

STUDY REPORT
ON
THE PROJECT FOR SHELTER
CONSTRUCTION AND
SCHOOL/CLINIC/WAREHOUSE
REHABILITATION
IN
THE REPUBLIC OF MOZAMBIQUE

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February 1995

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Chapter 1 Background of the Project

1. Historical Background and Contents of the Request

1) Historical Background of the Request

a) General Conditions

The Republic of Mozambique is situated on the south-eastern coast of the African continent and faces onto the Indian Ocean. The national land area is 801,000 km² (2.1 times that of Japan) and the country achieved independence in June 1975. Mozambique borders with Tanzania, Malawi, Zambia, Zimbabwe and the Republic of South Africa. The Mozambique coastline consists of a wide coastal plain and possesses many bays and sounds, and indeed the country possesses the best ports on the African continent. 44% of the national land is dominated by the coastal plain, the hilly belt further inland covers 17%, the plateau zone covers 26% and the mountain belt covers 13%, thus indicating that Mozambique is blessed with a good variety of topographical features.

Except for the high land of approximately 1,000 m in altitude, the central part to the north of the country possesses a tropical climate and is blessed with plentiful rainfall as can be gathered by an annual rainfall figure of between 1,200 and 2,000 mm. In contrast to this, the southern part of the country possesses a sub-tropical climate and, as well as having little rainfall at only 400-600 mm per year, the extreme variations in the rainfall from year to year often lead to droughts and flooding. The seasons in Mozambique are divided into the rainy season lasting from October to April and the dry season lasting from May to September, and the year-round average temperature in the capital Maputo in the south is 22.5 °C with the year-round temperature difference not even reaching as high as 10 °C.

The total population of Mozambique is approximately 16,340,000 (as of 1993) and the population density is 20 people per square kilometer, while the rate of increase of the population is reported as roughly 2.6% for the period between 1980 and 1990.

Approximately 1,000,000 people live in the capital Maputo and other main cities include Beira, Nampula, Quelimane and Xai-Xai, etc.

The ethnic composition of the population is diverse with Banthu Africans accounting for the bulk. Minorities include Portuguese Caucasians numbering 100,000 (0.7%), mixed blood races numbering 30,000 (0.2%) and a very small number people of Asian descent. There are more than 40 different tribes within the country and each tribe possesses different cultures and languages. For this reason, political unification is difficult to achieve and as the country moves towards democratization political groups tend to splinter off into small groups and this acts as one factor leading to social instability.

The political form of the country is a republic and in October 1994, one year behind the originally planned schedule, the country's first ever presidential and national assembly elections with multiple political parties were carried out under the supervision of the United Nations. As a result of the elections, the then President Shisano obtained a majority and was reelected and the Mozambique Liberation Front (Frelimo) captured 40% of the national assembly seats to become the first party. The second party was the Mozambique National Resistance Movement (Renamo), which managed to obtain roughly 30% of the seats.

Industry is dominated by agriculture with cashew nuts, corn, cotton and sugar, etc. being cultivated for export on large-scale plantations. The main mining products are coal, bauxite and iron ore, and the main fisheries products are shrimps. People working in such primary industries account for 82% of the working population. However, the main industry of agriculture has continually suffered from floods and chronic droughts, which added to the domestic problem of guerrilla warfare and the international problem of a world recession, has meant that the country's economic stagnation has been intense.

The GDP is 844,000,000 US \$ (1992) and the per capita GNP is 80 US \$ (1991), and the economic growth rate in 1992 was 4.5%.

b) Background of the Project

The social infrastructure in Mozambique has been struck by catastrophic damage as a result of internal wars and disasters. Moreover, following the huge increases in citizens returning home after the end of the fighting, the population inflows into the states of Zambezia, Niassa, Manica, Tete, Sofara, Nampula and Gaza in particular have brought about serious housing shortages. In addition to this, the reconstruction of the schools and hospitals destroyed in the wars is indispensable for the revitalization of the local communities and, moreover, there is a lack of warehouses for storing the goods and materials required for the restoration work.

2) Contents of the Request

The request is for galvanized sheets, which are to be used for roofs that are necessary in the construction of public facilities such as simple housing for returned civilians, hospitals, schools and warehouses. The detailed contents of the request are as indicated in the following table.

Requested Item	Specifications	Quantity
Galvanized sheets	Thickness: 0.23 mm (BWG 32) Size: 3 ft x 6 ft	900,000 sheets

Chapter 2 Contents of the Project

1. Objectives of the Project

The improvement of the national living environment, which underwent great damage as a result of the internal wars, is one of the top priority issues within the government's emergency policy. The objective of the Project is to provide galvanized sheets, which are required as roofing aggregate in the construction of simple housing for returnees and the reconstruction and repair of social infrastructure facilities such as schools, hospitals and warehouses.

2. Outline of the Project

1) Implementing Agencies and Operating Setup

Upon holding consultations with the representative agencies of the United Nations and other donor countries, it was decided to make the Ministry of Cooperation of the Government of Mozambique the interface agency for the Project and to make the Department for Prevention and Combat of Natural Calamities (DPCCN) together with NGO the agencies in charge of Project implementation and management.

The DPCCN was established in 1980 as a government agency for providing relief to the victims of calamities and, as well as implementing a project for the relocation of returning civilians, it carries out the storage, transportation and distribution of human aid goods and materials to the returnees. The DPCCN possesses 400 trucks and has branch offices in each state.

All the other building materials except for galvanized sheets can be procured locally. Part of the required galvanized sheets have already been procured as emergency items and are being stored by the United Nations Disaster Relief Organization (UNDRO) and the Office of the United Nations High Commissioner for Refugees (UNHCR). Incidentally, the Government of Mozambique is bearing the various expenses and transportation costs that arise within the

country.

3. Design Concept

1) Examination of Basic Criteria

The degree of urgency concerning countermeasures for the returning civilians and in particular the securing of housing for them is extremely high. Moreover, the ability of concerned parties within the Government of Mozambique to cope with situations is getting better and better.

2) Examination of Materials

Galvanized corrugated sheeting is widely used as the roofing material for housing. Its light weight makes transportation easy, no special techniques are required in executing the work, and it is also resistant to earthquakes, so it can thus be said that it is the ideal material for the Project. The request is for 900,000 galvanized sheets each of size 3 ft x 6 ft (thickness 0.23 mm BWG 32). With these specifications, 302 sheets will weight one ton and the combined weight of all 900,000 sheets will be 2,981 tons.

In calculating the number of sheets required in a building, it is necessary to take roof shape, roof gradient, sheet lap length and eaves protrusion into consideration, however, the number is normally calculated by using the following expression based on the building area:

Required sheets = building area x 18 ÷ area of 1 corrugated sheet

The areas according to the finished dimensions of the 3 ft x 6 ft galvanized corrugated sheets to be provided under the Project are 0.800 m x 1.829 m = 1.463 m², and as the building areas for each type of building will be 320 m² for schools, 128 m² for hospitals, 320 m² for 500-ton warehouses and 39 m² for simple houses, the required number of sheets and the constructed number of buildings will work out as follows.

Schools 571 buildings, 394 sheets per building = 22,500 sheets
Hospitals 1,433 buildings, 157 sheets per building = 22,500 sheets
Warehouses 50 buildings, 394 sheets per building = 19,700 sheets
Houses 8,964 buildings, 48 sheets per building = 430,300 sheets
Required total = 900,000 sheets

4. Basic Design

Material Name	Specifications	Quantity
Galvanized corrugated sheets	Standard: JIS G3302 - 1987 and JIS G3316 - 1987 Material: SGCH Sheet thickness: BWG 32 Wave form: W1 large wave Plating quantity: Z12 Dimensions: W 3 ft x L 6 ft	2,981 tons (900,000 sheets)

Chapter 3 Project Effect and Recommendation

1. Project Effect

The construction of simple housing, schools, hospitals and warehouses, etc. will make a major contribution to the advancement of the countermeasures for securing the permanent housing of the returning civilians, who are said to number more than 300,000. The advancement of the returning civilian countermeasures, which are urgently required, will aid the government's efforts to restore internal order and also aid the smooth promotion of the socioeconomic restoration project, and so the effects to be gained from the assistance are immense. It is therefore considered that the provision of the requested materials through Japanese grant aid is both timely and also appropriate in terms of the Project contents.

2. Recommendation

- 1) As the Project also targets residents who have suffered from cyclone disaster and who are in need of urgent help, the immediate establishment of the implementation setup and operating and management system together with prompt Project execution on the local side is required.
- 2) It is requested that strict Project management be carried out.
- 3) The Project is one of a makeshift nature, and the full-scale construction of housing, schools and hospitals is required in order to stabilize the living base of the local residents. For this reason, it is desirable that the Government of Mozambique draw up an appropriate housing policy.

