

Ribeirinhos: A Sustainability Assessment of Housing Typologies in the Amazon Region

A. K. M. De Paula, R. Tenorio

Abstract—The 20th century has brought much development to the practice of Architecture worldwide, and technology has bridged inhabitation limits in many regions of the world with high levels of comfort and conveniences, most times at high costs to the environment. Throughout the globe, the tropical countries are being urbanized at an unprecedented rate and housing has become a major issue worldwide, in light of increased demand and lack of appropriate infra-structure and planning. Buildings and urban spaces designed in tropical cities have mainly adopted external concepts that in most cases do not fit the needs of the inhabitants living in such harsh climatic environment, and when they do, do so at high financial, environmental and cultural costs. Traditional architectural practices can provide valuable understanding on how self-reliance and autonomy of construction can be reinforced in rural-urban tropical environments. From traditional housing knowledge, it is possible to derive lessons for the development of new construction materials that are affordable, environmentally friendly, culturally acceptable and accessible to all. Specifically to the urban context, such solutions are of outmost importance, given the needs to a more democratic society, where access to housing is considered high in the agenda for development. Traditional or rural constructions are also ongoing through extensive changes eventhough they have mostly adopted climate-responsive building practices relying on local resources (with minimum embodied energy) and energy (for comfort and quality of life). It is important to note that many of these buildings can actually be called zero-energy, and hold potential answers to enable transition from high energy, high cost, low comfort urban habitations to zero/low energy habitations with high quality urban livelihood. Increasing access to modern urban lifestyles have also an effect on the aspirations from people in terms of performance, comfort and convenience in terms of their housing and the way it is produced and used. These aspirations are resulting in transitions from local-resource dependent habitations' to non-local resource based high-energy urban style habitations. And such transitions are resulting in the habitations becoming increasingly unsuited to the local climatic conditions with increasing discomfort, ill-health, and increased CO₂ emissions and local environmental disruption. This research studies one specific transition group in the context of 'water communities' in tropical-equatorial regions: Ribeirinhos housing typology (Amazonas, Brazil). The paper presents the results of a qualitative sustainability assessment of the housing typologies under transition, found at the Ribeirinhos communities.

Keywords—Vernacular and Tropical Architecture, Sustainable Housing Design, Urban-rural Housing, Living Transitions

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I. INTRODUCTION

THE National Policy on Sustainable Development of Traditional Communities (Decreto No. 6.040), has been passed in 2007 in Brazil. It recognizes and values the socio-environmental and cultural diversity of traditional people and places, with emphasis on strengthening their land, social, environmental, economic and cultural rights. It values their identity and the ways in which traditional individuals and communities are organized. Even after legalized and institutionalized, the discourse of cultural respect and values, does not find repercussion in the Brazilian society: a society that has been formed around the objectives and conceptual values of European colonizers. In the Amazonas state, the cultural expression of the traditional architecture, the typologies, the regional materials, the techniques of construction locally available, have a 'pejorative' connotation to the whole community, even within the 'caboclos' or 'ribeirinhos'. Particularly materials such as 'straw', being a synonym of poverty, condition that no one would like to be associated with [1]. European architectural styles were always valued in this region, and can be seen through the '*belle époque Amazonica*', '*the Paris of the tropics*' which Manaus has been known for since the end of the 19th century. A place that has been constructed from the dominant and unilateral memory and history of the colonizer, against a more ordinary city, with pluralistic views of local realities [2].

The inhabitants of the Amazonian forest, because of their geographic isolation, have elaborated a way of life and an architecture which is adapted to such harsh environment. This way of life has been inherited from their ancestors (orally), from the surrounding nature and from their own understanding of the place. For this isolated society, survival means solving problems with efficiency, without accumulation and technological advances. Naturally concepts such as rationalization, efficiency, simplicity, flexibility, durability, harmony, participation, minimization of expenses and maximization of gains are strategic in such systems. Not coincidentally, the guiding concepts of isolated societies are very similar to what a sustainable development agenda aims for, concerning the strategies and objectives. Because both are concerned with the systemic relationships "...between processes and flows, aiming to identify similarities with nature, considering it a model as well as a context" [3].

Amongst other relevant technical aspects of this research, the aim to recognize and value the Ribeirinhos and indigenous cultures of the Amazonas, through research can support the

process of improving local self-esteem, recognizing and legitimizing the existing knowledge and context.

II. METHODOLOGY & BACKGROUND

A. Approach

Considering the many aspects to define the typologies and the infrastructure, the methodology developed by Satler [3] has been used. This methodology groups the analysis in 11 thematic areas which are interrelated: 1. Site; 2. Spaces; 3. Materials, 4. Structure, 5. Roofing, 6. Walls, 7. Walls and windows, 8. Floors, 9. Water, 10. Waste, 11. Energy. Sub-themes of each of these thematic areas were also analysed.

B. Amazonas: Location and Climate

The state of Amazonas, where the Ribeirinhos communities can be found, is situated in the Northern Region of Brazil (Fig 1).



Fig. 1. Brazil map highlighting the state of Amazonas

Amazonas State is located in a tropical hot and humid region (Am) as classified by Koppen & Geiger [4]. With average annual temperatures always above 22°C, high pluviometric levels, (2500mm) intense solar radiation, elevated humidity and slow wind velocity. Without a proper assessment of comfort for the rural areas (bioclimatic charts), the results for the Manaus Bioclimatic charts demonstrate that thermal comfort is practically absent, (under normal conditions). It represents 0,24% of the total hours of the year, and the discomfort by overheating is 99,7% . [5]

C. Amazonas: Population

The state of Amazonas is divided in 62 districts and has a population of 3,221.930 inhabitants [6]. This results in a very low density of 2,05 inhabitants/km². Paradoxically, 51% of this population, (1,646.602 inhabitants), lives in Manaus, the capital of the state, which occupies an area of 11.401km², 0,72% of the territory, resulting in an overall density of 144,42 inhabitants/km². If we disconsider the capitals' participation in the density calculations, the interior district's density lowers the state density to 1 inhabitant/km². Manaus, which is the political and administrative centre of the state, is

also an international port and industrial centre, being an important commercial and services port, of regional importance. It is also important to note that the ethnical distribution of the population, throughout the Amazonas, is formed by decents of the indigenous tribes, Portuguese, Japanese, Sirio-Libanese, Spanish and from the Northeastern people of Brazil combining a plura and multi-cultural community and state.

D. Amazonas: Transport

The majority of the transport in the Amazonas is made through its rivers, given its geography of large rivers and the seasonal variations and cycles. The extensive are of rivers that can be used for navigation, makes the other types of transport to be complimentary to the hidroways of the region.

E. Amazonas: History

Manaus, the capital city was first colonized in 1669, as a small fort, named 'Forte de Sao Jose da Barra do Rio Negro'. In these surroundings, emerged the village of Manaus. In 1833 it was elevated to the category of Vila, and in 1848 it became the City of Manaus. From the 1890's, thanks fo the rubber industry, the city had its first boom in urbanization. It was transformed into the 'Paris of the Tropics', "the capital of Amazonas should be able to hold its function of exporting and importing centre, connected to the international market" [7]. Manaus is urbanized and its population grows. This process looses its strenght with the lower export prices of rubber in the 20th century. The measures taken to reinforce its regional development was the creation of the 'Zona Franca de Manaus', in 1967. An import/export tax free area which is the main economic source of the state of Amazonas.

III. RIBEIRINHOS: THE 'ANPHIBIOUS MEN'

The State of Amazonas and the Amazonia region has a low demographic density. But is certainly not a demographic and cultural void, thanks to the presence of indigenous people, the ribeirinhos or caboclos who inhabit the vast areas of forest and rivers in isolated communities. Galvao [8] defines the 'caboclo' as someone biologically hybrid, between the white european and the indigenous people; someone who has been influenced by both socio-cultural aspects of the city and of the tribe. These influences includes also the 'mestico', the portuguese', 'the northeastern' the rural workers' and the indigenous people that are no longer living within a tribal system. Only after the establishment of the European colonizer in the state of Amazonas, we will find the 'caboclo' or 'ribeirinho' in the region.

The contemporary Amazonia today is a cultural and ecological mosaic, which is a part of the milenar history of interactions between humans and nature. This history has left marks in the landscape showing the pre-colonial periods (7.000B.C) carried much stability with groups of people that carried for the forest, its plants, and knew how to manage its resources. It is known [9] that a number of existing species today present in the Amazonia, have been carried by

indigenous people from America Central, and other Latin American locations (e.g. Cocoa plant, brought from America Central). This ratifies that it is not possible to talk about the evolution of the Amazonic forest without talking about the evolution of the people that lived there. The landscape cannot be explained before the explaining the population that lived there, since the type o vegetation found 12.000 years ago in that area, was very similar to what is today found in the stages of Mato Grosso and Goias (Brazil). A vegetation of 'cerrado and savanah'. Trully, the Amazonia that we see today, is a 'tropical-cultural-humid' forest, which has evolved with the indigenous people that lived there.

IV. RIBEIRINHOS COMMUNITIES IN AMAZONAS

The location of studies is the rural areas of the state of Amazonas, in which the 'Ribeirinhos' are grouped in communities, mostly isolated from each other by large distances, only accessed by boat or plane (some areas). The specific area of such isolated studies is the 'floresta de varzea' area. This is the area of the forest which is seasonally inundated throughout the year, allowing the Ribeirinhos to establish their communities at the riverbeds, for better food, transport access.[10]

According to Correia [11] more than 4,600 isolated communities are spread throughout the state of Amazonas. As stated by Galvao[8], the notion of 'Ribeirinho community' is a synonym of rural community, village, 'povoado' or 'sitio', and most of these will have no more than 150 inhabitants. The majority will have much less. An isolated community is defined by very low populational density, with restrictions in the use of conventional energy, deficient urban infrastructure, low level of economic activity, difficulty of access and distance from the consuming markets. Such definitions help to establish the profile and background of the communities studied here, since it emphasizes the geographic isolation and the large territorial extensions in question. Paradoxically, the characteristics that allowed the Amazonas state to maintain 97% of its territory intact, is also the aspect that makes it difficult to improve the quality of living of the population living in the countryside. The distances are continental and the mobility in the region is restricted. This is due to the financial or geographic barriers. Even if the majority of the rivers are possible to navigate all year around, some have its formation in steps, making it difficult to navigate or even not allowing it altogether for months of the year. The dry season can also bring further isolation and decreased quality of life levels. The life in the 'varzea' (inundated areas of the forest), is moved by the pulsation of the water, up and down, inundating and drying the soil, abundant and scarce, varying to the level superior to 10 metres. Eventhough it houses a population of over 1 million inhabitants, the 'Varzea' Amazonica, has very little of investments or infrastructure in terms of sewage. Almost nothing has been done to improve the infrastructure or the quality of life of the 'Ribeirinhos' that inhabit these areas.

The Ribeirinho population, on its majority is poor, with a

Human Development Index of 0,4 and 0,6 [12]. The existing problems related to the socio-spatial imbalances, such as: high financial and environmental costs associated with transport; the inexistence of isolated technologies; difficulties with technical support and capacity building; all of these aspects make it difficult that governmental invesmtents in education, health, housing, infrastructure, are implemented. The difficulties of access to these communities, happens in both ways: entrance and exit. The exceeding agricultural or other products from the communities finds many barriers till reaching the regional centres of consumption. Given the geographic barriers and the distances, the Ribeirinhos are faced with the challenges at times, of having to deviate from dangerous rivers, having to walk with their boats and products "bateletes" within the forest. (Fig 2). When the end of the agricultural season coincides with the beginning of the dry season of the rivers, they are again obliged to carry their harvest or products throughout the forest. This at times, can also compromise the products due to the precarious conditions of storage. Autonomy, the objective of a sustainable development, is an excessive exercise for the isolated communities. To be sustainable is to survive.



Fig. 2. Aerial view of the Amazon forerst around the regions of river Tefe, in the Amazonas state. It is clear the differences in vegetation and naviagation possibilities throughout the natural forest. Source: O Estadão, 1996

The main economic activity of the Ribeirinhos is the agriculture, (considering the traditional models of subsistence). The exceeding production is almost insignificant. The Amazonic reality cannot be analized from the criteria in which one analyses the rest of the country. To equalize the development means to face and overcome the regional and geographic challenges, the economic, energetic and environmental challenges. Any programme that is related to the isolated communities in the region needs to be connected to capacity building for income generation, otherwise the state will have to be responsible for the majority of the costs, which historically have not been successfully in advancing the current situation.

V. TYPOLOGICAL TRANSITIONS ASSESSMENT: 'OLD HOUSE & THE MODERN HOUSE'

A. "Palafitas": the housing typology of the Ribeirinhos in the State of Amazonas

This research investigates the housing typology found at the Ribeirinhos communities, named 'Palafitas' [Figs. 3,4] A common type of house in which water communities across the world have extensively used to inhabit riverbeds. From the Ribeirinhos, the people that inhabit the riverbeds, it was born the Ribeirinha Architecture. According to the poet Thiago de Melo [13] the Ribeirinha Architecture is the legitimate, authentically from Amazonas. It was born out of the popular knowledge, daughter of the indigenous and adapted by the other cultures that are formed by the 'caboclo'. Therefore, it's a 'Caboclo' architecture, a vernacular architecture. As per vernacular architecture, Lemos [14] defines as 'the architecture in which the figure of the architect disappears, and in which the technique involved, manipulates the environmental resources available, satisfying all the requirements for cultural experiences to flourish and to actually rule the daily lives of its people.

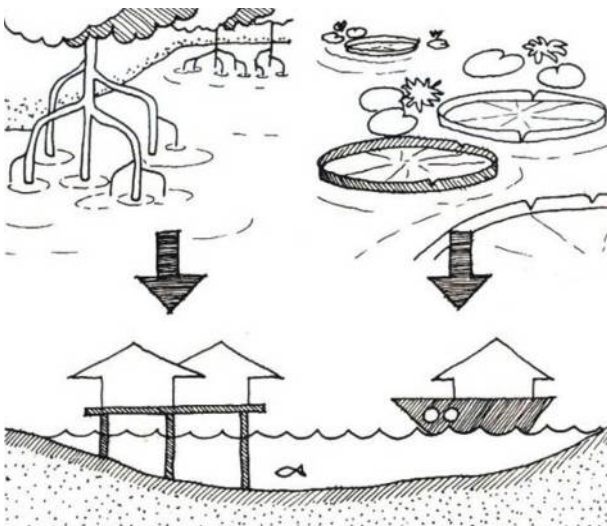


Fig. 3 Nature teaches man the appropriate type of settlement in the Amazonas. The house in 'Palafitas' and the 'Floating' house. This research have concentrated on the 'Palafitas' typology not the more picturesque 'Floating typology' also found in the Amazon region. Source: MACHADO. RIBAS. OLIVEIRA, 1986, p. 78.

The Ribeirinhos' house is a small building, around 50m² (Fig 4). It is elevated from the ground, windows and doors are functional. It can have a few internal partitions or even an integrated space. Following the indigenous tradition, this type of housing can be built attached to another house with the primary function to shelter activities that might also need to be exercised in the open, integrated to the natural environment. Activities that are meant to happen during the day, might happen in spaces such as the 'barracao'.

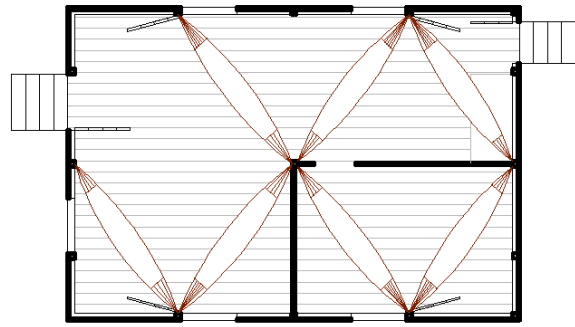


Fig. 4 House plan with the possibility of arranging hammocks. Compact spaces, flexible and simple. It responds to the basic needs of living. Source: MACHADO. RIBAS. OLIVEIRA, 1986, p. 78.

This is a type of kitchen or varandah, where activities such as processing of agricultural products or other products, such as manioc, cashew and latex from the rubber tree are dealt with. The Ribeirinhos communities using the local resources tend to synchronize their lives with the climate, respecting the fragile vegetation, and the river variations, as they depend upon such elements for their survival. Without damaging the environment, the 'caboclos' know how to choose the natural materials to build their shelters, be the temporary huts inside the forest or the ones in the 'varzeas', always demonstrating solutions that are adequate to the natural and cultural environment.[15]

B. Palafitas: 'The Old House' and the Modern House'

It is possible to note the similarities between the indigenous architecture and the architecture of the 'caboclos' or 'seringueiros'. The indigenous houses which were built for permanence in the 'varzea' have disappeared by the end of the 18th century. With the exception of the roofing, which was made out of straw collected from palm-trees, all the house was made out of untreated wood, tied with natural ropes, and the main entrance ladder made out of carved timber. This is according to PORRO [16] very similar to what the 'seringueiros' (this is the term given to the man extracting the rubber tree latex), also built later on. Therefore, it is possible to map two typologies used by the Ribeirinhos which are 'palafitas', or built above water. The Old House (or Casa Antiga) (Figs 5,6) and the Modern House (Casa Moderna) (Fig 7.) According to NEVES [17], the Modern house has similarities with the urba houses, and has also its cultural matrix based on the Northeast and on the houses of the owners of the rubber tree plantations. The main difference of these two houses relies on the use of industrialized products, such as: roofing system made out of treated timber and corrugated aluminium sheets; painting and different industrialized materials for walls, and given the use of such materials, the design is also reorganized and positioned in different ways. The Old House, is basically characterized by the use of resources coming out of the forest only.



Fig. 5. Old House, Ribeirinhos Communities Amazonas.
Source: CEAM, 2005.



Fig. 6. Possibilities of floor space increase. Source: GUIMARAES, 2009.



Fig. 7. Modern House, Ribeirinhos Amazonas. Source: CRUZ, 1999.

C. Transitional Spaces

The 'caboclo' uses the vocabulary of his ancestors and attempts to respond to the constraints of life in the 'varzea'. The Ribeirinhos' house with the objective to protect, to shelter, is formalized as an enclosed structure. An organic logistics is established to use the surrounding land, through the concept of zoning of cultures (Fig 8) and siting the buildings of temporary character attached to the main house and integrated to the landscape. These are the 'barracões', or spaces allocated for permanence during the day, for activities. It's the kitchen, the powder house, the drying of cashews, the place where the latex is smoked. These are flexible spaces which present a very different degree of privacy than the main

house. The site directions reflects mainly the human needs, functional and symbolic; rational to the rural production; to the possible mobility; to the climatic and hydrological cycles of the region.



Fig. 8. Drawings made by E.A. da Silva (17 years old). It represents the structure of life of the workers that live in the 'varzea' (inundated areas). It is possible to observe the superior line that represents the 'restinga' the typical topography of the Varzea. The land shows the occupation of livestock, grass, 'capoeira manejada', the palafita house, and the access to the river. Source: PEREIRA, 1994 apud FRAXÉ 2000, p. 54.

D. Materials choices and cultural acceptance

Originally, the materials used in the construction of the Ribeirinhos' houses was the wood, the straw taken from the palm-trees, the stock and the natural rope (cipo). The fact is that these materials are no longer accepted by the users, and perceived as primitive, poor or non durable. The aspirations are for modernized = industrialized materials. The three main reasons for such perception relies on: 1) *the desire for a permanent, firm construction. One that suggests eternity (durability)*. According to LEMOS [14] this desire is associated with the dominant elite's own aspirations for permanence, a concept very opposite to life in the forest. The indigenous seminomadic people that have established such typological constructions are therefore perceived as precarious and undermined as a way of living. 2) *Denial of the indigenous and caboclo identity*. This is not an isolated attitude in Brasil, even if it's changing in the last few years. In the Amazon region, this is still a very strong deconstruction of the indigenous and the 'caboclo' image. There is this association of these communities being backwards: socially, culturally and economically. 3) *Unsuitable aspects of construction*: This is the aspect which technically needs to be verified. The proliferation of insects and funghi in the roofing (when made out of palm-trees) and also as walling system (mosquitoes, and bats); Another aspect is the fireproofing of the materials.

Sustainability aims for durability, permanence. However, the choices of materials which are sustainable can be also perceived through the perspective of many other aspects, such as: environmental performance (lighting, thermal, acoustics), health implications, energy use for its production and

transport (embodied energy), water use for its production and transport, waste produced during its manufacture, and the possibilities of recycling after its lifecycle to name a few. The specific aspect of the transition from the straw (taken from the palm-trees) is very representative. The specific type of palm-tree which is suitable for construction (durability of up to 20 years!), is the palmeira 'Bucu' *Palmae* (Arecacea) [18]. Another option developed by the Ribeirinhos is the 'cavaco', which can last up to 12 years without any treatment. The Ribeirinhos house can almost be done from foundation to roofing, out of wood. And the wood is collected from the forest, through a responsible management process. One that has been passed orally from generations to allow the exploration of the forest in a way that allow for the survival of all [19]. "Against from what many would think, the use of timber from the forest for the building construction in general, is an attitude extremelly ecological. The tree is a live organism, and consequently, one day will die. Therefore, we should use it. The way in which the forest is being exploited by many is what we should worry about". The argument here is about evolving the existing knowledge so the new or modern result is again representative of the environmental adaptation, and sustainable qualities of the existing solutions, with far more convenience to the users. Examples as such can be seen in Manaus, with the solutions of Architect Severiano Porto for the UFAM Campus (Fig 9) or the Aldeia SOS (Fig 10). Another solution found in the Nairobi Zoo (Fig 11) using the same 'cavaco' technology that the Ribeirinhos use for their housing in the Amazonas.



Fig 9. Campus UFAM, Manaus. Concrete roofing, with openings to allow air flow and improved thermal pefromance, while protecting from intense solar radiation and rains.

The construction materials consumed in the state of Amazonas, generally is not produced in the region. This is the case for the metalic and fibrocement roofing as well as the painting used throughout the construction. It is well known that the building industry consumes significant amounts of energy for the manufacture and transport of the materials. For the Amazonas, where it's not only to get the materials to arrive in Manaus, but to arrive at the rural communities, this is a prohibitive exercise from all points of view: being it financially, economically, environmentally, not to mention culturally.



Fig. 10. Aldeia SOS, Manaus – Brazil. The use of 'piacava' another natural fibre commonly used by indigenous people in the Amazon region, and reincorporated by the architect Severiano Porto for this project in 1992.



Fig. 11. Main Building at the Nairobi Zoo, Kenya. The use of 'cavaco' for the roofing. A technology extensively used by the Ribeirinhos and the indigenous people in the Amazon region.

Not to mention the superior qualities found in terms of thermal and acoustic performance of the traditional solutions (Ribeirinhos' house and translated in the buildings – Figs. 9, 10, 11). The examples shown from these architects demonstrates that the use of the vocabulary of the traditional architecture, does not need to be associated with poverty or precarious construction. If the architecture of the Ribeirinhos resembles 'poverty', it's because it is produced and consumed by a class that it is economically less privileged. One cannot confuse the production of popular culture with the concept of inadequate architecture, improper for the human use, insecure and so forth. In the same way, one should not transfer to the architecture of the 'Riberinhos' – the 'Palafitas', the pitfalls of the lack of infrastructure, which is the main problem that is associated with such constructions. The house of the Ribeirinhos – the 'Palafitas', according to the 'Old house model', demonstrates characteristics which can be used in the contemporary architecture in the Amazonas: both at the capital Manaus and in the interior. This would be the search for an architecture that produces less impact on its surroundings, more comfortable, healthy and after all,

associated with the cultural values and roots of the place where it was formed. Having said that, science and technology can extensively help in finding solutions for such fragile habitat, improving and modernizing construction practices, for the better, for balance, with a sustainable agenda at first, and accessible for all. An architecture that is environmentally friendly, affordable, allow for self-construction practices, and culturally acceptable is after all the continuation of an interrupted rational and logical thinking of the indigenous and caboclo's practices.

VI. WATER, WASTE & ENERGY: INFRASTRUCTURE 'PITFALLS'

The state of Amazonas holds the biggest fresh water resources in the world, but the public infrastructure in terms of water is not sufficient to solve the needs of the population. Many communities do not have water reservoirs, treatment and distribution systems. For the isolated communities, the main source of water is taken directly out of the rivers, lakes, 'igarapes', and also through wells close to the house. This presents great vulnerability for hydrological contamination, resulting in many health related problems, particularly for babies, young children and the elderly. Paradoxically, during the wet season, when the rivers are at highest capacity this is when many communities are left without drinking water. This is due to the lowering of the water levels in wells, lakes with topographical quota more elevated, that can indeed become completely empty during this season.

In terms of energy infrastructure, the situation does not improve significantly, even considering the electrification programme "Programa Luz para Todos" being implemented throughout the rural and isolated areas of Brasil. Highly dependent on fossil fuels (diesel mostly for transport) and inefficient use of biomass for cooking makes this a very important aspect for the development of the Ribeirinhos communities.

From the graphs presented (Figs 12, 13), one can observe the two antagonistic blocks in terms of performance. The Housing, which includes criteria such as site, materials and house; and the other grouped as infrastructure, which includes Water, waste and energy. The fragility of the Ribeirinho's architecture lies on the infrastructure of the isolated communities, and not necessarily on the house itself. The worse performing criteria within the infrastructure grouping, is Water. The study done by the Ministry of Cities, [20] demonstrated the lack of quality in the distribution of water to 40 city councils (equivalent area of 65.7% of the municipalities in the countryside). Also in another 7 other councils (11.47%) the water treatment was only partial, normally only chlorination was performed.

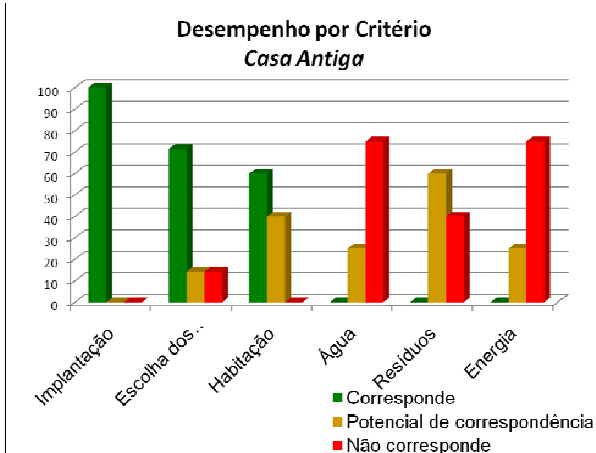


Fig. 12. Old House and the performance by criteria. Site, Materials, Housing, Water, Waste and Energy. Source: 2009.

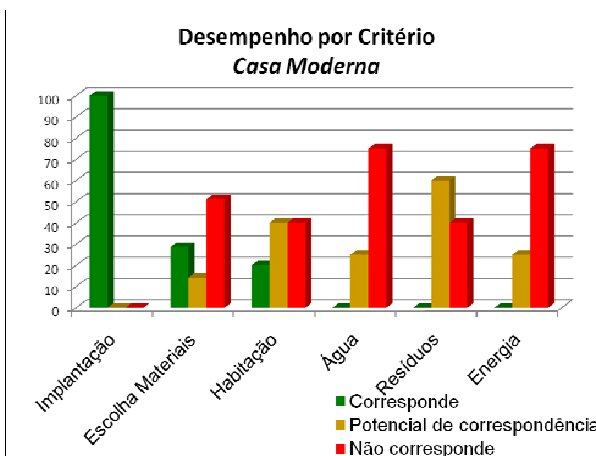


Fig. 13. Modern house and the performance by criteria. Site, Materials, Housing, Water, Waste and Energy. Source: 2009

It is evident the sustainable patterns of living, low energy, low impact, model for the 'Old House' when compared to the model of the 'Modern House'. It is also clear the frailty of the infrastructure (energy, water and materials) as presented in these communities. If from one hand, the heritage of the traditional communities, particularly the indigenous, confirms the success of the traditional knowledge in terms of use of materials, siting, and adaptation to the life in the forest for the Ribeirinhos; On the other hand, it is also evident that the solutions used by the communities to supply basic infrastructure, have not been able to fulfil the needs of these communities with the same performance. It is however important to note that the traditional communities, and the problems that are presented today, never met each other. They were never part indeed of the traditional cultures.

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