SUSTAINABLE LIVELIHOODS
IN THE INFORMAL SETTLEMENTS
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SUSTAINABLE LIVELIHOODS IN THE INFORMAL SETTLEMENTS

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CIB Task Group TG40 Informal Settlements

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PREFACE

This book is the result of joint work of CIB TASK GROUP 40 on informal settlements, during 2002 until 2004. Some papers are presented by experts who are members of CIB. The aim of this report is to collect research result on informal settlements sustainability, responses to hazards, and how people can participate in the improvement of informal settlements. Creating sustainable livelihoods in the informal settlements is very important to provide decent settlements and housing for all, better integrate informal settlements into urban areas, and respond appropriately to hazards and disasters.

Three continents reports are presented:

• Latin America by J.V. Bujanda E and Liana Arrieta de Bustillos, and Peter Kellett.
• Asia by Happy Santosa, Dewi Septanti and the Team of Laboratory for Housing and Human Settlements
• Africa by Paul Chege and Michael Majale, and Mark Napier and Margot Rubin

Special thanks and appreciations are directed to all writers in this book.
CHAPTER 1
INFORMAL SETTLEMENTS PROCESSES AND TECHNOLOGY TRANSFER IN LATIN AMERICA

Introduction
The papers presented in this chapter cover the discussions of public risk in the urban
neighbourhoods and the processes of informal settlements in Latin America. The estimate of
an index of risk is important to indicate the risk of a region or city, and to avoid disasters.
The processes of informal settlements development show that even very poor settlements
could be gradually develop into better physical conditions and people could increase their
wellbeing and socioeconomic conditions. These kind of processes were examples of how
informal settlements could sustain.

REVIEW OF SUSTAINABLE INFORMAL SETTLEMENTS PRACTICES IN LATIN
AMERICA
There are efforts all over the world to promote settlements and housing for the poor. Some of
the efforts in Latin America are presented here. These show how people strive to create
sustainable livelihoods even in the informal settlements with low income communities.

1. Community Organization-HUAYCAN, Peru

In 1984, the Mayor of Lima prepared a new settlement with the help of architects who had
experience in informal housing. The zone was divided into one hectare units which were to be
occupied by 60 families each, namely UCV community unit of housing. The characteristics of
the plan were: gradual development, depending on the economic capabilities of both the
community and the government, ownership of a 90 m2 of for each household, and
development of the area by the community. The technical team provided concrete alternatives
for the development and the improvement covered: water, electricity, a primary sewerage
system, legalization of land titles, a technical and industrial school, a health centre and a 14
hectare industrial zone for the artisans of the area (Anzorena and Fernandes, 2003).

The Huaycan community was successfully developed the settlement, through relationship
with the government, the friendship and the support of other groups during the
implementation of development, the vision of the Huaycan leaders who were able to push the
projects. Concrete problems should have concrete answers in the lives of the settlers and this was done in partnership with the President, the Mayor of Lima and other groups (Anzorena and Fernandes, 2003).

2. Assisted Mutual Help-Mendoza, Argentina

The local government of Mendoza channels all its available funds for housing to Cooperatives, Mutuals and Neighbourhood Associations. These are for financing of projects organized and implemented by the people’s organization. 130,000 families live in Mendoza, but 34% have housing problems due to overcrowding or because their houses are beyond repair (Anzorena and Mendoza, 2003).

Since the middle of 1950’s the Provincial Institute (IPV) and Mendoza created paricipatory methods of construction based on self-help and mutual help systems. In 1960 the dwellers of the precarious settlements contributed the labour in housing projects. Thousands of families living in marginalised settlements were able to build permanent houses through their organised labour.

The benefits of mutual help are as follows:
- Has produced an efficient system for the production of social housing and for the development of progressive communities.
- Has given the urban poor skills opportunities in communal enterprises.
- Has formed leaders and helped to translate self-help construction group activities towards the formation of cooperatives, mutuals and neighbourhood associations (Anzorena and Fernandes, 2003).

3. The Squatter Campamentos and the Hogar de Cristo Housing Fondation, Chile

Hogar de Christo (HC) was founded to benefit the poorest sector of the population of Chile specifically for those who do not have a house. In Chile there are about 800,000 Chileans who cannot affort a solution. During the year 2000, 21,716 medigues were provided; in 2001 375,000 houses were built. Three thousand university students colaborated with the Foundation in the campaign called “A roof for Chile” in the squatter settlements. The Foundation provides a simple wooden room prefabricated in the factory. This room is easily assembled by the beneficiary family and their neighbours. It is also very easy to dissamble,
which is important considering that a majority of the clients do not live in their own plot (Anzorena and Fernandes, 2003).

References
Introduction

The objective of this work is the estimate of an index of risk of the context in the neighbourhood Simón Bolívar, located to the west of Barquisimeto, State Lara Venezuela.

The descriptive or diagnostic study of the neighbourhood case of study, considered the holistic index of risk of the context, using a model by means of a system of relative indexes with a conceptual focus that considers not only the structural variables, but also economic, social variables and of answer capacity.

In the measure that the cities grow, uncontrolled development that simply obeys the necessity of the deprived classes of obtaining a habitat inside the environment of the city that allows them and their relatives to have access to those arises parallelly “kindness” that offer the big cities as for comforts, level of life and possibilities of getting employment. This has motivated the urban population's growth immeasurable, in the rural population's detriment, concentrating on the cities, big for human contingents of a space and desirous of being developed in harmony with what usually calls “the dream of possessing a housing”, a place to live.

When leaving draining the spaces they only go being the most uneven lands, with harmful topographical conditions, terrible access roads, without any type of basic services, and in numerous opportunities in areas of risks (geologic and geotécnic).

In almost their entirety the housings that are in this type of establishments, are built with not adapted materials, without planning, neither control or supervision. It means that each family goes developing its space according to its approach, originating that the inhabitants, face threats of all type daily, not only for its space position, but also for its social and economic condition, that is translated in very low quality of life. (Arrieta de B., 2003)
The potential growth of the number of disasters that has come facing the region in the last decades, according to the IDB / ECLAC (2000), about 150 million people, or one of each three inhabitants in Latin America and the Caribbean is exposed to natural disasters. Also; between 1900 and 1989 this region has confronted an average of 10.8 disasters per annum, being increased this figure to 35.7% in the period of 1990 and 1998. 95% of the victims of natural disasters lives in developing countries in most from the cases to its conditions of poverty (IDB, 2000). These prevail in the informal establishments, then these sectors are the most affected by the disasters.

The study try to find the answers of the following queries:
Which is the level of the risk to those that the inhabitants of the urban neighbourhoods are exposed?, Are they able to face and to resist the threats?.
Before this situation, this investigation is managed to identify the levels of risk and vulnerability of the local context of the neighbourhood Simón Bolívar, selected as sample type, with the purpose of establishing the bases and approaches for an appropriate administration of risk that is more efficient, with the purpose of diminishing the grades of existent vulnerability.

**Objectives of the Investigation**

General objective: to Estimate a holistic index of risk of the context in the neighbourhood “Simón Bolívar,” located to the west of the city of Barquisimeto, State Lara. Venezuela.

Specific objectives:
To analyze the characteristics of the urban neighbourhoods from the point of view: socioeconomic, of land tenure and basic services.
To identify, the conditions of risks and of vulnerability that present the inhabitants or infrastructure of the urban neighbourhoods, base to their natural threats.
To diagnose the levels of risks and vulnerability in the neighbourhood “Simón Bolívar” of the city of Barquisimeto State Lara. Venezuela.
Records

Clichevsky (2000), affirms that difficulty exists in determining the magnitude of the informality and the index of risk, because the censuses don't register it as analysis units, for the same characteristics of the informality. The important thing is to stand out that the populational growth that occupies some form of informal habitat with regard to the total of the inhabitants of the cities, has been important in the last decades in the Latin American cities. In this work, somehow then, an approach is appreciated to the magnitude of the informality, in the table 1 that reflects the percentages of informality of some Latin American cities

Table 1
Magnitude of the Informality for Cities, in Percentages of Population

<table>
<thead>
<tr>
<th>Ciudad</th>
<th>% de Población en informalidad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bogota</td>
<td>59</td>
</tr>
<tr>
<td>Belo Horizonte</td>
<td>20 (solo en favela)</td>
</tr>
<tr>
<td>Buenos Aires</td>
<td>50</td>
</tr>
<tr>
<td>Fortaleza</td>
<td>40</td>
</tr>
<tr>
<td>Lima</td>
<td>40</td>
</tr>
<tr>
<td>México</td>
<td>40</td>
</tr>
<tr>
<td>Quito</td>
<td>50</td>
</tr>
<tr>
<td>Recife</td>
<td>46</td>
</tr>
<tr>
<td>Río de Janeiro</td>
<td>20 (solo en favela)</td>
</tr>
<tr>
<td>Salvador</td>
<td>21 (solo en favela)</td>
</tr>
<tr>
<td>San Pablo</td>
<td>22 (solo en favela)</td>
</tr>
<tr>
<td>San Salvador</td>
<td>35.5 (solo en mesones)</td>
</tr>
<tr>
<td>Santos</td>
<td>12 (solo en corticos)</td>
</tr>
</tbody>
</table>

Fuente: Clichevsky, 2000

In Venezuela the cities of the domestic interior have increased their demographic weight in the national urban context, but their problems have also grown, particularly with relationship to the urban popular habitat. On the matter It Crippled (1993), highlighted that Caracas possesses one of the percentages of surface of lower neighbourhoods among the seven more important cities in Venezuela (Table 2). This situation evidences a tendency change in the national partner-space structure.
Table 2

Population, Surface and Density of the Neighbourhoods in the Main Cities of Venezuela

<table>
<thead>
<tr>
<th>Ciudad</th>
<th>Población</th>
<th>Población en Barrios</th>
<th>% de Habitantes</th>
<th>Superficie en Barrios (hectáreas)</th>
<th>Densidad en Barrios (hab./ hectárea)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caracas</td>
<td>2.685.901</td>
<td>1.085.543</td>
<td>40.42</td>
<td>4.053,22</td>
<td>267,82</td>
</tr>
<tr>
<td>Maracaibo</td>
<td>1.249.670</td>
<td>802.807</td>
<td>64.24</td>
<td>11.886,56</td>
<td>67,54</td>
</tr>
<tr>
<td>Valencia</td>
<td>903.621</td>
<td>465.643</td>
<td>51.53</td>
<td>5.130,50</td>
<td>90,76</td>
</tr>
<tr>
<td>Barquisimeto</td>
<td>743.414</td>
<td>378.227</td>
<td>50.88</td>
<td>4.507,34</td>
<td>83,91</td>
</tr>
<tr>
<td>Cuidad Guayana</td>
<td>465.738</td>
<td>225.485</td>
<td>48,41</td>
<td>7.784,75</td>
<td>28,96</td>
</tr>
<tr>
<td>Maracay</td>
<td>437.878</td>
<td>304.679</td>
<td>69,58</td>
<td>3.035,25</td>
<td>100,38</td>
</tr>
<tr>
<td>Barcelona</td>
<td>413.189</td>
<td>218.872</td>
<td>52,97</td>
<td>2.621,61</td>
<td>83,49</td>
</tr>
</tbody>
</table>

Fuente: J. Baldó, 1993

Taking this aspect like an element of central importance for the coming studies that it has more than enough the urban thing is carried out in the country, it charges validity the present work where it is sought to achieve a theoretical approach of the level of risk of the context starting from a case peculiar of study: Neighbourhood “Simón Bolivar” in the city of Barquisimeto, State Lara, Venezuela.

In reference to the estimate of the index of risk, the technique of relative indexes that was used to estimate the index of risk of the context, proposed by Cardona (2001), it was already applied in the city of Bogotá, Colombia, urban center formed by a smaller group of areas suburban denominated governorships or towns (19 in total); and it is being used by the Program of the United Nations for the Development (UNDP), to elaborate an index of global vulnerability (of risk) for disaster IVG.

**Characteristic of The Urban Neighbourhoods**

Socioeconomic conditions: The poor and the poverty also include the feeling of insecurity or vulnerability, lack of the right to say (in front of the members of its home, community or government), the levels of health, literacy, education, and quality of the services (Chambers, 1989)

This situation gave place to define the poverty in terms of the absence of the basic capacities to satisfy physical necessities and also to reach holding in objectives the life of the community and to influence in the taking of decisions.
The poor population's notable increment is observed for Latin America in the year 1970 the poor population it was 36.90%; and in 1997 it reached 61.70% what takes to the necessity of worrying about this situation because it evolves gradually so much in the rural thing as urban. (ECLAC, 1999). At the end of the years ninety, six of each ten poor inhabited urban areas, situation that transforms Latin America into the region in development that amplifies the world process of urbanization of the poverty (for contrast with Asia and África, where most of their poor populations are still in the rural means). (ECLAC, 1999)

In Latin America in general the percentage of poverty is 35%, with an urban poverty near 30%, with 14% of national poverty and 9% in urban areas. In the case of Venezuela, the estimate is of 44% as for the poverty and of 19.4% the poverty, very superior percentages to the average that presents the region. (It roots, 2000) The index of human development in Venezuela for 1997 was of 0.69, considered as half low, and that of the state Lara was estimated in 0.66 (half low), below the national average.

For 1991 the index for the state Lara, it was located among the range that corresponds at the high level (0.85-0.825), already for the following year it had descended to the range among (0.825 –0.80), although it continues being considered high. The continuous index in descent until arriving the 1997 at 0.66 (half low), just as it was indicated previously. (INE, 2000)

Land tenure: In the case of the informal establishments, about a wide range of circumstances, some of which can be extremely complex. Different holding systems can coexist that is necessary to consider the property of the land and the conditioning level that had in the moment to begin the occupation to understand them. The main types of urban informality in Latin America are the following ones (Clichevsky, 2000):

From the point of view of dominian: occupation of public earth or deprived in village, favela, callampa, quarter, establishment, takes, occupation of individual lot, small holding secret or “pirates”, irregular lot, marry taken, occupation of public areas (squares, etc.), estates of social origin (public land or indigenous communities) incorporate to the urban area by means of illegal sales. That is to say that is of direct occupations that the population carries out through the informal market of the floor.

From the point of view of the urbanization: Occupation of lands without urban conditions - environmental to be used as residential, near inundables, polluted, to secret trash cans,
without infrastructure, with access difficulty for the public transportation, centers of employment, primary education and primary centers of health.

In this sense it is sustained that the holding should understand each other inside a social and human context, since this it impels the participation and the organization of the community, its development and invigoration (Bolívar, 1991). In the neighborhood Simón Bolívar, the origin of the earth is common, that is to say, none of its inhabitants is proprietary of the land.

Basic service: One of the main lacks that one can observe in the cities of the countries of Latin America and the Caribbean, is the access to the basic services such as drinking water, electricity, net of served waters, etc. This situation is increased in the urban informal establishments, which are located in lands that the local governments not even have foreseen for urban developments in its majority and therefore the supply of these services doesn't exist, and that in turn they are excluded of all planning possible to short or medium term on the part of the local governments.

According to figure published in the year 2000 by the UNCH, for the year of 1997 it indicates that 18.63% of the urban population from Latin America and The Caribbean doesn't have access to the service of water for system of pipes, 13.70% doesn't use drinking water, 24.95% it doesn't possess toilet (sanitariums) in its housings, also that 33.15% doesn't have access to the net of served waters (net of sewers), and lastly the 21.58% doesn't possess the electricity service.

According to in National Institute of Statistic (INE), (2003), in Venezuela the figures are inferior to the averages that it presents Latin America and the Caribbean. 14.5% doesn't have the service of water for pipe in Venezuela; in the state Lara this percentage is of 17.84%, (3.54% above the national average); as for the net of sewers, 25.31% doesn't have this service in the State. In the neighbourhood Simón Bolívar, lacks were detected in such services as: net of sewers; steel and asphalted in the streets; social security (installation of a position or police module); lack of service of illumination public; it lacks a night emergency in the national health clinic, and in education they don't possess public secondary school; the housings don't have the service of electricity in a formal way, they possess the service with secret takings. Areas that don't possess service of water exist; in the sectors that have it, the supply is not to regulate (three times per week, through a pipe installed by the same inhabitants) and; the service of urban toilet, is once weekly.
Risk: Probability that it is presented a damage or damages in a certain scenario, when this scenario is exposed to a threat of certain intensity and the same one presents a vulnerability (Andrade, 2002). The risk of which will be the public or collective risk; the one that means danger in some grade for all the members of a prone community. Probability that an event is presented with a certain intensity, in a specific place and in a period of defined time. In a general way the threats can differ in two big groups in accordance with their origin: threaten natural and non tropical. (Cardona, 2001).

Vulnerability: probability that an exposed community to the impact of a natural threat can suffer damages, according to the grade of fragility of its elements (infrastructure, housing, productive activities). (Andrade, 2002). Cardona (2001) proposes the following factors that originate the vulnerability in the developing countries.

The Exhibition: Condition of susceptibility that has the human establishment of being affected to be in the area of influence of the dangerous phenomena and for their physical fragility before the same ones.

The Social Fragility: the bias that arises as a result of the marginalised level and social segregation of the human establishment and their disadvantage conditions and relative weakness for socioeconomic factors.

The Lack of Endurance: That expresses the access limitations and mobilization of resources of the human establishment, their answer inability and their deficiencies to absorb the impact

**Methodology**

Nature of the Investigation: Assisting to the defined objectives, the investigation is guided toward the incorporation of a bibliographical design whose strategy is based on the analysis of obtained data of different sources of information, such as formless of investigation, books, monographs and other informative materials, for the elaboration of records, theoretical bases of the problem, and gathering of secondary data; with elements of the field investigation for the gathering of primary data (A, 1987).

The proposed study is adapted to the purposes of a descriptive investigation-explanatory. The descriptive studies look for to specify the important estates of people, groups, communities or any other phenomenon that it is subjected to analysis. They measure or they evaluate diverse aspects, dimensions or components of the phenomenon to investigate (Hernández, Fernández, Baptista, 1998). The explanatory ones try to determine the origins or the causes of a certain
group of phenomena, where the objective is to know why certain facts happen, through the delimitation of the existent causal relationships, or at least, of the conditions in that they take place (Sabino, 1986).

Population: The study was carried out in the State Lara, Barquisimeto, Municipality Iribarren, considering housings with different design characteristics belonging to the Neighbourhood Simón Bolívar, which is located to the south-west of the city in the Av. Florencio Jiménez, Km. 13 freeway Barquisimeto-Quibor. The sample mark for a defined area as Unit of Urban Design, in which the whole population is represented in study. It was selected 127 housings that fulfilled all the required demands to participate that they fulfilled all the required demands to participate in the program III, of the CONAVI (Improvement and Increment of houses in neighbourhoods of urban and rural popular urbanizations).

To carry out the estimate of the index of risk, a model by means of a system of relative indexes, using a conceptual focus that not considers solely variable structural, but also economic, social variables, of answer capacity or of recovery (resiliencia). This model is developed by Dr. O. Cardona, 2001, that originally it is focused to estimate a holistic index of seismic risk. This will be adapted, to estimate an index of risk of the context in this investigation.

For the model of the seismic risk by means of indexes, Dr. O. Cardona, proposes the definition of a holistic index of seismic risk, composed by two factors, one to which denominates physical watering or hard, and the second as risk of the context or soft, result of the estimate of a describer of relative seismic threat and of its convolución with a describer of vulnerability of the context that in accordance with that outlined previously is based in exhibition indicators, social fragility and relative resiliencia of the analysis units that conform the urban center. This analysis units can be governorships, districts or towns.

In agreement with the topic has to investigate, it used the part of risk of the context or soft, with some modification; carrying out lineal correlations. The index of risk of the context was obtained for the neighbourhood “Simón Bolívar “in Barquisimeto, State Lara, Venezuela.
<table>
<thead>
<tr>
<th>Componentes</th>
<th>Indicadores</th>
<th>Descriptores</th>
<th>Índice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aceleración espectral</td>
<td>0,33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Area de suelos Blandos</td>
<td>0,10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Area de suelos con potencial de Licuefacción</td>
<td>0,10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Susceptibilidad de deslizamiento</td>
<td>0,10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Susceptibilidad de inundación</td>
<td>0,10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fisuras en Paredes</td>
<td>0,03</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mohosidad</td>
<td>0,03</td>
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</tr>
<tr>
<td></td>
<td>Eflorescencia</td>
<td>0,03</td>
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</tr>
<tr>
<td></td>
<td>Falta de Junta de Dilatación</td>
<td>0,03</td>
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</tr>
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<td></td>
<td>Filtraciones en cubiertas de techo</td>
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<tr>
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<td>Proximidad a pozos septicos</td>
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<td>Desprendimientos de frisos</td>
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<td>Cabledos</td>
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<tr>
<td></td>
<td>Longitud inadecuada de aleros</td>
<td>0,03</td>
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<td></td>
<td></td>
<td></td>
<td>Amenaza del contexto</td>
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<tr>
<td></td>
<td>Población</td>
<td>0,20</td>
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<td></td>
<td>Densidad Poblacional</td>
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<tr>
<td></td>
<td>Area construida</td>
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</tr>
<tr>
<td></td>
<td>Area Industrial</td>
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<td></td>
<td>Area Institucional</td>
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</tr>
<tr>
<td></td>
<td>Estratos Sociales 1 y 2</td>
<td>0,20</td>
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<tr>
<td></td>
<td>Tasa de Mortalidad</td>
<td>0,10</td>
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<td>Tasa de Delincuencia</td>
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<td></td>
<td>Índice de disparidad</td>
<td>0,30</td>
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</tr>
<tr>
<td></td>
<td>Area de Barrio Marginal</td>
<td>0,30</td>
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<tr>
<td></td>
<td>Canas Hospitalarias</td>
<td>0,15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recurso Humano en Salud</td>
<td>0,15</td>
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</tr>
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<td></td>
<td>Espacio Público</td>
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<td></td>
<td>Personal de rescate</td>
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<tr>
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<tr>
<td></td>
<td>Operatividad en Emergencia</td>
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</table>

Figure 1: The Index of Risk of the Neighbourhood Simon Bolivar
Results
The index of risk of the neighbourhood Simón Bolívar, located in the city of Barquisimeto, State Lara, was of 4,39, which is considered as Moderate Observing the previous results to the estimate of the index of risk of the context, the exhibition securities (5,15), social Fragility (7,03) and endurance (4,49), they are high securities among the high and moderate levels according to the scale, that they make that the vulnerability describer (5,67) it is considered in a high level.

The hypothesis is proven of the high grade or vulnerability level that the inhabitants of the neighbourhoods present, in this case in particular, the inhabitants of the neighbourhood Simón Bolívar; condition that can cause the manifestation of a natural phenomenon, cause great impact in the neighbourhood, transforming it in a disaster.

The indicator of social fragility, is the highest value (7,03), situation that is intimately bound to the development level and quality of life, the one which reflective the low-level under the economic conditions partner of the community of the neighbourhood Simón Bolívar.

To guarantee the reduction of the risk, the science is necessary, but not enough, therefore, the administration of risk should be a fundamental component of the planning and like an unavoidable strategy to achieve a sustainable development.

To make an administration of risk it is necessary to have a multidisciplinary focus takes into account the bodily injury, the lost ones economic or the number of killing. Also social, organizational and institutional factors, so that the non alone risk related with the impact of a dangerous event, but also with the capacity to support the impact and their implications in the considered geographical area.

With regard to the utilized method (developed by Dr. Omar Cardona), their main advantage is due to that is possible to disintegrate the indexes in describers and these in turn in indicators, to identify, this way, the reason for which a town can present a bigger risk; what allows to verify the results and to prioritize the stocks of prevention, planning that should be implanted for the intervention and modification of the stocks that more influence in the risk of a region.
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INTRODUCTION

There is an implicit assumption underlying much academic writing on low-income housing that poverty and the struggle for survival will mean that the dwellings of the urban poor, especially those which they have created for themselves, respond essentially and only to the basic need for shelter. Such a reductionist view of poor people’s needs as predominantly material and predetermined is now being challenged and is leading to more holistic analyses that include non-economic dimensions. This discussion has been informed by studies that have examined the similarities between informal contemporary Third World housing and vernacular settlements (Rapoport 1988; Kellet and Napier 1995). Such studies have attempted to shift the discussion away from superficial interpretations of visual images towards analysis of underlying processes and cultural patterns, to conclude that informal settlements offer a potentially fruitful arena in which to study aspects of the complex interrelationships between dwellers and their dwelling places.

When viewed from a visual perspective such informal settlements may well appear disordered, chaotic and unplanned, especially in the early stages of their development. However, this article suggests that they do in fact respond to purposeful decisions and actions which are based on culturally constructed images of what dwellings and settlements should be like. Indeed the process of incremental growth and the improvement evident in many such environments are focused toward ‘imagined futures’ (Holston 1991). Despite formidable economic constraints such images and meanings play a fundamental role in influencing the behaviour of low-income residents and the dwelling environments which they create. Central to this discussion is an understanding of the meaning of ‘home’, and how such meanings are created through the processes of settlement and consolidation of the dwelling.
A Case Study: Santa Marta, Colombia

The Caribbean coastal city of Santa Marta is a regional capital with an urban population of over 210,000. The majority live in settlements which begin as organized, illegal (sometimes violent) invasions of land, the first of which date from early in the twentieth century. Land invasions appear to be tolerated, and at times encouraged, because powerful interest groups in the city benefit through unequal client-patronage relationships with the low-income settlers populations (Kellet, 1997). Land subdivision is carried out by the settler who aim to create plots of equal dimensions within a conventional gridiron layout. Land invasion and layout are collective activities, but dwelling construction and consolidation are largely done at household level. Over time most dwellers are able to change their temporary shelters into well-built, substantial houses: a change from small, single-room, unserviced dwellings towards multi-room, larger, fully-serviced houses in permanent materials. Such changes occur at varying speeds, with numerous factors impacting on the process, including cultural background and complex patterns of residential mobility which mean that different households may occupy (and build) at different stages in the life of the dwelling (Kellet 1992, 1999). It is clear that the majority continue to improve the dwelling well beyond the resolution of basic shelter needs. In addition to adding rooms, upgrading finishes and improving services, they introduce furniture, picture, painting, trees and flowers. Such actions may be described as home creating processes.

Memory and Meaning

In conventional, formal housing systems the dweller will normally enter the process when the dwelling is completed and most decisions about the physical form have been made. This means exclusion from much of the process of creation and construction. In contrast, informal settlers, especially those who have endured the hardships and dangers of the land invasion, inevitably have a different experience of and relationship with both the site and the dwelling. For many this is a long, slow process of construction and change which is closely intertwined with other fundamental aspects of life (birth, death, household formation and separation), economic position (through income-generating activities in the dwelling), as well as apparently small details of everyday existence. The plot is not merely a demarcated piece of land, nor is the house only ‘bricks and mortar’: they are both full of memory and meaning.
The interviewer Dona Carmen describing her plot in the early years when the dwelling and
her seven children were small and she was recently widowed:

all that area over there was open, we used to sit here, and there where the kitchen is
now there used to be a large almond tree and we would rest below it. Just beyond the
almond tree was the place for washing clothes. I used to wash there in peace and quiet.
That was when the children were young.

In this example the speaker relates to different parts of the dwelling through memories of
what was there before, and of the activities which took place in particular places. However,
rather than evoking affective responses of nostalgia, the recollection of deprivations and
minimal living conditions in the past emphasizes present achievements as well as giving
strength to hopes for the future. The focus is forwards, with little evidence of nostalgia for the
past, either for earlier phases in the settlement or for previous places of residence.

Distance from the Natural World

Beliefs and attitudes relating to the natural world vary considerably between cultures, and to a
lesser extent between individuals within the same broad cultural groupings. In Latin America
the dominant image of rural life is negative (Rapoport 1982: 144; 1985: 270). In an early
study of a small town in Colombia, Richardson (1974: 35-51) demonstrates how a
popularized series of beliefs towards the natural and manmade world can help explain the
form of the town and the social behaviour of its residents. In common with many societies,
‘natural’ is conceptualized as the opposite of ‘culture’ (Eagleton 2000) : the natural, rural,
negative world (monte) is contrasted with the positive, progressive urban world of cultura,
and the two worlds should be clearly demarcated and bounded.
The dwelling consolidation process in informal settlements can be interpreted as a move away
from the temporary materials and typologies of the natural, rural world (monte) towards the
ordered, permanent constructions which represent the world of cultura. In addition, this
duality helps explain the permanence of the traditional rectilinear urban layouts throughout
Latin America, for in addition to their equivalence with conventional urban form, such clearly
man-made, geometric patterns symbolize in a very concrete way the dominance of ‘man’ over
the haphazard, curved, natural forms of the natural world.
Natural World, Man-made World: a Tale of Father and Son

Strong preference for the ordered rectilinear approach is manifest in relative merits of the location and shape of plots. In the Santa Marta study there were a few areas where the regular street layouts were thwarted by topography or human error, leading to a scattering of irregularly shaped plots which are clearly regarded as ‘sub-standard’ and less desirable by the majority. Fausto Varela chose to live on such an irregularly shaped and steeply sloping corner plot and is one of a minority of settlers who have made little attempt to follow the dominant urban-oriented lifestyle. A small opening between the large overgrown trees and bushes which form a green barrier between his house and the street, as a threshold into another world which in appearance and function is like a small piece of rural Colombia transposed into the city. Fausto built the two-room dwelling himself from bricks which he fired on the plot. As in rural areas the small kitchen is separate from the house, and the family cooks exclusively with firewood that Fausto collects with his donkey from the hills beyond the settlement. There are a variety of other animals and birds and everywhere are plants, bushes and trees which have been planted specifically for food consumption or medicinal purpose. Fausto is a curandero (healer) who uses traditional knowledge of the medicinal properties of plants. He charges a small amount for each consultation, and supplements his income through his ingenious ability to recycle found objects, thereby gaining sustenance from the plot.

In clear contrast is the house built next door by one of Fausto’s sons, Rigoberto, on a part of the original plot given to him by his father. Rigoberto lives with his wife and young sons in a small but typically urban-style house, with an eye-catching entrance. Although Rigoberto has had more cash resources at his disposal (form his time working at a mine) the dramatic contrast in the form and image of the two adjacent houses reflects more fundamental differences in world view. To quote Rapoport (1969: 47): ‘what finally decides the form of a dwelling, and moulds the spaces and their relationships, is the vision that people have of the ideal life’. For Fausto the place to be is the countryside, where he feels life is comfortable. Hence his house in the city is formed to reflect this: he has created a rural oasis full of sights, sounds and smells with which he can identify. He appreciates the uneven and steep nature of his plot from where he gets a direct view of the hills, and, in clear weather, of the mountains beyond. In contrast Rigoberto, although born in the countryside, has spent his formative years in the city. He is buildings house which consists of only two rooms at present, but he confidently expects to extend to at least five with all the finishes, furnishings and services or
an urban lifestyle. Already he has invested in the entrance which confidently and proudly announces to neighbours and passers-by that this is the house of an upwardly mobile urbanite.

**Urban and Rural Values and Images**

In many ways Fausto is an exception. He has consciously adopted a lifestyle that is more typical of rural areas. For others in the settlement who live in houses of temporary materials of rural origin this is intended to be merely a phase from which they will ‘progress’. Such progression between contrasting value systems was examined in Ecuador by Klaufus (2000) who based her analysis on Miller’s (1994) concept of dual values. Transient values are associated with the present time, the short-term, expressiveness and change; whereas transcendent values relate to long-term memory, continuity and moral values handed down through the generations. She goes on to show how ‘residential architecture help determine social stratification [and how] an individual household can profile itself within the group through the competitive application of taste and originality in architecture and consumption’ (Klaufus 200: 343).

In Santa Marta, aspects of the visual appearance of the dwellings through an understanding of the imagery associated with rural and urban values combined with an appreciation of transient and transcendent values. The pitched roof is strongly symbolic of the rural house and it is noticeable how much effort and expense are expanded in disguising its presence. Many consolidated dwellings appear to have flat roofs which are associated with the urban houses of the rich. This illusion of flatness is achieved by erecting a low parapet or fascia at the front eaves which is commonly extended over the entrance to provide an overhang, sometimes with features made of the water outlets or supporting columns. These fascias require skill to execute and are invariably contracted out to the more skilled builders in the settlement. Such ‘modern’ exteriors reflect transient, changing values and are designed to demonstrate prestige and link the occupiers with urban based ideas of affluence and progress.

**Home as a Place of Sustenance: Production and Reproduction**

A dimension of low-income environments that has until recently received little attention is the integration of economic activities within and around the dwelling. In Santa Marta at least twenty per cent of households generate income in the home through a range of informal sector enterprises including shops, workshops and even nursery schools. Many others reduce expenditure through growing vegetables, tending fruit trees and keeping chickens. Some of
these activities appear to have little impact on the domestic activities of the household and the role of the dwelling, but in other cases the spatial configuration is changed and the dwelling is as much a place of production as domestic reproduction (Kellet and Tipple 2000; Gough and Kellet 2001). This has the potential to add to our conceptual understanding of the meaning of home and challenge over-simplistic ideas of the home as an essentially sacred, female, private, domestic space. Thresholds and boundaries are complex and fluid, changing both spatially and temporarily as households, dwellings and enterprises grow and evolve. The dwelling plays a key role in structuring both social and economic interactions, and through patterns of production and consumption links the micro domestic economy to broader macro-economic developments. Therefore the home plays a role as a provider not only of physical security and safety, but also of fundamental economic sustenance, without which the household would perish. The home thereby becomes not merely a container of human life but an essential shelter for those life-sustaining activities. It is clear that the house not only structures social and economic interactions but also acts as a source of core symbols that constitute those interactions. In a study of the domestic economy in Colombia, Gudeman and Rivera (1990:2) describe how ‘all material practices are organized through the house, and the lexicon for them comes from the vocabulary for the physical dwelling: the house as shelter is metaphor for the house as economy.

**Home as an Expression of Moral Order**

It is very noticeable that most dwellings, particularly temporary ones, are kept in immaculate condition. Despite the frustrations and difficulties of achieving order within relatively confined spaces, with large numbers of people, absence of storage space, and often with earth floors and a dusty environment, the dwellings which are not well kept are exceptions rather than the rule. It is clearly important to demonstrate cleanliness and tidiness ‘and thus bear witness that the inhabitants are decent people. The achievement of this cleanliness is the work of women’. (Gullestad 1993:148) Judgements are made about the inhabitants by observing and interpreting the dwelling, hence a clear objective is to avoid a negative assessment. This is of course more difficult in a small temporary dwelling. In such circumstances people do not wish be equated with the inadequate physical state of the dwelling, but rather we are encouraged to admire how well-kept the tiny dwelling is, both inside and out. This means that the beds are clean and carefully made; the earth floor must be swept; the plates and cups must be neatly stacked; and the metal cooking pots must be polished, despite becoming black immediately they are placed over the wood fire. This attention to the aesthetics of order and
tidiness are vital because ‘the connotations of “a good home” are moral, while the connotations of the expression of “a nice home” are of an aesthetic kind. However, through aesthetics a vision of a moral order is created and expressed.’ (Gullestad 1993: 147)

**Home as an Expression of Respectability and Conventionality**

How great efforts are made to achieve a standard settlement layout, sometimes overriding the logic of topography. The most vital aspect of the grid layout is that it will be read as conventional, and have the potential to develop and become the same as other parts of the city. Similarly, but perhaps less forcefully, the design of the dwellings themselves echoes the same underlying values. Clearly established patterns of development are followed at different speeds, and the end products all fall well within a relatively narrow band of culturally prescribed characteristics. This echoes the conclusion of an earlier study of popular settlements in Barranquilla where the ‘homogeneity of the house form and layout in these barrios can be explained in terms of an adherence by builders to a common set of general principles and approved alternatives’ (Forter 1975: 180). Taken together, these principles mean that the dwellers are attempting within the constraints of their resources to create urban form and housing areas that are as close as possible to the dominant conventions. The informal dwellings can therefore be read as symbols of formal respectability and conventionality.

**Home as an Expression of Individuality and Status**

It is certainly true that the grid layout has an inherent egalitarian logic: each street, urban block and plot should be of equal dimensions. This might suggest that such principles would be manifest in built form and social interactions. However, despite many inspiring examples of collective action, Colombian society is dominated by strong individualism: a belief that individuals must look after themselves and that the rewards of such efforts are deserved. No shame is attached to those who express material success as conspicuous consumption. In housing this is manifest in the efforts both to demonstrate relative levels of affluence as well as to distinguish between individuals through obvious visual differences in the dwellings themselves. The scale and vocabulary of difference are, however, constrained by attempts to demonstrate conformity to the social order. Individual expression through the ‘competitive application of taste and originality in architecture and consumption’ (Klaufus 2000: 343) is most visible towards the front of the dwelling, and the façade in particular can be read as a crude barometer of the social standing and economic health of the occupants.
The Home as Symbol of Independence and Achievement

Heidegger explained that ‘one’s capacity to live on this earth – to “dwell” in the phenomenological sense – is an essentially architectural experience. The very Being of being is linked to one’s situated ness in the world.’ (Leach 2002: 88) Similarly, Turner (1968) has emphasized the existential dimension of self-made environments and believes that in home-building and local improvements a person can find ‘the creative dialogue essential for self-discovery and growth’ (Turner 1968: 357). He continues:

the man who would be free must build his own life. The existential value of the barrida is the product of three freedoms: the freedom of community self-selection; the freedom to budget one’s own resources and the freedom to shape one’s own environment.

There is little doubt that the absence of official control and regulation may be able to release creative action and energy which in other contexts can be severely inhibited, but it is vital not to play down the issue of resource scarcity and constraint: most informal dwellers construct their homes through necessity, not choice. However, this article provides some substantiation for these claims, not least for the depth of meaning which even the humblest of dwellings can contain, and the sense of purpose among many dweller-builders.

This is in sharp contrast to the despair and hopelessness frequently experienced by relatively disadvantaged groups in more affluent parts of the world. For example, Alba, a single mother of two was involved in a violent land invasion and managed to obtain a plot and begin constructing a small dwelling:

my situation has improved because now I have what I didn’t have before – a house of my own. [Although] the work situation has got worse, I must thank God that I’ve got enough to eat. I came here to have something of my own. I feel very content here in my little house. You can live well in a house of wooden boards especially if it’s nicely kept, and I’m always doing something. I’m really so happy here: people ask me when am I going to rest from knocking in nails and things, but I am so delighted to be here: I’ve never had a house before.

Her optimism about the future is clear and she is relishing the independence and opportunity offered by having a home of her own. She had lived for many years in a difficult relationship
with the father of her children, followed by a time living with her sister and family. Despite the minimal physical attributes of her current home, she keeps it in pristine condition: it is a tangible symbol of her independence and achievement.

**Conclusion**

The social position of individuals in society plays a vital role in determining their actions. Squatters are highly conscious of their low social status and how their physical conditions reflect this low status. Their efforts can be interpreted as a striving for dignity and respect. From her personal experience of living in a squatter settlement in Venezuela, the anthropologist Lisa Peatite concluded that:

> the construction characteristic and the service deficiencies have a common attribute; they represent attributes which are devalued and devaluing. People who live in this way are thought of as people to be looked down on. That is why the energy that goes into housing improvement is as much a drive for respect as it is for comfort. (Peattie 1992: 29)

Such energy and values are manifest in the aesthetics of the built environment where:

> the underclass’s are constructing images and identities to counter those that subjugate. Not only are they transforming themselves as citizens but they are also changing the images of disrespect that bind them to a denigrated sense of their own persons. They are replacing these images with new ones of competence and knowledge in the production and consumption of what modern society considers important. (Holston 1991: 462)

Informal settlement processes are now the dominant form of housing production in the rapidly expanding cities of Latin America. These cities are the sum of the continuing actions of low-income households each attempting to construct in physical terms their vision of the life and values to which they aspire. As we have seen, such visions are ambitious and require the commitment of prodigious energy and creativity, leading in turn to a hybrid domestic architecture rich in meaning. Exploration of these self-made environments can offer insights into the critical role of domestic architecture in consolidating and transforming economic relations and cultural identity.
References


TECHNOLOGICAL TRANSFERENCE PROPOSAL IN SUSTAINABLE HOUSING CONSTRUCTION IN URBAN SETTLEMENTS

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Lisandro Alvarado Centroccidental University (UCLA).
Housing Communitarian School Association.

SUMMARY
The objective of this research is to present a communitarian teaching prototype applicable to training programs for Engineers and Architects founded in development of competences, introduced by the Housing Communitarian School Association in Venezuela, in order to train students and spontaneous constructors in the use of appropriate sustainable housing construction techniques to contribute with social capital and local development. This also attends the national requirements displayed in National Constitution, since it promotes the obligatory social service through communitarian internships as part of the study program. The methodology used in the design of this proposal was action-research. So far, it’s been possible to train over 350 people, created 3 research projects and have given over 4000 hours in technical assistance. We recommend to introduce instructional design that allow the inter-relation of human resource in order to finding the solution of housing problem and consider this proposal as an example to follow in order to contribute to solving housing problem in the country and in Latin America.

Key words: Technological transference, education, social capital, sustainable housing, competences.

ABSTRACT

The proposal of technological transfer is part of an education model implemented by the association “Housing Communitarian School” in Barquisimeto Venezuela, through which is to involve to the university in the local development and whose purpose is the one of qualifying the spontaneous manufacturers in the handling of techniques adapted in the construction of sustainable housings. The school also assists the requirements settled down in the Constitution Bolivariana of Venezuela as for the student obligatory social service, through community internships as part of the ordinary plan of study. So far they have been possible to qualify 250 students and more than 150 residents; 3 investigation projects and more than 4000
hours of technical support. The importance of the work resides in the achieved impact through the prototype of teaching community which is a contribution that can be replied in other universities of the region.

Passwords: technological Transfer, education, capital stock, sustainable housing.

INTRODUCTION

Most poor settlements residents live in inadequate houses, exposed to great risks, with deficiency in Basic services and a high stack level. Auto-construction and auto-management are the main production way of building houses for people without technical training. On the other hand, in spite of poverty conditions they live in, these residents are responsible for the biggest housing stock produced in some cities in Latin America. In Venezuela, until 1998, 77% of houses were produced by the informal sector in spontaneous construction processes. (Tipple G., 1998).

The construction of this type of house is made without appropriate resources or technical assistance, and in most cases on unstable surface with high risks before natural disasters. (Arrieta and Bujana, 2004). One of the most important aspects of this issue is the risk that the informal settlements face because of the poor quality in its construction and the present threats which give the informal settlements a high vulnerability condition which has produced thousands of human lost caused by natural disasters or by men. There are a lot of spontaneous constructions built using “Engineering with no Engineers” in Venezuelan Settlements, specially in Caracas where they are placed in topographically inadequate land, considering the seismic high risk condition in the Capital as it is in Barquisimeto classified as Zone V “high risk” which represents an eminent danger for hundreds of thousands residents who are the most affected ones during tragedies. To identify the most common failures in these constructions and knowing what causes them is an important part of the research work previously to the proposal.

This reality of housing is been ignored, almost completely by the engineering schools not only in Venezuela but in most Latin American countries. However, in spite of the eminent needs, residents of informal settlements require from universities. It’s possible to see with some exceptions, a break out between research nature and objectives, the teaching, the
extension of Venezuelan universities and the needs present in local communities in technological and social assistance.

In the case of UCLA University, out of 190 research projects and 120 extension projects, only a few are socially oriented to overcome local poverty levels, besides, the social impact of the projects with an incidence to change in reality, could be considered as “localized” and without great consequences, because these are done in an isolated way and in some cases with no continuity, therefore not optimizing the resources.

The work promoted by the Housing Communitarian School Association leads to the proper technological transference in building houses, allowing the practice of social Engineering and the promotion of Architects and Engineers with a social conscious. Also, it’s been possible to build alliances between public and private sector enterprises oriented to solve social problems lead by poverty and acting in the housing building processes in local settlements.

From this experience, we have had the participation of students and spontaneous constructors in the construction of “housing seeds” built as part of the training in the building in a practical way, using this training as a base for the promotion of economical and social communitarian development. So far, it’s been possible to trained over 350 people; three (3) research projects and over four thousand (4000) hours of technical assistance.

BACKGROUND

The Housing Communitarian School Association was founded in the year 2000 ascribed to UCLA Engineering School. Its purpose is to form spontaneous constructors in “barrios”, helping workers who have hared the traditional constructive practices to get appropriate formation and introducing Architectural and Engineering students as communitarian internship.

This association identifies and applies research project results with social pertinence related to traditional sustainable construction techniques that leads to internal processes and cover the appropriate techniques to local needs. In our 4 years founded, we have given technical assistance and introduced innovation construction processes produced in local
settlements, involving not only technical aspects but everything related to citizen development, always looking after reducing housing vulnerability built without technical formation and on unstable soil, also taking care of increasing life quality of the residents of the area.

The educational model is been designed based on a number of courses and instructors selected according to local needs. This model is founded in 2 programs: a) University internship training Program and b) Communitarian constructors training program. Each course has a work base team which introduces professors from different deans according to the different activities for each case. In the course’s programmes, we include life formation and human development.

The participants are motivated through practical exercises and communitarian experience references. Themes such as project for life, pro-activity, assertive behaviour, etc are part of training. As an important experience background with global focus, where one solves the housing issues, one can name “ciudades de la gente” from Venezuelan Central University Architecture Faculty, Zulia University Local Development Unit Architecture Faculty and UCLA Engineering School Sustainable Habitat Group.

The key strategy is been to introduce professors from different disciplines, students and residents in training programs in order to teach them the appropriate technical construction techniques in sustainable housing building, using these houses as strategy to produce income generation, involving the universities in the social community development.

All these lead to the elaboration of this Project, founded in qualitative research and action research, using as a base the experience lived during the foundation of Housing Communitarian School Association in the year 2000-2004 to achieve a technological transference proposal in sustainable housing construction in informal settlements of Lara State, Venezuela, sustained in the continuous improvement towards the quality of life which also allows to be transfer to other universities in the region.
The detailed urban settlement characterization in Latin America was presented in CONPAT 2003 in Yucatan, Mexico in the Project “Vulnerability, Risks and Threats in Latin American and Caribbean Urban Settlements. Sustainable Livelihoods” where it was possible to analyze the socio-economical characteristics, the risk degree and the vulnerability, the basic services and the pathological problems in housing construction in these urban settlements. In the following two years, attempting to the actual UCLA institutional politics, we have continued the research, making important founds that allows a better comprehension of the habitability issues, the life quality levels and the high risk conditions in what the residents of our cities live. In this opportunity, we present in the tables 3, 4, and Graphic 2, information from the research project “Public Risk in Urban Settlements. Case: Barrio Simon Bolivar” (Bujanda J.), referred to the magnitude of poverty in 17 countries of the region, global numbers of the basic services existence and data of the poverty levels in Venezuelan urban settlements, specially Lara State, which is been applied to the technological transference proposal contained in this project. Additionally, we also present in Table 1 and Graphic 1, numbers of the Human Development Standards and the density of the principal settlements in Venezuela.

As it is reflected in the following Table, Honduras and Nicaragua present the higher poverty and indigence percentages. Honduras with a 74% of poverty which almost 51% are indigents and Nicaragua presents 65% of poverty and 40% in indigence condition. In Latin America, in general the poverty percentage is about 35%, with a urban poverty condition of almost 30% with 14% of national indigence and 9% in urban zones. In the late 90’s, 125, 8 million residents in urban areas are poor, compromising this situation to 35 out of 100 homes.
### Table 1. Latin America (17 countries): Poverty and Indigence Magnitude. 1997-1999

<table>
<thead>
<tr>
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<th>Indigence percentage of homes</th>
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<td></td>
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<td>Metropolitan Area Total</td>
<td>Metropolitan Area Urban Zones</td>
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<td>Chile (c)</td>
<td>1998</td>
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<td>48.7</td>
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</tr>
<tr>
<td>Paraguay</td>
<td>1999</td>
<td>51.7</td>
<td>41.4</td>
</tr>
<tr>
<td>Dominican Rep.</td>
<td>1997</td>
<td>32.4</td>
<td>31.6</td>
</tr>
<tr>
<td>Uruguay</td>
<td>1999</td>
<td>------</td>
<td>5.6</td>
</tr>
<tr>
<td>Venezuela (f)</td>
<td>1999</td>
<td>44.0</td>
<td>------</td>
</tr>
<tr>
<td>Latin America (g)</td>
<td>1999</td>
<td>35.3</td>
<td>29.8</td>
</tr>
</tbody>
</table>

Source: CEPAL,

(a) Includes indigence or extreme poverty conditions
(b) Average data in Rio de Janeiro and Sao Paulo.
(c) Own estimations based on national socio-economical characterization polls (CASEN) 1990, 1994, 1996 and1998.
(d) From 1993, one opened the geographical range to evaluate almost the total of urban population.
(f) From 1997, the poll design does not allow the separation of urban-rural component.
However, the numbers correspond to the national total.
(g) Estimations for 19 países.

### HUMAN DEVELOPMENT STANDARD (HDS)

The human development Standard in Venezuela for 1997 was 0.69, considering as half low, and Lara State was estimated in 0.66 (half low) under the national average. If we see Graphic 1, we recognize how the HDS has descended in the last decade in the State.

For 1991, this standard was in the upper range (0.85-0.825) since this range had been modified to (0.825-0.8) even when it’s still considered as high. The standard continues going down to reach 0.66 in 1997 just as we stated before (INE, 2000).
One of the principal needs in cities of Latin American countries and the Caribbean area is the access to basic services such as running water, electricity, served water systems, etc. This situation is even worst in informal settlements since the land is located where local governments do not have the planning of supply for these services, therefore, they are excluded from the possible planning in short medium or long terms from the local governments.

According to numbers published in the year 2000 by the UNCH, in the year 1997, 18, 63% of urban population in Latin America and the Caribbean area do not have access to running water systems, 13, 70% do not have drinkable water, 24, 95% do not have W.C. (bathrooms) in their houses, 33, 15% do not have access to served water systems and 21, 58% do not have electricity services. According to Statistic National Institute (INE) (2003), in Venezuela the numbers and percentages are lower than the ones in the rest of Latin America and the Caribbean area. 14, 5 % do not have running water systems. In Lara State, 17, 84% (3, 54% above national average) do not have running water systems and 25, 31% do not have access to served water systems.
Risk and Vulnerability: risk is considered dangerous within the informal settlements but its level and perception degree and ways to actually face them can vary according to the leadings that the society chooses. The principal threats the settlements are exposed to are identified in Bujanda’s project and presented in Table 2.

In Latin America and the Caribbean, disasters have often occurred in the past 30 years. Almost every country is suffered a disaster at least in one occasion with great intensity and bad consequences to its development. Its geographical extension and its variety in climate and geology leads to manifestation in energy liberated by nature (Bujanda and Arrieta 2004).

Table 2. Principal Threats

<table>
<thead>
<tr>
<th>PRINCIPAL THREATS</th>
<th>Climate</th>
<th>Hydrology</th>
<th>Topography</th>
<th>Seismic</th>
<th>Produced by men</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Warm waves</td>
<td>6. Pollution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Fire disasters</td>
<td>7. Diseases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Subversive actions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCE: Own
Table 3. Principal Disasters occurred in Latin America and the Caribbean since 1972 (BID / CEPAL, 2000)

<table>
<thead>
<tr>
<th>COUNTRY (ES)</th>
<th>DATE</th>
<th>EVENT</th>
<th>DEATHS</th>
<th>DAMAGES (US$10^6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicaragua</td>
<td>1972</td>
<td>Earthquake</td>
<td>6,000</td>
<td>2,968</td>
</tr>
<tr>
<td>Honduras</td>
<td>1974</td>
<td>Hurricane Fiji</td>
<td>7,000</td>
<td>1,331</td>
</tr>
<tr>
<td>Guatemala</td>
<td>1976</td>
<td>Earthquake</td>
<td>23,000</td>
<td>2,147</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>1979</td>
<td>Cyclones David y Frederic</td>
<td>2,000</td>
<td>1,869</td>
</tr>
<tr>
<td>Bolivia, Ecuador and Peru</td>
<td>1982-83</td>
<td>El Niño</td>
<td>n.d.</td>
<td>5,651</td>
</tr>
<tr>
<td>Mexico</td>
<td>1985</td>
<td>Earthquake</td>
<td>8,000</td>
<td>6,216</td>
</tr>
<tr>
<td>Colombia</td>
<td>1985</td>
<td>Show-Storm del Ruiz, Armero, Chinchina</td>
<td>22,000</td>
<td>465</td>
</tr>
<tr>
<td>El Salvador</td>
<td>1986</td>
<td>Earthquake</td>
<td>1,200</td>
<td>1,352</td>
</tr>
<tr>
<td>Ecuador</td>
<td>1987</td>
<td>Earthquake</td>
<td>1,000</td>
<td>1,438</td>
</tr>
<tr>
<td>Costa Rica and Nicaragua</td>
<td>1988</td>
<td>Hurricane Joan</td>
<td>300</td>
<td>1,700</td>
</tr>
<tr>
<td>Costa Rica and Panama</td>
<td>1991</td>
<td>Earthquake</td>
<td>73</td>
<td>Over 2,300</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>1992</td>
<td>Tsunami</td>
<td>116</td>
<td>30</td>
</tr>
<tr>
<td>Andes Community</td>
<td>1997-98</td>
<td>El Niño</td>
<td>600</td>
<td>7,694</td>
</tr>
<tr>
<td>Central America</td>
<td>1998</td>
<td>Hurricane Match</td>
<td>9,124</td>
<td>6,008</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>1998</td>
<td>Hurricane Georges</td>
<td>235</td>
<td>2,193</td>
</tr>
<tr>
<td>Colombia</td>
<td>1999</td>
<td>Earthquake</td>
<td>1,185</td>
<td>1,580</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1999</td>
<td>Flooding</td>
<td>20.000-50.000</td>
<td>3,237</td>
</tr>
</tbody>
</table>

SOURCE: BID/CEPAL, 2000

In all these disasters, the most affected ones are residents in the informal settlements since they don’t practice the adequate standards in design, construction of the buildings and productive activities which do not reach to level of sustainable and define themselves with a high risk level. According to Bujanda, they have counted over 100 million deaths caused by these threats. To all this, we add the risk and vulnerability in the housing building process in informal settlements. This situation can be solved if we teach how to make sustainable construction.

Construction Systems used in settlements: In the project by Arrieta, Isea and Montilla 1994, it is identified that the most common construction systems are confined masonry. Based on this reality, we chose it to carry on with the research and as a base in the training process in the Housing Communitarian School Association. See Figure 3 “Construction of productive Seed-House using portant wall techniques. Rehabilitation Centre El Pampero. El Rosario. Lara State” and Figure 4 “Constructive Detail in corner of Seed-House”. There is
also a big difference in the housing construction spontaneous process: the first one, which is the construction of the “rancho” as a provisional place, highly unstable and a second one which is the progressive substitution of the “rancho” for another house using more resistant materials. These materials which are frequently a second hand materials have low resistance and not very durable such as: zinc, wood, brick, carton, bahareque. Progressively, in some cases, their residents reach a higher number and start adding another floor originating multifamily homes which in some settlements in Caracas have reached up to 8 floors. The problem is not the number of floors or number of residents but the almost total absence of technical criteria in the construction process that produces a very vulnerable structural system before the natural disasters risks. This process is completed without any support of tools or necessary equipment. (Acosta, D. 2000). The typology in failures within this type of system is presented in Table 4.

Table 4. Construction Pathology. Some construction failures in housing construction.

<table>
<thead>
<tr>
<th>Structural System</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Irregularity in foundations dimensions.</td>
</tr>
<tr>
<td>-Variations in Columns and Beams dimensions.</td>
</tr>
<tr>
<td>-Beam cross with no support.</td>
</tr>
<tr>
<td>-Beams supported directly on walls.</td>
</tr>
<tr>
<td>-Absence of transversal reinforcement.</td>
</tr>
<tr>
<td>-Unlined Construction axes.</td>
</tr>
<tr>
<td>Materials: Concrete</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

OBJECTIVES OF THE RESEARCH

Main Objective: Create a communitarian teaching prototype founded on informal education through the Housing Communitarian School Association who responds in an integral way the needs of sustainable, habitability and durability through communitarian participation in construction, housing design, respecting the typology and settlement patterns to contribute maintaining cultural features, social capital and development.
SPECIFIC OBJECTIVES:

- Design and apply a student and resident training program in the use of appropriate techniques, resources production and housing construction as a strategy to increase social capital in settlements.
- Identify and create appropriate conditions to promote different work processes and human development in lowest social levels.
- Increase university borders involving the UCLA Engineering School to achieve the productive housing development in settlements in the State.
- Design a Technological Transference Proposal in sustainable housing construction in Lara State’s settlements.

METHODOLOGY

Nature of research: to do the proposal, we used qualitative research which is based in a group of logical principles established and shouldn’t be brought from the outside; the researcher, Eisner (1998) considers it not only a way to describe but most importantly, a way to improve Education Practice.

The objective nature and methods accuracy will orient the researcher reflection to approach and figure out the phenomenon that are socially studied. This is because in qualitative research, interactivity is an essential dimension of knowledge production process and it’s an important constitutive part of human phenomenon studies.

This principle oriented to the meaning of observation process and communication in a methodological level in the present research. Among the qualitative research methods, one used action research which is the “systematically gathered information to produce social change” (Taylor and Bogoan, 1999), to solve practical problems (p. 32) according to Colina and other (1987).

This type of research allows making projects that are related to values, aptitudes, behaviours and aspirations within poor class, in order to transform community human units into productive beings to improve their life quality. Among its forces, one find problem
solving, the improvement of action sectors, the cooperative labour, the mutual agreement, the feedback in a cyclical process, and real environment impact. P. 6).

This method is the best one when the researcher not only wants to know a certain reality or a scientific group issue but also solve it. In this case, the subjects involved participate as co-researchers in every phase of process: problem statement and evaluation of what is been reached.

The main purpose of these researchers is not an outside goal; it is oriented to create conscience and development in studied groups (Martinez, 2002). About housing, the used methodology is founded in communitarian housing construction projects based on productive beings and in this case with interdisciplinary team support and great resources from university.

Research scenery, Time and Action Units: the research scenery was the informal settlements in Barquisimeto city. The observation time was during 2000-2004. The action units were 18 professors from UCLA Civil Engineering Faculty and Business Faculty, 250 trained students for informal education, 150 trained residents, 3 researchers involved the Science and Technology National Found, The UCLA Scientific Humanistic and Technology Development Council, the Appropriate Technology Transference for poor Areas Institute, the Rehabilitation Centre of “El Pampero”, “El Oasis”, the Regional Housing Institute (IMVI), the Regional Housing Foundation (FUNREVI), the National Housing Council (CONAVI), the Faith and Joy Association and Torres County Jurisdiction, 25 local settlements such as: Aleman, El Rosario, La Lucha, Cerro Pelon, Simon Bolivar, 12 de Octubre, Los Arregues, 19 de Abril, El Coreano 1 y 2, Los Pocitos, Agua Azul and El Pampero among others.

Recollection, Ordering and Information Analysis: the research project was made through 2 phases:

1. A Theory Research, introducing national experiences and other Latin American Universities experiences. Among the Venezuelan experiences, one can find Venezuelan Central University Architecture Faculty through Settlement Production Centre and UCLA Civil Engineering Faculty on the reaches in the brick field manufacture system (Sustainable Livelihoods Group) and Masonry System which are been a relevant academy support.
2. A field research made since the founding of Housing Communitarian School Association using participative observation methods in settlements studied and field notes to record characteristics as instruments. In order to follow learning, we developed and applied several different evaluation instruments such as: questioners, tests, design and making of “in situ” housing communitarian projects.

3. To analyze the information and order it, we made is simultaneously through the several systematic processes that found the action research (Lopez de George, 1997): a) Diagnosis of reality according to nature and objectives in each selected community, b) Change Strategy Planning, c) Planning Strategy Coordination, d) Strategy Implementation, training courses for project integrants, the residents, communication between work teams and as a way to transmit results, achievements and produced knowledge, e) Impact Evaluation, f) New Proposal towards high quality training courses.

An action research plan was made founded in 5 phases:

Phase I: the identification of quality in Income Production Processes, Quality Evaluation of brick-field units or concrete brick units manufactured in the region in a manufacture level. a) Action: background, bibliographical references producer identification, characterization, essay standards. b) Reflection: recommendation body for producers.


Phase III: creation of a communitarian teaching prototype founded on informal education through Housing Communitarian School Association. Instructional design for technological transference courses- teaching objectives- learning- program contents- field practices- evaluation- schedule- resources. b) Reflection: trainer training.

Phase V: final evaluation. a) Action: system receptivity, work impact. b) Reflection: “popular construction manual”.


FINAL CONSIDERATIONS AND FOUNDS

As result of each one of the referred phases, we obtained different products which were used as a base for the course instructional design, considering the advantages and disadvantages in every applied technique. For the adobe wall technique, we used stabled clay with cement; to do this, we used the experiences obtained for years by the Sustainable Livelihood Group from the UCLA Civil Engineering School. In a second course, we used the technique implanted by the Technology Transference for the Development of the Poor areas, Peru (ITACAB) which uses bamboo, carrizo or caña as bonding element in the adobe walls. Both experiences were analyzed comparatively, identifying the following founds:

Comparing the techniques of Adobe Portant Walls

Model Cost: 1,329,680,00 Bs. 692,542 US$ (El Pampero)
Model Cost: 1,010,000,00 Bs. 526,042 US$ (The Oasis, does not include roof)
<table>
<thead>
<tr>
<th><strong>Adobe portant wall structure reinforced with steel (El Oasis)</strong></th>
<th><strong>Adobe portant wall structure reinforced with carrizo (El Pampero)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions of structure</strong></td>
<td><strong>Dimensions of structure</strong></td>
</tr>
</tbody>
</table>
| $3 \text{ m} \times 6 \text{ m}$  
  (0.20 m wall width) | $3 \text{ m} \times 5.5 \text{ m}$  
  (0.40 m wall width) |
| **Dimensions of adobe** | **Dimensions of adobe** |
| $0.40\text{m} \times 0.20\text{m} \times 0.10\text{m}$ | $0.40\text{m} \times 0.15\text{m} \times 0.15\text{m}$  
  $\frac{1}{3}\text{adobe}$:  
  $0.30\text{m} \times 0.15\text{m} \times 0.15\text{m}$  
  transversal setting:  
  $0.35\text{m} \times 0.15\text{m} \times 0.15\text{m}$ |
| **Types of foundation** | **Types of foundation** |
| Cimentación corrida y Sobreseimiento formado por bloques U rellenos | Cimentación corrida y sobreseimientos (0.45x0.30) de concreto ciclópeo |
| **Reinforcement Characteristics** | **Reinforcement Characteristics** |
| Vertical reinforcement:  
  corner: 4 Ø 3/8”  
  Horizontal reinforcement:  
  1 Ø 3/8” every 6 adobe rows | Vertical Reinforcement:  
  Corner: 1 carrizo bar and in mid sections every 40 cm.  
  Horizontal Reinforcement:  
  Carrizos every 4 adobe rows. |
| **Adobe Resistance and Compresion** | **Adobe Resistance and Compresion** |
| 25 Kg/cm²  
  (has to be more since we used small quantities of cement which helps to get a better resistance) | Not proved  
  (not cement used, which leads to a minor resistance) |
| **Seismic-Resistant Behaviour** | **Seismic-Resistant Behaviour** |
| Best | Not proved |
| **Durability** | **Durability** |
| Se empleo un Sobreseimiento formado con bloques U rellenos. There is infiltration for capillarity which leads to decrease Durability. | Se empleo un Sobreseimiento formado por concreto ciclópeo. There is a better behaviour before water. There were not infiltrations. This contributes to durability |
| **Sustainability** | **Sustainability** |
| The materials are easy to obtain and are inexpensive compared to other constructive systems. It allows the residents get involved in the construction process which makes it reapplied. It allows the construction of housing according to budget availability. | The use of cement to make adobe units and steel Reinforcement increase the cost of the construction. It is more sustainable because we use carrizo Reinforcement and don’t use cement to make adobe units decreasing construction cost. |
| **Versatility** | **Versatility** |
| In this technique, it is used less amount of adobe units. The walls are thinner which is more versatile since the construction period is shorter. | The wall is wider which leads to using a bigger amount of adobe units for the construction. |
Another important aspect to highlight is the structure of the teaching prototype within the Housing Communitarian School Association whose philosophy sustains the teaching action proposal, through which we don’t only transfer the technical information but also provides from a great human development experience and the growth of the social capital in the State, which leads to confident values, partnership, civic conscious and ethic that make the collective actions and cooperation easier and also allow to raise life quality levels in residents (Klisberg, B. 2004). The objectives and proposed goals are been achieved in a 70%.

The conception of a group work towards the social and communitarian development allow the promotion of social conscious in professionals to face the problems caused by poverty, acting in a direct way in pro the developing country. The founds presented are products from the lived experience in the period. Those products are presented in Tables 5
and 6. The course profiles promoted by the Housing Communitarian School Association are presented in Table 9.

Table 5. Proposed and Reach Goals.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trained students</td>
<td>250</td>
</tr>
<tr>
<td>Trained residents</td>
<td>120</td>
</tr>
<tr>
<td>Hours of Technical Assistance</td>
<td>4000</td>
</tr>
<tr>
<td>Constructions of Seed Model (3 x 5 meters)</td>
<td>02</td>
</tr>
<tr>
<td>Published Pedagogical Notebooks</td>
<td>07</td>
</tr>
<tr>
<td>Inter-institutional Agreement signed</td>
<td>06</td>
</tr>
</tbody>
</table>

Table 6. Research projects made applying different processes towards the decreasing of physical vulnerability before the natural disasters and improving the life quality in local settlements:

<table>
<thead>
<tr>
<th>Concept</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Project:</td>
<td></td>
</tr>
<tr>
<td>2) Elaboration of measurement instrument for the Housing Communitarian School Association. Anzola E. UCLA 2002</td>
<td></td>
</tr>
</tbody>
</table>

The project has also generated other Research Projects besides from the pointed ones before, whose results were used to funding and structure this Technological Transference Proposal in the construction of sustainable houses in different settlements in Lara State, also hoping that this proposal was applied in other universities as a strategy of building a social capital and local development.

Table 7. Other Researches


4) Change of paradigm in low cost housing construction. How to assure the construction quality in different processes managed by Communitarian Organizations. Published in Memories from the V CONPAT and VI Quality Control. Puerto Alegre, Brazil, 1997.


   The structural problems in the houses aren’t usually in the one floor house, especially if it’s a light roof house. The difficulties begin when these houses start growing and the residents build a second or third floor and the people actually believe that they can have more floors. The major problems are caused because they do not have a project or the technical advice to build structures. The problem will certainly show when a natural disaster occurs such as an earthquake.

   Table 8. Orienting principles of the proposed teaching prototype.

   Technical Cooperation and Technological Transference: the relationship of autonomy and complementation, not dependency among students, professionals, technicians and sector residents.

   Learning doing: the training program for communitarian contractors in the Housing Communitarian School Association is founded on the principle of “learning doing”. The Theory-practical activities allow participants execute the techniques learned into the communities, learning the adequate method from practicing.

   Community Participation: the Housing Communitarian School Association believes that the process of social development and construction, the practice of perfect democracy is required in critical participation of citizens in social life.
Community participation is part of the project from the beginning and must participate and activity programs, area definition that required technical assistance, selection of formation and training themes as much as the following and evaluation of the process.

Binding - Training - Job: looking for a local sustainable development means to get involved with the economy and the income generation to the families in informal settlements where they work. In construction field, assistance and partnerships within small family enterprises that are willing to become in Micro-enterprises as product of communitarian productive training, increases the productive system with higher possibilities for trained individuals to get a job as a result of Housing Communitarian School Association training.

The Housing Communitarian School gives priority to those settlements where there are development projects or social-urban rehabilitation projects from private or public institutions. We give them support to local workers in housing construction, services and other communitarian work in order to keep the benefits in the community residents. These contractors in small scale could pay the government investments to make the more efficient (Tipple, 1998).

Territoriality: the training and technical assistance activities to be developed by the students will adjust to the needs of each community, using for that only the participation of residents.

Teaching - Research - Extension: the Housing Communitarian School Association is an integral project that promotes teaching-research-extension activities. Participation of teachers, students and internships in the association represents the prototype of what an integral school project should have.

Articulations Intra and Inter-institutional: in order to add efforts, experiences and volunteers, it is important to coordinate and articulate with technical organizations such as educational institutions and social-urban development promotion in the region. In this issue, we have established certain agreements with National Housing Council (CONAVI), Faith and Joy Association, UCLA University and institutions such as National Science and Technology Foundation (FONACIT), among others.
Participants Profile:

Residents: must know how to read, write, at east 18 years of age, live in the area, work or have worked in anything related to community, be willing to attend a communitarian work.

Internship students: be a regular student in the Architectural or Civil Engineering Faculty with at least 140 approved credits. Be willing to attend a communitarian work.

Each course level (general formation, community and specialized training) is taught in separated courses. The flexibility of teaching programs allows it. On the other hand, the programme of different workshops can adequate to the demands of the courses, always acting coordinated to a proposed objective.

Table 9. Workshop choices:

- Micro-enterprise Construction Organization.
- Human Development
- Organizational and Communitarian Development
- Informal Settlements
- Construction Technology applied to Informal Housing
- Social management
- Most Common Pathologies in Informal Housing Construction
- Construction Technology
- Masonry
- Cover, windows, doors
- Electrical and Sanitarian Services
- Waterproof work
- Structural Blacksmith’s Trade
- Brick Manufacture
- Brick-field Manufacture
- Evaluation and Prevention of Natural Risks
- Urban Disaster Management
The instructional design is conceived under a flexible and dynamic schema according to the established curriculum model and based on a workshop offering that work continuously following the requirements for each course. The courses are organized and designed according to the demands in each internship program and the community needs with rehabilitation programs.

The workshops contain themes such as general formation and technical formation. The theory and practical workshops prepared by the specialists are the following:

The technical content of the program is covered with field practical sessions that allow the active preparation. Besides, the communities get benefits with the construction of a “seed unit” which is part of constructive practices workshops. This unit is later available to generate community growing processes and jobs.

The students are trained as technical assistants through 18 practical workshops. At the end of the courses, they are placed in Housing Institutions as “Communitarian Internship students” or and in Construction Processes, Settlement Rehabilitation and Housing for Social Interests.

The Communitarian Constructor Program takes place through design of theory-practical training sets, mainly in settlements where there are projects for urban development.

The Technological Transference Proposal in sustainable housing construction in different settlements is sustained in the use of information technology and the competence development. This should be based on the principles exposed in Table 8.

Universities should assume the commitment to adopt technological transference models such as this one, in order to project the settlements in their classrooms, showing the social pertinence through associations such as the Housing Communitarian School Association.

In a certain way, we have accomplished to gather the people together in order to increase their capability and make easier the achievement of goals with a communitarian objective. In a new way, UCLA University promotes values that increase Lara’s social capital.
DISCUSION

This experience has included an innovation since involves students from UCLA University and Venezuelan Central University in order to study the reality of settlements and also train them in the appropriate use of used techniques in spontaneous constructions.

The contribution of this work resides in the use of the knowledge we have gained and the impact it can generate if is applied, using it as a strategy to generate activation processes in social economy and local development and as reference to introduce instructional designs to be applied in information transference generated in different CONPAT events, whose memories represent an important support resource to improve the quality of our constructions not only in the settlements but in the rest of the cities.

Additionally, this research and school participation is almost unexplored: the guilds and construction institutions and engineering faculties generally work with formal construction; civil engineers are trained for that, which does not include a number of spontaneous constructors that if we analyze the scale of participation, makes the reality absurd. The fact that actually an association such as Housing Communitarian School Association exists and promotes this type of processes causes local impact.

RECOMMENDATION

To unlearn the old culture using to the new learning, the sustainable housing construction in settlements in Lara State, where we could all “learn to learn” and “solve the problems” according to the local needs.

To transform the curricula from de Civil Engineer career in the different Faculties from the universities across the country founded on the competences development, introducing instructional design that allow the connexion between students, research teachers, etc to get involved in the solution of housing problem with objectives clearly defined with continuity and permanent towards quality.
To incorporate the Engineering and Architecture studies plans objectives oriented to promoting confident values, partnership, social conscious and ethic as a base for the local and social capital improvement.

To use the technical transference proposal in the sustainable housing construction in settlements in Lara State as an example to follow in other regions in order to contribute with the housing problem in the country and in Latin America.

REFERENCES

CHAPTER 2
SUSTAINABLE LIVELIHOODS AND TECHNOLOGY TRANSFER IN THE INFORMAL SETTLEMENTS IN ASIA

Introduction
Discussions include in this chapter are housing for all, which describe the strategy for human settlement and housing for the poor. Housing by people and appropriate technology are important to be discussed to indicate how communities can participate in the improvement of settlements and housing. The second paper shows the case study about micro credit system for housing finance in the low income settlements in the kampung, Surabaya. The third case study is about housing for Tsunami disaster victims in Aceh Indonesia, a technology transfer how a very simple house can be built by ordinary person in a limited time.

REVIEW OF SUSTAINABLE INFORMAL SETTLEMENTS IN ASIA
Some lessons about best practices in creating sustainable living condition in the informal settlements are reviewed, to give a clear picture about works have been done in Asia. There are many institutions and foundations, which can help in improving livelihoods of the people in the informal settlements.

1. The Relocation of Urban Poor Communities in Phnom Penh

In 1999 at least there were 472 informal settlements in Phnom Penh, totalling 35,000 households and 170,000 people. These settlements are on public land along roads, waterways, railway tracks, river banks, canals and lakes, inside buildings or on roof-tops. For the relocation of the informal settlements, three sites were developed in 2001 and the impact of the resettlement are as follows:
• Livelihoods and income decline significantly for almost all resettles.
• Location is the major factor influencing the social and economic viability of resettlement sites, most importantly with regard to access to employment opportunities.
• Efforts to provide sanitation at the site have been good, primarily through UNCHS.
• Development of drainage and road access to and within the resettlement site continue to present health and access in many sites.
• Need greater attention to meet the needs of resettled communities for social infrastructure.
• Resettles have met their housing finance need through a variety of sources, with the establishment of the UPDF as the major actor in the provision of finance
• Emergency situations have created the worst circumstances of resettlements, with near complete absence of infrastructure, site preparation and services as people have been relocated with great haste (Anzorena, 2003)

2. Ernakulam Social Service Society India

Ernakulam Social Service Society (ESSS) is a charitable organization registered under the Societist Act in the year 1962. The ESSS has been responding to the ever increasing demand of habitats among the low income people. An Average of 100 houses each year were constructed with ESSS assistance (Anzorena, 2003)

The society collaborates with housing finance agencies like HDFC, DHFL and SELAVIP in this venture. Even with the limitations on the size of land holdings, the society has achieved good result by enabling the households to make best use of their backyard to raise food and vegetable crops, as well as medicinal herbs. ESSS is seeking appropriate technology options in chalking out permanent solution to the age old drinking water problem in the coastal region. Experiments have been made in harvesting rainwater from rooftops in fero-cement tanks and its save preservation of lasting use. (Anzorena, 2003).

3. Tent Cities in Japan

There are homework’s camps in Tokyo and Osaka, several others in small number in Kyoto and Hiroshima. Ougimachi Park Tent Village in Osaka has about 30-50 tents and Nagai Park Tent Village also in Osaka has about 15-20 tents. In Ryosampaku tent village which located at Shibuya Miyashita Park, there are about 15-20 tents but in the park as a whole there are about 100 people and about 80 tents. The Yoyogi Park has about 300 tents. It is a large area which is very popular with the young people on the week-ends. It has street bands, many vendors along the sidewalks and lots of life and activity near the park. (Lee, 2003).
Both Oughimachi and Nagai have separate supporter groups that assist the tent communications. The reasons for homelessness are often structural and not the particular individual’s fault. There are many small tent communities who get along fine with few problems and do not need any supporter. (Lee, 2003).

The shelters in Nagai Park serves one meal a day and after limited period of time the dwellers should move to another independent living shelter. In Osaka Castle Park, there are around 500 tents and the authorities built another 50 shelter spaces and ordering the rest of the tent inhabitants to leave this popular tourist park area. (Lee, 2003).

In Ougimachi and Nagai parks the supporters and homeless people conduct a nightly tour of the area for security reasons. Many homeless communities have a recycling area, mostly for cans. The homeless receive about 70 yen per kilogram or about one yen per can. Japan has a lot of waste and the recycling can bring in relatively easy money. (Lee, 2003).

References
Eduardo Jorge Anzorena, SJ. And Fransisco Fernandez (2003). Housing in the New Milenium; Pagtambayong, Cebu City, Phillipines.
**Introduction**

Strategy for human settlements, particularly settlements for the poor, is very important. Development with the people and applied technology can help in the improvement of human settlements and housing. Especially cheap decent housing for the poor should be provided to maintain sustainable livelihood of the people. The human settlements and housing development strategy in Indonesia has been set-up, however still should be followed by priority in the side of low income community.

**Human Settlements and Housing Strategy**

The habitat Agenda Indonesia mentions two important steps, these are:

1. To provide shelter for all; the means are:
   - Development for all, particularly for low income groups
   - Adequate housing institutions
   - Human settlements and housing acts for sustainable settlements
   - Efficient, effective and affordable housing finance
   - Equal access for land, infrastructure and facilities
   - Reliable construction industries
   - Integrated housing and economic development

2. To obtain sustainable human settlements in the urbanizing world; the means are:
   - Responsible autonomy
   - Partnership in the development of human settlements, infrastructure and facilities
   - Safe and healthy social life and green environment in the integrated settlements
   - Work opportunity for all
   - Sustainable use of space and land
   - Safe and affordable transportation system
   - Sustainable human settlement system in supporting regional and national economic development
• Sustainable management of human settlements
   (State Minister of Housing, 1996)

The strategy indicates that every one should have adequate housing, infrastructure and facilities. However, housing for the poor still inadequate. For example in Surabaya, the capital city of East Java, 90% houses built by the people (Municipal Government of Surabaya, 1992). 80% built by the low income group and 10% by real estates. The 80% houses built by the people, which generally inadequate in infrastructure and services, should be assisted. This local issue of housing in Surabaya can be assisted through local and central housing and infrastructure development programmes.

Access to land is particularly difficult for poor people, hence it is important to reduce the restriction of land. On the other hand, land already possessed by the poor should not be transferred to others. There should be supports for infrastructure and facilities on the land owned by the people.

**Development Based on the Community**

It is hoped that the people can help themselves in their need for housing; from the procurement of land until the house is ready for habitation. The ever increasing of the need for housing can not be supplied by the government itself, hence the potential of the people are expected. The government should provide opportunity for the low income communities in obtaining land and houses.

Some efforts for community development are as follows :

1. Break the vicious circle of the poor and left behind; by improving income, social status and technology competence.
2. Break the outside obstacles, for example: obstacles of birocracy, fiscal, and access to information.
3. Increase low income community capabilities.
4. Development on the side of the communities, such as :
   • Providing infrastructure for the informal settlements
   • Increase settlements and housing quality
   • Education for the communities
   • Increase economic opportunities in the development of the settlements and housing
• Equal treatment in the land allocation, and provision of infrastructure
• Insist government support in the development of settlements and housing for the poor.
  (Haeruman, 1997)

The above efforts will help in the development programmes based on the communities, and the programme should be based on the people capacity and needs.

In the community based development programmes, the government create the plan for setting up the community groups and the low interest credits for construction and business. To obtain the credit, the community group should provide 10% of the total housing cost of construction, proved of land availability and permission letter from the local government.

**Appropriate Housing Technology**

Appropriate technology can be applied in the construction of low income settlements and housing. Beside the use of local building materials, new building material produced locally should be available. The construction technology should pay attention to economical materials and sound environment.

The principles of appropriate technology for housing construction are as follows:

1. Improvement of products and construction process.
2. Reduce resources, includes:
   • Prevention of building material wastages
   • The use of recycled waste building materials
   • Energy efficiency in buildings
   • Water conservation
   • Durability and maintenance.
  (CIB and UNEP-IETC, Chrisna du Plessis, 2002).

To fulfil the Habitat Agenda 21: “adequate shelter for all”, the quality of houses in the informal settlements should be adequate. In Surabaya about 63% of the population live in the legal informal settlement: kampung, even though the land occupied by kampung is only 7% of the total city land area. The density in the kampung can reach 1000 person per hectare of land (Silas, 1993).
To improve the quality of the kampung, the standard for healthy house can be applied and the Kampung Improvement Programme (KIP) has been very useful for the improvement. The KIP programmes include:

- Improvement of environment and physical conditions of the kampung
- Community participation
- Sustainability
- Women participation
- Planning and monitoring

(Silas, 1993)

At the present time KIP programme is implemented together with economic improvement of the kampung dwellers. Assessment of the settlement quality has been done by means of community mapping. To find out the bad conditions of the kampung, settlement physical and socio-economic conditions are graded 1 to 10. Based on the assessment, then the required improvements on the physical and economic conditions can be decided.

**Conclusion**

Human settlements and housing strategy should be followed by best practices with priority for providing settlements and housing for all. The strategy should bear in mind the local conditions and always respond to changes.

The settlements and housing for all should base on community participations, where burden for development not only on the side of the government but also on the side of the people. This is to obtain good result in the provision of settlements and housing acceptable to the people. Appropriate technology for human settlements and housing can help reduce the cost of construction and the use of building materials and energy.

The quality of informal settlements and housing should be assessed regularly to make sure that these are in good and healthy conditions.

To achieve sustainable settlements development in the urbanizing world land should be economical and accessible; and the houses should be affordable. Housing for all, even in the informal settlements should followed the standard of healthy housing.
References


State Minister of Housing (1996) *Housing for the People (Rumah Untuk Rakyat)* Ministry of Housing, Jakarta.

MICRO CREDIT SYSTEM FOR HOUSING FINANCE IN COMPREHENSIVE-KIP AND SOCIAL REHABILITATION ON SLUMS AREA PROGRAM IN SURABAYA

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Introduction
Comprehensive Kampung Improvement Programme and Social Rehabilitation on Slums Area Programme improving the quality of kampung environment, it also focus on social and economic aspect of the kampung through community empowerment. The programmes based on three authority: optimizing the society, economy, and environmental.

Both of the programmes have the component program to improving the quality of the house. The problems is the fund allocation for housing improvement was not appropriate with the allocation fund for housing improvement. Based on data from the programme, it was shown that people who use the loan for repairing their house (housing improvement) was less than the use for small scale business capital.

This program was run with less budget, and the budget was inadequate for the community. The first time when the facilitator come to the community and give the socialization about the program, the community did not care. But finally they understand that the program would be very useful for low income people. In the fact, many poor family could not be covered by this program.

Micro Credit System in Comprehensive – KIP

Background
Comprehensive Kampung Improvement Programme (C-KIP) in year 2001-2004 was development from previous C-KIP, instead of improving the quality of kampung environment, it also focus on social and economic aspect of the kampung through community empowerment. It aim to synergize community potential related to national development.
The C-KIP programme scheme is on figure 1.

Figure 1: The C-KIP Programme Scheme

The Objectives of C-KIP

- To improve the environmental quality of housing & settlement, through comprehensive intervention of physical environment, urban services & infrastructure of the kampung and its social and economic condition.

- Community empowerment to strengthen the initiative, creativity and independency in the implementation of development program.

- Developing opportunities in business to create employment and income for kampung community that support local economy and self improve the housing and settlements condition.
**Target Group**

In general, C-KIP II is directed to support low income people. Development priority is decided by themselves through meeting and deliberations.

**Program Funding**

The budget is provided as a grant from city development budget.

**Program Component**

- **Physical Environment Improvement**
  - Improving the overall environmental quality of the respective kampung
- **Greenery and Cleanliness**
  - Supplying and planting family medicine plants and trees to reduce pollution and provision of waste facility.
- **Community Development**
  - Develop motivation and independency of the people in order that they can implement the development by their own potential, accountable and sustainable.
- **Small and Medium Scale Business Improvement**
  - Developing opportunities for businesses to create employment for kampung community as source of income that will support local economy.
- **Housing Improvement**
  - Improving the quality of the house, both of the physic and tenure status.

**Fund Management**

The implementation of C-KIP II fund is divided into 2 types:

- Grant (max 30%) : Physical Components
- Revolving fund (max 70%): Social and Economic Components.

The funding scheme can be seen in figure 2 and the fund composition is in table 1.
Figure 2: The Funding Scheme of C-KIP
C-KIP intends to achieve

- The implementation of community self-mapping by the local community
- Community institutions; willingness of community take responsibility for the implementation of local developments.
- Generate local resources and implement revolving fund made available by C-KIP

Location

KIP II until 2003 have been implemented in 45 sub-districts, are:

1. C-KIP 1998 15 sub-district
2. C-KIP 2001 4 sub-district
3. C-KIP 2002 6 sub-district
4. C-KIP 2003 8 sub-district
5. C-KIP 2004 12 sub-district

Implémentation Stages

- Preparation for Community Mapping
- Establishment of Kampung Development Board : Kampung Foundation, Business Co-operative, Community Self-help Groups
- Management and institutional development training
- Identification of members for Community Self-help Group (KSW)
- Formulation of development plan
- Agreement of action plan
- Disbursement of agreed fund
- Implementation of development activities
- Monitoring and
- Reporting
### Table 1: Fund Composition

<table>
<thead>
<tr>
<th>Programme</th>
<th>Activities</th>
<th>Types</th>
<th>Self fund</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHYSICAL ASPECT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Physical Environment Improvement</td>
<td>▪ Improvement of walkways</td>
<td>15 %</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>▪ Improvement of drains</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Better domestic solid waste management</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ When necessary, the construction of public toilet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Greenery and Environmental Cleanliness</td>
<td>▪ The making of productive garden</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Planting of plants at the potential area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Management or waste preparation</td>
<td>7.5 %</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Supplying or repairing waste facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Housing Improvement</td>
<td>▪ Building Permit arrangement</td>
<td>-</td>
<td>30 %</td>
</tr>
<tr>
<td></td>
<td>▪ Housing improvements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Kitchen and toilet improvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Water supply connection</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>COMMUNITY DEVELOPMENT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Community Dev. (Local Institution and Human Resources)</td>
<td>▪ Establishment of kampung foundation, business co-operative, self help groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Training of institutional management</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Training of small scale business skill</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Community institutional tools and means</td>
<td>7.5 %</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Operational cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Training for the community</td>
<td>-</td>
<td>10 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Micro Economy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Small and Medium Scale Business</td>
<td>▪ Training of small and medium scale business</td>
<td>-</td>
<td>30 %</td>
</tr>
<tr>
<td>Improvement</td>
<td>▪ Soft revolving loan for business capital</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>
**Revolving Fund**

The aim of the programme is to help low income people to renovate, develop and legalise their house.

The types of loan are:
- Building Permit arrangement
- Housing improvements
- Kitchen and toilet improvement
- Water supply connection
- Small scale business credit, etc.

**Community Mapping**

Community Mapping is a process of data collection undertaken by the local community themselves. It was carried mostly by the women and youth of the respective kampung. The data consists of problems and potential as perceived by them on the housing condition, infrastructure, facilities, inerrability of their existence and locality support.

**Program Component 1: Physical Environment Improvement**

The aim of the program component is to improve the overall environment quality of the respective kampung. The types of activities are:
- Improvement of walkways
- Improvement of drains
- Better domestic solid waste management
- When necessary, the construction of public toilet
- Others as proposed by the community based on the result of community self-mapping

**Program Component 2: Greenery and Environmental Cleanness**

The aim of the program component is to improve community’s concern to manage greenery and maintain environmental cleanliness.

The types of activities are:
- The making of productive garden
- Planting of plants at the potential area.
- Management or waste preparation
- Supplying or repairing waste facility
Program component 3: Community Development
The aim of the program component is to develop motivation and independency of the people in order that, they can implement the development by themselves, accountable and sustainable.
The types of activities are:
• Training of institutional management
• Training of small scale business skill
• etc

Program component 4: Small and Medium Scale Business Improvement
The aim of the program component is developing opportunities in business to create employment for kampung community as source of income that will support local economy.
The types of activity are:
Training of small and medium scale business
Soft revolving loan for business capital

Program component 5: Housing Improvement
The aim of the program component is to improve the quality of the house, both of physic and legality.
The types of activity are:
▪ Kitchen and toilet improvement
▪ Water supply connection
▪ Organizing building permit and land certification

Institutional Arrangement
As implementation of Community Based Development (CBD) concept, the most important component as key to the success is:
▪ Community Self-help Group
  Each group has member to about 6-10 persons, that demands and needs of the members accommodate.
▪ Kampung Foundation
  The Kampung Foundation should take the responsibility in arranging, managing and implementing development in their Kelurahan.
Kampung Foundation is established by the community in kelurahan level involving existing institutions and prominent figures in the Kelurahan. Legally, this foundation is established by Major Decree, completed with Notaries Act and Bank Account.

- **Business Cooperative**
  Business cooperative or self sustaining cooperative will manage the budget effectively. Such cooperative is established at Kelurahan level.
  The funding management scheme of a business cooperative within the village is shown

![Diagram](image-url)

**Figure 3:** The Funding Management Scheme of Business Cooperative
**The Condition of Fund Receiver**

The loan receivers of C-KIP program are required as follows:

1. Geniuses citizen marked by ID card and Family Card
2. Living in the kampung
3. Become the member of Self Help Group
4. Has the authentication from RT / local RW
5. Delivering fund of principle deposit and obliged
6. For a few case of lender candidate deliver the guarantee.

This matter is only done by after effort co-operation expand and there is potential lender with the good efficiency report and good effort prospect of business need bigger capital.

Guarantee in the form of photocopy of ID card and family card (KK have to be original) are very effective, to manage the letter of administration. Somebody have to show the original family card. Guarantee and cooperation by the head of RT/ RW very help full in preventing
somebody which don’t move over as according to its obligation. All the letter needed should be signed the RT / RW.

Besides, koperasi also works along with a few other program, dissimilar which have been run to get the statutory information from pertinent resident.

The other program, dissimilar generally representing program addressed for kampung which have the same system.

**The Delivery of Community Equipment and Fund**

Fund delivery as according to step specified by C-KIP, are as follows:

Phase I : 40 % from overall of fund
Phase II : 30 % from overall of fund
Phase III : 30 % from overall of fund

Fund proportion raised to local government is also depended on each kampung. The grant for physical program ( besides for the local institution) must be taken at phase I, consider the physical execution will require the time for the implementation.

For the revolving fund, the equipment which must be prepared shall be as follows:

1. Collective loan contract (every self help group) signed by borrower, and not endorsable. The agreement is conducted on paper seal (legal paper)
2. Receipt
3. The member card of co-operation (when its ready)
4. The member book ( note of loan and return instalment)

**Comparison Fund for the House Improvement Program and Others**

As explain above, revolving fund given in fact the following composition :

1. 30 % from totalizing fund used for small scale business
2. 30 % from totalizing fund used for house improving
3. 10 % from totalizing fund used for human resources development

In reality only some of minimizing used for the house improvement.

The number of loan is not up to the community’s need, since the fund may be given only for maximum Rp. 1.000.000,00, even in some kelurahan the community agree to give less than Rp. 1.000.000,00 (it’s only Rp. 250.000 - Rp. 500.000).

Table 2 shows the fund for housing improvement
## Table 2. Revolving Fund, Number of Fund User, Kind of Revolving Fund, and Number of Fund

<table>
<thead>
<tr>
<th>Year</th>
<th>Name of Sub-District</th>
<th>Number of user (person)</th>
<th>Kind of revolving fund</th>
<th>Number of fund (Rp)</th>
<th>Total (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>Nginden</td>
<td>3</td>
<td>Tr</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 1,500,000,00</td>
</tr>
<tr>
<td></td>
<td>Jangkungnan</td>
<td>126</td>
<td>SBC</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 63,000,000,00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>116</td>
<td>HI</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 5,500,000,00</td>
</tr>
<tr>
<td></td>
<td>Penjaringan</td>
<td>11</td>
<td>Tr</td>
<td>Rp. 500,000 – 600,000</td>
<td>Rp. 6,100,000,00</td>
</tr>
<tr>
<td></td>
<td>Sari</td>
<td>159</td>
<td>SBC</td>
<td>Rp. 500,000 – 600,000</td>
<td>Rp. 91,500,000,00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>74</td>
<td>HI</td>
<td>Rp. 500,000 – 600,000</td>
<td>Rp. 2,000,000,00</td>
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<tr>
<td></td>
<td>Kejawan Putih</td>
<td>180</td>
<td>SBC</td>
<td>Rp. 250,000 – 750,000</td>
<td>Rp. 36,250,000,00</td>
</tr>
<tr>
<td></td>
<td>Tambak</td>
<td>5</td>
<td>HI</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 3,750,000,00</td>
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<td></td>
<td>Sumur Welut</td>
<td>138</td>
<td>SBC</td>
<td>Rp. 500,000 – 750,000</td>
<td>Rp. 4,000,000,00</td>
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<tr>
<td></td>
<td></td>
<td>88</td>
<td>HI</td>
<td>Rp. 500,000 – 750,000</td>
<td>Rp. 46,000,000,00</td>
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<tr>
<td>2002</td>
<td>Simolawang</td>
<td>330</td>
<td>SBC</td>
<td>Rp. 250,000 – 750,000</td>
<td>Rp. 63,750,000,00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>HI (water connecting)</td>
<td>Rp. 750,000</td>
<td>Rp. 11,250,000,00</td>
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<tr>
<td></td>
<td>Wonorejo</td>
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<td>SBC</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 96,000,000,00</td>
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<tr>
<td></td>
<td></td>
<td>85</td>
<td>HI</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 81,500,000,00</td>
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<tr>
<td></td>
<td></td>
<td>2</td>
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<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 1,500,000,00</td>
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<td></td>
<td>Banyu Urip</td>
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<td>SBC</td>
<td>Rp. 400,000 – 1,000,000</td>
<td>Rp. 90,050,000,00</td>
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<td></td>
<td></td>
<td>177</td>
<td>HI</td>
<td>Rp. 210,000 – 500,000</td>
<td>Rp. 40,850,000,00</td>
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<td>17</td>
<td>Tr</td>
<td>Rp. 500,000</td>
<td>Rp. 10,700,000,00</td>
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<td></td>
<td>Kupang</td>
<td>4</td>
<td>HI</td>
<td>Rp. 1,000,000</td>
<td>Rp. 2,000,000,00</td>
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<tr>
<td></td>
<td>Kranjan</td>
<td>689</td>
<td>SBC</td>
<td>Rp. 250,000</td>
<td>Rp. 173,000,000,00</td>
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<td>Sidotopo</td>
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<td>SBC</td>
<td>Rp. 500,000 – 750,000</td>
<td>Rp. 59,250,000,00</td>
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<td></td>
<td>Wetan</td>
<td>2</td>
<td>HI</td>
<td>Rp. 500,000</td>
<td>Rp. 1,000,000,00</td>
</tr>
<tr>
<td></td>
<td>Tembok</td>
<td>273</td>
<td>SBC</td>
<td>Rp. 500,000 – 750,000</td>
<td>Rp. 129,000,000,00</td>
</tr>
<tr>
<td></td>
<td>Dukuh</td>
<td>75</td>
<td>HI</td>
<td>Rp. 500,000</td>
<td>Rp. 37,500,000,00</td>
</tr>
<tr>
<td></td>
<td>Tandes Lor</td>
<td>280</td>
<td>SBC</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 175,000,000,00</td>
</tr>
<tr>
<td></td>
<td>Tandes Kidul</td>
<td>326</td>
<td>SBC</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 175,000,000,00</td>
</tr>
<tr>
<td></td>
<td>Keputih</td>
<td>276</td>
<td>SBC</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 175,000,000,00</td>
</tr>
<tr>
<td></td>
<td>Kenjeran</td>
<td>347</td>
<td>SBC</td>
<td>Rp. 500,000</td>
<td>Rp. 173,000,000,00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>HI</td>
<td>Rp. 500,000</td>
<td>Rp. 2,000,000,00</td>
</tr>
<tr>
<td>2003</td>
<td>Sukolilo Pagesangan</td>
<td>200</td>
<td>SBC</td>
<td>Rp. 500,000</td>
<td>Rp. 98,000,000,00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>193</td>
<td>SBC</td>
<td>Rp. 750,000</td>
<td>Rp. 144,250,000,00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>39</td>
<td>HI</td>
<td>Rp. 750,000</td>
<td>Rp. 29,250,000,00</td>
</tr>
<tr>
<td></td>
<td>Gading</td>
<td>202</td>
<td>SBC</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 158,500,000,00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>HI</td>
<td>Rp. 500,000 – 1,000,000</td>
<td>Rp. 12,500,000,00</td>
</tr>
<tr>
<td></td>
<td>Pegirian</td>
<td>335</td>
<td>SBC</td>
<td>Rp. 500,000 – 750,000</td>
<td>Rp. 168,500,000,00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>HI</td>
<td>Rp. 500,000</td>
<td>Rp. 6,500,000,00</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>5576</strong></td>
<td></td>
<td><strong>Rp. 2,775,950,000,00</strong></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Tr = Training (Individual training)
SBC = Small Business Capital
HI = Housing Improvement
I USD $ = Rp. 9,400.00

(Source: Comprehensif KIP Data Year 2001, 2002 and 2003)
Table 2 show the amount of user the revolving fund from Comprehensive KIP start year 2001 up to year 2003 is : 5576 people (HH) or Rp. 2,775,950,000,00. The detail of the fund use can be seen in table 3

**Table 3 : The Use of Fund in the Households**

<table>
<thead>
<tr>
<th>Kind use of loan</th>
<th>Number of HH</th>
<th>Number of fund (Rp)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small scale business capital</td>
<td>4683</td>
<td>2,363,050,000.00</td>
<td>84</td>
</tr>
<tr>
<td>Housing improvement</td>
<td>860</td>
<td>393,100,000.00</td>
<td>15</td>
</tr>
<tr>
<td>Training (human resources dev)</td>
<td>33</td>
<td>19,800,000.00</td>
<td>1</td>
</tr>
<tr>
<td>JUMLAH</td>
<td>5576</td>
<td>2,775,950,000.00</td>
<td>100</td>
</tr>
</tbody>
</table>

From table 3, it is shown that people who use the loan for repairing their house (housing improvement) was less than the use for small scale business capital. That was not appropriate with the allocation fund for housing improvement (30 % from all revolving fund).

**Micro Credit System for Housing Finance of Social Rehabilitation in Slums Area (RSDK) – Surabaya**

**Background**

Surabaya is the second largest city in Indonesia, which has rapid development but not inadequate attention for the improvement of the urban poor. Slums area and poverty problem are the consequence of the un-even city development.

As the big city, Surabaya must pay attention :

**First,** how far the city took the participation of empowering process for poor people that has no-accessibility that will inclined many problems consist in slum areas.

**Second,** how many poor people can increase their living condition and eliminating the social problems.

Surabaya local government has been implementing many programs to decrease the social problems, but the result was not satisfied. In the future, the local government will implement
many programs that will empowering the community to be self-help. Implementing Agency of the project are: Laboratory for Housing and Human Settlements- Architecture Department- Sepuluh Nopember Institute of Technology in cooperation with Social and Women Empowerment Board- Surabaya City.

**The Objectives of RSDK**

- Improving quality of housing & settlement environment, through comprehensive treatment of physical environment, services & infrastructure of the kampung also its social economic condition.
- Community empowerment to strengthened initiative, creativity and independency to conduct the activity to improve the prosperous life in the neighbourhood.
- Developing opportunities in business to create employment for kampung community as source of income that support local economy.

**Target Group**

In general, RSDK program is dedicated to support very low income people. The priority is decided by themselves through meeting and deliberations.

The minimum target of the results and achievement of the project are:

a) 500 poor family got the small scale business loan from the program to increase their income generation.

b) 50 (fifty) group with be formed with minimum 500 member

c) 20 (twenty) renovated houses

d) 10 (ten) neighbourhood living condition improved by physics program

e) Training program for minimum 500 (five-hundred) people.

**Program Funding**

The budget is provided as a grant from city Government of Surabaya. The source of fund is allowed in the city budget. The fund of the project was supported by local government budget. The total budget for the community was 630,000,000 for 10 sub-districts exclude the fund for facilitating the program. Each kelurahan (sb-district) got Rp. 58,500,000.00 excluded Kelurahan Dupak that got more than 45 million for housing renovation.

The scheme of fund is presented on Table 4:
Table 4. Scheme of Fund

<table>
<thead>
<tr>
<th>Programme</th>
<th>Program component</th>
<th>FUND Grant</th>
<th>Revolving fund</th>
<th>Self-fund</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMAN RESOURCES</td>
<td>Training for human resources</td>
<td>Individual</td>
<td>21</td>
<td>Yes</td>
<td>250,000/poor family</td>
</tr>
<tr>
<td></td>
<td>Individual</td>
<td>21</td>
<td>12,500,000</td>
<td>Yes</td>
<td>250,000/poor family</td>
</tr>
<tr>
<td></td>
<td>Collective</td>
<td>3</td>
<td>2,000,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Local institution (UPKm)</td>
<td>7</td>
<td>4,000,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BUSINESS</td>
<td>Capital Stimulation</td>
<td>-</td>
<td>43</td>
<td>Yes</td>
<td>5,000,000 / KUBE</td>
</tr>
<tr>
<td>ENVIRONMENT</td>
<td>Housing renovation</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Environmental improvement (physics)</td>
<td>25</td>
<td>15,000,000</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Environmental improvement (physics)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total and composition</strong></td>
<td><strong>36</strong> 21,000.00 64 37,500.000</td>
<td><strong>58,500,000</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There was an addition of 45 million to increases the condition of twenty (20) houses in Dupak sub-district.

The Project of RSDK 2003 was implemented at 10 (ten) sub-district (kelurahan) in Surabaya.

The 10 (ten) sub district are shown in table 5:
Table 5. Sub district received funds from RSDK Project

<table>
<thead>
<tr>
<th>NO.</th>
<th>SUB DISTRICT (Kelurahan)</th>
<th>DISTRICT (Kecamatan)</th>
<th>Wilayah</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kelurahan Gading</td>
<td>Tambaksari</td>
<td>East Surabaya</td>
</tr>
<tr>
<td>2</td>
<td>Kelurahan Dupak</td>
<td>Krembangan</td>
<td>North Surabaya</td>
</tr>
<tr>
<td>3</td>
<td>Kelurahan Tembok Dukuh</td>
<td>Bubutan</td>
<td>Central Surabaya</td>
</tr>
<tr>
<td>4</td>
<td>Kelurahan Wonokromo</td>
<td>Wonokromo</td>
<td>South Surabaya</td>
</tr>
<tr>
<td>5</td>
<td>Kelurahan Kebraon</td>
<td>Karangpilang</td>
<td>South Surabaya</td>
</tr>
<tr>
<td>6</td>
<td>Kelurahan Wonokusumo</td>
<td>Semampir</td>
<td>North Surabaya</td>
</tr>
<tr>
<td>7</td>
<td>Kelurahan Banyu Urip</td>
<td>Sawahan</td>
<td>South Surabaya</td>
</tr>
<tr>
<td>8</td>
<td>Kelurahan Kalisari</td>
<td>Mulyorejo</td>
<td>East Surabaya</td>
</tr>
<tr>
<td>9</td>
<td>Kelurahan Sambikerep</td>
<td>Sambikerep</td>
<td>West Surabaya</td>
</tr>
<tr>
<td>10</td>
<td>Kelurahan Tanjungsari</td>
<td>Sukomanunggal</td>
<td>West Surabaya</td>
</tr>
</tbody>
</table>

Problems that the Project Focuses

1. Slums area and the neighbourhood
2. Poverty alleviation
3. Income generation

Project Design and Implementation Process

The implementation of Social Rehabilitation of Slums Area 2003 follows the empowerment of destitute family to renovate and increase the quality of their lives.

To guard the effective of project implementation, the methods used to implement the activity are as follows:

1. Giving the assistance to the community
2. Giving the training
3. Implementing the monitoring and evaluation

To implement the activities above, 5 (five) steps were taken:

1. Improvement of human resources, consist of training, etc.
2. Empowering the local institution
3. Improvement of small scale business
4. Renovation of the house
5. Increase the neighborhood living condition (physics infrastructure)
Institutional Arrangement

Laboratory for housing and human settlements as the facilitator of this program prepare the community to conduct the program by themselves under control. The local institution that prepared are:

1. Community’s business group (KUBE-Kelompok Usaha Bersama)
   One group consist of 10 – 15 member from the poor family (house hold / wife)
2. Guidance Unit for Poor/destitute Family (UPKm-Unit Pembinaan Keluarga Miskin)

Sub-district (kelurahan) that has Kampung Foundation can include the UPKm to it, but the kelurahan that has no Kampung Foundation can use the UPKm as the embryo of the Kampung Foundation.

The scheme of the project is shown in figure 5.

Legend:
- Command
- Supervision
- Coordinator

Figure 5: Project Scheme
The Relation with Local Actors

The member of local institution that formed, consist on the elements of community (e.g. from youth club, women club, another local institution, etc). At the end of the program the local actor will be organized and approaching themselves.

The scheme of local institution are shown in figure 6 and 7:

a. The scheme of community institution (sub district without Kampung Foundation)
b. The scheme of community institution (sub district with Kampung Foundation)

![Diagram of local institution](image)

**Figure 6**: Sub District without Kampung Foundation
Figure 7: Sub District with Kampung Foundation
How to Determine Fund Receiver/ the Condition of Fund Receiver

The fund consumers basically are people who inside in poor family list released by social agency. The list of data in every kelurahan is very large of while is only taken by 50 people for each kelurahan. Is hence conducted by survey of antecedent for determine the value from the poor family. The assessment based on:

a). Original people
b). Housing status
c). Destination with another poor family
d). General condition of environmental (toilet, footpath, drinking water, electricity)
e). The number of family member (1-4 person, 5-6 person, > 6 person)
f) Income (0-50 % for food, 50 – 80 % for food, > 80 % for food)
g) Education/skill

The result of the survey was astonishing, because many people enlisted have not enter again as poor family (the list made in 1991). Besides this survey was companied by the local institution (RT/RW), so the family who were chosen were truly selected.

Before the result of the survey (who will get the loan) announced to the community, its expostulated by the head of RT/RW and UPKm in kelurahan level. This was to make sure that the goal of the programme was achieved and not generate distortion in community level.

The Fund Delivery

Fund delivered to community follow the following pattern:

Phase I
1. Fund for the collective training : Rp. 2,000,000.00
2. Fund for the reinforcement of local institution (UPKm) Rp. 1,000,000.00
Phase I fund amount to the Rp. 3,000,000.00

Phase II
1. Fund for individual training Rp. 12,500,000.00
2. Fund of small scale business capital Rp. 25,000,000.00
3. Fund for the reinforcement of local institution (UPKm) Rp. 1,500,000.00
Phase II fund amount to the Rp. 39,000,000.00

**Phase III**

1. Fund for environmental improvement Rp. 15,000,000
2. Fund for housing improvement (special for Kelurahan Dupak) Rp. 45,000,000.00 and
   some case in other, dissimilar kelurahan take away from the fund that use for
   environmental/physics improvement.
3. Fund for the reinforcement of local institution (UPKm) Rp. 1,500,000.00
Phase III fund amount to the Rp. 16,500,000.00. For the Chief of village of Dupak added by
Rp.45,000,000.00

This fund delivery is truly arranged in such a manner so that the poor family expected to have
skilled before they obtain the grant/loan for business capital and environmental / house
improvement

**Conclusion**

This program was run with less budget, and the budget was inadequate for the community.
The first time when the facilitator come to the community and give the socialization about the
program, the community did not care. But finally they understand that the program would be
very useful for low income people. In the fact, many poor family could not be covered by this
program.

**References**

Laboratory for Housing and Human Settlements and City Planning Department , (2003); The
Laboratory for Housing and Human Settlements and City Planning Department (2003); The
**Final Report of RSDK 2003**.
RI-A ( RUMAH ITS UNTUK ACEH )
HOUSING FOR TSUNAMI DISASTER VICTIMS IN ACEH

by
Laboratory for Housing and Human Settlements-Institute Technology Sepuluh Nopember (ITS)

Context
The quake and the Tsunami on 26 December 2004 morning has severely destroyed the province of ACEH and North Sumatera. In the field many areas cannot be accessed in any way nor are any resources available to support the rehabilitation effort. Therefore ITS developed a house that response to the very limited condition and the house by ITS is the response to it (RI-A).

![Image](image_url)

**Photo 1**: Model of RI-A House scale 1:5
R = Rumah or house, I = ITS, A = Aceh
Photo 2: Mock up of the house at the Department of Architecture ITS.

Photo 3: Launching of RI-A house by the Rector of ITS and Prof. Johan Silas as principal architect- 7 January’05
**Principle**

A special type and technology in house construction is needed that can be done by an ordinary person such as the house owner in the most remote area with limited support in resource needed.

There are three advantages of the RI-A house:

**By All**

Any person can do it without any special skill needed.

**For All**

Can be applied for any purpose from housing to school, clinic, market, mosque, etc. Based on simple and effective module.

**With so Little Time**

A house of 26 m² built by four persons can be finished in one day time. Can be finished in a relative short time using mono building material mainly plank (2x20x400 cm.) and nail. The tools needed are hand saw

![Photo 4: Construction of the House](image)
Core Module

Core house module is 4x5m (main room) with toilet and bath facility of 1,5x2m and kitchennet of 1,5X 2m linked to the rear terrace.

Variant Models

After gaining the skill to build the core house, it can be extended to variant models of 5x5m, 6x5m, 7x5m and 8x5m according to the need and function of the building.
Photo 7: The house modul 4x5 can be extended as needed.

Photo 8: RI-A house plan with toilet and kitchen at the back verandah.

Photo 9: Details of the roof span, finished with nails only.

Photo 10: Detail of column join, finished with nails.
Structure

Monolith main frame to meet earthquake requirement. Simple rigid frame as the main structure of column and truss with 5m span that can be enlarged.

Sub-structure

Block foundation of 35 X 35 X 35cm as footing foundation of each column.
Photo 14: The structure model; simple rigid frame

Photo 15: Erecting of the roof needs 4 persons, including the house dweller so that he can built his own house.

Photo 16: The toilet 1.5 x 2 m at the back of the house.
Cost Estimate

RI-A house for Tsunami Victims

<table>
<thead>
<tr>
<th>No</th>
<th>Material</th>
<th>Total &amp; Unit</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Planks</td>
<td>170 unit</td>
<td>33,600</td>
<td>5,712,000</td>
</tr>
<tr>
<td>2</td>
<td>Joints</td>
<td>4 unit</td>
<td>5,000</td>
<td>20,000</td>
</tr>
<tr>
<td>3</td>
<td>Zinc</td>
<td>30 sheet</td>
<td>54,150</td>
<td>1,624,500</td>
</tr>
<tr>
<td>4</td>
<td>Flat Zinc</td>
<td>5 length</td>
<td>18,300</td>
<td>91,500</td>
</tr>
<tr>
<td>5</td>
<td>Anchor</td>
<td>8 unit</td>
<td>7,500</td>
<td>60,000</td>
</tr>
<tr>
<td>6</td>
<td>Nails for wood</td>
<td>8 kg</td>
<td>8,000</td>
<td>64,000</td>
</tr>
<tr>
<td>7</td>
<td>Nails for zinc</td>
<td>1 kg</td>
<td>8,000</td>
<td>8,000</td>
</tr>
<tr>
<td>8</td>
<td>Tools</td>
<td>1 unit</td>
<td>200,000</td>
<td>200,000</td>
</tr>
<tr>
<td>9</td>
<td>Bricks &amp; plaster</td>
<td>7 m2</td>
<td>104,000</td>
<td>728,000</td>
</tr>
<tr>
<td>10</td>
<td>Closet for toilet</td>
<td>1 unit</td>
<td>60,000</td>
<td>60,000</td>
</tr>
<tr>
<td>11</td>
<td>Floor plaster</td>
<td>26 m2</td>
<td>14,000</td>
<td>364,000</td>
</tr>
</tbody>
</table>

**TOTAL** 8,932,000

*) Source: HSPK Analisa, Surabaya 2004

**Cost**

Ordinary market price in Surabaya Rps 9 millions, 4-5 adults, one day work hour. Rp 9 million or IDR 9,000,000 equal about US $ 1000.

**Material Specification & Tools**

- Wooden plank of 2x20 cm length 4 m
- DI sheet 105x210 cm
- Nail 7 cm and 4 cm
- Hand saw
- Hammer with nail extraction end
- Measuring tape
- Machete
- Earth digger
Photo 17: The door consist of two parts which can be opened separately for air circulation. The windows components can also be opened and modified as a table.

Varian tipe 36
RI-A tipe 36 based on 5 X 6 m modul with toilet 1,2 X 2 m.

Struktur Team RI-A
Principal Architect: Prof. Ir. Johan Silas
Head Architect: Wahyu Setyawan, ST MT
Architects: Ir. Andon Setyowibowo MT & Ir Sutan Hasian Siregar MT
Junior Architects: Hertiari Idajati ST, Aldrin Yusuf ST, Erika Yuni Astuti ST, Susetyo Firmaningtyas ST MT
Support: Sukito, Sarbeni, Maryadi & Miskar
Project Coordinator: Prof. Ir. Priyo Suprobo, MS, PhD

Foto 18: RI-A team of the Laboratory for Housing and Human Settlements Department of Architecture -
Right to Left: Aldrin Yusuf ST, Hertiari Idajati ST, Andarita Rolalisasi ST, Susetyo Firmaningtyas ST MT, Erika Yuni Astuti ST, Ir. Andon Setyo Wibowo MT.

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Prof. Ir. Priyo Suprobo, MS, PhD
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CHAPTER 3
PARTICIPATORY PLANNING AND RESPONSES TO INFORMAL SETTLEMENTS AND HAZARDS IN AFRICA

Introduction
Review of sustainable informal settlements in Africa are presented, to give pictures about some best practices in dealing with problems of informal settlements. Discussion about disaster risks affecting informal settlements is presented by Mark Napier and Margot Rubin. This includes the management of the environment and the risks, to keep a sustainable livelihood for the poor. Other case study is the participatory urban planning in Kitale, Kenya. An action research project in Kitale, which led to innovative, affordable responses to water, sanitation and technology needs of urban poor communities living in informal settlements.

REVIEW OF SUSTAINABLE INFORMAL SETTLEMENTS IN AFRICA
The review shows several ways, where in low income families can find access to housing. Some remarkable developments have been done by committed leaders, non government organizations, communities, professionals and even the government. Experience shows that it is possible to solve the problem of informal settlements with very little resources.

4. Eviction Turned to Housing Project
This is an example of land invasion, which leads to eviction, then leads to a negotiation to purchase land, and leads to a project.
In 1997 a woman named Nosipathele and friends walked from their rented shacks in Capre Town’s Guguletu area went to the Victoria Mxenge Housing Cooperative, the federation’s first housing development, which had become the point of hope for the people, who were introduced to the federation’s ideas. Then Nosipathele and her friends set up a saving scheme, which they called Vuku Zenzele, which means: “Wake Up Together” in Khosa (Housing by People in Asia, 2003)

The women of VukuZenzele knew they could build houses, even with limited resources, but they had nowhere to built them. The 280 women invaded the vacant council land nearby, but
police came and demolished the shacks. After 3 days there were just 70 women left, and it was very hard without toilets and water. In a meeting with the council’s housing committee chairman, the women were told they’d have to wait for the council to meet everyone’s need in turn, and the women returned to their previous shacks and waited. (Housing by People in Asia, 2003)

Around the same time, a wealthy family approached “People’s Dialogue” for help developing some land they owned in the same areas as an experiment in housing and enterpreneurship. Many of the VukuZenzele members were part-time vendors. To apply for housing subsidies to pay for the land, the community first had to have legal land tenure—that’s the “Catch-22” in South Africa’s subsidy system. The minister who had a long friendship with the federation, agreed to provide bridge financing to VukuZenzele to buy the land and develop housing and infrastructure, at 17,250 Rands per family. Then the constitutional setting up VukuZenzele’s communal property association was signed by its members in 1998 (Housing by People in Asia, 2003).

Another nearby saving scheme, the “Luyolo” which had participated in the invasions in 1997, began lobbying to be included in the scheme. After some dispute and intervention by the federation, the members were offered access to the land, and the 2 communities set to work planning their settlement. The area for the VukuZenzele site is 7.4 hectares, of which 4.4 hectares has been devided up into 235 house plots and community spaces. 1.5 hectare strip of land along the main road is being developed commercially, to cross-subsidize the housing. 1.5 hectares under power transmission lines which cannot be built on, is being used for playing fields. In 2003 drainage, roads, water supply, sanitation and electricity are installed. The commercial area is serviced but not yet developed, and over 120 houses have been built and occupied.

The Vukuzenzele story is a story of an eviction crisis which turned into secure housing process and the story of mutual distrust being transformed into a working partnership between a community of squatters and a city (Housing by People in Asia, 2003).

5. The Kuyasa Fund
The Kuyasa fund is a non profit organization created by the Development Action Group (DAG) in 1999. The aim of Kuyasa is to build a sustainable housing savings and loan facility
that will meet the needs of people who are excluded from the housing finance market. The poor are excluded from credit through requirements such as: collateral security, formal employment, payrol deductions, pensions and provident fund guarantees. As a respond to these problems, Kuyasa takes the following activities:

a. Assist communities to pool their resources for housing through regular savings.
b. Help communities to leverage external resources for housing into the community
c. Development model for end user financial services to poor communities that can be replicated by others (Anzorena, 2003)

The burden of the loan repayments for borrowers at the lowest level is R 1000/month, is heavier because borrowers earning less, pay an average of 29% of their salaries on their housing loans. In terms of Kuyasa’s credit policy, it is possible to increase the repayment periods (Anzorena, 2003).

6. Disasters Mitigation in Africa

In the year 2000, Mozambique was hit by heavy rains and cyclone led to the worst flooding in 50 years. Devastation widespread over the cities and about 1 million people were affected. Water and sanitation services disrupted, causing outbreaks of dysentery and cholera. Increase urbanization correlates with increased risk, as unplanned growth rarely takes account of physical hazards. Millions of poor urban dwellers, managing disaster is an everyday occurrence. This may include the fires that wipe out squatter neighbourhoods (Sanderson, 2000).

Disaster turn back the development clock, destroying effort and labour and perpetuating poverty for those already poor; also destroy investments and infrastructure at the city and national level. In many parts of Africa, disaster management is synonymous with rural food security needs. Ghana’s National Disaster Management Office (NADMO) and Ethiopia’s Disaster Prevention and Preparadness Centre (DPPC) are rural in focus. Initiatives by intergovernmental agencies and donors address the need for disaster mitigation. The Habitat Agenda describe the need for measures to reduce vulnerability in urban settlements. The world Bank’s Disaster Management Facility, formed in 1998, aims to mainstream mitigation of natural disaster (Sanderson, 2000).
Reference


MANAGING ENVIRONMENTAL AND DISASTER RISKS AFFECTING INFORMAL SETTLEMENTS: LESSONS FROM SOUTHERN AFRICA

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Introduction
Informal or ‘spontaneous’ settlements located in the cities of the developing world have long been the subject of international donor agency debates and spending (Abrams, 1966; Davidson, 1984; Van de Laar, 1980; Marcuse, 1992), academic discourse (Bond, 1996; Huchzermeyer 1999; Hindson & McCarthy 1994; Kellet & Napier 1995), civic organisation activism (Dev.Action Group 1996) and official government angst (Turner 1976).

Advocacy groups who have directed their efforts at addressing the problems of inadequate urban housing have been involved in the ongoing attempt to get governments to priorities shelter issues. Governments used to be urged to address the problem of sub-standard housing because of the sanitary threat unserviced and overcrowded settlements posed to formal residents of cities (McGranahan, Jacobi, Songsore, Surjadi & Kjellen; 2001). Subsequently the discussion was contextualised within the demographic trends of population growth, migration and urbanisation (Abrams, 1964; Gilbert and Gugler, 1992). A recurring theme for more than thirty years has been the importance of systems of land tenure, and the need to grant appropriate forms of tenure to the urban poor (Angel, 1983). More work was done around the environmental health aspects of living in unhealthy housing and an attempt was made to alert authorities to the real costs of ill health and loss of productivity that resulted from life in informal housing (WHO, 1999; Ranson, 1991). Recently work on urban poverty alleviation has demonstrated the sensitivity or vulnerability of the livelihoods of people living in poor urban circumstances (Moser, 1998; DFID, 2000), and how households attempt to cope with the challenges of living in urban areas often without official recognition or assistance, and therefore having to depend on a range of types of capital to survive. Almost completing the circle back to the Victorian concerns about the sanitary threat which is posed to wealthier residents of the global village, is the growing interest in demonstrating how unmanaged waste streams coming out of informal settlements directly affect the broader environment.
What is particularly interesting is how the discussions about informal settlements and the livelihoods of people occupying such settlements have begun to intersect with the discussions and rhetoric around environmental hazards and disaster risk management (Napier, de Bustilos, Santosa & Rubin, 2002). The attempt to combine thinking around these issues highlights issues of the location, planning, shelter, services and the nature of livelihoods of people in informal settlements. By focusing on the dire impacts of manmade and non-manmade disasters to which people in informal settlements are particularly exposed, it becomes clear that these events unfold against a background of the slow motion disaster of poverty and homelessness (Kecia, 2002).

Given that so many avenues have been tried by so many commentators and practitioners to pressure governments to address the issues faced by people living in informal settlements, and despite this the political will and voting of resources by governments and international agencies has remained unequal to the task of adequately housing urbanising populations, what can be learnt from governmental responses in situations of crisis? Is this perhaps another way to pressure governments to count the real cost of not making sufficient land and urban services available to people who need it?

This paper focuses on the South and southern African situation. What have been the responses of the authorities in South Africa when the plight of people in situations of poverty is suddenly brought to the fore by a disaster of some kind? How have the longer term planning and development arms of government combined with the departments responsible for shorter term disaster management? How have disasters and the mobilisation of government resources to cope with the impacts of disasters led to changes in the ways that government views longer term human settlement planning and design? Have the concepts of disaster risk management permeated the thinking of more departments of State than only those directly responsible for the initial crisis response? Do responses to disasters and the management of risks take into account good practice in longer term (or indeed sustainable) development? And ultimately do official responses to emergencies place the people affected in a stronger position socio-economically (i.e. do responses strengthen livelihoods or undermine them?) and lead to longer term benefits to all urban residents through improved disaster awareness and preparedness?
Vulnerability in South Africa

It is firstly necessary to give a brief description of the nature of vulnerability and the incidence of hazards in South Africa. This gives a simplified overview of the risks to which people (particularly in informal settlements) are exposed (Moor, 2001).

South Africa’s population of around 40.5 million people is roughly equally divided between urban and rural areas (54% urban: 46% rural) (Statistics South Africa, 1997). It has been stated that “the poorest 40% of [South African] households (equivalent to 50% of the population) receive only 11% of total income, while the richest 10% of households (equivalent to only 7% of the population) receive over 40% of total income” (May, Budlender, Mokate, Rogerson & Stavrou; 1998). The same commentators argue that poverty is concentrated mainly in rural areas, applying the logic that: “…while 50% of the population of South Africa is rural, the rural areas contain 72% of those members of the total population who are poor” (May, Budlender, Mokate, Rogerson & Stavrou; 1998). However it is also clear that there has been a growth in absolute numbers of people living in poverty in large metropolitan areas (Merrifield, 2000).

This is also indicated by the growth in numbers of people living in urban informal settlements. According to information from the South African 1996 census, 11.6% of households lived in freestanding informal settlements, and a further 4.5% lived in shacks in the back yards of formal (normally township) houses. So over 16% of households were living in urban informal housing, and a further 18% lived in traditionally constructed houses which would be located mostly in rural areas (Statistic South Africa, 1997). These figures are only broadly indicative of exposure to risk, because the location of the settlements and the quality of the construction is not evident. Nevertheless, over a third of all households in the country can be said to be living in housing types which are potentially dangerous or unhealthy, and just under half the population is living in situations of income poverty (May, Budlender, Mokate, Rogerson & Stavrou; 1998) and therefore experiences a degree of vulnerability when it comes to recovering from shocks such as disasters and other emergencies.

Informal housing is concentrated in cities and towns, and the large cities contain high proportions of informally housed people. The situation is outlined in the following graph.
which shows proportions of housing in four of South Africa’s six metropolitan areas. Where figures are available, informal housing is broken down into freestanding settlements, backyard shacks, and sites and services (denoted by ‘S&S’).

In the larger metropolitan areas, between twenty and thirty percent of the population lives in informal housing. This is a relatively high proportion of urban residents to be living in housing and locations with a high degree of risk. Not only is there a risk to residents but also to municipalities who are obliged to respond to the disasters and emergencies which arise as a result of this vulnerability.

The 12% of households living in freestanding informal housing are most often located on the far distant periphery of cities. They experience the added risks associated with lack of services and land which is often inappropriate for settlement. Vulnerability to disaster is increased as a result of certain qualities of the location, such as settlements on steep slopes (Inanda, Durban), within flood planes (Alexandra, Johannesburg), close to mine dumps (East Rand, near Johannesburg), close to heavy industrial areas (Wentworth, Durban), or even on landfill sites. Other hazards arise from the nature of the settlement itself, such as risks of rapidly spreading fire, or health risks from rising damp, poor indoor air quality, and collapsing structures. Exposure to risk can be increased (or decreased) suddenly through eviction by authorities from formal or informal housing.

Exposure to environmental health risks can also be extrapolated from levels of access to urban services. Some 12% of South Africa’s population did not have access to clean water in 1999. A full 30% still depended on pit latrines and a further 14% used bucket toilets or had no access to sanitation (Statistics South Africa, 2001). In informal settlements the situation
was much worse, with a full 44% using pit latrines, 12.5% using buckets and 10% having no access to sanitation (Statistic South Africa, 2001).

Although 70% of households had access to electricity by 1999, an improvement of 6% over a four year period, the percentage of households using electricity for heating and cooking had dropped. Of the 70% of households with connections, only 53% used it for cooking, and 48% for heating. This indicates a situation in which the national electricity supplier is being successful in connecting households to the national grid, but that households are unable to afford to use the electricity supplied especially for heating and cooking which would improve indoor air quality. This is reflected in air quality indicators which show that township residents in a Gauteng industrial area who have household electricity are exposed to over six times the World Health Organisation’s safety level, and those without electricity are exposed to seven times the safety limit. (Energy Research Institut, 2001; Du Pless & Landman, 2002).

These figures show that despite being classified as a country of medium human development (ranked 103rd in the world on the human development index). (UNDP, 2000), the spread of benefits and access to a safe and healthy living environment in South Africa remains patently unequal. Despite ambitious government service delivery programmes over the last eight years which have been successful at delivering services and housing to large numbers of people, the levels of disconnection and dislocation remain a product of the inherited backlog from the previous regime. In some cases, current policies and practice worsen exposure to risks by continuing to support poor location and inadequate housing quality.

Hazard and disasters in South Africa

Similar to the rest of sub-Saharan Africa, South Africa is most affected by floods and droughts. The Climate Information Project (www.cip.ogp.noaa.gov, 2002) summarises South African natural and technological disasters between 1975 and 2001. During this period, there were nine droughts and famines which affected over half a million people. There were 16 floods which led to the loss of 1 179 lives, directly affecting another 76 300 people and leaving 22 835 people homeless. Other events which had less impact were earthquakes (usually caused by collapsing mines and affecting miners) (34 deaths), land slides (34 deaths), epidemics (such as cholera outbreaks)(32 deaths), extreme temperature variations (30 deaths), wild fires (29 deaths) and wind storms (127 deaths). The rules which the keepers of this
Natural disasters which affect people in informal and traditional settlements most adversely are flooding, famine, drought, fires, wind storms and epidemics. As noted earlier, the creeping disasters which relate to conditions of poverty such as high infant mortality, death from HIV/AIDS, and other illnesses are also not captured in these figures.

Technological disasters, most of which do not affect informal settlement residents especially more than other residents, included transportation accidents (59 large scale events between 1975 and 2001, killing 1,551 people), industrial accidents (11 events killing 674 people), and other miscellaneous accidents which accounted for the loss of another 154 lives. The miscellaneous accidents category included fires in informal settlements and again the number of deaths from such events was vastly under reported.

The Green Paper on Disaster Management (Dept. of Const. Dev, 1998) gives a list of severe floods between 1994 and 1996 which affected the KwaZulu, Mpumalanga and Limpopo Provinces and caused R680 million of damage (approx. US$ 68 million). It also highlights the drought of 1991 and 1992 which led to the loss of 49,000 agricultural jobs and 20,000 non-agricultural jobs. Non-natural disasters are also mentioned including the Merriespruit Slimes Dam collapse which claimed 17 lives and caused R45 million of damages.

The Green Paper then outlines the kinds of impacts that disasters have had, such as the migration of people to urban areas (as a result of drought), in the hope of finding employment. The drafters of the Green Paper link all these factors in a scenario in which the formation of informal settlements is attributed to rurally-based disasters, the settlements themselves are hazardous to live in, and are in turn a main cause of environmental degradation:

The migration has resulted in uncontrolled urbanisation on vacant land that is unsuitable for safe housing. In addition, the informal settlements have been subjected to the rapid spread of fires and flash floods. (The Cape Town metropolitan area and Greater Johannesburg are typical examples.) … Disasters have also resulted in environmental degradation and have increased poverty. Several areas near rivers are occupied by informal settlements without any or with only inadequate essential services. This has resulted in high levels of pollution of the rivers and the immediate
environment. On farms, poor farming practices have increased the degradation of the land (Dept. of Const. Dev, 1998).

In this scenario the linking of the causes of urbanisation to disasters and the occurrence of disasters to the types of settlements in which urbanised people first settle is perhaps not supported by the evidence, in that there are many more causes for urbanisation and vulnerability. Elsewhere we have shown that informal settlements do not have the scale of impacts commonly ascribed to them (Napier, de Bustillos, Santosa, Rubin; 2002) mainly because the levels of consumption of resources is so much smaller than for wealthier settlements. However, it is true that the impacts of such settlements are very visible locally (particularly in water courses), and that life in such settlements is hazardous at all levels.

Very importantly, the types of natural disasters that occur are linked to the climate and topography of the region:

*Most of South Africa lies within a region of Southern Africa that* has a semi-arid to arid climate. This region is subject to climatic extremes, including droughts, floods and other meteorological (weather) phenomena. There are indications that South Africa's climate is becoming increasingly variable. As in many other areas in Africa, our vulnerability to these climatic extremes has increased over the years as a result of poverty, distorted settlement patterns due to apartheid policies and the consequent heavier exploitation of natural resources. In South Africa, threats such as droughts, floods and a growing risk of HIV and malaria are a constant drain on our country's human, economic and natural resources. For instance, an El-Nino event (a "creeping emergency") could reduce the gross value of our agricultural production by 16%, while agriculture's contribution to the gross domestic product would decrease by 11.7%. For farm workers and households dependent on farm labour for their livelihoods, the implications of this are immense. During the 1992 El Nino event, for example, some 50 000 jobs were lost in the agricultural sector alone. (Dept. of Const. Dev, 1998)

The link between hazards and the vulnerability to those hazards because of the nature and location of settlements is clearly drawn, and it is obvious that there is a relationship between development and disasters. Sound, or sustainable, development should take into account recurring disasters, that is, there should be better risk management to prevent increased exposure to disasters as a result of development, whether that is formal, state-led development or informal, popularly led development. The Green Paper also highlights the social impacts of disasters such as “trauma, depression and grief as a result of losses [which] continue for long periods after the disaster. These longer-term effects have a negative impact on community life and economic activity.” (Dept. of Const. Dev, 1998).
Policy context

There are two sides to the policy context. The one is the raft of policies which shape the location and development of new settlements, and which also govern how the issue of illegal informal settlements should be addressed. The other set of policies apply mainly to the state responses to disasters when they do happen, but also make comment on avoidance.

Both the Constitution of South Africa and the housing legislation commit the government to ensuring that all South African citizens are given access to adequate housing, even if this is on a ‘progressive’ basis (Republic of South Africa, 1997), (in other words, the government will enable people to realise that right over time through a combination of state assistance and individual contributions). Policies and programmes to supply bulk and local infrastructure, as well as health, education and recreational facilities exist to support the formation of fully serviced new settlements. A range of other legislation is designed to ensure that government follows a logical planning and budgeting process which achieves good location as an important outcome. As has been said,

In South Africa, the main vehicle through which communities can participate in the creation of their settlements is the Integrated Development Planning (IDP) process. The IDP process emphasises participatory municipal planning and building partnerships between local government and the community to reach common developmental goals. In theory, the IDP should enable local authorities to plan according to local needs, thereby providing more appropriate development, which in turn will lead to more efficient use of resources (Du Plessis & Landman, 2002).

The policy tools are therefore in place to ensure the timely delivery of land, services and housing to people who most need it, and therefore essentially to manage the migration of people to cities and the growth of the existing urban population. This has been backed by a housing subsidy scheme which had seen the granting of basic housing to some 1.3 million households between 1994 and 2001 (Dept. of Housing, 1999).

Despite these concerted efforts, informal settlements on badly located land continue to grow (sometimes as a strategy on the part of residents to access government housing benefits more quickly), and new formal settlements with inadequately designed housing in distant and sometimes hazardous locations continue to feature even in the formal South African landscape (Du Plessis & Landman, 2002). The situation is exacerbated by authorities which continue to evict people from informal settlements (Budlender, 2001), despite laws protecting
residents from such events, thus sometimes creating the preconditions for disaster (an issue discussed further below).

In the second area of policy, disaster management legislation is at this stage still ill defined. In 1997, the Interministerial Committee for Disaster Management was appointed by Cabinet to develop a clear policy on disaster management. The committee, chaired by the Minister of the then Department of Constitutional Development oversaw the generation of the Green Paper on Disaster Management, released in 1998. In January 1999, this was followed by the White Paper on Disaster Management. On 1 April 2000, a permanent National Disaster Management Centre was established within the Department of Provincial and Local Government. The policy framework outlined in the White Paper was reflected in the Disaster Management Bill, the first version of which was gazetted in January 2000. Identified as Bill 21 of 2002, this legislation is expected to be promulgated in 2002. (email with Holloway, 2002)

As Dr Holloway of the University of Cape Town observes about the white paper, “A key focus of this policy document was its focus on vulnerability reduction as a key strategy to minimise disaster risk, specifically with respect to poor households and communities. One key aspect of the White Paper was its emphasis on comprehensive disaster management training and community awareness strategies and programmes” (email with Holloway, 2002). Further to this, the white paper outlines the aims of policy as follows.

• Provide an enabling environment for disaster management.
• Promote proactive disaster management through risk reduction programmes.
• Improve South Africa’s ability to manage emergencies or disasters and their consequences in a coordinated, efficient and effective manner.
• Promote integrated and coordinated disaster management through partnerships between different stakeholders and through cooperative relations between all spheres of government.
• Ensure that adequate financial arrangements are in place.
• Promote disaster management training and community awareness.

South African policy concurs in many of its principles with the Habitat Agenda’s Global Plan of Action for Disaster prevention, mitigation and preparedness, and post-disaster rehabilitation capabilities (Section 11). However, where it is weak is in its emphasis on :

• women’s active involvement;
• voluntary relocation to less disaster-prone areas;
• prevention of industrial and technological disasters; and
• post disaster support (relief, rehabilitation, reconstruction and resettlement) is not addressed in any detail. (Meiklejon, 1999)

As Dr Holloway further observes, “the diversity of threats facing rural and urban communities calls for the development of a suite of housing strategies that reduce disaster vulnerability and enhance the resilience of households to resist and recover from natural and other hazards”. (email with Holloway, 2002)

Once disaster risk management legislation and mechanisms are adequately developed, the challenge will be to ensure that authorities do not exploit situations by declaring emergency circumstances which allow them to effectively forcefully remove communities from land driven more by more powerful urban interests operating in the vicinity than by a genuine risk assessment.

References


A comment made by Kecia Rust, Johannesburg-based housing policy consultant, July 2002.


Disasters are only listed if one of the following occur: 10 or more people are reported killed; 100 people are reported to be affected; a call for international assistance has been made; or there is a declaration of a state of emergency.


Email communication with Dr Ailsa Holloway of the University of Cape Town, 1 July 2002.


This draws on Moor’s definition of risk as the combination of hazard and vulnerability, or the ‘probable degree of damage or loss over time’. Moor, J. (2001). ‘Cities at Risk’ in *Habitat Debate*, Vol.7, No. 4, United Nations Human Settlements Programme.


PARTICIPATORY URBAN PLANNING IN KITALE, KENYA (*)

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Introduction
The global urbanisation trend indicates the extent of urban poverty and failure of current approaches to meet the growing need for urban infrastructure services and adequate, affordable housing. Access to urban land is becoming increasingly more difficult due to competing demand for land earmarked for infrastructure, housing, commercial and industrial development in the face of escalating land prices. These problems are being compounded by the "urbanisation of poverty" - the fact that a rapidly increasing proportion of the world poor are now living in cities and towns. This has resulted in the proliferation and expansion of informal settlements characterised by inadequate infrastructure (water, sanitation, drainage, waste management, and access path and roads), poor building and housing conditions and an overall unhealthy and hazardous environment, in which a growing majority in the urban South now live and earn their livelihoods.

The greatest concern is that city and municipal authorities, charged with the responsibility of planning and managing urban growth and delivering services to their citizenry are unable to do so due to inadequate financial, human and technical capacity.

This paper presents how an action research project led to innovative, appropriate and affordable responses to water, sanitation and technology needs of urban poor communities living and working in informal settlements in a secondary town in Kenya through a partnership approach and participatory urban planning. It also relates how the methodologies have been integrated into the wider municipal development agenda and have influenced the municipal approach to delivery of services.

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Project Background

Located about 380 km to the north west of Nairobi, the capital and primate city of Kenya, Kitale Town is the administrative and commercial capital of Trans-Nzoia District. It also serves as a frontier town for the northern Kenya region, which has an estimated 800,000 inhabitants. The Municipality's immediate hinterland is often referred to as the country's 'breadbasket' because of its high agricultural potential. Migration to the town, due to decreasing economic opportunities in the outlying farmlands and recurrent drought in northern Kenya, has overstretched the capacity of Kitale Municipal Council (KMC) to effectively plan the development of the municipality and deliver infrastructure and other services. As a result, 65% of its estimated population of 163,209, do not have access to secure tenure, decent shelter, safe water, sanitation, health services, employment opportunities among other livelihoods needs, and are compelled to live in Informal Settlements and slums, such as Kipsongo, Shimo-Ia-Tewa and Tuwan. An earlier attempt to improve infrastructure and housing conditions in the latter settlement, under the World Bank-funded Third Urban Project, met with little success.

Project Purpose and Anticipated Outputs

Building in Partnership: Participatory Urban Planning, an action research project funded by the UK Government's Department for International Development (DFID) and implemented in Kitale, Kenya, had as its purpose "to test, develop and disseminate a partnership approach to the planning of urban space with poor men, women and children, community-based, public and private organisations". The overall goal of the project was to "enhance the effectiveness of city and municipal planning". The project, which started in April 2001 and ended in March 2004, set out to investigate whether the creation of formal and informal linkages between community based organizations (CBOs), public agencies and the formal and informal private sectors could build local capacity to assess and meet the needs of urban poor communities. In addition, the project sought to test, develop and disseminate methods and approaches to encourage the active participation of key stakeholder groups in assessing needs and developing neighbourhood plans.
The anticipated project outputs included the following:

- A worldwide review and synthesis of existing knowledge and methodologies applied in participatory policy making and local governance, with a focus on informal settlement development.
- Establishment of linkages and bases for partnerships through participatory baseline surveys and detailed needs assessment in selected informal settlements.
- Capacity building of project partners to plan and manage the urban built environment and influence public sector approaches to planning and implementation of development interventions.
- Participatory recording and media coverage of the project process, and engagement in discussions, debates and presentations locally, nationally and internationally.
- A published methodology for effective partnership formation and working, including tools and techniques.

**Project Approach**

Project activities in Kitale Municipality were carried out and managed by Intermediate Technology Development Group-Eastern Africa (ITDG-EA), in partnership with other key stakeholders, while overall management responsibility lay with Intermediate Technology Development Group-United Kingdom (ITDG-UK).

The project trialled a partnership approach that worked with existing local governance structures and involved a range of stakeholders in the participatory urban planning processes that were also tested and used. The term 'participatory urban planning' has become common parlance in planning and development circles. Its focus is on the empowerment of local communities who have traditionally had planning done for them. Participatory urban planning sees communities not as passive beneficiaries or clients, but rather as key stakeholders and active participants and partners in the design, implementation and sustainability of development interventions. The project recognized that partnerships:

- Enable different actors to gain access to each other's skills and resources;
- Provide mechanisms for maximizing returns and spreading risks on investment;
• Ensure that stakeholders have a voice in the development agenda;
• Facilitate the use of participatory approaches and capacity building of partner groups,
• Enhance the achievement of project goals,
• Promote networking and sharing of resources and experiences,
• Minimize the needs/demands gaps in the provision of goods and services, and
• Enable realistic monitoring and evaluation of project activities.

The project partners included local communities and their organizations; KMC; relevant central government agencies and departments; NGOs; professional bodies such as the Kenya Institute of Planners (KIP); and the University of Nairobi's Department of Urban and Regional Planning (DURP). Project partners supported local communities in implementing and monitoring project interventions.

The project also adopted a sustainable livelihoods (SL) approach, and used participatory urban appraisal (PUA) methodologies and tools and community based indicators to help poor women, men and children living in informal settlement to identify their development priorities, and prepare spatial and settlement specific neighbourhood's plans.

The project worked in three informal settlements in Kitale Town, namely Kipsongo, Shimo-La-Tewa and Tuwan. The three settlements were selected from the 10 civic wards in the Municipality through city-wide ward based baseline surveys. The three sites were used as pilot areas for testing, developing and disseminating partnership approaches that encourage stakeholder participation in assessing real user needs and designing appropriate intervention strategies. The detailed participatory needs assessments that were conducted in each of the settlements informed the formulation and development of neighbourhood plans that integrated gender needs and promoted access to infrastructure and opportunities for micro and small enterprise (MSE) development.

**Project Achievements**

The project faced a number of challenges, particularly in its early stages following the dissolution of the Council by presidential decree in September 2001. Even so, the project was able to make some notable achievements. These are summarized below.
Contribution to knowledge

A global review of the literature and existing knowledge on participatory planning within the context of informal settlement development was carried out and documented. Case studies were undertaken in the three East Africa countries - Kenya, Uganda and Tanzania and documented. Similar studies were conducted in Bangladesh and Peru by the ITDG offices in those countries, and likewise documented. The literature review and case studies were intended to assist the project team design the participatory methodologies and tools that were to be used in implementing the project. A manual/guide based on project experiences was produced and has been disseminated to local authorities, urban managers and planning practitioners in the region and worldwide.

Participatory surveys

The project provided support to the Council's Department of Housing and Social Services (DHSS) to carry out a city wide preliminary scan survey. The purpose of the survey was to help local communities identify and map their development priorities and planning and funding challenges, in particular with respect to infrastructure needs (water, sanitation, drainage, solid waste management, and pedestrian and vehicular access), shelter, health services and education facilities. The communities were also engaged in governance issues.

In addition to the citywide scan survey, the project has also carried out a detailed household survey and inventory of active CBOs in the town. These were meant to inform the project team of the development activities that local communities are engaged in and the resources that they have at their disposal to address their needs. They also highlighted some of the development and planning challenges facing the Municipality whilst also identifying opportunities that exist for participatory urban planning and development. In addition, they also informed the preparation of micro-level spatial integrated neighbourhood plans and meso-level ward based Local Authority Service Delivery Action Plans (LASDAP).

Neighbourhood planning

Based on the results of the surveys conducted in the 10 civic wards in Kitale Municipality, the project together with KMC, the communities and other partners went through a ranking process to identify the most needy areas. Through this inclusive consultative process, a
consensus was reached on the priority development needs, and in which wards, and more specifically which informal settlements, the project should work. Kipsongo, Shimo- La- Tewa and Tuwan settlements were thus selected as the project sites. Using the information and knowledge gained from the above surveys, the literature and practice review, and the case studies, participatory neighbourhood planning exercises were carried out and plans prepared. Local communities in these settlements were subsequently actively involved in preparing a planning tool kit, aimed at helping communities to identify their priority development needs and formulate plans to address them.

**Partnerships**

Strong and effective partnerships were forged between local communities and grassroots organizations, KMC, ITDG, other NGOs, the Anglican and Catholic churches and faith-based organizations, and the formal and informal private sectors. Specific partners include Handicap International; ViAgroforestry, Nzoia Urban Family Project, Kenya News Agency, Ministry of Health, Physical Planning Department, and Kitale Business Community. A board based consultative process was thus set up that allows multi stakeholder dialogue on how best to address development issues in the municipality and pooling of resources.

**Delivery of services through partnerships**

The development priorities identified in the neighbourhood plans were resourced through partnerships between the communities, the Council and the project. Owing to the participatory nature of the process, the neighbourhoods' plans were linked to the town's LASDAP process, leading to joint implementation of the prioritised projects. In Kipsongo, eight communal sanitation blocks with latrines and bathing cubicles were constructed. Prior to the provision of these facilities, the residents of Kipsongo had no sanitary services. In Shimo La Tewa; an 80 metre long footbridge was constructed, with the local community participating actively by providing labour and hard wood timber for the decking. KMC met 30 per cent of the cost of the bridge, while a private sector engineer teamed up with the Municipal Engineer and an engineer from the Ministry of public works to design and supervise the construction of the bridge free. A local businessman supplied building materials at reduced cost. Through these cost-sharing initiatives, communities in informal settlements that had never benefited from municipal services, gained access to the same.
Preparation of Kitale Environmental Development Plan

The project, in partnership with the Environmental Management Unit (EMU) of the (then) Ministry of Lands and Settlement and other local stakeholders, prepared an Environmental Development Plan (EDP) that identified environmental problems experienced in the town, cause-effect relationships and possible remedial measures. The plan also proposed locally based intervention strategies to protect the environment and enhance sustainable urban development. A voluntary action group, the Kitale Green Towns Environmental Group Initiative (KGTEI), was formed and is responsible for:

- Promoting environmental awareness and supporting the conservation and protection of environmentally fragile zones in the town.
- Highlighting environmental concerns to the concerned parties, and
- Implementing, in partnership with other stakeholders, viable and easily implement able intervention strategies highlighted in the EDP.

Information and dissemination

The project created a forum for information exchange and also promoted discussion and debate on topical development issues through the following channels:

- Preparation and publication of Kitale a quarterly newsletter focusing on participatory planning and development. The newsletter provides a forum for the local community to debate and highlight salient development challenges and possible intervention strategies.
- Establishment of a website (http://kitale.org) to act as a depository of information, and to put Kitale in the international electronic communication arena.
- Production of radio broadcast programmes on local development issues ranging from community-based income generating activities, water, sanitation and housing to HIV/AIDS.

Other project achievements

The active participation of various project partners organized and strengthened their capacity to not only carry out participatory surveys, but also to plan and manage aspects of the built environment. The project, in addition, initiated discussion on the issue of security of tenure, in
particular for the residents of Kipsongo. There have since been several meetings between community members, KMC and central government officials.

Another notable achievement is the securing of additional funding to improve access to water and sanitation services in the three informal settlements in which the project was working from the Sigrid Rausing Trust under the auspices of the 'Right to a Livelihood: ITOG Working with Urban Poor Women, Men and Children in Kitale, Kenya', which built on the project.

**Lessons Learned and Key Challenges**

*Lack of adequate legislation for community and civil society engagement*
Existing legislation does not adequately recognize the potential contribution of civil society, and in particular informal settlement communities, and the value their participation can add to planning and development processes. Their involvement in municipal decision-making processes is still limited to representation by elected leaders who are supposed to inform them of decisions already made by the council.

*Communities will remain interested only in the expectation of tangible results*
Planning is largely about resource allocation. Participatory planning processes consequently often raise communities' expectations, and should ideally lead to tangible results. If not, they could result in disillusionment and disappointment. There should, therefore, be an investment plan that outlines the resource requirements, the expected contribution of each actor/partner and completion targets.

*Poverty remains a major challenge to participatory urban planning and development.*
Participatory urban planning requires an understanding of community needs and priorities and the assets they possess, in order to ensure that development interventions are appropriate and within their means and ability to manage them.

*Participatory planning remains an elusive concept to many local authorities and leaders*
Local leaders normally misunderstand partnerships and participatory planning to mean failure on their part to deliver services or interference in established decision-making processes by "outsiders". There is therefore need to build the capacity of civic leaders and local authority staff in participatory urban planning.
Community awareness

Contrary to popular belief, amongst planners and other development specialists, that poor urban communities in informal settlements are unable to prioritize their needs, it emerged that they are well aware of their development priorities. However, their latent potential and dormant talents often need to be awakened and the scarce resources they possess mobilized.

Additional lessons learned with respect to the viability and effectiveness of partnerships and participatory urban planning include the following:

- Partnership building requires establishing common areas of interest and benefits and negotiation.
- Dialogue is key to effective partnership formation and working
- Contentious development needs are best identified and resolved through localised participatory planning processes.
- Use of local knowledge and resources is critical in preparing an effective plan that can deliver development interventions for which the community will assume ownership.

Sustainability

Project ownership was created from the onset through the active involvement of the beneficiaries and other stakeholders in planning, prioritization, implementation and cost sharing, training in participatory urban planning, as well as in appropriate water and sanitation and shelter technologies, was imparted to both local communities and municipal staff. They also received training in operation and maintenance of the services delivered through the project. The formation of strong community-based village health committees, linked to ward LASDAP committees, will further enhance sustainability.

The Way Forward

The immediate intention is to take the work forward by scaling up the experience gained in implementing participatory planning processes at the settlement neighbourhood level to ward level. Thereafter, the aim is upscale to municipal level and ultimately share the lessons learned with other municipalities in the country and the region.
In Kenya, the ward is both a political and planning unit. Local authorities are required to develop LASDAPs, which central government then use as a basis for allocating funding. The LASDAP formulation process is often *ad hoc*, politically driven and lacking in transparency. In Kitale, as in other local authorities in the country, some of the LASDAP funds are redistributed to the lowest political level, the ward. Local counsellors are then free to use the funds at their discretion. Quite often, the poor lose out in the allocation of LASDAP funds for a variety of reasons, including lack of voice. However, if they were better organized and capacitated, they would be better able to access such funds, as the *Building in Partnership: Participatory Urban Planning* project has demonstrated. It is evident that the active participation of local communities resulted in the implementation of priority projects. What is needed, therefore, is a more inclusive, systematic, and transparent planning process that allows the voice of the poor to be heard. The challenge is to replicate this approach at ward and municipal levels, and to get other local authorities to follow the same processes.

The participatory planning approach that was successfully trialed in the project will be replicated first in four wards and thereafter in the other remaining wards, thereby covering the whole of Kitale municipality. The next level of up scaling will involve dissemination and replication of the good practice experience acquired in Kitale in other municipalities in Kenya. Six towns are targeted in the first phase. This process will include capacity building of stakeholders and development partners in participatory planning and partnership formation and working. In each town, this will initially be in one or two wards. Regular sharing of experience between wards and towns is envisaged, and national forums will be established for this purpose.

To further promote participatory urban planning, professional associations and learning institutions will be encouraged to adopt the approach and include it in their curricula. Finally, multiple media channels (radio, TV, print, web) and seminars/workshops/conferences will be used to reach wider audiences from the grassroots, through local, national, regional and international levels.
Purpose, Scope and Objectives

The purpose of CIB is to provide a global network for international exchange and cooperation in research and innovation in building and construction in support of an improved building process and of improved performance of the built environment.

The scope of CIB covers the technical, economic, environmental, organizational and other aspects of the built environment during all stages of its life cycle, addressing all steps in the process of basic and applied research, documentation and transfer of the research results, and the implementation and actual application of them.

The objectives of CIB are to be: a relevant source of information concerning research and innovation worldwide in the field of building and construction; a reliable and effective access point to the global research community; and a forum for achieving a meaningful exchange between the entire spectrum of building and construction interests and the global research community.

Members

CIB currently numbers over 400 members originating in some 70 countries, all with an interest in the programming, funding, management, execution and/or dissemination and application of research and technology development for building and the built environment, but with very different backgrounds including: major public or semi-public organisations, research institutes, universities and technical schools, documentation centres, firms, contractors, etc.

Activities

The main thrust of activities takes place through a network of over 60 Working Commissions and Task Groups in 7 scientific areas:

- Research, Education and Innovation
- Construction Materials and Technologies
- Building Physics, Design of Buildings
- Design of Built Environment
- Organisation, Management and Economics
- Legal and Procurement Practices

Each Task Group and Working Commission consists of individual experts in the respective area who meet annually, cooperate in voluntary international research projects, produce state-of-the-art publications and organise global conferences.

In this context there are three CIB Priority Themes:

- Sustainable Construction
- Performance Based Building
- Revaluing Construction

Per Priority Theme CIB organises worldwide programme development, RTD agenda’s, externally funded programmes and projects plus the incorporation of voluntary commission projects series of state-of-the-art conferences and whatever else is required to take the theme forward.
CIB Task Groups (TG) and Working Commissions (W)  
(as at April 2005)

**Task Groups**
- TG23 Culture in Construction
- TG33 Collaborative Engineering
- TG42 Performance Criteria of Buildings for Health and Comfort (Joint CIB-ISIAQ Task Group)
- TG43 Megacities
- TG44 Performance Evaluation of Buildings with Response Control Devices
- TG47 Innovation Brokerage in Construction
- TG49 Architectural Engineering
- TG50 Tall Buildings
- TG51 Usability of Workplaces
- TG52 Transport and the Built Environment
- TG53 Postgraduate Studies in Building and Construction
- TG55 Smart and Sustainable Built Environments
- TG56 Macroeconomics for Construction
- TG57 Industrialisation in Construction
- TG58 Clients and Construction Innovation
- TG59 People in Construction
- TG60 Critical Infrastructure Protection – Built Environment

**Working Commissions**
- W014 Fire
- W018 Timber Structures
- W023 Wall Structures
- W040 Heat and Moisture Transfer in Buildings
- W051 Acoustics
- W055 Building Economics
- W056 Sandwich Panels (joint CIB - ECCS Commission)
- W060 Performance Concept in Building
- W062 Water Supply and Drainage
- W065 Organisation and Management of Construction
- W067 Energy Conservation in the Built Environment
- W069 Housing Sociology
- W070 Facilities Management and Maintenance
- W077 Indoor Climate
- W078 Information Technology for Construction
- W080 Prediction of Service Life of Building Materials and Components (Joint CIB-RILEM Commission)
- W082 Future Studies in Construction
- W083 Roofing Materials and Systems (Joint CIB-RILEM Commission)
- W084 Building Non-Handicapping Environments
- W086 Building Pathology
- W087 Post-Construction Liability and Insurance
- W089 Building Research and Education
- W092 Procurement Systems
- W094 Design for Durability
- W096 Architectural Management
- W098 Intelligent and Responsive Buildings
- W099 Safety and Health on Construction Sites
- W100 Environmental Assessment of Buildings
- W101 Spatial Planning and Infrastructure Development
- W102 Information and Knowledge Management in Building (Joint CIB-UICB Commission)
- W103 Construction Conflict: Avoidance and Resolution
- W104 Open Building Implementation
- W105 Life Time Engineering in Construction
- W106 Geographical Information Systems
- W107 Construction in Developing Countries
- W108 Climate Change and the Built Environment
- W109 Ecospace
- W110 Informal Settlements and Affordable Housing
In addition to General Information amongst others about the organization, its member services, the fee system and how to join, plus various special information sections on topics like the CIB Priority Themes and the CIB Student Chapters, the CIB home page contains the following main and publicly accessible sections:

- Newsletters and News articles
- Databases

Newsletters and News Articles
In this section hundreds electronic copies are included of the various issues of INFORMATION, the CIB Bi-Monthly Newsletter, as published over the last couple of years and of incorporated separate recent news articles. Also included is an Index to, facilitate searching articles on certain topics published in all included issues of Information.

Databases
This is the largest section in the CIB home page. It includes fact sheets in separate on-line regularly updated databases, with detailed searchable information as concerns:

- ± 400 CIB Member Organizations, including among others: descriptions of their Fields of Activities, contact information and links with their Websites
- ± 5000 Individual Contacts, with an indication of their Fields of Expertise, photo and contact information
- ± 60 CIB Task Groups and Working Commissions, with a listing of their Coordinators and Members, Scope and Objectives, Work Programme and Planned Outputs, Publications produced so far, and Schedule of Meetings
- ± 100 Publications, originating to date from the CIB Task Groups and Working Commissions, with a listing of their contents, price and information on how to order
- ± 250 Meetings, including an indication of subjects, type of Meeting, dates and location, contact information and links with designated websites for all CIB Meetings (± 50 each year) and all other international workshops, symposia, conferences, etc. of potential relevance for people interested in research and innovation in the area of building and construction.

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