

---

# THE ROLE OF BUILT HERITAGE IN SUSTAINABLE RURAL DEVELOPMENT- KEY FACTORS IN SPATIAL PLANNING OF RURAL AREAS

---

Preeti NAIR <sup>1</sup>

Amit HAJELA <sup>2</sup>

Navneet MUNOTH <sup>3</sup>

DOI: <https://doi.org/10.35782/JCPP.2022.3.09>

**Abstract:** *This research paper's main objective is to present the current status of the residential Built settlement in the rural areas of Chettinard region in Tamil Nadu, a state rich in heritage, religious, and cultural aspects in India. The research paper also correlates to the traces of the human life (socio-cultural and economic) and communities' perception towards built heritage in Rural areas. For this purpose, the studies have been conducted on two of its villages which have been recommended as a heritage-village by the state government in UNESCO's tentative list. In this study, a mixed study approach is followed using both visual survey and questionnaire survey as the study tools. The main objectives of this study were to determine the public reaction towards 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 in developing their villages. The paper also uses GIS as a software tool for a better understanding and cataloguing of the built heritage in a holistic manner.*

**Keywords:** *Rural Heritage, Vernacular architecture, Community Participation, Human Perception, Settlement pattern*

---

---

<sup>1</sup> Research Scholar, Amity School of Architecture and Planning, Amity University, Uttar Pradesh, email: [preetinair30@gmail.com](mailto:preetinair30@gmail.com)

<sup>2</sup> Prof. (Director) Amity School of Architecture and Planning, Amity University, Noida, email: [ahajela@amity.edu](mailto:ahajela@amity.edu)

<sup>3</sup> Assistant Professor, Department of Architecture and Planning, MANIT Bhopal India, email: [navneet.munoth@gmail.com](mailto:navneet.munoth@gmail.com)

## **I. Introduction**

The influence of architecture and built structures lies in its 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 the values practiced by the local community helps in preserving the heritage character of rural areas [2]. Many reasons resulted towards the disappearance of heritage villages, except for urbanization, such as out-migration of the youth for a better job, 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, villager lack of consciousness and awareness towards protection have resulted towards the deterioration of these villages [3]. Historical buildings commonly face neglect for long years, out of repair, and lack of 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 of 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 ambience. It is the core landscape that reflects the functionality and cultural attributes of the local landscape. Rural areas are the cusp of heritage, culture, and tradition which should be cultivated towards creating a sustainable model. (Wei, 2015)

## **II. 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 perspective (Courtney, 2006). Heritage can also become a catalyst for the future development and sustainability of a village settlement. It is also indicated in certain researches 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 (Kausar, 2010)

## **III. Study area**

The study area focuses on the Chettinard region which is located in the southern region of Tamil Nadu in southern India. The total area is around 1,550 Kilometre, in a semi-arid plain, comprising 73 villages. These villages have been catalogued in the tentative

list of UNESCO. It has a total inhabitant of 110,000 chettiar's. 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 Kandanutur with a total population of 3500 inhabitants. The central core area of the villages comprises unique chettiar houses dating back to the 1900's. The highlight of these houses irrespective of their small size and scale is that they are richly decorated. The second villages taken for the study is Rayavaram, which comprises of 5000 inhabitants. The settlement is designed such as that the chettiar houses laid out in four zones around a Shivam temple. The residential houses are designed in Art-Deco style.

#### IV. Unique architectural feature -the art-deco style



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

**Figure 1:** Built settlement growth pattern was captured through a span of three years i.e. 2002, 2010,2019 with the help of GIS software

In the Chettinard region the unique architectural feature which is prevalent is the construction of the residential houses in “Art-Deco “style which is also known as “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 colours along with lots of sculptures in various niches on the façade. These residences were mainly constructed in 1940’s to 1950’s. The architectural features represent the influence from both east and West along with their traditions contributing to the uniqueness. (Renganathan, 2018, Thirumaran, 2018, Iniyan, 2015)

The Chettiar community majorly comprised of the merchant class, because of their travels, a lot of diverse influence can be observed in their settlement layout (Pannerselvam, 2016). Their villages were designed following the principles of town planning which consists of 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, houses with an inner courtyard spanning up to 3-4.

Parameters	Images	Architectural Features
Settlement pattern		1. Aligned with the street axis, running from the North to south
Buildings		2. Two Meter raised plinth 3. Flat roof enclosed by a balustrade 4. Double-roof system 5. Chajjas acting as sun breakers 6. Entrance of the house is towards east 7. Courtyard planning
Materials		8. Lime plaster 9. Timber (teak, rose wood, sandal wood, Burmese teak) 10. Porcelain tiles

Figure 2: Showing the “Art Deco Style Houses with Intricate details.  
Source: Pictures taken by the author.

## V. 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 analysed in both empirical and descriptive method of analysis to catalogue the hurdles and identify the gaps as stated in Table 2 (Mahalakshmi, 2017). 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 (Kesavaperumal, 2019). The survey deals with a different type of empirical observation, namely the quantification of people's subjective perceptions of heritage villages. 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 particular built heritage. It is also observed that through the history, certain aspects of built heritage can be viewed as more or less important by the residents, community groups or generations as the association towards the past can be perceived as a personal and sentimental.

A wide spectrum of respondents was taken into account for detail understanding of their perception. 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 village level). Also, the response was catalogued for the various government officials working in the field of rural development in the ministry of Panchayati raj. The responses of the tourist visiting this village area was also catalogued.

**Table 1** – Data collection towards the number of Heritage houses

	<b>Kandanur</b>	<b>Rayavaram</b>
Total Residential Buildings	2647	1202
Heritage Building	342	307
New Construction	2305	893
Sample Size for Survey	98	88

## VI. 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 (Taher Tolou Del, 2020). 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 an approach, etc. These settlements are also built-in harmony with the Tamil traditions of

constructing in rectangular plots, houses with an inner courtyard which often ranged around 3 or 4 courtyards.

To understand the evolution of the rural settlement and to catalogue its existence in the rural areas, the help of GIS (Geographic Information System) is taken (Toz, 2004). 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 (Yogapriya, 2018). The main objective was to identify the residential buildings which were constructed through vernacular style and which residential buildings were renovated with their material study used in construction (Rajangam, 2017). 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 data base are updated in real time, and in this way the government can decide their restoration policies in a more precise way, comparing 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, in the same time, offer the possibility to involve the people of local community into heritage management for a sustainable development.

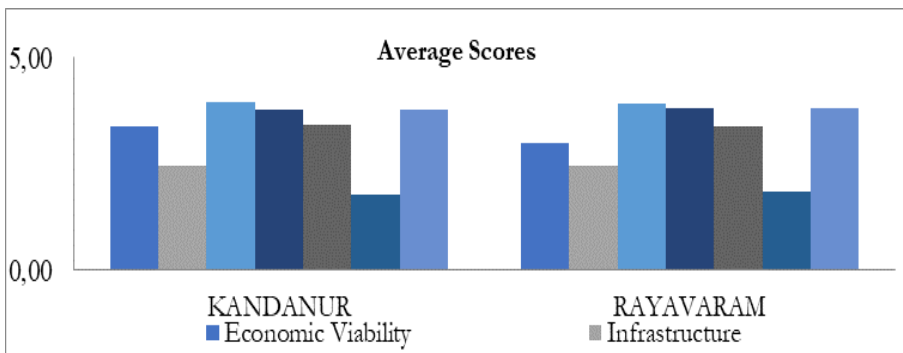


Figure 3: Showing the analysis done comparing the parameters for heritage village of Kandapur and Rayavaram

A detailed questionnaire survey was also conducted based on the parameters derived from the literature study. A total of 186 respondent were interviewed, 98 respondents in Kandapur and 88 respondents in Rayavaram. A 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 Tukeys HSD post-hoc test for multiple comparison was applied to see the mean difference between the villages. P-value less than 0.05 considered as significant at 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.

## **VII. 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 hinderance. 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 a status of the rural areas, along with its infrastructure, services and above all its regenerating communities.

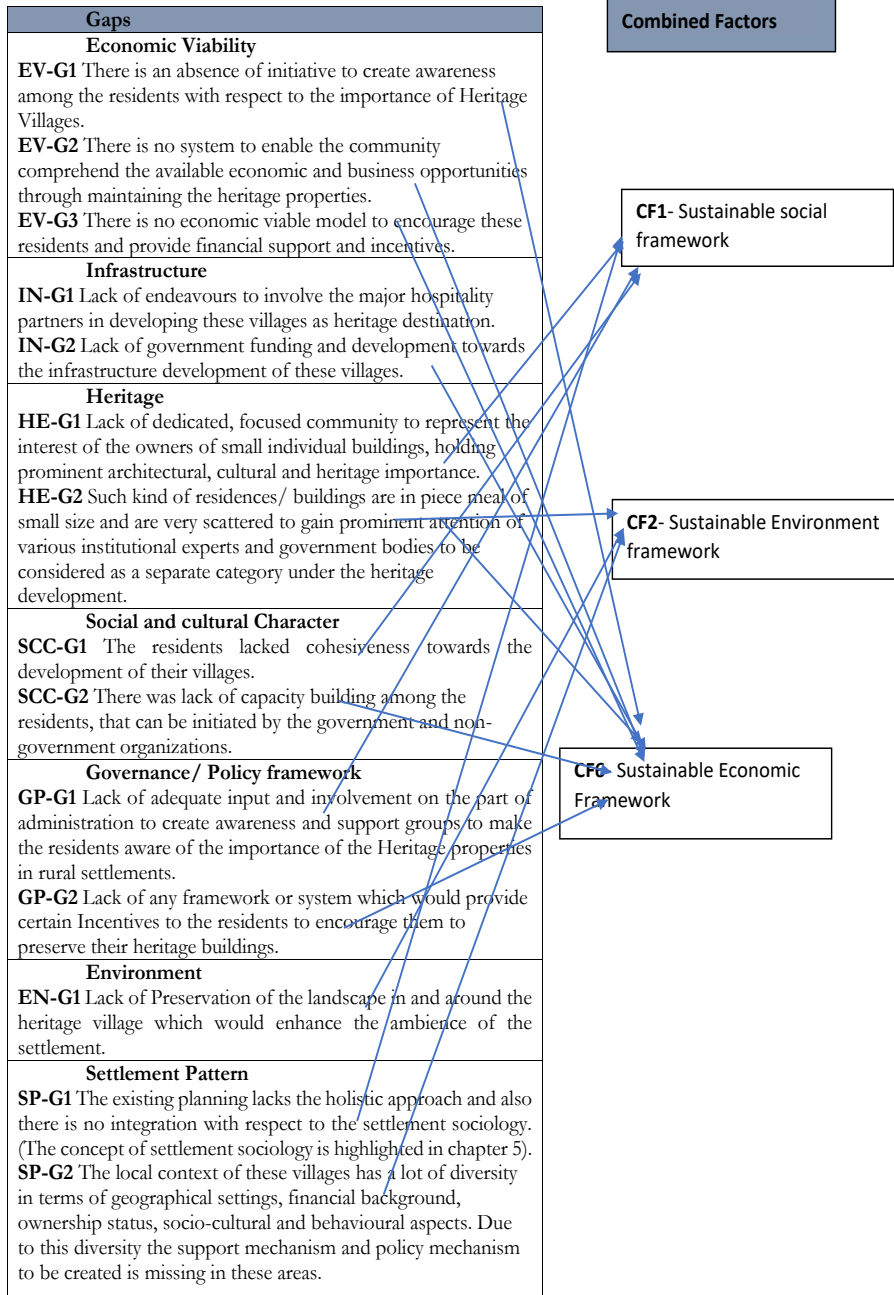
Economic, social, and environmental dimensions are accepted as the three basic pillars of sustainability on which development is formulated. The sustainability model also focuses on individual development in every aspects. Even though, sustainability is a broader term, its ability to force stakeholders 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 a value in rural development. It supports rural sustainability dimensions and adds extra value. Exploiting the potential in heritage during rural regeneration projects which would add values 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 as how the different parameters derived from the literature study are linked and contribute towards the research (theory, policy and practice) in the conservation of built heritage. Though 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 in the conservation of heritage in rural settlements. The major issues arisen from the study are highlighted in table 2.

## **VIII. Results and discussion**

By analysing the spatial distribution of the characteristics of the residential buildings we have obtained a number of historical, social, and cultural landmarks (Dicle Aydin, 2015). Thus, by linking the construction year of buildings with their inclusion in the list of historical construction over time. Most of intervention works, regardless of their complexity and nature (consolidation / restoration / renovation / repainting), were conducted with financial support from the community members (Loli, 2018). Figure 1 highlights the growth of the settlements and by cataloguing it for three years such as 2002, 2011, 2019 for Kandanur and 2002,2010,2019 for Rayavaram. They built is catalogued according to style of their construction, whether they fall under the heritage category or new construction style (Chattopadyay, 2016 and Saradi, 2016)

**Table 2.** Identification of the Combined factors of the Gaps





## **IX. Conclusion**

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 for the development of these villages. A well preserved and of high aesthetic quality heritage-based buildings can add value to the settlement. While analysing 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 definitely be preserved and maintained. These traditional settlements should be developed and encouraged mainly for its cultural and its 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 from the local tradition and history aiming at harmonically uniting the old with the new can ensure a successful regional upliftment.

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 in 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 destination. The number of tourists coming here annually have also reduced drastically due to lack of modern facilities.

As we saw in this paper, the Geographic information systems are very useful tools in the scientific process of managing and conserving cultural heritage. These systems offer the opportunity to collect, process, review and summarize complex data on the influence of environmental (biological and physical), socio-economic and political (tax law) factors on the historical monuments and help us to identify the current conservation status of the local heritage, correlates to the traces of the human life form, to the community attitude towards the built heritage, to the natural risks etc.

## **Acknowledgment**

Our profound gratitude and deep regard to the Amity School of Architecture and Planning, Amity University, Noida, India, for their resources and infrastructure for the completion of this research work.

## **Funding**

The authors received no financial support for the research, authorship, and/or publication of this article.

## **Declaration of conflicting interests**

The authors declare no conflicting interests.

## **Other compliance with ethical standards**

The research focuses on visual survey, and questionnaire survey where random residents of the settlements were questioned. Their personal details are not documented for this research paper.

## References

- Ostendoorp A. & D. E. Berlyne (1978). Dimensions in the perception of architecture. Identification and interpretation of dimensions of similarity, *Journal of Analytical Psychology*, vol. 19, no. 1: 73-82
- Ümmügülsüm Ter et al. (2014) Cultural Heritage Conservation in Traditional Environments: Case Of Mustafapaşa (Sinassos), Turkey, *Procedia – Social and Behavioral Sciences*: 138 – 144
- Indera Syahrul Mat Radzuan et al. (2019). Conservation of a Cultural Heritage Incentives Programme in a Malay Village: Assessing Its Effectiveness, *Journal of Heritage Management*, vol. 4, no. 1: 7-21
- Özkerestec I. et al. (2014). "Characteristics of Historic Areas and Buildings in the City of Uşak and Recommendations for a Sustainable Conservation Area Approach," *Proceedings of the 2nd ICAUD International Conference in Architecture and Urban Design*: 216/1-0216/12
- Atiek Suprapti et al. (2019) The Spatial Concepts of Cultural Heritage Village Toward A Tourism Development; A Case Study Of Kadilangu Demak Indonesia, *Journal of Architecture And Urbanism*, Vol. 43, No. 1: 36-46
- Wei L. (2015). Research on The Localization Method of Protecting Traditional Village Landscape: A Case Study on Tangyin, *The International Archives of The Photogrammetry, Remote Sensing and Spatial Information Sciences*, Vol. XI-5, No. W7: 289-294
- Courtney P. (2006). The role of the natural heritage in rural development: An empirical analysis of economic linkages in Scotland, *Journal of Rural Studies*: 469-484
- Devi Roza Kausar (2010). Heritage Tourism in Rural Areas: Challenges for Improving Socioeconomic Impacts, *Asia Pacific Journal of Tourism Research*, vol. 15, no. 2: 195-213
- Renganathan R. et al. (2018) Attitude and perception of tourists towards Chettinad palace, Karaikudi- An empirical study, *International Journal of Pure and Applied Mathematics*, vol. 119, no. 7: 2481-2494
- Thirumaran K. et al. (2018). Public perception: Built heritage conservation in Chettinad region, Tamil Nadu, *International Journal of Advance Research in Engineering, Science & Technology*, vol. 05, no. 3: 274-285
- Iniyani D. E. (2015). Tourism in Tamilnadu: Role of Cultural/Heritage Sites in Tourist Satisfaction and Tourism Development, *International Journal of Humanities & Social Science Studies*, vol. I, no. VI: 47-54
- Panneerselvam D. V. P. (2016). The Concept of Environmental Engineering in the Realm of Heritage Architecture of Tamils in India, *International Journal of Engineering and Applied Sciences*, vol. 3, no. 11: 72-79

- Mahalakshmi A.S. et al. (2017). Traditional breathing spaces in built forms – Review and Traditional breathing spaces in built forms – Review and Contemporary Context, *International Research Journal of Engineering and Technology*, vol. 4, no. 11: 361-366
- Kesavaperumal S T.(2019). Analyzing the Values in the Built Heritage of Chettinadu Region, Tamil Nadu, India, *Creative Space*, vol. 7, no. 1: 45-56
- Mohammad Sadegh Taher Tolou Del et al.. (20202). The semantic conservation of architectural heritage: the missing values, *Heritage Science*, vol. 70: 1-13
- Toz (2004). Documentation and analysis of cultural heritage by photogrammetric methods and GIS: A case study.
- Yogapriya G. (2018). Review of Application of Gis in Built Heritage Conservation, *International Journal of Recent Trends in Engineering & Research* ,
- Krupa Rajangam (2017). Applications of geospatial technology in the management of cultural heritage sites –potentials and challenges for the Indian region, *Current Science*
- Petrescu F. (2007). Heritage, in *XXI International CIPA Symposium*
- Dicle Aydın et al. (2015). Evaluation of domestic architecture via the context of sustainability: Cases from Konya city center, *International Journal of Architectural Research*, vol. 9, no. 1: 305-3017
- Loli A.et al. (2018) Sustainable interventions in historic buildings: A developing decision making tool, *Technoheritage 2017*: 291-302.
- Chattopadhyay S et al., (2016). Advancing smartness of traditional settlements-case analysis of Indian and Arab old cities, *International Journal of Sustainable Built Environment*, vol. 5, no. 2: 549-563
- Fatemeh Mehdizadeh Saradj et al. (2016). Prioritization of Interventions for Strengthening Architectural Heritage, *Prioritization of interventions for strengthening architectural heritage*: 1-16
- Deisser A. M. (2016). Conservation of Natural and Cultural Heritage in Kenya