

No. 1

Study Report
on
The Project
for
Rehabilitation of Educational Facilities
Phase 3
in
The Republic of Peru

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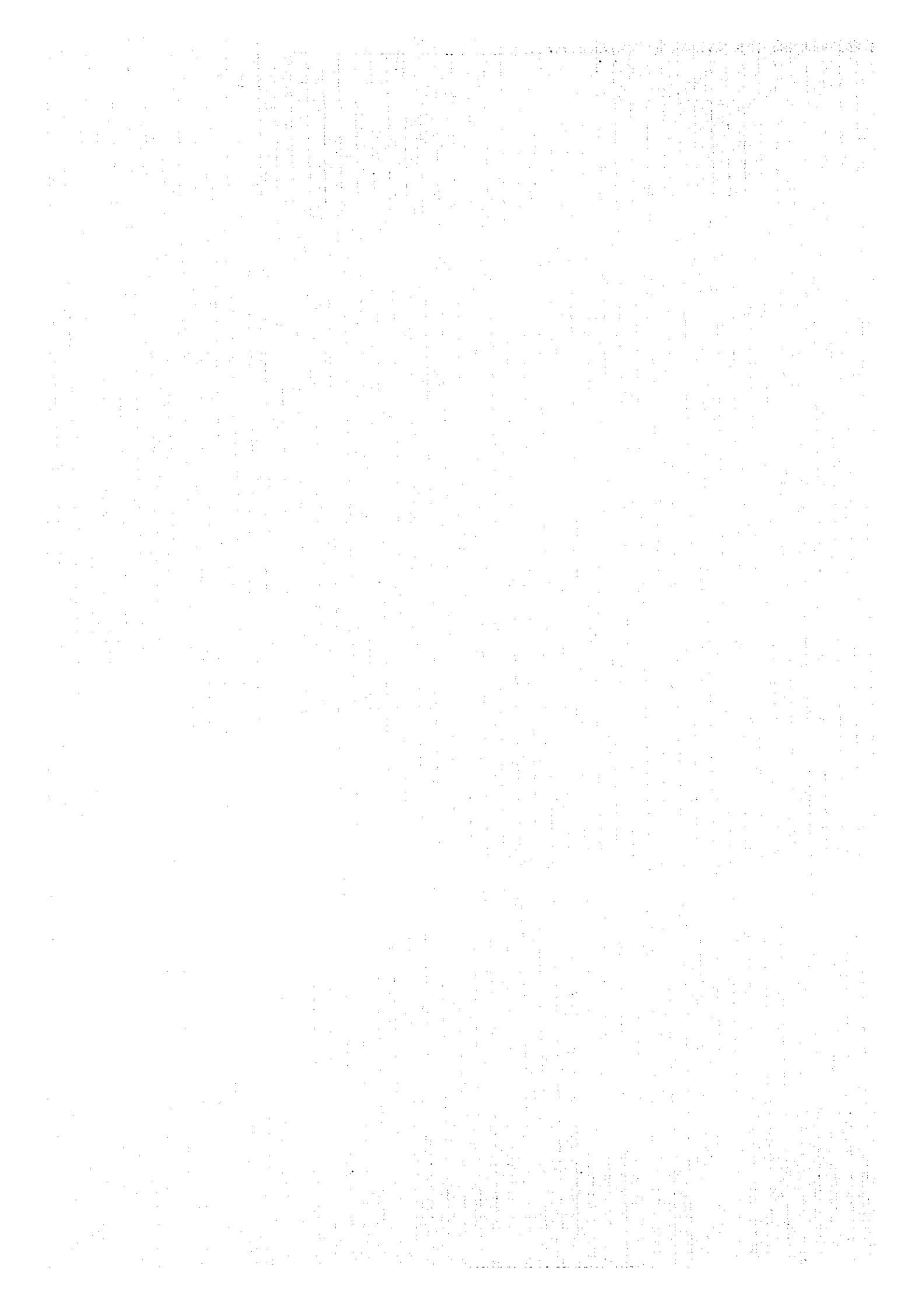
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February 1996

Japan International Cooperation Agency

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PREFACE

In response to a request from the Government of the Republic of Peru, the Government of Japan decided to conduct a basic design study on the Project for Rehabilitation of Educational Facilities Phase 3 and entrusted the Japan International Cooperation Agency (JICA) to conduct the study with the assistance of the Japan International Cooperation System (JICS).

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

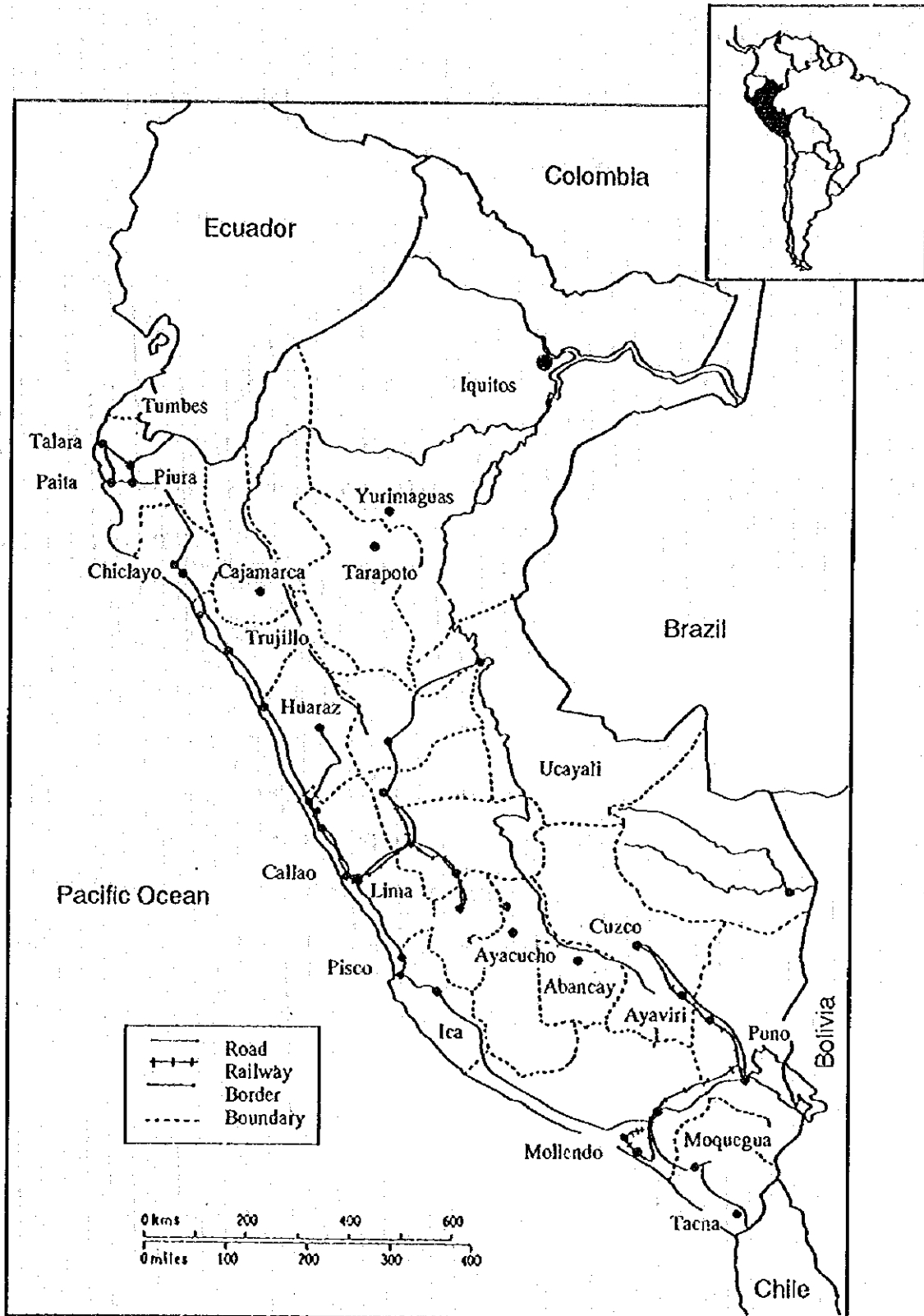
I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Peru for their close cooperation extended to the team.

February 1996

Kimio Fujita

President

Japan International Cooperation Agency



Location Map

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Chapter 1. Background of the Project

Five items are treated as priority areas within the national budget of the republic of Peru: education, medical care, nutrition, the judicature and the public peace.

Regarding the education sector, the following are currently deemed to be important tasks that need to be tackled in order to improve the national education system.

- 1.To reevaluate and respect the role of teachers, and to achieve a balance in teacher salaries.
- 2.To raise the school attendance rate at all stages of the education system.
- 3.To continue the thorough revision of school curriculums.
- 4.To improve the quality of education.
- 5.To encourage the participation of social groups such as local communities, private organizations and state agencies.

However, the budget set aside for education is subject to great fluctuations every year, and the tight fiscal conditions faced by the country mean that the size of the budget is not enough to satisfy the needs of the sector. As a result, the absolute shortage of education facilities, which are the first requirement in providing an education service, has become a serious problem.

In rural areas and more remote parts of the country, there are education facilities that have been constructed by local communities, which have received financial support from the National Cooperation Association, however, these include buildings with no roofs, or which use bark from trees to serve as roofs, and such schools are forced to interrupt lessons due to roof leaks at rain. In the rainy season especially, note

taking at such schools becomes impossible, and the education environment on the whole is appalling.

To be able to conduct lessons throughout the year without worrying about weather conditions would benefit all concerned and raise the effectiveness of education activities, and there is an earnest need for roofing materials to make such a situation possible. Despite this, however, the fiscal difficulties faced by the government have resulted in serious shortages in the supply of such materials to the schools in need.

In response to this situation, the Governments of Peru have been advancing the Education Infrastructure Restoration Plan, under which has been compiled the Project, which aims to improve the education environment by covering roofs with galvanized iron sheet(GI sheet). The Government of Peru has already requested the Government of Japan to provide grant aid for the Project two times in the past, and the latest request is the third one to date.

Chapter 2. Contents of the Project

2-1 Objectives of the Project

The Project aims to procure GI sheets for roofing and supply them to the many education facilities which are yet to be completed due to a lack of roofing materials, education facilities without roofing where the lessons are conducted in appalling conditions, and education facilities where roof restoration has become necessary due to deterioration over time, and so on. By doing this, the Project aims to rehabilitate and

improve education facilities and so provide a better education environment to a great many people.

The following table indicates the contents of the previous two phases of the Project implementation.

Table 1. List of past Japanese Grant Aid Project

	Phase 1 (1991)	Phase 2 (1992)	Total
Procured GI Sheet (ton)	1,855	1,828	3,683
(thousand sheet)	520	470	990
No. of Beneficiary School	4,879	7,140	12,019
No. of Beneficiaries	1,170,960	1,285,200	2,456,160

According to the Government of Peru, there are still 36,282 schools in need of GI sheet, which works out that 3,260,000 sheets are still required. The Project will this time respond to the needs of the many education facilities that could not be reached in the previous two phases, and will contribute to an improvement in the education service on the national level.

2-2 Basic Concept of the Project

GI sheet is widely used as a roofing material due to its lightweight and ease of transportation, the fact that its fitting requires no special technology, and its ability to withstand earthquakes. By procuring GI sheets in continuation of phase 1 and 2, the Project will contribute to the further improvement of education facilities which are faced with appalling conditions due to the shortage of roofing materials.

2-3 Basic Design

2-3-1 Design Concept

Corrugated hot dip galvanized iron sheet shall be procured. Such GI sheet is suited to the purposes of the Project in that its low cost, lightweight and also resistant to corrosion, etc. The detailed specifications are described below.

- 1) **Sheet thickness:** this shall be 0.23 mm. The original request specified two types of thickness 0.20mm and 0.23mm, however, it was considered appropriate to limit the sheeting to a uniform thickness of 0.23 mm in consideration of durability and the ease of delivery work. This is comparatively thin for general corrugated sheets used for roofing, but thin sheets are commonly used in developing countries because of their cheap price, and it is thought that the recipient side hoped to maximize the quantity of sheets as much as possible by requesting the thinner type.
- 2) **Galvanize:** this shall be Z12 (0.026 mm). This is the standard amount for the sheet thickness concerned.
- 3) **Corrugation:** this shall be W1 (wide corrugation pitch). Narrow corrugation pitch type is also available, but the W1 type is common in Peru.
- 4) **Hardness:** this shall be SGCC (general soft) and/or SGCH (general hard). When using thin sheeting for roofing purposes, the hard type possesses the advantage in terms of strength, however, the soft type is more easy to work with when applying. Sheeting of the same specifications was used in the previous two phases of the Project, and no particular problems were experienced. In consideration of the production setups at the suppliers, both types shall be used to make the procurement process go smoother.
- 5) **Size:** width (before corrugating) shall be 914 mm, and two

sheet types of length 1,829 mm and 2,438 mm shall be used in equal quantities. Both types are of standard dimensions, and there should be no problems regarding the procurement.

2-3-2 Basic Design

Many schools failed to receive the sheeting on the past two occasions when the Project was carried out, and it is estimated that 3,260,000 sheets are still required. Table 2 shows the numbers of schools and numbers of GI sheet still required in each region.

Table 2. No. of required GI sheet for each region

	Region	No. of Schools	No. of required GI sheet (thousand sheet)	Average No. of GI sheet per school
1	Amazonas	282	25	90
2	Ancash	1,628	147	90
3	Apurimac	3,388	305	90
4	Arequipa	1,300	117	90
5	Ayacucho	336	30	90
6	Cajamarca	1,371	123	90
7	Cuzco	1,514	136	90
8	Huancavelica	567	51	90
9	Huanuco	1,845	166	90
10	Ica	1,402	126	90
11	Junin	3,404	306	90
12	Libertad	1,900	171	90
13	Lambayeque	1,524	137	90
14	Lima	2,985	269	90
15	Roreto	1,750	158	90
16	Madre de dios	658	59	90
17	Moquegua	568	50	88
18	Pasco	642	58	90
19	Piura	2,769	249	90
20	Puno	855	77	90
21	San Martin	2,742	247	90
22	Tacna	448	40	90
23	Tumbes	260	23	90
24	Ucayali	2,146	193	90
	Total	36,284	3,265	90

The Project will first provide around 660,000 sheets (2,500 tons), or 20% of the above total, to priority areas where the need is most urgent.

The specifications of GI sheet are summarized in the following table.

Table 3. Specifications of GI Sheet

Item	Specification	Size (thickness x width x length)	Quantity
Galvanized Iron Sheet	JIS G3302-1987 JIS G3316-1987 SGCC and/or SGCH Z12, W1	0.23mm x 914mm x 1,829mm	1,250 tons (378 ts*)
		0.23mm x 914mm x 2,438mm	1,250 tons (284 ts)

* : thousand sheets

Chapter 3. Implementation Plan

3-1 Implementation Plan

3-1-1 Implementation Schedule

As the Project will only involve the procurement of GI sheet, design supervision work will not be necessary. After the materials supplier, which has been successful in the tendering process, has concluded a materials supply contract with the Government of Peru, and after the Government of Japan has authorized this contract, the materials supplier will manufacture the GI sheet, marine transport the completed materials to Callao Port, and there hand them over. The implementation schedule up until handing over of the materials is as shown below.

Overall schedule (from E/N to handing over) : 7 months

From E/N to supplier contract : 2 months

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

Table 5. Project Schedule

Month	1	2	3	4	5	6	7	8	9	10	11	12
Total Project Period	Tender (approx. 2 months)	Tender work										
	Procurement (approx. 5 months)		Production of Equipment, Procurement									
					Inspection							
						Transportation						

3-1-2 Obligations of the Recipient Country

As the Project is a materials procurement project, the Government of Japan will bear all the materials costs and the cost of materials transportation to Callao Port. However, the Government of Peru shall be responsible for customs clearance, storage in bond and internal transportation of the materials to each destination following handing over at Callao Port.

Moreover, the obligations of the Peru side regarding the distribution and fitting of the GI sheet are as follows.

Labor: The benefiting communities shall bear all manpower required in the fitting of the GI sheet.

The National Cooperation Organization shall provide any technical assistance and supervision during execution.

Materials: The benefiting communities shall provide nails, ridge materials and tools.

Distribution: The National Cooperation Organization shall be responsible for the transportation of the GI sheet.

3-2 Operation and Maintenance Plan

As the Project only involves the procurement of GI sheet for roofing purposes, there will be no particular need for operation and maintenance.

Chapter 4. Project Evaluation and Recommendation

4-1 Project Effect

The direct beneficial effect from procurement of the GI sheet can be measured according to the numbers of schools and attending students who actually receive the sheeting. During the first two phases of the Project, 990,000 GI sheets were provided and 2,456,160 schoolchildren became the direct beneficiaries. On average, it works out that 25,000 schoolchildren benefit from every 10,000 GI sheets provided. As approximately 660,000 GI sheets are planned for procurement in this phase, it can be inferred that some 1,650,000

schoolchildren will directly benefit.

Furthermore, the National Cooperation Organization provided the materials and distribution maps listing the education facilities that received GI sheet in the past two phases of the Project in 1991 and 1992. It is judged that the distribution work of the past two phases has been completed successfully. It can, therefore, be said that the operating setup of the implementing agency and the distribution methods it employs represent no problem at all.

The aforementioned 1,650,000 schoolchildren will benefit in the following direct ways from implementation of the Project.

- 1) Lessons will no longer be interrupted, and this will lead to improved efficiency in the education.
- 2) The restoration of roofs will enable indoor furniture to be kept in good condition, meaning that the deterioration of schools will be slowed down.
- 3) The increase in the number of schools will provide more people with the opportunity to receive education and will thus lead to a higher literacy rate.

Moreover, the Project can be expected to benefit the whole population in the following indirect ways.

- 1) The overall intellectual level of the people will improve as a result of the heightening in the education service on the national scale.
- 2) The economic development of the country will be stimulated, bringing about an increase in the economically active population.

4-2 Recommendation

- 1) GI sheet has been procured two times in the past under the Project, and the Project operating, management and distribution setup on the implementing agency side is already in place. It is required that this management setup continues to remain satisfactory in the next phase of the Project, too.
- 2) It is desired that the Government of Peru strive to secure more funds for the improvement and expansion of its education infrastructure.

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