

Living with the Land: The Architecture of Agrarian Life in Meemure

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Abstract: *The village of Meemure has developed its unique architectural and technological identity due to extensive lying in a deep narrow valley of the knuckles mountain range and having the oldest architectural constructions for various agricultural purposes built since huge number of years. The research study, therefore, aimed at an investigation and documentation of these ancient agricultural constructions of the region to enlighten the society with the findings. The methodology consists of the collection of data, namely: library research, field observations, and interviews. The mainstay of the people of Meemure continues to be agriculture. By and large, rainwater forms the main input through which agriculture receives water, while the remaining part is taken from a system established by the people of Meemure themselves. The introduction of these special constructions began the use of home-conceived knowledge. Based on some of the constructions, stones were naturally found in the Meemure area. The people of Meemure have diverted water from dimbi-golla stream to the paddy fields by damming it at various places using man-made canals. Water moves through these canals to the paddy fields. The natural form of the land has been used in this respect. Besides the agricultural constructions, they built architecturally well-built stone structures for creating cultivation areas around their houses, demarcating land boundaries, and preventing soil erosion. Cement is not used in these constructions. These buildings belong to the technique of setting stones at such angle that they do not press on each other. Currently, these ancient constructions are deteriorating due to the lack of interest from the current generation regarding the stone constructions built in agricultural lands in the past and the lack of proper understanding of the technology used historically. Regrettably, concrete has been used during maintenance work in places that are being destroyed. It is problematic that heritage conservation institutions have not conducted proper research on these areas and that information about ancient constructions in these areas has not been transmitted to the*

wider society. It is very important to further study the stone technology in Meemure village and to preserve the remaining stone creations in the way they existed in the past.

Keywords: *Agriculture, Architecture, Constructions, Meemure Village, Stone Technology*

Introduction

Sri Lanka's greatest contribution to the modern world is irrigation technology (Somadeva, 2016, p.108). While several studies have been conducted on tank-based irrigation technology in Sri Lanka, researchers have paid slight attention to the architecture and irrigation technology that worked in isolated villages of Sri Lanka. The traditional village of Meemure, sitting on the edge of the Knuckles mountain range, which is linked with many places related to Ravana legend, is located adjacent to the Ududumbara Divisional Secretary's Division in the Kandy district of Central Province, distinguished by cultural, historical, and environmental diversity. In exploring the history of settlement in the traditional village of Meemure, the villagers provided evidence that this area was occupied several times. Firstly, in the oldest version, the area is associated with the Ravana legend, while later; it is believed that the Dandeni paddy field was cultivated at the latter stage of the Anuradhapura period to provide alms to the venerable Maliyadeva Thero (161-137 CE) and other monks leaving the area.

Villagers maintain that people from Dandeni field and other small villages settled around Meemure. Such a view proposed by the villagers is that in the Kandy period, the village of Meemure was a protective village for the daughters of King Sri Wickrama Rajasinha. Based on this piece of information, it seems clear that Meemure and the surrounding areas have existed demarcating that as a settlement that provided protection and sustenance for monks and royalty since ancient times. In order for the rural population in Meemure to provide alms to monks and royalty, they had to have surplus production, which in turn meant they were supposed to have higher productivity. Contemporary architectural evidence suggests that the people of Meemure had certain technological strategies regarding water management in their farmlands and minimizing crop damages caused by animals. Even today, constructions for houses, stone walls, and irrigation activities captured in the architecture are still identifiable, which indicates their local knowledge still endures in this modern time. From time immemorial, their connections with other regions have been very limited. In their own words, the villagers revealed that their travels outside of their village were necessitated by the need to procure only salt,

pottery, iron, and clothes. Thus, it indicates that they produced all their needed food and other raw materials from within the Meemure village itself. Hence, they must have had knowledge about water management systems and irrigation to produce food within the village. Very little information is available regarding the architecture of rural technological constructions in Sri Lanka in primary sources. The primary sources like the Mahavamsa, Dipavamsa, Thupavamsa, and Pujavaliya tend to concentrate on the royal and noble constructions. A study to gather data about these isolated rural constructions which have not been mentioned in any literary texts is needed.

Research Methodology

The study area of Meemure village is situated adjacent to the Minipe Divisional Secretariat, bordered to the south by Kaikawala village, with Mount Lakegala to the north and the Matale district to the west. The landscape of Meemure is distinguished by numerous scattered ancient stone constructions, which are integral to its cultural and architectural heritage. This research prioritizes a systematic investigation of these stone structures to elucidate their typology, function, and historical significance.

To achieve these objectives, a qualitative methodology was employed, combining ethnographic interviews with architectural field surveys. Semi-structured interviews were conducted with local residents to identify the precise locations of the stone constructions, document the vernacular names attributed to these structures, and capture indigenous knowledge regarding their unique features and traditional uses. This community-based approach ensured the incorporation of oral histories and local perspectives into the research framework. Following the interviews, a purposive sampling strategy guided by local informants facilitated targeted site visits. A random exploration methodology was adopted to further investigate and verify the existence of sites mentioned by the villagers. During fieldwork, detailed documentation was conducted, including the creation of scaled site plans, high-resolution photographic records, and geographical mapping of each monument. Special attention was given to the spatial distribution, architectural typologies, material composition, functional classification, and current physical condition of the stone constructions.

The collected data were systematically catalogued and subjected to qualitative and spatial analysis to interpret patterns related to the cultural landscape and technological practices of the region. This mixed-methods approach aligns with

accepted standards in heritage documentation and architectural archaeology, allowing for a comprehensive understanding of the monuments in their environmental and social context. The methodology ensures rigorous data collection and analysis, contributing to the conservation and scholarly discourse surrounding Meemure's ancient stone constructions.

Library Studies

Prior to making field visits, the study area was understood through the use of acre and metric maps to form a mental image of the region. This then provided information on settlements, agricultural land, and other lands of the area. Observing maps also made it possible to understand how much the area under study changed after the development of the Meemure village. Literary sources like the Mahavamsa, Pujavaliya, Saddharmalankara, and other writings were used to get a short assessment of the political history of the area and of the multitude of place names. Even so, it did not yield direct information with regard to Meemure village; thus it was impossible to identify precise information pertaining to the history of Meemure. Historical information was gathered from subsequent works and research from both local and foreign authors, in addition to ancient records. Agricultural reports and the resource profiles and annual reports released by the Ududumbara Divisional Secretary were used to gather current information concerning Meemure. On top of that, several other writings pertaining to Meemure and its surroundings were perused down in order to catch information about the village. Among these, "An Archaeological and Anthropological Study of Meemure" and "Ancient Irrigation Technology of the Mahaweli Valley" were employed to examine the area's history and ancient irrigation technology, and the book "Land Use Planning" was used to outline land use and planning in the Meemure village.

Research Stages

The research on Meemure village's ancient stone constructions drew upon a multidisciplinary approach that integrated historical, archaeological, and folkloric sources, alongside previous scholarly analyses and interpretations. The study utilized a combination of non-field and field research methodologies to ensure a comprehensive understanding of the sites and their cultural significance.

In the non-field studies, extensive map analysis was conducted to contextualize the spatial distribution of the stone constructions. Literary sources, including

traditional folk stories and travel accounts, were reviewed to gain insights into the cultural narratives and historical context associated with the area. Additionally, ancient records, administrative documents, and agricultural resource profiles specific to the region were examined to supplement the understanding of past land use and settlement patterns.

Field studies formed the core of the archaeological research methodology, emphasizing direct observation and documentation through systematic field exploration. The primary technique employed was field walking, deemed the most effective method for accessing and surveying sites lacking vehicular road access and for closely observing the surrounding environmental context. This method facilitated the identification of previously unrecorded archaeological sites across the village landscape. Initial fieldwork was preceded by consultations with local residents to pinpoint potential monument locations. Subsequent visits allowed for detailed photographic documentation and schematic drawing of the sites to capture their physical characteristics and conditions.

Complementing the physical survey, structured interviews with local elders provided valuable oral histories and traditional knowledge related to the region's settlement patterns, irrigation systems, agricultural practices, and construction technologies. These qualitative insights enriched the interpretation of the archaeological findings. Measurements taken during field exploration were later used to produce refined site plans using AutoCAD software, while the collected data underwent rigorous qualitative analysis to interpret cultural and technological aspects of the stone constructions. This integrated methodology aligns with established standards in archaeological and heritage research, ensuring a thorough and contextualized understanding of Meemure's ancient architectural heritage.

Problem Statement

Among the architecture scattered around Meemure, many stone constructions show irrigation technology, some agricultural and others of different uses, all of which have remained intact beside the constructions since they were built. The architectural constructions that have existed for years are still in function today. Due to their inaccessibility, little attention has been paid to these constructions by researchers. Even though various authors have written numerous books about the village of Meemure, no studies have systematically looked at the architectural constructions of the area with the same sensitivity. Such researches are being

conducted to study the nature and technology of the architectural constructions, along with the understanding by locals of alternative means of overcoming this situation.

Primary Objective

The primary objective was to document the proper historical information and archaeological value of architecturally significant monuments made of stone in Meemure village.

Current archaeological research on ancient Sri Lankan heritage has revealed information about two types of construction parties.

1. Constructions by Royals and Elites
2. Constructions by Villagers

In light of so many studies on constructions by royals and elites, there are just a handful of studies dealing with architectural constructions from rural settlements. One such rare study, however, would hardly exist if it dealt with architectural constructions found solely in isolated rural settlements! The architectural value of rural irrigation constructions, agricultural constructions and other stone constructions are the focus of this study. Set in the mountain range of the Knuckles, the isolated settlement of Meemure stands as an example of one most heritage sites to have preserved rural heritage up to the present the stones of which still stand. Yet, given modern globalization, the old rural heritage has been blasted away so badly that there is no serious study dated when those stone constructions of these turned villages. The research from the village of Meemure aspires to draw out the knowledge on the technology, raw materials, and craft of traditional stone constructions in this village of Meemure and socialize what heritage the Meemure villagers have. When documenting all identified archaeological sites, surface artifacts from the land are first identified and then compiled into that catalogue for them to understand series of ancient conditions paving the way towards a detailed study of which precise historical time frame the items belong to. This should create new ways towards wider scholarship, based on the given information.

Objectives of the Study

This study, titled “An Archaeological Study of Traditional Architecture in Meemure Village,” has one main objective and several sub-objectives to be accomplished.

Main Objective

- To identify the nature and technology of architecture in the 19th century CE, and how regional knowledge was applied.
- Specific Objectives
- To identify what conservation methods are currently used to protect ancient heritage and what technological factors influenced the use of these methods.
- To propose policy and action development opportunities for the conservation of ancient rural irrigation technology.

Analysis of Sources

While research on irrigation technological constructions in isolated mountain villages in Sri Lanka has been sparse, studies on tank-based irrigation systems have been ongoing in the dry zone of Sri Lanka. According to Henry Parker, ancient irrigation constructions across the country are indicative of ancient civilizations in Sri Lanka, except for a few areas in the mountainous districts, which are stated in “Ancient Ceylon,” published by Nissanka Perera as “The Chronicle of the Country from the Settlement of Ancient Lanka to the Era of Tanks and Stupas.” Reservoirs were constructed for agricultural irrigation in this method; otherwise, dams were built across rivers to lead water to distant cultivation lands in the second method (Perera, 2008: p.5). Agriculture has developed with the existing culture from the 6th century BC, and that would somehow have been a water-powered model civilization. Facts concerning the inception and evolution of large-scale irrigation in the Mahaweli Basin are also mentioned in this work (Gunawardena, 2005, p.27). In “Ancient Sri Lankan Irrigation,” written by Chandana Rohana Vithanachchi, the evolution of irrigation in Sri Lanka’s dry zone and technical aspects of tank-related structures are observed; a special feature in this text is the writing about technical functionality of stone-built structures for sluices and spillways. While there have been abundant studies about large systems, rural irrigation systems have attracted no such studies from either local or foreign researchers (Vithanachchi, 2017, pp. 1-5). Based upon that, this study is based on stone constructions for irrigation and other kinds of construction in traditional Meemure village—a rather far-flung corner in the Knuckles mountain range.

Limitations of the Study

A researcher utilizes varied methodologies and strategies to gather information essential to a successful research study, investing lots of time and effort in

performing research. Certain limitations cause hindrances to researchers in research. The present research confronted certain major limitations. Though there were many stone architectural constructions in Meemure village, insufficient funds and the preset time of three days did not provide an opportunity to study all the sites. Meanwhile, while on the research days, the arrival of the northeast monsoon rains on the sites made activities difficult during the evenings due to heavy rain. However, such rainy situation offered the opportunity to observe how the irrigation system of the concerned area worked in rain. Since many stone constructions are dispersed all over the area, people available for research were insufficient; thus, it was impossible to do proper exploration in every site. It was difficult to get correct dates as there were no people who know proper information about the architectural creations constructed by the rural community that lived in the region in the past. Since no one had conducted scientific research based on this area, it was difficult to provide accurate dates. This would need the excavation activities at various sites within the area to get accurate dates; without conducting these excavations through this research, they could not obtain the detailed- examined places' precise dates. Archaeological studies reconstruct the past using present material evidence; however, this research has given information that derives from-the observations-a point pertaining to the nature of stone constructions.

The Architectural Characteristics of Stone Constructions in Meemure Village

Humans have journeyed from their origins to the present day, continuously adapting and evolving alongside their environment. Throughout this journey, humans have faced numerous challenges. In the early stages, humans without sophisticated tools survived by gathering and hunting, and later developed temporary settlements and social structures. These nomadic communities gradually integrated technological advancements and social organization, transitioning into more complex civilizations.

Humans have progressively developed the ability to observe, analyze, and make decisions that impact their environment. From the earliest times, humans have been modifying their surroundings to suit their needs. Consequently, small agricultural communities began transforming landscapes, developing agricultural practices that reshaped ecological systems. These agricultural communities, utilizing water resources and adapting to various terrains, established sustainable living strategies.

Indigenous communities developed sophisticated water management techniques, carefully transporting water to necessary locations and maintaining

ecological balance. This process of environmental adaptation and resource management can be observed in the historical development of human societies.

This research aims to conduct a comprehensive analysis of the research findings, exploring,

- Environmental transformations through technological innovations
- Indigenous water management practices
- Geographical adaptations
- Ecological systems
- Natural resource utilization
- Landscape modifications

The erosion barrier

The erosion barrier has been built at a lower level than the boundary fence, and this barrier has been constructed about one foot high from the ground. The main purpose of this is to prevent soil erosion from the land (see Photo No. 04).



Photo 01: Erosion barrier

According to the local people, the introduction of stonewall structure and stone barriers to technology cannot be fully described. “We observed our fathers constructing stone walls, and in our youth, we labored to build stone walls with our fathers, on ours and on lands of our friends, hence from that experience, we

construct stone walls” (Interview 10). Conversations revealed that building a stone wall is laborious, and the few who were to take the lead in having done this in the area. So, “In the past, we would invite a few people experienced in building stone walls by offering them betel leaves; although the stone walls were prepared based on friendships in the past; nowadays, such stone walls can be prepared either through friendships or by purchasing the necessary labor for a daily wage” (Interview 11).

Architectural Features of the Irrigation System

The irrigation system in the rock constructions of Meemure village is one notable feature underlined as an important architectural construction in the area. The Meemure village, which has developed over many years with farming, is characterized by an irrigation system, which is working as the heart of the farming community. Water is then carried along in streams through an irrigation system made from rock and directed to the paddy fields. The peculiarity about this irrigation system is that it was built out of rock. Unfortunately, concrete and cement have been used in later renovations. Since the past to the present, there have been paddy fields cultivated both in Yala and Maha seasons by utilizing the rains from the Northeast and Southwest monsoons in their village of Meemure. Several paddy fields can be seen in this village. Special about these paddy fields is that specific names have been given to them-from long ago. Notably, some names given to these fields go back to the ancient paddy fields that relate with the historical narrative of Meemure village. For instance, you’ll find one such example in the Kahatgaha paddy field. According to the information provided in the following table, the arrangement of the paddy fields ranges from higher elevation to lower elevation in Meemure.

Names of Paddy Fields in Meemure Village

<i>Paddy fields located on this side of Dimbigolla Stream</i>	<i>Paddy fields located on the other side of Dimbigolla Stream</i>	<i>Paddy fields located below Suriya Arana</i>
Dalkgolla Paddy Field	Wekada Paddy Field	Dadugolla Paddy Field
Gamwela Paddy Field	Udaliadda Paddy Field	Gonagolla Paddy Field
Nuge Paddy Field	Palleliadda Paddy Field	Batalhena Paddy Field
Kendagolla Paddy Field	Madugaehalla Paddy Field	Gorakattawa Paddy Field

There are two main methods by which water is supplied to the paddy fields in Meemure village. The first method is rainwater from the sky. The second is irrigation constructions built by blocking streams. It is notable that all these constructions have

been built using only rock. Accordingly, water for the paddy fields in Meemure has been obtained by blocking the Dimbigolla or Meemure Stream at three locations.

Dalkgolla Paddy Field

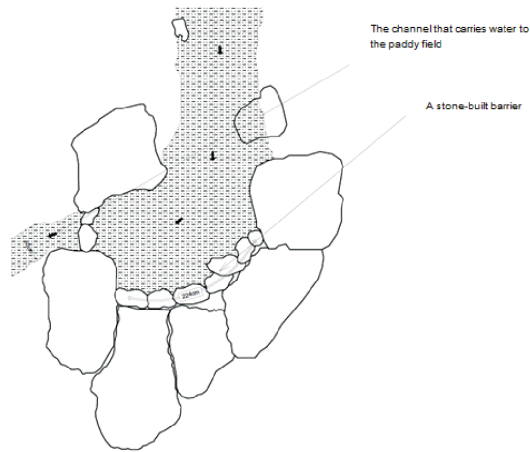
This paddy field is the highest located paddy field in the Meemure village. Water is directed to the paddy field by temporarily blocking the Dimbi golla Stream with a stone barrier at a point above the upper field. The sides of the canal built to obtain water have been magnificently finished by using black stones, which minimizes erosion of the canal banks by water. The water obtained in this way flows systematically from the upper field down to the lower field.

Technology

In that context, one could identify a very primitive technological method, and the emphasis upon its logical application is vital. A few small black stones and flat stones are used for preparation of this barrier. Because they are small, the barrier will break under rapid stream flow, letting the water go down downstream along the stream (refer to Photo No.05, Plan No.02). Thus, superfluous water does not reach the paddy fields. Hence, knowledge applied in this perspective allows for the regulation of the flow of water to the paddy fields, whereby the water collected in the upper field flows from terrace to terrace down to the lowest terrace, thus helping in the provision of water to all the paddy fields. Furthermore, it is always built with the outlet to be a little bit above the level of the terrace of the paddy field so that only after satisfying the requirement of water in the field does the water flow to the next one.



Photo 02: The location where the stream is blocked above the Dalkgolla paddy field



Plan 01: Plan of the location where the stream is blocked above the Dalgolla paddy field

The paddy fields in Meemure village are located in areas adjacent to the Dimbigolla Stream. When observing the paddy fields in this area, a stone wall built around the paddy fields can be observed, and the main purpose of building this stone wall has been to prevent damage to the paddy fields from animals. Only rock pieces have been used to build the stone wall. Accordingly, when building this stone wall, two naturally positioned rocks have been used as supports, and wedge stones have been placed to prevent the rocks from sliding and moving while placing the rocks on top of each other (see Photo No. 06).

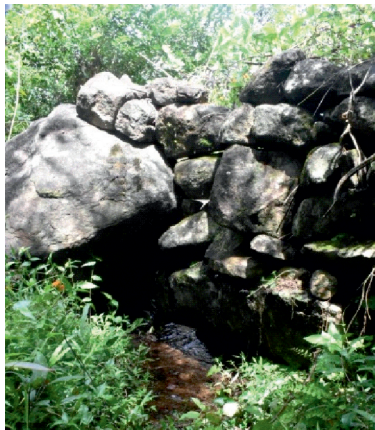


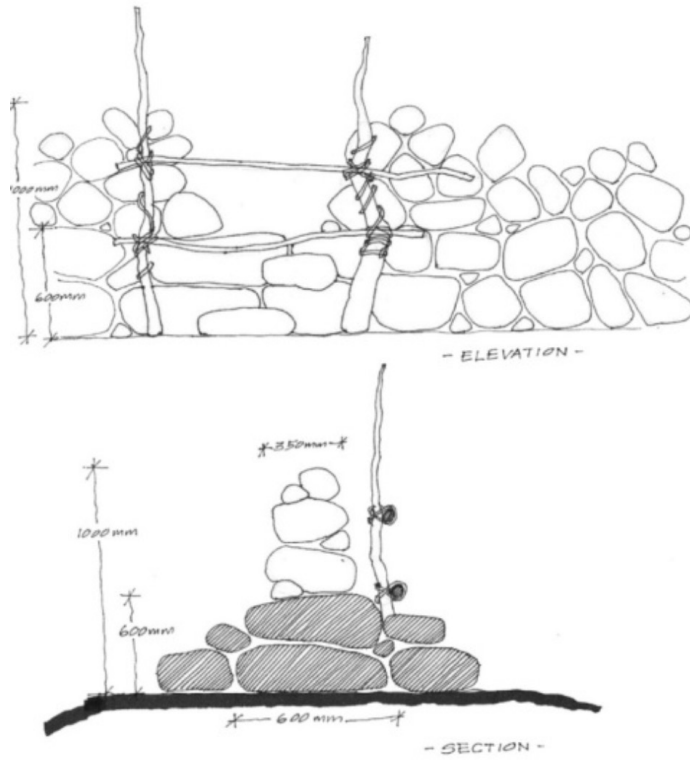
Photo 03: The location where water enters through the stone wall above the Dalgolla paddy field

Such stone walls are unique in that cement has never been used in their construction. The wall was more of a security detail because it maintained functioning between agriculture and cattle travel. Agriculture in Meemure village is confined to both Yala and Maha seasons; in case rainfall is less than required, they may not cultivate the whole area but only the paddy fields from where water can be drawn from the stream. That is to say, in such instances, they will only cultivate the paddy fields at the lower parts of the field. During this time, cattle roam freely in the upper fallow fields. They have constructed a stone wall separating the Dalk paddy field and the Gamwela paddy field with a gate in between. Once that gate is closed, after cultivation of Gamwela in the Yala season, the cattle have no entrance to Gamwela because of the stone wall and gate (see Photos No. 04 and 05) (see Plan No. 02).



Photo 02: Front view of the stone wall and gate separating Gamwela and Uda paddy field

During the Yala season, the entire paddy field area is cultivated, so the gate in the stone wall above the Dalkgolla paddy field is closed. During this period, cattle are sent to the forest. Accordingly, until the Yala season ends, cattle are not brought back to the village, and the cattle graze in areas near the forest and in places where food is available. During this period, cattle owners go to the forest to check on the location and condition of their cattle (see Photo No. 09).



Plan 03: Plan of the stone wall and gate separating Gamwela and Uda paddy field



Photo 08: Rear view of the stone wall and gate separating Gamwela and Uda paddy field



Photo 09: Stone wall separating Gamwela and Uda paddy field

Large Canal Flowing Through the Middle of the Paddy Field

This canal carries small streams originating from the mountain range above the village and rainwater falling on the mountaintop during the rainy season to the Dimbigolla Stream or Meemure Stream, passing between settlements and paddy fields. This canal becomes active during the rainy season. During periods without rain, only a very small stream flows through this canal. The uniqueness of this canal is its design technology. The depth level of this canal varies from place to place, with the maximum depth being 145cm and the width 85cm. When traveling from Meemure Temple towards the Meemure Bodhi tree, a bridge is encountered, and in the past, a flat rock was used to construct this bridge. However, because concrete has been applied over this flat rock in the present day, this flat rock cannot be seen. The canal coming from the mountaintop crosses the road at this location. The total length of this canal is about 350 meters, and stone blocks have been used for the walls on both sides of the canal, and flat stones for the bottom of the canal. It is a special feature that due to the technology of using rocks for the canal, even a heavy water flow does not erode the sides and bottom of the canal. Furthermore, because the faces of the rocks have been systematically shaped to connect with each other, water does not travel through the gaps and cause erosion on the sides of the canal (see Photo No. 10).



Photo 10: Canal falling through the middle of the paddy field

Because the people in the area have not repaired the broken parts of this canal system, it was observed that rocks in the canal wall have now separated. A main factor contributing to this situation is that a main tourist route to this area passes over the canal banks. Due to frequent travel over the well-prepared wedged rock blocks in the past, the wedge stones have loosened, and small rock blocks have moved and separated. The tourist industry is accelerating the destruction of this stone wall (see Photo No. 11).



Photo 11: The way rock blocks have separated due to the removal of wedge stones

Technology for Conveying Water from Meemure Stream to Gorakattawa Paddy Field

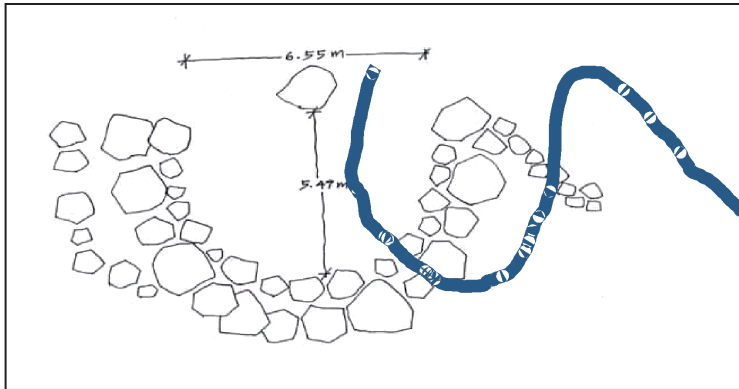
The Dimbigolla Stream or Meemure Stream is blocked in a crescent shape above Suriya Arana, and water is systematically carried over a distance of more than a kilometer, utilizing the natural placement of the land, to provide the necessary amount of water to the Gorakattawa paddy field through this canal (see Photo No. 12, Plan No. 04). The method they used to carry this canal over a distance of more than a kilometer is to vary the placement of the land and the size of the canal. Accordingly, the canal is wide at the starting point, and the concrete dam at the starting point has a small opening, and about 50 meters from the opening, the canal widens again. After another 20 meters or so, the canal narrows. The size of the canal has been systematically changed according to the slope of the land to bring water to the Gorakattawa paddy field.



Photo 12: The location where the stream is blocked above Suriya Arana

Technology for Providing Water to Gorakattawa Paddy Field

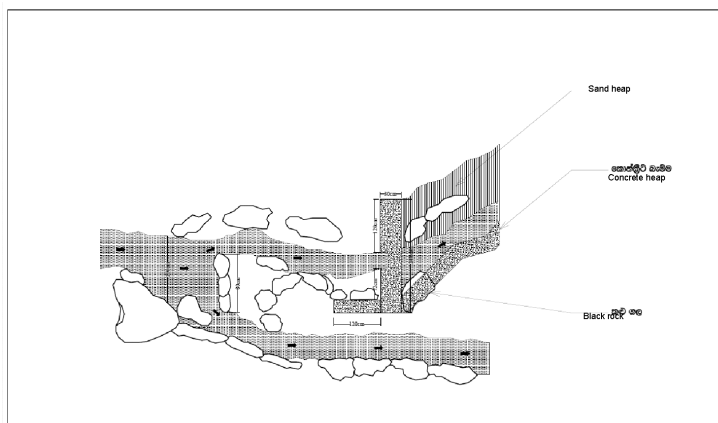
The water obtained by blocking the Dimbigolla Stream above Suriya Arana flows downstream parallel to the Dimbigolla Stream, and about 100 meters from the place where the stream is blocked, the diverted water flow is again divided into two by



Plan 04: Plan of the location where the stream is blocked above Suriya Arana

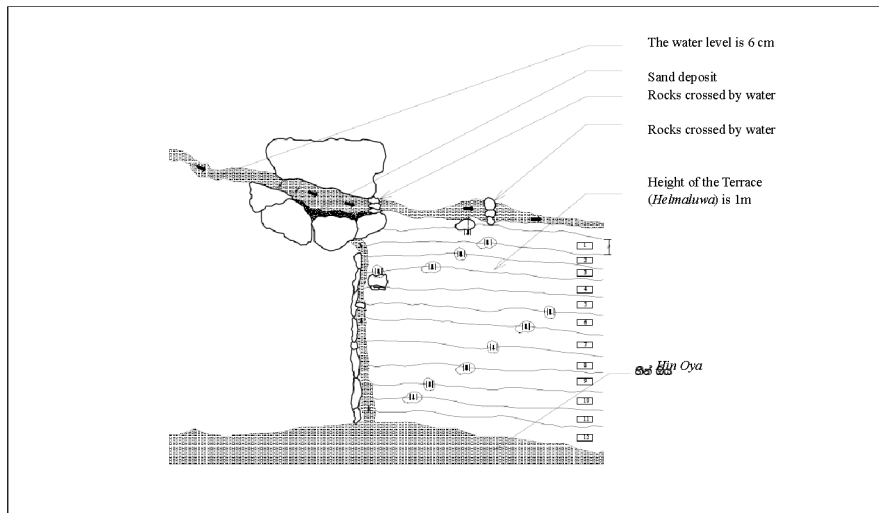
placing three stones to block the small canal. At this point, the water needed for the paddy fields is taken through a concrete opening, and the excess water rejoins the Dimbigolla Stream. They have used only three medium-sized rocks to obtain the necessary water and to redirect the excess water. The width of a rock used to block the water flow is 24cm. Although this appears to be a simple technology, when the resistance of the diverted water flow increases, the placed rocks overturn. This prevents an excessive amount of water from entering through the concrete opening.

The canal that brings water over a distance of more than a kilometer to the Gorakattawa paddy field is blocked near the paddy field using three rocks, dividing the water flowing along the canal into two. The technological method discussed above has also been used for this. Through the use of this technology, the residents of Meemure have been able to achieve greater efficiency at a lower cost (see Plan No. 05).



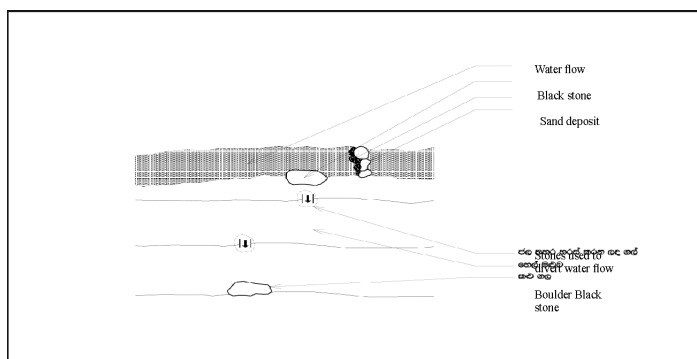
Plan 05: Rough plan of the location where the canal is blocked above Suriya Arana

Although the Gorakattawa paddy field is located parallel to the Heen Stream, water cannot be easily obtained from the Heen Stream for the Gorakattawa paddy field. Therefore, farmers obtain the necessary water for the paddy by blocking the Dimbigolla Stream and bringing it via a canal. This water flow, which comes adjacent to the Gorakattawa paddy field, is blocked using three stones to provide water to the fifth field from the bottom of the paddy field. The other water flow continues forward to supply water to the upper field (see Plan No. 06).



Plan 06: Rough plan of the Gorakattawa paddy field and irrigation system

During the observation of this paddy field, several special technological features were identified. Among them, the method of supplying water to the entire paddy field takes a prominent place. A simple technological method has been used for this. Accordingly, the outlets of the fields have not been placed in a single row but in different places. Based on this arrangement, water is supplied to the entire paddy field. Furthermore, 12 terraces can be seen in the Gorakattawa paddy field, and they provide water to these terraces from two locations. Accordingly, water is supplied to the paddy from the topmost terrace and the fifth terrace. When the water collected in the fields exceeds the required amount, it flows to the adjacent field. Because the terrace of this paddy is more than a meter high, erosion could occur at the spot where water falls from the upper field to the lower field. To prevent this, a flat rock has been placed at the spot where water falls in the lower field. Because the water falls onto the flat rock, the paddy field does not erode (see Plan No. 07).



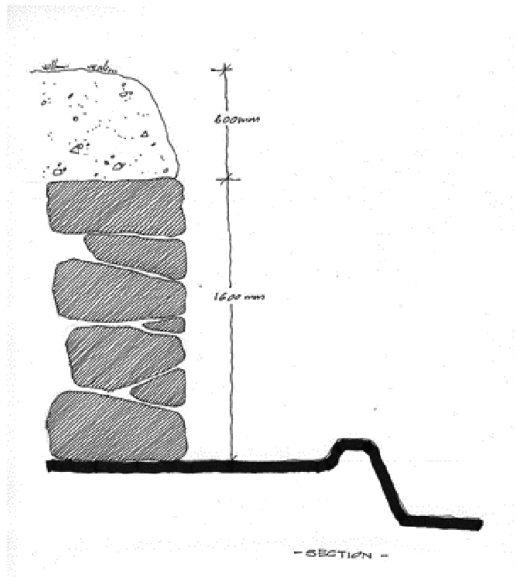
Plan 07: Rough plan of the location providing water to the first field of Gorakattawa paddy field

Terrace Construction Technology

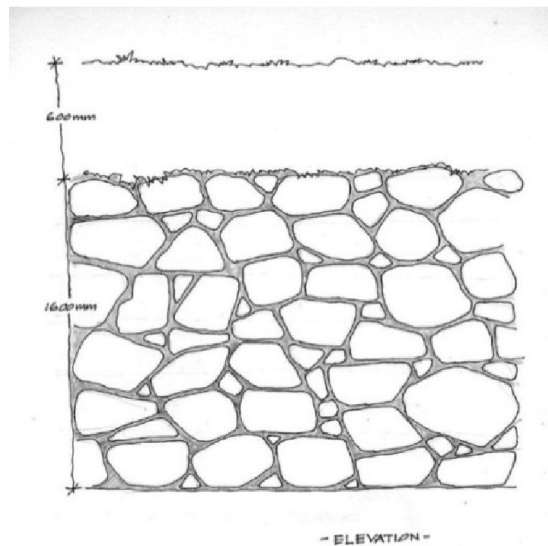
Terrace farming is a popular agricultural method for cultivation in mountainous areas of the island. Accordingly, unlike in flat lands, paddy fields do not naturally exist in mountainous areas, and the natural land has to be artificially modified to create terraces. Within the Meemure village too, about 125 acres of such terraced paddy fields, constructed since ancient times, are cultivated in the present day. When preparing terraces, when a terrace was narrow, large rock blocks were placed to widen the narrow terrace. In this process, the terrace has been created by connecting points of equal height according to the contour lines. In some places, where there is a height of about six feet from the upper terrace to the lower terrace, a staircase has been created by using stone steps, allowing access to the lower terrace (see Photo No. 13, Plans No. 08, 09)



Photo 13. A location with a staircase to descend from a spot where a narrow terrace has been widened using rocks



Plan 08: The way rocks have been used to widen a narrow terrace



Plan 09: The way rocks have been used to widen a narrow terrace

Although people who lived in the past constructed such magnificent structures, because the current generation does not continue to maintain these constructions, stone walls used to widen terraces have collapsed in several places (see Photo No. 14).



Photo 14: A location where a stone wall used to widen a narrow terrace has later collapsed

Conclusion

The unique geographical and topographical characteristics of the Knuckles Valley have profoundly influenced the social and cultural evolution of settlements within the region, resulting in distinctive historical settlement patterns that date back to ancient times. The current community of Meemure, comprising 115 families and a population of 341 individuals, exemplifies this enduring relationship between environment and human habitation. Of these families, 65 continue to rely predominantly on agriculture, reflecting the deep-rooted significance of farming as a traditional economic activity. Despite ongoing cultivation efforts, the community has faced challenges in fully transforming the Knuckles Valley into a highly productive agricultural landscape due to the inherent environmental constraints and the limitations of traditional farming practices.

Throughout their history, the people of Meemure have developed unique technological adaptations that facilitate effective land management and agricultural production. This research has highlighted the community's innovative use of tools and techniques for land demarcation, water transportation, and the construction of agricultural implements, which demonstrate a gradual yet significant technological evolution. The architectural forms of these early structures, originally built by manual methods and later enhanced through technological interventions, manifest a unique cultural heritage and sophisticated knowledge of local environmental conditions.

Agriculture and handicrafts remain the primary economic activities, with families continuously adapting their land use strategies to minimize resource

limitations and sustain livelihoods. Notably, water management systems in the settlement exhibit inventive design principles, utilizing indigenous materials and simple yet effective water channels and reservoirs to capture and channel water seasonally. These water management strategies underscore the community's intimate connection with the natural environment and their ability to adapt to its cyclical rhythms.

However, a critical concern arising from this study is the declining awareness among the younger generation regarding the historically embedded technological practices. The absence of comprehensive research and systematic documentation has exacerbated the risk of losing invaluable cultural and technological knowledge. This gap poses significant challenges to fully understanding the settlement's historical development and transformation. The paucity of detailed archaeological and historical records limits the ability to reconstruct a complete narrative of Meemure's past, highlighting the urgent need for further scholarly attention and preservation efforts to safeguard this unique cultural heritage for future generations.

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Interviews

1. Ekanayaka Mudiyansehalage Palle Gedera Nawarathna Banda, age 56, 15/C Meemure. Education up to 7th year.
2. Namalgedera Mudiyansehalage Punci Banda (60), Kahatagehagera, Meemure. Passed 11th year.
3. Ekanayaka Mudiyansehalage Palle Gedera Nawarathna Banda, age 56, 15/C Meemure. Education up to 7th year.
4. E.M. Hin Banda, age 76, Indigenous Physician, Dandeni Kumbura.
5. E.M. Ranmenika, age 68, Widow, Meemure village. Education up to 4th year.
6. Namalgedera Mudiyansehalage Punci Banda (60), Kahatagehagera, Meemure. Passed 11th year.
7. Namalgedera Mudiyansehalage Punci Banda (60), Kahatagehagera, Meemure. Passed 11th year.
8. Namalgedera Mudiyansehalage Punci Banda (60), Kahatagehagera, Meemure. Passed 11th year.
9. Ekanayaka Mudiyansehalage Palle Gedera Nawarathna Banda, age 56, 15/C Meemure. Education up to 7th year.
10. Udagedera Appuhami (66), Udagedera, Meemure. Education up to 4th year.
11. Udagedera Appuhami (66), Udagedera, Meemure. Education up to 4th year.
12. Ekanayaka Mudiyansehalage Samarakoon Banda, (Chairman of the Swashakthi Farmers' Organization in Grama Sevaka Division 893).