

No. 01

STUDY REPORT  
ON  
THE PROJECT FOR CONSTRUCTION OF  
HOUSES FOR LOW-INCOME GROUPS  
IN LUANDA  
IN  
THE REPUBLIC OF ANGORA

MARCH 1998

JAPAN INTERNATIONAL COOPERATION AGENCY

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## PREFACE

In response to a request from the Government of the Republic of Angora, the Government of Japan decided to conduct a basic design study on the Project for Child Health and entrusted the Japan International Cooperation Agency ( JICA ) to conduct the study with the assistance of the Japan International Cooperation System ( JICS ).

JICA sent to Angora a study team from November 16 to November 30, 1997.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Angora for their close cooperation extended to the team.

March 1998

A handwritten signature in cursive script, reading "Kimio Fujita". The signature is written in black ink and is positioned above a horizontal line.

Kimio Fujita

President

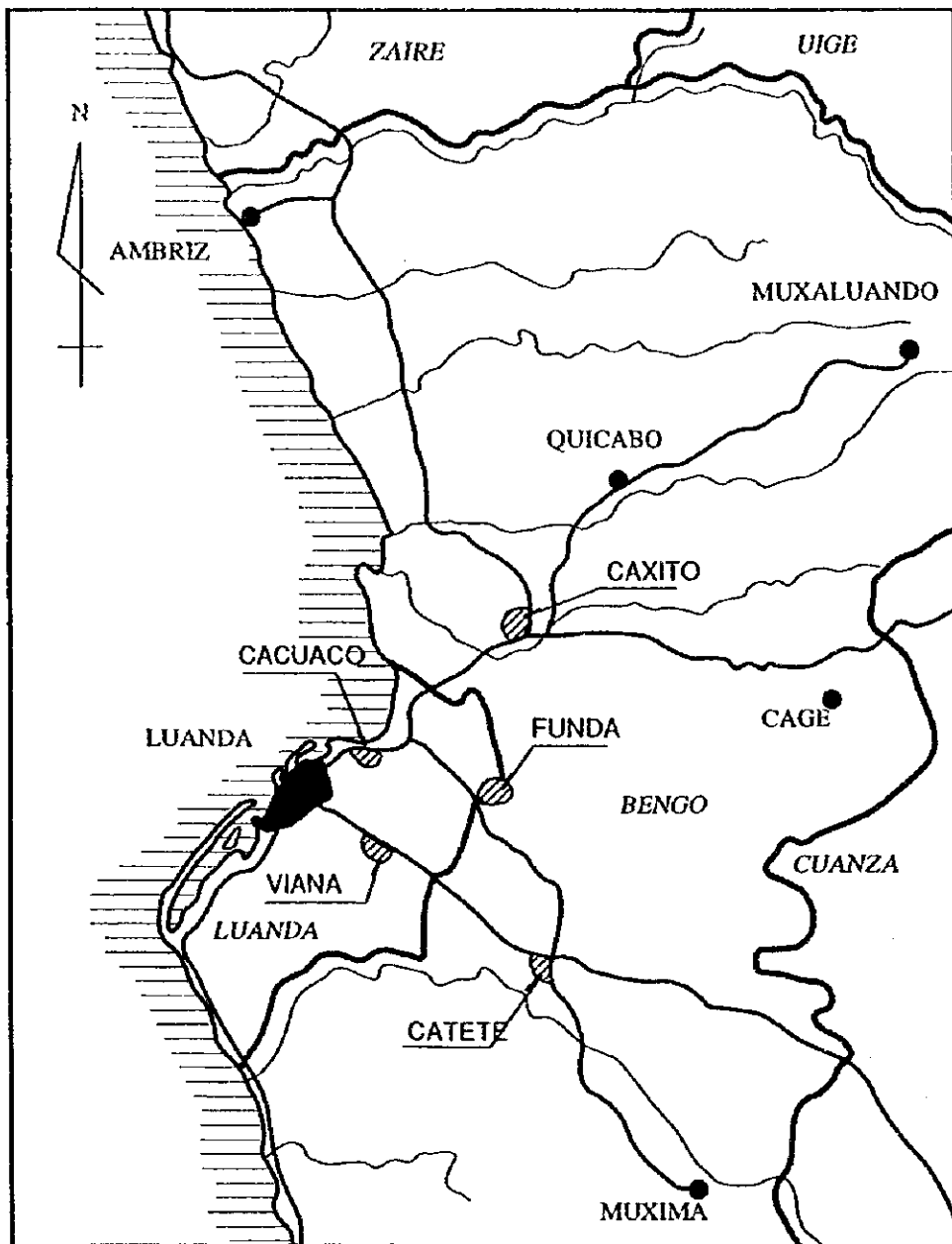
Japan International Cooperation Agency

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1. Member List of the Survey Team
2. Survey Schedule
3. List of Party Concerned in the Recipient Country
4. Minutes of Discussion



 PROJECT SITE

0 20km

LOCATION MAP



## Chapter 1 Background of the Project

People who lost their land and homes as a result of the 20 years of internal unrest either escaped to surrounding countries or moved to other land within the country, and a total of more than 3,000,000 refugees were generated by the fighting in this way. The number of refugees is gradually going down now that the country has returned to peace, however, since the many years of unrest have destroyed much of the infrastructure, ruined the economy and left a legacy of mine fields in former residential areas, many war refugees still exist today. Since these refugees live in appalling conditions in refugee camps throughout the country, there is an urgent need for humanitarian aid.

In response to the said problem, the Angola has formulated a national plan that aims to promote the return and resettlement by 1998 of 133,475 refugees of the 800,000 refugees or so internal refugees still in the country. Within this plan, it is intended to construct public housing for the resettlement of 48,482 refugees in Luanda State and Bengo State, and it is in relation to this part of the plan that the Angola has requested the Japan to provide grant aid for the supply of roofing GI Sheets that are necessary for the construction of houses for 8,000 families.

## Chapter 2 Contents of the Project

### 2-1 Objectives of the Project

The Project intends, through the construction of public houses for promote the resettlement and thus improve the living conditions of low-income people who have been driven from their homes as a result of civil unrest and are being forced to live in appalling conditions in refugee camps.

### 2-2 Basic Concept of the Project

According to the plan of the Angola, the housing to be provided for low-income people will consist of housing blocks capable of housing two families each. The floor area of each housing block is 101 m<sup>2</sup>, and the number of corrugated GI Sheets (3 ft x 6 ft) required for each block is 125 sheets.

Since it is planned to construct 4,000 housing blocks (for 8,000 families), a total of 500,000 sheets corrugated GI Sheets will be required. GI Sheets are usually traded in terms of weight so, assuming that there are 197 sheets per ton, it works out that 2,538 tons of GI Sheet will be required.

The following table shows the specifications and quantities of the materials.

Table 1 Specifications of the Materials

Material	Standard	Quantity	Objectives
Corrugated GI Sheets	Standard	JIS G3302, JIS G3316	2,538 tons (approx. 500,000 sheets)
	Material	SGCC and/or SGCH	
	Form	Corrugated, W1 (large wave)	
	Sheet thickness	BWG28	
	Galvanization	Z18	
	Dimensions	3 ft (W) x 6 ft (L)	Roofing material

## 2-3 Basic Design

### 2-3-1 Design Concept

Corrugated hot dip galvanized iron sheets (GI) Sheets shall be procured as the roofing material for the construction of houses. Such GI Sheets are suitable for the purposes of the Project due to their nature, i.e. they are lightweight, resistant to corrosion, possess good workability and are cheap.

Below is given the reasoning behind selection of each material specification.

#### [Corrugated GI Sheets]

##### 1) Sheet thickness:

This shall be BWG28 (approximately 0.356 mm), which is sufficient for general roofing purposes.

##### 2) Galvanization:

This shall be Z18 (180 g/m<sup>3</sup>, 0.034 thickness), which is within the given standard for galvanizing thickness.

3) Corrugation:

This shall be W1 (large wave, 76.2 mm of corrugation pitch), which is commonly used in Angola.

4) Material:

This shall be SGCC (general soft) and/or SGCH (general hard). When using thin iron sheet for roofing, the hard type has the advantage of extra strength, however, since the iron sheet planned in the Project possesses sufficient thickness, the soft type can also be used. In consideration of the production setups at the suppliers, both types shall be used in order to make the procurement process smoother.

5) Dimensions: 6 ft (L) x 3 ft (W) (before corrugation)

2-3-2 Basic Design

a. Project Sites

The Project shall be implemented at the following five sites in Luanda State around Luanda City and Bengo State:

Viana, Cacuaco, Hunda, Caxito and Catete

b. Construction Plan

The Government of Angola, as part of its plan to resettle internally displaced refugees, is planning to construct public housing in the area around Luanda City for 8,000 low-income families between 1998-1999 and a further 15,000 families between year of 2000-2002 (see Table 2). The Project in hand targets the supply of GI Sheets necessary for the initially planned construction of housing for 8,000 families between year of 1998-1999.

The houses to be constructed between year of 1998-1999 mainly target 48,482 refugees who are currently living in Luanda State and neighboring Bengo State. The families that will enter the

houses will be selected by the Angola according to the conditions of each, and rent will be free for the first five years, but collected from the sixth year onwards.

In Viana, inexpensive public housing referred to as economy housing is currently being constructed to home 6,000 families, and half of this (housing for 3,000 families) has already been completed. Since families only started entering these houses from the end of November 1997, only around 1% of the completed houses are currently occupied. When selecting families to enter public housing, priority is given to people who are illegally squatting in government buildings and people who have made a contribution to the state (former volunteers who fought in the war for independence).

The houses that are the subject of the Project can be constructed at an even lower cost (approximately half) than economy houses. Land will be provided by the state governments and construction laborers, selected from unemployed people, will combine the work with job training and be given food supplies instead of wages.

Concerning the housing for 15,000 families scheduled for construction between 2000-2002, this will target refugees in other states whose former homes have become mine fields, and refugees who are finding it difficult to return home from neighboring countries.

Table 2 Number of Houses Planned for Construction

Year	Number of Houses Planned for Construction					Total
	Cacuaco	Viana	Catete	Hunda	Caxito	
1998	280	380	280	280	280	1,500
1999	470	620	470	470	470	2,500
Subtotal (1998-99)	750	1,000	750	750	750	4,000
2000	470	620	470	470	470	2,500
2001	470	620	470	470	470	2,500
2002	470	620	470	470	470	2,500
Subtotal (2000-02)	1,410	1,860	1,410	1,410	1,410	7,500
Total	2,160	2,860	2,160	2,160	2,160	11,500

Note) Each housing block houses two families.

8,000 families will live in the 4,000 housing blocks constructed between 1998-1999.

15,000 families will live in the 7,500 housing blocks constructed between 2000-2002.

Source: Prepared based on response to the questionnaire

#### c. Required Materials

Since the plan of the Angola, mainly involves the construction of houses for low-income people, the major materials that are required include bricks, beams, cement and roofing materials. The materials that have been requested to the Government of Japan are GI Sheets for roofing. As for the other materials, it is planned for the Government of Angola to carry out procurement.

GI Sheets are widely used for roofing purposes because their light weight makes them easy to transport, no special technology is required to fit them and they are resistant to earthquakes. Moreover, whereas slate roofs contain asbestos, which is a carcinogenic substance that leads to concern over its impact on the health of residents, no such problem exists in the case of GI Sheets. Furthermore, since GI Sheets are inexpensive, they can be put to a wide range of use and are an appropriate choice in terms of the character of the Project, too.

#### d. Quantity of the Materials

According to the plan of the Angola, the housing to be provided for low-income people will consist of housing blocks capable of housing two families each. The floor area of each housing block is 101 m<sup>2</sup>, and the number of corrugated GI Sheets (3 ft x 6 ft) required for each block is 125. Since it is planned to construct 4,000 housing blocks (for 8,000 families), a total of 500,000 corrugated GI Sheets will be required. GI Sheets are usually traded in terms of weight so, assuming that there are 197 sheets per ton, it works out that 2,538 tons of GI Sheet will be required.

# Chapter 3 Implementation Plan

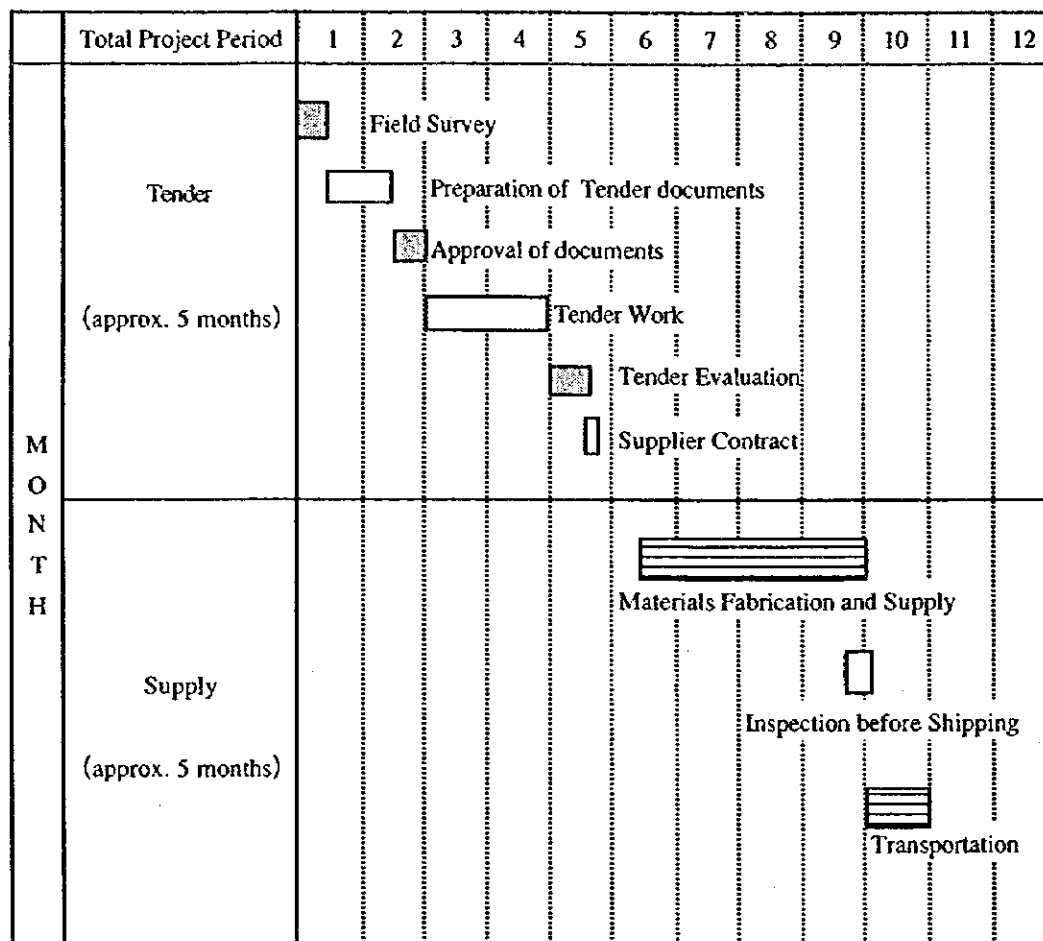
## 3-1 Implementation Plan

### 3-1-1 Implementation Concept

Overall schedule (from E/N to handing over) : 10 months

From E/N to supplier contract : 5 months

Delivery (from supplier contract to handing over) : 5 months



Work in Angola
  Work in Japan
  Supply and Transportation

### 3-1-2 Obligations of Recipient Country

Since the Project only involves the supply of materials, the total Project cost (equipment cost and consultant supervision cost) will be borne by the Japanese side. However, concerning the labor and building materials other than GI Sheets required for the construction of houses, the cost will be borne by the Angola side.

Obligations of the Angola side:

Labor and building materials other than GI Sheets required for the construction of houses

Storage and distribution of the materials

Obligations of the Japan side:

Supply of GI Sheets (CIF Luanda)

### 3-2 Operation and Maintenance Plan

Since the Project only involves the supply of GI Sheets, there is no particular need for operation and maintenance.

## Chapter 4 Project Evaluation and Recommendation

### 4-1 Project Effect

In Angola, since the average family size per household is five members, it works out that approximately 40,000 people will directly benefit from the construction of houses for 8,000 families in the Project.

It is generally said that house construction has a large economic ripple effect in terms of vitalizing the materials industry (through the purchase of housing materials), creating employment for construction workers and encouraging consumer activities among the said workers. When the economic effect generated by the construction of stores, schools and churches, etc. resulting from the formation of communities following house construction is also taken into account, it is estimated that

the Project will indirectly benefit around 100,000 people.

Furthermore, although slate roofing is used widely in Angola, because it contains the carcinogenic substance of asbestos, there is concern over the impact that this has on the health of residents. In comparison, GI Sheet does not present such a problem.

Moreover, GI Sheet is suited as a roofing material because its light weight makes it easy to transport, no special technology is required to fit it and it is resistant to earthquakes, etc.

In view of the fact that the supply of housing to low-income people, who are currently forced to live in appalling conditions in refugees camps and so forth, will raise the standard of living of such people and also generate an economic effect, implementation of the project under the grant aid scheme of the Japan is deemed to be appropriate.

#### 4-2 Recommendation

1) The construction budget for fiscal 1998 will be provided by offset funds generated as a result of increase of Food Production programme from the Japan, however, measures will need to be taken to secure the necessary construction budget in fiscal 1999.

2) The ability of the implementing agency, UTCAH, to distribute and safely store the supplied materials presents no problem, however, since the overall plan involves the construction of houses for 8,000 families, it will be necessary to coordinate the distribution periods and storage sites of the large quantities of other required materials, not simply limited to the roofing materials that are to be supplied under the Project. For this reason, it is desirable to see the establishment of a smoother implementation setup.



## Appendices

### 1 . Member List of the Survey Team

Yoshikazu ITO	Head	JICS
Akio SHIOTA	Expert	JICS
Hiroaki WATANABE	Interpreter	JICE

### 2 .Survey Schedule

No.	Date	Schedule	Stay
1	11/16 (Su)	12:30 Narita (AF275) → 17:10 Paris	Paris
2	17 (M)	Apply to Visa (Embassy of the Angola in France )	Paris
3	18 (Tu)	Received Visa (Embassy of the Angola in France)	Paris
4	19 (W)	23:15 Paris (AF928) →	
5	20 (Th)	07:30 Luanda Courtesy Call on Ministry of Assistance and Social Reintegration and UTCAH	Luanda
6	21 (F)	Discussion with UTCAH	Luanda
7	22 (Sa)	Site Survey	Luanda
8	23 (Su)	Meeting	Luanda
9	24 (M)	Discussion with Ministry of Assistance and Social Reintegration and UTCAH	Luanda
10	25 (Tu)	Courtesy Call on the Misnistry of Foreign Affaires and Discussion with UTCAH Signature of the minutes of meeting (Ministry of Assistance and Social Reintegration and UTCAH)	Luanda
11	26 (W)	14:00 Luanda (SA055) → 18:25 Johannesburg	Johannesburg
12	27 (Th)	Site Survey	Johannesburg
13	28 (F)	11:15 Johannesburg (SA026) → 12:45 Harare Report to Embassy of Japn in Zimbabwe / JICA	Harare
14	29 (Sa)	9:45 Harare (UM361) → 11:30 Johannesburg 13:45 Johannesburg (CX748) →	
15	30 (Su)	10:05 Hong Kong (CX504) → 14:40 Narita	

### 3 . List of Party Concerned in the Recipient Country

#### Ministry of Assistance and Social Reintegration

Dr. Albino Malungo	Minister
Dr. Junior João	Vice Minister
Mr. José António Ferreira Martins	Assessor
Ms. Maria da L.C. de Sá Magalhães	National Director
Ms. Maria Lourdes B. S. Carlos	Director, Cabinet of Ministry
Mr. Viegas de Abreu Rita	Director, Department of Planning
Mr. João Manuel Faria	Department of Planning
Mr. Silvestres Buta	Department of Logistics
Mr. António A. Das Neves	Director, Cabinet of Study and Planning
Mr. Damásio Dinis	Manager, National Department of Assistance and Social Promotion

#### UTCAH, The Technical Unit for Humanitarian Aid Coordination

Dr. Palmira Vicente José Chipilica	General Director
Mr. Manuel Fernandes	Director of Department

#### Ministry of Foreign Affairs

Ms. Ana Maria Teles Carreira	Director, Department of Asia and Oceania
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#### Government of Luanda Province

Dr. Pedro António Inácio	Vice Govenor
Ms. Carla Ribeiro	Urban Planning
Fúlio S. F. de Carvalho	Adminiistror, Viana Municipal

#### Embassy of Japan in Zimbabwe

H. E. Mr. Tsukahara	Ambassador
Mr. Chida	Second Secretary

#### JICA Office in Zimbabwe

Mr. SEKIGUCHI	Assist. of Res. Rep.
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MINUTES OF DISCUSSIONS

THE STUDY  
ON  
THE PROJECT  
FOR  
CONSTRUCTION OF HOUSES FOR LOW-INCOME GROUPS  
IN  
LUANDA

THE REPUBLIC OF ANGOLA

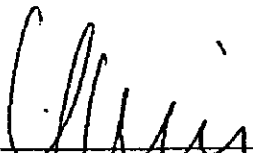
In response to a request from the Government of the Republic of Angola, the Government of Japan decided to conduct a Study on the Project for Construction of houses for low-income groups in Luanda, the Republic of Angola (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (JICA).

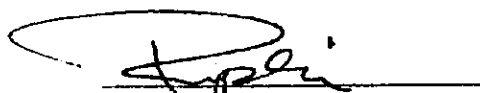
JICA sent to Angola a study team which is scheduled to stay in the country from 20th to 26th November, 1997.

The team held discussions with the officials concerned of the Government of the Republic of Angola and conducted a field survey at the study area.

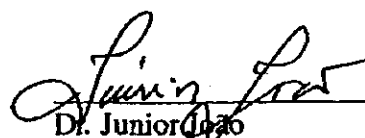
In the course of the discussions and the field survey, both parties have confirmed the main items described on the attached sheets. The team will proceed to further works and prepare the Study Report.

Luanda, November 25, 1997

  
Mr. Yoshikazu Ito  
Leader,  
The Study Team,  
Japan International Cooperation Agency  
(JICA)

  
Dr. Palmira Vicente José Chipilica  
General Director,  
The Technical Unit for Humanitarian Aid  
Coordination (UTCAH)

Approved by :

  
Dr. Junior Inácio  
Vice Minister,  
Ministry of Assistance and Social Reintegration  
The Republic of Angola

## ATTACHMENT

### 1. Objective

The objective of the Project is to procure corrugated galvanized iron sheet (C.G.I sheet) as a roofing material for construction of houses. The project shall be utilized for state-own houses and contribute to low-income households.

### 2. Project Sites

Area around Luanda City (see ANNEX-I)

### 3. Responsible Ministry and Implementing Agency

Responsible Ministry

- Ministry of Assistance and Social Reintegration

Implementing Agency

- The Technical Unit for Humanitarian Aid Coordination(UTCAH) (see ANNEX-II)

### 4. Items Requested by the Government of the Republic of Angola

After discussions with the Study Team, the items shown in ANNEX-III were finally requested by the Angolan side.

However, the final components of the Project, both quantity and specifications, will be described after further studies.

### 5. Japan's Grant Aid System

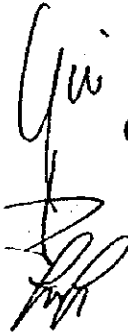
- (1) The Government of the Republic of Angola has understood the system of Japan's Grant Aid explained by the team, as described in ANNEX-IV.
- (2) The Government of the Republic of Angola will take necessary measures, described in ANNEX-V for smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

### 6. Schedule of the Study

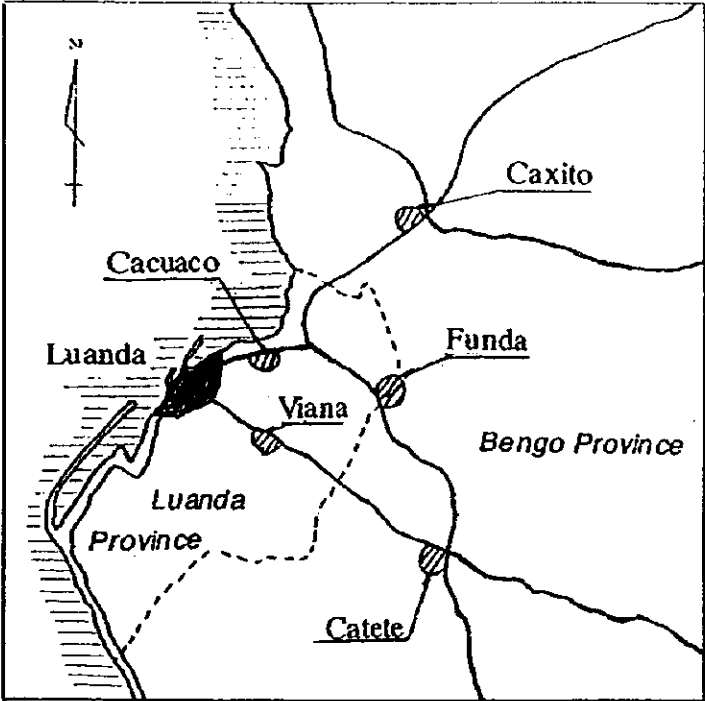
JICA will complete the final report and send it to the Government of the Republic of Angola by the end of March, 1998.

### 7. Other Relevant Issues

- (1) The Government of Angola will allocate the budget to ensure all the expenses for handling and inland transportation of the equipment procured under this Project. The Study team, furthermore, strongly requested to Angolan side to ensure the budget for construction of houses and procurement of the materials besides C.G.I. sheet.
- (2) Angolan side stated that they will submit to JICA Zimbabwe office monitoring reports of the utilization of the equipment procured under this Project.



Map of Project Sites

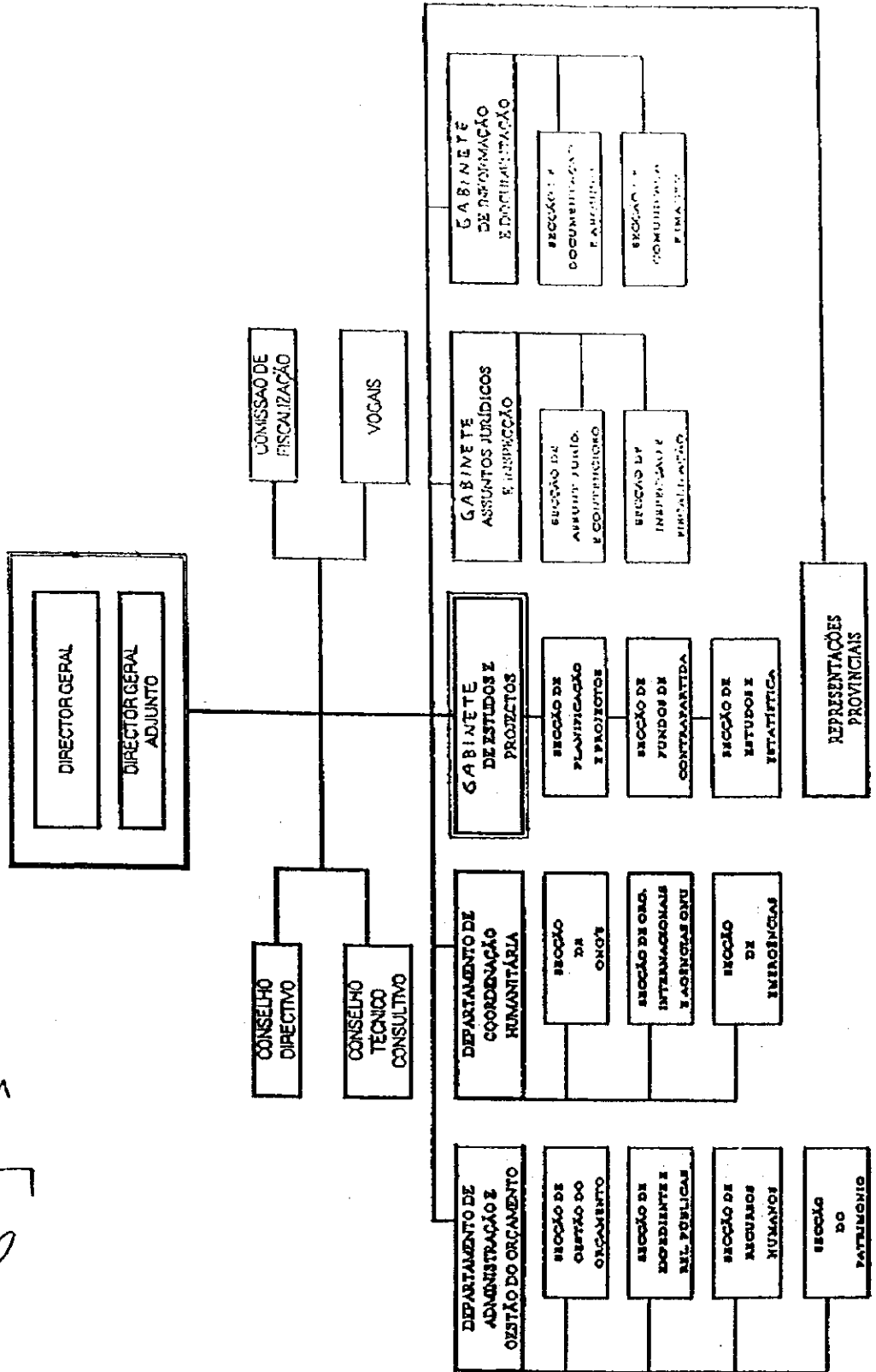


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Project Sites

Organization Chart

UNIDADE TECNICA DE COORDENAÇÃO DA AJUDA HUMANITÁRIA  
U. T. C. A. H.



Items requested by the Government of the Republic of Angola

## 1. Item

C.G.I. Sheet

## 2. Specification

JIS G3302, SGCC and/or SGCH, W1, Z18, BWG28

## 3. Size

Width (before corrugation) 3ft x Length 6ft

## 4. Quantity

Year	House Units in Area						C.G.I. Sheet		Priority
	Cacuaco	Viana	Catete	Funda	Caxito	Total	ton	appox. pcs.	
1998	280	380	280	280	280	1,500	952	187,500	AA
1999	470	620	470	470	470	2,500	1,586	312,500	A
Subtotal (1998-99)	750	1,000	750	750	750	4,000	2,538	500,000	
2000	470	620	470	470	470	2,500	1,586	312,500	B
2001	470	620	470	470	470	2,500	1,586	312,500	C
2002	470	620	470	470	470	2,500	1,586	312,500	D
Subtotal (2000-02)	1,410	1,860	1,410	1,410	1,410	7,500	4,758	937,500	
Grand Total	2,160	2,860	2,160	2,160	2,160	11,500	7,296	1,437,500	

Note : approx. 125pcs. per House Unit

( 2 Households per 1 House Unit )

4,000 House Units of Subtotal (1998-99) means capacity of 8,000 Households

7,500 House Units of Subtotal (2000-02) means capacity of 15,000 Households

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REPÚBLICA DE ANGOLA  
MINISTÉRIO DA ASSISTÊNCIA E REINserÇÃO SOCIAL  
GABINETE DO MINISTRO

**TERMO DE RESPONSABILIDADE**

No âmbito do Projecto de Construção de 8 mil casas para populações de baixo rendimento, cofinanciado pelo Governo da República de Angola e pelo Governo do Japão;

Declara-se que a componente financeira, no montante de USD 16.000.000,00(dezasseis milhões de dólares Norte-Americanos), será coberta pelo financiamento do Governo Angolano.

**GABINETE DO MINISTRO DA ASSISTÊNCIA E REINserÇÃO SOCIAL EM  
LUANDA, AOS 25 DE NOVEMBRO DE 1997.-**

O MINISTRO,  
ALBINO MALUNGO









JICA