

Sustainable Housing in Navotas, the Philippines

**- A Minor Field Study on Low-income Housing in
Disaster Prone Areas**



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The MFS Scholarship Programme offers Swedish university students an opportunity to carry out two months' field work, usually the student's final degree project, in a country in Africa, Asia or Latin America. The results of the work are presented in an MFS report which is also the student's Bachelor's dissertation or Master of Science Thesis. Minor Field Studies are primarily conducted within subject areas of importance from a development perspective and in a country where Swedish international cooperation is ongoing.

The main purpose of the MFS Programme is to enhance Swedish university students' knowledge and understanding of these countries and their problems and opportunities. MFS should provide the student with initial experience of conditions in such a country. The overall goals are to widen the Swedish human resources cadre for engagement in international development cooperation as well as to promote scientific exchange between universities, research institutes and similar authorities as well as NGOs in developing countries and in Sweden.

The International Office at KTH, the Royal Institute of Technology, Stockholm, administers the MFS Programme for the faculties of engineering and natural sciences in Sweden.

Sigrun Santesson
Programme Officer
MFS Programme

Abstract

This study is about the housing situation of the urban poor in Navotas in Metro Manila, the Philippines. The development in Manila is unsustainable, 13 million people live in an already congested area and people from provinces move there to pursue jobs and the promise of a better life. These people often end up on the streets or in slum areas.

The area we have been studying is located in Navotas, a municipality in Metro Manila. It was once a fish pond of clay and silt. Presently, it is being reclaimed to make way for a residential development by the government to accommodate families affected by natural disasters or demolition. At present there are 198 families in 176 structures living there with different backgrounds coming from different parts of Metro Manila. Sanagmana is the community based organization of the people who chose to live in the fish ponds of Tanza in Navotas after they were demolished. The area occupied by Sanagmana is owned by a private landowner. The organization signed a memorandum of agreement with the landowner and the residents are currently paying the land amortization on a regular monthly basis.

The local government does not approve of the Sanagmana relocation area in Tanza. They think that the organization is bringing in a lot of urban poor families in their municipality¹. The relocatees are actually a mixture of informal settlers whose houses were demolished in Navotas because of the road rehabilitation project along Radial Road 10 (R-10) and those evicted from a private property in Malabon, a neighbouring municipality, were among other things the reason of relocating to Sanagmana. Recently, the local government has bought the adjacent property to Sanagmana, which the local government planned as a social housing site for Navotas relocatees.

TAO-Pilipinas is a non-governmental, non-profit organization which provides technical assistance to marginalized groups in Metro Manila. They have been assisting Sanagmana for the past five years. Initially, the project was developed as the pilot Housing On Stilts (HOS) project by a collaboration of NGOs, private firms, government and the people's organization.

Other organizations working with housing development for the poor in the Philippines are the National Housing Authority, NHA, Green Architecture Movement and Asian Development Bank among others. These organizations have different ways of developing and improving the living conditions of the poor.

¹ Based on an interview with the Municipal Planning Development Officer of Navotas

Our original idea with this thesis was to present a hand book of self-help housing but after some research and field studies it became apparent that it was not just technical assistance that was needed but that the problems go deeper than that.

Keywords: The Philippines, Sanagmana, NGO, housing development, low-income households

Sammanfattning

Detta arbete handlar om bostadsutvecklingen för de fattiga på Filippinerna, med inriktning på ett område i Metro Manila, Navotas. Vi har tittat på vilka organisationer som håller på med bostadsfrågor i landet, allt från dem som styrs av myndigheterna till de icke politiskt eller religiöst styrda organisationerna. Utvecklingen i Manila just nu är ohållbart, där bor 13 miljoner människor på en mycket koncentrerad yta och det flyttar ständigt dit fler människor utifrån provinserna för att söka lyckan i städerna. Tyvärr hamnar de ofta på gatan eller i slumområden.

Området som vi har studerat ligger i stadsdelen Navotas i norra Metro Manila. Det är en ö som har bildats av att silt har samlats där det tidigare var bra fiskevatten. Nu håller de på att fylla upp området för att kunna göra denna plats till ett ställe att erbjuda människor som tvingas flytta från sina nuvarande hem på grund av naturkatastrofer eller som blir bortförda. I området bor redan 177 familjer som kommer från olika sådana ställen. Sanagmana som området kallas, är privatägt, men invånarna har skrivit kontrakt med ägaren och håller på att betala av marken.

Den lokala regeringen tycker inte alls om detta område utan har köpt en bit mark från samma markägare i ungefär samma område, dit de vill att människorna ska flytta istället.

TAO-Pilipinas är en icke politisk eller religiös organisation som erbjuder teknisk assistans, denna organisation är mycket aktiva i området Sanagmana.

Övriga organisationer som är aktiva inom bostadsutveckling för de fattiga på Filippinerna är bland annat National Housing Authority, Green Architecture Movement och Asian Development Bank. De jobbar på olika sätt för att förbättra bostads och levnadsförhållandena för de fattiga.

Vår första idé var att göra en handbok för självbyggeri, men efter en tid av undersökningar så kom vi fram till att det inte var teknisk rådgivning de behövde i området, deras problem var mycket större än så.

Nyckelord: Filippinerna, Sanagmana, NGO, bostadsutveckling, låginkomsttagare

Foreword

Rapid urbanization is occurring around the world. Soon, more than 50% of the world's population will be found in cities and urban centers. This fast and unplanned development results in serious problems due to scarcity of land, congestion and poverty.

Our thesis is about the present situation in a community in Metro Manila in the Philippines called Navotas and the experience of a community-based organization called Sanagmana in their strive for security of land tenure and housing. What kind of problems they faced and how improvements could be made on the situation of the people that could raise their quality of life.

Swedish International Development cooperation Agency, Sida, granted the scholarship and made this field study possible. It has been a life-changing experience to see and live in the slum areas in this metropolis.

We would like to thank especially Rachelle Navarro Åstrand, who helped us with all our contacts in the Philippines, without her we may not be able to present our thesis in time or even finish it. We would also like to thank our supervisor in the Philippines, Faith Varona, without her we would have been lost in this gigantic city.

We would also like to thank all organizations who have taken their time to show us their projects, shared their knowledge as well as their experiences.

Thank you.

Lina Olofsson & Sophia Truong, 2007

Acronyms and Abbreviations

ADB	Asian Development Bank
AGM	Assistant General Manager
CHB	Concrete Hollow Blocks
CIB	Concrete Interlocking Blocks
COPE	Community Organizations of the Philippines Enterprise foundation
DOST	Department of Science and Technology
DPWH	Department of Public Works and Highways
DSOP	Dike-Side Organization of Punta Sta. Ana
FPRDI	Forest Products Research Development Institute
GAM	Green Architecture Movement
GM	General Manager
HDM	Housing Development & Management
HOMA	Housing Materials Assistance Program
HOS	Housing On Stilts
HUDCC	Housing and Urban Development Coordination Council
KTH	the Royal Institute of Technology, Sweden
LGU	Local Government Unit
LTH	Lunds Institute of Technology, Sweden
MCR-tiles	Micro-Concrete Roof tiles
MFS	Minor Field Study
NBBS	North Bay Boulevard South
NGO	Non-Governmental Organisation
NHA	National Housing Authority
PHP	Filipino peso
PNR	Philippine National Railways
PO	People's Organization
PRRP	Pasig River Rehabilitation Program
R-10	Radial Road 10
SANAGMANA	Samahang Nagkakaisa ng mga mavalita sa Navotas
SHEC	Saint Hannibal Empowerment Centre
Sida	Swedish International Development cooperation Agency
TAO-Pilipinas	Technical Assistance Organization-Pilipinas
TFA	Task Force Arki
UAP	United Architects of the Philippines

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Introduction

During the summer 2006 we discussed our diploma work and agreed on doing the thesis with a connection to a developing country. During our first year at Construction Engineering at Lund University, Campus Helsingborg, we had a course about sustainable housing in Honduras and we both got influenced and wanted to learn more about this subject. On the first year course we learned how to work with this kind of topic, plan an area of fifty households and also how to design a house according to the culture and standards in Honduras.

Later that summer we contacted Swedish International Development cooperation Agency, Sida, and found out about the Minor Field Study, MFS. The main objective of the MFS Programme is to promote scientific exchange between universities and research institutes, authorities, enterprises and non-governmental organizations, NGOs, in developing countries and in Sweden. Another purpose is to enhance Swedish students' and teachers' knowledge about developing countries, the difficulties and the opportunities. MFS within the Engineering and Natural Sciences sector are administered by KTH, the Royal Institute of Technology.

Our first idea was to present a hand book of self-help housing for poor on how they can build their own houses with indigenous materials. After contacting Mr Johnny Åstrand and Ms Laura Liuke, who taught the course about Honduras, we realized that we had to go abroad to make relevant research. At first Indonesia was suggested but after some investigations they proposed us to go to the Philippines, due to the good contacts there. Still it was a long way of preparing left until the trip to the Philippines would come true, but thanks to Mr Johnny Åstrand we got all the relevant contacts we needed, which led us to Ms Faith Varona.

During our study in the Philippines we met tons of obstacles. Along the way we realized that those in need of housing in Sanagmana in Navotas, where we did our field study, did not need a hand book of self-help housing; they already have engineering construction solutions. The problem was much larger than that.

1 The Objective

In order to conclude our engineering studies we have to carry out a thesis of 15 Swedish credits. We have chosen to study International Sustainable Housing more in depth. Consultation with our supervisors at Housing Development & Management (HDM) at Lund University has led us to study sustainable housing in the Philippines.

The original purpose of our study was to come up with a model of a house construction that can withstand various natural disasters that periodically happen on the islands. We would also study the area, in this case Tanza, Navotas Municipality and the social and physical infrastructures that would satisfy the needs of the people

Another aspect we had in mind is to use the materials the island provides and that are easily accessible as well as adapted to the climate and purpose.

Along with our journey our objective changed due to facts and experiences from different situations. We started to realize that the real problem is the dialog between the different leading organizations as well as between the organizations and the low-income households in need of a house.

1.1 Problem Definition

Sanagmana is a community based organization in Navotas Municipality that has built a relocation site upon an old fish pond in Barangay Tanza. The housing situation is poor and houses are not well built and good only for fair weather conditions. This causes a huge problem when typhoon season comes when the ground gets flooded and wind causes damage to the houses. The soil condition is also very poor and is prone to subsidence (ground sinking).

Navotas is situated near Manila Bay, and the Philippines are visited by more than 20 typhoons per year. This is a big problem for the poor communities along the coasts.

Therefore, the problem the study aimed to address was: Is it possible to build houses for the poor, which can withstand against minor natural disasters? How will these houses be financed? Which groups/institutions/organizations could provide knowledge to help these people?

The previous problem definitions changed as well as the objective during our journey, our final definition is: “What do the different organizations do to solve the housing problem for the low-income households?”

1.2 Method

Several methods were used including literature studies about the country and urban areas. We also studied self-help housing in general analyzing qualities, possibilities and difficulties.

In January-February 2007 we attended a course of 5 credits, which taught us about “International Sustainable Housing” and gave us a better knowledge about this subject. One of the lecturers on the course has her roots in the Philippines, which was a benefit since she had a lot of experience and good connections there.

When in the Philippines we collected data mainly by conducting interviews with different organizations, government organizations, the inhabitants and the University of the Philippines in Manila. In addition we also did field observations on the local access to building material and the technique of housing used today. We also collected maps, drawings and project descriptions.

2 Background

2.1 The Philippines



Fig. 1 Map over the Philippines, <http://www.worldcountries.info/Maps/Region/Asia-450-Philippines.jpg>, 2007-05-17



Fig. 2 Map over Metro Manila, Postcard Maps collection MA-10

The Philippines is located in the Pacific Ocean, north of Indonesia. It consists of 7,107 islands, around which 900 are inhabited. The total area of the Philippines is around 300,000 km². The largest island is Luzon and it is located in the north of the Philippines. The capital Manila, the second largest city, is also located on this island. Quezon City is the largest city located in Metro Manila in the Luzon Island.

There are about 88.7 million inhabitants in the Philippines and the density is around 294.7 inhabitants per km² making Philippines one of the world's most densely populated countries. Two thirds of the people live on the island Luzon.

Metro Manila consists of the capital Manila and 13 cities and 3 municipalities, including Quezon City. Metro Manila is the centre of government, culture and economic activities in the Philippines. This area is the sixteenth largest metropolitan area in the world. In 2005 around 11.3 million people lived in the metropolis.

Segregation is a large problem in Metro Manila. It has everything from slum areas to large business districts and a big supply of culture and shopping.

The nature on the islands is mostly forested volcanoes. The highest mountain Mount Apo, which is 2,954 metre high, is in the island Mindanao.

The Philippines is often exposed to natural disasters. Many of the volcanoes are still active, for example Pinatubo. Every year the country is affected by various natural disasters, such as typhoons, earthquakes and floods.

2.1.1 Language and Education²

The mother tongue is called Filipino, often commonly referred to as Tagalog. English is understood by almost everybody as it is taught in schools. Newspapers are in English and daily tabloids are in Filipino. TV shows are a mixture of both. Aside from that, there are a lot of dialects spoken by residents depending on which region or province they come from.

The educational level in the Philippines is low compared to the rest of the world in general. Only 64.6% of those 13 years and older have some high school education.

Literacy rate in the Philippines is at 92.28%, males at 92.10% and females at 92.47%. The National Capital Region where Metro Manila is located has the highest literacy rate at 98.14%.

2.1.2 Climate

The Philippines has a warm, humid and tropical climate. The average temperature is 26.5°C. There are two different seasons, Tag-init or Tag-araw and Tag-ulan, the first is the sunny and dry season and the last one is the rainy and cool season.

2.1.3 Economy

The Philippines is an agricultural nation, but in the last years the industry and business have grown in importance. On the countryside a lot of people earn

² Literacy is defined by the Census 2000 as persons 10 years and above having the capability to read and write. Taken from http://en.wikipedia.org/wiki/Demographics_of_the_Philippines viewed May 2007.

their money on farming and fishing, although these are not major export products. Many manufacturing companies have moved to the Philippines because of the cheap labour, the government is very positive to manufacturing companies coming to the Philippines. Half of the export is electronics, but also clothes and sports shoes are produced. The long nice beaches attract tourists; tourism is another large income for the country.

The Philippines has a large foreign debt. Lately a number of state-owned companies have been privatized, but economic development has not been as fast as in many other South-East Asian countries.

One of the largest problems in the Philippines is poverty. About 40% of the population lives in poverty. This has created slum areas, since so many people move into the cities hoping for work and a better life. In Manila there are approximately 60,000 homeless children. Many of these children work with washing cars, polishing shoes and collecting garbage. Some of the girls are used for prostitution. Poverty has also led to guest workers abroad. This is a necessity in order to prevent the economy from collapsing. Every year guest workers send billions of PHP back into the country.

There are almost six million Filipino guest workers in other countries. They are very important for the economy in the country. They work in other countries so that the family back home in the Philippines can have a better life, food and so that the children can afford going to school, instead of working. Often the guest workers do not only support the nearest family, but other relatives get their share as well. Unfortunately, their employers often take advantage of them since they do not have much of a choice but to keep working.

2.1.4 Historical Political Development

The 27th April 1565 the very first Spanish settlement was established on the islands. Spaniards brought Catholicism to the Philippines, which the majority embraced but on Mindanao an opposition movement was created by the Muslims.

During the Spanish period the Philippines was ruled by the government in Mexico (the New Spain). This ended as a result of the Spanish-American war in 1898. Hence the Philippines was a Spanish colony right up to 1898. When the war ended a revolutionary of the Spanish colonial period, Emilio Aguinaldo, declared Philippines independent. Though Aguinaldo was ignored during the negotiations about the Paris treaty in 1898, this led to that Spain had to hand the Philippines over to USA. This in turn led to revolt in the Philippines and war broke out in 1899 and lasted until 1913. Regardless of the

war the Philippines was still under the American occupation up to the World War II, when it changed to be under the Japanese power. At the end of the war, in the 4th July 1946, the Philippines was declared to be an independent state.

In 1965 Ferdinand Marcos was elected as president and in 1972 he proclaimed martial law which gave him even more power. This new declaration though was introduced through doubtful means. The latter years of Marcos authoritarian regime were characterized by corruption, which still is a problem in the Philippines. During the 1980s the dissatisfaction towards Marcos' economic and political changes grew bigger. The martial law was lifted in 1981 and five years later he and his family were ousted through a people power led revolution which exiled the Marcos family in Hawaii. This complicated history made its impression in the Philippines and the unstable economic and political situation of today is influenced by the historical development. After a quick election, the widow of the murdered Senator Benigno Aquino, Corazon Aquino, came into power. This led to a democratic and reformed government. However, there are a lot of restraints that prevent the country from working in a democratic way. Although the inhabitants have the right to vote the deep-seated corruption is still a major problem. Other constraints are economic instability, civil wars and insurgent activities by the communists and the Muslim groups. Today the president of the Philippines is Gloria Macapagal-Arroyo.

2.1.5 Current Political Administration

The Philippines is a democratic republican form of government, with a strong presidential power, patterned after the USA. The president has several positions such as being the head of state, head of government and the commander in-chief of the armed forces. The president's term of office is six years and the president elects the cabinet which she or he then manages. The congress has two houses, a house of the representatives and the senate. In the house of the representatives there are at the most 250 members with three years as the term of office. In the senate there are 24 members, with a six year term of office.

The Philippines is divided into 73 provinces, each with a governor who rules together with a regional assembly.

The multi-party system in the Philippines allowed for the creation of numerous political parties which often must work together to gain political control like supporting a popular candidate to a presidential election. The ideologies of the parties are diverse and plentiful, and political affiliations can change and shift sides depending on the parties' interest and political agenda.

Those who usually become elected or noticed in politics are the ones who are famous through mass media or descendants of the traditional elite.

2.1.6 Trade Unions

Trade unions were forbidden under Marcos term of power and many of them had to work in silence and became underground organizations.

However today there are a lot of trade unions in the Philippines. They all have the same target but have noticeable differences of reaching it. Commotion discussions between the unions and between themselves are usual. It is common for trade unions to debate and have disagreements even among themselves during discussions, which often result in disruptions and creation of new factions instead of reaching the common goal. The unions are politically strong and often religiously affiliated.

2.1.7 The Poor and Natural Disasters

The poor in the Philippines are not only affected by the usual every day poverty, they are also affected by the numerous natural disasters, which occur every year in the many islands. The poor are not as protected as the wealthy due to the choice of locations of living areas. They are often found in danger zones and the poor house construction and materials cannot stand up against strong winds, typhoons and earthquakes among others. The Philippines is located in the ring of fire and compared to many other countries it is more prone to disasters every year.

The people in these areas often lose everything during disasters. They lose their homes; have no food and no money. They often also lose the control over themselves and it takes a long time for them to recover and usually before they can recover a new disaster strikes. The infrastructure systems in poor housing areas are often very poor and very expensive to repair.

It is hard to convince people to move from these dangerous zones because their entire social support structure is there. The people would rather stay in danger zones than move to a supposedly safer area and better house, which National Housing Authority, NHA, has been tasked to produce. This because of in the relocation sites the people lack jobs, the site is often too far from sources of income, and it lacks basic services like schools health facilities and utilities (water, sanitation and power).

2.1.8 Rental housing in the Philippines

It is hard to obtain capital to develop an area for low-income households and in many cases the options presented do not match the needs and the economy of people with low income.

First we need to describe the difference between tenant and sharer. Tenants are not only those who rent homes but also those who rent lots or temporarily build their house on lots that are not their own (e.g. backyard settlers). Sharers are those who share or borrow homes, rent free or pay rent irregularly.

Tenants are people who are given the right by the landowner or landlord to use the lot and/or house in exchange for payment (monetary or otherwise). Sharers on the other hand are those people who live with the tenants (i.e. relatives and friends) in the housing unit, sometimes for free or they share with household expenses depending on the arrangement with the rightful tenants.³

Sharing, unauthorized housing and slum areas along the riverbanks, streets, embankments etc. are usually called “informal” housing. These areas are often overcrowded and unsanitary and have sadly become tolerated in developing countries. These resulted in bad health and environmental conditions. In latter years these areas have become a serious matter to the Governments’ economy. For several years most of the governments in the third world have taken after western policies of housing development, which often involve ownership of tenure. Some of the policies are the tax relief and subsidies that have been given to those with ownership of their own tenures. Nowadays, however, these governments have realized that this model of development is not a secure way of helping the poor.

Different countries around the world have started programs of rental housing. These countries have shown that rental housing has noticeably improved the living standards of the poor. But still the governments have a long way to go with rental housing development for the poor and the low income households; this is because of the different demands and needs of every individual.

The last decade rental housing has increased remarkably in the Philippines, to be exact in 1990 there were 30% tenants and in 2000 it increased to 42%.⁴ There are rich tenants as well as poor ones but there are more non-owners, sharers and tenants, among the low-income households in Metro Manila. Due to the lack of land for housing development for ownership rental housing is one of the solutions or options to tenure.

³ *Rental housing for Urban Low Income Households in the Philippines*, page 4.

⁴ *Rental housing for Urban Low Income Households in the Philippines*, page 5.

3 Experiences from Different Housing Projects in Manila

We have been studying different kind of projects; in literature and in the field in the Philippines. Through these we have been able to see similar succeeding factors in these projects.

The enumerated projects in chapter 3 distinguish the projects from each other. For instance there are different organizations involved in each project and they are also addressed to households with different standards. The choice of the field studies was foremost based on giving an answer to the problem definition of this thesis and also on the organizations' volition of showing their projects. The source of the different projects below is therefore taken from field studies made in the Philippines with organizations mentioned later in this work.

3.1.1 Baguio⁵

The information about Baguio is conducted based on our field study with Green Architecture Movement, GAM, in 2 May 2007.

Baguio is situated in the northern part of Metro Manila. There are several projects going on in that area; one of them is for middle income households and another one is for lower income households. The cost of one house differs from 1.2 – 1.6 million pesos for the houses constructed mainly for the middle income households and for the lower income households they cost 300,000 – 400,000 pesos. The high-priced area is planned for 108 units but none is yet sold. They will finish the model houses first and then sell the concepts of them. In the low-priced area of 4.3 hectares, 613 units are planned and each one of them is sold to average people with a monthly income of 8,000 pesos. The rent there is approximately 500pesos/month.



Fig. 3 For Middle-income housing, Baguio, 2007-05-02



Fig. 4 For Low-income housing, Baguio, 2007-05-02

⁵ Field study in Baguio with GAM, 2007-05-02

3.1.1.1 The Construction

In both of the Baguio projects the construction is of concrete. The frames are of galvanized steel with concrete constituting the walls. After the rising of the steel frames the concrete is shot, with a special tool, on 9 mm concrete boards. The reason the concrete boards are suspended between the steel studs, with space of 90 cm, is to make it easier for the concrete to stay in place.



Fig. 4 The construction, Baguio, 2007-05-02

The galvanized steel is pre-cut before it is transported to the sites hence the only thing to do on the sites is to assemble it and rise it.

The houses in the high-priced area have either one storey or two; 36 m² and 60 m² each but both lots are 80 m². These constructions have one side without windows, a so-called *zero lot line*, to future expansions of the house.



Fig. 5 One storey house with zero lot line, Baguio, 2007-05-02



Fig. 6 Two storey house with zero lot line, Baguio, 2007-05-02

In the low-priced area two units are connected to one septic tank and these are buried in the ground in front of the main entrance. Each lot is 40 m² and the floor area is 34 m² excluding the loft.



Fig. 7 Preparation for the septic tank, Baguio, 2007-05-02



Fig. 8 The septic tank, Baguio, 2007-05-02

3.1.2 Cabuyao⁶

The information about Cabuyao is based on a field study made with Green Architecture Movement, GAM, in 25 April 2007.

Cabuyao is a first class urban municipality located south of Metro Manila, in the province of Laguna with a population of 106,630 people in 22,552 households. This is the fastest growing municipality in Laguna.

A relocation site for families affected by the government's railroad rehabilitation project has been established in Cabuyao. In this area there are at present around 8,000 families and it is still expanding. In every block there are 16 units. Cabuyao has many industries like Nestlé-Philippines, Asia Brewery, and SONY where the inhabitants work.

Once the Philippine National Railways (PNR) had trains running through the city and along the railway easements many people lived. These were often slum areas that were very congested and posed a problem to the passing trains because of frequent accidents along its tracks.

Informal settlements expanded into the railroad tracks over the years and lately, when the government was able to get funds for the PNR rehabilitation the relocation of this families became a huge problem.

⁶ Field study in Cabuyao with GAM, 2007-04-25



Fig. 9 Slum area along the railway in Cabuyao, 2007-04-25

To get rid of the informal settlements in public or private lands along the railways, the landowner if it is the government provides the legitimate beneficiaries with a relocation site and some monetary compensation to start up. Unfortunately, there are a lot of professional squatting syndicates in these areas which profit from these situations. Professional Squatters (as defined by Republic Act 7279) applies to persons who have previously been awarded home lots or housing units by the government but who sold, leased or transferred the same to settle illegally in the same place or in another urban area, and non-bona fide occupants and intruders of lands reserved for socialized housing. The term also refers to individuals or groups who occupy lands without the expressed consent of the landowner and who have sufficient income for legitimate housing. This definition excludes individuals or groups who simply rent land and housing from professional squatters or squatting syndicates. These syndicates accept the money and build again in another informal settlement. The government should have a sound policy to monitor and stop these syndicate activities as the legitimate beneficiaries of the relocation package are the ones that suffer and are being tagged as opportunists and land grabbers, this according to opinions expressed by local actors.

One private landowner did not evict the people but instead built a residential development adjacent to the railways. The landowner built small and simple houses in cooperation with the National Housing Authority, NHA. NHA bought the real estate development from the private developer and sold it to those families living along the railways. This became a social project for NHA. One house costs only 50,000 pesos and is about 20 square meters. Household size is assumed at around four persons per family but in some more than eight persons live in the house.

NHA gives the families, who are interested in getting a house in the new area, a loan. To get a loan the families have to fulfil some requirements, which the government checks before they can sign the contract. This is to ensure that the families can pay back the loan. The loan by NHA is payable within 25 years with an option to advance payment. For those who cannot afford to buy a house and a lot have the option to rent but this alternative is more expensive.

After a while the same landowner in Cabuyao could not afford to develop new housing projects, so he sold some of his land directly to NHA and NHA is currently developing the area.

3.1.2.1 The Construction

The houses were designed by one of the architects belonging to the Green Architecture Movement, GAM. The construction is very simple, the walls are made of concrete blocks and the roofs are made of metal (galvanized iron sheets which is very common in the Philippines). For better ventilation there are openings between the roof and the walls, which give cross ventilation.



Fig. 10 Ventilation seen from outside, Cabuyao, 2007-04-25



Fig. 11 Ventilation seen from inside, Cabuyao, 2007-04-25

In front of every house there is a little garden. To get water every family has one share-a-well in the backyard.

The houses are constructed with the toilets inside the houses but some families have moved the toilets to the backyard instead.



Fig. 12 Share-a-well, Cabuyao, 2007-04-25



Fig. 13 Toilet, Cabuyao, 2007-04-25

3.1.3 Pasay⁷

The field study in Pasay was made together with TAO-Pilipinas on 17 April 2007, hence the information is based on our experiences and communication with the organisation.

Pasay is an area in the southern part of Manila. Informal settlements can be found along the creeks and the Maricaban retarding pond located in Malibay that joins the main river ways and empties out to Manila Bay.

SHEC (Saint Hannibal Empowerment Center) is the organization that assists these informal settlements and tapped the technical assistance from TAO-Pilipinas for the families in several areas located around Maricaban retarding

⁷ Field study in Pasay with TAO-Pilipinas, 2007-04-17

pond. The government agency DPWH (Department of Public Works and Highways) wants to clear the area because it is considered a danger zone.

This is a project where an organization tries to buy the area around the river from the real estate owner and build better houses for the homeless there. The organization Saint Hannibal Empowerment Centre, SHEC, wants to pursue on-site development under the principle of maximum retention and minimum dislocation. If they move the people to a new area which is far away, many will opt to stay in Pasay anyway because of their social life and jobs. On the other hand they want to improve the construction of their houses as much as possible.

On-site development is not supported by the government (DPWH) so if the people want to have security of tenure they have to look for another site. According to DPWH the land is unstable, prone to liquefaction and flooding. There is also the problem of garbage that clogs the creeks and the retarding pond aggravating flooding and posing serious health threats. There was a fire recently in the area and until now the fire victims are still in evacuation centers and rehabilitation has not been implemented yet forcing many families to move elsewhere.



Fig. 14 Houses along the river in Pasay, 2007-04-17

3.1.3.1 The Construction

One housing project by SHEC that pushed through was the clearing and relocation of around 300 families living along the creek. They were able to find a site within the area - a bank foreclosed property and they have enlisted the help of Habitat for Humanity to help in the building of the houses. They have so far built more than 60 houses each 24 m² in area with a loft, toilet and bathroom. These houses are built with concrete interlocking blocks that look like Lego (further information see 5.2.2).



Fig. 15 Ready construction, Pasay, 2007-04-17

3.1.3.2 Guidelines

Guidelines are used and shall be followed by the inhabitants in the community, this to keep it safe and orderly. These are decided by the inhabitants in each community. Some of the guidelines include rules against domestic violence, gambling, drug and alcohol consumption.

If one breaks one of the guidelines, the individual will be sent to what is referred to as *Village Hall*. There the crime will be filed and decision will be made if the person will be given a second chance to stay in the community or evicted. The decision will be done by the local council after deliberation.

3.1.4 Smokey Mountain⁸

Information about Smokey Mountain is based on field study made with National Housing Authority, NHA, 27 April 2007.

Smokey Mountain was a 21.2 hectares garbage dump, located in the port area in Manila City closed down in 1995. In 1988 then President Aquino had already envisioned the transformation of the garbage dump into a modern and

⁸ Field study in Smokey Mountain with NHA, 2007-04-27

productive community⁹ and mandated NHA to find a solution to the problem which was finally implemented in 1992 as the Smokey Mountain Project with 11 government agencies assigned to the task.

Around 25,000 people in 4,000 families lived in this area - primarily scavengers making their living on the garbage dump. The government floated bonds to raise funds for the project with assistance also from several international organizations, European donors and NGOs. The British government financed a school, which yet is not finished. New Zealand funded the wet market and the faith-based group of Gawad Kalinga raised funds for housing. At present, there is a school which is financed by Senator Manny Villar and built by the Department of Public Works and Highways (DPWH).



Fig. 16 Mountain of garbage, Smokey Mountain, 2007-04-27

NHA started to develop the area back in 1996 a few years after the dump was closed. They cleared the area incrementally and built medium-rise building. They planned for 30 units but at present there are only 21 units. The construction of the last nine units stopped because the funds ran out.

⁹ From *Where there is Smoke, there is fire (In Defense of Housing and Urban Development)* by Hon. Eduardo C. Zialcita, Ph.D. in his speech as the congressional representative of the 1st District of Paranaque City in November 8, 2004.



Fig. 17 Green and red blocks are ready constructions, white blocks are planned and the green area is still a garbage dump, Smokey Mountain, 2007-04-27

The monthly rent for the apartments on the fifth floor is 200 pesos and the tenants become owners after 30 years of regular payment. The apartments get more expensive the further down you get, this is because there is no elevator. Many of the families cannot afford the rent because of the lack of livelihood. The government tries to support and subsidize the livelihood. Some NGOs conduct workshops where people can learn how to do handicrafts out of recyclable waste materials, which the people then sell to help with the rental payment.

The area around and in Smokey Mountain is still dirty; the mountain of garbage is still there. The area around the mountain of garbage is still environmentally unhealthy as the garbage still emits harmful gasses and leachate from decomposing waste.

3.1.4.1 The Construction

In each unit there are 120 apartments and every unit has five levels. The apartments are 22 m² with a loft as sleeping area. They also have their own toilet and bathroom inside the apartment. The material used in the entire

building is concrete and the loft as well as the extension is made of wood. The foundation of the building has to be on piles since the ground is not stable. The area used to be a swamp and the ground is soft.



Fig. 18 One of the units in reality, Smokey Mountain, 2007-04-27



Fig. 19 Elevation of one unit, Smokey Mountain, 2007-04-27

In one of the apartments four families, 18 people, were living together. To be able to fit everybody in the apartment extension of the loft has been made. Apart of that they have also beautified the floor. The loft is the only option to expand the apartments. In and around the apartments there are no spaces for washing and cleaning. There is also a problem with congestion; more people relocate to this area regularly

3.1.5 How does One Succeed in Housing Development?¹⁰

From private projects one can see that there are some factors that are important for one to succeed in housing development projects.

From the beginning it is important that one should have a good look at the demands of those in need for housing, such as:

- What are the problems in the area?
- How do the people want their future to look like? What do they want for their children?

¹⁰ 11 lyckade bostadsprojekt – En inventering av genomförda bostadsförbättringar i tredje världen

- What kind of knowledge, materials and buildings do the people already have in the area?
- How much can the inhabitants afford?

If one allows this point of view, one can in a more efficient way help the people and one does not have to spend a lot of money on things that they already are satisfied with.

During the entire process it is also very important that the inhabitants are informed about what is going on in their area, and it is also important that all the inhabitants can make their voices heard. It is important that they are a part of the whole process so they can feel that they are a part of the development of their future communities. It is also important to give the people knowledge on new materials and educate them in new kinds of construction so they would understand and know what they can use and do.

According to Johansson, B. & Åstrand, J. another important matter occur; the inhabitants want to own their houses and lots. Renting is often not an option. They want to invest their money in ownerships so that one day they can pass it on to their children. The poor often live illegally on private or government land because they cannot afford to buy land.

The last thing that one can see in the successful projects is that one does not leave the project when the houses are finished and let the inhabitants handle it by themselves.

Evaluations should be done after a period of time. Questions like: why do people sell the properties they have been awarded and do they live by the policies imposed in the community that they themselves helped put together, should be asked.

After project construction, the people would still need help. As the people have not been homeowners before, they are unfamiliar with how to manage their community and finances like payment of amortization and other financial obligations. Added to that is the maintenance and upkeep of their houses and the community (estate management).

To sum up the discussion above one can specify three major factors that a country needs to succeed in housing development:

- The government's support in knowledge, as well as financially, in housing development projects.
- Communication between the government and the poor.
- Provision of adequate land for housing.

4 Organizations Involved in Housing

Chapter 4 is about different organizations such as our host organization TAO-Pilipinas. The reason for contacting these organizations is based on their impact on the sector. Another organization is the Philippines' most dominating national organization, the National Housing Authority. Asian Development Bank was chosen foremost of the coincidence location of its headquarter, which was in Metro Manila. The last but not least Green Architecture Movement, which was introduced to us by our host organization.

4.1 TAO-Pilipinas¹¹

The organization TAO-Pilipinas was established in 2001 and formally registered with the Securities and Exchange Commission (SEC) in August 20, 2002. The founders of the organization are Arch/EnP. Arlene Christy D. Lusterio, Arch/EnP. Maria Faith Y. Varona, Arch. Gertrudes C. Samson, Laura T. David, Ph.D. (Oceanography), Ana Marie O. Dizon (Sociologist).

The creation of TAO-Pilipinas was the idea of the three architect-founders, graduates of the University of the Philippines College of Architecture and members of the student organization Task Force Arki (TFA). TFA provided the venue for the architecture students' exposure to community work (in a community in Tondo, Manila) which provided the foundation for their involvement in development work later. After graduation and a decade of experience working with various private firms, non-government organizations and also people's organizations, they finally decided to actively pursue development work by creating TAO-Pilipinas, a non-stock, non-profit, technical service, non-governmental organization.

TAO-Pilipinas first started working with several informal settlements affected by the Pasig River Rehabilitation Program (PRRP) in partnership with another organizing NGO. PRRP is funded by the Asian Development Bank (ADB). The communities wanted to stay on-site and fought the government's attempts to demolish and relocate them. The technical assistance by TAO-Pilipinas included the drafting of the conceptual community development plan using the people's ideas gathered during the community planning workshops. The people's plan was used to advocate for on-site development and secure tenure campaign.

¹¹ Communication with our supervisor Faith Varona, TAO-Pilipinas

The vision of the organization is a sustainable human settlement that includes people-centered, environment-friendly and also an equitable distribution of and access to resources. And the mission is to promote and pursue:

1. Participatory human settlements planning, development and management processes
2. Enhance technical knowledge and skills among stakeholders in housing and the urban development sector especially the marginalized groups
3. Holistic urban development.

The organization has no political/religious affiliation whatsoever. Their main purpose is to work with the poor communities in Metro Manila and neighbouring provinces like informal settlements in danger zones, such as riverbanks and railway easements, industrial zones, garbage dumpsites and flood-prone areas. As well as helping communities seeking security of tenure, on-site development or voluntary relocation through housing programs by the government or private organizations, are typical clients of TAO-Pilipinas.

At present there are eleven fulltime workers at TAO-Pilipinas. Aside from these there are nine interns, four architecture students, three civil engineering students and two geodetic engineering students. These are working with three different projects; one of them is the Sanagmana-project in Navotas.

TAO-Pilipinas is cooperating with other organizations; some are People's Organizations, PO and some are NGOs. Community Organizations of the Philippines Enterprise foundation, COPE, and Saint Hannibal Empowerment Center, SHEC, in Pasay are two main NGO co-operators. Dike-Side Organization of Punta Sta. Ana, DSOP, in Manila City and Samahang Nagkakaisa ng mga mavalita sa Navotas, SANAGMANA, are some of the POs they work with. Damayan ng mga Maralitang Pilipinong Api in Quezon City is an organization which is a PO federation and a NGO.

In the future TAO-Pilipinas wants to, like at present, be a primary organization for technical assistance in housing, human settlement and urban development of the poor in urban and rural areas. But they are also trying to create a resource center, in which they want to have a library, multimedia and publications available for the people. One of the wishes is letting all kinds of people meet there and exchange experiences and as well creating a network between NGOs, people from the government, students and professionals. They would also want to have education and training programs for everybody and promote it to students. TAO-Pilipinas will in due time document experiences from their former projects to let others have free access to these.

4.2 National Housing Authority¹²

National Housing Authority, NHA, is owned and also controlled by the government. NHA was founded in 15 October 1975. Housing and Urban Development Coordinating Council, HUDCC, has the administrative supervision of NHA. The present General Manager of HUDCC is the vice President: and the General Manager, GM, and the Assistant General Manager, AGM, of NHA are elected by the President of the Philippines. The GM and the AGM are re-elected every time a new President gets elected every sixth year.

NHA has more than 1,800 employees, which are distributed all over the country.

NHA's vision is to be¹³:

- A viable and self-sustaining corporate institution committed to provide homes to low-income and homeless Filipino families and contribute to the improvement of the quality of life of their beneficiaries.

And their mission is to:

- Provide responsive housing programs primarily to homeless low-income families with access to social services and economic opportunities with excellence while ensuring corporate viability.

NHA has different programs such as: Production Program, Community-Based Housing Program and Programs for Families Affected by Calamities, to provide the low-income people with own houses.

The Department of Production has different ways to improve people's standard of living and these are:

- Resettlement Program for the people who are relocated because of the present area they are living in will be used for government infrastructure projects or dangerous because of the nearness to waterways, chemical substances and railroad tracks. NHA acquire and develop large areas for these people, who need to move. To make this program possible the National Government supports it with subsidies.
- Housing Materials Assistance Program provides with building materials for the construction of houses, that are completed and developed by NHA's Resettlement program.

¹² Conducted interview, 2007-04-20, and literature studies

¹³ *PRIMER, Information division*, page 1.

- Resettlement Program for Local Government Units is developed together with NHA. LGU contributes with land and NHA with funds to cover the cost of land development. LGU with help from beneficiaries cover the project cost and as well the maintenance of the projects or purchases and/or develops new resettlement sites.
- Slum Upgrading is an activity where NHA help people who live in occupied land, to improve their houses so they can buy their plot from the owner of the area or from the government. They also help them with basic services such as water and power supply, as well as roads and alleys. The land tenure matters are determined by selling the lots to these people.
- Site and Service Development is the program in which NHA acquires and develop raw land. They turn the raw land to home lots, which is an alternative to the informal settlements and catchment areas. This land will also be available for immigration and population growth.
- Medium Rise Housing is an alternative for the situation in the cities. The constructions are usually three- to five-storey buildings. The Medium Rise Public Housing Program is implemented directly by NHA, units are made available under lease arrangement. The Medium Rise Private Housing Program is sometimes also directly implemented by NHA or in cooperation with other government agencies or with the Private Sector.
- Core Housing Program is similar to the Site and Service Development Program, in terms of acquisition and developing raw land. Differences occur though; namely the development of the constructions of housing units. They provide core housing which is designed to match the affordability of the target market consisting mostly of low-income employees of the government and the private sectors. In this program NHA cooperates with the private sector or LGUs. In terms of land or funds the partners either invest or contribute fairly between different projects such as land development and house construction.

Besides acquisition of land and the production, NHA has a Community-Based Housing Program, which provides tenurial assistance and technical assistance.

The main part of the Department of Programs for Families Affected by Calamities is the Emergency Housing Assistance Program. To help these affected people three options will be given¹⁴:

1. Temporary Shelter and Evacuation Centres
2. Housing Materials Assistance Program (HOMA) for the ones who only need material to repair their houses or the construction
3. Resettlement for those who lost their entire home and are in need of permanently relocation.

NHA has four different ways of working with housing¹⁵:

1. Joint Venture. They cooperate with private landowners, private developers, local government units, non-government organizations, NGOs, and peoples organizations, POs, and their strategy is to share resources and expertise equity contribution taking the form of land or funds for development.
2. Origination. Together with National Home Mortgage Finance Corporation under Community Mortgage Program NHA originates housing loans. NHA also provides technical assistance and negotiation with landowners and preparation for required plans and maps. Besides these responsibilities NHA coordinates together with the national government agencies the formulation of disposition and collection scheme.
3. Direct delivery. NHA helps in areas where there are no potential partners, neither government nor private, where the magnitude of the project is beyond local capabilities and as well as major projects of national concern is within NHA's work frame. NHA deliver directly project planning, financing, implementation supervision and disposition of housing units.
4. Technical assistance. The technical assistance covers any of the various aspects of project development, such as project planning and packaging, project implementation, works engineering, project supervision, beneficiary selection and estate management. NHA also extend technical service to Local Government units.

4.3 Green Architecture Movement¹⁶

Green Architecture Movement, GAM, is a group composed of architects that are members of the United Architects of the Philippines (UAP), the duly recognized professional organization for architects in the Philippines. They have different architectural backgrounds, some are working with the

¹⁴ *PRIMER, Information division*, page 14.

¹⁵ *PRIMER, Information division*, page 15.

¹⁶ Conducted interview, 2007-04-18, and literature studies

government, and others are more into private practice. GAM was founded four years ago by a member of UAP. GAM works using the LIA principles; Learn, Impart and Apply.

GAM has not so many employers; only enough to make conventions possible. But all of them have a common interest; they want to design houses, which care for the environment. That is why they call themselves *The Green Architecture Movement*. The group has a regular meeting every Wednesday evening. Their projects include regular forums on sustainable or green architecture.

Their vision is to get architects around the world to be aware of GAM, as well as promoting public awareness of their concepts and work.

Every year GAM has a one-day-seminar in June, called the Green Forum. Everybody is welcome; architects and private persons. Green Forum raises money on members' fee, donors and as well as sponsors. The rest of the year they hold several seminars promoting their work.

4.4 Asian Development Bank¹⁷

Asian Development Bank, ADB, has its headquarter in Manila in the Philippines with 2,000 staff members from over 50 countries. Except the headquarter there are 26 other offices around the world.

ADB is working against poverty in Asia and Pacific region, which in this region locates two thirds of the world's poor. But in recent decades progress has been made, for example the number of poor has diminished from 900 million to 720 million in the period of ten years in the 1990's.

ADB is working with partners like governments, other international organizations, civil society and the private sector are the ones.

The management of ADB comprises a Board of Governors that meets annually. The Governors in turn elect twelve members to the Board of Directors. The President of ADB manages the business of ADB together with four Vice-Presidents and a Managing Director General.

ADB's main focus is to improve the lives of the poor and reduce poverty by promoting pro-poor, sustainable economic growth, social development and good governance.

¹⁷ Literature studies

Resources such as loans and grants are of importance for the poor in the Asia and Pacific region. Contributions recycling repayments, Asian Development Fund, which provides the least developed member countries within the ADB region, and donations are the financial resources.

ADB traditionally offers loans in foreign currency, mainly in US dollars, Japanese yen and euro. This to avoid currency mismatches in projects held by different countries.

ADB's policy in resettlement is¹⁸:

- Involuntary resettlement should be avoided where feasible.
- Where population displacement is unavoidable, it should be minimized by exploring all viable project options
- People unavoidably displaced should be compensated and assisted, so that their economic and social future would be generally as favourable as it would have been in the absence of the project.
- People affected should be informed fully and consulted on resettlement and compensation.
- Existing social and cultural institutions of resettlers and their hosts should be supported and used to the greatest extent possible, and resettlers should be integrated economically and socially into host community
- The absence of a formal legal title to land by some affected groups should not be a bar to compensation; particular attention should be paid to households headed by women and other vulnerable groups, such as indigenous peoples and ethnic minorities, and appropriate assistance provided to help them improve their status.
- The full costs of resettlement and compensation should be included in the presentation of project costs and benefits.

To human existence fresh and clean water is necessary but this source is limited due to humans' use of it. In the Pacific and Asia region lack of water has made impact on people's health, the availability of food and on the standard of living. Demand for water in domestic and industrial matters increase in such speed that ADB has calculated it to accelerate from 70 to 345% just between 1995 and 2025. This demand of water will outstrip the supply with certainty.

ADB has already provided 280 million US dollars to technical assistance for research of a solution to these water supply problems.

¹⁸ *Summary of the Handbook on Resettlement*, Box 1.1.

ADB's water policy is to¹⁹:

- Promote a national focus on water sector reform.
- Foster the integrated management of water resources.
- Improve and expand the delivery of water services.
- Foster the conservation of water and increase the system efficiencies.
- Promote regional cooperation and increase the mutually beneficial use of shared water resources within and between countries.
- Facilitate the exchange of water sector information and experience.
- Improve governance.

¹⁹ *Water for All – The Water Policy of the Asian Development Bank*, page 13-14.

residential area from storm surges. But it was also recently reported that an adjacent fault line has become active again and there is a risk of tsunami occurring if there is an earthquake.

5.1 Sanagmana²¹

It is very difficult for people to move from their present homes, even if the condition of the homes is poor and the inhabitants are offered to stay in a better place. In order to move they need to be convinced that the new location offers at least as secure tenancy and livelihood.

The community based organization in the area, Sanagmana, is also an option for families from other municipalities, if they get evicted or their houses get demolished. The area is planned and is soon in progress, if someone wants to move to Navotas they are allowed after the approval of the screening committee and the officers of the organization.

Sanagmana has sixteen members but only four are active. These four are women appointed by officers of the organization and the committee elects the head among its members. TAO-Pilipinas, upon the request of the organization sits in the committee meetings.

Sanagmana has formed a committee that is the one of most important committees in this project. The committee is called *Solid Waste Management*.

²¹ Field study in Sanagmana with TAO-Pilipinas, 2007-04-14 and 2007-04-28



Fig. 21 The committee, Sanagmana, 2007-04-14

Many of the people who have moved to Sanagmana were once living by roadsides and riverbanks, for example in Malabon, Navotas and Caloocan. Presently there are 176 families in the area with approximately five members in each family. The area is planned to fit 1,600 families. TAO-Pilipinas and the committee together arranged workshops so the inhabitants in the area can make themselves heard. To collect information and opinions, they make everyone write down their opinion on a piece of paper, this to let even the shy ones share their minds.

The government wants the people to have a legal title but they cannot afford this. Sanagmana has a contract with the landowner that they will pay 15,000,000 pesos for the area and the organization has already paid 2,300,000 pesos. This contract guarantees that the people have priority over the land and that the landowner cannot sell it without notice. Department of Public Works and Highways, DPWH, has in 2003 allocated the people in Sanagmana 4,000,000 pesos as financial assistance for the relocation of 200 families that were due to be relocated. This financial support is still with DPWH though. The local government is not involved in the buying of the land at all. Every month each family has to pay 750 pesos to Sanagmana. At present 196 families pay the amortization and 177 families of the 196 are living in

Sanagmana. People who are interested in living in this area are also committed to pay the amortization, through Sanagmana, to the landowner. 50 families are still living in temporary houses; they will be the ones who will move to the already permitted area of 1 hectare.

The local government has already bought a piece of land from the same landowner adjacent to the Sanagmana area. The government wants the NGO Gawad Kalinga to build the houses. These houses will be built for those who have to be relocated from other areas in Navotas.



Fig. 22 One of the days we were visiting the area Sanagmana held a meeting and the children had a small workshop facilitated by one intern of TAO-Pilipinas, an architecture student at Mapua Institute of Technology. This was to make a proposal for the design of a chapel combined with a recreation centre. To satisfy everybody's wishes the youth and children drew creatively what they thought of was a chapel for the community, Sanagmana, 2007-04-14.

The families in Navotas may someday earn enough to buy their own lots and if they do, they have to build their houses according to regulations that have been decided upon together in the community. Some of these rules are to build the first floor more than two meters above the surface of the ground and the foundation at least one meter into underground. They are not allowed to build a solid foundation, because of the flood and the typhoons. The stilts are

necessary because the strong winds swirl in all directions. The construction of the roof is also an important matter; the roof has to be anchored so it cannot blow off and take the house with it. Another positive aspect with the houses on stilts is that the families can keep pets under the houses.



Fig. 23 Solid foundation, Sanagmana, 2007-04-14

A regulation regarding the construction of toilets is that the toilets have to have walls and floor of material that can resist water and damp.

Presently they have already started to fill up the area with silt dredged from the river. The inhabitants of Sanagmana have decided to regulate garbage dumping; people are not allowed to throw anywhere other than in places reserved for garbage. Although they have this regulation the river is still very dirty because those living on the other side of the fishpond throw their garbage in the river. Every Friday the Local Government Unit, LGU, collects the garbage in Sanagmana.



Fig. 24 Filling up the land with silt, Sanagmana, 2007-04-28

5.1.1 Housing Design and Construction Materials

The president of the community has already built a house based on the approved plan. It is the type of house that the organization regulates and that the rest of the families in the area should follow. However, there are many who already built their houses with a solid ground that is not allowed according to the building regulations.



Fig. 25 The President's house, Sanagmana, 2007-04-28

At present, the people are using many different kinds of materials for their houses such as: wood, sheet metal, concrete, bamboo, plywood, steel, sand, soil etc. They make their own roof tiles of cement, sand and gravel.



Fig. 27 Production of the roof tiles, Sanagmana, 2007-04-14



Fig. 26 Production of the roof tiles, Sanagmana, 2007-04-14

Bamboo is a very good material to build with, it is strong and when you build walls of bamboo the ventilation in the house is very comfortable. Even

plywood can be made with the wood from bamboo. The president's house is made of some of these materials.



Fig. 28 House partially made of bamboo, Sanagmana, 2007-04-28

The stilts are made of concrete, steel and wood from coco lumber. The coco lumber is the raw material of palm trees and it as strong as the bamboo and very cheap. The house construction itself is made of only coco lumber. The roof and house frame construction is specially made to resist earthquakes and strong winds.

The people are trying to work as much as they can with mature wood because it is stronger and better than the premature ones. The roof is made of tiles that they have made themselves; to reassure that the tiles would not fall off they are anchored with nylon to the roof beam.



Fig. 29 Roof construction, Sanagmana, 2007-04-14



Fig. 30 Tile anchored with nylon, Sanagmana, 2007-04-14

Under the toilet, outdoors, is a septic tank especially for the faeces. The toilet, which has to be built with a material that can withstand water and damp, is made of Minerit. This material is a very sustainable material that is also resistant to termites. Minerit is often used as facade material in Sweden.



Fig. 31 The septic tank, Sanagmana, 2007-04-28

5.1.2 AMH²²

AMH cooperates with TAO-Pilipinas and it is responsible for the structural design of the site and housing in the Sanagmana housing development project. They also did the hydrogeology testing of the site in Navotas although this is not part of their usual service to clients.

5.1.2.1 Construction

The soil condition in Navotas consists of twenty four meters of clay and silt which is not a good and stable material for foundation. For the type of house that was designed for Sanagmana (single detached lightweight house construction), the foundation used consists of individual footings and columns shaped like a T that needs to be buried approximately one meter below the surface or natural grade line. This would prevent damages during earthquakes and seismic wave motions in the ground²³, see Drawing 1. The units can also be joined in a straight line for row housing. The ground floor is located two to three meters above the ground to protect against flooding and allow strong winds to circulate, see Drawing 2.

The units usually have two floors, with the ground floor used as a living room as well as kitchen and study area, and the second floor as bedroom. The area under the house is commonly used for agriculture or as storage.

During typhoons the wind capacity is approximately 200 kph in Navotas. The wind swirls around the houses so it does not matter how one orients the roof, as long as it is well anchored to the unit and the unit is well anchored to the ground on stilts.

Self-help housing in this project is planned. Each family builds their own home and AMH provides technical support and supervising.

5.1.2.2 Choice of Material

The choice of material depends on many conditions. It should be resistant to termites, rodents, humidity and corrosion. Besides it should be relatively cheap and easy to work with. As much as possible the materials, which usually are bought in bulks, should be found and produced in the Philippines.

The materials that are used in the construction are wood wool (omniboard), plywood, fiber cement-bonded boards (hardiflex), micro-concrete roof tiles (MCR-tiles), posts made of concrete, and sometimes coco lumber instead of the expensive steel.

²² Interview with Roy Anthony Luna, AMH, 2007-04-16

²³ *Earthquake Tips – Learning Earthquake Design and Construction*, page 3.

Woodwool/omniboard is resistant to fire and rodents. Hardiflex is also fire resistant. Both of the materials are used everywhere in the unit because of their termite and fire retarding qualities.

The MCR-tiles are made in Navotas by the inhabitants themselves using sand, gravel and water. The tiles are put in plastic moulds and then water cured and air dried for 28 days. These are then attached to the roof beams with nylon.

Mature coco lumber is commonly used as beams because it is much cheaper and locally available. Optional is steel which is more expensive, easily corrodes and needs special equipment and skills/expertise to construct. It also needs maintenance every five years to prevent corrosion.

5.1.3 The Inhabitants' Opinion on Sanagmana - Based on Interviews

Most of the inhabitants are relocated from disaster affected areas, that have been either demolished or they have been evicted by the landowners will. Like in North Bay Boulevard South, NBBS, or due to the road widening in Letre, Malabon. They have either moved to another slum area around the previous one or directly to Sanagmana. Some just needed an environmental change, like the ones from Caloocan and Pandacan.

Sanagmana was in many cases an optional choice that they heard friends and relatives talk about. Some were members or neighbours to *Kapit Bisig*, where the vice-president of Sanagmana used to be the president of the people's organization, and were offered relocation to Sanagmana area. The President of Sanagmana also promoted this area to the disaster affected families either through other organizations like Kapit Bisig or directly in the affected areas.

The inhabitants have lived in Sanagmana for one year in the average. They like living there and think they will live there all their lives if possible and cannot think of moving to other places where rental is an option. This is because they want to own their homes so in due time they can pass it on to their children.

Although they are aware of the many natural disasters in Sanagmana they think their future constructions will sustain them once they are exposed to these disasters. Many of the inhabitants have private savings or are members of a saving group to save for future construction. They are also paying the monthly amortization for the lot.

Since Sanagmana is not yet fully planned the inhabitants wish for a proper school, a chapel, a health centre and a proper road instead of the present

bamboo bridge in the future. Some kind of livelihood in the community is also one of the demands.

5.2 The Local Government²⁴

Sanagmana is located in the municipality of Navotas therefore the organization needs to secure permission from the local government for housing development. This caused a huge problem to the housing project since most of the inhabitants were relocated after their houses were demolished and built houses without building permit from the local government. This means that the peoples' houses are not regulated. But since the inhabitants have already settled there and they have nowhere else to go, the local government decided to let them stay but that no more families will be allowed to relocate to Sanagmana until the area has secured a development permit. The local government also allowed only temporary housing to be built by the people.

The president of Sanagmana has also built a model house of plywood and coco lumber based on the design given by a technical assistance group. The President's house is illegal technically even though it is according to regulations. The only allowed construction work was the bamboo bridge, which connects the community to the main land mass.

It is difficult to improve the housing situation since the site has social, legal and natural constraints. The community does not trust the local government because of a bad past experience. But the community is being assisted by a church-based group which helped Sanagmana get assistance for some of the needs in the community like construction and repair of the bamboo bridge and some livelihood projects. TAO-Pilipinas, through technical assistance helped the community comply with the technical documentation for the development permit and also coordinate with other groups including the local government.

Sanagmana is a pilot project, an alternative relocation site for demolition affected families in several municipalities. If it will be successful, additional land may be made available for residential purposes from the fish ponds. Until then no more families, other than the ones living there, will be allowed to move to Sanagmana. The local government does not know where the inhabitants' previously lived, if they did they might cooperate with former communities to legally relocate or subsidise each other with money to help these affected families.

²⁴ Interview with the local government of Navotas, 2007-04-18

As mentioned in 2.1.8 there is lack of capital to social housing developments and donations are not common. The national government of the Philippines has a budget for social housing but with millions in housing backlog this is insufficient. Internal revenue allotment from the national government to local government units that is allocated for development projects often gets used in other priority projects of the local government. In the Philippines the taxes are distributed to all communities according to the number of inhabitants and land area. So there may be a budget for road-widening but not for dislocated people. The local government has sourced funds from the Dutch government, this because of the similar situation with the housing near the water. However, loans are more common because of the policy that aims for the inhabitants to become more independent.

5.2.1 The Government's Proposal to Improve Sanagmana

Since Sanagmana is below sea level the land must be filled to elevate it from the water. To be sure that elevation will be high enough, research on tidal schedules has been made.

Help has been promised from the Netherlands embassy. The housing situation is, as previously mentioned, similar in both countries. The local government has built a so-called *river wall* to seal the area from the water along the Manila bay. They are planning on sealing Sanagmana from the other side of the area with another river wall. These walls require regular maintenance, either to add elevation or just to improve the present one.

Besides the river walls, dikes will be dug around the area for protection against the flood. A pumping station, *bombastic*, will be installed to pump away the water.

The cost per square meter of housing construction in the pilot project is 320 pesos and the entire project will cost around 160 million pesos.

6 Discussion on Building Materials

Chapter 6 is a discussion on different building materials that were observed during the different field studies. The materials discussed are used in Sanagmana, Navotas or are a proposal for additional materials. These proposal of materials are environmentally adapted to the Philipino culture and standard, and they are easily accessible.

6.1.1 Omniboard²⁵

Omniboard is a material that can be used almost anywhere in the house as the name implies, Omni is a Latin word meaning everywhere. It is a wood wool board and uses a renewable fast-growing local wood species called Gemelina for wood wool fibres. Other fibre materials that may be used for Omniboard are bamboo, corn husks or rattan strips. These fibres are then bonded with Portland cement and pressed to the desired strength and density.



Fig. 33 House made in Omniboard, Quezon City, 2007-04-16



Fig. 34 Different density of Omniboard, Quezon City, 2007-04-16

The Omniboard is resistant to water and is a good insulation material. Tests have shown that the environment indoor temperature can be changed from 100°C to 35°C by using the Omniboard, which is good considering the hot and humid weather condition in the Philippines. It has also a good acoustical properties. Aside from being water resistant it is also durable to fire, termites and fungi.

It is easy to work with Omniboard. It can be sanded, nailed, screwed, drilled, riveted, plastered or topped with concrete and painted with water-based paints and it is best sawn with a circular saw.²⁶

²⁵ Interview with David S. Nestor, Omniboard, 2007-04-16, and research on <http://www.omniboard.net/>

²⁶ http://www.omniboard.net/prod_desc.html, 2007-04-30

Since it is a relatively new material, though research had been carried out for 20 years in the Philippines by the Forest Products Research Development Institute (FPRDI) of the Department of Science and Technology (DOST), the inhabitants are hesitant to use it. They do not think it is strong enough to carry the weights in a house construction. However the inventor hopes for a revolutionary change in the future.

The technology of this material was developed almost 94 years ago by an Austrian company called HERAKLIT. In 1921 similar products were developed in Germany.

6.1.2 CIB²⁷

Concrete Interlocking Blocks (CIB) are an alternative material to traditional Concrete Hollow Blocks (CHB) that are popular in the Philippines. These look like the toy *LEGO*. They have three holes for the reinforcement bars and special niches to accommodate electrical conduits. The bricks are made of cement, sand and water and are a very good material to build with in these climatic conditions. It is also a very good material for core constructions. Besides being easy to handle, it is also sustainable in many ways.



Fig. 35 Lego block, Pasay, 2007-04-18



Fig. 36 Reinforcement and installation, Pasay, 2007-04-18

6.1.3 Bamboo²⁸

Bamboo is gigantic tree-like grass that grows in tropical countries like the Philippines. It has got an extremely hard exterior surface and grows ten feet per week. Bamboo's flexibility makes it different from other wood materials and it needs special handling techniques because of this. But with the right

²⁷ Communication with head of the the municipality Pasay, 2007-04-18

²⁸ *Bostadsbyggande med självbyggeri och prefabrikation*

knowledge one can build advanced and sustainable constructions such as; house constructions, scaffolds, etc.

Because of its special properties, one cannot nail bamboo without pre-drilling and therefore it is usually plaited or tied together. Another negative property, which is negative, is the lack of durability to humidity and insects. But like wood, one can impregnate bamboo with substances like copper, chrome arsenic, etc. to strengthen it. This must be done when the bamboo is still green and before it has been dried.

The status of the bamboo is not high because of its properties and is therefore often used as walls for storages, gable decorations and in similar constructions.

6.1.4 Discussion

Omniboard might be the best choice out of these materials. It has great resistant against the climatic effects in the Philippines. It is relatively new in the market but it will probably expand in the near future.

CIB got similar qualities as the traditional concrete hollow blocks but it has gone through some changes and has better properties. Thus it gives inspiration to develop the traditional building materials.

As already mentioned the status of bamboo is not high because of its properties and it will probably remain like that. The use of bamboo will probably also remain low.

7 Conclusions

7.1 Sustainable Housing Development for the Urban Poor²⁹

The concept of “sustainable housing” does not only mean a durable construction; the concept is wider than that. A sustainable housing includes a functioning society where one can find necessities such as medical service, employment, food etc.

When you look at successful projects from the past, you can see factors that contributed to success. Of course it is hard to compare projects from different places in the world; each of the projects has their own conditions for success, but still there are some things they have in common. One of the big question is; how does a country get a good national housing development?

In 1890 both Sweden and the Philippines had four million people, today the Philippines has around 89 million people and Sweden only nine million. Here the large population is a big factor to housing problems. Some of the factors to a successful national housing development shall be the government’s support to the housing development. They have to institute the laws and strive to seriously improve the living conditions of the people, especially the poor. The Philippines has a major problem, the government talks a lot and not much is done, except for elections. During election time the politicians help the people to win their votes. The government of the Philippines has got a large budget for improving the situation for the poor but the funds are not distributed to the target beneficiaries.

Another factor affecting the housing situation is the availability of land; there has to be enough land for all people to live in. More than half of the population in the Philippines lives in urban areas, only in Metro Manila there are 13 million people. To feel safe the people like to own the piece of land they build on but there is not enough land for everybody. Another problem is that the land is very expensive, often owned by select private individuals or groups. The poor occupy private land without permission from the landowner because they cannot afford to buy the land. The scarcity of land is also aggravated by land speculations of some private groups which add to the high land prices especially in urban centres.

The people also have to be involved in the development, their knowledge is very important. If you do not know their needs, how can you help them? This

²⁹ *11 lyckade bostadsprojekt – En inventering av genomförda bostadsförbättringar i tredje världen*

is another problem in the Philippines; the national and the local governments do not listen to the people in need, they would rather just get rid of them.

Positive factor in the Philippines is the knowledge of many local architects and construction engineers. In the Philippines there are also materials and knowledge about the use of different materials. Unfortunately there is lack of money. Many of the well educated people work for the private companies or go abroad to make a better life. Working for the government or helping the poor does not pay very well. In the Philippines there are a lot of non-governmental organization, NGOs, which help the poor in many different ways. They also act as mediators between the governments and the marginalized groups.

One can clearly see that in the Philippines there are not very good conditions to begin with. Still there are many housing projects sponsored by the government but most of them are sponsored by international organizations or NGOs.

7.2 The Reality

The Philippines do have the proper knowledge to build good constructions sustainable to natural disasters. The problem is not related to construction; it is the lack of dialogue and understanding between the poor and the government. To do a hand book in self-help housing is not necessary, what is really needed are money and coordination between the empowered ones and their money. Many NGOs are trying to help in many different ways but this is not enough, the country can only develop to a better one when the government decides to help.

NHA makes drastic moves and decisions; they want to relocate the affected people and do not think about the circumstances. Some might have lost material things but not their social lives, which NHA seldom have in mind during relocating. ADB on the other hand works for the people's rights; social lives, fresh water and to prevent future problems. But a conditionality where they have to work via a local government units often creates problems in the implementation of a program or a project. In the end of the day, the actual beneficiaries do not really benefit as they should from the projects.

Positive private firms do exist in the Philippines, such as AMH. They undertake profitable projects which largely support the company and as an expression of corporate social responsibility, assist NGOs that are working with the poor in housing. In a certain sense, the poor indirectly benefit from the money of the rich. If only other companies did the same as AMH the

housing situation would be better for the poor; if not with knowledge but with financial matters.

The NGOs help and have many projects at the same time but it is usually the financial matters that keep them from doing even more. These NGOs are sponsored with subsidies from other countries but still the power to make the situation better is with the government of the Philippines.

7.3 Evaluations

We have evaluated how different organizations, such as; ADB, GAM, NHA and TAO-Pilipinas cooperate with each other. We have observed that it is not only technical issues that matter, but also cooperation between the different actors. The question is how architects, local people and politicians shall work together in order to reach a sustainable housing development. We recommend better coordinating and dialogue between the organizations and the families in need of housing. Another aspect is that funds should be granted to organizations that are willing to develop a better housing situation for low-income households.

An opinion expressed by a local actor, that we also have evaluated to be an important issue to have in mind, is the following: “The government should have a sound policy to monitor and stop these syndicate activities as the legitimate beneficiaries of the relocation package are the ones that suffer and are being tagged as opportunists and land grabbers.” (see 3.1.2).

Presently, we do not think it is necessary to present a handbook since the inhabitants have a lot of other serious problems. In due time it might be of a good help to them but it is far from what they need today.

The conditions in the Sanagmana community in Navotas, are unique and different from other places in the world. Hence a handbook can only apply in this area and nowhere else. In case of alphabetic people one would have or want to present a handbook explaining the different steps of constructional matters with pictures. The construction has to conform to each project and its conditions. If others are interested in continuing our work we think that they could fulfil our original idea, but with a small change. Instead of making a handbook for a specific country or area, we recommend that guidelines and issues to consider when creating a *Handbook in Self-Housing for families in need* are put together.

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APPENDIX 4

Questionnaire to the Families Living in Sanagmana, Navotas

1. How many are you in your family?
What do you do for living?
2. How long have you been living here in Sanagmana?
3. Where did you live before?
Why did you move to Sanagmana?
4. What do you think is missing here?
If you get the opportunity to change something, what would you change?
5. Are you aware of the risks to live here?
Do you think the construction of your house is sustainable enough to natural disasters?
6. If there are a safer and a better place in the future can you consider moving?
7. If rental housing was an option to this, would you take this option?

Family A – Eduardo & Edna Millar, 42 years (Temporary housing)

1. Presently we are 6 members in our house.
I am a housewife and my husband, Eduardo, is a vegetable vendor in Malabon.
2. We have lived here for 1 year.
3. We used to live on a private lot, together with 200 other families, in Letre in Malabon. This got demolished by the landowner and we had to move across the road but this got demolished as well. Due to my sister-in-law we heard of Sanagmana and decided to move here.
4. I think a capital, from the vice president, for livelihood is missing. Maybe we could get a livelihood loan from the church based organisation AGAPE.
The reason why we came here is to own the lot and a better house.
5. Yes, I am aware of the risks and I have experienced it. So far we have been stroked by the typhoon 5 times since we moved here, including the “typhoon-milenyo”, a super typhoon. The dike broke so the flood was 1.2 meters high, the roof blew off but the house sustained. I have no money to buy GR-sheet so I use different material as a roof.
I got personal saving for our future house and I pay 750 for the lot amortization monthly. I have fulfilled the obligations to get a lot and the organisation so I am just waiting for the 1 hectare land to get started with the construction of our new house.
6. No, I do not want to move. I have already adapted to the environment here.
7. No, I will not rent a house. I want to be able to pass it on to my children in the future.



Fig. 37 Family A's house, Sanagmana, 2007-04-28

Family B – Marcelo & Maria Judith Pales, 35 years (Temporary housing)

1. I got 4 children and totally we are 6 living here.
I am a housewife and my husband, Marcelo, is a vegetable vendor in Malabon.
2. Since April 6th last year.
3. We lived in Letre, Malabon (for more information about Letre, Malabon, see conducted interview with Family A).
We heard of Sanagmana in our former organisation.
4. Lot of things is missing, such as a school because the present school is on the other side of the bamboo bridge, and also a church/chapel.
5. I know about the situation and I hope the flood caused by the “typhoon-milenyo” was a one-time-life-experience.
During the typhoon some walls and roof were destroyed but my husband used to work as a construction worker so he fixes everything on his own.
We are also paying for the amortization of the lot through the organization AGAPE.
6. No, we want to stay here. Our leader in our former organization brought us here so I want to stay here.
7. No, we want to stay here but if we have to rent I could consider doing that.



Fig. 38 Family B's house, Sanagmana, 2007-04-28

Family C – Jerry & Edith Matiag, 37 years (Temporary housing)

1. We are 2 children, me and my husband.
My husband is a vegetable vendor here in the area, he is unlike the others; mobile.
2. Since March 2006.
3. We came from the same area as our present neighbours (for more information about Letre, Malabon, see conducted interview with Family A). But after the demolition we moved to the other side of the road. People from the municipality came and offered us to move to Sanagmana. More than 100 families lived by the dangerous road.
4. Developing a road, it is hard to transport right now.
5. I know about the situation but we do not have a choice, it is better here than by the road.
During the transfer we were told a house was ready for us to move in but it was not true. We do not have a saving but we pay the monthly amortization for the lot. We were also promised a capital for livelihood since February but still we have not seen it.
6. Yes, we would move.
7. Yes, if I have to I would rent.



Fig. 39 Family C's house, Sanagmana, 2007-04-28

Family D – Raymundo & Emma Lee, 49 years (Temporary housing)

1. We are 7 in the family whereas 5 are our children.
I am a housewife and my husband, Raymundo, is a vegetable vendor in Malabon.
2. Since March 2006.
3. Same as my neighbours from Letre, Malabon (for more information about Letre, Malabon, see conducted interview with Family A and C).
4. I want to fill up the land to make the ground more stable.
5. Yes, I am aware of the risks. I have not seen the plan of the new area yet so I do not know if it will be sustainable.
I used to save for our new house but I had stop due to my breast cancer.
6. I want to stay here in Sanagmana all my life.
7. I do not like rental so my answer is no.



Fig. 40 Family D's house, Sanagmana, 2007-04-28

Family E – Ralph & Jennifer Daque, 25 years (Temporary housing)

1. I got one son so we are 3 in this household.
Ralph works in a hotel in St Cruz, Manila. The transportation takes more than 1h for one fare only. I am a housewife.
2. Since May 2006.
3. We rented a house in Caloocan. Nothing serious happened, we were just offered a lot here but not a lot in the “1 hectare”-area.
4. I want to refine the walls, roof, floor etc. we were luckily not affected by the typhoon.
5. Yes, I am aware of the risks. We got plans on how the construction of our new house will be. I got private savings and we pay the amortization of the lot monthly.
6. No, I rather not move. I rather have a nice house here.
7. It is ok to rent. We did it before but the place was too small. Here I can have a bigger place to stay and I will own my property which I can pass on to my kids.



Fig. 41 Family E's house, Sanagmana, 2007-04-28

Family F – Dionecel & Irishelle Detos Santos, 25 years

1. We have 1 son so we are 3 in the family.
We have a private business; we cook sticky-rice and sell it outside Sanagmana.
2. October last year after the typhoon.
3. We rented a house for five years in Pandacan, Manila City.
We were in Adalpa when we heard about this area and decided to move here.
4. I would like to have a school, drug store and a health centre because my son has asthma and it is far to other centres. But his illness has decreased since we moved here probably because of the fresher air here.
5. Yes, as long as I do not have to rent and the house is strong enough. My husband built our house together with my uncle.
6. No, I will not move.
7. Perhaps but now the location is better here.



Fig. 42 Family F's house, Sanagmana, 2007-04-28

Family G – Aureo & Elena Tano, 60 years

1. I have 4 children and 3 of them are married and have already moved out. In this household we are three; me, my husband and my youngest son, 23 years.
My husband is a driver for private firms in Quezon City, since it is far from here he only comes home during the weekends.
I run a store here, where I sell everything from candy to soap.
2. Since December 11th, 2006.
3. We lived along the North Bay Boulevard South, NBBS. Due to the road-widening our house was demolished.
Thanks to the vice-president of the community, Linda, we are here.
4. I am happy how things are right now. I own my own place unlike before.
5. I have not experienced the typhoon yet so I do not know if the construction will sustain. I will hire someone to build our house though.
6. I think it is beautiful here and I also think it is difficult to move to another place.
7. No, I do not like renting. I did it before and now I want a ownership of my house.



Fig. 43 Family G's house, Sanagmana, 2007-04-28

Family H – The president and wife Rebecca

1. We are 3 in the family. Me, my husband and our daughter.
I am a housewife and my husband is the coordinator for the church based organization Urban Poor of Ministry in Diocese.
2. We just moved here, only 1 month.
3. We used to live in Sipac Alma Centre Navotas, besides Malabon River. It was no present threat of demolition but there were plans on cleaning the river so we wanted to move in advance.
4. I find it ok. I prefer the other location though, since we got a business there which we had to leave. We bought metal by the dockyard and sold it in Sipac.
5. Yes, when we first moved here the flood was very high and our house was vibrating due to the wind. I was so scared of the sound that I stayed outside.
6. I support my husband's choices so wherever he goes I go. We lived for 47 years in our origin home and I think it is safer there. Since my husband is the President of the community everybody seeks him if conflicts occur so I am very concerned of him. But I do support him.
7. If I have to rent I can perhaps considering it.



Fig. 44 Family H's house, Sanagmana, 2007-04-28

Family I – Diolard Shilana & Rosemarie Culanca Lutao, 22 years

1. We are 4 in this house, me, my husband and our 2 kids.
I am a housewife and my husband is a fruit and vegetable vendor in Caloocan.
2. Since March 2006.
3. We lived in Letre, Malabon (for more information about Letre, Malabon, see conducted interview with Family A).
We heard of Sanagmana through my mother-in-law.
4. I would like to change and fix my house. Better water supply and a health centre is what I want.
5. We were here during the flood. Due to the strong wind our house fell, like many houses did here, so this is our second one.
6. I might move due to the typhoon and it is also far from the market.
7. But I will only move if it is ownership and not rental. So no, I will not rent.
I have a private saving to our new house.



Fig. 45 Family I's house, Sanagmana, 2007-04-28

Family J – Rolando M. & Dina A. Caingcoy, 43 years

1. I got 4 children so we are 6 people living in this household.
My husband makes furniture only when someone hires him to do it.
Sometimes I sell hot dogs, fish balls.
2. We have been here since December 2006.
3. We used to live in NBBS (for more information about North Bay Boulevard South, NBBS , see conducted interview with Family G).
We were members in Kapit Bisag where Linda (the vice-President) is the President and she told us about Sanagmana.
4. I would like to have a road instead of a bamboo bridge and livelihood.
5. Yes, I am aware of the risks.
I do not know if the construction will sustain but we have concrete in the columns. Presently we are lacking of money.
6. I do not want to move. I like it here because it is near of employment and perhaps in the new area it is far from a school.
7. No, I do not like renting. We transferred because of the ownership. We pay the monthly amortization but we do not save due to no job.



Fig. 46 Family J's house, Sanagmana, 2007-04-28

Family K – Esmeraldo & Juvilyn S Mirambel, 34 years

1. 4 children, me and my husband live here.
I am a vendor and my husband is a fisherman.
2. Since December 2006.
3. We used to live in NBBS (for more information about North Bay Boulevard South, NBBS, see conducted interview with Family G and J).
4. I would like to fill up the land, refine my house and livelihood.
5. Yes, I am aware of the risks and yes, I think the construction will be sustainable.
6. No, I want to stay here.
7. Rental is not an option to me. We save and pay the amortization of the lot monthly



Fig. 47 Family K's house, Sanagmana, 2007-04-28

Family L – Dositio & Ana Mari Angana, 34 years

1. We got 4 children hence we are 6 in this household.
I am a housewife and my husband drives the sidecar.
2. Since December 2006.
3. We used to live in NBBS (for more information about North Bay Boulevard South, NBBS, see conducted interview with Family G and J).
4. I would like a road and drainage or canal.
5. Yes, I am aware of the risks. I still do not know if the construction will be sustainable enough but in due time we will find out.
6. No, I want to stay here.
7. Yes, I could consider rental housing if the place is good enough.



Fig. 48 Family L's house, Sanagmana, 2007-04-28

Family M – Gil & Julie Resco, 45 years

1. I have 8 children so we are 10 in this household. The eldest is 17 years and the youngest is 2 months
I am a housewife and my husband drives the tricycle from Boulevard to Letre.
2. Since May 2006.
3. We used to live in Marcello beside the Boulevard but it got demolished. We attended a meeting where the President gave them two options of areas to move to; Sanagmana and Bulacan. We chose Sanagmana.
4. Humble people and not angry ones.
I want to improve my house. A school where they can easily go to since the present one is so far away.
5. Yes, I am aware. After the typhoon my house leaned but luckily it did not fall.
6. I want to stay here.
7. If it was rental here I would still move to Sanagmana.



Fig. 49 Family M's house, Sanagmana, 2007-04-28

Family N – Roberto & Corazon Z Cordeta

1. We are totally 11 in the house; me, my husband, my father and mother, 3 brothers and 4 children.
I am housewife and my husband is a pick-up driver in Navotas.
2. Since December 2006.
3. We used to live in Letre, Malabon (for more information about Letre, Malabon, see conducted interview with Family A and C).
4. I would like to have a school which goes up to high school and the bamboo bridge should be changed to a road.
5. Yes, I am aware. I am not sure about the house when the “typhoon-milenyo” strikes because the old one destroyed.
6. I am willing to move if it is safer for the kids.
7. Ok, if the rent is very low but my father cannot. I am not into savings but I am paying the lot.



Fig. 50 Family N's house, Sanagmana, 2007-04-28

Family O – Roger & Shirley Mentigar, 30 years

1. We got 4 children hence we are 6 in this household.
I am a housewife and my husband is a fish vendor, he buys fish in Navotas and sells it in Manila.
2. I have been here for 10 months (June 2006)
3. We used to live in NBBS (for more information about North Bay Boulevard South, NBBS, see conducted interview with Family G).
We were neighbours to Kapit Bisag but we were not a member.
4. The road should be more stable because the bamboo bridge is not safe during the typhoon.
5. Yes, I am aware of the risks. She is confident about the sustainability of her construction. The GR-sheet bent a little but nothing else happened to the rest of the house.
6. I do not think there are safer and better places to move to anymore, the good ones are all occupied.
7. I can only consider rental housing if the location is safer. I am paying the monthly rent for the lot.



Fig. 51 Family O's house, Sanagmana, 2007-04-28

Family P – Daniel & Luzviminda S. Tinoy, 40 years

1. We are 3 in our house.
My husband is a fisherman and I am selling mango here in Sanagmana.
2. Since December 2006.
3. We used to live in NBBS (for more information about North Bay Boulevard South, NBBS, see conducted interview with Family G and O). Linda was also a teacher to her child in the chapel.
4. To develop the place, flood prone and a stronger house when the typhoon strikes.
5. Yes, I am. I cannot be sure if the construction will sustain the disasters since I have not experienced it yet.
6. No, transferring will only lead to longer distances to my husbands work.
7. I took the opportunity to come here due to the demolition so if it was rental housing here I would come anyway. Since February this year I have been paying the monthly rate of amortization.

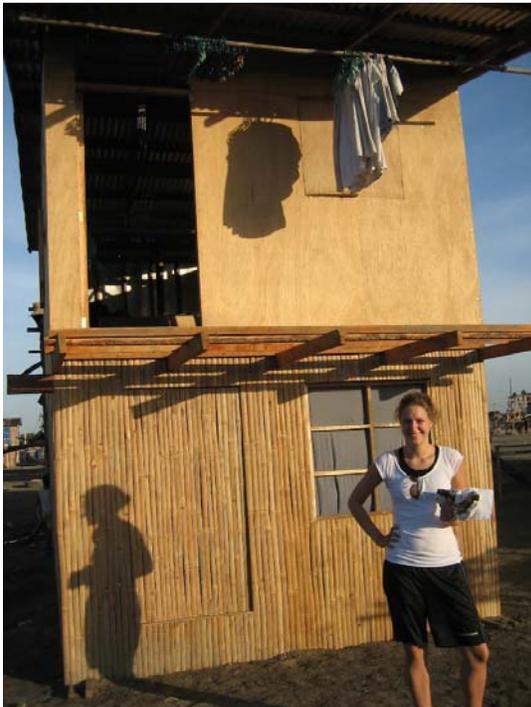


Fig. 52 Family P's house, Sanagmana, 2007-04-28

Family Q – Salvador Brando, 54 years (Temporary housing)

1. I have 4 daughters living in my home, so we are 5 members in the household since I am a widower since 2005.
I work as a carpenter.
2. Since March 2006.
3. We used to live in Letre, Malabon (for more information about Letre, Malabon, see conducted interview with Family A). An organization called Gabriella approached the Public Commission for Urban Poor, PCUP, about Sanagmana. PCUP in turn helped us here.
4. I would like to have a chapel and a better road. The congressman, who is running for the mayor, has promised to build a road instead of having the bridge as transportation.
5. Yes, I am aware of the risks of living here. I and my family were here during the typhoon. The flood reached there sleeping area so I elevated it. The roof folded a little but it was nothing serious otherwise the house was intact. But still it has to be mixed even more.
6. I will have to think about this question, if I like it here in Sanagmana I will stay here with my daughters.
7. Rental is not of consideration. I pay the amortization but have no savings.



Fig. 53 Family Q's house, Sanagmana, 2007-04-28

Family R – Jeofila Escala Qilina, 58 years

1. I and my husband live here but one of my sons lives here with his family in waiting of their own house to be ready. So presently we are 2 grandparents, my son and his wife with 5 children.
My husband used to be a driver, so if the jobs are available he will take it. But in present my fishing is supporting our family.
2. We are one of the first ones who moved here in March 2006.
3. We used to live in Letre, Malabon (for more information about Letre, Malabon, see conducted interview with Family A and C).
4. A livelihood program for the women. They could for example sew dish rags or weave mats out of dish rags. I know where to get the material but I have no capital to buy large stocks. Vendor is not enough of income to pay the lot.
When I have enough money I want to beatify my house.
5. Yes, I am aware of the risks. My house collapsed due to the strong winds. There were not that many houses back then so the area was exposed but now when there are more houses maybe it will be more sustainable.
6. No, this is a safe place for me and my family.
7. I want to own my own place so renting is not an option.
Presently I am not paying the amortization regularly because some months I do not have enough money to do it.



Fig. 54 & 55 Family R's house, Sanagmana, 2007-04-28