Galore International Journal of Applied Sciences and Humanities
Vol. 6; Issue: 2; April-June 2022
Website: www.gijash.com
Short Communication *P-ISSN: 2456-8430*

Revitalization of a Vernacular Settlement, A Case of Araku Valley

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DOI: https://doi.org/10.52403/gijash.20220404

ABSTRACT

Indian traditions have a significant share in the cultural diversity of India which are now becoming extinct. In the name of progress, we are ignoring and making us unaware of its importance. In the mistaken belief that we are transposing a "HIGHER CULTURE", we are succeeding to destroy the indigenous culture of tribes. "Each country has its own heritage; this heritage should not be seen in the form only of monuments, but as a living thing – a thread of continuity maintained by living lives in a manner which come naturally to people. It is for designers to exercise their ingenuity in enriching, without changing violently, the pattern of life."

In this context, a study of a particular tribal settlement and shelter, in regard to multiple forces which ultimately decide the form of both, is not only valuable and fruitful but also urgent. Revitalization of the slowly degenerating tribal community is an important aspect in this present-day context. The study was undertaken in 2003 in a tribal community situated in Araku Valley. The objective of the study is to understand the current relevance of the issue and to consider this as a guide to undertake similar studies.

Keywords: Culture, Tribal community, settlement, Vernacular

INTRODUCTION

ALMOST EVERY THIRTEENTH INDIAN IS A TRIBAL. "Primitive architecture has become an important source of inspiration to present day architects because of its meaning full forms as we ourselves have lost the ability for the spontaneous expression of our habitat."- Norman Schultz.

"ALL ART HAS ITS ROOTS IN THE PRIMITIVE." The indigenous vision has vitality unsurpassed by classical art. "To make the unimaginable real, to bring myth and magic to the service of objects essential for survival."

Modern evils of progress are influencing the ancient knowledge and culture of the tribes.

THEIR PRIME USE - NATURE. "As man proceeds towards the announced goal of the conquest of nature, he is writing a depressing record of destruction – DESTRUCTION OF THE EARTH he inhabits and DESTRUCTION OF LIFE it shares with him." RACHEL CARSON.

"Man was made out of clay", this is the belief that most tribal societies all over the world still endorse and the mysteries of the metamorphosis with Terracotta as a catalyst engages the man into it.

Plants were used by man even before the domestication of animals during the Neolithic age. And this relation between aboriginal people and the surrounding flora is known as Ethno Botany. The disappearance of certain species hint that they have not used those species for their existence. For example, man conserved bamboo grass since he had used it for bows, arrows, dwellings and vessels extensively.

Although, change is acceptable a balance needs to be struck. An attitude towards a wholesome life is required to be cultivated. If immediate measures are not taken to regenerate the most primitive of the communities-THE TRIBES might be totally wiped out. Before this unpretentious built up environment of the tribal communities is engulfed in the process of

URBANISM, it would be imperative to focus some attention on this.

Any delay in preservation or regeneration can cause these tribes an irreparable psychological damage.

In the age of planning and development they cannot and should not remain in isolation but at the same time these cannot be anything like forced assimilation.

These statements make us more concerned about the fact that we need to preserve our culture and tradition. There is an urgent need to improve the habitat and living condition of the tribes who are deprived of the basic amenities. It is essential to create better living environment for the tribal community settlement from an architectural perspective apart from various tribal welfare policies being implemented there, which are concerned for sociological and economic improvement. "The environment must be so organized that it's regeneration and reconstitution does not disrupt its performance." -Christopher Alexander.

ATTITUDE

In the present-day context, so long as there is a big difference in the levels of technology and socio-economic organisation of the tribes and the larger society, the tribes will feel inferior and face psychological dilemmas. Therefore, it is essential to give first priority to economic improvement of the region with considerations for consequences on the community and individual. Healthy physical environment comes about only if due considerations are given to the economic, occupational and social structure.

One attitude is for keeping the tribal culture intact to save it from contaminating influence of urbanization. Thus, making it possible to preserve this delicate culture in its pure form.
Another attitude is for intermingling tribes with urbanized people, them all the physical amenities and privileges of the urbanized world.
None of the extremes of these attitudes are desirable or possible.

The right attitude should be to maintain a continuity of the cultural life of the people, while hastening slowly towards the transition from one culture to another. It should be possible to arouse in them a sensitivity, which not only makes them feel proud of themselves, but also pave the way for their integration in the national life.

AIM & OBJECTIVES

- Designing for a tribal settlement, revitalizing their pattern of settlement and rejuvenating their tradition as well as culture in their original life style.
- Deriving healthy alternatives with the comprehension of the available possibilities. If this is not done in the beginning of a settlement process, the well-meant attempt for tribal development is bound to fail.
- Attain conclusions or factors which lead to the sustainability of the tribal settlement.
- Studying the physical organization of the shelter and settlement, to observe the influence of various constraints such as economy, climate, material, technology and site on the built-up environment.
- Discovering the impact of activity patterns, social customs and family structuring on the built forms.
- To study various existing problems in the community.

SCOPE

The project is applicable only to a particular tribal settlement i.e. Bodiguda settlement in Araku Valley, Visakhapatnam. It is limited to a particular regional level and to a particular culture. The findings of this study can be used for studying similar tribal groups in other regions having different cultural traits.

LIMITATIONS

-The project is limited to the study relevant to the architectural implementations only.
-The project is limited from the research on materials however; there will be a comprehensive study on various materials and their performance as a building material.
-This study comprises only a particular tribal settlement.

Figure 1 Tribal children in the nature
Source: Author

INADEQUENCY OF CURRENT APPROACH

Certain difficulties are created by a gap in communication between those who encode and those who decode- the designer and the user. The designer often tends to put in his values and standards on the public. Some designers assume implicitly that the users should learn the designer's code, rather vice-versa. Decisions are thus taken on wrong grounds, neglecting psychological and socio-cultural variable. The life style and the image of the users are equally important to the economics in designing a village environment. The key to deciding how to build seems to be an appreciation of socio-cultural values.

The decision makers should learn about the nature of the physical and social environment they are going to deal with including the design factors which will make life more bearable and perhaps even pleasant. Designers must be taught to design with a thought beyond the provision of a unit space per person.

The traditional density unit which determines basic living shelter by square units per person is not satisfactory. Housing is not merely a physical problem which can be solved by deciding up space clearly or developing the quickest construction method at the lowest cost. It is more a social environmental problem concerned with the quality of life.

Vernacular building techniques and use of materials for design of the shelter is essential in the villages, because people do have psychological and cultural association with their houses and materials that they use for construction. They cannot simply accept the materials which are alien in the context.

Their ritual includes plastering of their mud walls, painting them and sometimes even changing the thatch for their roofs like tribal in the project area of the Araku Valley.

Figure 2 Housing provided by Government
Source: Author

The core of the housing problem is not that we do not know how to build the physical shelter and not that we do not recognize the need to provide the environmental amenities.

Very often in a living community whether rural or urban when the physical space of environmental amenities has been provided, the residents still do not necessarily find their life in the community very happy. The core of the problem lies in the lack of comprehensive understanding of the physical social and environmental aspects of housing.

The ultimate aim of rural housing in general is to provide a basic shelter for man to live together with others happily. The difficulty is how to solve the problem qualitatively. Three of the elements in the problem are entirely different in nature.

1. BASIC SHELTER comprises physical elements- walls, roof, floor, and others.
2. The ENCLOSURE with the above comprises the living space.
3. MAN is much more complicated element. He is physical and finite form but his feelings are not visible nor his social relationships tangible. On the other hand, his behavioral pattern can be influenced by his immediate physical enclosure. It is a complicated social and physiological problem.

SOCIAL FACTORS IN RURAL HOUSING

In a village, generally, in the case of very high and very low castes, the castes sector gets identified with the status of the caste occupying it. This fact may create several difficulties in redeveloping or modifying the existing lay-outs. Often a redevelopment plan may be verbally accepted but its implementation may be tactically avoided if it injures the time-honored and caste-attitudes of the people of power in the village.

House

House is a social concept. Nature of it varies with caste, class, religion and region. Comparative observations in India show that geographical factors did not have an important deterministic influence on the nature of the house.

Needs

The social meaning, according to the nature and social needs, is assumed by different parts of the house and its consequent use. This social construct creates a mental image in the minds of the inhabitant about the house.

The mental image is intricately woven up with the uses of the parts. For instance, the location of the kitchen is nature and the religious overtones attached to it, all give a meaning to and make a mental image of the kitchen. Therefore, if we provide a kitchen as we think proper, it may not suit the villager's need. There may be a gap between the need as felt by the villager's (the felt need) and the need as we see it (the perceived need).

Non-spatial constituents

In the village the exact physical boundary of the house is vague, even for its inhabitants. The reason for this is social.

The house, or several parts of it, has values of socially and culturally shaped nature from the point of view of sentiments, religion, aesthetics and property values. A new rural house today requires, among other things, livability, a certain degree of continuity of traditional features, flexibility and display facility for certain possessions. These factors are to be particularly comprehended and interpreted within the context of the village society, not from outside.

New approach

The problem of acceptance of new model-houses is faced with resistances from the villagers. An understanding of the foregoing considerations can make us appreciate the nature and reasons for the inertia against acceptance. A designer of a house or of a village and an extension worker as well, has to make an approach with an understanding and aim at creative compromises. Then alone he becomes a constructive worker.

GENERAL INFORMATION

The total population of scheduled tribes in the country is 683.31 lakhs (8.08% of total population) and the tribal population of Andhra Pradesh works out 6.14% of the tribal population in the country.

Geographical area of the Visakhapatnam district - 11,167 sq. kms
Area under ITDA (Integrated Tribal Development Agency) - 6,293 sq. kms
Percentage of agency are to the total district area - 56.38%
Population of the district - 32,85,092
Population of scheduled tribes - 4,20,940
Percentage of the agency population to the district - 12.83%
Average rainfall - 1,234 mm
Total tribal villages - 3,574
- Inhabited - 3,399
- Uninhabited - 175

Total households - 1,19,238
Gram panchayats - 244
Mandal praja parishads - 11
PTG population - 76,056

Table 1

Main sub-tribes (1991 census)

Sub-tribe	Population
Bhagatha	84179
Kondadora	68710
Kondakapu	39365
Khonds	36365
Valmiki	28505
Kotia, Bentho, Oriya	18700
Kammara	18151
Yennadi, yerukala, Nookadora	16740
Gadaba	14463
Others (koya, porja,reddy, dora, malies, kondareddy etc)	21363

Table 2

Mandal wise population particulars (1991 census)

Mandal	Total population	ST population
Chintapalli	52672	46429
Hukumpet	43004	41015
Pedabayalu	41668	40888
G.Madugula	41486	39146
G.K.Veedhi	45791	39102
Araku valley	41360	36390
Dumbriguda	37799	36380
Paderu	44875	36102
Ananthagiri	39476	35589
Munchingiput	36235	34973
Koyyuru	44472	34926
Total	468838	420940

INTEGRATED TRIBAL DEVELOPMENT AGENCY - PADERU

The Visakhapatnam district comprises of three revenue divisions divided into 42 mandals. The district consists of two natural divisions i.e. the agency and plain areas. The agency mainly

consists of hilly regions covered by Eastern Ghats which run parallel into coast and stretches over a length of about 161 kms, in the district from north-east to south-west lying in the interior parts of the district. It is situated between $17^{0}10^{/}$ and $18^{0}25^{/}$ of the eastern longitude.

The Visakhapatnam district is having a territorial jurisdiction of 11.167 sq kms and has a population of 32,85,092 according to 1991 census. The agency area consists 11 mandals and 6 mandals consisting of 45 villages under TSP in paderu revenue division.

The principal hill tribes living in the agency are Bhagatha, Kondadora, khond, Kondakapu, Valmiki, Kammara, Gadaba and kotia, Porja and Nookadora. They speak Telugu and of few speak tribal dialects like Gadaba and kotia, Oriya. The Bhagatha and Valmiki are more advanced in all walks of life than the other tribes.

The average height of the hills in the district ranges from 3000 to 3500 feet. There are several peaks having 4000 feet in height. The highest peak in the district is "Sankaram" which is about 5300 feet in height. The main river in the agency is "Machkund" which is one of the tributaries of the river Godavari. The river flows as the boundary between Andhra Pradesh and Orissa for about 80kms. In the lower reach the river is called as Sileru. There are water falls in its course at Duduma(orissa) and at sileru. The water falls are being harnessed for generating electricity.

Due to the elevation, geographic location and the presence of vegetation, the climate of the region is cool. The average monthly rainfall in the region is 1234mm as compared to 80mm in the district. So monsoon also hits early in the region. There are severe winters with temperature dropping down to 15 degrees centigrade sometimes. Most parts of the district is covered by forests and in some areas there are reserved forests because of which there are several forest produces in the region.

The important products are teak, maddi, guggilam, kamba and vegisa. Bamboo which is found abundant in the forest area is mostly supplied to the paper mill at Rajahmundry. Tamarind, Ginger, Turmeric, Pippalimodi, Gantubarangi, Ranwalbia, Serpentime, Myrobalam, Adda-leaf and Honey are the other significant items of forest produce collected in the agency tracts of the district.

The tribals have their own culture and custom. The scheduled tribes who are scattered in the hilly region usually assemble at the weekly shandies. It is at these places they exchange information of their welfare with conductive local conductive local conditions prevailing and at times they use these please mentioned to fix up alliances. The shandy points are also benefiting the tribals for their natural interest.

Agriculture is the main occupation of the tribals. They cultivate both wet and dry crops. Their income is supplemented by the collection and sale of minor forest produce (M.F.P.). The M.F.P. as collected is being purchased by the Girijan Co-operative Limited, which is having monopoly right by paying fair price to the tribals.

Many villages are not easily accessible. The tribal welfare Department and Panchayat Raj Departments are laying roads for interior villages besides some feeder roads. The development of roads in these hilly tracts has greatly enabled the tribals to have frequent contacts with the people in the plains, improving their socio-economic conditions. The D.B.K.railway line passes through Ananthagiri and Araku agency area which is used to carry iron ore from Madhya Pradesh to Visakhapatnam Port. A passenger train is also running from Visakhapatnam to kirandol to cater the needs to tribals of Ananthagiri and Araku mandals of agency area.

Figure 3 Aerial View of the settlement
Source: Author

ARAKU MANDAL

The Mandal level information was obtained from the local Mandal Revenue office.

Table 3

Total geographical land area	261 sq kms
- Wet	79.72 acres
- Occupied	2913 acres
- Dry	35430 acres
- Waste	11685 acres
Revenue villages	161
Hamlets	105
Habitations	266
Panchayats	14
Major Panchayats	2
Panchayat secretaries appointed	14

Table 4

Population as per 1991 census	Male	Female	Total
Scheduled castes	255	211	466
Scheduled tribes	18086	18304	36390
Others	2405	2099	4504
Total	20746	20614	41360

Table 5

Education

Primary schools	96
Upper primary schools	2
High schools	6
Junior colleges	2
Tribal welfare hostels	9

Table 6

Women and child welfare

Anganwadi centres	98
Mother committees	98

Table 7

Medical and health

Community health centre	1 (Araku valley)
Primary health centre	2 (Madagada and Gannela)

Table 8

Banks

Co-operative bank	1 (Araku valley)
Grameena bank	1 (Araku valley)
Commercial bank	2 (S.B.I. - Araku valley) (Canara Bank- Yendapallivalasa)

AN OVERVIEW

District	VISAKHAPATNAM
Mandal	ARAKU VALLEY
Panchayat	MADAGADA
VILLAGE	BODIGUDA
Topography	HILLY
Average rainfall	1234mm
Prime occupation	AGRICULTURE
Area in hectares	125.91
Households	59 (1991 census) 65 (present)
Population	235 (1991 census) 342 (present)

Figure 4 Settlement plan showing ethnic grouping
Source: Author

Sub Tribes in the village

There are three types of subtribes in the village- kotias, kondadoras and parangapoorjas. Predominant subtribes are the Kotias in the village.

Growth in the population is very less as there was no intrusion from outside.

Table 9

Cattle population	70
Ratio of cattle population to human population	1:5
Cattle shed	35
D.P.E.P school	1 (up to class 5) Strength-32 children
Anganwadi	strength-15 children
Drinking water	1 hand pump not working 1 well – in unhygienic condition

History

It is believed that some 500 years ago there used to be a family on the hill slope. The couple had 7 sons and one of them was killed by the tiger during the night when they were having their dinner. So, the family decided to shift their house further down the slope where they had enough vegetation for their livelihood as well as security.

There are two huge banyan trees which mark the entrance of the village. A banyan tree in the local language is known as "Bodeguas" and "Guda" means village, thus the village was known as BODIGUDA.

Origin

As the soil was good and there was huge cultivable land, a settlement started. As there were very few houses a kind of cultivation called BADI was adapted. Small parcels of land were embanked and plants like maize, ginger, etc were grown.

In response to climate

The examples of primitive and vernacular buildings have proved that under the minimum resources and unlimited knowledge of technology primitive man had always resisted climate vigorously by achieving maximum possible comfort.

SUMMER DAYS	Warm and sub humid Needs maximum shade and minimum heat capacity
WINTER DAYS	Pleasant and extremely cold during the night Needs warmth and retain heat
MONSOON	Heavy rains coupled with gusty winds Needs protection against weathering forces

In response to form

RECTANGULAR FORM

- Withstands the climate with its pitched roof, proper orientation and with the use of materials which are more durable than that of other forms.
- Corners created by this form do not protect the shelter against rain and wind pressure that is why the corners are rounded to protect the form.
- It is minimized by orienting the shorter side towards the direction of wind and rain
- Priorities for selection of selection of materials
    - simple process of construction
    - construction without any outside help
    - availability of materials
- Expected performance of materials
    - To suit the extreme conditions of local climate
    - To suit the economy of the inhabitants

Roof

- Thatch with bamboo and timber framework
- Rapid and easy to construct
- Constructed by inhabitants
    - Locally available
    - Least or no cost
    - No special treatment required
    - Easy to maintain and repair
    - Light weight
    - Possible air circulation
    - Good insulating property
    - Inflammable
    - Rapid absorption of moisture
- Bamboo- durable for 20 to 25 years if protected well against water

Figure 1 Fence construction
Source: Author

Mud Wall

- Slow and steady process
- Constructed by inhabitants
- Locally available
- Abundantly available
- High thermal storage capacity
- Structurally stable
- Lasts for 70 to 80 years

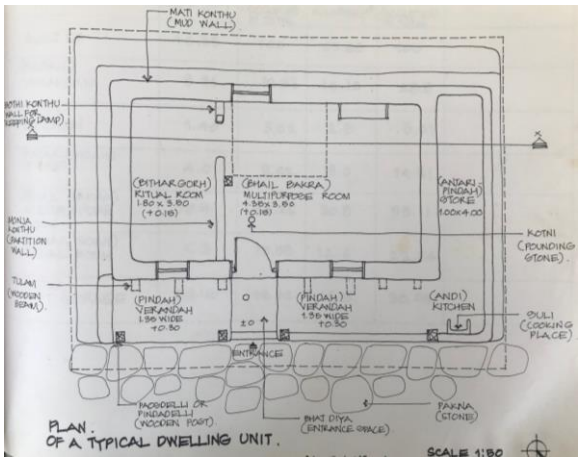

Figure 6 Plan of a typical unit
Source: Author

Table 10

MATERIALS	USED FOR
Mud	Walls, ceiling
Timber	Framework, Mezzanine floor
Thatch	Roof covering
Bamboo	Framework
Stone	Retaining wall, stoneware

Source: Author

COMPACTED EARTH AND COW DUNG PLASTER

- Easy to construct
- Constructed by inhabitants
- Locally available
- No special treatment required
- Keeps cool in summer

Figure 7 Kitchen activities
Source: Author

Figure 8 Cow dung application
Source: Author

Order of construction

1. A foundation pit of about 2 ft is dug all around where the structure has to be erected.
2. Mud is mixed with water and rammed. It is filled into the pit. The wall is constructed in parts of about 1ft height each with 1-week intervals. Wooden posts are fixed into the damp mud.
3. Wooden lintels and frames for doors, windows and shelves are fixed.
4. A mezzanine floor for storage is prepared.
5. Framework of rafters and split bamboo for mud ceiling is made.
6. Mud is spread over the framework and is left for a week.
7. Wooden rafters and bamboo purlins are tied up to form the roof skeleton over the mud Ceiling.
8. Thatch is tied over it, in four parts on each face of the roof.

Thatch is replaced every three years.
Mud wall is plastered in exotic colours of mud and the floor is treated with cow dung mixed with water.

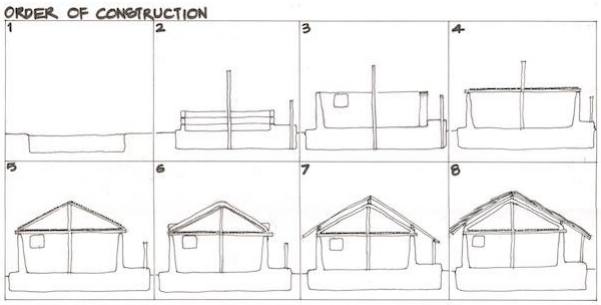

Figure 9 Order of construction
Source: Author

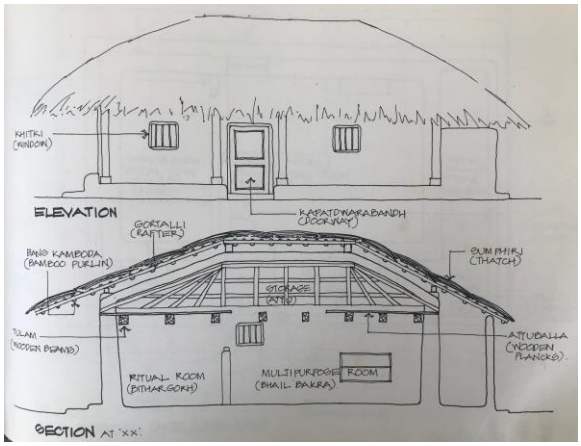

Figure 10 Section of a complete house
Source: Author

Learnings From The Vernacular Settlement and Strategies to revitalize

PHYSICAL IMPROVEMENT

- Retaining the local life style
- Emphasis on rural character of settlement
- Reflect tradition in spatial arrangements particularly with reference to community buildings.
- Cluster of houses as a basic planning unit.
- Cater to the needs of both human beings as well as cattle.
- Plans to be capable of observing all infrastructure services.
- Beneficiary participation in planning process through discussions.
- Use of cost-effective technologies using local materials and construction system.
- Every act of providing services and infrastructure becomes a commitment to the pattern of settlement or creation of new schemes which do not meet the demands or needs of the people tends to be more dangerous than the old one.
- Comprehension of available possibilities. Integration of economic development plans and Education development plans.

ECONOMIC IMPROVEMENT

- They must be given the occupation from which they earn their living and clear sustenance.
- Reallocation and redistribution of land according to the occupational structure.
- Innovative systems of education which are not enforcing, urban and sophisticated.
- Teaching of craft-based production.
- Making the use of elements of nature so that they can be developed and upgraded.
- Permanent shelters with full regard to community participation without overlooking the possibility of future changes.
- Proper land distribution.
- Infrastructure within the needs and the technological level of the society, to be provided.

SHELTER

- Basic requirement of space – upgraded or enlarged.
- Life style should be respected.
- An index must be drawn regarding needs and wants of the people.
- Participation of inhabitants crucial
- Technical guidance – a training centre.
- Replacing materials only which are inadequate.
- Stretching capacity of locally available materials.

Acknowledgement

The entire study was conducted based on the local data available and as sourced from informal interviews with the tribals under the guidance of Prof. P.R.B.Rao, Andhra University. Since it was a remote tribal village, the documentation and measured drawings were prepared by the author in the absence of village plan and unit plans. The visual surveys were conducted on site to document and prepare necessary drawings. The author is thankful to Artist Mr. Venkat, The curator of the Tribal Habitat Museum, Mr. Eshwar, and the tribes Mr. Narayana, Mr. Killo, Mr. Bhagatram and Mr. Raghu Naidu.

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How to cite this article: Karteek Guturu. Revitalization of a vernacular settlement, a case of Araku Valley. *Galore International Journal of Applied Sciences & Humanities*. 2022; 6(2): 20-28.
DOI: https://doi.org/10.52403/gijash.20220404

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