

Undergraduate Course on Shelter Design for the Urban Poor in Guayaquil



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1 Shelter Situation Analysis

1.1 Basic General Data

Ecuador is one of the smallest countries in South America. It lies across the Equator between 1°N and 5°S on the West coast of the continent. It borders Colombia, Peru, and the Pacific Ocean with a total area of 283,560 sq km. The country has four geographical regions: Galapagos, Coast, Andes and Amazonia with twenty-four provinces which gather one of the biggest biodiversity in the world. Therefore, the climate throughout the country ranges from tropical equatorial rain in the Amazon to perpetual snow on the top of the mountains. The three principal cities are: Guayaquil, Quito and Cuenca. The official language is the Spanish. The local currency is the U. S. Dollar.

Ecuador has a democratic government headed by the president. The actual president, Economist Rafael Correa Delgado, is trying to lead the country into an economic-political neo-socialism model with a very strong opposition of the main traditional parties (right-wing).

According to the results of the 2005 survey of living conditions conducted by the National Institute of Statistics and Censuses INEC, Ecuador, in 2006 had

13,278,359 inhabitants; the rate of population growth was estimated in 2.58 %. Half of its population is concentrated in the two biggest cities, Guayaquil with 31% and Quito with 20%. The 78% of the population lives in urban areas. This is the result of the migration process from highlands to coastal cities that. Guayaquil is the capital of the Guayas province and country's biggest city located in the coastal region; it has a density of 62.8 inh. / ha. in a total area of 32,440 h.

The Gross National Income is \$ 38,500 million (2006) and the GNP per capita in Ecuador is \$2,870 USD. It is important to highlight that 61.1% of Ecuadorians are poor and from this percentage 12.8% live in indigence (World Bank, 2007). Although the Gross Domestic Product (GDP) was \$43,758 million (year 2006)¹ and per capita GDP was supposed to be \$3,216, it is important to highlight that 60% of the population lived below the poverty line at that time. This fact confirms the inequity in the distribution of wealth in the country. Despite this admission, the Ecuadorian's government only invested the 17% of the overall national budget in housing and social welfare.

Concerning to social aspects, there is a serious deep exclusion in the population: the poorest 20% of the population receives almost 5% of total income and the richest 20% of the population has a participation of almost the 50% of the total income². The basic salary is USD \$ 218 and the cost of the family shopping basket is around USD\$ 507.48 this mean a shortage of \$307.48 in the worker's budget.

1.2 Shelter Related Fact and Figures

Ecuador has information about the housing situation, provided by several organizations including the Ministry of Urban Development and Housing, MIDUVI (for its initials in Spanish), National Institute of Statistics and Census, INEC (for its initials in Spanish), the municipality of Guayaquil and private institutions, which are found to be contradictory in most cases, therefore the only information that will be considered on this paper is the one provided by INEC, as it is the agency responsible for collecting and systematizing data in Ecuador. We will refer to the last household survey conducted in November 2005.

¹ INEC, 2005

² Ecuadorian Central Bank, 2006

The Survey of Living Conditions, 5th Round, developed by the Institute of Statistics and Census INEC (2005-2006), indicates that the housing shortage in Ecuador (which means the number of households without access to home ownership) is 1,120 thousand homes, from which: 76 % are located in urban areas and 24% in rural areas. It is estimated that the annual demand of housing according to UN-HABITAT, is 50,000 houses³.

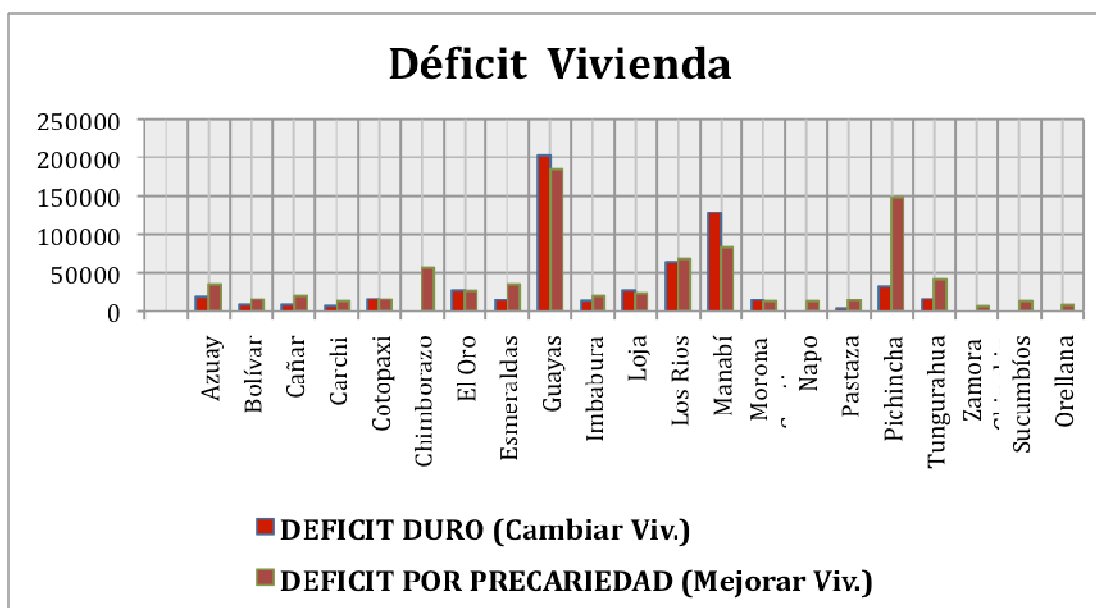


Figure 1 Housing Deficit in Ecuador by province
Source MIDUVI, 2008

In the year 2000, the municipality estimated that 570 Ha were occupied by informal settlements. According to information provided by the municipality, Guayaquil has about 482,072 houses with a media of 4.2 inhabitants per house. Only the 42,3% of the total figure complies with terms of breadth in housing.

In Guayaquil 80.17% of houses have water, 50.72 drainage, 96.77% energy and 40.40% have telephone⁴. The 67.54% of the people in Guayaquil uses public transportation and only 12% owns a vehicle, the rest uses others kinds of transportation (taxis, minibuses, etc).

³ Research team: Luís Ángel Velastegui M., Wladimir Brborich, Andrés Mideros Mora y Gustavo Miranda

⁴ Living Conditions Survey, INEC, 2005

In Guayaquil, one of the most serious problems about housing is the difficulty of low-income population to access it. For decades, the Government and property developers, have not been efficient enough in offering adequate housing programmes for families within the quintile 1 and 2, those who are under the line of poverty, in the case of Guayaquil they represent 40% of the population.

Since 1960, low-income population has tried to solve their shelter problems through self-construction without technical assistance, regardless of the conditions (houses surface are under habitability standards, use of non adequate materials, houses with only one or two rooms, houses with no bathroom), and with very long periods for the construction process (this takes around 10 or more years).

In Guayaquil there are many areas inhabited by poor people, around 50% of its territory is occupied by illegal settlements. If the low-income population has managed to solve their housing problems on their own, although not adequately, it surely will be possible to conduct studies on the conditions of any illegal settlement, in order to learn from it and propose an accessible solution to these people.

From the data presented previously, experience in urban areas and the facts mentioned before, we can infer that in Ecuador and specifically in Guayaquil, the housing problem is basically made up from the economic situation of families, problems generated by poor shelter conditions in the city. The apparent Quantitative Deficit is 200,000 thousand homes, but there is no figure in rental housing and various other forms of ownership. Therefore, it is possible to state that amount people living on the streets is the very little in the city of Guayaquil and it is restricted specifically to beggars. It can be assumed that under any mechanism families of Guayaquil solve their housing problem.

In addition, it appears that the quantitative deficit has increased from 1,120 thousand units (national) to 1,514 thousands; therefore, it can be concluded that the quantitative deficit is not the only problem in the city of Guayaquil.

On the other hand the analysis of the qualitative deficit shows that the total qualitative deficit in the Coast Region is 83%, and the deficit for defective materials is 80%, the lack of basic services is 43.6%, and 34.3% for overcrowded homes. These figures make us understand clearly that the real problem of housing is qualitative and that this is where the interventions should be focused.



Figure 2 Houses built with poor quality materials and no drainage, located in Guayaquil next to the Estero Salado.

The causes of the qualitative problems are the following: Illegal land holding, lack of permanent incomes to have access to the actual credit system, low family incomes, homes settled in risk areas, reduced spaces in homes, which do not allow families to achieve an appropriate development. In the first stage they have a single room of 24 m²., materials used in construction of housing are dilapidated and indelible, lack and deficiency of basic services, roads in poor condition , lack of constant action, by government agencies, to attack the problem of housing for the poorest, universities train students whose profiles do not include the necessary skills to intervene in the process solve the problems of human settlements and housing for low-income families, their curricula does not incorporate courses referred to housing problems; therefore the professional nowadays are not fully qualified to handle the actual housing situation of poor people in the country.

1.3 Housing Policy

Ecuador does not have a policy about housing. At the end of 2008, changes in the constitution were approved, without covering any laws that respond to the new constitution in the housing matters.

1.4 Actors in Shelter Delivery and their Roles

The Ministry of Urban Development and Housing MIDUVI is the government institution in charge of shelter delivery in Ecuador. The ministry is implementing several plans and projects for financing low-income groups in order to improve

their economic conditions, whether they are located in urban or rural areas within the country. MIDUVI offers projects for the rural or urban area, as socio-vivienda and give a subsidy between 3.600 USD AND 5.000 USD, for the acquisition or improvement of housing and construction aids for poor people with out a permanent salary or very low income. The type of house offered has 36 or 40 sq m. and 90 sq m of plot, built with concrete, steel panel covering without finish.

Local Government Response

In order to address the housing problem in Guayaquil, the municipality has been implementing, in the last 4 administrations, a project of legalization of land tenure in urban areas. The project's objective is to give secure land tenure to inhabitants and to give the municipality the ability of develops projects for improving their living conditions. From 2000 to 2008, the municipality has delivered more than 81,000 titles of property in different urban marginal areas of the city.

The Municipality developed the program in housing called "MUCHO LOTE". It built 15.000 housing for poor people. At the time, the local government is developing a new housing project "MUCHO LOTE 2" and MI LOTE. The house in this programme has 42 sq m. and the plot 72. There are houses with one and two floors.

NGO'S Role

There are some NGO's proposals for social housing in Ecuador, one of the most successful initiatives comes from Hogar de Cristo. This NGO provides temporary bamboo houses for low-income people living in coastal cities of Ecuador. During its thirty years of existence it has produced more than 140.000 houses.

Another NGO working for social housing is "Fundacion Huancavilca", it focuses its work in the management of economical resources helping low income population to get the bonus provided by the ministry of Housing (MIDUVI) and to use this funds in the construction of new houses.

The Universities and the formation in shelter for poor people

In Ecuador and specifically in Guayaquil architects and civil engineers are called upon to solve problems relating to housing within the area of planning, construction, monitoring, control and management. So we are generally architects who are dealing with the Ministry of Urban Development and Housing. In this ministry architects and engineers cover most of the directions and technical positions. In addition, institutions and organizations linked to the development of housing and neighborhoods always hire professionals to develop these activities. In Guayaquil, the Municipality, Prefecture, Deputy Ministry, NGOs, Banks, against architects or engineers by to occupier charges related with housing.

Usually professionals at the Catholic University occupy the leadership of these institutions; this is the case of the current President of the Republic, several Ministers of State, Deputy Secretaries, directors, among others. That is why it is essential to the training of students at the Catholic University in the problem of housing.

2 Organization

Faculty of Architecture and Design and Institute for Urban and Regional Planning, IPUR.

The Faculty of Architecture has existed since 1962 and has graduated more than 780 professionals since that time. The University has historically been committed to the idea that her formation should produce a positive impact in the country and specifically in the coast region. It is confirmed by the utilization of ours professionals in the institutions and enterprises.

Professionals do not receive formation oriented to teach skills, so that when placed in technical or managerial positions in public or private enterprises, they can provide the best solutions to the problem of human settlements and housing for poor families that exist in Guayaquil.

The Faculty makes researches and continuing education through its research institute IPUR. The IPUR purpose is to contribute to generate scientific knowledge, consultancy, continuing education and publications in the fields of design, architecture, habitat, construction and planning; fostering sustainable

development and the improvement of the quality of life of the people of Guayaquil and the region but the small budget does not allow them to meet their goals.

3 Shelter Problem

The problem being addressed is by two-fold: first the housing situation in Guayaquil where 76% of houses are made of poor quality materials, only the 42.3% of the total figure complies with terms Breadth of housing and in only 49.28% have the drainage.

The second problem of housing concerns the universities, which do not respond adequately to the needs of society, by not training their students so they can take actions to solve the problem, Professionals are formed to learn to solve housing issues of social groups with access to credit plans of the formal financial market, leaving aside the skills needed to attend and solve issues in human illegal settlements or housing for the poor in Guayaquil.

In Guayaquil there are 4 Faculties of Architecture and 4 Civil Engineering of which usually are addressing the problem of housing. At present none of the 8 has formal programs within the curriculum or activities that enable students from under degree acquire knowledge about the situation of poor people and on problems with housing.

Only The University of State has a post-graduated program of housing but foreign professors offer it because the professors in Guayaquil have experience but do not have a post graduate degree.

The Faculty of Architecture of Catholic University has one line of research in housing by poor people and two professors that make theirs PHD.

Public institutions and universities have failed to organize and systematize the information that exists on the problems of housing, or the characteristics of poor families. Also not new knowledge has been developed or updated on this issue currently, there is no organized or updated information on problems with housing, problems of the poor in relation to housing, the characteristics of the poor.

It is important that students, in addition to knowledge about housing for poor, can become aware of the conditions of poverty of 75% of the population of

Guayaquil and are sensitive to the misery of others, so when they will make decisions they take good decision in favor of the poorest.

4 Proposal for an undergraduate course on Shelter for Urban Poor People

The objective of this work is to design a course with the necessary elements to train university students in the matter of shelter for the poor, and in the different solutions studied and applied in other cities of Ecuador and the world.

The content of the program should include topics about the shelter's problems in developing countries, shelter situation in Ecuador and in the city, and all the different solutions that can be applied in Guayaquil.

It must include the socio-economic characteristics of poor people, house and neighborhood conditions, construction forms of the different habitats of the population, and mechanisms to acquire Land and housing construction.

The program must be theoretical-practical, students must perform reconnaissance of illegal settlements, informal living conditions, and housing conditions. It will exploit the technology provided by the university, through videoconferences and online classes. It will profit courses that offer in the PROMESHA's network.

This course is programmed to lasts one semester, 16 weeks. According to the contents and activities resulting from to design, will define whether there will be two or three hours of classes a week.

To achieve the design of the course according to the guidelines of the University shall define the skills of students to complete the course and to complete its training of architects. To assure its accomplishment, meetings were conducted, with teachers in the areas of architectural design, urban and theory, with teachers and researchers in housing actors in the problem of housing: Minister of housing, City Hall, House of Christ, Huancavilca Foundation, real estate developers, representatives of housing cooperatives and certain users.

After been defined the desired skills, the content and activities were discussed and defined with teachers in the areas of architectural design. The course

curriculum must meet the following guidelines given by the university, to ensure that the contents fulfill the needs of society.

A. General Information

Name of subject:	Shelter design for the Urban Poor
Career:	Architecture
Department:	Design
Level:	Pre Professional
Cycle:	5
Weeks per cycle:	16
Hours per cycle:	48
Sessions per week	2
Time per session	1,5 hour
Time classes (TCP):	36
Time virtual classes (TCV)	12
Time tutorials work (TGT):	24
Independent study time (hours) (IST):	24
Credits:	3

B. Subject of course

Housing for low income families

C. Objective of the course

The course's objective is to train students to design housing solutions for low-income families, based on the knowledge of the socio-economic characteristics of this socio-cultural group and the different solutions that exist in Ecuador and other countries.

D. System knowledge and skills

- Learn the problems of housing in Ecuador and in developing countries.
- Understand the socio-economic and cultural characteristics of low-income families.
- Learn the physical characteristics of housing, human settlements and how to use housing.
- Understand the mechanisms used by low-income families to build social housing.

- Learn the solutions to housing problems that exist in the country and in developing countries.
- Define the uses of housing, spaces necessary for the development of families.
- Understand and apply the parameters of design and construction of housing for low-income families.
- Design a home for a family of lower revenues in a specific sector of invasions of Guayaquil.

E. Content design

UNIT 1: PROBLEMATIC OF HOUSING FOR THE POOR IN Guayaquil	UNIT 2: DEFINITION OF CHARACTERISTICS OF LOW INCOME FAMILIES
Problem of housing and human settlements in Ecuador	Characteristics of families of low income: Economics, Cultural, Social, saving capacity.
Problem of housing and human settlements in developing countries: Nicaragua, El Salvador, Honduras, Peru, Bolivia, Philippines, Thailand, India, Tanzania, Kenya, etc	Ways of using the spaces.
Forms of construction of the habitat in Ecuador and in developing countries.	Housing construction ways and time
	Housing cost

UNIT 3: PHYSICAL CHARACTERISTIC OF HOUSING AND SETTLEMENT AND SPACE REQUIREMENTS	UNIT 4: DESIGN OF HOUSING AND SETTLEMENT FOR LOW INCOME FAMILIES
Housing conditions and types in Guayaquil	Definition of space needs for housing and the minimum area required for each role
Different Uses of housing and spaces of settlement	Design and construction parameters of habitat: self construction, flexibility, reuse, comfort: heat, noise and light, bioclimatic energy efficiency, materials and ecomaterials maximization of the areas, ease of construction, minimum wastage.
Number of rooms, area, height, basic services, and comfort conditions: heat, noise, light.	Housing design and human settlement conceptualization
Conditions and types of human settlements	
Basic services, types and condition of roads, section of track, urban facilities, public transportation, safety, lot size.	

F. Teaching and learning methods

The learning and teaching methods include lessons in the classroom and on line.

Teaching: Professors and different foreigners and national speakers will dictate the Workshops and conferences. The conferences will take place in the classroom, in the case of national speakers, and on line if it's a speaker from another city.

Occupation: On each term, two study cases will be evaluated.

Research: Research Methods, literature and field investigation about human settlement.

The program is divided in 4 units; units 1 and 2 will be issued in first term during 8 weeks, and units 3 and 4 in the second term for the same duration.

G. Assessment

An evaluation will be conducted of the theoretical and facts research, on a total of 25% of the final grade.

In addition, conferences about the research and field research, and the knowledge acquired from these tasks. Will be evaluated on a total of 25% of the grade.

With a 50% percent of the final grade the project of a house design and human settlement conceptualization, will be assessed.

The criteria to be used will be the implementation of the parameters learned and consideration of the characteristics of the selected group.

H. Professors

The program will be headed by a professor with fourth-level studies in urban planning and housing, who must demonstrate knowledge of current issues of human settlements and housing for low income families. In addition to the professor who leads the program, actors involved in housing issues will participate, such as technical ministries, municipalities, NGOs, researchers, private real estate developers, neighborhood leaders and users of quality speakers and a discussion forum on problematic.

Experts from other countries in the PROMESHA network will also be involved in this activity, through virtual conferences, sharing their knowledge in their expertise area and experiences from their countries with students.

I. Logistic requeriments

The following resources are needed for the program to be implemented:

- Classrooms equipped for virtual conferences
- Classrooms equipped for computer assisted design
- Digital screen
- Projector
- Transportation for visitors in situ

J. Schedule

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EVALUACION																																

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