

Integral Improvement of Housing and Living Conditions in Nicaragua

Proposals for a sustainable urban community for low income people



Noel Sampson

Consultant. Center for Studies and Social Promotion CEPS.

1 Shelter Situation Analysis

1.1 Basic General Data

Geography and Administration

Nicaragua is the biggest country in Central America with an official area of 130,374 km². Due to its location Nicaragua is vulnerable to disaster phenomena such as hurricanes and volcanic eruptions.

The country has three main regions: the Atlantic Coast (Caribbean) occupying half of the country's territory and 14% of total population, the Central Region with 32% of population and Pacific Region, smallest in area, concentrating 54% of the total population. The republic is administratively divided into 15 departments and 2 autonomous regions, each department and autonomous region is composed by several municipalities, amounting to a total of 153 municipalities in the republic. The municipality being the territorial and administrative basic unit has a municipal main town that administrates the whole municipal territory, including urban neighbourhoods, districts and rural localities. The municipality is governed by a municipal council presided by a mayor.

Socioeconomic context

Nicaragua has a total population of 5,142,098¹ inhabitants and it is the second poorest country in Latin American and the Caribbean with a per capita GDP of US\$ 955. However according to figures of Central Bank of Nicaragua, the GDP is 6,365.3 millions of US dollars and per capita GDP for year 2008 is US\$ 1,122.8. The minimum wage (US\$ per month) is \$ 119.8, the second lowest in the Central American isthmus above Honduras (\$ 114.3) and deep below Costa Rica with \$586.

According to statistical projections, population in 2009 is 5,668,900 inhabitants and the population density is 42.7 inhabitants per km². More of the half of the population lives in urban zones (55.9%).

Life expectancy at birth is 72.9 years, being similar to neighbours countries. Common sicknesses are acute respiratory infections due to drastic changes of temperature in winter season and in second place chronic diseases, diarrhea and others.

Poverty in the country is mainly defined by a wide disparity of wealth distribution. Extreme poverty rises to 17.2% of population and general poverty is 48.3% and it is concentrated in rural areas as is stated in table 1. The disparity in wealth is evident, 47.3% of national consumption falls within the richest quintile (20%), whereas only 6.2% falls within the poorest quintile. Income distribution is yet more disparate than consumption², 10% of the poorest population gets just 1% of income, while 10 richest per cent obtains 45%. This means the income of the richest decil is 45 times bigger than that of the poorest decil.

Table 1. Average of population for location, gender and poverty condition.

Poverty Condition	Nicaragua		Urban		Rural	
	Men	Women	Men	Women	Men	Women
TOTAL	49.1	50.9	26.4	29.5	22.7	21.5
Not poor	47.9	52.1	34.6	40.0	13.2	12.2
General poor	50.4	49.6	17.5	18.2	32.8	31.4
Poor not extreme	50.2	49.8	21.2	22.3	29.0	27.5
Extreme poor	50.6	49.4	10.8	10.9	39.8	38.5

Source: INIDE: Standard of Living Survey. EMNV 2005.

¹ INIDE. 2005.

² Espinoza, Isolda.

1.2 Shelter Related Fact and Figures

Access to Shelter

Nicaragua has faced housing deficit for decades, which has been critical since an earthquake destroyed Managua in 1972. Afterwards due to state of war imposed by Somoza's dictatorship as his intention to try stopping civil commotion, Somoza bombarded the majority of departmental capitals. After the eighties the housing deficit has been increasing due to poverty levels, lack of answers to structural problems of the nation and affectations for natural disasters such as hurricane Mitch (1998) and Felix (2007).

National census figures of 2005 indicate that housing stock is about 978,335 houses, inhabited by 5,142,098 people, giving an average of 5.2 percent inhabitants per house, 22.6 percent of these houses are in good physical condition, 46.4 percent in regular condition and 30.9 percent are in bad condition. Thirty percent of total dwellings are overcrowding and 32% is affected by restrictions such as rivers, water steams, hillsides and so on.

Housing deficit based on these unfavorable factors was 500,000 in 2005³. However projections reveal that deficit is about 937,000 houses⁴ in 2009, equivalent to practically 100% of housing stock. It is estimated that housing deficit increases by 15,000 to 20,000 houses per year.

The role of government, municipalities, NGOs, international agencies and private sector is critical in fighting for reducing this deficit, it is estimated these stakeholders build 2,500 houses per year, small amount in relation to total deficit and its annual increase.

Overcrowding is a major problem and the state of public services, especially sanitation services, is precarious. Indeed, nationally 64% of homes have only one or two rooms, whereas the average is 5 people living in one dwelling.⁵

Tenure of households is another problem for housing projects execution; although the majority of householders (83.6%) live in homes they consider their own, the need of property titling is evident. 32.6 percent do not have titles to

³ INIDE. 2005.

⁴ Alvarado, Gustavo. 2008.

⁵ UN-Habitat. 2005. p 33.

support legal tenancy of the property. People who live in rented dwellings (4.6%) are a minority.

Access to shelter is limited as poor families only reach monthly incomes of \$150 for consumption equivalent to 38% of the family shopping basket.⁶ Therefore, almost 50 percent of Nicaraguans can not afford a new house neither repair what they already have.

Housing price is variable. Some social dwellings oriented by government cost about \$3,854. Projects oriented by the private sector agglomerated in Cadur⁷ offer houses with prices from \$10,000⁸ to \$ 150,000 working with private banks and financing from 15 to 20 years. The interest average rate is 10.5 annual percent, the highest rate in relation with others Central American countries where it fluctuates between 5 and 6 percent.

Access to Basic Services and Infrastructure

Access to potable water services would be generally positive if we consider the 60.7 percent of national coverage. However, this service is qualitatively deficient or inexistent for prolonged periods of time, and 31.6 percent of households only have access to water through rivers, wells and public places. Electric energy is available for 71 percent of households.

As far as other public services are concerned, only 22 percent of homes have sanitation system (toilet), whereas 63 percent have latrines and 14 percent are in total deficit. With respect to the use of fuel for cooking, only 48 percent of urban homes and 6 percent of rural homes use propane and butane gas, as a result fetching water and firewood is an important activity in many Nicaraguan households.⁹

Access to Education

In spite of first and secondary education being free and public, illiteracy of the population of 10 years and older was 20.5 percent in 2005. The average school attendance of population between 6 to 29 years old is 51.7 percent, which means

⁶ Family shopping basket: Is the total amount required for a family to satisfy his essential needs for food and other basic needs. Promedium 2009: \$ 402. Source. BCN.

⁷ Cadur: Chamber of urban and housing developers of Nicaragua.

⁸ By first semester of 2009, a house was considered of social access if it costs not more than \$10,000 and has a surface of 36m². INVUR.

only half of the population in scholar age goes to school. These low levels of education of big part of population create a critical factor that does not allow people to get out of the poverty circle.

1.3 Housing Policy

Since Urban and Rural Housing Institute (INVUR) was created in 2002, housing policy has been adapting to the needs and challenges of the country. In 2009 INVUR, CADUR, and non governmental agencies attained to create, promote and approve the Law 677: *Special Law for Housing Increase and Construction and Access for Social Housing*, strengthening INVUR as a regulator institution and creating conditions that allow private and pubic sector to build housing projects in a more effective legal frame work.

Maximum surface of social dwelling was increased from 40 m² to 60 m², and its cost from \$10,000 to \$20,000. This change gives private sector a wider frame to offer different or improved social houses. Financing time has increased from 15-20 years to 25 years with an interest of 3.5% with subsidies of FOSOVI¹⁰.

Increasing the limit for what is considered a social dwelling in terms of its cost targets social housing projects to a sector of population who have more relative paying capability, intending to create a dynamic impulse in the construction market, more employment and, consequently, improvement of economy.

This law created the National Housing Council¹¹ as advisory body for design, formulation and evaluation of housing programs and creates the platform for starting a national housing plan where all stakeholders can work reducing housing deficit in a more efficient and faster state administrative procedure.

It is also a challenge for these actors to work together with government, and for the government itself because the particular political situation in Nicaragua could allow political parties take advantage of housing projects to get political benefits from the housing needs of the people.

⁹ UN-Habitat. 2005 p. 65

¹⁰ FOSOVI: Social Housing Found

¹¹ Article 14. Special Law for Housing Foment and Contruction and access for Social Housing.

1.4 Actors in Shelter Delivery and their Roles

Government Institutions:

- INVUR. Urban and Rural Housing Institute is regulator institution in social housing in Nicaragua.
- Social Housing Found FOSOFI is an autonomous division of INVUR that administrates subsidies for social housing projects.
- MTI, the Ministry of Transportation and Infrastructure regulates building process and housing dimensions.
- Municipalities or Offices of the Mayor are local government and key stakeholders in the development of their territories.

International Agencies and Non Governmental Organizations:

- UNDP, United Nation Development Program has worked and promoted shelter projects since 1990, providing floor and roof to rural houses, rebuilding human settlements affected by natural disasters, as well as promoting housing policies.
- UN-Habitat works with national partners promoting shelter projects.
- Habitat for Humanity, NGO that builds affordable houses for the poor.
- National NGOs:
 - Habitar, Center for Social Promotion and Studies for Habitat.
 - PRODEL, Financial non profit organisation that promotes housing projects with financial loans and provides technical assistance.
- Sister city projects with foreign cities. Such as Utrecht (the Netherlands) and Leon (Nicaragua), creating technical and financial cooperation links.

Private sector and organized trades.

- Cadur, chamber of urban and housing developers of Nicaragua, their members build and sells several housing projects with financing of private banks and interest defined by the market. This chamber has an important role in deficit reducing plans and housing policies promotion.

1.5 Shelter Design

Shelter design issues



Picture Prefabricated housing panel system. Nagarote, León. Nic. 2009.

The lack of credit to acquire social houses, limited coverage of water and sanitation basic services, insufficient urban regulation plans and uncontrolled construction quality; weak local and central institutional environment, empirical construction sector and high rates of youth unemployment are main reasons of why housing deficit is increasing.¹²

Housing quality is a sensible factor as well; social dwellings built by government and private sector generally have the intention for reducing housing deficit. Nevertheless, these houses have serious deficiencies in comfort, dimension and structural safety. Many of these houses are built with prefabricated panels and concrete pillars, a disadvantaged condition for an eminently seismic country. The low ceiling height inside together with zinc roofing and high solar incidence in Nicaragua creates an uncomfortable interior space.

Localisation, recipient selection and satisfying real needs are reasons that some of these housing projects, including resettlements for risk situations and natural disaster affectation, do not generate expected results. Families leave or sell their houses to emigrate out of the country or to the capital, where they will overcrowd informal settlements. Home desertion could be produced firstly by poverty levels, unemployment and cultural factors due to some project not being able to recreate the original habitat or life style where people lived, especially in rural communities.

¹² UNDP. 2008. p 31.

Norms and codes

The valid norm for construction and development of social housing in Nicaragua is NTON 11 013-04 “Minimum Norms of Housing Dimensions” approved in June 10 of 2005 by MTI. This instrument is a guide for designing and construction of social dwellings, establishing minimum conditions considered satisfactory for inhabitants. This norm states among other things:

- Dwelling area must not be more than 60% of total area of the property.
- Dwelling dimensions:
 - **Basic Module:** Progressive house that allows home owners make improvements according their incomes. Area between 21 m² and 36 m², one common space and one wet space.
 - **Minimum Housing** (Social Housing): Minimum area of 42m² distributed in a multi-use space, bathroom, two bed rooms and a service area.
 - **Standard Housing:** Minimum area of 65m² with living room, dining room, kitchen, three bed rooms, bathroom and a service area for washing and ironing.

This norm also indicates space dimensions, free interior height, door and window minimum dimensions, latrine location, circulation and so on.

2 Organisation

The Municipalities or local government institutions have the benefit of the autonomy principle, allowing them to administrate their own wealth and orient local development in a compatible approach with national constitution and laws.

Each institution is managed by a Mayor who follows decisions taken by a Municipal Council where the mayor is president. These institutions have several internal departments, which work in formulation, design and follow up of projects that are developed in the municipality, including shelter and housing projects.

The Center for Studies and Social Promotion CEPS is a national NGO focused on community development and self-management of urban and rural communities intended to create self-reliance, improve living conditions and public health in target communities.

3 Shelter Problem



Pictures: inadequate housing, prefabricated house and shelter project

Nicaragua has a complex situation where political and institutional crisis affects housing and other vital issues of people. This explicit political orientation of government and official and opposed political parties plus poverty and low education levels form an important background to consider.

A recurrent weakness in housing projects oriented by government is attaining a right social inclusion and equity of beneficiaries.

Despite this scenario, Nicaragua has a series of elements that offers the possibility of large-scale improvements. First of all, the new housing law¹³

tentatively provides a wider platform to work in coordination with all sectors involved in housing. Secondly, in spite of level of occupancy without legal basis,

most people in Nicaragua live in homes they consider their own, making possible to have a lower cost base in building or upgrading houses.

In addition there is an active interest of private and public stakeholders working to improve housing situation, such as private chambers, universities, municipalities and NGOs.

Social dwellings have serious deficiencies in design; comfort and structural safety, due to projects mainly being focused on selection the most number of beneficiaries at the lowest cost per dwelling unit, instead of procuring an accurate habitat and space for living on house level and surroundings.

¹³ Law Number 677: Special Law for Housing Foment and Construction and access for Social Housing. Nicaragua 2009.

Consequently the critical problem to resolve is the un-sustainability of housing projects executed in municipalities, which due to the lack of public and common spaces, green areas, facilities and infrastructure many of these settlements do not allow citizens to have a healthy and social life. This factor can derive later in detriment of public health and the establishment of marginal societies.

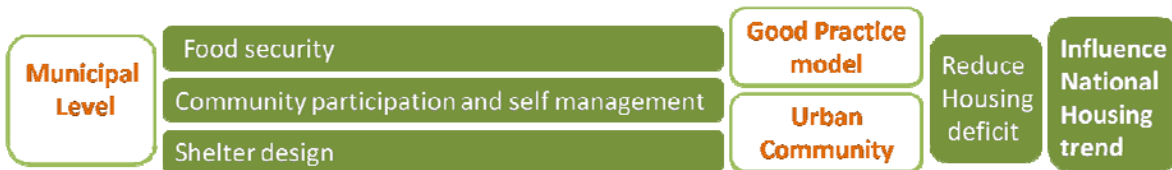
4 Proposal for Change and Improvement

General Intervention

Due to municipal autonomous principle all municipalities are responsible of housing planning and development in their territories. Therefore, the proposal of change of housing situation in Nicaragua can be focused at a municipal level.

The proposal is create a sustainable settlement project oriented to reduce housing deficit in the municipality of Nagarote as a feasible and affordable good practice model intended to change the direction where national housing trends are directed nowadays. This project will be focused on creating an urban community with common facilities, green areas and healthy public environment.

Considering some nutrition deficiencies in the western zone of Nicaragua, this project will be designed with components in food security, urban agriculture, recycling and treatment of waste and community association and participation.



Graphic 1. General intervention outline.

This project will be developed through a short and mid-term process and will - consider both low and low-middle income families needs.

Once the location and number of dwellings has been defined a designing process will start with participation of representative of the community.

The municipality will acquire land and provides basic services; and will take into consideration community's will and the collaborative role of others stakeholders. The municipality will formulate an agreement with private sector and non governmental parties to establish conditions and defining roles in planning, formulation, execution and follow up process.

Creating Urban Communities

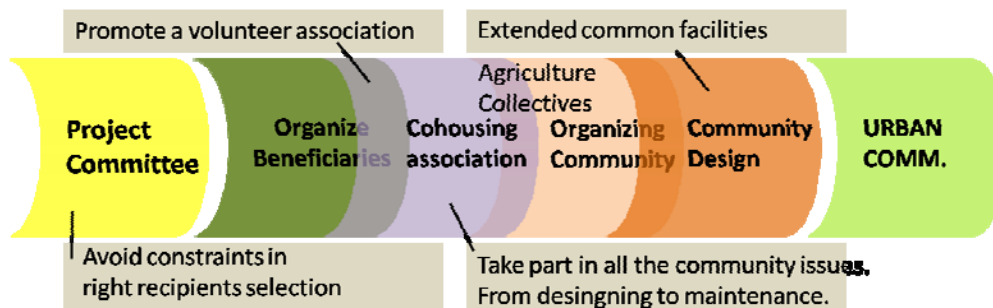
The whole project plans to benefit 400 families which live in precarious conditions or lack of adequate shelter. The project starts with selection of beneficiaries organised by the stakeholders committee formed by one representation of the Office of the Mayor, representations for each NGO involved directly with the project from the planning process to follow-up, one representation of the Urban and Rural Housing Institute and representatives of the community; this committee will be created expected to avoid constraints in right recipients selection.

The proposed location for the project is the northern sector of the city of Nagarote, department of Leon, Nicaragua. The propose area is about 140,000 m² (14 ha) located in an expansion zone of the city with a regular topography and fertile land useful for green paths and small scale agriculture.

Table 2. Land use distribution.

Land Use	Area		Percentage
	m ²	ha	%
Housing (400 Plots)	80,000	8	57.15
Common area (green area and facilities)	40,000	4	28.5
Circulation	20,000	2	14.35
TOTAL	140,000	14	100

Project board, housing and community management professionals will promote a volunteer association process between the householders targeting to create a Cohousing association, this association will take part in all the community issues from designing and planning process to self-maintenance and management.



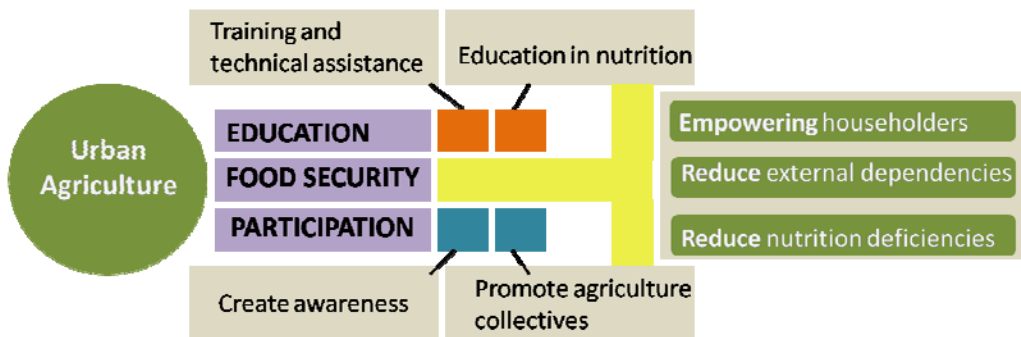
Graphic 2. Community organization outline.

As constant design features the community will be develop through an eco-friendly design; side walks and green paths connections are priorities tending to keep car traffic to the periphery, promoting in this way walking and neighbours interaction. Urban design will make priority to pedestrian and bikes circulation instead of car circulation, because in the majority of the cases low and middle income citizens cannot afford a car; in addition reducing area on car traffic streets is possible to gain more area for public spaces and will reduce cost on unnecessary street paving as well.

The community will have extensive common facilities such as public spaces and a common house (communal house) with a full kitchen, laundry, TV room, studying areas, warehouse and communal office.

Urban Agriculture

Due to nutrition deficiencies in city population, and moreover in target beneficiaries, the community design and plot dimensions include land for agriculture gardens to cultivate domestic vegetables and alternative food plants. Urban agriculture of the community will tend to improve nutrition levels producing vegetables, cereals, legumes, leaves and roots.



Graphic 3. Food security outline.

Project committee with the special participation and assistance will start a process making the people aware of the importance of forming voluntarily agriculture collectives to work in vegetables production and commercialize their products in the local market, obtaining incomes to buy food they do not produce. These collective will mainly form by women heads of households.

The association process will go with training and technical assistance since householders do not have or lack experience in vegetables management,

consequently the project will include trainings and workshops in vegetables farming, plague and illness management, organic fertilizer and insecticide making and soil conservation.

Education strategies in nutrition will be included, family members will learn about food nutritional values and the best ways of use nutrients, balanced diet and food handling.

CEPS will train and assist agriculture collectives in farming planning and management with the objective of guarantee permanent and diversified production. Collectives will be able to develop a management plan, which will consider technical figures such as the amount of water needed for product and square meter in summer season in order to program volume of water supply and prevent it before dry season starts.

The management plan is intended to be a guide for activities that are carried out in the garden plot such as land preparation, organic fertilizing, sowing, seedbed preparation, pruning, harvest and others special activities require for different products.

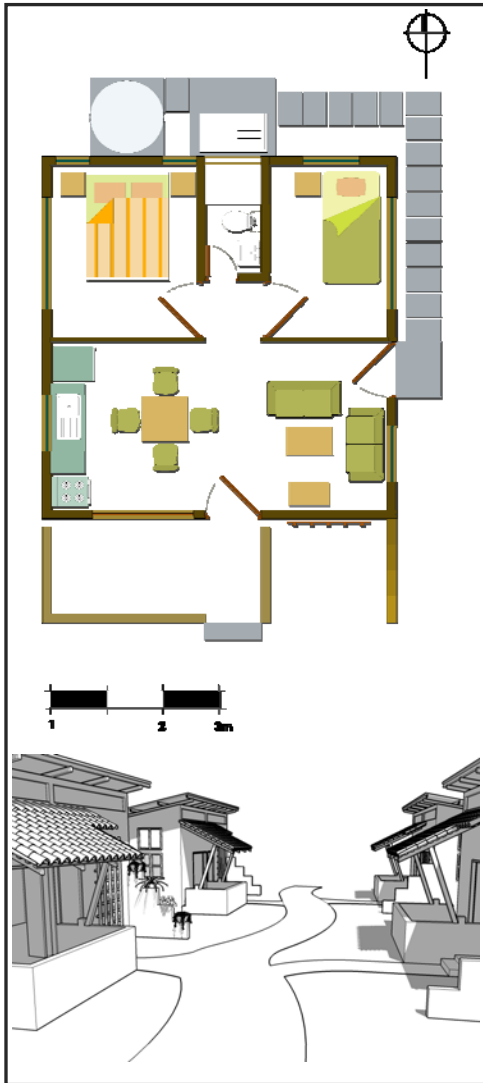
Agriculture collective will be organised from the cohousing association, which will self-manage the urban agriculture production and promote self consumption and trade in local markets. All management activities and warehousing will carry out in the common house and will be managed for the people within the cohousing association empowering in this way householders to manage and take decisions on their own benefit and people will increase sense of belonging of the community.

Shelter Design and Affordability

Housing design is considering primarily comfort, quality, structural safety and cost. Social houses will cost at maximum US\$ 5,000 to be able to obtain subsidies from FOSOFI. Part of the construction expenses will be covered with municipal wealth, national transferences and international cooperation, other part will be paid for the beneficiaries through loans at low interest with micro financing cooperatives such as PRODEL.

The housing model proposed is an improvement of vernacular and popular housing in Nicaragua. At 44 square meters in a standard plot of 10m by 20m

(200m²) it is spacious, with two bedrooms, one bathroom with wc, a common space for living room, kitchen and dining, a covered terrace, and a laundry area in the back side of the house. The plot includes area for urban agriculture.



Floor plan and perspective

Walls have increased in height to comfort produced by metallic roofing. Materials are mainly local: handmade clay bricks, roof tiles, wood and common industrial materials such as zinc sheets and metallic roof structure.

Walls have on the top part ventilation blocks to allow hot air to come outside the building; windows as well are oriented to propitiate cross-ventilation. A covered terrace at the side of the access besides of providing ventilation and block direct sun light is designed to improve social contact of the householders with other residents in the neighbourhood, improving social relationship in the community.

Properly for houses situated in a dry area, water conservation is critical part of the design. The households rely with a rainwater collector to collect water from the roof in a tank; this recycled graywater is used to irrigate the vegetable garden.

With this improved shelter design plus the participative and associative process, cohousing association, self-management and maintenance, urban agriculture and improvement of food security and finally the community design that will tend to promote social interaction between the householders, it is expected to satisfy the housing needs of the people and moreover improve quality of life, creating a sustainable and collaborative community that will allow them to gain independence from external resources and paternalist assistantship becoming in actors of their own solutions.

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