusks tribe mentioned by the 2nd-century Greek geographer Ptolemy corresponds to the Tushetians. Based on the Georgian chronicler, Tusheti was also mentioned in the 4th century, during the attempt of conversion of the Pkhovians (Pshav-Khevsurs) to Christianity, when they left their land and moved to Tusheti to escape this process (Idoidze, 2006).

In the eighth century a royal power of Georgia starts spreading Christianity in the highland of East Caucasus, including Tusheti as well (Idoidze, 2006).

Historically, Tusheti was organised into four valley-based communities: Tsovata, Gometsari, Pirikita, and Chagma. Each community was led by an elected (Khevisberi), who served as both spiritual and social leader. While their way of life, traditions, and customs were largely uniform across the valleys, linguistic differences existed. Tsova Tushetians spoke the Tsova Tushetian language, whereas Chagma Tushetians used the Chagma Tushetian dialect (Georgian language with a Tushetian accent) (Idoidze, 2006).

Figure 2 - Tushetians. Shavkhelishvili, A. (2012)



Figure 2

Figure 3 - Groom wearing a chokha (Traditional male Clothing) in Tushetian wedding (Wikipedia)



Figure 3

WHAT IS THE HISTORY OF THIS LAND?

Modern studies of Tushetian history remain limited, with significant gaps in both archaeological and written records (*Slavomir Horak (no date)*). The first major investigations in the region began in the late 19th and early 20th centuries, with some archaeological studies conducted during the 1980s. However, much of this research has yet to be published. Consequently, Tusheti remains one of the least explored areas in Georgia from an archaeological perspective (Bakhturidze, 2013).

It is also essential to consider the historical context of these studies. Most were conducted during the Russian Empire or Soviet Union eras, requiring a critical re-evaluation of their findings. While Vakhushti Batonishvili's *Description of the Kingdom of Georgia* (completed in 1745) provides a narrative of Georgian history up to the first half of the 18th century (Wikipedia), significant gaps remain.

The period between the 9th and 15th centuries, particularly the origins and evolution of Tushetian towers, has not been sufficiently clarified. Some sources date the towers to the 11th century, yet this remains speculative. Additionally, Tusheti's role during Georgia's Golden Age, when the kingdom reached its maximum territorial expansion, deserves further scrutiny, as the region is scarcely mentioned in this context.

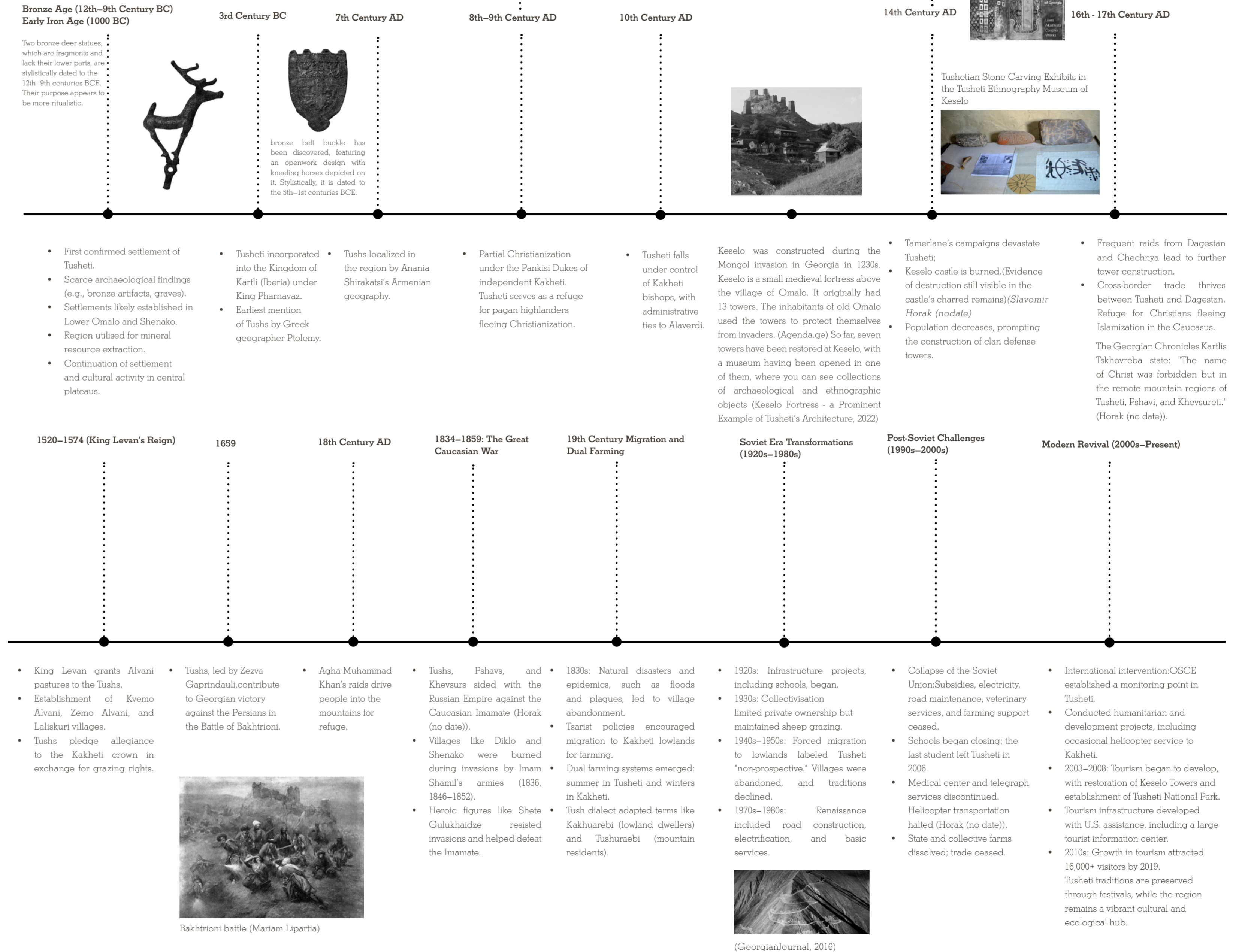


Figure 4 - Timeline of History of Tusheti

SETTLEMENT PATTERNS AND HOW DID VERNACULAR TAKE SHAPE?

Tusheti is composed of relatively compact villages that cluster on the rocky, sunny slopes of the river valleys. Tall, slender towers crown the villages in a reminder of the defensive nature of these settlements.

This region is rich with slate (in Georgian, Sipi, Fikali), which was used for all the buildings.

The nature of the activities of the Tushetian people determined the structure of residential and agricultural buildings. They were separating the living and agricultural spaces into two distinct territories - a primary fortified village, in which defense towers **Koshki** and fortress houses (**Tsikhe-Sakhli**) predominate, and a lower winter settlement, called a **Boseli** "cowshed" or "Barn House", which accommodates people and livestock and isn't designed with protection from enemies in mind (Sumbadze, 2024). In Tusheti the leading field of agriculture is animal husbandry, priority given to sheep. Sheep breeding in Tusheti is nomadic and forms the basis of Tusheti economic prosperity, as it has favourable, endless open grazing fields.

The distance of the villages to the agricultural lands has given rise to the construction of winter villages, which are the main base for farming and over-wintering cattle (Sumbadze, 2024).

A characteristic practice was "village-bosloba" meaning seasonal relocation. Once snowfall began and the threat of enemy attacks from the mountains disappeared, the village population moved to boslebi for the winter. These were structures located on the outskirts of the village, near arable and grazing lands (Sumbadze, 2024).

The first floor of these buildings was designated for livestock, which also helped to heat the upper, residential floor. Separate Barn House types, due to hygienic purposes, were divided by wall, curtain, or floor (Sumbadze, 2024).

Barnhouse had a number of small windows that were usually located on the southern façade. Additionally, for thermal insulation, the house's walls were covered on the outside with mud or other locally available materials (Ministry of Regional Development and infrastructure of Georgia, 2018).

Some smaller families didn't have special lands outside the village, so they kept cattle in barns that were located on the first floor of the fortress house, the **Bashte**, giving rise to a unique Tushetian housing type (Sumbadze, 2024).

Most Tusheti settlements occupy large rocky slopes oriented to the sunny, south side, protected from avalanches. Mtielebi (Mountain people) were well aware that the more cohesive and compact the village, the easier it was to protect it from the enemy, as well as evacuate children and women to community fortresses and shelters (Sumbadze, 2024).

Additionally, absence of the roadways for wheeled vehicles was another characteristic of these settlements, which made communication and commute between different villages impossible (Sumbadze, 2024). Village growth was dependent on the accessibility to the arable lands (Sumbadze, 2024).



Figure 7 - Boseli (Barn House) (Ministry of regional development and infrastructure of Georgia, 2018)

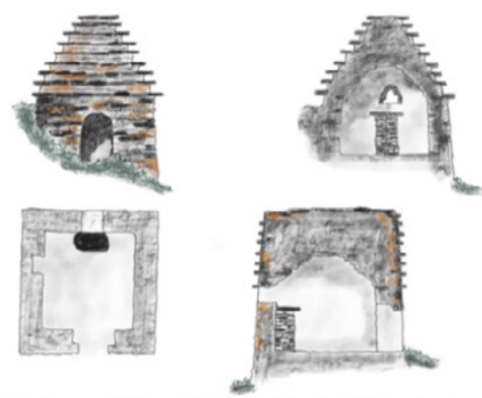
Figure 6 - Aerial Map showing Sopel-Bosloba, Winter and Summer village (Google Earth)



Figure 5 - Boseli Barn House in Shenako (Source By me)



We also meet a number of cult buildings that can be found in association with Tusheti villages. **Community tombs (akldama)** with two-sided slate roofs were erected outside of villages. During epidemics desperate patients came here to die. Churches began to appear, though no earlier than the first half of the 19th century.



Totenhäuser mit Pyramidendach (Applis 2023 unter Bezug auf Makalatia 2022)

Figure 11 - Shrines - Religious Architecture

ARCHITECTURE IN TRANSITION

In the second half of the 19th century, these traditional Tushetian houses have been altered and adapted to meet changing human needs and Historical position of the people and the country. Factory products began to enter Tusheti through the villages of Alvani, inhabited by Tusheti people in the Kakheti plain (Makalatia, 1931). Those who can afford it often dismantle these old houses and use the materials to build new, modern-style homes. As a result, the original tower-style houses have been steadily disappearing. Through such modifications, the houses have been transformed into two or three-story structures, with the upper floors often removed and various household additions constructed in their place, such as staircases, barns, attics, storehouses, kitchens, and other utility spaces (Makalatia, 1931).

We see that the density of rural settlements is increasing, and elongated houses with shaded balconies, glass-paneled openings, and light wooden columns appear in the village silhouette, as a result, wonderful ensembles such as Dartlo, Shenako, and Omalo have been created (Sumbadze, 2024).

The central hearth is no longer used, replaced by a tin stove. This transformation has turned the dark, soot-covered middle and upper sections of the fortress into bright and clean rooms.

Ancillary areas to the houses were added such as **Kasre** – A structure attached to the side of the house, designed for protection against enemies and winter cold. It was used to store items such as wooden chests, pots, water, ground flour, and grinding tools. **Sacetkhuri** – A separate structure or house extension used during the summer months for lighting fires. **Derefani** – A space designated for sheltering livestock. **Parduli** – An area under the balcony used for tying horses, storing firewood, or lighting fires. **Saqslo** – A structure, either independent or attached to the house, specifically for weaving. **Kartanai** – The courtyard in front of the house. **Bashtikari** – The courtyard in front of the tower. **Sakvabe** – A communal building used for brewing beer. **Milionatsi** – A square column of the corral, located either inside or outside the building (Sumbadze, 2024).

From here on, balconies will play a leading role in the architectural solution of houses, with the wooden galleries and balconies resolved in a general Georgian tradition that is, naturally, closest in nature to the folk architecture of Kakheti.

During this time we can say that transitional buildings are designed to withstand the harsh mountainous climate while also providing comfortable and functional living spaces.

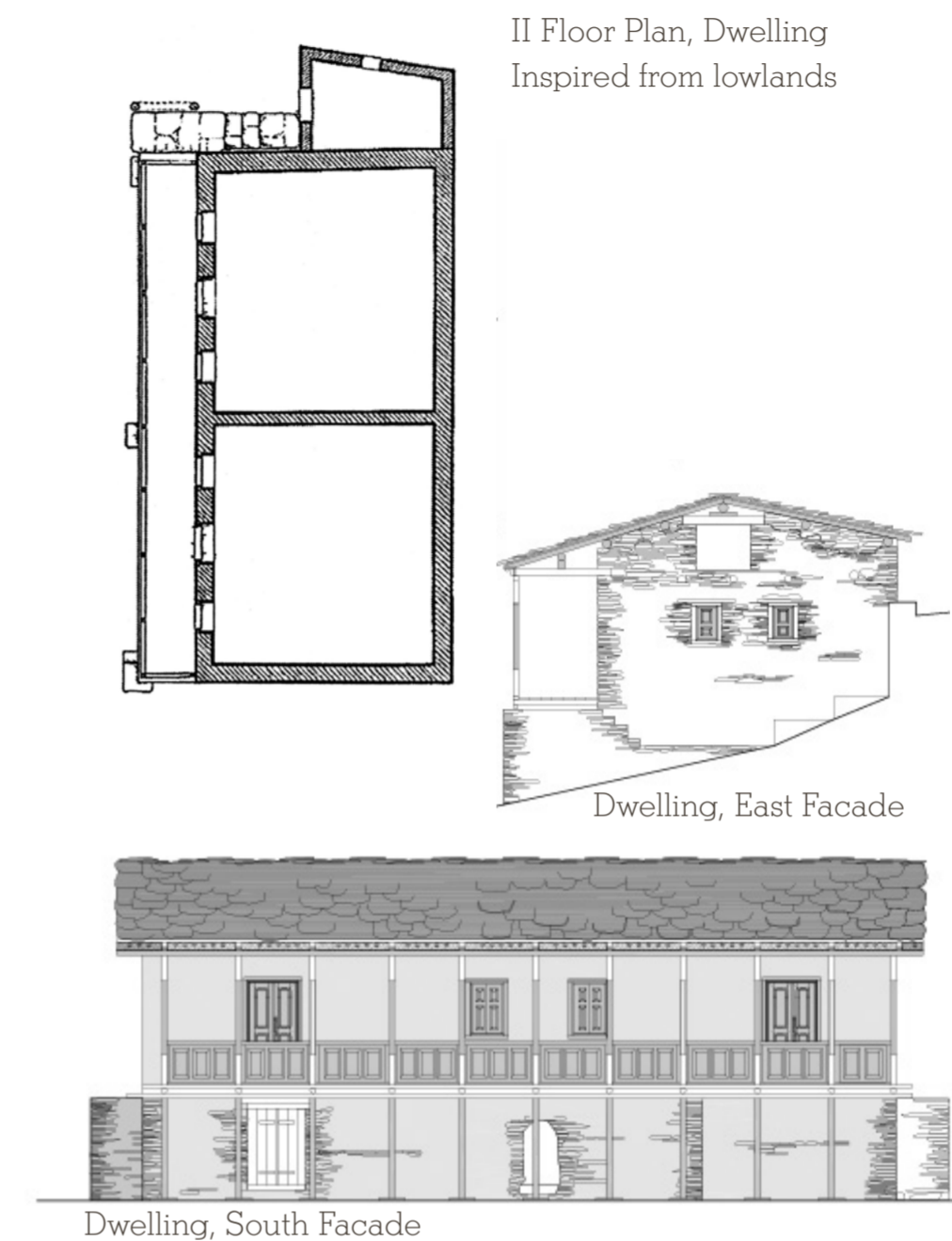


Figure 12 - Transitional House (Ministry of regional development and infrastructure of Georgia, 2018)

Tusheti is searching for a new purpose. Despite its significant potential in agriculture, sheep husbandry, high-quality wool production, and border protection, tourism has become the primary driver for Tushetians to spend summers in the mountains (Nanitashvili & Jensen, 2018).

In Georgia, the importance of heritage has deep historical roots, figures like Ekvtime Takaishvili safeguarded national treasures (Tavberidze, 2022), and regions like Svaneti played a crucial role in hiding Georgian artifacts during Mongol and Persian invasions (Dunbar, 2022). These are just a few examples that underline a collective commitment to preserving tradition, art, and cultural landmarks. A collective effort involving regulations, education, research, and management strategy is necessary for effective conservation efforts. To protect the heritage first we need to understand its value, as well as measure and assess the conditions properly.

TUSHETI'S PROTECTED LANDSCAPE. NATIONAL PARK AND NATURE RESERVE

Due to the above-mentioned status, Tusheti is subject to rules governing land ownership, architectural alterations, and new construction, as well as preserving flora & fauna, developing ecotourism, and supporting traditional livelihoods (NACRES, 2012). Despite these regulations and objectives, the reality is troubling. Mismanagement, lack of resources, and insufficient enforcement have led to challenges in preserving the region's unique heritage, and by investing and shifting their focus, many local families in Tusheti have prioritised tourism over traditional farming, purchasing goods from lowlands and neglecting agriculture, which threatens generational knowledge and practices (Khartishvili, L, Švajda, J, Maláč, L. 2020).

ARCHITECTURAL AND MATERIAL CONSIDERATIONS

For architecture, proper assessment of natural resources is crucial. Tusheti's traditional architecture relies on locally sourced materials. The predominant material is loamy slate, which naturally fractures into thin layers, ideal for construction (Makalatia, 1933). Traditional structures were built using the dry-stacking method without mortar, with pine and birch for flooring and mixtures of dirt, hay, and cow dung for insulation and heating.

Modern quarrying and transportation methods have evolved, but the challenges of material transportation remain significant. Skilled craftsmen and contractors willing to take on such projects are increasingly rare based on conversations with locals.

Gia Abuladze, the architect actively participating in Tushetian initiatives, says that one small classroom in a small school in Qvemo alvani isn't enough, as well as legalising quarrying the slate in Tusheti would help the adequate proposals in this context (Mtsambebi.ge, 2019). Organizations like the Keselo Fund have made efforts to rehabilitate historical structures, such as a tower restored with help from Czech volunteers, locally referred to as the "Czech fortress" (Lazarova, 2017). However, these isolated efforts underscore the need for a broader strategy.

CHALLENGES IN MANAGEMENT

Governmental bodies, such as the Tusheti Protected Landscape Administration and Akhmeta Municipality, have faced significant challenges in effective management. Poorly executed rehabilitation projects across Georgia serve as cautionary examples. For instance, inadequate conservation efforts at Bagrati Cathedral and Gelati Monastery in Kutaisi led to their designation as "World Heritage in Danger" by UNESCO (2018).

Similarly, current construction practices in Tusheti, including the use of cement blocks and metal sheet roofs, threaten the region's architectural integrity (Figure 14,15).

A case in Zemo Omalo highlights the challenges locals face with heritage preservation regulations. One homeowner, after nearly completing unauthorized renovations, was instructed by the National Agency for Cultural Heritage Preservation to stop work. Despite raising concerns and attempting to follow procedures by hiring an architect, he encountered bureaucracy and a lack of support. This demonstrates that while locals may understand the importance of preserving heritage, they often lack the necessary consultation, guidance, and accessible resources to navigate the process effectively (Mtvilishvili, 2017).



figure 13,14,15 - Lessons to Learn
Do not Repeat what pressure of Tourism caused
in Svaneti
(Photographer: Nika Romelashvili)

figure 16,17 - Few Examples of the horrible buildings
being accepted on this protected landscape and
national park with architectural heritage being the
main attraction for the tourists. (Photos from site visit
in Summer) Photographer: Nika Romelashvili



The Dartlo rehabilitation project, financed by the World Bank and the Georgian government (World Bank, 2014), demonstrates the potential for positive change. Despite its success in restoring the village's architectural integrity (Which was a long and complicated process), it has not reversed the trend of depopulation.

Globally, rural depopulation is a common issue, villages empty as people migrate to cities for better opportunities, leaving traditional lifestyles behind (Li, Westlund and Liu, 2019).



In Tusheti, farmers face insurmountable challenges, making agriculture and sheep husbandry less viable. Addressing these issues demands concentrated effort to incentivise and support local communities. Main Architect leading the projects conducting research to develop spatial-territorial planning documentation for Akhmeta Municipality and the Tusheti settlements Gia Abuladze talks about possibilities with Tusheti after the main road will be accessible all year around and it all sounds promising, however, we shouldn't forget that main road, electricity and all year round access would be a big responsibility, it will overwhelm the landscape, environment, people and accelerate processes that aren't even well managed in small scale projects. Abuladze says that there should be an architecture group working in Tusheti and people don't have to seek advisory consultation far away, based on the director of the National Agency for Cultural Heritage Preservation Nikoloz Antidze, since 2017 more projects are sent for approval and process has started (Mtisambebi.ge, 2019).

The General development strategy plans to reconstruct 10 villages have been developing (Mtisambebi.ge, 2019). For example, old Diklo is one of the interesting villages on the list that can play a political, strategic role, and here is why.



figure 18,19,20,21 Vernacular Architecture before and after restoration (Blogspot.com, 2019)

figure 22,23- How will Old Diklo Look after restoration (Mtisambebi.ge, 2019)

Politically sensitive borders near Diklo, the juxtaposition of thriving and deserted settlements highlight the impact of modern geopolitics on Tushetian heritage. Diklo was burned down in 1837 to the ground (Horak, 2024). Walking about 30 min from Diklo you will find remains of an old village called old Galavani (today named Dzveli (Old Diklo). Although not much remains of the village, it uniquely illustrates the character of Tusheti fortification from the 17th to the 19th century. Two more villages are located beyond the ridge. Chero and Intsukhi, now situated in politically tense regions, once flourished as cultural and architectural hubs connected to the broader Caucasian heritage. The forced abandonment of these villages and border restrictions allowed them to be under Russian control (despite being in the territory of Georgia) and inhabited by Dagestani Didos (Gela Mtvlishvili, 2018).

The shifting of borders in Tusheti shows the impact of neglect and inaction. Intsukhi and Chero, once part of Georgia, are now under Russian control without resistance (Gela Mtvlishvili, 2018). The lack of roads connecting Intsukhi and Chero to Georgia makes the region even more isolated. This neglect is not just about losing territory. Everything that made this region important in the past, its role in Georgia's history and its strategic significance, has faded away. It is therefore logical that all these issues have led to the troubling results we see today.

Initiative and plans developed for restoring Diklo by "stidio 21" is an important step to strengthen our border and attract more tourists to this area.



Figure 25 - Location of Chero, Intsukhi and Diklo Villages (Mtisambebi.ge, 2019).

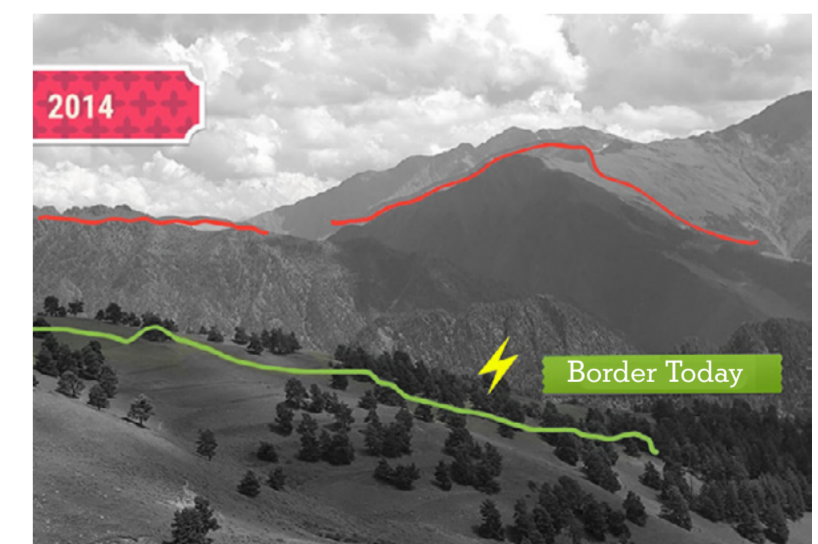


Figure 26 - Border Lines Shifted (Gela Mtvlishvili, 2018)

The story of Shenako Village exemplifies the interconnectedness of architecture, heritage, and human purpose. The village benefits from a small hydroelectric power station built with financial assistance from the World Bank and the U.S. Development Agency under the “Energy Development in Rural Areas” project (Gachechiladze, 2011). Since its completion in 2011, the station has consistently supplied electricity, showcasing how targeted infrastructure can revitalize remote areas. However, Shenako, like many villages, faces seasonal habitation challenges. Only one family remains year-round, maintaining a connection to traditions, but the socio-economic fabric of the village remains fragile.

AGRICULTURE AND DECLINING TRADITIONS

Traditionally, Tushetians balanced livestock grazing with sustainable farming. However, policies such as forced migrations in the mid-20th century disrupted this harmony. The Soviet government relocated highlanders to lowlands, converting ancestral lands into pastures. This led to overgrazing, soil erosion, and a decline in traditional livelihoods. “It is impossible to preserve the architecture of abandoned villages when the slopes... collapse due to uncontrolled grazing,” says Eristo Lagazidze, director of the Tusheti Protected Landscape Administration (Tsiskarishvili, 2015).

A handbook on erosion control, based on pilot projects in Tusheti, offers practical guidance for farmers and NGOs to manage land resources and afforestation (Kirchmeir et al., 2019). Challenges persist, such as the lack of infrastructure for shepherds, who struggle with taxed grazing lands and inadequate accommodations on routes like the Shiraki Valley (Figure 25) (ITV - Ferma, 2022). Without intervention, these issues threaten both the economy and cultural legacy.

Looking to other countries provides lessons. In Italy, government neglect led to the near abandonment of mountain villages, whereas Austria sustained its highland population with subsidies and rural development programs. Austrian experts visiting Shenako saw the potential for agritourism and sustainable development, emphasizing the need for initiatives integrating culture, architecture, and modern needs (Mosiashvili, 2020).

While restoring infrastructure is essential, it is not enough. Architecture must serve people by creating spaces with purpose, enabling residents to stay, thrive, and contribute to their communities. Buildings without purpose are merely structures; life comes from their ability to sustain human activity.



Figure 27 - Photographer - Teimuraz Popiashvili



Figure 28 - The blue plastic barrels insulated with wool used to make traditional “Guda” cheese in.



Figure 29 - To Summer Fields. Photographer - Dmitry Gomberg

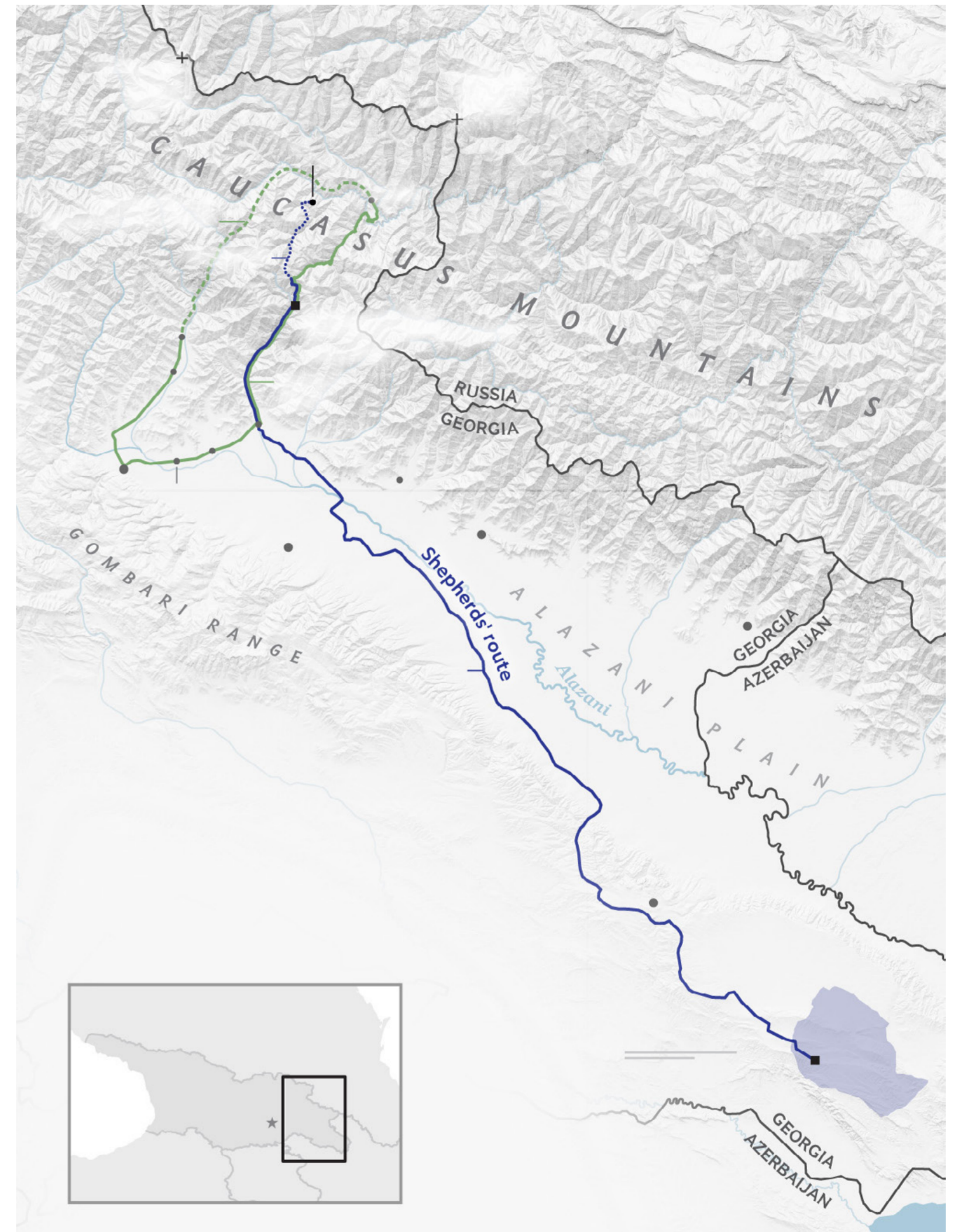


Figure 30 - Timeless Tradition

Each spring shepherds drive herds to pristine summer pastures in Georgia’s alpine Tusheti region. They trek 155 miles on roads and foot-path from the Shiraki Valley to Vestomta, returning in early fall. The journey takes about 10 days, not including an extended stop in Alvani, before the final push over a mountain pass. (Giorgi Gogua, Urquijo and Nikoloz Mchedlidze, 2021)



Figure 32- AqTushetii Residency in Omalo, Tusheti (Aqtushetii.com, n.d.)

JOURNEY INTO THE MOUNTAINS

With a mix of curiosity and instinct, I organised my journey to Tusheti, drawn by an irresistible urge to experience Georgian mountain life and its vernacular architecture firsthand and find more information for my dissertation. What I had previously only read about with uncertainty, I now hoped to explore in its authentic context and deepen my knowledge. This chapter reflects on my time at the AqTushetii residency.

Through guided tours of villages and hands-on building activities, I gained invaluable insights into the life cycle of the mountains and the ways in which tradition and innovation can intersect in this unique region.

AQTUSHETII RESIDENCY: REVITALISING VERNACULAR ARCHITECTURE

The AqTushetii residency, located in the heart of the mountains (Omalo), fosters arts, culture, history, and traditions while creating a space for collaboration. This year marked their first architecture workshop, attracting over 50 applicants, predominantly Georgian students and architects.

Such enthusiasm reflects a growing interest in preserving and revitalising Tushetian heritage among the younger generation. The residency, as I witnessed, provides a template for the adaptive reuse of ancient homes, merging tradition with functionality.

By hosting cultural festivals and workshops, the residency not only breathes life into neglected villages but also stimulates economic activity. For example, the annual weaving and music festivals draw tourists and locals alike, filling hotels and reviving shops (Creative Industries Georgia ID, 2023). AqTushetii is a really good mix of traditions and experiments, which delivers interesting insights, projects, and results and increases the network of people around Tusheti and Tushetian customs from all around the world (Aqtushetii.com).

Figure 31 - AqTushetii Residency Balcony (Samzeo)
Photographer: Luka Gigauri

GUIDED EXPLORATION WITH NUGZAR IDOIDZE

Our exploration of Tusheti was guided by Nugzar Idoidze, an ethnographer, historian, and writer whose contributions to the study of Tushetian rock art and traditions are invaluable. His deep knowledge and genuine passion turned every conversation into a lesson in history, culture, and life. Nugzar's unbiased perspective and ability to weave historical facts with captivating stories left a lasting impression, embodying the very essence of Tushetian vitality. Nugzar's guidance made it clear that ruins are not just remnants of the past but treasures holding patterns and knowledge yet to be fully understood.

VILLAGE TOURS: LAYERS OF HISTORY AND IDENTITY

Each village we visited revealed a distinct angle of Tusheti's heritage, as well as showed me challenges and treasures.

The first stop was **Village Tsaro**, located in Wovata Valley Inaccessible by car, to reach the village Tsaro, we walked through a fallen road.



The pitched slate roofs of **communal graves (akldama)** and ruins of the five-story castle mirrored descriptions in texts. Perfectly shaped pitched roofs, executed with local slate slabs, can be likened to the crowned wooden roofs of the Colchian dwelling described by Vitruvius-only transformed into stone (Sumbadze, 1960). (Figure 27,28)

Archeological studies conducted in 1912, suggest that this village was inhabited from VIII-IX centuries. The communal grave structures (akldamas) reflect a unique blend of pre-Christian and Christian architectural influences, rooted in Tushetian funeral traditions. These small, sacred buildings served as temporary resting places for the deceased, (as they believed that dead person shouldn't rest inside the home before their body was buried) (Ekaterine, 2011). Their origins lie in ancient beliefs emphasizing the purification of the dead. This typology symbolizes the spiritual evolution of the region, blending practical needs with profound cultural and religious significance.



Figure 33, 34- Story about people quarantining during epidemics and isolating from the village to avoid the spread of the disease. (My Photos)



Figure 35 - Castle in Village Waro
Photographer: Luka Gigauri



Figure 37,38,39
 Accidentally found Stone
 with Petroglyph under
 the study at the moment
 (My Photos)



GIREVI AND PARMA LOCATED IN PIRIKITA VALLEY

These villages were treasure troves of petroglyphs and fortified towers. On the walls of the houses, on towers, or sacred constructions, we may find engraved graffiti and stone inscriptions – petroglyphs. These mostly depict mythological characters or events.

Examples of one of the few pyramid-shaped towers, peaked roof fortified towers in the region stand strong, and requires care. In Village Parsma, we saw icons, a lot of castles and dwellings. The discovery of a significant petroglyph, guided by Nugzar, emphasized how ruins often conceal invaluable knowledge. It was an exciting and emotional moment, as we all were looking for the stone that Nugzar mentioned and suddenly there it was, we quickly tried to understand what it could be with Nugzar's help and later decided to take it back to the local museum for further studies.



Figure 36 - Pirikita style Koshki in village Parsma (My Photo)

INTERESTING NOTES FROM TOUR VISITS:

Women's Roles and Vernacular Form One fascinating insight from Nugzar's teachings was the role of gender in shaping Tushetian architecture. Women were responsible for adding insulation layers inside homes, a task that influenced the allocation of spaces. For instance, the uppermost floors, reserved for men, remained inaccessible to women. This segregation is reflected in the architectural hierarchy of Tushetian homes, with the functions of each floor aligning with societal roles.



Figure 41 - Photographer: Luka Gigauri



Figure 40 - Photographer: Luka Gigauri

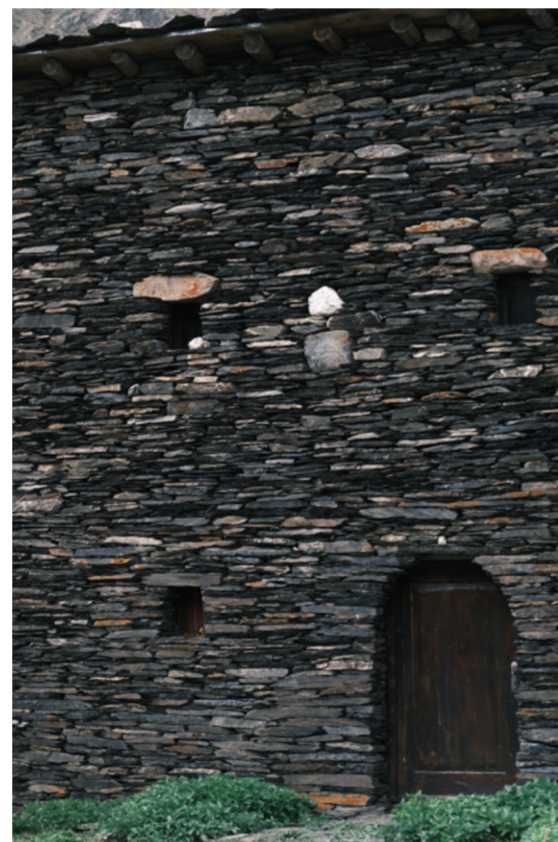


Figure 42 - "Kajii" stone/ white stone is still added to all the buildings as a belief that its a star fallen from the sky, it is like a luck/blessing. (My Photo)

COW DUNG AND EARTHEN MATERIALS-ECO-FRIENDLY COW DUNG FUEL CAKES

In the mountainous regions of Georgia, including Tusheti, dung is used alongside a mix of straw and dirt for wall construction and as a renewable energy source for winter heating. These practices are deeply embedded in the vernacular traditions of the Caucasus, where self-sufficiency and the use of local materials were critical. The dried cakes are often burned in traditional stoves to provide warmth during harsh winters.



Figure 43 - Roof of the tower rested on the crown support "qorbegela". (My photo)



Figure 44 - Pragment from Village Girevi My Photo



Figure 45 - Pragment from Village Girevi My Photo

This workshop felt like the ideal design process that every architect dreams of. First, you understand the site, live with the community, engage with them, learn their craft and customs, and respect their boundaries. Then, you propose possible solutions and execute them with the community's help and involvement. When the context is as sensitive as Tusheti, with its rich history, culture, and unique lifestyle, these steps are essential before even considering any architectural intervention. A significant part of the workshop involved constructing a camera obscura using the ancient method of dry stone stacking.

Under the guidance of Yasima Abulidze (Figure 48), one of the few remaining local artisans skilled in this craft, we learned the intricacies of working with stone from selecting the right pieces to aligning them with precision. The process was as much about collaboration as it was about technique. As a group, we transported stones to the construction site, ensuring efficiency and learning how to handle tools effectively. The experience was physically demanding but profoundly rewarding.

Yasima shared invaluable insights into the properties of stone, such as how wet stones resist splitting, how to use broken pieces for filling gaps, and the importance of adding earth between layers for stability. He also taught us how to select the right stones for corner pieces, learning lessons embedded in traditional practices. Beyond the technical skills, the activity highlighted the significance of collective effort, a principle deeply ingrained in Tushetian life and architecture.



Figure 48



Figure 46,47,48,49,50,51,52
Summer school workshop -
Building camera Obscura with
local slate stone
(My Photos)



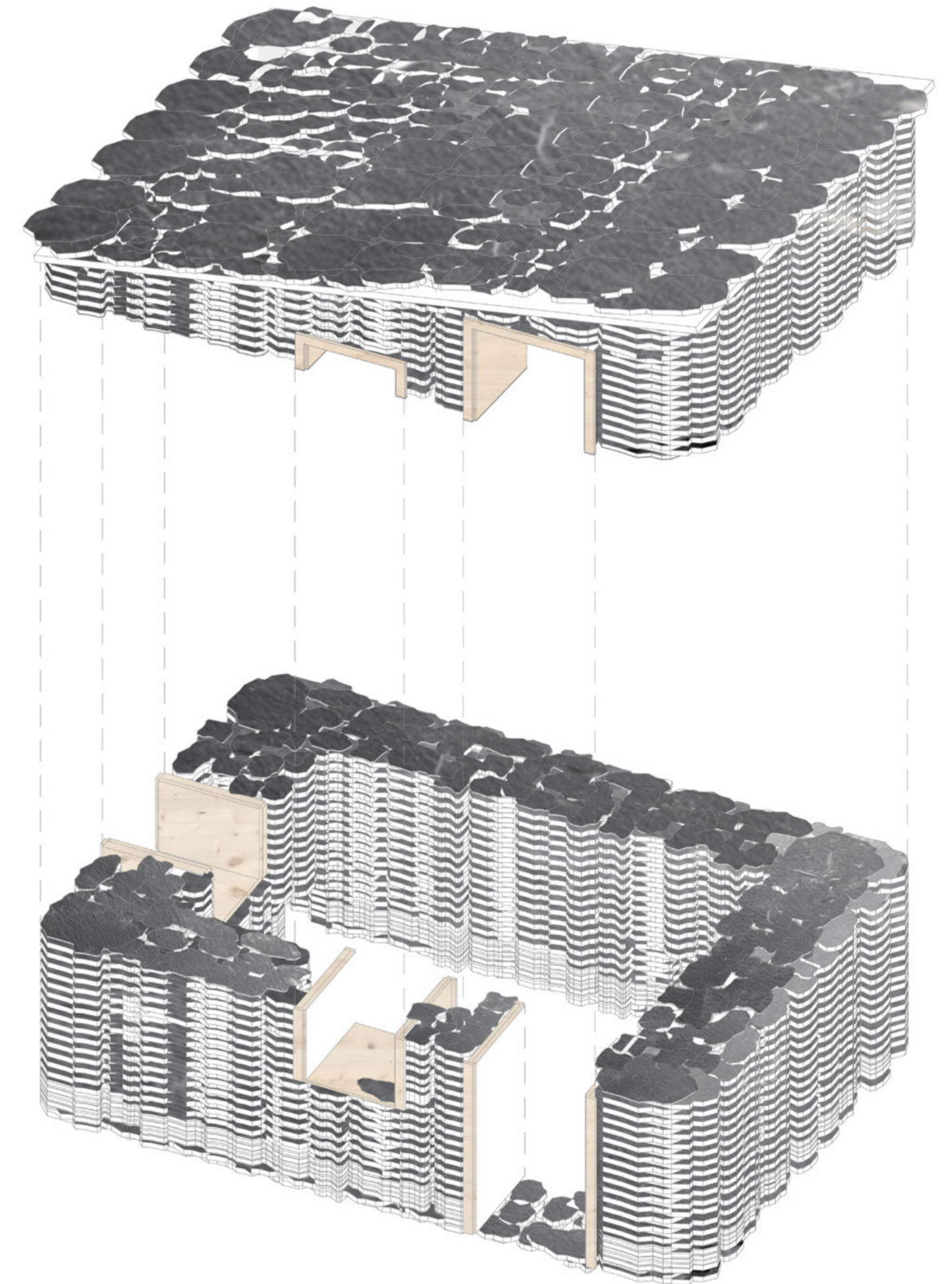
Figure 53,54 Summer school
workshop - Building camera
Obscura with local slate stone



Designing the camera obscura itself was straightforward, a dark room with a small window. However, the intent went beyond the simplicity of the structure. The focus was on mastering the technique while envisioning how new structures using locally sourced materials could harmonise with the environment. Due to weather challenges and limited time, we couldn't complete the roof. Later, residents who stayed over the winter added the roof structure, though it still required some finishing touches. The primary objective of the workshop was never about completing the building. Instead, it was about understanding the potential of such techniques, sparking conversations, and initiating research in this direction.



Figure 55,56,57 - Picture of the latest condition of our Building & 3D model



EXPERIENCE OF SUSTAINABLE LIVING IN TUSHETI - NEW VERNACULAR EMERGING

Living in a building equipped with solar panels, designed for controlled energy use and efficient water management, provided a unique perspective on sustainable practices in a remote environment. This experience influenced daily chores and lifestyle while offering valuable insights into how efficient resource and energy management can function in extreme conditions.

One of the most striking aspects was the need to be mindful of food storage and resource allocation, mirroring the traditional self-sufficiency of Tushetian households. The use of curtains (wool curtains) to separate and insulate spaces was particularly effective. Similarly, the inclusion of bedroom pods created cozy, cocoon-like sleeping spaces that retained heat and maximized spatial efficiency.

The house's design also showcased intelligent heat distribution.

For example, the weaving room (saqsovi) was located above the kitchen, utilising rising heat from cooking to warm the workspace. Another trick was to use one big stove in the library room and allow it to heat two floors by leaving a gap around it on the upper floor. The Samzeo (Mze(Geo)=Sun), situated on a sunlit balcony, exemplified passive heating strategies, capturing and utilizing solar energy during the day. Outdoors, and a clay oven provided a communal cooking space, reinforcing the building's resourceful and community-oriented ethos. This building wasn't just a place to live it was a vibrant community hub that embraced Tusheti's heritage while incorporating multifunctional modern uses. A performance and conference space, adaptable for presentations and gatherings, was connected to a wine cellar room, which is recognised as the tallest altitude for winemaking in Europe. Wine made here is named "Tushurai". The word originates from the people who would stay in Tusheti over winter season and live through the harsh months. Winemakers ensure that their story and cultural significance are not forgotten, but instead celebrated through a product that can reach audiences far beyond the region.

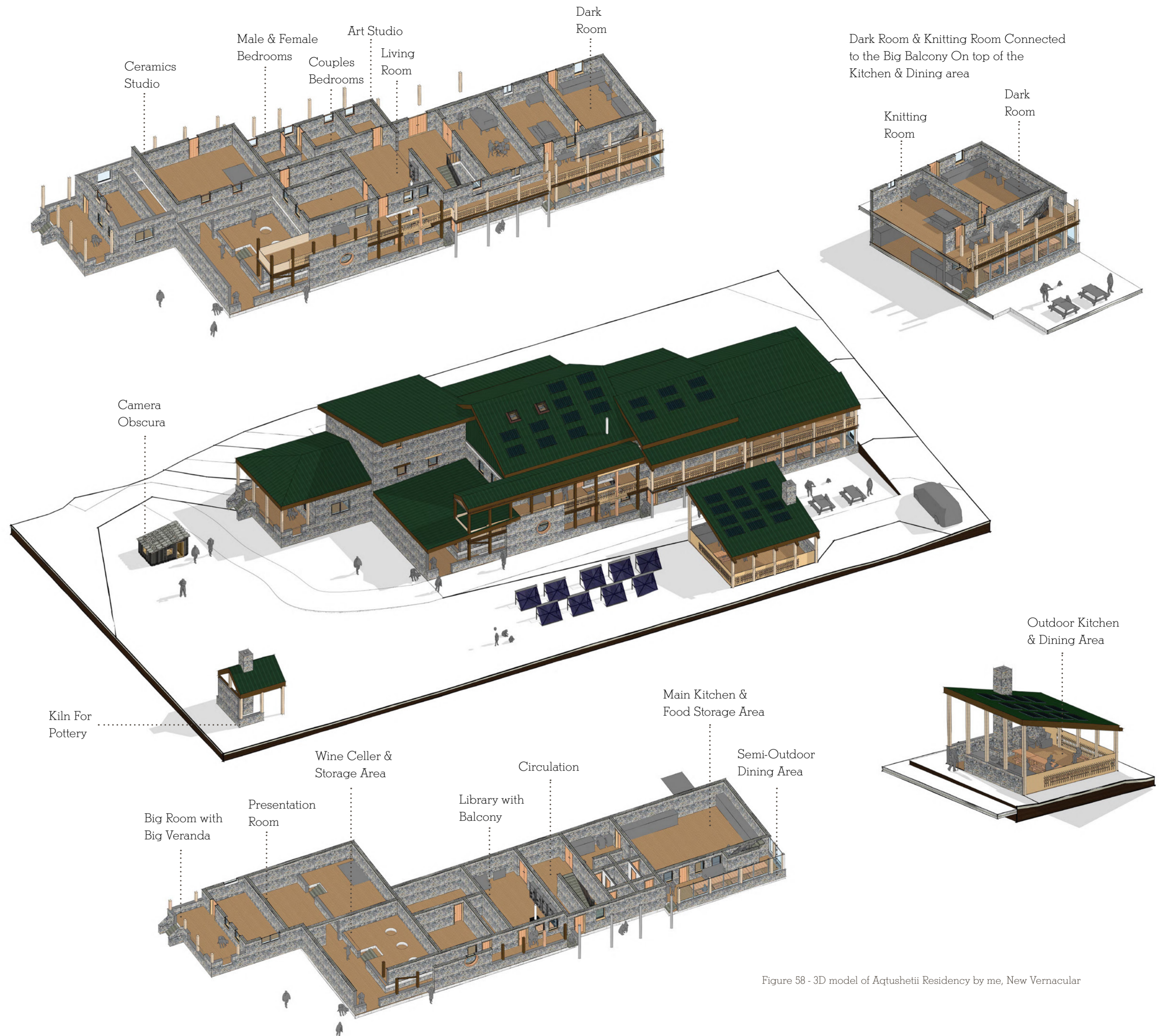


Figure 58 - 3D model of Aqtushetii Residency by me, New Vernacular

Other spaces included a pottery room, music room, darkroom for photography, and shared areas for creative and cultural activities.

These multifunctional spaces were seamlessly integrated into the building's design, creating a unique mix of co-housing, co-working, and cultural heritage. Everyone's contribution, whether maintaining the space or participating in communal activities, strengthened the sense of shared purpose and made the environment feel alive. This experience exemplified how traditional Tushetian knowledge and modern sustainable practices can come together to create efficient, multi-use spaces that foster both social and cultural connections. It also highlighted the potential of such designs to inspire the revitalisation of Tusheti, offering lessons on balancing heritage preservation with contemporary needs and opportunities. Since there are no schools or facilities for the Tushetian people at the moment, this residency can represent a new typology that strengthens community connections. The region urgently needs initiatives to foster community engagement through attractions and workshops. This residency serves as a blueprint for a new vernacular, one that not only preserves the cultural essence of Tusheti but also creates opportunities for sustainable development and social cohesion.

CONCLUSION

Researching & finding gaps in the history of this region, understanding management issues, and getting to know all the potential initiatives, along with my personal experience in Aqtushetii Residency, has given me a clear understanding of my role as an architect within this ongoing cycle of life.

AQTushetii Residency inspired me to address the pressing issues facing society today. It feels like capturing momentum in time, where the past, though fading in its physical form, continues to guide us toward the future.

As explored in this essay, vernacular architecture emerged organically, shaped by people's needs, lifestyles, and the availability of materials. However, today's vernacular must adapt to modern challenges while staying true to the region's traditions. By embracing innovation and getting

support from protected landscape bodies, government agencies and Tushetian people we can create sustainable, energy-efficient buildings that align with the minimal materials in extreme conditions principle.

My experience building the Camera Obscura taught me that working with materials like slate and navigating logistical challenges requires a balance between ambition and practicality. While we may dream of grand castles and defensive towers, our immediate focus must be on constructing what is needed now: a new vernacular that brings people back to the region revitalises the local economy and supports agriculture and its associated structures to be more functional once again.

The Aqtushetii residency stands as a symbol of Tusheti's heartbeat. A vibrant center of activity and hope. While tourism and hotels are plentiful, they alone cannot resolve the challenges of this region. Instead, we must envision and build a diverse range of structures: residential, agricultural, and mixed-use buildings that prioritise comfort, functionality, and harmony with Tusheti's architectural and cultural heritage.

Ultimately, this is about reviving the cycle of life in Tusheti. It is about bringing vitality back through thoughtful efforts and collective initiatives. This is the only path forward.

Figure 59 - Nugzar Idoidze touching a stone with petroglyphs, symbolizing his invaluable contributions to the preservation of Tusheti's cultural heritage. This image celebrates his dedication and lifelong effort in uncovering and interpreting the rich history of the region. It stands as an inspirational reminder of the importance of safeguarding these symbols of identity and tradition for future generations. Photo by me



Books

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- 2.‘Tusheti’ by Sergi Makalatia 1983 Tushetian History and customs(PDF in Georgian)
- 3.‘Khevsureti’ by Sergi Makalatia 1984 (PDF in Georgian)
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Cover Image - Petroglyph from Pharsma, Tusheti

Figure 1 Location of Georgia (BBC). Map design: K. Heinrich, IGF, 2015. Source: Digital Elevation Data (www.viewfinderpanoramas.org).

Figure 2 Tushetians. Source: Shavkhelishvili, A. (2012) Articles and Archival Materials about Tusheti and Tushes, Volume II, Mematiane.ge. Tbilisi. Available at: <https://mematiane.ge/product-details.php?id=9579&lang=ge> (Accessed: 28 November 2024).

Figure 3 Groom wearing a chokha (traditional male clothing) in a Tushetian wedding. Source: Wikipedia.

Figure 4 Timeline of History of Tusheti (Collage by me) images have intext references.

Figure 5 Boseli - Barn House. Source: By me.

Figure 6 Aerial map showing Sopel-Bosloba, winter and summer village. Source: Google Earth.

Figure 7 Boseli (Barn House). Source: Ministry of Regional Development and Infrastructure of Georgia (2018). [mrdi.gov.ge](https://mrdi.gov.ge/pdf/5d8c76853852b.pdf/%E1%83%92%E1%83%98%E1%83%A0%E1%83%94%E1%83%95%E1%83%98%20%E1%83%92.%E1%83%A0.%E1%83%92.pdf). Available at: <https://mrdi.gov.ge/pdf/5d8c76853852b.pdf/%E1%83%92%E1%83%98%E1%83%A0%E1%83%94%E1%83%95%E1%83%98%20%E1%83%92.%E1%83%A0.%E1%83%92.pdf> (Accessed: 11 November 2024).

Figure 8 Pirikita Type Defense Tower. Source: Makalatia (1933). Tusheti. Tbilisi, pp. 95, 121-122.

Figure 9 Omalo, administrative centre of Tusheti. Retained defensive structures on top of the village, mainly abundant with comfortable villas, preserving the vernacular medieval Tushetian architecture. Source: Landru, N. (n.m). Available at: <https://www.evaneos.com/georgia/holidays/places/3419-omalo/> (Accessed: 11 January 2025).

Figure 10 Tusheti Fortress House “Shinai” (Otkhtvaliani). Redrawn from G. Bochoridze (1935) by Longinoz Sumbadze in 1975. Source: Folk Architecture of the Caucasus: Tusheti by Longinoz Sumbadze, Published in 2024 (Physical copy).

Figure 11 Shrines, Religious Architecture. Source: <https://stefan-applis-geographien.com/2023/07/26/tusheti-the-architecture-of-the-mountain-villages/>

Figure 12 Transitional House. Source: Ministry of Regional Development and Infrastructure of Georgia (2018). [mrdi.gov.ge](https://mrdi.gov.ge/pdf/5d8c76853852b.pdf/%E1%83%92%E1%83%98%E1%83%A0%E1%83%94%E1%83%95%E1%83%98%20%E1%83%92.%E1%83%A0.%E1%83%92.pdf). Available at: <https://mrdi.gov.ge/pdf/5d8c76853852b.pdf/%E1%83%92%E1%83%98%E1%83%A0%E1%83%94%E1%83%95%E1%83%98%20%E1%83%92.%E1%83%A0.%E1%83%92.pdf> (Accessed: 11 November 2024).

Figures 13,14,15 Lessons to learn: Do not repeat what the pressure of tourism caused in Svaneti. Photographer: Nika Romelashvili.

Figures 16,17 Examples of inappropriate buildings in this protected landscape and national park, where architectural heritage is the main attraction for tourists. Source: Site visit (Summer). Photographer: Nika Romelashvili.

Figures 18,19,20,21 Tusheti Vernacular Architecture. Source: Blogspot.com (2019). Available at: <https://tushetilife.blogspot.com/2009/04/tusheti-vernacular-architecture.html> (Accessed: 27 February 2025).

Figure 22,23,24 Taken from the studies of 10 villages’ reconstruction plans in Tusheti by “Studia 21” in 2018. Source: Mtisambebi.ge (2019). Available at: <https://mtisambebi.ge/news/culture/item/894> (Accessed: 27 February 2025).

Figure 25 - Location of Chero,Intsukhi and Diklo Villages (Mtisambebi.ge, 2019). Rural history and Russian influence. Source: Mtvlishvili, G. (2018). Available at: <https://www.mtisambebi.ge/news/people/item/792-rodis-da-rogor-moeqza-tushetshi-cheroda-inxuxi-rusetis-kontrolqvesh> (Accessed: 26 September 2024).

Figure 26 - Border Lines Shifted (Gela Mtvlishvili, 2018)

Figure 27 - Photographer - Teimuraz Popiashvili

Source: Teimuraz popiashviliopiashvili.com

Figure 28 The blue plastic barrels insulated with wool used to make traditional “Guda”cheese in. Source - <https://milktrekker.substack.com/p/tusheti-part-1-trekking-amongst-shepherds>

Figure 29 To Summer Fields. Photographer - Dmitry Gomberg

Source - <https://www.donttakepictures.com/dmitry-gomberg>

Figure 30 Timeless Tradition - Seasonal migration of shepherds. Source: Gogua, G., Urquijo, F.J. and Mchedlidze, N. (2021). National Geographic. Available at: <https://www.nationalgeographic.com/travel/article/a-rare-look-at-a-perilous-journey-in-the-caucasus-mountains> (Accessed: 30 January 2025).

Figure 31 AQTushetii Residency Blacony (Samzeo)

Photographer: Luka Gigauri

Figure 32 AQTushetii Residency in Omalo, Tusheti. Source: Aqtushetii.com. Available at: <https://www.aqtushetii.com/photo> (Accessed: 27 February 2025).

Figures 33,34 Story about people quarantining during epidemics and isolating from villages to avoid disease spread. (My Photos).

Figure 35 Castle in Village Waro

Photographer: Luka Gigauri

Figure 36 Pirikita-style Koshki. (My Photo).

Figures 37,38,39 Stone with petroglyph (under study). (My Photos).

Figure 40,41 Photographer: Luka Gigauri

Figure 42 “Kajii” stone/white stone added to buildings as a belief in its symbolic blessing. (My Photo).

Figure 43 Roof of the tower rested on crown support (Qorbegela). (My Photo).

Figure 44,45 Pragment from Village Girevi My Photo

Figures 46,47,48,49,50,51,52 Summer School Workshop - Building Camera Obscura with local slate stone. (My Photos).

Figure 53,54 Summer school workshop - Building camera Obscura with local slate stone

Figure 55,56,57 Picture of the latest condition of our Building & 3D model

Figure 58 3D modelof Aqtushetii Residency by me, New Vernacular

Figure 59 Nugzar Idoidze touching a stone with petroglyphs, symbolizing his invaluable contributions to the preservation of Tusheti’s cultural heritage. (Photo by me).



Title Page - Original Pethroglyph Picture from the village Pharsma in Tusheti



Inspired From Famous Georgian Painter Mishiko Sulakauri's Graffiti in AQtushetii Residency.