



BAMBÚ SOCIAL is an educational and construction project with the main goal to share knowledge and expertise about the use of local resources for sustainable and affordable social housing. Building techniques used in subtropical areas are often not adapted to the local environment any more. The materials used in El Rama, Nicaragua create a warm and humid interior climate and are produced with processes that pollute the natural environment. In addition, the local population is dependent on unreliable systems for building, electricity, clean drinking water and food. In El Rama, BAMBÚ SOCIAL set up a 'Sustainable Construction' course, together with the local university and the municipality, to create a sustainable and dignified alternative to social housing. This building method can be practiced in a completely local manner, with the integration of a decentralized, low-tech, natural water purification and storage system in order to provide clean drinking water for the inhabitants of the house. The constructed model house is the base for the design of an affordable social home and the manual 'Un manual de construcción sostenible', which explains the entire process with step by step drawings. The model house is donated to the local university and currently functions as a library. Our team is still working on a freely available spanish manual and the stimulation of locally initiated projects with bamboo.

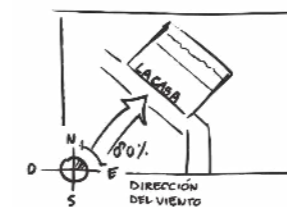


FACTLIST

PROJECT NAME:	BAMBÚ SOCIAL
EXECUTION:	SHORTSIGHTED ARCHITECTURE
LOCATION:	EL RAMA, NICARAGUA
MAIN LOCAL PARTNERS:	BLUEFIELDS INDIAN CARIBBEAN UNIVERSITY (BICU), MUNICIPALITY OF EL RAMA, COMMUNITY OF EL RAMA & ESPERANZA
TOTAL COSTS:	€ 51.487,15
SOURCES OF FUNDING:	CROWDFUNDING, PRIVATE FUNDING & CONTRIBUTIONS OF FOUNDATIONS
PREPARATION:	APRIL 2013 - JANUARY 2015
EXECUTION:	FEBRUARY 2014 - AUGUST 2014
MANUAL & REPORT:	AUGUST 2015 - ONGOING

MAIN ACTIVITIES

- WORKSHOPS AND LECTURES** with community of El Rama and local farmers to promote sustainable construction, use of bamboo as construction material and sanitation
- DESIGN OF MODEL HOME** from bamboo in collaboration with local community
- Development & integration of **DECENTRALIZED WATERCOLLECTION AND -PURIFICATION SYSTEM** in collaboration with Blue Energy
- Set up of a **BAMBOO INFRASTRUCTURE** for cutting- treating- cleaning and transporting
- CONSTRUCTION OF MODEL HOME** with local craftsmen and students
- Design and development of '**PERMACULTURE**' GARDEN in collaboration with students from the BICU
- COURSE 'CONSTRUCCIÓN SOSTENIBLE'** in collaboration with the BICU with twenty local students and craftsmen
- Facilitation of the **COURSE 'ARTESANIAS CON BAMBÚ'**, initiated by de local municipality for the poorest community of Esperanza
- Development of **BAMBOO WAISTBINS** for the community of El Rama
- DESIGN OF SOCIAL HOME** a more affordable version of the model house
- Guidance of further development of bamboo structures in collaboration by the Universidad CentroAmericano
- Development of the '**MANUAL DE CONSTRUCCIÓN SOSTENIBLE'**, which explains the entire process step by step



BAMBÚ SOCIAL

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BENEFICIARIES

- 18 Participants 'Sustainable Construction' course
- 20+ Participants 'Bambu Artesanias' course
- 3 Groups of families that received waterfilters, created by students of the course with aftercare from Blue Energy
- 1000+ Involved volunteers, visitors of workshops & lectures and employees

1. Cooperate for fair and sustainable development initiatives in active collaboration with disadvantaged people or communities. This process shall follow principles of human solidarity, non-discrimination and will be aimed at promotion their self-sufficiency;

One of the focal points of the project BAMBÚ SOCIAL consisted of developing a blueprint for affordable and sustainable social housing, which would empower disadvantaged parts of communities in the bamboo belt around the world, to be able to build their own house from the cheaply available local material bamboo. With the design of the house, a decentralized and simple water-collection and purification system is integrated, which means the family is independent from failing centralized water systems.

Local social support for the project was created by means of the following activities:

- Clean up campaigns for a desolated communal building in the middle of the city to meet the locals in an informal manner.
- A kick off meeting where the goals of the projects were explained and where more than 100 people from El Rama could discuss with us what they wanted the project to tackle.
- Open interviews with low income families to acquire enough information about the wishes the design of a social house.
- Free workshops about, water filters, basics and possibilities of bamboo construction. All the steps regarding the preparation and execution of the house were made with the students from the sustainable construction course and locals from the communities of Esperanza and El Recreo.
- The approach of local and national media to highlight the importance of the challenges and the possible solutions.

FIRST MEETING WITH STUDENTS SUSTAINABLE CONSTRUCTION COURSE IN A CIRCLE OF EQUALITY

INTERVIEWS WITH LOCAL COMMUNITY



STUDENT COURSE SUSTAINABLE CONSTRUCTION



WORKSHOP ON MAKING BIOSANDFILTER



CONSTRUCTION OF BAMBOO WATER TANK



CLEANING CAMPAIGN WITH LOCAL COMMUNITY





FINISHED MODEL HOME WHICH NOW FUNCTIONS AS A LIBRARY

5. Facilitate the use of appropriate technologies, materials and labour adequate to local values, to the cultural specificity and responsive to the natural environment;

El Rama and her vicinity knows a rich history of well ventilated indigenous architecture, lifted by wooden structures. For many reasons, these homes have slowly been replaced by buildings from cement-block with corrugated sheeted roofs and concrete floors.

Although Nicaragua is home to many extensive rainforests, large parts of the forests have been cut down for commercial logging, cattle grazing and agricultural purposes. The use of bamboo as an alternative for traditional construction material was stimulated because of its abundance, its construction and environmental advantages. It is relatively easy to grow, treat and use in the construction. Moreover this grass has properties that fight deforestation, earth erosion and support a continuous supply of water in rivers.

For the introduction of bamboo as a construction material BAMBÚ SOCIAL introduced the course of sustainable construction, which focused on capacitating a part of the community to be able to build such a home. Next to the course, a centre for building capacities and the promotion of the use local materials was set up in collaboration with the municipality in the centre of El Rama. This centre, still active through the local community, hosts workshops, lectures and meetings, while consultancy hours concerning sustainable design & building and water purification are given.



STUDENTS AFTER RECEIVING THEIR CERTIFICATE FROM THE BICU DIRECTOR

WORKSHOP WITH STUDENTS AND LOCAL FARMERS



WORKSHOP CUTTING BAMBOO IN THE RIGHT WAY



WORKSHOP TREATMENT OF BAMBOO



CLEANING OF BAMBOO BY VOLUNTEERS



WORKSHOP GROUND RESEARCH AND PREPARATION OF THE FOUNDATION



STUDENTS MAKING 'ESPICHES DE BAMBÚ'



ROOF DETAIL



BAMBOO RAIL DETAIL





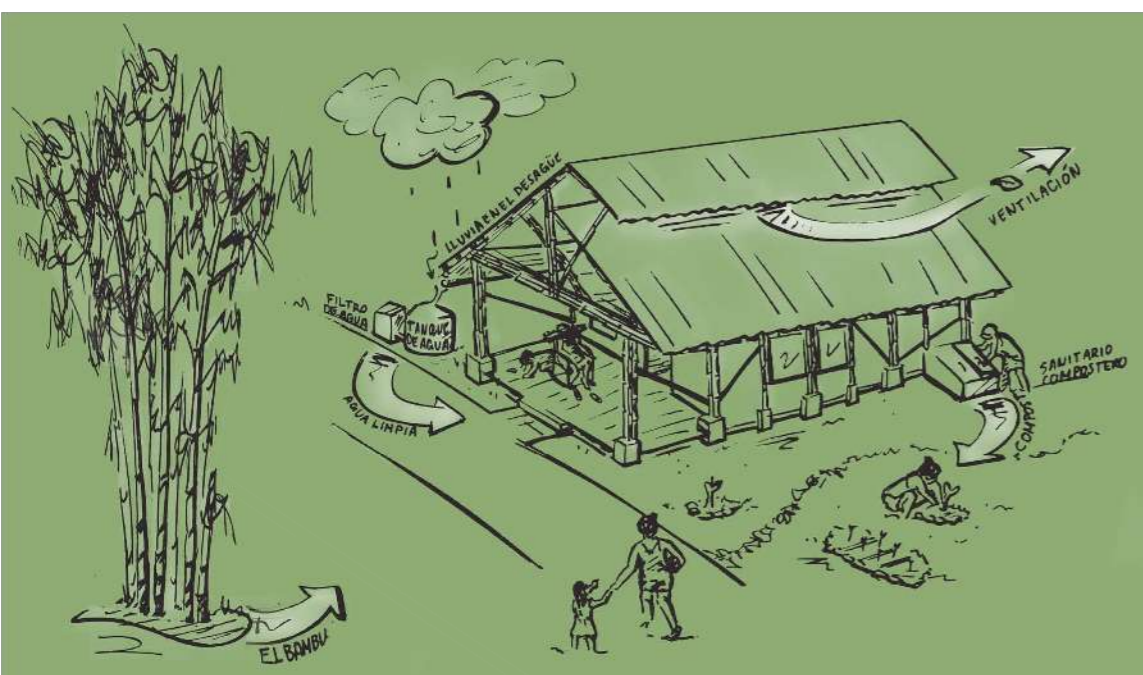
CURRENT HOUSING SITUATION EL RAMA, NICARAGUA

10. Defend, promote and enable access to adequate and dignified habitat for all as a 'Fundamental Human Right'.

Nicaragua has serious problems regarding the quantity and the quality of social housing. 78% of the population live in bad quality housing or do not have a house at all (IDB, 2012). To lower costs, the people tempt to lower the quality of concrete and apply less or no steel reinforcement, which makes structures vulnerable for natural disasters such as earthquakes and hurricanes. Moreover, conventional designs make use of concrete walls and metal roofs, which, in combination with designs that do not stimulate airflow, produce extremely hot and humid interiors.

The design for bamboo social housing copes with most of those challenges for areas where bamboo is available.

1. The use of bamboo stimulates the local economy. The whole process, from selection to construction of houses can be done by local parties, farmers can sell their bamboo as an extra source of income and small communities can grow their own bamboo to repair or enlarge their houses.
2. The design contains a passive ventilation system which keeps the house cool and dry throughout the whole year.
3. With a price of \$7000 the social house, including sanitation and a water purification system, is far more affordable than a comparable house of concrete which costs minimum \$12.000, without sanitation, in El Rama.
4. If well build, bamboo houses are also safer than concrete houses in earthquake risk areas, because its elasticity and lightness.



INTEGRATED DESIGN FOR WELL VENTILATED SOCIAL HOME WITH WATER COLLECTION AND PURIFICATION SYSTEM



CUTTING 'THE GREEN GOLD'

BAMBOO DETAIL MODEL HOUSE



BANANAPLANT FOR GREY WATER SYSTEM



BAMBOO DETAIL BY LOCAL CARPENTER



BAMBOO DETAIL BY LOCAL CARPENTER



BAMBOO DETAIL BY LOCAL CARPENTER



FINISHED MODEL HOUSE WITH NEIGHBOURS

