

# Nazareth Condominium Project

## A Low-income Self-help Housing Option in Costa Rica

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### Abbreviations

BANHVI	Banco Hipotecario de la Vivienda (Mortgage Bank for Housing)
CFIA	Colegio Federado de Ingenieros y Arquitectos de Costa Rica (The Costa Rican Association of Engineers and Architects)
FUPROVI	Fundación Promotora de Vivienda (Foundation for Promotion of Housing)
SFNV	Sistema Financiero Nacional para la Vivienda (National Financial System for Housing)

### Introduction

This paper analyses the global process in Nazareth Condominium Project in Costa Rica. The project was executed from February, 1999 to March, 2000 through self-help construction, with the participation of 70 families and the Fundación Promotora de Vivienda – FUPROVI (Foundation for Promotion of Housing) as organization chosen by the families in order to obtain loan, training, technical assistance and consultancy in their housing project.

One of the main problems in Costa Rica is that many families are in need of housing day by day, the economical situation is more and more serious and that makes the access to housing only a dream for some people or families. The high cost of living united with salary increases not in agreement with the economic reality in many sectors causes that not all Costarrican families can get their own house.

On the other hand, the government benefits the poor people with a housing grant that is free. Also, the state grants them a special housing loan through one of the licensed entities, within the national financial system, such as banks, mutuals and some foundations created mainly for that. It is important to mention that FUPROVI is not a licensed entity.

The housing grant is approximately USD 5,000, but the amount depends on the family, like the number of children in the family, their economical capacity, etc. Nevertheless, it is not enough for building a house. The grant isn't enough and there are too many people waiting for the housing grant. Also, the government has a restricted budget and governmental politics have different priorities.

Due to all these reasons many families are excluded from state and private banks' housing loans. Therefore, Fundación Promotora de Vivienda is a rational option for the families of limited resources to obtain not solely an economic loan for the house, but consultancy, training and technical assistance before, during and after the realization of the project.

### Problem Definition

In this paper, I will try to verify if the used self-help construction methodology was the appropriate one in order to reach a housing solution for low-income families.

We should consider different aspects in order to lower costs:

- Efficient construction system
- Organization of the group of families
- Appropriate work methodology

- Urban design that allows as many lots as possible in the defined zone. This allows the economic burden to be distributed among many families.
- Choose the better type of settlement such as urbanization, condominium, residential, etc

All the before aspects can be implemented in three different ways:

- 1 FUPROVI's long term loan,
- 2 FUPROVI's "bridge" loan to be utilized while the families are waiting to be qualified for the National Financial System for Housing (SFNV) for loans. Those who qualify are families of scarce economical resources and when the housing project is defined as being of "social interest." In this way, the people get an economic subsidy called "housing bonus" and a loan with low interests. So, they can repay their "bridge" loan to FUPROVI.
- 3 Wait until the families are qualified for the SFNV financing when the state gives them the "housing bonus" and a loan for starting the construction of the project.

What unites the aspects mentioned here is each family's capacity to pay, because the problem is bigger if the "housing bonus" does not exist and the families themselves have to pay the loan without the special state subsidy. On the other hand it is the execution time that should be considered a determining factor, since the longer the time, the more families must pay in loan interests. It is here where the question fits if the used self-help construction methodology was the best one in our case of study.

Organized self-help housing is often selected as a way of reducing the cost of construction through the participation of the households. Generally speaking the costs are lower in organized self-help housing projects than in contractor built dwellings of similar quality. However the level of cost reduction depends on how the project is organised, the amount of time that the households can spend on construction, and the capacity and efficiency of the facilitating organization.

## Motivation for the Choice of Study

This is a very common case in Costa Rica, where the economic factors, together with mainly the social factors where the groups' organization and a new community constitution come to be important obstacles for the families of low income to obtain their house.

This, as well, it is a typical case in FUPROVI, in which one should be begin from evaluating the possibility of purchasing land on a site that most families agree to an accessible cost, with an area suitable, etc, to helping families to construct their dream through the different steps that this entails. We must work with the families' organization for different activities or work to create a new community organization, educating them about the responsibilities that an organized community has.

All new groups of families are a new challenge in our daily work. Each group has its problems according to its geographic location, culture, organization, interests, etc. This is how analysing or evaluating the strategy used in the Nazareth Condominium comes to constitute a fundamental pillar for future projects of FUPROVI.

Personally I have chosen this project because I was working with it from the beginning to the end. From the organization and initial training of the families to the project inauguration. It has been a great experience in my professional career and for that reason I believe I have the sufficient basis for analysing thorough some important details, like the methodology used in self-help construction from vision to the results obtained in the families work

## Method of Study

Through evaluating how the development of the project was it is possible to determine if the methodology used was the appropriate one or if a different one would have been better.

In this analysis, I will get technical support of the evaluation of the Nazareth Condominium Project and the experience that executing this type of project generates.

Also I will be supported by literature recommended in the Architecture and Development course.

# Background

## Country Level

### Official Name: Republic of Costa Rica

Location: Central America.

Limit North: Nicaragua

Limit East: Caribbean Sea

Limit South: Panama

Limit West: Pacific Ocean



Figure 1: Map of Costa Rica

## Geography

Area: 51,032 km<sup>2</sup>.

Capital City: San José (metropolitan area pop. 1.2 million).

Other major cities: Cartago, Alajuela, Heredia, Puntarenas, Guanacaste and Limón.

Terrain: A rugged, central range separates the eastern and western coastal plains.

Climate: Mild in the central highlands, tropical and subtropical in coastal areas.

## People

Nationality: Costa Rican(s).

Population: 3,710,558 (July 2000 est.)

Annual growth rate (1999 est., exclusive of immigration): 1.89%.

Ethnic groups: European and some mestizo 94%, African origin 3%, indigenous 1%.

Religion: Roman Catholic 85%, Evangelical Protestant 14%, other less than 1%

Languages: Spanish, with Jamaican dialect of English spoken around Puerto Limon.

Compulsory education: 9 years.

Health: Infant mortality rate 13/1,000. Life expectancy--men 72 yrs., women 76 yrs.

Work force (1995, 1.2 million): Services--45%. Agriculture--22%.

Government type: Democratic Republic

## Regional Level

The project is located in the province of Cartago, region of La Unión. The zone where the site is located is a little broken, with strong slopes and limited by a river. This must be considered in the project design, since a protection zone to the river must be respected. The zone is in the municipality of La Unión and for constructive aspects they are governed by the Planning Regulations, that have regulations according to the characterization of the zone, such as urban, semi-urban, rural, central, etc, as well as the size of minimum lots for construction.

The project was for 70 families with low-income and the land is 16.052m<sup>2</sup>, with a plot average of 90m<sup>2</sup> (6m x 15m). The project has a water treatment plant as a

residual water solution. It has all the main services such as electricity, telephone, public transportation, shops, health services and the downtown is close the project, approximately 2km from the area.

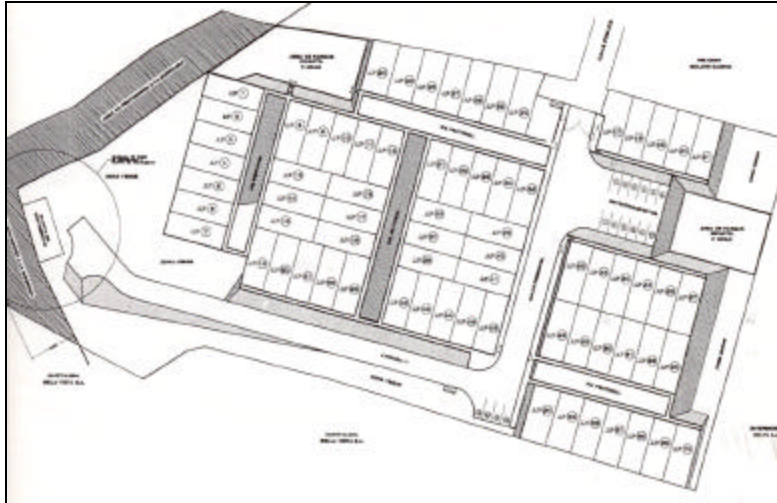


Figure 2: Nazareth Condominium Project.

## Institutional Level

FUPROVI is a private development organisation, non-governmental, legally founded on 16<sup>th</sup> June 1987. It started operating on 15<sup>th</sup> July 1988, and its first construction work started in December 1988.

One of the main objectives of FUPROVI is the strengthening of democracy at a local and national level, through generating alternative models that are able to offer equitable, sustainable solutions to the problems of people with low -income, specially in the areas of popular habitat, community development, income generation, sustainable development and training.

FUPROVI's working model is based on the assumption that lowest-income sectors can and should participate in an active, organised way in the identification and solution of their housing, community and employment problems. For this purpose, programmes and projects have been developed with flexible, agile methodologies based on self-help and assisted self-help construction through personal effort and mutual help.

This model seeks to mobilize at a local level, and to potentialize the abilities to the families being assisted. In addition, it seeks to break with existing ways of relating and attitudes that are passive, centralised and paternalistic, which have hindered the full development of these kinds of communities.

Parallel to the construction process, an experience of organisation and detection of other needs is generated in order to the families to be able continue to with the process of communal consolidation once FUPROVI withdraws from the project. The aim is for the new community to be empowered to solve further needs, such as education, recreation, health care, income generation and environment conservation

## Strategies

In order to make the analysis of the proposed problem and in the framework of strategies, I have divided the housing project in 3 phases:

Each one of these phases is as well divided in several sub-phases. Next I will present each one:

### **Pre-construction phase**

- Land purchase
- Organization of the families
- Social, administrative and constructive training
- Project design
- Budget processing
- Work programs
- Analysis of the families' economic situation
- Approval of the families credit
- Work methodology

### **Construction phase**

- Training
- Construction of infrastructure
- Construction of houses
- Budget control
- Periodic coordination meetings
- Gathering of documents for the SFNV
- Condominium Constitution

### **Post-construction phase**

- Application to the SFNV
- Social training
- Overhaul of the used strategy
- Final project report.



*Figure 3: Construction phase: Construction of infrastructure in Nazareth Condominium*

Mainly in the first phase, it is easy for us to determine if the advisable methodology should be self-help construction or if the families can pay some other method, like hiring of workers or choosing a mixed process between self-help construction and hiring workers.

## **Description**

The *pre-construction phase* is important in determining the project viability. After the land is bought to a reasonable price and in a zone according to the interests of the families, it is time to process the budgets and to analyse the economic situation of the families. With this one is able to determine if the families have the payment capacity to face the payment of the loan and to determine if the possibility exists that the state will grant them the “housing bonus”. In this phase the work methodology is considered, which is our point of interest, and for this specific project it was determined to make it by self-help construction. With this exposition the families training begins.

In the *construction phase* I propose to implement a method of analysis for the used construction methodology, which determines the obtained results of the work during the test period, construction quality and the families' acceptance of the used methodology. This is because according to the experience on the field, the families sometimes get physically fatigued. Due to this the advance in the project is slowed down considerably, which can generate not only delays in the programming, but increase in the costs of the project due to the payment of interests of the loan for a longer time if the execution should be delayed.

In the *post-construction phase* we would be able to analyse with real data from the construction process, including the methodology used.



Figure 4: Self-help construction with mutual help in Nazareth Condominium.

## Analysis

If the selected methodology for carrying out the execution of the construction process is inadequate, or if the families at certain moment of the process do not accept the methodological proposal, it must result in an immediate change to avoid the increase in the project costs.

In Nazareth Condominium Project, although it certainly did not vary the self-help construction methodology, it was necessary to make changes as far as other factors were concerned due to the fact of contribution of working hours. For each family 30 hours communal work per week had been considered in the beginning. Nevertheless, due to the physical fatigue which some of them presented, it had to be changed to 20 hours per week and 10 hours for their own house, like an incentive to their individual work. With this, we managed to increase the rate of work without varying the methodology. Months later it was changed in 10 hours communal and 20 hours for their own house, with which, once again, the rate of work was increased without varying the initial methodology.

Nevertheless, I consider it to be of extreme importance to analyse the factor of the self-help construction like determinant in this type of projects in where one looks to solve the housing problems of families of limited economic resources. Indeed it is important to have fast methodologies and functional construction process with low cost.

We must consider the work of the women, that is very important, to determine the constructive system to be used.



Figure 5: Women's participation is very important in selfhelp construction.

In this case they used "super block", that is a concrete block of 88 cm of length by 20 cm of height and 12 cm of width. It is a good construction material but heavy for the women and this can cause physical fatigue in the families who are not used to work with heavy things like "super block".



Figure 6: Construction material called "Super block" was used in construction of houses

## Actors and Their Roles

They are many actors in this project. Some of them are the following ones:

- **Community:** This is one of the main actors that is composed of 70 families of limited economic resources and each one with an average familiar nucleus of three people. The total number of people is 217, mainly from La Unión of Cartago. 15% of the households are women headed. The families conform a legally constituted association, this to look for economic and material help from the private or public sector. This is fundamental, because they appear as a formal group of families with legal endorsement. A low level of schooling among the family heads appear, around 42% is concentrated in the primary one, as much completes like incomplete. As main occupation they have domestic work, industrial work and construction work. As far as the economic situation is concerned, the reported smaller monthly wage was USD200 and the greater one USD650, the average wage was USD390.
- **FUPROVI:** This is another one of the main actors. As explained previously, FUPROVI gives to the families a loan during the construction process. With this, the families can buy materials, and by means of the self-help construction, build the houses by themselves. In addition, FUPROVI offers them the training, technical assistance and consultancy so that the organized community can manage its objective to obtain houses for each of the families.
- **Board of directors of the association:** The board of directors is the head of the association. It is formed of five people who are elected every two years. It is important to mention that, in this project, the members of the board of directors do not belong to the group of associated families, because is a group of people who some years ago developed a similar housing project with FUPROVI and now they help this families group to obtain their dream. All the contracts in the construction process must have the approval of them, or at least of their president. This applies even to the contracts with FUPROVI and the conditions of the loan, since this being an association each family associated must sign a contract with the association as an endorsement of her portion of the loan. It, as well as the board of directors, becomes another main actor in the project. FUPROVI must present a monthly report of the work made, expenses according to the weekly money mounts that the association required and that FUPROVI gave them; advances in construction and budget control, to program monthly evaluation meetings, etc. The board of directors becomes the connection between FUPROVI and the families in the project. There are one or two monthly meetings between FUPROVI and the board of directors and one meeting between board of directors and community per month.
- **Colegio Federado de Ingenieros y Arquitectos de Costa Rica (CFIA):** The Costa Rican Association of Engineers and Architects approves the condominium plans. The CFIA is the main office where all the plans in the country are transacted, be it a house, urbanization, extension, closure like retaining wall or other wall, etc. It is here one must pay the construction tax, which in this case is null or free as the project is categorized as being of “social interest” by the state and applies for obtaining of “housing bonus”. Within the CFIA, a copy of each set of plans is distributed to the Ministry of Health, to the National Institute of Housing and Urbanism, to the Ministry of Public Works and Transports, to the office the public prosecutor of the CFIA, in short, to a series of indirect actors who act as well through the CFIA and who by rejecting a plan also cause CFIA to reject it
- **The local government:** In this case it is the municipality of La Unión. The construction plans are sent to the municipality after being approved by the CFIA. Here they are approved according to the zone-regulating plan. For the specific case of the Nazareth condominium, the municipality had an important role because it gave the permissions before the plans were approved by the CFIA. This caused that the project began before and that the families paid a little less than money in loan interests. The municipality supported the project execution all along and was never an obstacle. When the moving of earth begun they gave the respective permissions even though these plans were not even being processed in the CFIA. In the municipality all construction must pay tax of 1% of the total work value.



- **The central government:** The central government gives a special grant for families with low-income who have applied for this. This subsidy is given through the Banco Hipotecario de la Vivienda (BANHVI), that chooses a licensed entity (in this case Mutual Alajuela) and it turns the resources to this entity. The economic resources come from the national budget destined for the housing sector.
- **The licensed entity:** The licensed entity is a national financial system entity such as a bank, mutuals or a foundation created mainly for that. In this case the entity was Mutual Alajuela, and it will be the one responsible to conduct the socio-economic analysis families and to ask for the corresponding money from the BANHVI. Mutual Alajuela made an analysis of each family, of their income, of the total of people who are supported with the reported wages. Besides, they required each family certifications about their tax payment situation. Also, they make an estimate of the first houses constructed, since the rest must be similar and with this they value the infrastructure and house works and the land. This value is considered when giving the families the loan associated to the housing bonus. If the family economic situation in the beginning is better, the family receives a smaller state subsidy and a greater loan. This analysis is made by the licensed entity.

There are other actors of smaller importance in the process, as the private company contracted mainly for moving the earth and the construction of water treatment plant. For this study, I am interested to concentrate the paper on the three first actors: community, board of directors and FUPROVI. These actors are important for the analysis of the methodology of self-help construction used during the development of the project.

## Analysis

When the first meetings between the FUPROVI field group and the board of directors were held, it was evident that the families socio-economic situation allowed solely the self construction methodology as the house problem solution, because the degree of poverty was high and to contract construction works with some private company was too expensive for them. In addition, the board of directors had the experience of executing a project in previous years, with the same methodology of self-help construction and they were satisfied with the obtained results.

After the economic analysis was made, meetings with small groups of families were held to explain the methodology. This originated many meetings during the weekends and weeknights, because they should be held in times in which the families can attend. The construction training begins thereafter.

In this period of training people motivated themselves to build their house and were made conscious that the construction process depends of them, of their own work in the field. On the other hand, they understood that self-help construction process was a better way, in this case, to get lower construction costs and to obtain their own house.

The used methodology seems to be the indicated one if we consider the actors mentioned here, the income of the families, their own motivation and their necessity to have their house in a short time. Nevertheless, existed the fatigue factor that in this project was another one of the actors.

The project had to be made in 10 months, to be finalized in December 1999. It began in February of that year with the moving of the earth. Then, in April, the construction of infrastructure began, where people worked with great spirit in the positioning of sanitary, potable and pluvial pipes, as well as in the construction of sidewalks, cords and sewers, sowing trees in the communal zones like parks and playgrounds, construction of wells, etc. This process finished in July 1999.

Four months is a good time for the construction of this kind of infrastructure, in addition, there was a month in which the work was paralysed because of the association was in arrears with the loan payment for land purchase, so we decided not to authorize money to the project until they paid.

After infrastructure work, the fatigue of people appeared and the construction time to build their houses increased. In December, ten houses were constructed and these families could spend Christmas in them. The rest of families finalized their houses, months after, until March 2000.

## Main Actors and Proposed Additional Roles

- FUPROVI
  - 1 It will attend the biweekly board of directors' meetings with the families for listening families suggestions about the used methodology and project advance.
  - 2 It will evaluate next to the board of directors, the families suggestions in order to improve the construction process.
  - 3 It will modify an intervention strategy of the project at any time to avoid delays in the project and increases of costs.
  - 4 The best construction methodology in the project will be analysed, according to the number of women heads of household in the group of families and the possible general contribution of work.
- Board of Directors
  - 1 It will summon a meeting with the families at least biweekly for listening families suggestions about the used methodology and project advance.
  - 2 It will evaluate next to FUPROVI the families' suggestions in order to improve the construction process.
- Community
  - 1 It will decide the constructive methodology in the project, according to the study of the economic situation made by FUPROVI.
  - 2 It will assist at the biweekly meetings summoned by the board of directors for presenting their work suggestions.
  - 3 It will contribute at least ten hours weekly of communitarian working and twenty hours in their own house, in the phase of construction of the house.

## Design

When speaking about design in this case, we must consider construction aspects and design strategy.

In the constructive field, if the project is by self-help construction, a construction system must be used that adapts easily as much to the necessities of the families, as to the easy material handling in the field and the construction facilities of houses.

A type house is needed in which the families feel comfortable, that fulfils minimum necessities of privacy, ventilation, daylight and comfort and that are improved or similar to the place in which they lived.

In this project, families could choose their house between two models. The first one with living room, kitchen, bathroom and two bedrooms has 45 m<sup>2</sup> and the second one with living room, kitchen, bathroom and three bedrooms has 54 m<sup>2</sup>. It depends of economical capacity of the families and number of members.



Figure 7: Models of the two alternative house types with living room, kitchen, bathroom and two or three bedrooms.

We must remember that the participation of women in a self-help construction project is important, therefore, the choice of the construction system turns out to be fundamental, since a heavy construction system and a difficult construction method makes the project increase in time sometimes.

In the field of strategies, the FUPROVI field group must initiate their work from the pre-construction phase in order to know all the details of the project and the families: their socio-economic situation, their availability to work in the field, points referents to participation in meetings, contribution of hours for working, etc. In this project the disadvantage was that the social worker change d twice, then it was difficult to take a rigorous control of the families hours of work, and to decide remedial actions in time to stop the time increase during the construction of housing.



Figure 8:Houses built in Nazareth Condominium Project.

## Conclusions

- Training people how the record of community hours can be controlled, can help in avoiding that some families do not fulfil the stipulated workload at the beginning of the project, thus making the project late and the families who fulfil a lot demotivated to continue working with communal works.
- A construction system according to the construction methodology should be considered carefully. The used system called “super block” is a good solution for house projects, because it reduces costs and it diminishes the construction time, but it must be analysed in self-help construction projects because most of the people are not used to construction work and handling heavy systems can be the cause of physical fatigue in many of them.
- The construction time in each project should be considered because long construction periods lower the motivation of the families to obtain their own houses.
- In all projects of self-help construction some means of process control must exist, that indicate the variation of results just in time to avoid cost increases by delays in the construction.
- The self-help construction system was the best one when the economic capacity of the families is considered, nevertheless, some factors non considered at the

beginning of the project, like the physical fatigue, increased the construction time of the project

## Recommendations

- To improve the selection of the construction system, in order to consider the necessities of the families and simultaneously handling easy in the construction field for them.
- To implement a method of analysis for the used construction methodology, which determines the obtained results of the work during the test period, construction quality and the families' acceptance of the used methodology.
- To improve the contribution system of communal hours, giving option to the families to work more time in their houses like prize to their personal efforts.
- The community and the board of directors should have a biweekly meeting for listening suggestions and proposals in order to improve the construction methodology and the project advance.

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