

POLITECNICO DI TORINO
FIRST SCHOOL OF ARCHITECTURE
Master of Science in Architecture (Construction)
Honors theses

Raw earth and contemporary Africa - A project for a nursery school in Minabò, Ivory Coast

by Pietro Bairati and Clara Giura

Tutor: Simonetta Pagliolico

Co-tutors: Enrico Fabrizio and Matteo Robiglio

The project “Raw earth and contemporary Africa”, is concerned with the design of a kindergarten in Minabò, a rural village in the center of Ivory Coast. The main objective of this thesis is the realization of a building in harmony with its surroundings. Using models of environmental comfort and sustainability along with local materials and techniques with a contemporary approach creates a harmonious example of low-cost building with an increase in quality.



The study of the local techniques and materials typically used in African construction shows a progressive loss of sustainable vernacular techniques that are suitable for an African climate. Research for this project has focused mainly on clay, which is now held in negative regards within the African population. Construction with clay is perceived to be characteristic of a poor and archaic society and is unsuitable for the evolution into modern times.

This is paradoxical when Western countries currently consider rammed earth to be a valued raw material that is characterized as being eco-friendly, healthy, and compatible with bio-architecture projects.

Relating to architectural research, one of the primary aims of this thesis is to evaluate and promote the use of clay as a modern construction material. Its use in a public building will aim to shift the local perceptions to increase the value and appreciation of clay in local communities.

The thesis is divided into four sections:

- A speech on the current socio-economic situation in Ivory Coast with a focus on issues related to the theme of the school, including the impact of family and education, in the local community.
- An essay that analyzes the "reciprocal gaze" between Africa and the West, in which Africa aspires to achieve a Western model of modernization, while the West looks to African vernacular architecture for solutions to issues concerning environmental sustainability and ecology.
- A survey of clay in which scientific experiments are used to investigate the performance of stabilized earth blocks. The focus of this work makes it possible to concretely understand the practical characteristics of the material earth, its limitations, and its potential to be applied directly to this project. Beginning with the observation of the emergence of plastic waste in Ivory Coast, the research inevitably evolved to assume the inclusion of plastic fibers within each block (BPTC). The recycling of plastic bags is seen as a potential solution concerning the issue of plastic waste that infests the African territory. The objective is to test, evaluate, and optimize the performance of the blocks in order to find future prospects for progression of research in this field.
- The preliminary research including location, design criteria, techniques, and the relationship between architecture and education, specifically the relationship between productivity and the classroom environment, inspired the final design and objective of this project. This section encapsulates the spirit of the project in line with the objectives of the group Re.Te. (Return technological) Sermig, NGOs Granello di Senape and Mattone su Mattone.



It is important to emphasize that this thesis provides the opportunity to design a school with real prospects of architectural achievement. Therefore, compromise between a multiplicity of actors, real consumers and clients, a fixed budget, deadlines and timelines all need to be taken into account in order that all needs can be met in each and every design decision.



For further information, e-mail:
Pietro Bairati: madeinrete@gmail.com
Clara Giura: madeinrete@gmail.com