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# An Overview of the Pathology of Historical Context in Soynas Village in Mahabad

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***Abstract:*** *In recent decades, Iranian villages have experienced an increasing transformation culturally and environmentally due to the social changes. In pre-modern period (about half a century ago), villages were known as the production sources and had an important social and economic credit as cities foundation. However, a number of changes occurred in the rural "lifestyle" resulting from development of modernism and welfare services in villages which subsequently led to the alterations in house forms. This paper attempts to investigate the changes process and the received damages to the historical texture in Soynas village belonged to suburbs of Mahabad, in west Azerbaijan province and also determines the effective factors related to the damages of rural houses in order to provide the required setting for proper decision-making. The research methodology in this paper consists of historical and descriptive-analytical methods; in general, field studies and documentary methods were applied for data gathering, and descriptive inferential statistics were utilized for the analysis purposes. Investigation of this subject is presented in three sections: in the first stage, the formation procedure of historical development, morphology of rural textures, importance of water sources, natural environment, and social, economic characteristics were defined; in the second step, various features of Soynas village such as architectural, cultural, and natural values as well as building construction methods were considered and the pathology and its corresponding interventions are discussed in the third step.*

***Keywords:*** *Pathology, historical context, rural texture, village of Soynas.*

## Introduction

Habitats which are based on the traditional and vernacular architecture roots in the physical and spiritual demands of villagers; thus, their context including residences are tied to the natural environment, subsistence, production types, evolutionary process of social life and technological potentials; and from the other side, some specific traces are also created due to artistic tastes, social standards, family and relatives fundaments, traditions and beliefs, and internal insight everywhere on the planet. Rural architecture and residences are tangible representatives of varying materialistic values as well as architectural concepts and metaphors and human's life style. This architecture is implemented along the mentioned demands through a comprehensive recognition made by the villagers. The overall form of traditional architecture originates from the folk traditions; the folk tradition is the immediate and unconscious tradition flowing within the people culture and is formed in physical and spiritual manners influenced by the relevant needs and values according to the desires and ideals and at last following human affliction, pleasure, and tranquility. The rural architecture has a strong and direct linkage to the people culture and their daily lives.

Although the advanced science and technology have been applied in the country particularly in the urban areas, there are still a few villages that benefit the ancient styles companying their beautiful intact nature and continue this life style almost thoroughly. People in such villages, due to primitive facilities and low population, live following their precedents' life styles and solely benefit simple access roads and recently telephone/electricity networks. Architecture in these villages has not been

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changed similar to other aspects and the main elements in the building construction include adobe, clay, wood, and stone. The historic village of “Soynas” in the suburbs of Mahabad, in west Azerbaijan province is one of the above-mentioned villages which apply those elements in the construction methods; so, materials like brick, cement, and steel have not shown a considerable share in the construction field in this village. Along with the advancements in the industrial sector and urban development as well as more connections between cities and villages and remote spots which led to further acquaintance with urban gaudiness, less people tend to remain in the villages; instead, they move to cities pursuing job positions and achieving a better future. Besides, those who remain in villages would not construct according to the old systems. The historical houses and valuable contexts have been gradually damaged due to inappropriate preservation and mountainous climate of the region; they are supposed to be entirely destroyed and vanished unless they are punctually treated. It is hoped that this architectural heritage be preserved, reconstructed and restored through conserving and reinforcing its original historical context and stone houses.

**Historical Village of “Soynas”**

The historical stone village of ‘Soynas’ is located in the district ‘il gurek’ and ‘khalifan’ division in 85 km distance of south side of Mahabad in west Azerbaijan province. ‘khalifan’ division is enclosed by ‘Mahabad’ from north, “Bukan” from south and east, and “Sardasht” from west. Access to this village is through the asphalt road Mahabad-Sardasht which after a distance of 85 km in the left side and entry of “Kavlan sofla”, a sand road is branched leading to village of ‘Soynas’ after 5 km. The village is located in the latitude 36° 21’ 40.30” and longitude 45° 42’ 39.62” at sea level of 1540 m with the area of 43 hr. it has a cold mountainous climate with high humidity rate, averagely 750 mm annual precipitation, due to being located in the hillside. This village is placed in a pleasant zone taking advantage of a beautiful river and green mountains which provide a proper environment for researchers and tourists. Water is one of the most important natural components. It must be noted that habitation is created wherever water exists. Water is one of the important factors in agriculture and cultivation as well as human hygiene and life source; thus, study of drinking water and agricultural water in the village is essential. In general, drinking water in ‘Soynas’ village is provided by the pipes conducting springs water which enter houses through piping network after being stored in a water reservoir. It should be mentioned that the village faces water challenges during the day; in order to eliminate this problem, new underground water sources and water well digging must be considered as well as reducing water consumption. The village population and increasing demands highlight the importance of this issue. Apart from the drinking water supplement, the village is also in demand of water for agricultural purposes which are a significant issue due to the village economy relying on the agriculture.

As mentioned above, most of the village population in ‘Soynas’ are involved in agriculture and livestock occupations; however some people work in industry and business. Grain is the major agricultural product and cow and sheep are the main livestock which is self-sufficient in term of production. The villagers’ income comes from agriculture, livestock, and handicrafts particularly carpet weaving. Grain and vegetable are the main agricultural products in the village which are cultivated in the irrigated lands. The required water for agriculture is provided by the river. Various types of dairy products and red meat are produced in the village. Carpet and rug weaving and beautiful needlework which are made by female villagers are the other income resources among villager families. ‘Khare zoureh’, ‘Baghi’, and ‘Bagredineh’ which encloses the village physical context are the significant heights around the village and the limited agricultural lands are formed in these low slope hillsides. The village stone mines (gravel, sand, and stone) are also located in the southern extremity of the village.

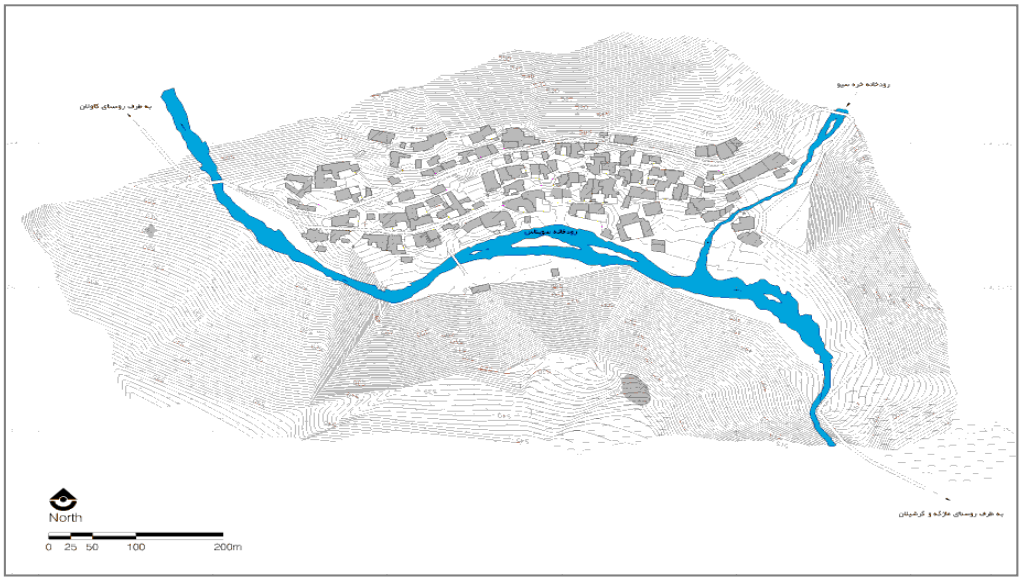


***Fig (1): site map of historical village of 'Soynas'***

***Figure (2): historical and step-like context of 'Soynas'***

## The Village Historical Background

No accurate historical data is available regarding the history of village; however, the elders and well-known villagers believe that it has a greater history than the adjacent villages. Regarding nomination of the village, some people believe that Turkish names have been used for the villages and districts in the area due to the accommodation of Timur tribe in the past. Variety of climate and vegetation in this region attracted the population and caused civilization development. The several thousand year remains left by the precedents are found around the village. Most of the historical remains as the ancient cemetery, water mill, and remains of residences are all spread around 'Soynas' village and are considered as the civilization evidences for this village and the neighboring ones. The surrounding civilization is attributed to pre-Islam period. Its people speak in Kurdish language. They are Muslims and Sunni followers.

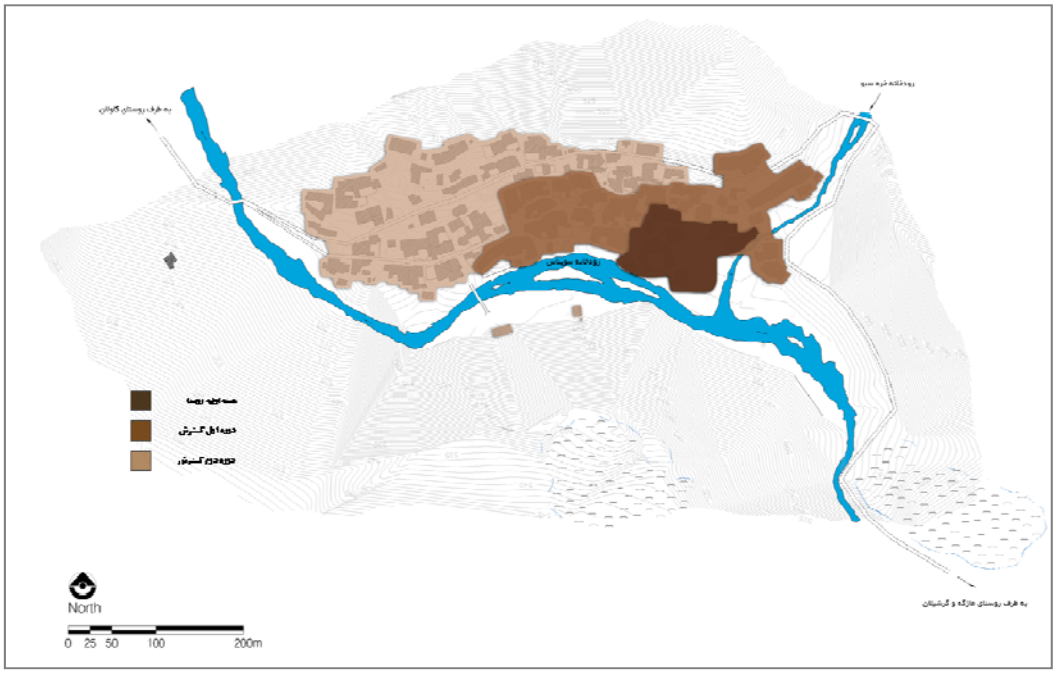


***Figure (3): map of 'Soynas' village context extension***

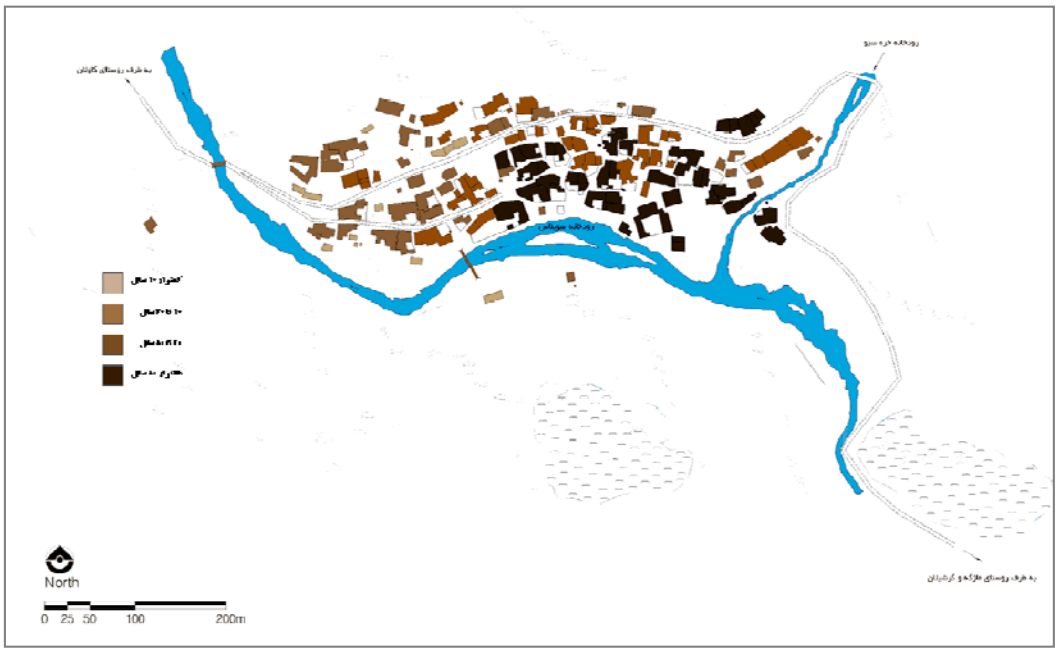


***Figure (4): map of antiquity of buildings in "Soynas' village***

## The Village Nomination

It is supposed that the name 'Soynas' is taken of a Turkish word regarding the era when Timor tribe arrived in this region. It might come from the word 'Soy az' meaning the place with less water, or 'soy naz' meaning the water which flows smoothly (due to the river of village) and transforms to 'soynas' over time. Nevertheless, some of the villagers believe that the word 'soy' in Kurdish language means the geographical ridge or sky line; and 'nas' means 'to realize'. Since the village location is such that it is not visible to the people entering it till they get close to it and also it is enclosed by the mountains in all four sides, the person who comes to the hillside is recognizable and this logic might justify the village name.

## Historical and Touristic Attractions

'Soynas' has been a rich village in term of historical remains and beautiful intact nature as well as tourists' attraction which the most important ones are:

***The Lord House***

This house with an area of 1260 $m^2$ is placed in the eastern side of the village which local materials like stone, adobe, and clay have been applied in its construction. This house, that was the center of region governing, is about one hundred year old and is attributed to Ghajar era. Nowadays, this building is almost undamaged and is utilized as a residence.

***Figure (5): the lord house in 'soynas' made of a combination of adobe and stone***

***The Mosque***

The mosque is another old valuable building of the village. According to the villagers, the main structure of the mosque was initially made of adobe which was opposed to serious damages due to severe cold weather and rainfall. As a result of the village governor's decision, its walls were renovated by means of stone material, similar to the village residential buildings. Although no accurate data is available, its age would be estimated as one hundred year or more, since the original columns still exist and have not been eliminated during the renovation process. This mosque has been recorded in the national monuments list in 15/03/2015 No. 31195.

***Figure (6): 'Soynas' mosque and its elegant wooden capitals***

## The Old Cemetery

There is an old cemetery close to 'Soynas' village which the orientation of its most graves is toward the directions but Qibla. Some of the elders and well-known villagers testify to the graves with Armenian and Assyrian inscriptions which have been robbed by unknown people, however no indications were found on the existing graves.

***Figure (7): the old cemetery of the village***

## The Water Mill and Automotive Mill

The water mill is another noticeable historical monument in 'Soynas' village, which solely a few parts of it have remained and the rest has been destroyed. The single existent mill of the village is located at the north side close to the lord house and dates back to first Pahlavi period and works with fossil fuels. Construction of such mills has been common due to proper water sources in various areas of this region (currently, the above-said mill is the only available mill in the village, however it is not active and has been abandoned).

***Figure (8): the stone remains of water mill and the undamaged diesel mill dating back to 140 years ago***

## Immigration Challenge

The population of 'Soynas' village has been constantly decreased that is a common issue in rural areas; because the constraints and shortage of facilities as agricultural land, grass land, and rural industries would not meet the young demands who seek for jobs; therefore, it is inevitable for young male villagers to immigrate to cities. However, this economic social phenomenon sounds to be intensified in 'Soynas' village. Several causes might contribute to this circumstance; but one of the main reasons would be the young people new approach toward village houses and their reduced inclination to live in such residences which benefit fewer facilities compared to urban residential buildings. Most of this immigrant population lives in cities as Mahabad and Sardasht.

***Figure (9): abandonment of the village houses due to immigration of villagers***

**The Effective Factors in the Village Context Formation**

Indeed several factors play role in the formation of village context which causes the development and extension of the village context. The most important factors in this regard are discussed in brief:

- ***Water***

Water is a primary element and has a unique importance for human life, since it is the only element which is utilized simply and naturally with the minimum technical knowledge. According to the villagers, 'Soynas' river has been one of the largest rivers in 'Khalifan' division due to great snowfall and rainfall; but the water amount has been reduced in the recent years as the precipitation decreased. The river water has been used in three principal ways: 1- drinking water, 2- sanitary consumption, 3- agriculture and livestock.

The impacts of water on the village formation would be evaluated as follows. First of all, due to the critical importance of easy access to water, it is likely that the village context is formed in a linear shape along the river path.

Second, in such contexts, most of the passages are formed to be perpendicular to the river direction. For the purpose of easy access to water, which in turn causes a chilly breeze raised from the river and spread into the village context. Nowadays, regarding facility advancements and richer underground water sources, most of the village domestic water consumption is supplied by springs as well as water wells.

- ***Land***

Land is another influential factor in this village formation such as land characteristics, ups and downs, land type, and land location toward natural parameters as rivers, mountains, etc. have showed the greatest impacts. A comprehensive attention has been paid to the topographic conditions of the ground in the establishment of this village and its constituent parts. The houses have been built on steep slopes of the hillsides which are not appropriate for farming operations, since flat lands are rare and it is preferred that most parts of it be devoted to agricultural activities. The other reason of such location setting is to avoid severe cold weather in winter and annoying north winds. Besides, no dwellings have been built on the plain fields, because of the flood threat that make the villagers to build their houses on the heights despite the cold winter winds.

- ***Heat and Cold***

The remote location of the villages, their scattering pattern, and impassable roads in this region all make it difficult or even impossible to transfer fuels to the village. Hence, the villagers have applied proper solutions to harness the nature in order to survive. An efficient building orientation is one of the solutions they have found; building main facades are directed toward south which maximizes the desired solar gain.

- ***Wind***

Wind is another natural factor which has an undeniable influence on the villagers' life, particularly their residential buildings in term of geographical parameters. Each village receives various winds based on its geographical location. In this region, the wind blowing from north side to south, known as black wind or local name of 'Zaryan', is the irritating one. The houses orientation in this village is leeward to this specific wind and they are affected at a minimum level.

The above-mentioned factors were among the factors that have the greatest effects on the village physical texture.

**Evaluation of the Village Dwellings Formation**

'Soynas' rural houses would be evaluated in term of configuration as below:

The direction of the sun radiation is a determinant parameter. All houses are oriented toward the sun or Qibla to take advantage of maximum solar gain. In houses with interior courtyards, south-oriented rooms are larger and the major spaces as sitting rooms and living rooms are not usually built toward the north. West/east-oriented rooms are planned for functions as stores, kitchens, and services. Most activities are performed in covered spaces. The houses configuration is such that the minimum exterior surface is generated; therefore, the geometries with greater volumes and smaller surfaces are preferred. The rural buildings are mostly in cube or box shapes and bevels or chamfers are not often common among them and solely appear in dividing walls and yard enclosing walls. Due to the severe cold weather in a considerable period of the year, the village physical texture is compact and connected in order to minimize the interface surface of heated interior spaces to cold exterior spaces. Most houses are one/two stories and are formed parallel to the ground slope; so they present a step-like shape which provides them with solar radiation and additionally reduces leveling operations. Also, this configuration leads to higher compatibility to nature and less demolitions. Step-like construction increases the building interface to the ground, transfers the weight and earthquake forces to the ground more properly, and strengthens the buildings.

The thick stone walls function as a thermal insulation and prevent the building to be cooled during winters. In addition, they get heated during the day by the sun radiation, keep the heat due to their thermal capacity, and reduce the inside temperature. The general purpose in houses design is to build interior spaces such that they could be heated easily. Thus, ceilings are considered in a shorter height and openings are designed in small sizes to prevent thermal energy dispersion. Design of large spaces possessing large openings are not desired in this climate; first, they have a greater interface surface to exterior space and second, heating such spaces require higher amounts of thermal energy (Although a number of such large openings appear in the village buildings, inspired by urban buildings style). Hence, room ceilings are often shorter in this region compared to other climatic zones; rooms are not designed in great dimensions and in case large halls are required, they are built in a nested design in order to maintain the heat and also use the entire space solely when it is demanded. Heating these rather small spaces is even hard in some houses and they still feel cold; so, the residents have to stay close to the traditional heating device 'Korsi'. Whenever small rooms design and reducing ceiling height do not meet the requirements, 'Korsi' would be an old innovation to simulate small spaces with decreased dimensions and no openings; it also has a heating source inside which is capable to heat the expected space. Public spaces in this climate do not include wide spacious fields as other climates have, however, they benefits spaces with unique characteristics.

As the mosques are influential buildings in most urban spaces, it is also a turning point in this village. Mosques are often the largest covered spaces in each traditional village or city. They also follow the ground topographic conditions and are oriented toward south or Qibla. This village mosque was set linearly, however, its length and width are quite equal. Since mosques are the reference buildings in urban/rural spaces, most of cultural and religious rituals take place there and they are a proper place to socialize. The mountainous nature in this region does not allow planning spacious areas and the adjacent buildings rooftops function for public use as well. Narrow passages which are along the land slope receive the heat diffused by building exterior surfaces and block the heat to be dispersed toward wide spaces. The building roofs are often built in a flat shape, due to availability of wood material, and vaults and arches are not frequent and roofs are constructed using wooden beams, wooden boards, and straw-clay plasters. Straw-clay is not resistant to the intense rainfall and the water penetrates the plaster if not dense. The water permeates into the holes of straw-clay as rain falls over time. To avoid this phenomenon, a small stone roller is frequently applied to the roof to compact its straw-clay plaster, block the generated holes and prevent the water permeation. Considering the function of rooftops which is often used for public entertainment and gatherings, their straw-clay surfaces are

automatically compacted due to walkers' traffic. The snowfall is treated in two different ways: if the weather is extremely cold and it is not likely to melt easily, it is remained on the rooftops; because its temperature is about 1-2°C higher than the outside air temperature and also acts as a thermal insulation. As the temperature increases and snow initiates to melt, it must be removed because it gradually melts and it is probable that the water penetrates the roof and enters the interior space. Most of houses are two stories and the entrance is provided by means of a staircase through the first floor.

The underneath floor is usually allocated to livestock, hay loft, food storage, and woodshed and the upper floor is residential. Stone buildings have provided a harmonic appearance to the village physical texture. Stone is highly available in this mountainous region and is applied to the building thick walls in forms of rubble or slate stones. Stones possess a favorable compressive resistance and stone buildings are persistence against compressive forces if they are constructed acceptably. However, their considerable high weight amplifies the incurred force to the building due to earthquake and makes them vulnerable to earthquakes. Stone buildings are impressive and induce the grandeur, stability, and rigidity. Walls in this region are constructed by stone materials-under the roof level- due to its proper compressive resistance and humidity impermeability. Tree trunks, wooden boards, straw or reed, and straw-clay plaster are applied for roof covering, respectively from bottom to top. The context is compact connected and passages are narrow. In some cases alleys pass under buildings or are covered as 'Sabate' which are usually pleasant due to the lighting effects and also in term of climate provides milder micro climates compared to open space areas. 'Soynas' stone context with its admirable, elegant, and harmonic appearance has a particular artistic value.

The context is compact and connected, the buildings are extroverted, cube-shape with openings directed to the valley and facing the sun, and at last the materials are in complete compatibility with the mountainous cold climate of the region. Mortars are made of clay and in some cases of the combination of clay and lime which is also applied to foundations. The foundation thickness varies from 80 to 100 cm. it is noticeable that in the stone buildings of this village, walls are made of pure stones, unlike the similar walls in other mountainous or desert regions and no horizontal/vertical beams as ties have been applied; the stones are arranged by skillful and expert masons such that it would transfer the loads. Recently, the upper floor walls are made of cement units or bricks in some buildings due to their less weight and easier application. Stone dry walls are used as surrounding walls in gardens or residential areas. Dry walls are not sufficiently strong and should not be utilized as load-bearing walls.

**Building Construction Methods in the Village**

An overlook to buildings architecture in the village implies the intelligent utilization of local materials and efficient use of them to satisfy their needs. Their opinion was upon the reduction of construction costs, avoidance of unnecessary transportation and nonlocal materials, improvement of local materials capabilities to be applied in buildings as houses and providing appropriate spaces for barns and stables. From a villager's viewpoint, materials as soil, stone, wood, plants, and teasels are all building materials and would play roles in creation of pleasant spaces to live if they are correctly utilized.

The village building construction methods based on material types and applications are discusses in the following. The used stones in the village buildings are derived of a rigid sedimentary stone come from neighboring mountains. These stones are divided into smaller parts by means of wedges, mallets, and hammers and are applied in the buildings. A noticeable advantage of this stone is that it is plain and smooth on both sides as it is cut due to its physical characteristics.

*Figure (10): house typologies in 'Soynas' historical context*

**Principles of Stone Application in Village Buildings**

According to the village masons, certain methods are applied in construction of the village buildings, from foundation to rooftops, which apart from its elegance, improves the strength and durability in buildings. As stones are extracted from the mine, they are cut in such dimensions that they could be carried by human workers and be moved to their positions; this optimum dimension guarantees a proper control and systematic application. A considerable technique in stone cutting is to follow the stone streaks, since they are cut easier along them and also the streaks will not damage the stone under compression. As mentioned above, stones must be formed and used based on their streaks, since they present their best performance under compressive forces; while in opposite directions, the stones and subsequently the buildings are seriously damaged. Providing a level and plain surface indicates the masons' proficiency in stonework. According to the experts, the better face is used to façade and the backside is used as the stone stem in the wall. It must be noted that as seen in the figure, these stones look like as flat as blocks and do not resemble rubble or cobble stones. Clay is used as the mortar in these houses and the mixture of lime has been rarely observed.

**Stone Walls Thickness**

Since the region is located in the mountainous cold climate and stones do not perform as a proper insulation, the wall thickness in residential spaces is at least 40 cm. thus, regarding the field observations, measuring the wall thickness in the village houses, it was found out that the wall thickness is more than 70 cm in most cases and even reaches 150 cm in exceptional walls.

*Figure (11): a plain and level surface in the wall*

**Stone dry wall**

Another method of stonework in the village walls is dry wall system which is applied in enclosing and dividing walls with no use of mortar. Thickness of these walls does not usually exceed 60 cm; they are often short and solely bear its own weight and no extra forces could be applied to these wall types.

**Stone Laying and Mortar Application**

According to stone experts of the village, one of the major principles is to float the stones in the mortar, since the lack of mortar and direct connection of stones might cause them to be crushed under great loads. Mortars must be applied in such way to cover stone faces properly to evenly distribute the loads on all sides and no gaps remain. So, stones do not break apart in the parts lacking mortars and the wall balance is maintained.

**Stone Laying Methods for Walls**

Interlocks and course arrangements are two important operations in stonework; if a proper connection is not provided, stones get loosed and might fall apart under varying weather conditions as well as loads. The intersecting mortar joints should not align in any two courses because it will create a shear joint. The mortar underneath the stone must be floated which fills the stone in slipping movements by strokes of hammer or mallet. Due to variety of stones dimension, courses are not complete in this stone laying method which is called rugged stonework. In order to provide an even density and load distribution, stones are flattened in certain parts and a horizontal course is generated. Occasionally, diagonal stones are applied in a course (as seen abundantly in this village) to provide a horizontal level. It must be noted that stone units might be accompanied by mud and sludge; thus, they must be washed before and be applied after cleaning; this step improves the bonding between mortar and stones.

**Construction of Stone Foundation**

Due to the weight of roof cover, massive wide walls, and high specific weight of stone, a great amount of force is applied to the foundation which necessitates stone foundations wider than the walls (based on the mason's experience) in a form of incoming forces. As mentioned above, height and width of stone foundations depend on the mason's experience; regarding the depth estimation, the ground is usually dug to reach a rigid soil, suitable for foundation settlement. Since most of the houses in this village are built upon slopes, the foundation depth varies at both sides. The foundation surfaces are set such that the first course of brickwork is exactly level. Another stonework technique to improve the building strength and durability is to utilize large-sized stones in the building corners. Size of these stones is usually double the adjacent stones which are moved by two laborers and placed at the considered spots.

**Openings**

The other step in completion of the building walls is to implement openings (doors and windows). It is very rare to find arch lintels and almost in the entire village, they are constructed in the form of a horizontal beam. Square-shaped stones are used at both sides and a wooden beam similar to those applied in the roof is placed at a proper height on the side walls. The wooden beam is 30-50 cm longer than the opening span to provide higher strength against incoming forces. Then, the rest of stone-laying is continued over the wooden beam.

**The Common Method for Flat Roof Construction with Wooden Beams in the Village**

In order to implement a flat roof, both ends of the beam are placed on top of the opposite longitudinal walls to cover the room width, parallel to the transverse walls. If the available beam is longer than the required length, it is not cut; instead, it is put on the walls such that its ends exceed the space width and is left to be exposed. The purpose is to keep the beams at their original size; besides, a section of exterior space is covered and provides a shade for the wall which protects it from rain and solar heat. In addition, it might be applied to cover another space, wider than the current one, in future. Considering the difference in diameter at the beam ends, the adjacent ones are placed oppositely to provide an even look inside. Applying a spacer at the narrower end, make a plain surface. Beams distance depends on the diameter and span. Room width is usually 3 m or less. Beams distance for such spans is about 50-60 cm center-to-center when beams with 25 cm diameter are utilized. Less distance must be considered, if the beam diameter is smaller. However, due to the availability of wooden beams, this estimation has not been followed in most of houses and the beams are

implemented in smaller distances; which might be one of the reasons for durability of such houses. To cover larger spans, wooden columns are considered and the space is divided into smaller sections.
It is observed in some houses that a beam is placed above the wall, laid on the opposite walls; then, the ends of roof beams are set over them. This technique strengthens the beams, avoids their movement or decay, arranges them in an order, and also stabilizes the roof. It also provides an integrated network which resists earthquakes and keeps the roof as a unified component. The most popular technique to fill the beams distance in the village is as follows:

1) Boarding over the beams, mostly usable in residential spaces
2) A mesh made of straw over the beams, mostly usable in residential spaces
3) Thin straight tree branches, mostly usable in non-residential spaces as stores, barns, and semi-open spaces

The boards, straw meshes, and branches are placed in the opposite direction to the main beams near to each other; then, a layer of brushwood and chaff with an approximate thickness of 10 cm, which is called ‘peh rakeh’ by local people, is applied. Chaff provides a proper thermal insulation for the roof; it also blocks the penetrating water caused by rain fall, absorbs it and prevents the water to enter the interior spaces. In the second stage, the chaff is covered by a layer of mud (suagh mud). The used soil in this mud must be hollow to guarantee its relative lightness as well as a higher moisture absorptivity caused by water penetration from upper side (In the construction of today’s roofs, a layer of sack is utilized under the mud layer; next, stones are placed across the roof edges, a straw-clay layer is spread on the surface, and the slope on the finished surface is adjusted. Downpipes positions are determined and are installed. The stone or brick used at the roof edge prevents the straw-clay plaster to be eroded. Nowadays, a plastic sheet is utilized before this step and the straw-clay layer is implemented above the sheet. Ultimately, the finished straw-clay is rolled for as few days by rollers made of cement or stone to make it totally compacted and impermeable.

**Pathology of Historical Context in ‘Soynas’ Village**

As discussed earlier, it was realized that architectural context of the village is multi-dimensional and well-considered. The village context is beyond a complex of houses providing shelters for its inhabitants. The main ingredient of a village architecture is the villager; the human who own thoughts, value systems, and special expectations. As already explained, villagers are hardworking and at the same time smart and creative in the field of building and construction; they acquire an in-depth and accurate knowledge of their surrounding environment as well as materials potentials and then, try to solve problems and challenges innovatively and establish a pleasant place for their families. Although the logical trend of society should not be disrupted (including rural societies), it must be considered that people who are involved in decision-making for housing sector have to be aware of its sophisticated aspects. Pathology issue and presenting a definite definition for it has always been complicated. The recognition of changes affecting the original shape of a monument has a direct relationship with its value definitions. Therefore, whatever defaces or destroys its existent values is considered as damages. It is also likely that the current values are changed such that their original nature totally alters; however, new values are generated as a result. Therefore, several methods have been always utilized to investigate the phenomena, damages, and their priorities in pathology of historical contexts; which is applied considering type of historical monument and encountering it.
The first step for a proper intervention is to realize the environment and complexity of interventions in rural contexts; which ends in desirable results in renovation of historical contexts through evaluation of effective factors, strength and weakness, and deleterious factors. The deleterious factors are discussed in brief:

***Human Deleterious Factors***

Human factors are those deleterious factors occurred due to lack of proper programming and maintenance, or wrong decisions for performance of buildings and surrounding areas. These damages are both physical and visual. Applying an inappropriate maintenance, preservation, and renovation methods are also included in this category.

Besides, when a part of the building is eliminated, there is the threat of forces imbalance in some parts. Even little interventions or relocations might lead to such results. ‘Soynas’ is a unique village regarding local materials, particularly stones; and use of stone as a common popular material stands out in the village appearance. Due to availability of modern materials and ease of using them, stone house owners have changed the integrated framework of materials and ruin the visual aesthetic character of the village historical context; materials such as brick, and cement blocks/plaster appear in some of village houses.

***Figure (12): disharmonic materials such as bricks and cement blocks in the wall***

Applying different materials or plasters to coat the stone walls is another human deleterious factor in ‘Soynas’ historical context which caused disturbances in the visual consistent stone texture. Those villagers, who are not aware of the historical values, have used cement plaster, marble or synthesized stones, and bitumen moisture membrane instead of the traditional methods to resist water permeability inside the building.

***Figure (13): applying cement plaster and bitumen moisture insulation on the walls***

Another visual effect defacing the village historic context is to utilize metal door/window frames in diverse shapes and colors replacing the traditional wooden ones. Metal frames devastates the coherent wall texture and shows negative effects in heat transfer to/from residential space due to its high conductibility which a significant issue in cold climates.

*Figure (14): various shapes of metal door and window frames which are incompatible with the visual historical context*

Modern construction in historical context comprising various shapes and using new materials different from the context architectural typologies has caused visual damages and disconnection of traditional texture. Also, new public buildings particularly administrative building, clinic, communication center, and school building have played roles in damaging the historical image because of their different architectural design and materials and due to their location in the middle of context.

*Figure (15): communication center and clinic building in the village*

***Natural Deleterious Factors***

Natural factors could also damage the buildings and historical contexts which have the maximum share in the destruction of historical monuments. These factors influence the historical buildings and complexes in various ways and if the required actions are not taken at the proper time, they might cause irreparable damages to historical buildings. The historical stone context of 'Soynas' is not an exception; use of lime-clay mortar and dry laid materials might lead to loosened bonding among materials which is discussed in the following. Due to the mountainous nature of the region and high amount of rainfall and snowfall, which occasionally block the access roads, descending and ascending moisture-affected damages could influence the building and weaken material interconnections. It is noteworthy that although moisture stain does not emerge on brick or clay building walls in this village, it makes various impacts such as washing mortars between stones due to rain/snow flow from the neighboring hillsides (narrow streams joint together and pours inside the village), weakening the stone walls and surrounding walls, and freezing effects on sedimentary stones which diminishes the walls and even foundations. Lack of appropriate attention and maintenance of straw-clay plaster on rooftops speeds up the moisture permeability through the holes and increases the descending moisture toward residential spaces; this phenomenon weakens the wooden beams and interior gypsum plasters as observed in some of houses in the village historical context.

***Figure (16): decay of ceiling wooden beams and interior wall plaster due to moisture permeability***

Lack of a proper slope adjustment and field preparation leads to moisture penetration and water accumulation on road surfaces; subsequently, the water is conducted toward the building walls which weakens stone structures which are un-regarded in some passages and public areas in the village.

***Visual Damages***

Abandonment and lack of proper preservation of buildings has diminished their dignity and messy desolated spaces are created while they could be transformed to pleasant spaces and reduced the visual damages, which are the most significant factors in this perception, through more attention and necessary strategies for their preservation. Some of the deliberate and non-deliberate human damages in 'Soynas' contexts include immigration of the villagers leading to abandoned buildings, cutting trees and absence of green areas, lack of pavement in main and secondary passages, leaving the unfinished walls of residential buildings, and construction of cement electricity posts which have all defaced the visual image of village context.

**Summary and Conclusion**

As a general conclusion of the studies, it must be reported that changes in viewpoints, and societal economic transitions, emanating from alterations in urban/rural conditions, as a collective whole have been effective in variation of land use and village context formation. Since the rural production economy has been transformed to service-providing jobs or false occupations, residential and agricultural land is converted to different functions and the investments are transferred from productive to non-productive economy which is a considerable challenge threatening the village development. This approach toward the environment also has definite effects on the formation of village appearance and its historical context. During the time and its inevitable impacts, new places are created through the same spaces. The places have a past and a future which ties people together; however, being updated and today's industrialized life brought some changes in the villagers' conditions. These changes are obviously reflected in their life style and the interventions to the valuable historical context. It is also found out that if proper incentives for preservation of this valuable context are not considered, it will be gradually destroyed in near future. Thus, attempts must be put on the determination of changes, restoration, and renovation of historical context through accurate studies and knowledgeable actions and direct participation of the villagers.

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