



The Role of Built Heritage in Sustainable Rural Development: A Key Factor in Spatial Planning of Rural Areas

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Abstract

This research paper's main objective is to present the current status of the residential Built settlement in the rural areas of the Chettinad region in Tamil Nadu, a state rich in heritage, religious, and cultural aspects in India. The research paper also correlates the traces of human life (socio-cultural and economic) and communities' perception of built heritage in Rural areas. For this purpose, studies have been conducted on two of its villages which have been recommended as heritage villages by the state government in UNESCO's tentative list. In this study, a mixed study approach is followed using both a visual survey and questionnaire survey as the study tools. The main objectives of this study were to determine the public reaction toward the conceptual framework to be designed for an ideal sustainable heritage-based village. Secondly, through the empirical and quantitative data analysis to capture the hurdles and identify the gaps that affect the resident's understanding and their perception of developing their villages. The paper also uses GIS as a software tool for a better understanding and cataloging of the built heritage in a holistic manner.

Disciplinary: Building Architecture & Town Planning, Settlement Study; Heritage Management, Sustainable Rural Development, GIS.

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1 Introduction

The influence of architecture and built structures lies in their ability to shape human understanding and community togetherness. The architecture and the built form greatly impact the

perception of the observers and the residents. Human experiences are varied and are subjective towards different people which become rather difficult to quantify [1]. Conservation and protection of a settlement and understanding of the values practiced by the local community help in preserving the heritage character of rural areas [2]. Many reasons resulted in the disappearance of heritage villages, except for urbanization, such as out-migration of the youth for better jobs, and a requirement for more quality living conditions which the current conditions of these villages cannot offer. Heritage village settlement layout can't match the ever-growing traffic congestions, villagers' lack of consciousness and awareness towards protection has resulted in the deterioration of these villages [3]. Historical buildings commonly face neglect for long years, are out of repair and lack basic living facilities. Especially in the needy area, these problems are magnified [4]. While protecting these heritage villages unlike protecting the cultural heritage, needs constant consideration from the residents and the community [5]. The core objective of preserving the village architecture is to keep a community spirit and activity. Along with the architectural fabric of the settlement, it is also very crucial to preserve the overall landscape of the villages, to create a holistic ambiance. It is the core landscape that reflects the functionality and cultural attributes of the local landscape. Rural areas are on the cusp of heritage, culture, and tradition which should be cultivated towards creating a sustainable model [6].

2 The Importance of Rural Heritage in Sustainable Rural Development

The built heritage is the most important parameter that can be considered for the development and transition in rural areas because it has a probability to influence people's perspectives [7]. Heritage can also become a catalyst for the future development and sustainability of a village settlement. It is also indicated in certain research that while enhancing the heritage character of a village, a framework can be devised for people who live in rural zones to make them an integral part of the development process. Additionally, the framework aims to give rural areas a positive, renewed image and to develop a trend for migrating the youth back into these rural areas. It is also indicated that cultural meanings and construction assets such as vernacular construction techniques can be mobilized for rural and regional development, and cultural identities become important for uplifting local economies [8].

3 Study Area

The study area focuses on the Chettinad region which is located in the southern region of Tamil Nadu in southern India. The total area is around 1,550 Kilometers, in a semi-arid plain, comprising 73 villages. These villages have been cataloged in the tentative list of UNESCO. It has a total number of inhabitants of 110,000 Chettiar. Out of the 73 villages, two villages are taken as study areas for the questionnaire survey. The first village taken as a study area is Kandapur with a total population of 3500 inhabitants. The central core area of the villages comprises unique Chettiar houses dating back to the 1900s. The highlight of these houses irrespective of their small size and scale is that they are richly decorated. The second village taken for the study is Rayavaram,

which comprises 5000 inhabitants. The settlement is designed such that the Chettiar houses are layout in four zones around a Shivam temple. The residential houses are designed in the Art-Deco style.

4 Unique Architectural Features-The Art-Deco Style

In the Chettinad region, the unique architectural feature which is prevalent in the construction of the residential houses in the “Art-Deco “style which is also known as the “French Art-Deco Style”. The features consist of heavy geometrical influence upon the facade of the houses. The houses are adorned with loud and vibrant colors along with lots of sculptures in various niches on the façade. These residences were mainly constructed from the 1940’s to the 1950’s. The architectural features represent the influence from both East and West along with their traditions contributing to the uniqueness [9,10,11].

The Chettiar community is majorly comprised of the merchant class, because of their travels, a lot of diverse influence can be observed in their settlement layout [12]. Their villages were designed following the principles of town planning which consists of an intricate water management system, advanced structural system, streets designed in orthogonal pattern, intricate ornamentation, etc. These settlements were built in harmony with Tamil traditions focusing on rectangular plots, and houses with an inner courtyard spanning up to 3-4.



Figure 1: The settlement pattern aligned with street in North –South Axis.

5 Methodology

In the following study, questionnaire survey research is used as a study tool which proved to be a viable method for testing the perception of the community towards sustainable development. The questionnaire was then analyzed in both empirical and descriptive methods of analysis to catalog the hurdles and identify the gaps as stated in Figure 5. Overall, the study reports data gathered from over a hundred survey respondents from a convenience sampling (n=186) and serves as a preliminary attempt at bringing research into ‘sharper focus’ by surveying the public perception of Heritage architecture [13]. The survey deals with a different type of empirical observation, namely the quantification of people’s subjective perceptions of heritage villages. The research also aims to capture the perception and understanding of the concept of sustainability of Heritage Villages. It is also to understand the extent to which people associate with their roots which can be observed through their connection to a particularly built heritage. It is also observed

that through history, certain aspects of built heritage can be viewed as more or less important by the residents, community groups, or generations as the association with the past can be perceived as personal and sentimental.



Figure 2: 1) Art deco style ornamentation 2) Front elevation of the residences showing Queen Victoria Fresco 3) Highly ornate door frames from teal wood 4) Tiles laying imported from Belgium 5) Column Detail 6) Double height courtyards 7) Colorful internal facade.

Table 1: Data collection toward number of Heritage Houses

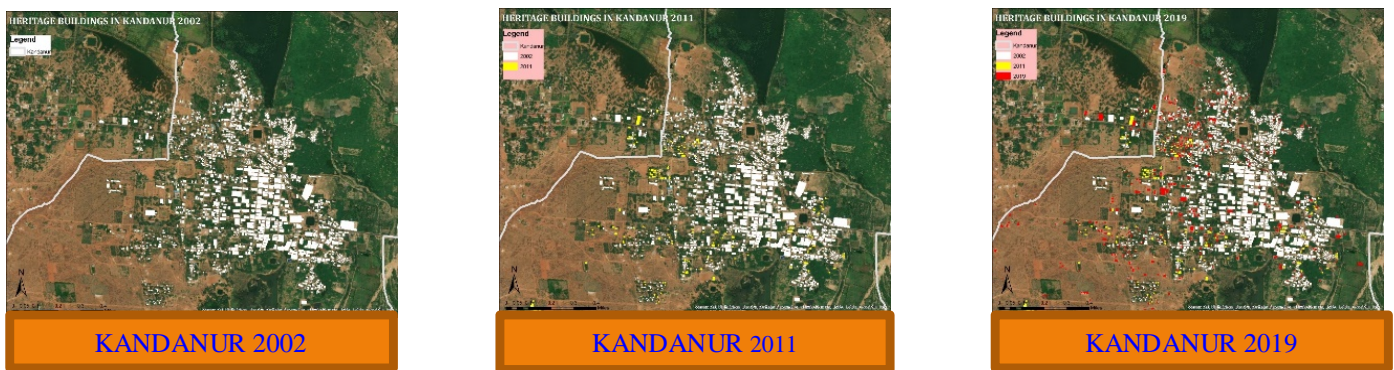
| Item | Kandanur | Rayavaram |
|-----------------------------|----------|-----------|
| Total Residential Buildings | 2647 | 1202 |
| Heritage Building | 342 | 307 |
| New Construction | 2305 | 893 |
| Sample Size for Survey | 98 | 88 |

A wide spectrum of respondents was taken into account for a detailed understanding of their perceptions. Initially, the house owners of their heritage residential buildings were taken into consideration. Then as the research progressed the questionnaire was also shared with the members of the local panchayat (Local governing body active at the village level). Also, the response was cataloged for the various government officials working in the field of rural development in the ministry of Panchayat raj. The responses of the tourist visiting this village area were also cataloged.

6 Data Collection

A comprehensive site survey was conducted for the area under study forming the historic core, combined with a detailed photo survey of the relevant components in the rural environment

[14]. The well-documented photo survey of the elevations and places of interest facilitated a better understanding of the identified patterns and their locations. Their villages were designed and constructed following accurate and sophisticated design principles of urban planning i.e. orthogonal streets, specific water management system, technical innovation, artistic creativity, approach, etc. These settlements are also built-in harmony with the Tamil traditions of constructing rectangular plots, houses with an inner courtyard which often ranged around 3 or 4 courtyards.



Built settlement growth pattern was captured through a span of three years i.e. 2002, 2011, 2019

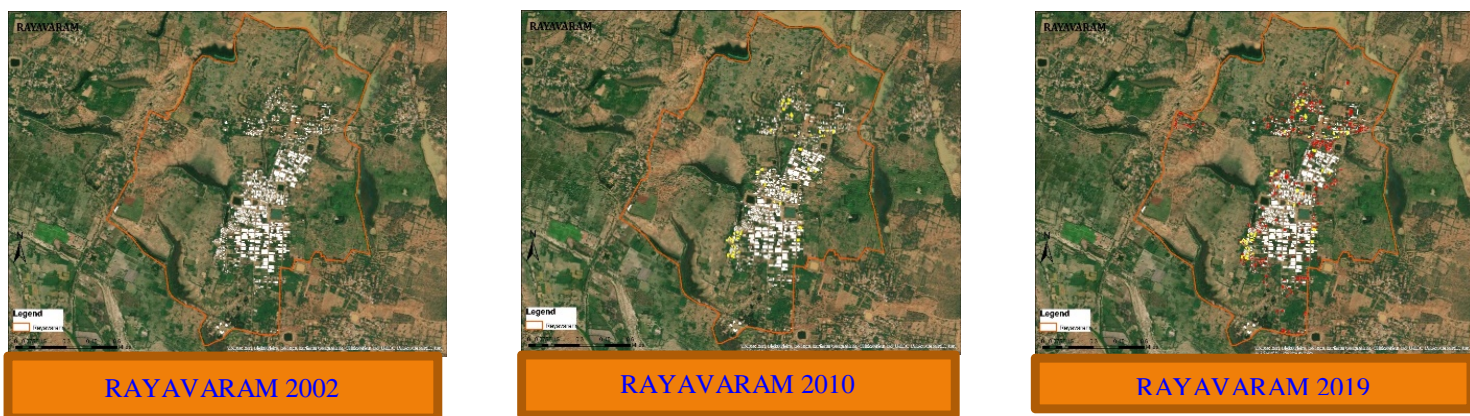


Figure 3: Built settlement growth pattern was captured through a span of three years i.e. 2002, 2010, 2019 with the help of GIS software

To understand the evolution of the rural settlement and to catalog its existence in the rural areas, the help of GIS (Geographic Information System) is taken [15]. First, we created a base map of the spatial database of the two villages. Then we tried to attach specific attributes such as the timeline of the construction, the year of the last intervention or restorations or reconstructions over time, etc. to each vector [16]. The main objective was to identify the residential buildings which were constructed in the vernacular style and which residential buildings were renovated with the material study used in construction [17]. In this way, it was possible to generate a number of maps that emphasize the old village system and the houses which have been abandoned by its residents. This attribute and the database are updated in real-time, and in this way, the government can decide their restoration policies in a more precise way, compared with the traditional methods. The updated data regarding the preservation and conservation status of residential houses represent an important factor in monitoring, protection, and documentation of

local heritage and, at the same time, offer the possibility to involve the people of the local community in heritage management for sustainable development [18].

A detailed questionnaire survey was also conducted based on the parameters derived from the literature study. A total of 186 respondents were interviewed, 98 respondents in Kandapur and 88 respondents in Rayavaram. Statistical analysis is performed by using descriptive and inferential statistics. Pearson correlation was applied to see the relationship between the variables. One-way Anova followed by Tukey's HSD posthoc test for multiple comparisons was applied to see the mean difference between the villages. P-value is less than 0.05 and considered significant at a 95% confidence level. The statistical software SPSS version 24.0 was used in the analysis. The different parameters under which the study was initiated are 1) Economic Viability 2) Infrastructure 3) Heritage 4) Social and cultural Character 5) Governance/ Policy framework 6) Environment 7) Settlement Pattern.

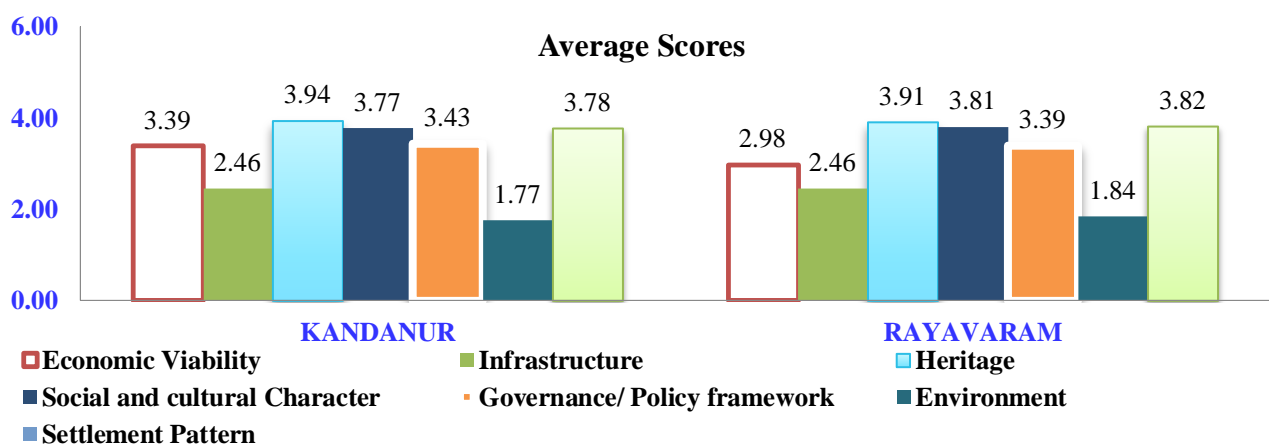


Figure 4: Comparison of the parameters for the heritage village of Kandapur and Rayavaram.

7 Findings

Sustainable development in terms of Heritage is primarily focused on the preservation of monuments. The concept of rural heritage preservation is unknown or rarely taken into consideration in India. While developing any policy or framework, the rich diversity in India creates a hindrance. A common policy or framework cannot be developed due to the rich diversity in the topographical features, socio-cultural fabric, economic resources, climate differences, etc. Therefore, development through preservation can be employed to build up the status of the rural areas, along with their infrastructure, services, and above all regenerating communities.

Economic, social, and environmental dimensions are accepted as the three basic pillars of sustainability on which development is formulated. The sustainability model also focuses on individual development in every aspect. Even though sustainability is a broader term, its ability to force stakeholders such as decision-makers and public authorities, to reflect on how a development is affecting the dimensions of sustainability makes it a valuable model. Heritage has value in rural development. It supports rural sustainability dimensions and adds extra value. The potential of heritage should be exploited during rural regeneration projects which would add value and support sustainability in these villages.

The major gaps identified with regard to the questionnaire survey and objectives of the research are taken into consideration. The research focuses on the different aspects of how the different parameters derived from the literature study are linked and contribute to the research (theory, policy, and practice) in the conservation of built heritage. Through this whole process of research it was to find out the issues that hindered the development of the sustainable built fabric and the factors that act as barriers to the conservation of heritage in rural settlements. The major issues and gaps arising from the study are highlighted in Figure 5.

8 Results and Discussion

By analyzing the spatial distribution of the characteristics of the residential buildings we have obtained a number of historical, social, and cultural landmarks [19]. Thus, by linking the construction year of buildings they should be included in the list of historical construction over time. Most of the intervention works, regardless of their complexity and nature (consolidation/restoration/renovation/repainting), were conducted with financial support from the community members [20]. Figure 1 highlights the growth of the settlements and by cataloging it for three years such as 2002, 2011, 2019 for Kandanur and 2002, 2010, 2019 for Rayavaram. The built is cataloged according to the style of their construction, whether they fall under the heritage category or new construction style [21,22].

Through the descriptive and empirical analysis of the data acquired many gaps were highlighted. Through investigation, it was also established that the built structures (residential houses) can play a prominent role in the development of these villages. A well preserved and high aesthetic quality heritage-based building can add value to the settlement. While analysis it was found to be a major factor to attract tourists and generate economy. The architectural identity of a place can be of high importance and should be definitely be preserved and maintained. These traditional settlements should be developed and encouraged mainly for their culture and their bequest value. Restoration of the heritage features of a place requires a lot of financial input. Mostly it requires a holistic approach such as design proposals that will remove the hindrances and uplift its identity and reveal its hidden or lost architectural marvel. Architectural proposals inspired by the local tradition and history aiming at harmonically uniting the old with the new can ensure a successful regional uplift.

The analysis of the community perception also revealed that a lot of intervention is needed from the government's side. The local community is well developed financially and economically but lacks public spaces for the younger generation. The infrastructure lacked the modern facility and little intervention was done by the authorities towards making these villages a tourist destinations. The number of tourists coming here annually has also reduced drastically due to the lack of modern facilities.

GAPS

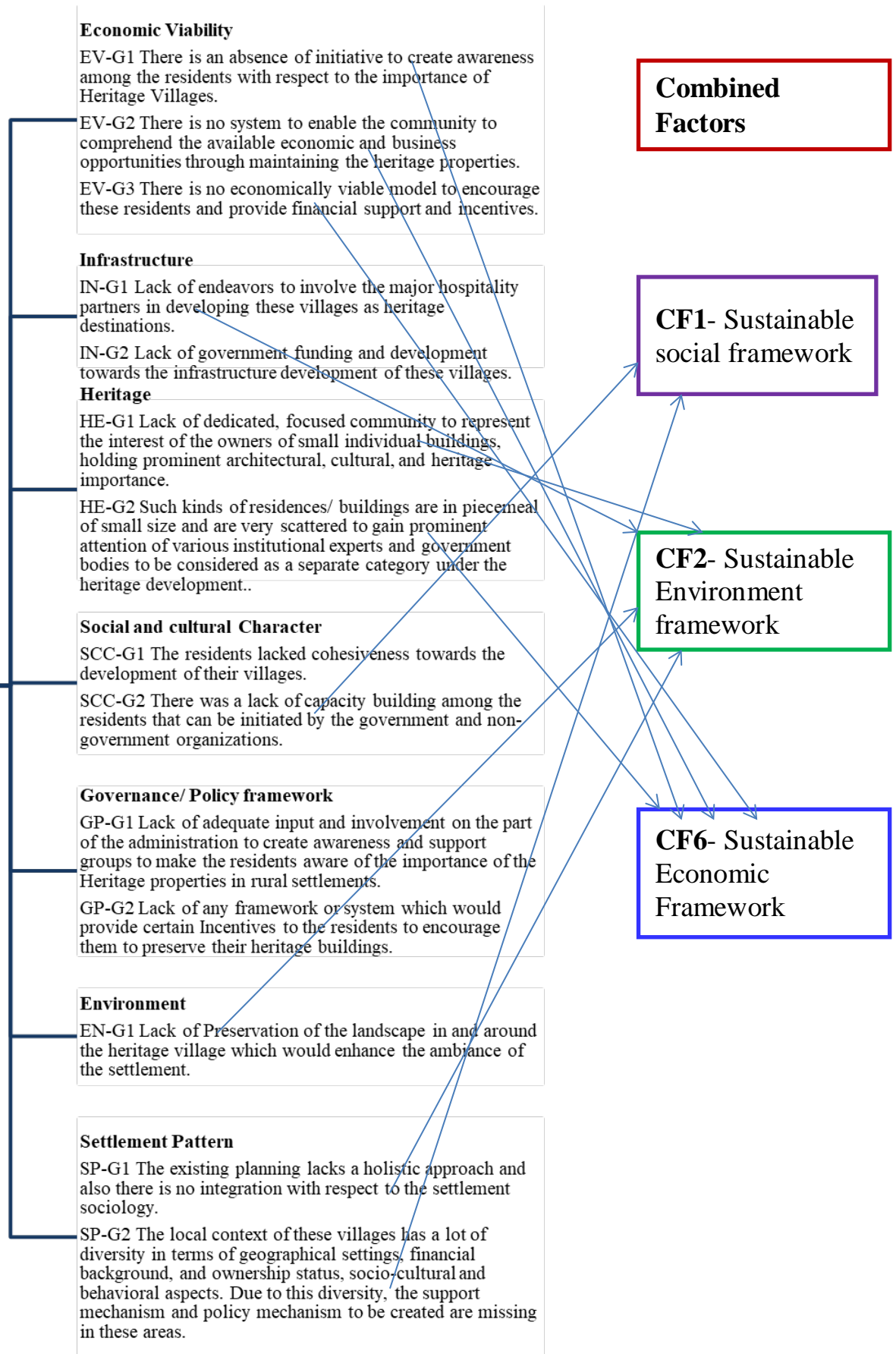


Figure 5: Identifications of the combined factors of the Gaps.

9 Conclusion

Chettinad, a cluster of villages located in the Tamil Nadu state of India, has been identified by UNESCO for their Art-Deco style of residential houses and their settlement pattern. The study

was focused on understanding the status quo of these villages and the residential buildings. Two villages were identified i.e. Kandanur and Rayavaram for the survey. The villages showed tremendous potential in terms of the architectural vocabulary of the residential houses as per the visual survey conducted. Upon further investigating, it was observed that no financial assistance was provided by the state government to maintain and preserve these houses. The community was responsible for maintaining the villages and the allied infrastructure such as schools and roads. It was further observed that the younger generations have migrated to the nearby Urban centers and are not willing to maintain these Chettinard houses. A mixed-method approach was adopted to understand the perception of the community towards preserving the settlement, and it was evident in the analysis that a strategic framework has to be developed by the government for the preservation of these residential buildings along with the community.

10 Availability of Data and Material

The research focuses on a visual survey and questionnaire survey where random residents of the settlements were questioned. Their details are not documented in this research paper. Information can be made available by contacting the corresponding author.

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