

Imagining cultures of cooperation: Universities networking to face the new development challenges

III CUCS Congress Turin, 19-21 September 2013

PARTICIPATORY DESIGN AND BUILDING WITH INTERNATIONAL STUDENTS AND INDIGENOUS COMMUNITIES OF MEXICO

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Associazione Archintorno

Abstract

Archintorno is a non-profit association formed by young architects with seat in Naples. In the last 7 years it has promoted projects, in which European and Mexican students were directly involved in designing and building architectures that support self-help development programs proposed by indigenous communities of the Oaxaca State, Mexico.

The poster presents three Design-Build Studios, focusing on the complex participatory process that saw international groups of students and indigenous communities as main actors at each step of the projects.

With each community, the process starts with a first survey, where all elements useful for the project's development are collected, and a first exchange of expectations, ideas and arrangements takes place. The latter continues during the architecture design and with the choice by the community of one project among different proposals. After that, during the construction step, technical exchange among the participants is pursued; the attempt is to valorize local building materials, knowledge and expertise - and through this to strengthen the community's self-esteem - and to practically suggest possible improvements in these fields. Moreover, an important goal in this phase is the cultural exchange, which emerges spontaneously thanks to the experience of living and working together for some months. This aspect is also improved through an household survey lead by the students with the families of the host village, in order to understand local lifestyles and housing cultures. Main objectives in each project are to create integrated project and to stimulate networks of cooperation and solidarity on our territory and abroad, by involving different actors: public, private and the various expressions of the civil society.

Achieved Results



Casa Comunitaria/Community House
 site: Santa Cruz Tepetotutla, Chinantla Alta
 request from: community assembly
 type of intervention: recover foundation, new building
 year of construction: 2006-2007
 materials: concrete, wood, metal sheets
 students involved: 60
 students participating in the construction: 16
 local labor involved: 2 carpenter, 1 bricklayer, tequio*
 local partner: ONG C.A.M.P.O., AC, Oaxaca, Mexico
 major funding: Regione Campania, Assessorato all'istruzione, formazione e lavoro, Provincia di Napoli, Assessorato alle Politiche Sociali-Cultura-Pace
 patronage: Università degli Studi di Napoli Federico II, Ordine APCC di Napoli e Provincia



Casa Comunitaria/Community House
 site: San Pedro Tlatepuc, Chinantla Alta
 request from: community assembly
 type of intervention: recover existing building, new floor addition
 year of construction: 2009
 materials: concrete, wood, metal sheets
 students involved: 20
 students participating in the construction: 11
 local labor involved: 1 carpenter, 1 bricklayer, tequio*
 local partner: ONG C.A.M.P.O., AC, Oaxaca, Mexico
 major funding: Provincia di Napoli, Assessorato alle Politiche Sociali - Cultura - Pace - Politiche giovanili
 patronage: Università degli Studi di Napoli Federico II, Ordine APCC di Napoli e Provincia, Collegio Architetti e Ingegneri Monza



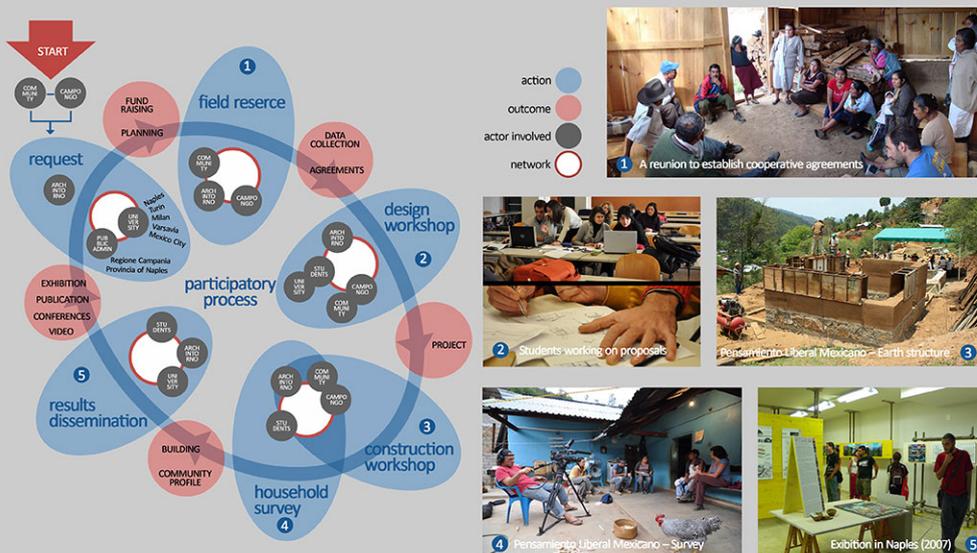
Centro Microregionale de Innovación Tecnológica
 site: Pensamiento Liberal Mexicano, Valle Central
 request from: coop. Grupo Mixto Rio Pluma
 type of intervention: new building
 year of construction: 2012
 materials: rammed earth, wood, stones, tejamanil, metal sheets
 students involved: 26
 students participating in the construction: 26
 local labor involved: 1 carpenter, 1 bricklayer, coop.
 local partner: ONG C.A.M.P.O., AC, Oaxaca, Mexico
 project partners: CRD-PVS Politecnico di Torino, Taller Max Cetto UNAM, Mexico City, MX
 local partner: ONG C.A.M.P.O., AC, Oaxaca, Mexico
 major funding: Taller Max Cetto, Politecnico di Torino

*Tequio: each family offers some days of free work to its community each year, thus directly participating in the community development and his strengthening fees. The villagers supported students with this form of social work.

Objectives

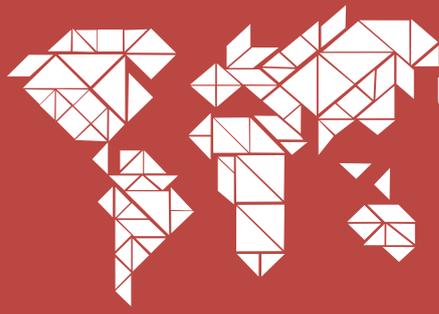
promote networking experiences
 participatory process
 cultural exchange
 experimentation
 create integrated project
 valorize vernacular housing and building tradition
 endorse local culture
 support communities project
 cooperation
 use local materials
 create appropriate building
 training students

Methodological approach



Conclusion

The result achieved is not only the construction of the houses but is build up a network of relationships too. The active participation of the communities during the whole project process, the enthusiasm of the students and professionals involved, the interest of the Italian administrations and institutions are a strong sign of the value of the experience. The great number of actors participating, as well as their different nature and geographical origin, testifies the multicultural character and the richness of the experience. Regarding this aspect, in the coming years Archintorno aims to expand the network of actors participating in the process, while involving mexican Universities, students and civil society. At the same time, we aim to deeply understand and involve the communities in whole project thanks to the introduction of the household survey, this tool to allow us to build up more solid relationships between communities and us.



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HAITI | 1 | Foyer d'accueil aux enfants démunis d'Haiti

Haiti, Leogane
2011/2012
Post-emergency project
Orphanage facility construction



Architettura Senza Frontiere Piemonte ONLUS

Architettura senza Frontiere Piemonte (Architecture without Borders) is part of ASF onlus Italian Network and ASF International. It handles cooperative projects involved in the protection and the development of architectural and cultural heritage, participation planning, architecture and sustainable technologies, environmental conservation and the protection of civil rights.

As part of the mandate, ASF Piedmont aims to guarantee adequate **shelter for people in need**. In this specific occasion, ASF Piedmont has completed the facility of "Le Foyer d'Accueil aux Enfants Demunis d'Haiti", and that is located in the small city of Leogane.

Leogane is a seaside town in the West Department of Haiti about 30 kilometers from the Haitian capital, Port au Prince. On January 12, 2010 Leogane was at the **epicenter of the earthquake** that affected 3 million people, causing the deaths of 222,517 and injuring 300,000. The disaster it destroyed houses, hospitals and schools. In Leogane the earthquake has also destroyed the old structure of the Foyer along with other 19 facilities for children.

The new facility dwells around 30 children, most of whom are under the age of three. Some are orphans, while others need help because their families are without the necessary means to support, instruct and educate. The director and the staff tirelessly work daily at the Foyer.

The reception house for children set in a **rural area** next to Leogane. The building is as simple as its own structure and it is completely designed for children.

The structure is **child friendly**.

The space, bedrooms and bathrooms, are wide and ventilated which ensure a high hygienic standard. While designing this structure we looked for a solution able to respond to:

- seismic forces
- widespread safety problems
- bioclimatic architecture criteria
- self-maintenance of the building

The **construction site** has been a very important experience for local workers to be trained through the direct participation during the implementation of the project.

In these terms it has been crucial for them to be involved during the setting up of laboratories, workshops and in general **technical trainings** that in the end has brought to them an official certificate that proves their new expertise.

In this way the project has been an opportunity to develop local capacity building and will ensure last longing impact of the process through the exchange of professional technical knowledge with the workers and their communities.

The capacity building of worker has had a key role in the project.

PARTICIPATIVE PROCESS

Beneficiaries involved during designing

Local community involved in the construction

CAPACITY BUILDING

Building site school: 15 trained workers

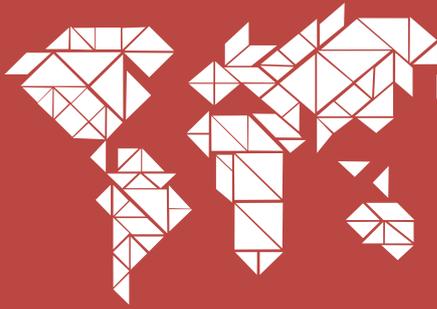
ORPHANAGE FACILITIES BUILT

30 children and staff accomodated

Conclusions are doubts

In any case, even if a project achieve the outcome, it keeps on asking us new questions:
Is an imported material a sustainable material?
Should be a sustainable project perfectly and easily replicated by locals?
Is welfarism a solution?
Can a cooperation construction project have a key role in the economic development?

The end of the project is a starting point for new paths.



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ARGENTINA | Cooperation between Fossano and Rafaela

Argentina, Province of Santa Fe, Rafaela
2013/2014

Multidisciplinary study on urban upgrading, social housing and urban agriculture



From past experiences...

The collaboration of ASF Piemonte with the City of Fossano and the Municipalidad de Rafaela began from a partnership between the two cities, the co-operation work is based on a multi-annual program that is implemented through specific projects identified with exchange and comparison.

ASF has worked continuously with the City of Fossano and Municipalidad Rafaela with the following projects:

- o 2010 - participation Competition Europaid 2010, with the project Art Includere.
- o 2011 - Within the project "Municipalidad de Rafaela instruments of environmental sustainability and autonomous management of training automotive sector" of the City of Fossano, supported by Regione Piemonte, ASF oversaw a conference on sustainability and social housing in Rafaela and organized visits and meetings of experiences of social housing in Turin for officers and directors of the Municipalidad de Rafaela.
- o 2011 - With the programme of the Compagnia di San Paolo "Formazione per lo Sviluppo", ASF Piemonte has provided a grant for the training of a technical Municipalidad de Rafaela, who attended the graduate course Habitat, technology and development (HTS), training course of developing countries CRD III level of the Polytechnic of Turin and has done an internship at the City of Fossano. The goal of his training was to study issues related to the environmental rehabilitation of marginal areas, in particular the enhancement of floodable areas forming part of the hydrological system of risk management in the Barrio Barranquitas, a suburb where there are settlements.
- o 2012 - In collaboration with the CRD-PVS, ASF Piemonte has promoted an internship at Municipalidad Rafaela students of the Postgraduate Habitat Technology and Development, who developed a research on the urban regeneration of the Barrio Barranquitas. The presence and work of the students have created the opportunity to present and discuss, with the projects carried out initially in Italy and perfected in Argentina, the themes of urban redevelopment and new types of social housing.

..to new proposals

Addressing new research topics through the comparison will help to strengthen relations between governments, improve knowledge, exchange best practices and enable new development projects and co-development.

The presence in the field of students, the different project proposals and comparison with different actors, represents a very effective way to deepen the debate and raise awareness.

Urban regeneration, of social housing and urban agriculture are prominent: problems that this project aims to address with a multidisciplinary research group of the University of Turin (architecture, sociology, economics, agricultural science) facing a specific case study proposed by Municipalidad de Rafaela.

An opportunity made possible by the project UNI.COOP (University of Turin), which offers study grants in projects of development cooperation and that selected the three proposed mobility for the fields of sociology, economics and agricultural science proposals ASF Piemonte.

At the same time, two graduating students of the Faculty of Architecture of the Polytechnic of Turin, ASF members, have obtained the contribution of the Politecnico di Torino for the conduct of the thesis abroad.

All the steps are made in cooperation with local authorities.

Activities in the first phase are: study and analysis of best practices, frameworks and procedures; teamwork between undergraduates and graduates of the various faculties with case study analysis, thematic workshops organized by professors and aimed at specific training for this project.

Field research is going to be developed in Torino, Fossano, and during the staying of three months in Rafaela between October and December 2013.

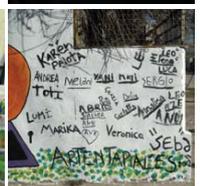


IMPROVE URBAN POLICIES THROUGH RESEARCH AND LONG TERM COOPERATION BETWEEN UNIVERSITIES, NGO, LOCAL AUTHORITIES



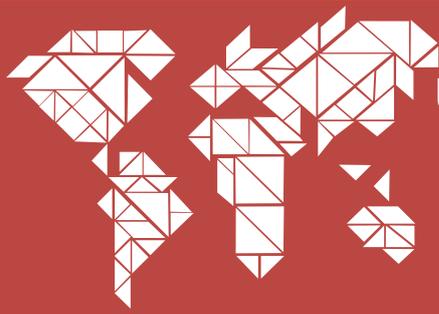
Multidisciplinary research applied to the Barrio must address the following issues:

- comparative approach and selection of international case studies, identification of best practices: architectural, social, environmental and economic, identification of public policies and housing policies that take into account the feasibility of interventions.
- concept of "productive and self-sustainable community" through the integration of vivienda social, agriculture, enhancement of public space, rationalization of housing development and economic aspects.
- evaluation of alternative forms of financing for redevelopment and urbanization, involving private investment through projects of corporate social responsibility.
- integration in the residential areas of services and productive activities: development of urban agriculture in public areas for urban renewal ("common lands") strengthening of participatory dynamics creation of local economies. Reflections on: mutual trust, willingness to cooperate in the creation of public goods, the ability to create socio-economic networks
- economic sustainability through the analysis of possible funding and procedures such as the DIY so as to facilitate access to the first home.
- architectural project of social housing integrated with private and collective green spaces, manufacturing processes of the artefacts, such as motors of participation and social integration and choice of materials and building technologies, such as opportunities to raise awareness and action for sustainable development.
- improving the energy behavior attention to the local climate and environmental issues, use of locally produced materials.



EXPECTED RESULTS URBAN UPGRADING PROJECT OF ONE OF THE BARRIOS OF RAFAELA THROUGH THE INTEGRATION OF SOCIAL HOUSING AND URBAN AGRICULTURE EXCHANGES BETWEEN FOSSANO AND RAFAELA SCHOOLS ON THE EXPERIENCE OF SCHOOL GARDENS

Cooperation as a long term process of sharing needs and knowledge



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Multiple voices design for the south of Quito: cooperation between universities and municipalities

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Polytechnic of Turin Postgraduate course in Habitat, Tecnology and Development

Abstract

A project proposal on the city of Quito, Ecuador, has been developed during the Postgraduate Course in "Habitat, Technology and Development" of the Polytechnic of Turin, in collaboration with the Universidad Central de Ecuador (UCE), the Ministerio de Desarrollo Urbano y Vivienda (MIDUVI) and the Distrito Metropolitano de Quito (DMQ). The main purpose is to start out a mutual comparison between different methodological approaches, hoping for a profitable combination of knowledge, appreciating the local strategies. The project started from the need of the Quito Municipality to conceive a new development plan for the southern areas of the capital that refer to the zonal administration of Quitumbe; the aim was to imagine new transformation scenarios according to the DMQ's strategical plan guidelines that hope to schedule a sustainable developing program before 2022 according to the perspective of Buen Vivir, which promotes equity and social inclusion. In the southern areas of Quito it is possible to observe the phenomena of informal settlements connected to problems due to land property. The informal settlements, or "barrios informales", developed without the previous installation of the basic infrastructures and without the related land property document. That happens because the people, settling down in these areas, are hardly capable in getting a house through the legal housing market; however they do refer to illegal landholders also called "traficantes de tierra", thus they pay the land fee without getting any regular property title. Indeed, referring to the city of Quito, we are not dealing with "land invasion", such as in many other South American cities, but with irregular parceling plans. From 2010 the DMQ started a massive process for the regularization of the informal settlements through its special department "Regula tu Barrio", helped by new legislative tools. The result of these dynamics is the suburban sprawl towards the marginal and rural areas frequently bound by ecological and agricultural protection, totally lacking in infrastructures and unsuitable for living. Our project outlines a possible response to the complexity of a such an urban reality, through the characterization of new land property strategies and the redefinition of the informal, regularized or not, occupied areas subject to environmentally restrictions, denominating them "ZEIS", "Zonas Especiales de Interese Agricolo e Social". The expected results deal with the environmental and economical improvement of the periurban scenario, its requalification through the spread of public utilities and the re-thinking of public spaces. The achieved results won't concern only with the increasing knowledge and experiences of the different subjects involved in the project, but also with a more valuable architectural and urban product.

Achieved results

The outcome of the project is the investigation, through operative methodology, of key themes about Quito's urban development, shared with many others cities of South America:

- regularization process of the land in informal settlements;
- policy and participatory instruments used by the municipality;
- land policy in Ecuador.

The project not only outlines new scenarios for the urban development of South Quito, but also prepares the ground for a fruitful and continuous collaboration between the involved institutions: Polytechnic of Turin, DMQ, MIDUVI and UCE. Moreover, during the internship in Quito, new themes have been pinpointed and follow-up projects have been outlined, even involving local NGOs and Quito hinterland authorities.

Objectives

The general aim of the internship was a student's professional training, which consists in the elaboration of a urban development project in Latin-America. Informal settlements and difficulties in finding official data have been the main challenges to address.

The specific objectives were the following:

- to develop relationship skills with Ministry and Municipality staff in order to elaborate a shared project, strongly related to the local background;
 - to acquire cognitive and methodological tools in order to analyse and compare urban development policies, to integrate the different aim and vision in the design phase
 - to support the creation of information sharing and collaboration between local authorities in Quito and Polytechnic of Turin.
- Building on this network next postgraduate students will be able to elaborate further projects.

Methodological approach

The work has been divided into 4 phases:

1. analysis and draft proposal
2. presentation of the proposal to local authorities
3. analysis on site through survey and interviews
4. project re-elaboration and contextualization

1. A draft proposal was developed in two workshops at Polytechnic of Turin during the Postgraduate Course in "Habitat, Technology and Development". The first project proposal was based on the functional and formal definition of the current urban boundary and on micro-actions in South Quito, focused on the requalification of the existing urban frame.

2. The proposal was presented to Quito local authorities that embraced the project. However they asked for further analysis on local policies. The municipality was interested in integrating the proposal into the current local processes. In detail, the DMQ required the elaboration of a pilot project in order to develop a proposal easy to reproduce in further interventions in the framework of South Quito requalification.

3. In order to address this request, a strong collaboration between local urban departments (Urban Planning Department and Quitumbe District Department) University professors and students and inhabitants of the neighbourhoods involved in the project has been set up. From several surveys and interviews with municipality staff a strong link between problems related to the ongoing massive regularization policies and low urban quality of the suburban districts has been identified. These factors contribute to the spread of the informal city which is growing without a plan.

4. After this work on site, a project was developed in order to offer a possible answer to these problems, through a urban planning proposal. The project is based on the identification of special areas within the parts of the city, declared non-residential zones, but occupied by informal settlements and subject to environmentally restrictions. These zones will be characterized by:

1. public utilities and high-quality urban spaces;
2. social housing to support the legal housing market;
3. implementation of land regularization process focused on the sprawl control.

The methodology described above has been integrated with ongoing participatory processes adopted by the municipality. As a result of this approach, inhabitants have been effectively involved, both in the design phase and in the following management of the public spaces.

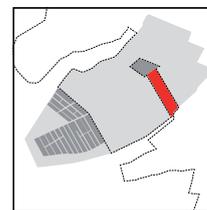
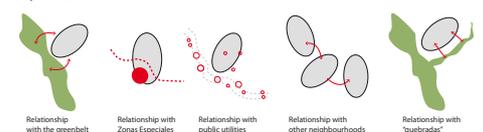
Conclusion

The researching and planning work, carried out during these months results in a strategic proposal concerned with urban policies and land property and, through a pilot project, outlines potential urban scenarios of requalification for the marginal areas in the southern districts of Quito; the aim was to suggest repeatable principles that could be also adapted to other suburban contexts. The achieved results were especially made possible thanks to the intensive relationship between the subjects involved and their different approaches to the urban issue. The cooperation between the institutions permitted to the students to enhance the project with their own personal and professional experiences for a more valuable urban and architectural proposal. Cooperation, therefore, was an important element for the good result of the project in its architectural and urban aspects. The conjunction of these factors straightened the already outlined cooperative relations between Polytechnic of Turin, DMQ and UCE; this could symbolize how academic and institutional entities can collaborate to achieve good planning results and help the students involved to improve personal working consciousness.

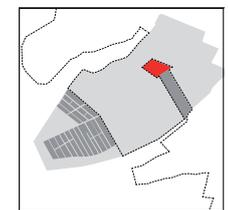
Analysis and key actions



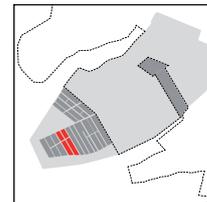
Key themes



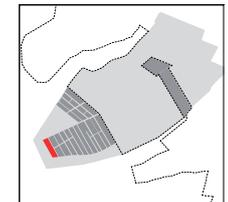
Z15r "Zona especial de interese social"



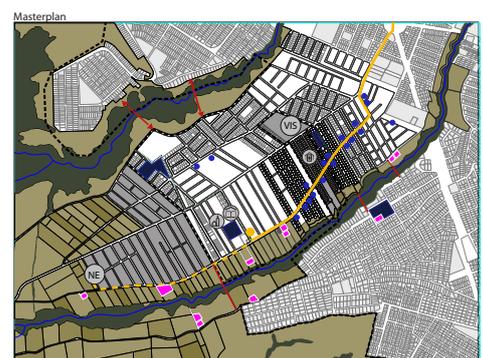
Z15SR "Zona especial de interese social"

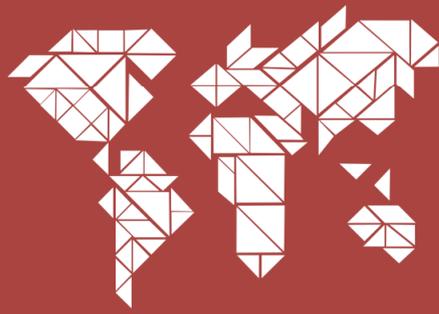


Z15AR "Zona especial de interese agricolo"



Z15AR "Zona especial de interese agricolo"





Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS
Torino, 19-21 Settembre 2013

Elimu na Malezi: psychosocial adjustment assessment in Tanzanian primary school children
Massimo Cotichella, Emanuela Rabaglietti, Beatrice Sacconi
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Samwel Kilimuhana, Vivian Nankurlu
 Department of Counselling Psychology, Tumaini University, Iringa, Tanzania

Since decades the world has been facing an unrelenting globalization process; but then, there is a growing moral and practical problem, that is the great imbalance in world's resources distribution and life improvement opportunities between people living in Western Countries and in Developing Countries

Introduction

This pilot study aimed to assess social and relational adjustment in Tanzanian primary school children, extending similar projects already carried out in Western Countries [Pastorelli, Barbaranelli, Cermak, Rozsa, Caprara, 1997; Lansford, Capanna, Caprara, Bates, Pettit, Pastorelli, 2007; Ciairano, Rabaglietti, Vacirca, 2008]. As no information about similar studies realized in Tanzania have been found, the first goal of the project was to adapt the measurement instruments to the Tanzanian context. For this purpose and in order to cope properly with any cultural issue, the involvement of a local University was considered fundamental. The assessment of social and relational adjustment has been realized in two different contexts: urban and rural. A total amount of thirty children from two Tanzanian primary schools (fifteen from urban context and fifteen from rural context) were recruited to participate in this research. The instruments used were: Caprara's scales for psychosocial adjustment assessment (prosocial behavior, emotional instability, and aggressiveness, Caprara et al., 1992) and an Italian adaptation of Bukowski's Friendship Quality Scale (FQS, Fonzi et al., 1996; Bukowski et al., 1994). A self-report questionnaire (including the above mentioned scales) was administered to the children in two separate sessions: one in the rural context school, the second in the urban context school, at the same time in the day (morning) during the month of October 2012.

Objectives

- 1) Instruments set adjustment to the very local cultural context, involving the local University
- 2) First assessment of possible distinctive features on Tanzanian children's adjusting processes to the adult world requirements

Methodological approach

The questionnaire was first built in Italian than translated in Swahili by an independent translator. The Swahili version was checked and slightly modified with Tumaini's staff before the first administration. Two schools were chosen by Tumaini University as typically representative of urban and rural context within the Iringa region.

30 children (15 from each primary school) were recruited to participate in the pilot study. Specifically, the sample consisted in 20 females (66.7%) and 10 males (33.3%) aged between 9 and 12 years (M=10; SD=0.98).

A self-report questionnaire was administered; it included:

- ❖ Measures of psychosocial adjustment (Caprara et al., 1992) in three different dimensions: prosocial behavior, emotional instability and aggression.
- ❖ Friendship quality (FQS; Fonzi et al., 1996; Bukowski et al., 1994) in five different dimensions: intimacy/closeness, companionship, conflict, help/aid, security

A T test was conducted to verify if any differences occurred between: psychosocial adjustment and gender, friendship quality and gender, psychosocial adjustment and context, friendship quality and context.

Achieved Results

As regards the **first objective**, an agreement between University of Torino and Tumaini University (Iringa, Tanzania) was signed to realize this project together. A selected group of Tanzanian students attended a specific training and participated to the administrations by reading the sentences and helping the children to fill the questionnaires. No misunderstanding problems were recorded during the administrations; children comprehended all the items of each scale.

As regards the **second objective** the findings indicate that **there aren't gender differences** neither among Caprara's dimensions of psychosocial adjustment nor among FQS's dimensions. Furthermore our findings show that the two schools differ significantly in the level of psychosocial adjustment and in particular in the level of prosocial behavior (Fig. 1). Precisely, **St. Dominic Savio Primary School (urban) reports level of prosocial behavior greater than Masukanzi Primary School (rural)**. Turning to the issue of Friendship Quality Scale, the level of intimacy/closeness dimension significantly differ between the two school (Fig. 2). In particular, **St. Dominic Savio Primary School (urban) reports scores of intimacy/closeness higher than Masukanzi Primary School (rural) ones**.

Conclusion

General findings from the present study indicate that the gender seems not to be an important factor in social and relational adjustment of Tanzanian children, while the rural or urban context appear to influence two specific dimensions of psychosocial adjustment and friendship quality.

As this is just a pilot study, it is quite too early to pronounce definitive opinions about children adjustment process in Tanzania. Nevertheless, further administrations will be conducted in 2013 with a more representative sample to verify the present results; thanks to the collaboration with Tumaini University, these next steps could be easier to be carried out.

But the final goal of the project is to contribute to focus on the most effective practices for a full and healthy development, addressing helps and subsidies of the International Cooperation.

This imply to find partners and sponsors, sharing ideas, exploring direct actions which may actually help children in their growth, realize them practically, than measure again if any change has occurred.

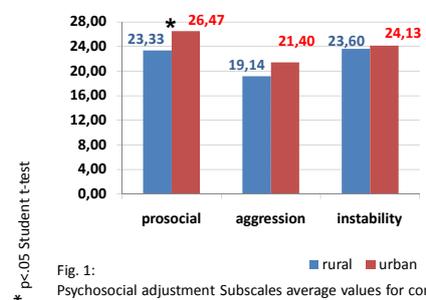


Fig. 1:
Psychosocial adjustment Subscales average values for context

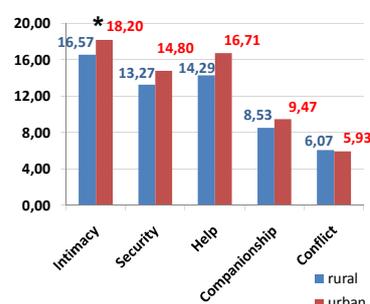
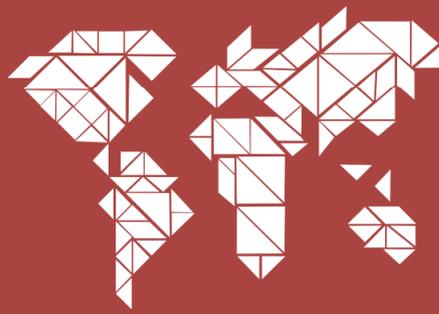
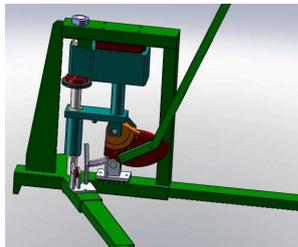


Fig. 2:
FQS Subscales average values for context



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS Torino, 19-21 Settembre 2013



FLOAT-RAM: A NEW HUMAN POWERED PRESS FOR EARTH BLOCKS

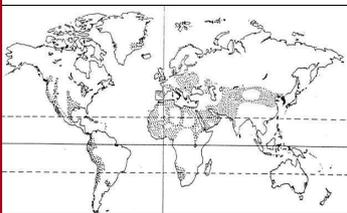
Carlo Ferraresi, Walter Franco, Giuseppe Quaglia
Politecnico di Torino

Dept. of Mechanical and Aerospace Engineering DIMEAS

Abstract The Float-Ram is a novel kind of human-powered press for raw earth blocks. It is able to provide very high performance, while maintaining a limited cost, due to some technical characteristics like:
 •the adoption of a **floating mould**, which provides a bi-directional pressing action in simple way;
 •**Optimized kinematic structure**, based on a cam-roller transmission system;
 •**General mechanical simplicity**, since the node of all kinematic pairs is constituted by a single shaft.
 Therefore the Float-Ram can be considered as an important media for the diffusion of high-quality raw earth building in developing Countries.

Building with raw earth

Blocks made of pressed and stabilized earth play a strategic role in self-building experiences of low-cost houses, as concerns improvement of housing condition for people in developing Countries, while respecting the environment and local cultures. One of the advantages of such building technique is that the production of blocks and the construction of the house can be carried out in the same place by means of a low-cost and no energy consuming human-powered press.



Distribution of raw earth building technique in the World



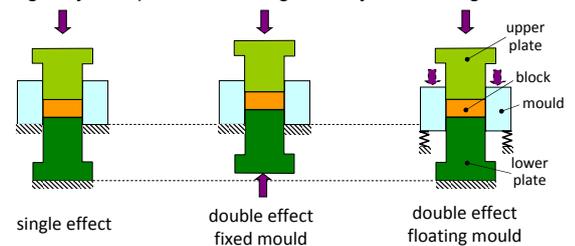
The Argentina project, led by Gloria Pasero.

Type of press

In the World today there is a large spread of very simple and cheap presses, which are able to produce earth adobes of rather limited quality. This is mainly due to a poor level of the kinematic and functional design, as well as to the *mono-directional pressing action*.

The quality and mechanical properties of the adobe are greatly improved by adopting a *bi-directional pressing action*, i.e. by presses able to compress at the same time both the top and the bottom face of the block. Few presses of this kind are available on the market, but they are typically mechanically complex, and then expensive and difficult to use.

The main characteristic of the Float-Ram is the employment of the *floating mould*, that permits to produce uniform blocks moving only one plate and using a freely translating mould.



Using a human-powered press

Production of raw earth blocks (adobes) with a human-powered press provides advantages like:

- Better earth compaction
- Constant and calibrated block geometry
- Quick and simple house building
- Non use of non renewable energy



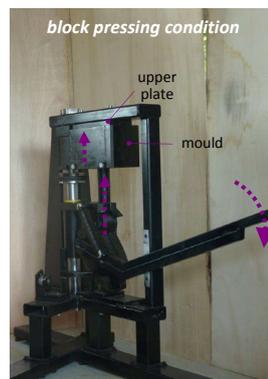
The Float-Ram adopts the concept of the floating mould, the process of block forming develops in 4 phases, switching between two different conditions of the machine:
 (a) earth filling/block expulsion;
 (b) block pressing.



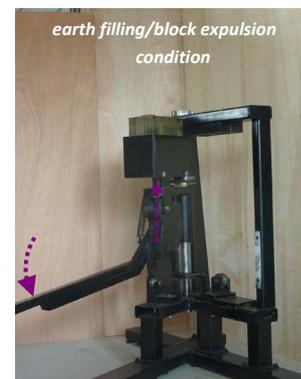
1. earth filling



2. changing condition



3. Pressing



4. expelling the block



the "Mattone" block



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS Torino, 19-21 Settembre 2013

DESIGN FOR EMERGENCY: TRAINING AND EDUCATIONAL PRACTICES Alberto Giacardi, Irene Caltabiano Politecnico di Torino - DISEG / DIST

Abstract

The theme of housing emergency is related to different scales and contexts but always keeps its dramatic character. This contribute aims at:

- focusing the attention on emergency situations caused by natural disaster or human escape mechanism in african context;
- reporting the teaching experience on housing emergency and design of refugee camps developed during the different editions of the course on "Habitat Tecnologia e Sviluppo" of Politecnico di Torino.

Within the Course, coordinated by the "Centro di Ricerca e Documentazione in Tecnologia Architettura e Città per i Paesi in Via di Sviluppo", takes place the Workshop "Insediamenti Temporanei". Attending it students acquire competences useful to design a refugee camp in a specific context in which a group of persons need to be recovered during their escape from other areas due to natural or anthropic dangerous causes.

The Workshop deepens the theme of emergency first of all at the urban level; then it focuses attention on houses and technological details.

During the in-depth analysis of the project is requested to assure:

- safety during edification, use and maintenance steps (look at "Details" + "Models & Self-help Manuals");
- protection of needest groups (childrens, seniors, disabled, etc... - evaluated in the "Context Analysis" phase);
- maximum participation of all engaged users (look at "Time & Modality", "Camp Standards" and "Prototype Design");
- simplicity and quickness of assembly/disassembly using self-help building procedures (look at "Details");
- reversibility of intervention (taken into account especially during "Models & Self-help Manuals" phases);
- sustainability and environmental conservation (look in particular at "Context Analysis", "Camp Standards/Camp Location and Design");
- respect of local traditions looking at possible hybrid technologies (look in particular at "Local Materials & Sustainability"), without forgetting the importance of economic aspects ("Intervention Costs") and optimization of local resources (at a human and material level).

In this poster a selection of best projects (developed over the years in different edition of the Course) are presented.

Objectives

The fundamental targets of Workshop "Insediamenti Temporanei" is to create emergency experts able to plan and design solutions for emergency situations according to the conditions of the areas in which they work,

- adopting all the tricks necessary to guarantee safety of working phases;
- knowing how to support population (at a psychological and technical level) during the edification steps;
- respecting local building tradition;
- implementing self-help building procedures;
- involving as much as possible all the "actors" engaged in the building experience.

To achieve these difficult objectives, the Workshop is organized to give to the pre-graduated participants all the instruments useful to face emergency situations. As better deepened in the methodological approach, students are oriented to:

- collect all the useful data using the support of libraries, web navigation, manuals, product specs, personal experiences, ...;
- compare each others in classroom and at home;
- propose solution using as much as possible resources and techniques belonging to the local traditions;
- pay attention to some important aspects. For example: energy-economic-time-resource saving, sustainability and safety of working procedures, etc...

Methodological approach

The Workshop foresees five recurrent steps linked together to make students self-sufficiently. First of all, after a period of **frontal lectures**, students are invited to arrange **groups of maximum 3 persons**, so that they can confront each others and find adequate educational material during the drafting of various projects.

Then a series of **practice sessions** (taking place both in classroom and at home) are organized in order to discuss with professors the step-by-step improvements of single sketch. Therefore, students are required to display a **powerpoint presentation** in order to share with others the results of their studies. During this phase students can find similitude with their own activities or suggestion to improve their single works and it is feasible for them to adjust in real time possible mistakes, thanks to the direct comparison with colleagues and tutors.

At the end, students introduce their works for the **final course evaluation**.

Conclusion

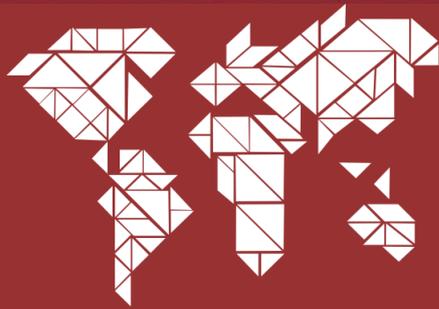
The main target of Workshop "Insediamenti temporanei" is to create **an adequate climate** which lets students **to confront and learn in a collaborative way**. Starting from their previous knowledge, postgraduates are demanded to:

- apply the new design practises in a sustainable way;
- look at economic aspects/optimization of resources (human and material);
- take care of worker safety and final user integration;
- respect local tradition, adopting self-help building procedures or, at least, hybrid technology;
- consider the phases of maintenance and closing down procedures.

The possibility to have a remote control of the student progress using web support, creates - in the immediate future - the conditions to collaborate even after the Course, when postgraduates apply their knowledge on site.

Acknowledgement

All the examples inserted in this poster are part of the research work developed by the participants at the different editions of the post Graduated Course in "Habitat Tecnologia e Sviluppo" of Politecnico di Torino. For the material we thank: Lorenzo Buratti, Carlotta Cella, Ester Dedè, Elena Dell'Oro, Carlotta Fabbri, Lorenzo Fauvette, Gustavo Ferrero, Tabata Fioretto, Marcello Fodde, Irene Freni, Giosafat Gambino, Tommasina Gengaro, Andrea Giaccone, Carolina Gnecco, Elisa Grande, Francesca Lozza, Veronica Lupica, Marika Miano, Silvia Onnis, Francesca Pegorer, Roberto Pennacchio, Nicoletta Perlasca, Chiara Pieri, Luisa Pische, Massimo Ravasini, Isabella Rombi, Valeria Rota, Viola Sellerino, Valentina Serpico



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS
Torino, 19-21 Settembre 2013

EVALUATION OF THE HORIZONTAL FLOW PLANTED FILTERS AND ANAEROBIC FILTER FOR THE TREATMENT OF GREY WATER IN VENEZUELA

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Abstract

This research provides an analysis for the appropriate environmental management of the greywater in the neighbourhood of Moscú II, a district of San Felix (Ciudad Guayana, Venezuela), where the inadequate management of these wastewaters has a high impact on the public health and the environment. The experimental study began at the end of 2010, with an environmental and territorial study of the neighbourhood and the choice of the most appropriate technology (horizontal flow planted filters HFPP and anaerobic filter AF). After the experimental phase in Italy (2011), the technology was implemented in Venezuela and a monitoring phase of the physical-chemical and microbiological quality of the water treated was initiated (2012). The results obtained demonstrate that the systems work in accordance with Venezuelan environmental standards, which means they may be reused for the purposes of household cleaning and irrigation of family lots or gardens. This study has been developed by CeTAmb (University of Brescia) with the technical and financial support of the Italian NGO "Servizio Volontario Internazionale" SVI.

Achieved Results

The Moscú neighborhood was built in 1995. The area of study has a size of 12,000 m² and it has a population of 75 families (which live in 69 houses), 153 adults and 151 children. The inhabitants are low-income people and they work in informal activities. The sources of wastewater, the characteristics, the type of wastewater, the different management systems and their distribution in the neighborhood. The experiment in Italy, with the pilot plants in laboratory, confirmed that the two types chosen (HFPP and AF), are the most appropriate technology and these often yield optimal cleaning : Turbidity \approx 90%, SST \approx 85%, COD \approx 90%, BOD₅ \approx 93%.

In the case of the study in Venezuela, the design, construction and experiment of the pilot plants is characterized by an average daily flow of greywater of 350 L/d. The final systems configuration with the trap of oils and fats as a primary treatment, the bypass system, as a secondary treatment: the HFPP and the AF with vertical flow, the accumulation tank, common to both systems, and the infiltration system. The treatment capacity in Venezuela of the HFPP is 350 L/d of greywater, for the AF is 120 L/d.

The cost of the installation of both systems \approx € 500. After the construction of the plant pilot plant (April 2012), it has started the first monitoring analysis of the physico-chemical and microbiological characteristics of grey water (I-M) and the second monitoring (Sep 2012) (II -M) compared to Venezuelan normative limits for discharge in for reuse in agriculture for human consumption. As additional activity has been built a family small vegetable garden, downstream of the HFPP.

Objectives

The aim of the research is to develop the appropriate technologies (horizontal flow planted filters HFPP and anaerobic filter AF), in order to solve the problem of wastewater, in particular of greywater, in the neighborhood of Moscú, Ciudad Guayana, Venezuela.

Methodological approach

The phases of the project summarized below:

Territorial and environmental assessment of the city Ciudad Guayana, Venezuela (second half 2010);

Study of appropriate systems for the management of wastewater, analyses of best technological solutions for the district, designing of pilot plants in Italy and Venezuela (first half 2011);

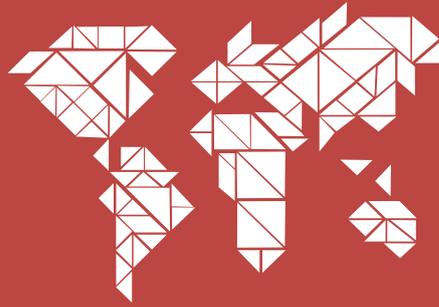
Development of experiment in Italy, construction and experiments with the pilot plants in laboratory. (second half 2011);

Development of experimental work in Venezuela, construction and testing of the pilot plants and monitoring analysis of the physico-chemical and microbiological characteristics of greywater (first half 2012);

Analysis of chemical and microbiological characteristics of raw greywater (second half 2012);

Conclusion

- The experiment, both in Italy and in Venezuela, has shown that the constructed anaerobic filters and horizontal flow planted filters effectively remove very good chemical and microbiological parameters as P_{Total}, N_{Total}, Coliform Total, Fecal Coliform, Esterichia colli
- The treatment of horizontal flow planted filters must be compatible with the reuse of treated water in agriculture for human consumption, respecting the limits of Venezuelan standards, after four months of regular operation.
- The optimal pilot plant for management of greywater (case study: 376 L / g - 8 persons) was found to be composed of a trap oils and fats, followed by a HFPP and a storage tank of water that, once purified, can be reused to irrigate for the family small vegetable garden.
- This solution, tested at domestic scale, has been well received by the community and is easy to operate.



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

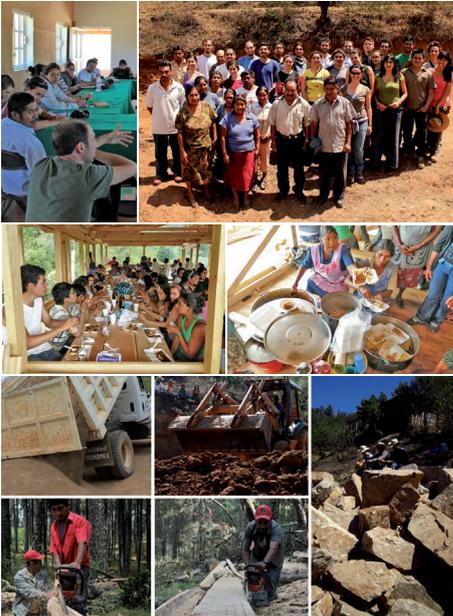
III Congresso scientifico CUCS Torino, 19-21 Settembre 2013

Abstract

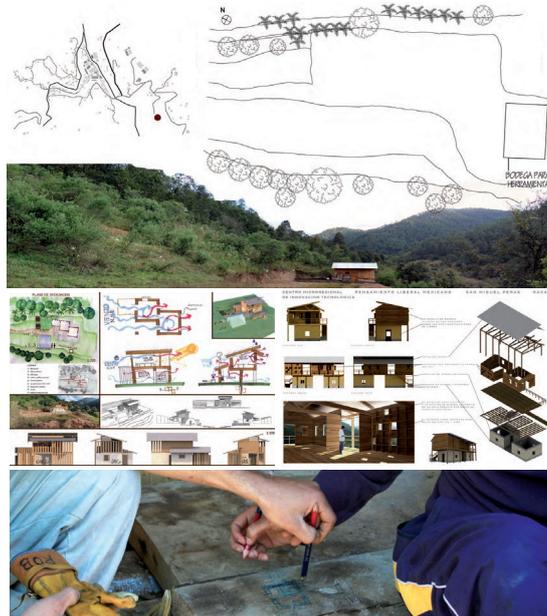
Costruire con la comunità è un progetto di cooperazione tra il CRD-PVS del Politecnico di Torino, l'UNAM (Universidad Autonoma de Mexico), l'associazione Archintorno, ONG C.A.M.P.O. e la cooperativa Rio Pluma, svoltosi tra settembre 2011 e ottobre 2012. Esso si inserisce all'interno di un più ampio percorso che la ONG C.A.M.P.O. porta avanti dal 2009, con lo scopo di innescare processi di **innovazione tecnologica** attraverso la trasmissione della tecnica costruttiva del pisè, così da attuare uno **sviluppo locale sostenibile** nelle comunità indigene della regione messicana di Oaxaca. Il progetto ha visto la realizzazione di un centro microregionale nel villaggio rurale di Pensamiento Liberal Mexicano al fine di riattivare la **microeconomia locale**. Vi è stata inoltre la volontà di **trasferire tecniche costruttive** e di creare un momento di **confronto accademico** tra studenti di differenti università e la comunità. La vocazione fortemente didattica del progetto, ha coinvolto su più fasi del processo 10 studenti della Facoltà di Architettura e Ingegneria del Politecnico di Torino e 15 del Taller Max Cetto dell'UNAM (Universidad Autonoma de Mexico) consentendo loro un'importante **acquisizione di competenze** in campo edile-architettonico e di **cooperazione internazionale**. La prima fase ha visto la stesura di più proposte progettuali tra le quali è stata scelta dalla comunità quella più vicina alle proprie esigenze. Il progetto architettonico è stato poi trasformato dall'intero gruppo di studenti in progetto esecutivo, iniziando così un percorso congiunto durato quattro mesi, periodo in cui si è svolto il cantiere in **autocostruzione partecipata**.

Risultati acquisiti

COOPERAZIONE



DIDATTICA



CANTIERE



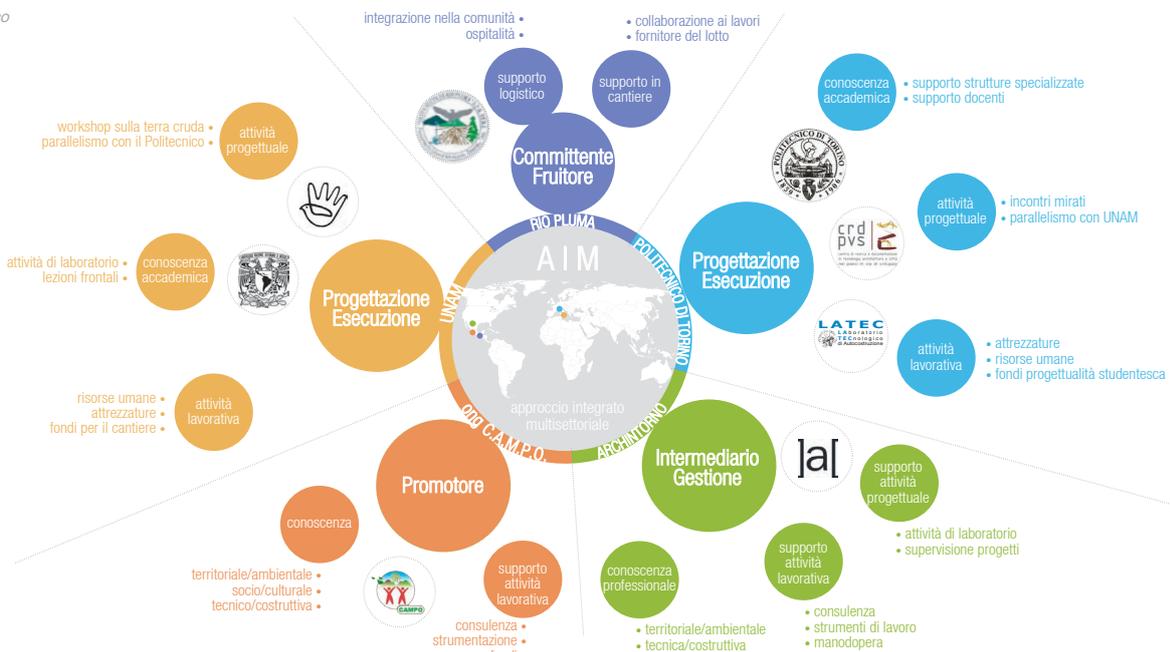
Obiettivi

Acquisizione competenze sulla progettazione architettonica nei PVS e competenze tecniche di cantiere.

Condivisione di competenze e trasferimento bilaterale di tecnologie

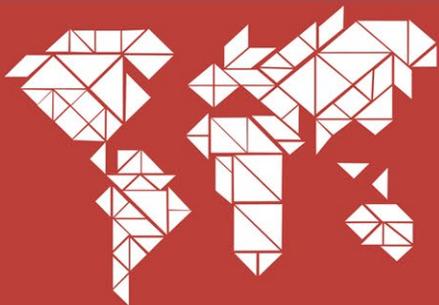
Avviare un processo di sviluppo economico implementando le attività agricole già presenti sul territorio.

Approccio metodologico



Conclusioni

Il progetto ha coinvolto diversi attori i quali grazie alle loro competenze hanno permesso di realizzare il centro microregionale, ed ha operato contemporaneamente su tre ambiti: la Cooperazione, lo Sviluppo e la Partecipazione Locale, la Didattica. La cooperazione e l'autocostruzione in un contesto con una tradizione architettonica e costruttiva differente, ha permesso di attuare una strategia Top-down/Bottom-up coniugando il trasferimento di un sapere tecnologico con lo scambio di saperi empirici della comunità, favorendo un processo di interazione e apprendimento collettivo. Le criticità riscontrate sul campo non sono state un limite alla realizzazione, al contrario hanno permesso di raggiungere risultati più adeguati alle risorse a disposizione.



Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

III Congresso scientifico CUCS
Torino, 19-21 Settembre 2013

Hervé Brugoux. Architetture in Madagascar

Laura Marino

Università degli Studi *Mediterranea* di Reggio Calabria
DarTe – Dipartimento di Architettura e Territorio

Abstract

Trovare un'espressione architettonica per un problema che racconti la storia del problema stesso.

È quello che l'architetto Hervé Brugoux da più di 30 anni prova e riesce a fare in Madagascar. Riuscire a rispondere alle richieste dei committenti, a volte anche particolarmente esigenti, con materiali locali, riducendo al minimo l'uso del cemento e ancor meno del cemento armato. Ridurre al minimo il trasporto di materiali, utilizzare maestranze del posto risolvendo con tecniche costruttive elementari dei nodi tettonici complessi sono tutti obiettivi che l'architetto Hervé Brugoux si è posto e che, nel corso degli anni, con le sue architetture, ha raggiunto.

Parafasando un testo di Giovanni Leoni su Pier Luigi Nervi, "La forza del lavoro di Brugoux consiste non in una sfida alla materia condotta con mezzi scientifico-matematici ma nella ricerca di un modo elementare ed economico, raggiunto per via intuitiva e solamente perfezionato grazie agli strumenti di calcolo, per organizzare la materia in funzione di un problema costruttivo derivato da una richiesta programmatica, che nella maggior parte delle opere più significative di Brugoux consiste nel compito elementare di coprire uno spazio. [...] Un atto costruttivo semplice viene messo al servizio di un compito architettonico elementare."*

*G. Leoni "Stile di verità". La lezione inascoltata di Pier Luigi Nervi in A. Trentin T. Trombetti a cura di La lezione di Pier Luigi Nervi Bruno Mondadori Milano 2010

I materiali

Hervé Brugoux utilizza nei suoi progetti pochissimi materiali: mattoni o pietra e legno.

Questi materiali sono utilizzati ciascuno con una sua specificità. I mattoni pieni a faccia vista o la pietra, utilizzati non come semplice rivestimento ma come materiali collaboranti alla struttura, sono impiegati per la partitura verticale. Brugoux utilizza i mattoni o le pietre per creare dei setti che hanno il compito di delimitare lo spazio interno come nel caso della Chiesa di Mahavatse. Raramente ad essi è assegnato il compito di sorreggere la copertura. O meglio, in alcuni casi la copertura è semplicemente appoggiata sui setti, in altri casi invece la copertura ha una struttura indipendente e i setti si muovono liberamente sotto di essa in un ideale rimando alla pianta libera di Mies o di Le Corbusier.

Brugoux utilizza la pietra nelle zone più vicine al mare, negli alberghi e nella scuola di Ankilibé dove la pietra è il materiale più facile da reperire a km 0, più resistente all'umidità e alla salsedine e più coerente con il paesaggio circostante.

I mattoni pieni invece li utilizza di più negli edifici "pubblici", nella chiesa, nell'oratorio e nel seminario e prevalentemente in zone più interne, inserite in un contesto più "urbano": è il caso degli alberghi a Tuléar e a Fianarantsoa dove le strutture ricettive si affacciano sulle strade principali delle due cittadine.

Brugoux utilizza il legno in molteplici declinazioni: lamellare o semplice, strutturale o di rivestimento, naturale o laccato, affiancato sia ai mattoni che alle pietre. L'unica costante è che Brugoux utilizza il legno prevalentemente per le partizioni orizzontali, per le coperture. Nella chiesa di Nôtre Dame des Flots il legno è utilizzato in singoli elementi per costruire il reticolo spaziale della copertura; per la scuola di Ankilibé il legno lamellare è utilizzato per le travi e per tutto il tetto; per la biblioteca dell'Alliance Française il legno è utilizzato sotto forma di pannelli con orditure differenti.

La ricerca sull'architetto francese ha trovato esito nella pubblicazione "Hervé Brugoux. Architetture in Madagascar" LetteraVentidue Siracusa 2012



Laura Marino

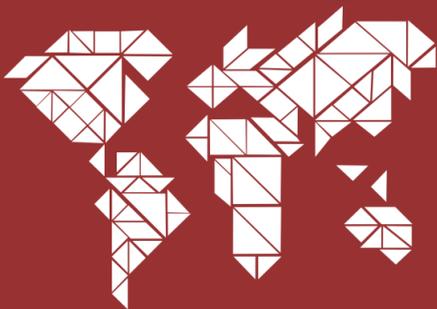
Prefazione di | Preface de
Laura Marino

HERVÉ
BRUGOUX

Architetture in Madagascar | Architectures à Madagascar

LetteraVentidue





Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo

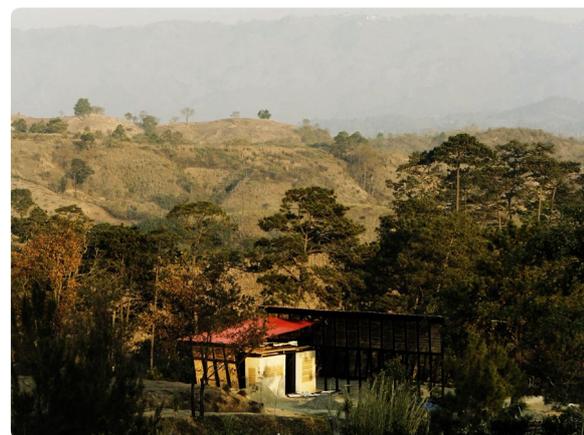
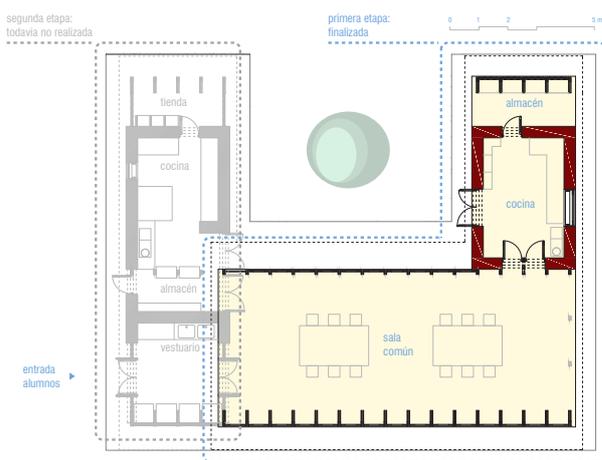
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CASA DEI MESTIERI CERRO LA GRANADILLA GUATEMALA

team C.A.S.A. (Mezzosangue lab + AKO) under the patronage of Università Roma Tre



Architettura a kilometro zero



C.A.S.A. is an experience that merges aspects of education, experimental research and international cooperation involving professionals, students, volunteers and a local community in Guatemala.

ACHIEVED RESULTS

The first project phase of C.A.S.A. has been concluded in Cerro la Granadilla with the erection of the first construction stage. The design includes a second kitchen that has yet to be build. During construction, the presence of 25 volunteers provided the opportunity for bidirectional knowledge exchanges. Students and young professionals from Europe gained experience with building procedures and detail solutions. On the other hand their presence on site stimulated local craftsmen to (re-)use appropriate techniques like rammed earth or wattle and daub.

OBJECTIVES

The project aimed at developing and applying technological solutions with low environmental and high social impact. The use of wood and raw earth techniques seemed to provide the best potential to reach these goals.

METHODOLOGICAL APPROACH

The cooperative elaboration of technologically, economically and aesthetically appropriate solutions not only provides a useful building, that will help to improve the life of some persons from the local community, but can be replicated in other processes of self-construction for private houses and small public buildings.

CONCLUSION

Building abroad enhances the communication between designers, builders and end users of the architectural work. The borders between the three categories blur and a spontaneous but intense knowledge flow starts having the building site as an exchange hub. This provides fertile ground for locally appropriate techniques and detail solutions and for a close identification of all involved actors with the built result. Specific findings can easily be replicated in future experiences.

