

**Measuring of social sustainability on Housing Projects.
Stilts Housing in Buenavista, Cienega Grande Magdalena Region,
Colombia.**

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Photo by: Diana Jamaica

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1. Introduction

In order to improve the capacity and impact of social projects by the Government and public or private organizations, this document will provide a social study about Buenavista small settlement in Ciénaga del Magdalena in Colombia, based on the Better life index measurement methodology of the Organisation for Economic Co-operation and Development (OECD), focusing on housing quality.

Furthermore this document intends to compare the results of this study with the national average housing quality measurements and with other countries, looking to develop opportunities and an accurate perspective. Nevertheless, this study stands under three principles: social sustainability development, human development and community engagement. The study represents singularities from Buenavista which are not comparable with any other places, indeed those factors have been a strong influence during the construction of this paper and hopefully in planning strategies or public policies creation by the different stakeholders.

It is important to clarify the social and physical information was recollected on site by Tierra S.O.S Corporation located in Bogotá, Colombia. During the construction of the Project “Transformation by Colors” spring of 2019, *by a questionnaire method talking with the families on their houses as a result they identified 144 Houses, 194 families, which correspond to 70.61 % of the total number of Families of Buenavista.*¹ Nonetheless, this community went through violence, in the darkest years of Colombia, covering the beauty and the “magic realism” of this treasure. And now there is an opportunity to study and learn how this community grew up after all, and this process is really interesting. The outcomes of the study will provide indirect tools, useful information about key aspects and specific problems to be solved as a right.

Buenavista has a lot of natural resources and economic opportunities for its inhabitants, in spite of that the actual conditions of the houses are critical, physically, services and overcrowding rates are sometimes out of scale. On one hand, these strong conditions are even worse than the Colombian average, perhaps as a consequence of the location, the lack of connections, the education level and the age range; its tendency the poverty will be a constant in terms of money. On the other one, the community is strong, the violence is gone and the air has a clear flavour opening the sea of hope. Although, there is a lot of work to be done for this community and the other authors who are interested in doing something about this situation.

¹ Diagnóstico Social y técnico Buenavista, Corporación Tierra S.O.S.

2.Settlement Social Diagnostic

Buenavista is a small town in the North of Colombia where the Magdalena Rivers join the Caribbean Sea. Around of 150 families are living in this remote town, over this particular swamp, where the life is floating and the sunset is touching the infinite perspective reflecting on the water at the sea level, the nearest big city is Barranquilla capital of the magdalena state in the north-west, by the other hand in the north-est with Santa Martha city. Both cities are active tourist attractions, the south the region is a wild area with mangle forest, wetlands and the biggest lake in the region, it makes the most productive settlement in the sector due to the economy is based on water sources activities. The average temperature is 29C²

Location UTM format 553,520.787
11,198,588.165 Meters

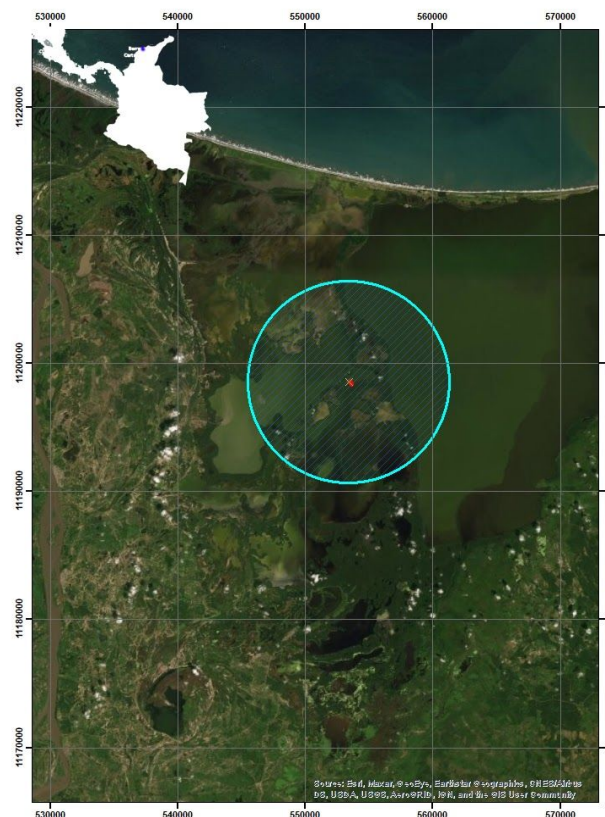


Picture 1-01 Independence day in Buenavista³

²Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

³ Photo by ONG Tierra sos independence day.

Location map⁴:



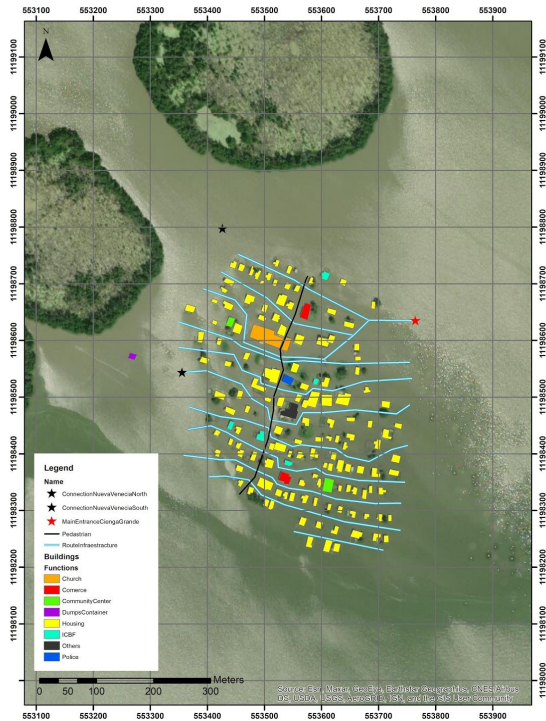
Map 1-01- Location Buenavista

2.1 Settlement urban structure

Regarding to the economic activity and the connection routes in this case by boats, the following map show us the uses Buenavista and the relationships between each stilts structure mostly of them are housing with mix use, just the church has an independently use, the main connection of the town is coming from Ciénaga grande the lake complex, furthermore the closest town is Nueva Venecia and bigger settlement but with the same architecture and urban structure than Buenavista.

⁴ Location map by Author, Basemap source; *Esri, Maki, Geoeye, EarthGeographics, CNES/Airbus, DS, USDA, USGS, AeroGrid and Gis user community.*

Settlement Urban structure map :



Map 1-02- Urban structure⁵

Clarifying some uses the ICBF, in blue, represent local houses with communal dinner space or kindergartens supported by the governments, perhaps this is the reason the second economic activity in the settlement is to be a housekeeper. Another important use is the dump container, in purple. It is a new structure constructed by the locals in order to organize the trash and the contamination of the waterland. Pretty important taking in consideration their main

⁵ Settlement structure map by Author , Basemap source; Esri, Mapa, Geoeye, Earth Geographics, CNES/Airbus, DS, USDA, USGS, AeroGrid and Gis user community. Base Information Given by Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

economic activity is fishing in the same water.

From the point of view of interior connection and circulation it is important to highlight that the only pedestrian route is in the middle of the settlement going through the church and connecting the main function around it as the main axe of the settlement structure. The horizontal blue lines represent the fluvial routes that the community uses to connect with the other settlements.

2.2 Demography

In terms on demography Buenavista has around 778 inhabitants⁶, nevertheless the town population have been changing along the time:

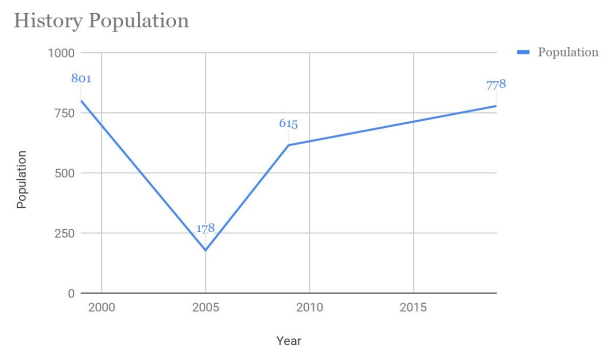


Figure 1-01 History Population 2000-2019⁷

The lost of population since 2000 until 2005 is the consequence of the internal violence in the history of this settlement and how the violence and civil war in Colombia touch

⁶ Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

⁷ Source: Para 1999: Alfredo Correa de Andreés, (2001, 9); para 2009: Dane, Proyecciones de población y Gobernación del Magdalena (2009).#

this remote community, “November 22 of 2020 early in the morning the block of AUC (Autodefensas Armadas de Colombia) arrived to the place and killed 13 inhabitants in front of the church, according to the research La Ciénaga was and important trade route for illegal organizations, thus the civils were murdered due to their silence and their fear, without a police station or any government institution, the hate turned in blood and went through the water in this forgiven paradise.

*“Robinson Mendoza, quien afirma que la primera vez en sus 79 años de vida que escuchó el ruido de las balas fue el miércoles 22 de noviembre. A las 3 y 15 de la madrugada de ese día, a escasos 50 metros de su casa, 13 de sus vecinos, amigos y familiares fueron asesinados en las puertas de la iglesia”*⁸

“Robinson Mendoza, Who declared the first time in his 79 years old he heard a gunshot was this wednesday 22 of November. 03:15 early in the morning, no more than 50 meter from your house, 13 of their neighbors, friends and family member were murder in the church doors”

Nowadays, the total number of victims in the area of Ciénaga Grande by 2000 and 2001 is still missing due to the lack of presence of the government institutions and civil organizations, although the town in the present is growing up and implementing new community strategies to keep a good quality of life. Regarding to the demography

⁸ La barbarie by Semana article published in 01/08/2001, <https://www.semana.com/nacion/articulo/la-barbarie/44678-3/>

the range age of the population is showing in the following bar diagram:

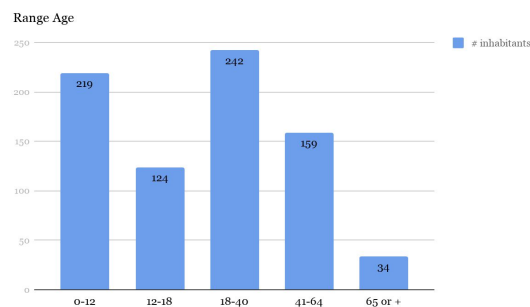


Figure 1-02 ; Range Age in Buenavista⁹

The relationship between children and elderly represents the tendency to increase the local population. On the other hand, the low amount of elderly is a consequence of the history in this settlement and the low life expectancy, they must be important actors in the social dynamics of the town. The highest range age is 18 - 40 years, it represents the young people and the importance of the labour force living in the settlement in order to create planning projects or social action plans.

The education level of the inhabitants is quite low, just 2 people out of 778 have a professional degree. The majority of the inhabitants study until elementary school or high school; although around 20% of the inhabitants do not have any education level. This might be directly related with the birth rate creating over demand for space and resources. The educational institutes in the settlement are: the church and the same

⁹ Source: by author in base of Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).#

community, who use their houses to work as babysitters and teachers at the same time. Despite the effort of the leaders, who are mostly women, the education quality is lower than the average in the sector. However the children are learning practical knowledge, focus on their culture and economy activities in order to help their families and work with their parents.

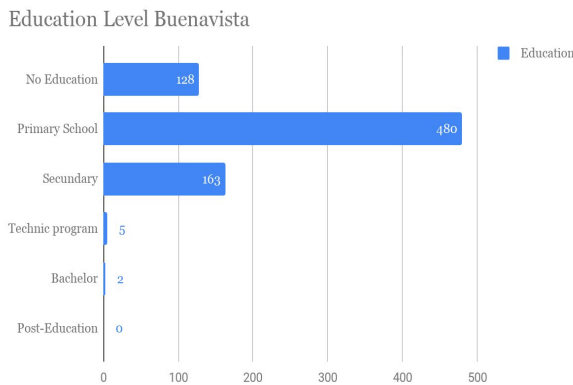


Figure 1-03 ; Education level ¹⁰

2.3 Economy Activity

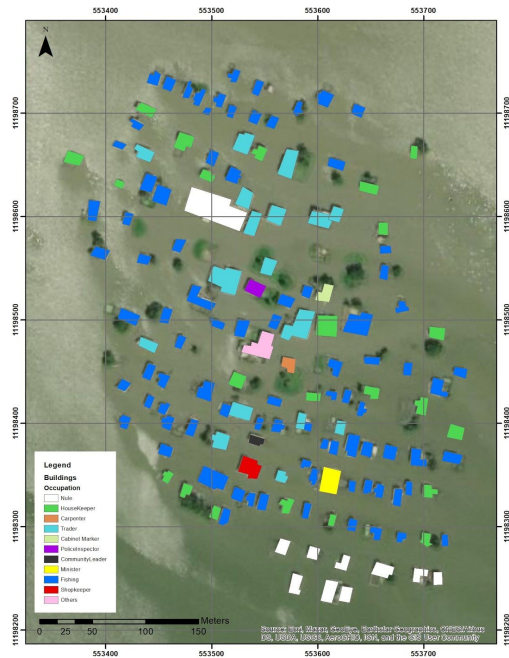
The 778 inhabitants are living in 144 houses, nevertheless 5 of those structures are public institutions, which means an average of 5.4 people living per house. The main economic activity is fishing, housekeeping and local commerce. Tourism is not an option for the settlement, due to the infrastructure of the settlement and the lack of connection with bigger cities.

The following map analyzes the economic activities of the people who represent each

¹⁰ Source: by author in base of Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).#

family, the location and its role in the economy and in the social system of the settlement.

Economic Activity Jobs



Map 1-03- Economy map Jobs¹¹

The map represents the main sector activities of the town and the empty houses, the strategy location of the Police officer, and the only shopkeeper in the town, this map is in base for economic activity of the person who is the head of the family and how they are supplying food on the table, other clear aspect of this map is how the economy activity create the settlement structure according to the space relation, for example the fisher families are in the boundary of the settlement, the storekeeper

¹¹ Economic Activity map by Author, Basemap source; Esri, Maka, Geoeye, EarthGeographics, CNES/Airbus, DS, USDA, USGS, AeroGrid and Gis user community.

is located in front of the community leader and next to the minister. might be interesting how this relationship can create and urban activity more intense than other sites of the settlement, according to the culture and social life of the inhabitants, specially during the night, by the other hand the industry settlement center might be where the carpenter ,the cabinet maker and trader are located almost in the geometry center of the town and how them create this Economic atmosphere, in this town one of the most important actors is the carpenter due to the boats productions, housing made by wood in the Mangle forest, although the Mangle Forest represent and important ecology actor in the health of the (Cienaga), thus this fact must take in consideration in order to supply sustainable primary resources.

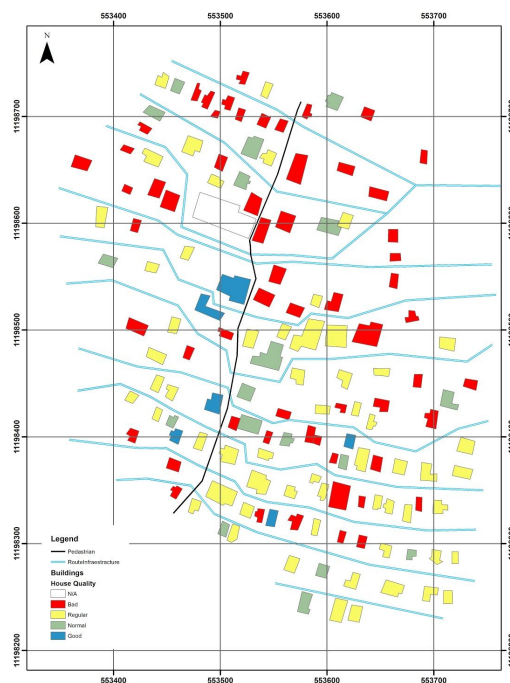
2.4 Housing

In parallel with the economy activity the house quality and its structure are factors growing together in this lifestyle, in order to identify critical points and inhabitants living under conditions the following map represents the house structure quality, classified by physical status, roofs and material condition, without taking in consideration the church just houses with families or persons living on.

Furthermore these houses have an architecture distribution of one open space with all of the functions together just some of them have different rooms for the kitchen and the bathroom but it is hard to find any house with more than 3 rooms, this fact also decrease the life quality taking in account

the average number of persons per house is 5.4.

House condition map:



Map 1-04- House condition in Buenavista¹²

Clearly more than 80 % of the inhabitants are living in bad and regular conditions house structure without enough sanitary and security conditions everything constructed by themselves, Talking about seaside place with high humidity and strong raining seasons, indeed the new building material is drywall and prefabric concrete panels due to the economy factors and time however those materials are quite weak for exteriors, by the other hand the old or traditional houses present a better structural behaviour

¹² House condition map by Author, created with the information of Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

regarding to the kind of wood founded in the place (Mangle), in the following pictures are an example of new house and traditional stilts houses.

New house / Standart house Exterior:



Picture 1-02 Traditional stilt house in Buenavista.¹³



Picture 1-03 New stilt house in Buenavista.¹⁴

The pictures represents the main foundation material is wood, mostly of the cases coming from the mangle forest , also they

¹³Traditional stilt house in Buenavista : Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

¹⁴ New stilt house in Buenavista. Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

are using Guayacan and Trupillo¹⁵ trees located in the sector and with good water resistance, nevertheless the low quality of the building and the lack of sanitary standards is a problem in this house space disposition, for example the toilets are just an empty hole in the floor surface, even for new houses. the question here must be; but how else can it be solved?. Another problem was the roof material made by Asbestos forgiven due to health problems, indeed very often building material in the whole country. *Breathing in asbestos fibres can cause asbestosis, lung cancer and mesothelioma.*¹⁶

Besides identifying the families living in overcrowding conditions is an important fact after analysing the birthrate, education level and economy activity, the following map is an analysis of two variables: the number of rooms per house and the number of inhabitants in order to identify the total number of overcrowding cases The average of m2 of each house is around 45-60m2 mostly of the cases but is not exactly that's why it will be more accurate to determine the cases in base of the number of rooms. (PPR) method¹⁷

Overcrowding Index PPR:

$$I\% = \# \text{ Person} / \# \text{ Rooms:}$$

1. Until 2.4 : Not Overcrowding;

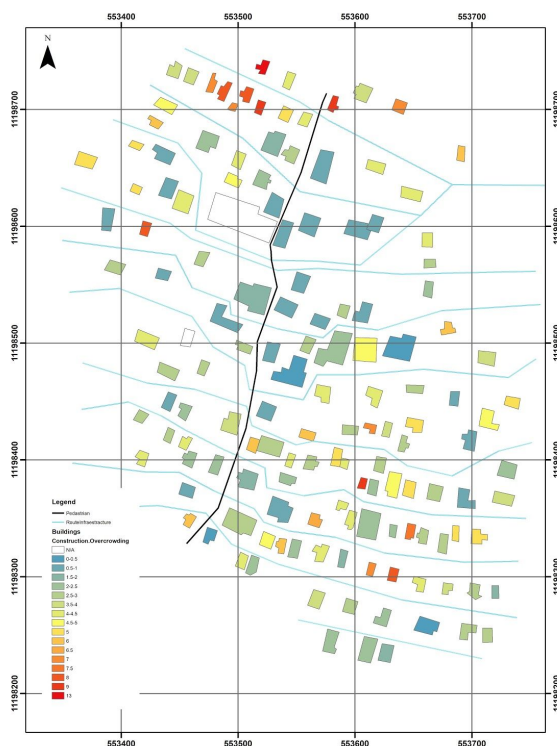
¹⁵ Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

¹⁶<https://www.health.nsw.gov.au/environment/factsheets/Pages/asbestos-and-health-risks.aspx>

¹⁷ Índice Calidad Global De La Vivienda Consultado el 15/05/2020.

2. 2.5 - 4.9 : Middle Overcrowding;
3. more 5.0 : Critic overcrowding.

Overcrowding map Buenavista:



Map 1-05- Overcrowding map Buenavista¹⁸

The map expounds values of 9-13 persons living per room that are out of scale, considering the fact of the house's physical conditions and how the life conditions for some families in this settlement? That is why this document presents the status by plans to identify exactly the worst cases of life quality and social dimension. Nevertheless in the number of cases are represent in the following diagram, as result

¹⁸ Overcrowding map by Author, created with the information of Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

32 houses are living in critical conditions and 46 houses are living in middle overcrowding conditions that mean 55% of the houses more than a half of the population is living in overcrowding conditions and it is rising comparing it with the birth rate and population tendency.

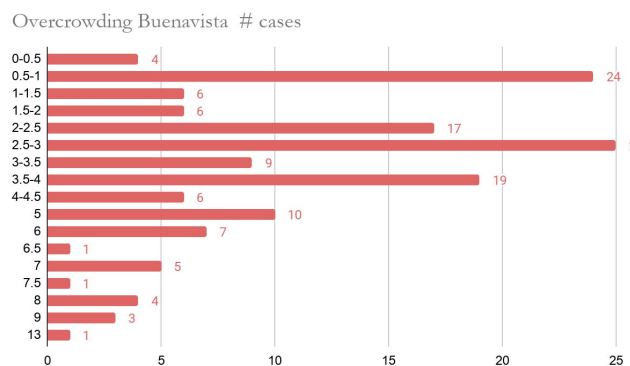


Figure 1-04 ; Number of overcrowding cases in Buenavista¹⁹

The situation in housing social dimension in the settlement is critical as a consequence of the physically house structure, the architecture disposition of the spaces and the rate of overcrowding cases, nevertheless Colombia and specially this kind of settlements have an special identity and life social cycle, those are not measurable facts but important in order to create engage with the community and the different stakeholders.

However, *The Right to Adequate Housing is a human right recognized in international*

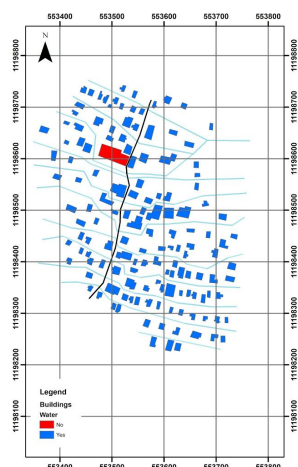
¹⁹ Source:by author in base of Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).#

human rights law as part of the right to an adequate standard of living. One of the first references to it is in article 25 (1) of the Universal Declaration of Human Rights.²⁰ Even for the national Colombian constitution, in spite of the location, the lack of resources and other factors more related with human behaviour are letting this settlement into a state forgiveness even for local authorities.

2.5 Services

Another important factor is the access to clean and services, this document takes in consideration clean water service (map 06), swear service (map 07), electricity (map 07) and Gas (map08), as the social dimensions of access to services based on OECD well Being²¹ parameters.

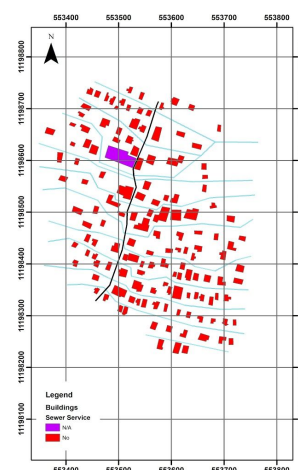
Clean water service:



Map 1-06- Clean water connection.²²

The clean water service is supplied by Bogoducto company, a regional business created by the locals, it consists of a big ship that picks up clean water in a specific place, then brings it back to the settlement and begins to sell it. The clean water, according to the survey, it has a cost of 1.6 Euros or 6.000 pesos (local currency)²³ per 500 ml of water can provide an average family for 3 or 5 days according to the amount of integrants and they need, other critical problem; the monthly spend of the inhabitants in regard to their income and the amount of people to supply food, for example the house with 13 persons living in one room without constant clean water service and a hole as the toilet in the floor.

Swear service:



Map 1-07- Swear service.²⁴

Buenvista doesn't have any swear service connection or septic tank. All of the human waste is going to the cienaga water, the

²⁰ The Right to Adequate Housing Office of the United Nations High Commissioner for Human Rights United Nations Office at Geneva

²¹ <https://www.oecdregionalwellbeing.org/index.html>

²² Clean water map by Author. Base Diagnóstico social y técnico Corporación Tierra sos (06-2019)

²³ I. Servicios publicos Diagnóstico social y técnico y Corporación Tierra sos (06-2019)

²⁴ Clean water map by Author, created with the information of Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

same water they use to fish probably far away from the houses but it is another big problem for their health and the ecology balance in “Ciénaga”. Next to this is a picture of one house and its toilet, this house is in bad condition but even the new structures are using the same toilet concept due to the lack of other solutions.

Toilet disposition picture stilt house Buenaviste.



Picture 1-04 Toilet disposition Buenavista.²⁵

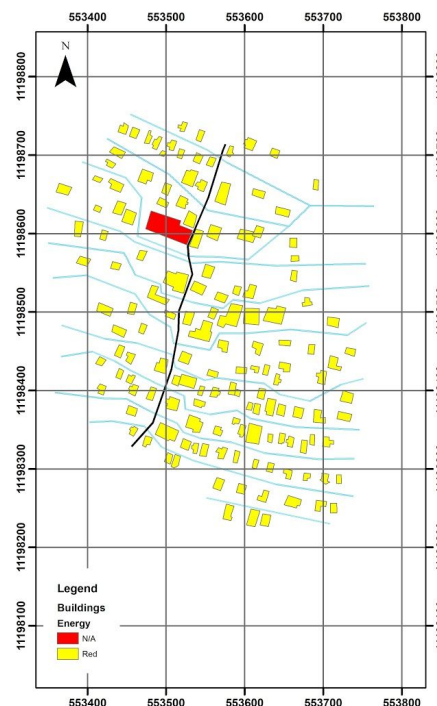
The next service to take in account is the electricity, almost 100 % of the houses have electricity connection coming for a traditional electric plant in a town call San Antonio ²⁶ this network most of the time is unstable and create problems for the inhabitants electrodomestics but at least they have this service, and interesting fact is most of the houses have at least one T.V or Radio around 85% of the houses have this service even the families living in really low

²⁵ Toilet disposition picture by Transformación social con color de las viviendas palafíticas en el corregimiento de Buenavista Ciénaga Grande Magdalena; Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

²⁶ I.Servicios públicos Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

conditions, another not measurable aspect but still important in this studying process.

Electricity Access:

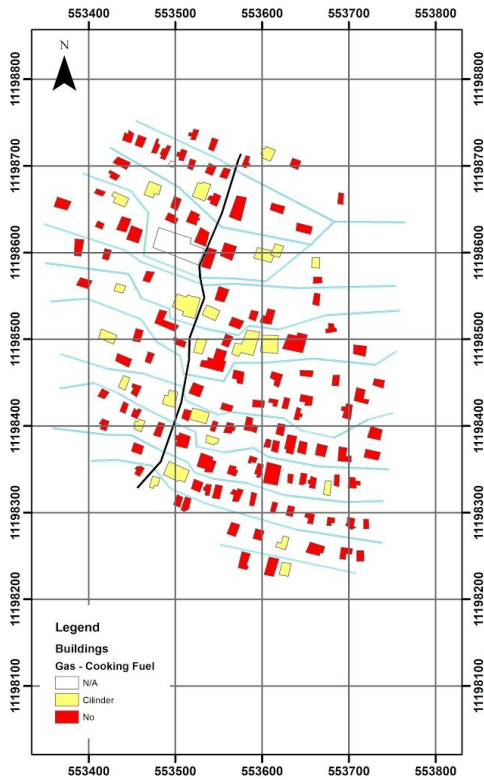


Map 1-08- Electricity Service Buenavista .²⁷

At least in the access service dimension one of the most important activities is cooking, how is this community preparing their food or cleaning the water?, the following map identify the houses with Gas cylinder and the houses or families cooking with wood and the traditional method, this last method can be dangerous due to the building materials of the structure and the effects of the smoke in the health of the inhabitants, not the less it is what is it is and they do not have to many options.

²⁷ Clean water map by Author, created with the information of Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

Energy cooking process supply:



Map 1-09- Energy Cooking process Buenavista.²⁸

As a result just 24 houses have their own gas cylinder, the rest of them are cooking with wood and it is quite interesting how the needs make the design in these stilts houses, in the kitchen they leave a air gap between the wooden bars in the floor to leave the ash go to the water avoiding fire problems although more waste going to the water and the ecology system in this natural resource.

In order to conclude this chapter this paper identify the critical social life quality of the inhabitants in Buenavista, regarding the

²⁸ Energy cooking process map by Author, created with the information of Diagnóstico social y técnico y Corporación Tierra sos (06-2019).

following dimensions: Housing, Access to service, Education, jobs or economy activity and safety. The ecology will be considered in general due to “La cienaga” is a national park of Colombia and Buenavista is not the only actor involved in this problem.

However some social dimensions like community engagement, life satisfaction are not contemply in this paper, because those factors are completely subjective and this kind of community presents a very interesting life perspective even though their life quality conditions, then it is something impossible to compare with, but interesting from a sociology point of view.

3. OECD well being measurement Housing

Colombia presents a national measurement made by this methodology. The results are quite interesting and it will be useful to determine the local social situation of Buenavista compared with the national life quality, focusing on housing.

The following are the results of the OECD well being measurement in Colombia taken in 2018 furthermore this study also takes in consideration some other countries in order to create a comprehensive scale and clear lecture of the obtained data, sorted by dimensions.

Housing according to the OECD methodology those are the factors taking in consideration to obtain the index; “*Living in satisfactory housing conditions is one of the most important aspects of people's lives. Housing is essential to meet basic needs, such as shelter, but it is not just a question*

of four walls and a roof. Housing should offer a place to sleep and rest where people feel safe and have privacy and personal space; somewhere they can raise a family. All of these elements help make a house a home."²⁹ The next diagrams compare Buenavista, Colombia, Hungary, Switzerland and the United State of America by element, persons living per room and housing general index value.

Persons per room Index OECD and Buenavista.

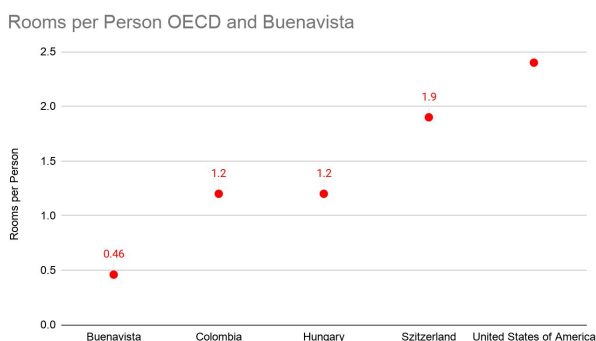


Figure 2 -01 Rooms per person diagram OECD and Buenavista ³⁰

Buenavista has less than a half room per person 0.46 it means 0.74 points under the national media and 1.34 points under OECD average of 1.8 rooms per person.³¹

In order to give an accurate rate to Buenavista in housing dimension this paper considers the quality of the houses and the same aspects regarding the OECD variables,

²⁹ OECD Better life index, Housing Dimension <http://www.oecdbetterlifeindex.org/countries/colombia/>

³⁰ Room per person diagram by author based on OECD Better life index, HousingDimension, and number of overcrowding cases in buenavista Figure 1-04.

³¹ OECD Better life index, Housing Dimension.

such us; access to service, swear services, clean water and private space.

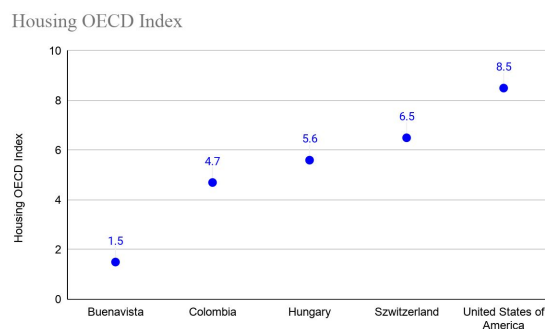


Figure 2 -02 Housing dimension value OECD measuring methodology³²

As clear as crystal, Buenavista has a very low rate in house quality, in spite of that the inhabitants consider their houses as home and are living with strong family principles, something not measurable but important in order to keep working and improving their life as a society.

4. Searching for opportunities.

The implementation of an innovative system will be a must in order to supply basics needs in Buenavista, specially in housing social dimension where Buenavista present a critical situation, in regards the analysis of actors and their role into the community will be an important fact during the creation of the system, searching for real impact and present structured projects to differents stakeholders.

³² Housing dimension value OECD measuring methodology by author in base of OECD Better life index, Housing Dimension.

In Colombia already have good examples of social projects by innovative systems now a days *Impact hub* (Building Communities for impact) *“We are one of the world’s largest networks focused on building entrepreneurial communities for impact at scale — home to the innovators, the dreamers and the entrepreneurs who are creating tangible solutions to the world’s most pressing issues.”*³³ This organisation has two projects in this country Bogota and Manous , the interesting one will be the Manous project because this small town is also a stilt settlement located in a remote area in the Amazonas jungle.

UN nation goals are the lens of the social network and the creation of projects in global terms and community development. Colombia has an important number of organizations working for the needs of these communities, also the government has been implementing public policies and projects, the point is how to high line the situation in Buenavista into the progress plans of the region and national public policies.

5. Conclusions

This paper is the initial part (Diagnostic) of a social project and innovation system as a result of the critical situation in Buenavista where you can find 13 persons living in the same room without sanitary conditions, identifying cases like this the answers will be more accurate and well being formulated.

The local actors and their skills are the strongest point of this community, the rate of labour force, the strong community concept create an interesting atmosphere, to work and implement solutions.

Although the housing is quite under the National average, the lack of service, clean water and other basics needs are not satisfying, Buenavista has this other life perspective where the life quality is not inside of a measurable social dimension methodology, the happiness is in the time you share with the others and the opportunity to bring a hand even though your situation might be worse.

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- La barbarie by Semana article published in 01/08/2001, <https://www.semana.com/nacion/articulo/la-barbarie/44678-3/>

³³ Impact hub Global Community Impact Hub GmbH
Lindengasse 56 / 18-19
1070 Vienna, Austria

- <https://www.health.nsw.gov.au/environment/factsheets/Pages/asbestos-and-health-risks.aspx>
- Índice Calidad Global De La Vivienda Consultado el 15/05/2020.
- The Right to Adequate Housing Office of the United Nations High Commissioner for Human Rights United Nations Office at Geneva.
- OECD Better life index, Housing Dimension <http://www.oecdbetterlifeindex.org/countries/colombia/>.
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- Impact hub Global Community Impact Hub GmbH Lindengasse 56 / 18-19 1070 Vienna, Austria.