MINISTRY OF EDUCATION AND TRAINING
THE SOCIALIST REPUBLIC OF VIET NAM

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR IMPROVEMENT OF
THE FACILITIES OF PRIMARY SCHOOLS
(PHASE IV)
IN
THE SOCIALIST REPUBLIC OF VIET NAM

SEPTEMBER, 1997

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
MATSUDA CONSULTANTS INTERNATIONAL CO., LTD.

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PREFACE

In response to a request from the Government of the Socialist Republic of Viet Nam, the Government of Japan decided to conduct a basic design study on the Project for Improvement of the Facilities of Primary Schools (Phase IV) and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Viet Nam a study team from April 7 to May 14, 1997.

The team held discussions with the officials concerned of the Government of Viet Nam, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Viet Nam in order to discuss a draft basic design, and as this result, the present report was finalized.

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 Socialist Republic of Viet Nam for their close cooperation extended to the teams.

September, 1997

Kimio Fujita
President
Japan International Cooperation
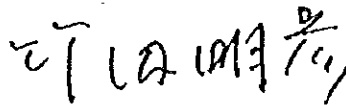Agency

LETTER OF TRANSMITTAL

September, 1997

We are pleased to submit to you the basic design study report on the Project for Improvement of the Facilities of Primary Schools (Phase IV) in the Socialist Republic of Viet Nam.

This study was conducted by Matsuda Consultants International Co., Ltd., under a contract to JICA, during the period from March 24, 1997 to September 30, 1997. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Viet Nam and formulated the most appropriate basic design for the project under Japan's grant aid scheme.
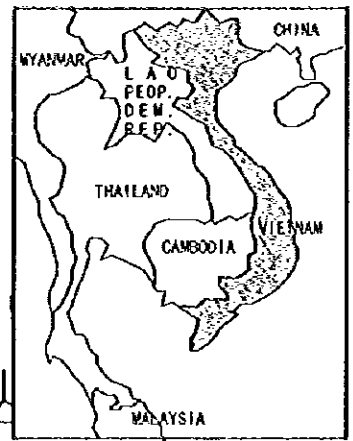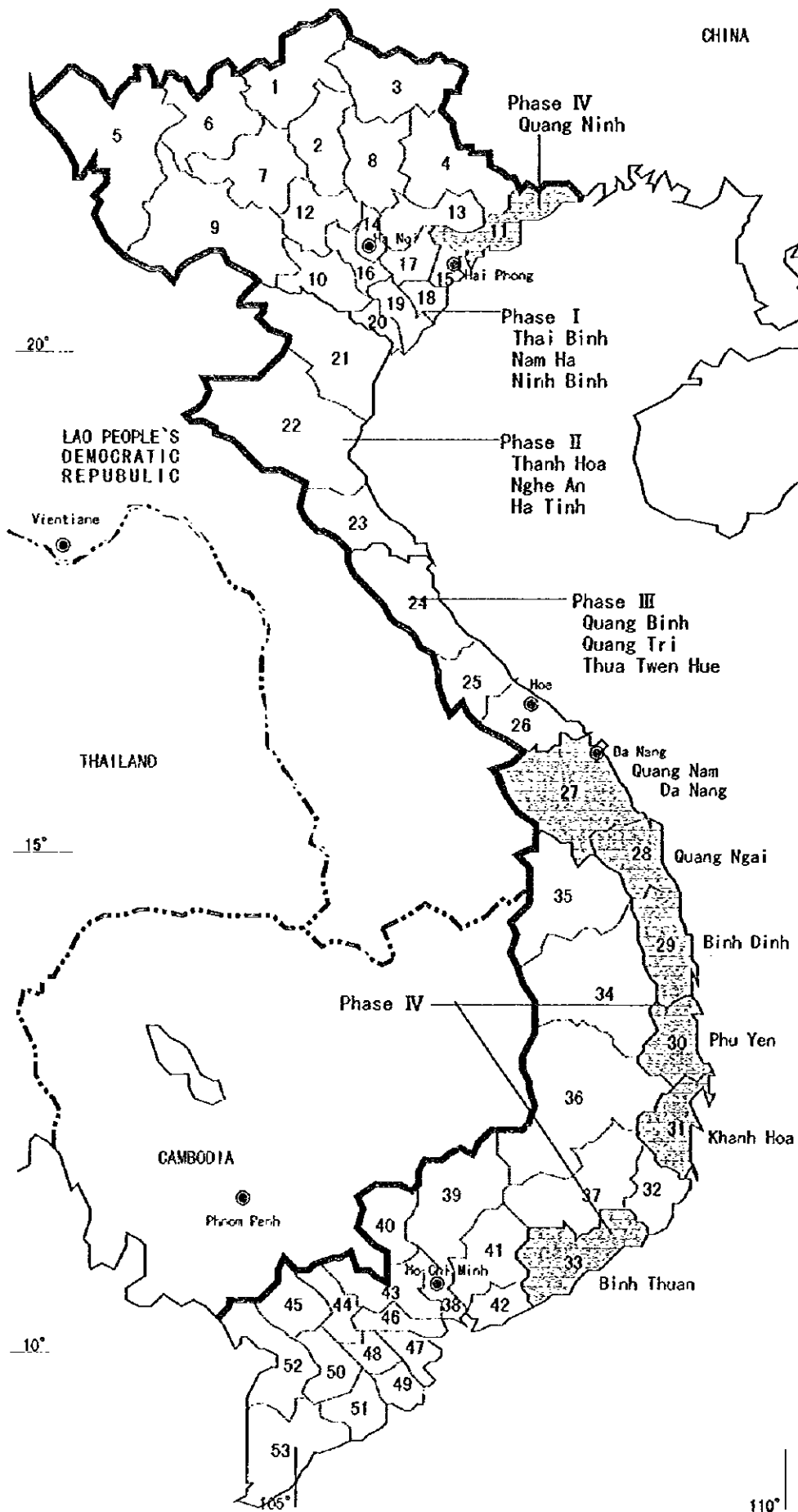
Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

Akihiko Takeuchi
Project manager,
Basic design study team on
the Project for Improvement of the Facilities of
Primary Schools (Phase IV)
Matsuda Consultants International Co., Ltd

Project Location Map

CHINA

Phase IV
Quang Ninh

Phase I
Thai Binh
Nam Ha
Ninh Binh

Phase II
Thanh Hoa
Nghe An
Ha Tinh

Phase III
Quang Binh
Quang Tri
Thua Twen Hue

Phase IV

LAO PEOPLE'S
DEMOCRATIC
REPUBULIC

Vientiane

THAILAND

CAMBODIA

Phnom Penh

20°

15°

10°

105°

110°

Quang Nam
Da Nang

Quang Ngai

Binh Dinh

Phu Yen

Khanh Hoa

Binh Thuan

Hai Phong

Hue

Da Nang

Ho Chi Minh

Provinces (Number of Subject Schools)
Northen Uplands
1 HA Giang
2 Tuyen Quang
3 Cao Bang
4 Lang Son
5 Lao Chau
6 Lao Cai
7 Yen Bai
8 Bac Thai
9 Son La
10 Hoa Binh
11 Quang Ninh (10)
12 Vinh Phu
13 Ha Bac
Red River Delta
14 Ha Noi
15 Hai Phong
16 Ha Tay
17 Hai Hung
18 Thai Binh
19 Nam Ha
20 Ninh Binh
North Central
21 Thanh Hoa
22 Nghe An
23 Ha Tinh
24 Quang Binh
25 Quang Tri
26 Thua Thien Hue
Central Coast
27 Quang Nam/Da Nang (14)
28 Quang Ngai (12)
29 Binh Dinh (14)
30 Phu Yen (9)
31 Khanh Hoa (10)
32 Ninh Thuan
33 Binh Thuan (11)
Central Highlands
34 Gia Lai
35 Kon Tum
36 Dac Lac
37 Lamm Dong
Southeast
38 T.P. Ho Chi Minh
39 Sonh Be
40 Tay Ninh
41 Dong Nai
42 Ba Ria Vung Tau
Mekong River Delta
43 Lang An
44 Dong Thap
45 An Giang
46 Tien Giang
47 Ben Tre
48 Vinh Lang
49 Tra Vinh
50 Can Tho
51 Sac Trang
52 Kien Giang
53 Ming Hai

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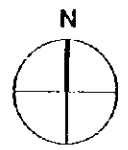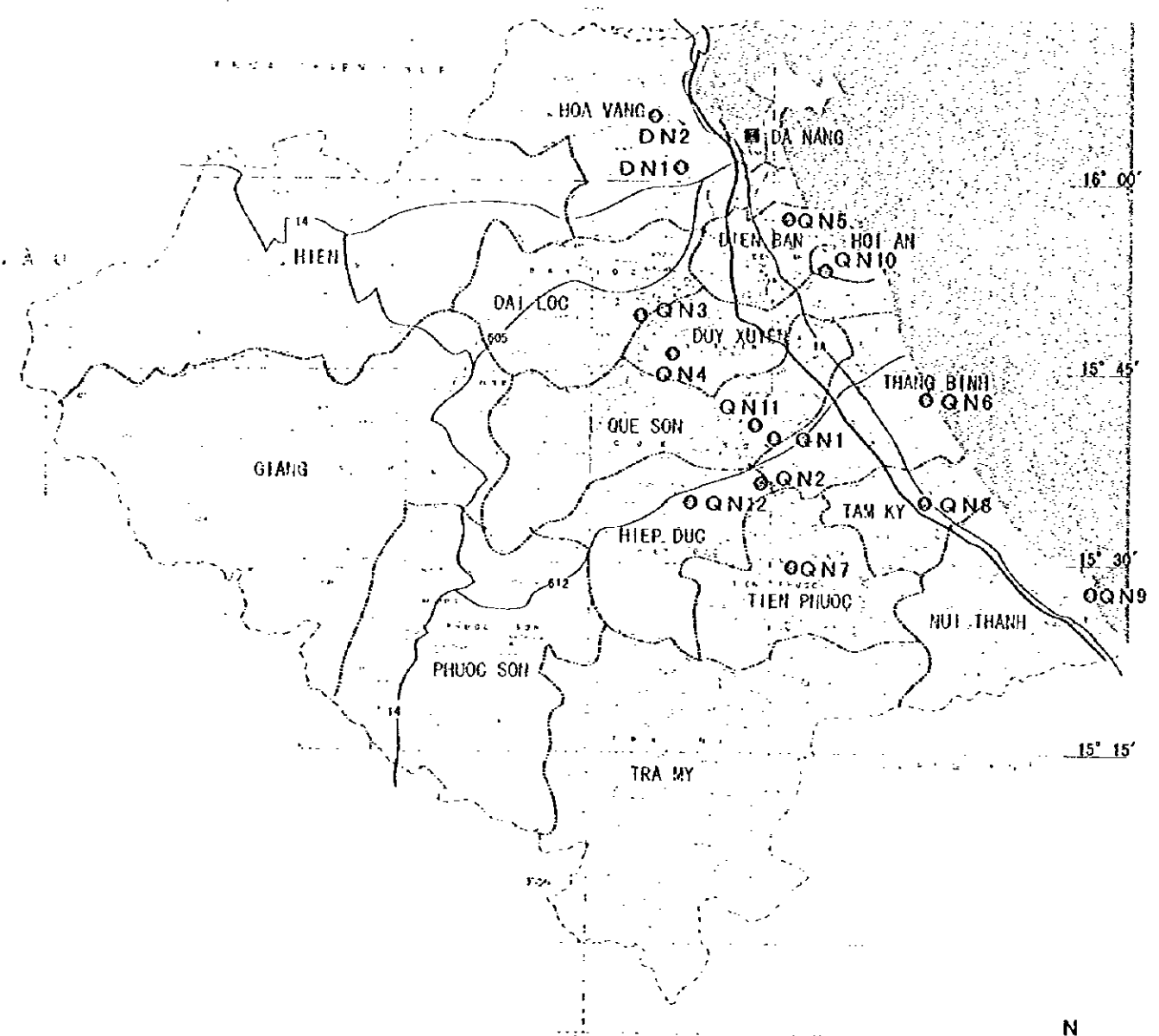
LIST OF PROPOSED SCHOOLS

QUANG NAM PROVINCE			
QN1	QUE CHAU	QUE SON DISTRICT	QN11	DONG PHU	QUE SON DISTRICT
QN2	LY TU TRONG	HIEP DUC DISTRICT	QN12	LE VAN TAM	HIEP DUC DISTRICT
QN3	DAI THANG	DAI LOC DISTRICT		
QN4	DUY PHU	DUY XUYEN DISTRICT	DA NANG CITY	
QN5	LE HONG PHONG	DIEN BAN DISTRICT	DN1	HOA SON	HOA VANG DISTRICT
QN6	THAI PHIEN	THANG BINH DISTRICT	DN2	HOA LIEN	HOA VANG DISTRICT
QN7	TIEN CHAU	TIEN PHUOC DISTRICT		
QN8	VO THI SAU	TAM KY DISTRICT		
QN9	TAM QUANG	NUI THANH DISTRICT		
QN10	LE DO	HOI AN DISTRICT		
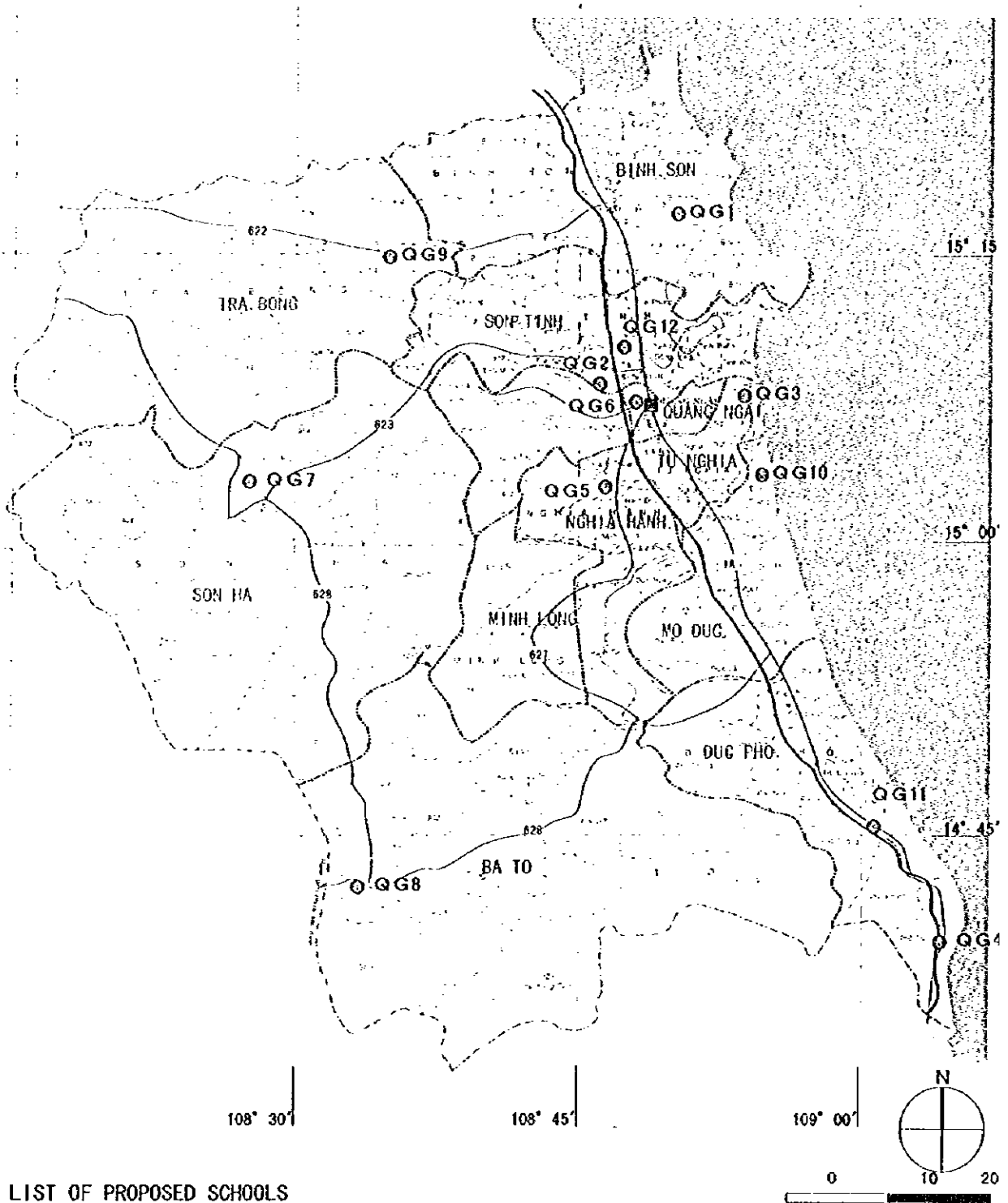
LIST OF PROPOSED SCHOOLS

QG1	BINH HOA	BINH SON DISTRICT	QG11	PHO CUONG NO. 1	DUC PHO DISTRICT
QG2	TINH HA NO. 2	SON TINH DISTRICT	QG12	SON TINH	SON TINH DISTRICT
QG3	NGHIA PHU	TU NGHIA DISTRICT			
QG4	PHO THANH	DUC PHO DISTRICT			
QG5	CHO CHUA	NGHIA HANH DISTRICT			
QG6	QUANG PHU NO. 1	QUANG NGAI TOWN			
QG7	SON LANG	SON HA DISTRICT			
QG8	BA VI	BA TO DISTRICT			
QG9	TRA PHU	TRA BONG DISTRICT			
QG10	DUC LOI	MO DUC DISTRICT			
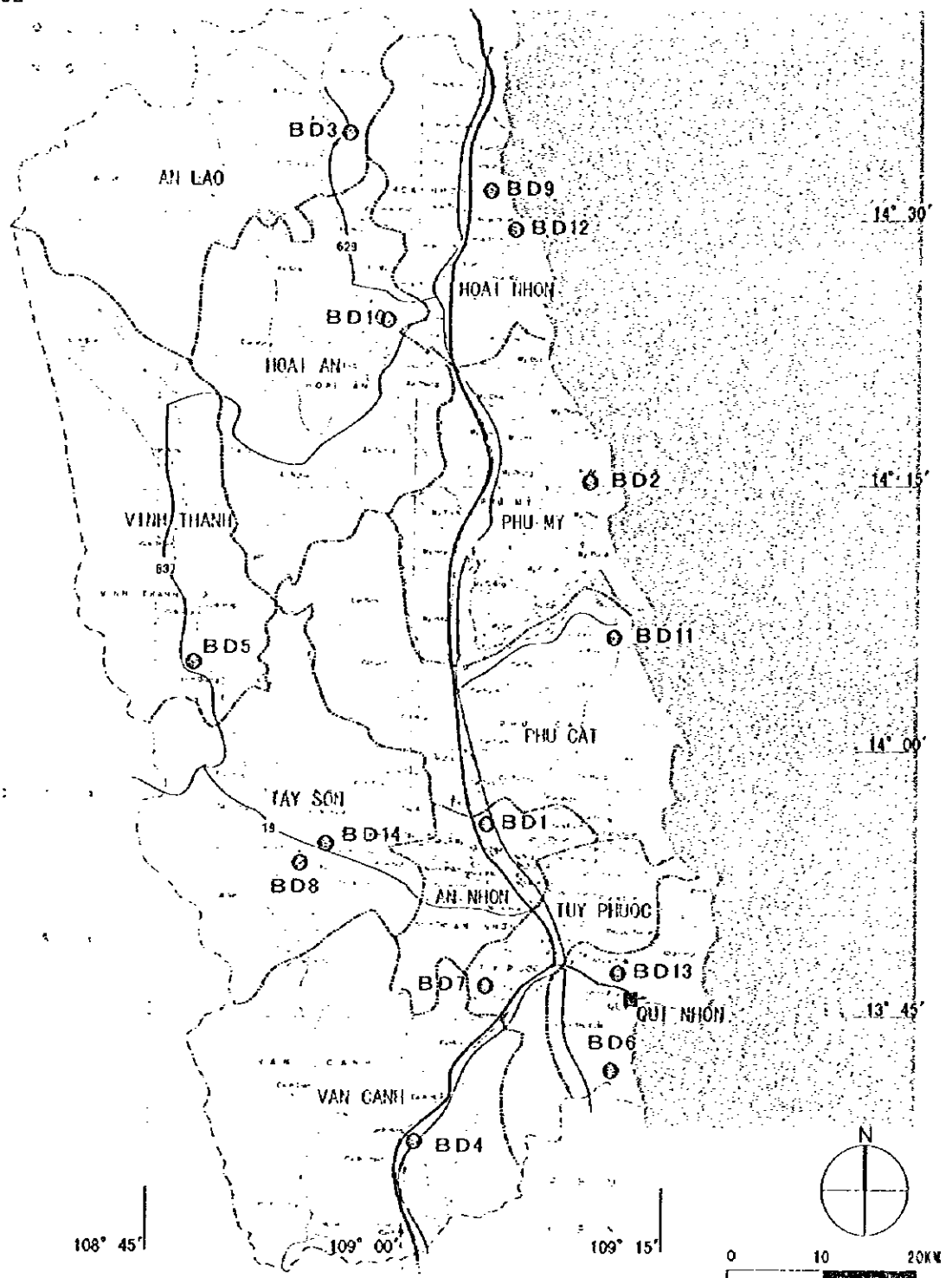
LIST OF PROPOSED SCHOOLS

BD1	DAP DA	AN NHON DISTRICT	BD11	CAT KHANH	PHU CAT DISTRICT
BD2	MY AN	PHU MY DISTRICT	BD12	HOAI HUONG	HOAI NHON DISTRICT
BD3	AN HOA	AN LAO DISTRICT	BD13	NHON BINH	QUI NHON CITY
BD4	CANH HIEP	VAN CANH DISTRICT	BD14	VO XAN	TAY SON DISTRICT
BD5	VINH THINH	VINH THANH DISTRICT			
BD6	LE HONG PHONG	QUI NHON CITY			
BD7	PHUOC THANH	TUY PHUOC DISTRICT			
BD8	TAY PHU	TAY SON DISTRICT			
BD9	TAM QUAN NAM	HOAI NHON DISTRICT			
BD10	AN THANH	HOAI AN DISTRICT			

PY6

SONG CAU

DONG XUAN

PY7

PY5

TUY AN

13° 30'

13° 15'

SON HOA

PY3

PY4   TUY HOA

PY8

PY9

PY2

13° 00'

SONG HINH

646   622

TUY HOA

PYI

108° 30'

108° 45'   109° 00'   109° 15'

12° 45'

N

0   10   20
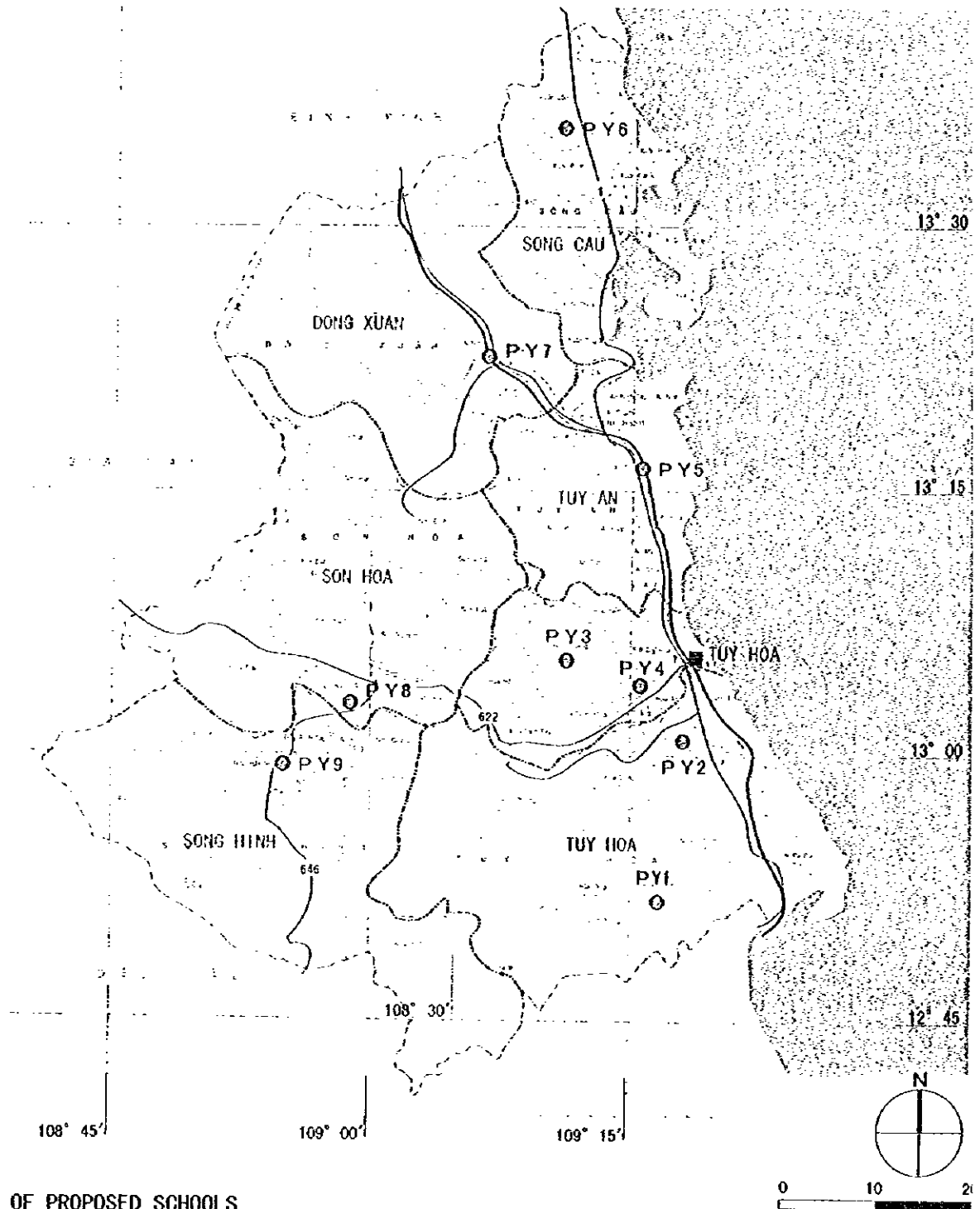
LIST OF PROPOSED SCHOOLS

PYI	HOA THINH 2	TUY HOA DISTRICT
PY2	HOA THANH NO1	TUY HOA DISTRICT
PY3	HOA QUANG NO2	TUY HOA TOWN
PY4	HOA TRI	TUY HOA TOWN
PY5	AN CU	TUY AN DISTRICT
PY6	XUAN LOC	SONG CAU DISTRICT
PY7	LA HAI	DONG XUAN DISTRICT
PY8	CUNG SON	SON HOA DISTRICT
PY9	HAI RIENG	SONG HINH DISTRICT
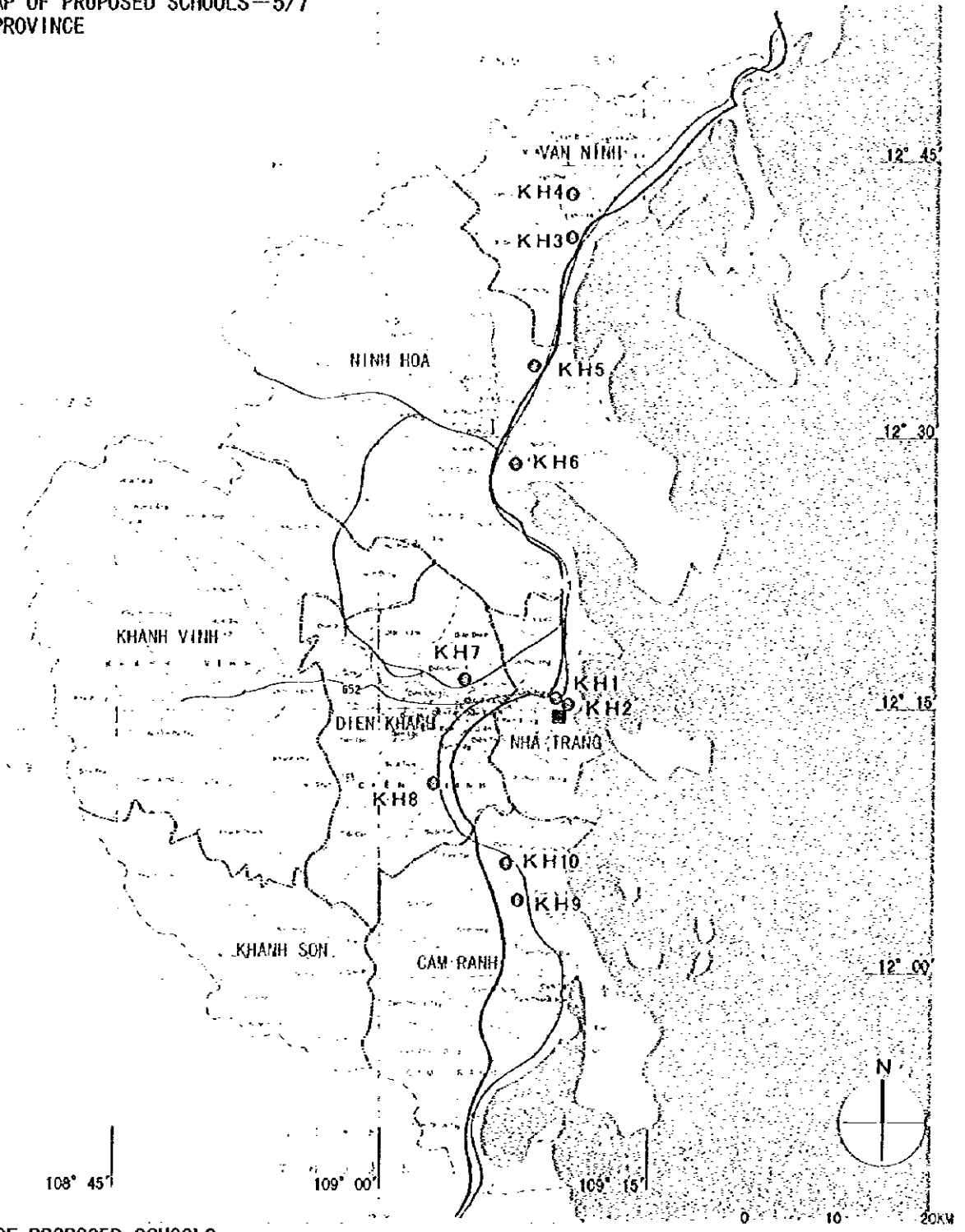
LIST OF PROPOSED SCHOOLS

KH1	PHUOC TIEN	NHA TRANG CITY
KH2	TAN LAP 1	NHA TRANG CITY
KH3	VAN LUONG 1	VAN NINH DISTRICT
KH4	VAN PHU	VAN NINH DISTRICT
KH5	NINH AN	NINH HOA DISTRICT
KH6	NINH GIANG	NINH HOA DISTRICT
KH7	THI TRAN 2	DIEN KHANH DISTRICT
KH8	YERSIN	DIEN KHANH DISTRICT
KH9	CAM HAI TAY	CAM RANH DISTRICT
KH10	CAM HOA 1	CAM RANH DISTRICT
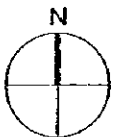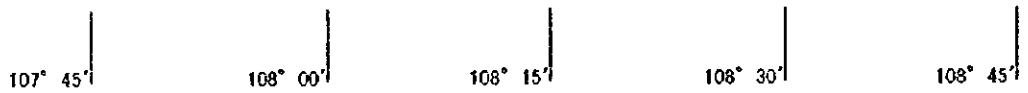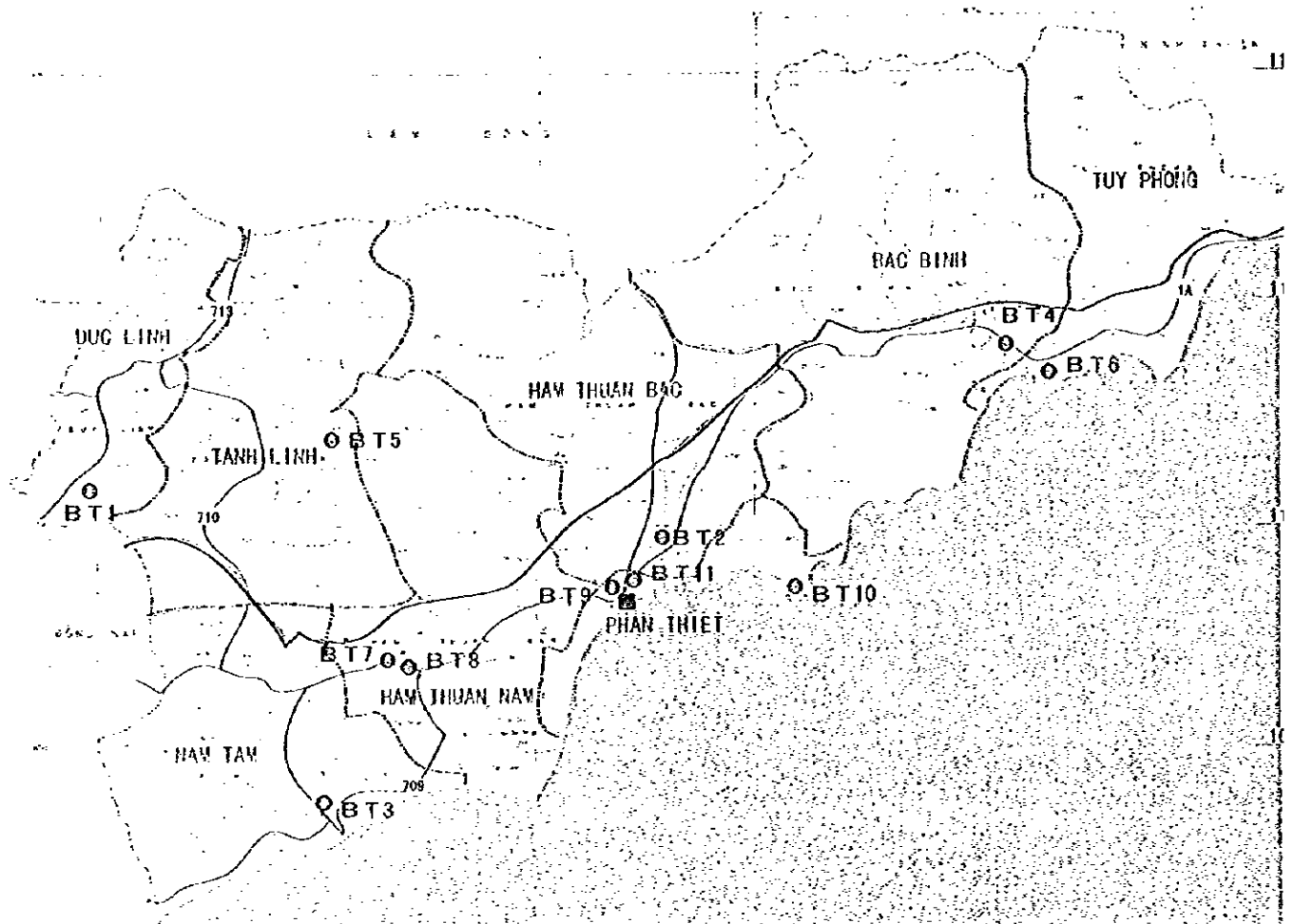
LIST OF PROPOSED SCHOOLS

BT1	TRA TAN NOI	DUC LINH DISTRICT	BT11	DUC LONG	PHAN THIET TOWN
BT2	HAM THANG	HAM THUAN BAC DISTRICT			
BT3	LA GI 1	HAM TAN DISTRICT			
BT4	PHAN RI THANH 2	BAC BINH DISTRICT			
BT5	DONG KHO	TANH LINH DISTRICT			
BT6	PHAN RI CUA 4	TUY PHONG DISTRICT			
BT7	TAN LAP 1	HAM THUAN NAM DISTRICT			
BT8	TAN LAP 3	HAM THUAN NAM DISTRICT			
BT9	HUNG LONG	PHAN THIET TOWN			
BT10	MUI NE	PHAN THIET TOWN			

106° 45'   107° 00'   107° 15'   107° 30'   107° 45'

N

0   10   20 km
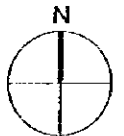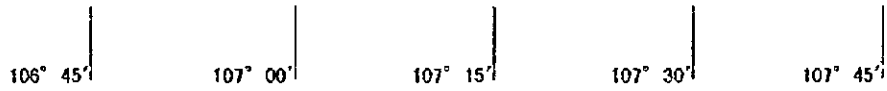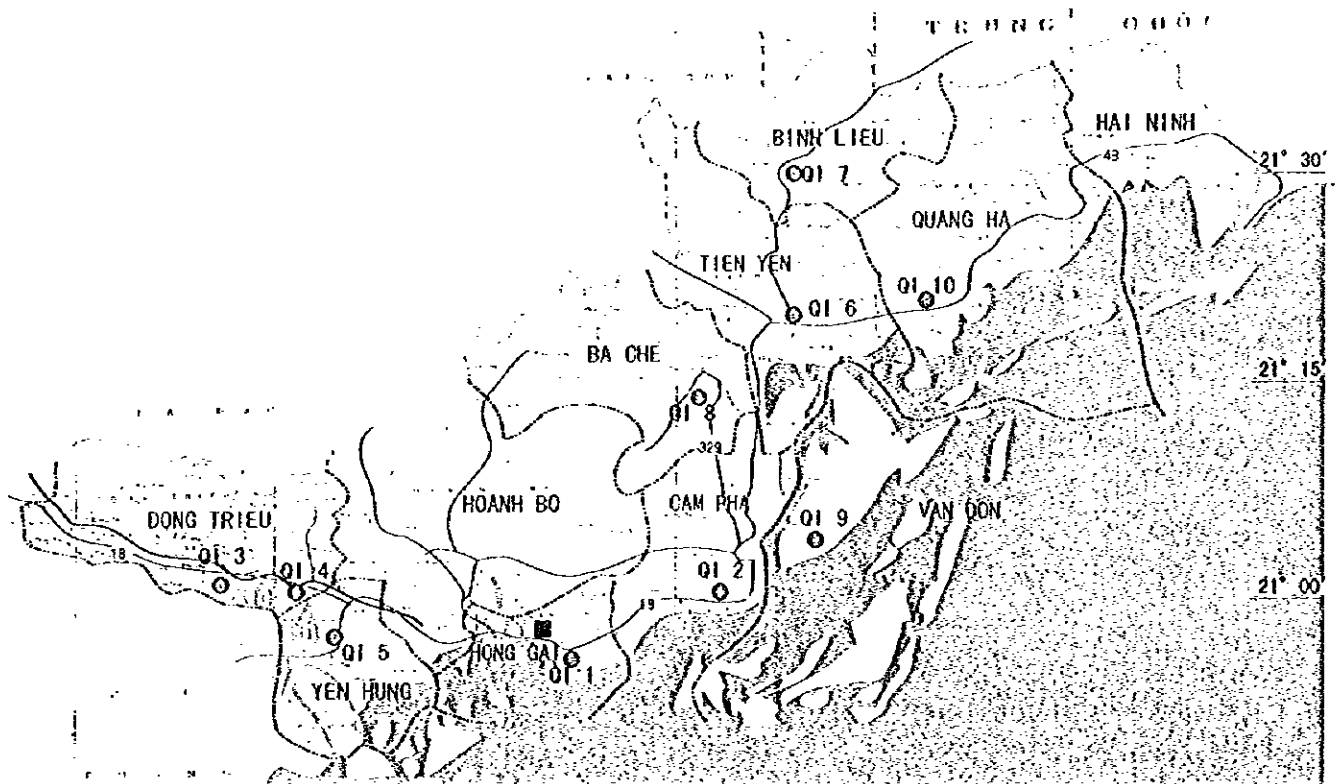
LIST OF PROPOSED SCHOOLS

QI 1	TRAN QUOC TOAN	HA LONG CITY
QI 2	CAM SON	CAM PHA CITY
QI 3	HONG THAI TAY	DONG TRIEU DISTRICT
QI 4	QUANG TRUNG	UONG BI DISTRICT
QI 5	CONG HOA	YEN HUNG DISTRICT
QI 6	T.T.TIEN YEN	TIEN YEN DISTRICT
QI 7	THI TRAN BINH LIEU	BINH LIEU DISTRICT
QI 8	BA CHE	BA CHE DISTRICT
QI 9	HA LONG	VAN DON DISTRICT
QI.10	T.T.DAM HA	QUANG HA DISTRICT
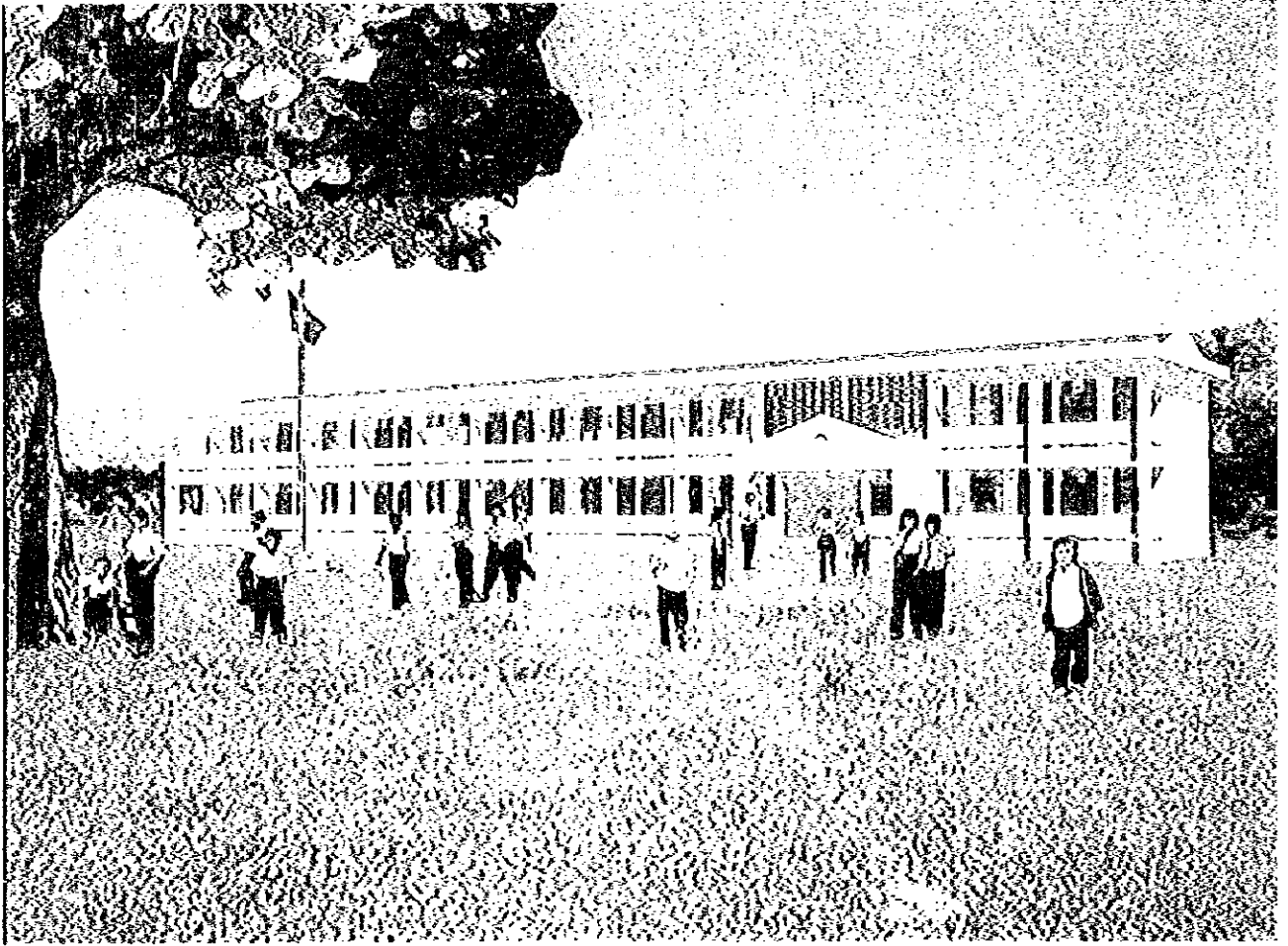
PERSPECTIVE OF PROPOSED SCHOOL (TYPE

PERSPECTIVE OF PROPOSED SCHOOL (TYPE 6+6

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   9.   Reference

CHAPTER 1

BACKGROUND OF THE PROJECT

CHAPTER 1   BACKGROUND OF THE PROJECT

Since the introduction of Doi Moi in 1986, the Socialist Republic of Viet Nam (hereinafter referred to as Viet Nam) has been making strenuous efforts for socioeconomic development through the introduction of a market economy and liberalisation of its economy to the outside world and the national economy has been making favourable progress with the annual GNP growth rate recording more than 8% in the 1990's. Modernisation efforts, including development of the legal framework and administrative reforms, have been in progress in recent years to further proceed with the transition to a market economy and liberalisation of the economy. The Sixth Five Year Socioeconomic Development Plan (1996 - 2000) approved by the People's Assembly in November, 1996 sets "the successful achievement of industrialisation and modernisation to narrow the development gap between Viet Nam and other Asian countries" as a national development target and considers the improvement of education, involving the fostering of a new labour force and capable manpower, to be one of the highest priority policies. Based on this national development strategy, the Ministry of Education and Training has prepared the Five Year Educational Development Programme (1996 - 2000) which sets out several key targets: (i) increase of the primary education completion rate to 80%, (ii) increase of the number of primary school pupils from 10.22 million (1995) to 11.29 million, (iii) training of 160,000 new teachers, (iv) eradication of the three shift school system and (v) construction and improvement of 79,216 classrooms.

Viet Nam has a 5-4-3 general education system under which primary education of five years has been compulsory since 1991. While the gross school enrollment rate and net school enrollment rate were 115% and 87% respectively for the 1994/95 school year, the course completion rate was 70.99% due to the high level of drop-outs (Ministry of Education and Training data: "Five Year Educational Development Programme"). Although the school enrollment rate and course completion rate for primary education have improved from 84% and 54.69% respectively for the 1991/92 school year, the deterioration of educational facilities and the shortage of classrooms have become major obstacles to further improvement. Most of the educational facilities currently in use were originally constructed around 1975 and their noticeable deterioration and classroom shortage have given the educational authorities no alternative but to adopt a two shift or even three shift school system in many areas of the country. The conditions of the primary education facilities at the Project Sites are quite poor, aggravated by repeated typhoon damage almost every year. Despite the poor state of the facilities, 81% of the primary education budget of the Ministry of Education and Training is allocated to financing the wages of teachers and other personnel costs, leaving insufficient funds to improve the physical facilities.

Under these circumstances and with the assistance of the World Bank, the Government of Viet Nam has prepared the Primary Education Facilities Improvement Plan for five major cities, 11 provinces in the Mekong Delta and eight mountainous provinces inhabited by minority ethnic groups to improve the primary education facilities in these areas and, in 1993, made a request to the Government of Japan for the provision of grant aid for the construction/improvement of 610 primary schools in the priority area of 16 provinces among typhoon and flood-prone provinces and in the secondary priority area of 14 mountainous provinces. In response to this request, the Government of Japan decided to provide the requested grant aid. Having clearly established the geographical boundaries between the subject areas of the Primary Education Project of the World Bank and those of the Japanese grant aid project, the Government of Japan provided grant aid for the Phase I Project in fiscal 1994, involving the construction of 30 schools with 348 classrooms (grant aid amount of ¥1,446 million) in Thai Binh, Nam Ha and Ninh Binh Provinces along the coast of the Hon River Delta in the north, for the Phase II Project in fiscal 1995, involving the construction of 40 schools with 430 classrooms (grant aid amount of ¥1,660 million) in Thanh Hoa, Ge Anh and Ha Tinh Provinces along the north-central coast, and for the Phase III Project in fiscal 1996, involving the construction of 45 schools with 514 classrooms (grant aid amount of ¥1,998 million) in Quang Binh, Quang Tri and Thua Thien-Hue Provinces along the central coast. The new facilities constructed under the Phase I Project which was completed in February, 1996 have now been in use for more than one year, contributing to an improved school enrollment rate in the subject provinces, proving to have a high durability level in the face of a record-breaking flood in September, 1996 and enjoying an excellent reputation among local people as well as on the part of the Government of Viet Nam. The handing over of the new facilities constructed under the Phase II Project was completed in February this year while the construction of new facilities under the Phase III Project is earnestly in progress to meet the target completion date of February, 1998.

In December, 1996, the Government of Viet Nam made a request to the Government of Japan for the provision of grant aid for the Phase IV Project, following the previous three phases, to construct a total of 120 primary school facilities in seven provinces, consisting of Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa and Binh Thuan Provinces along the south-central coast and Quang Ninh Province along the northern coast.

During the field survey period between 7th April and 14th May, 1997 for the basic design, the following contents of the request were confirmed through consultations with the Ministry of Education and Training.

(1) Subject facilities :

80 primary education facilities (primary schools) in seven subject provinces

< South-Central Coastal Provinces >

Quang Nam	:	14 schools
Quang Ngai	:	12 schools
Binh Dinh	:	14 schools
Phu Yen	:	9 schools
Khanh Hoa	:	10 schools
Binh Thuan	:	11 schools

< Norhern Coastal Province >

Quang Ninh	:	10 schools

(2) Contents of facilities :

Classrooms, School master's room, Teachers' room, Sanitary room and Bicycle parking

(3) Equipment:

provision of desks, chairs blackboards and cabinets etc. for the above schools

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CHAPTER 2

CONTENTS OF THE PROJECT
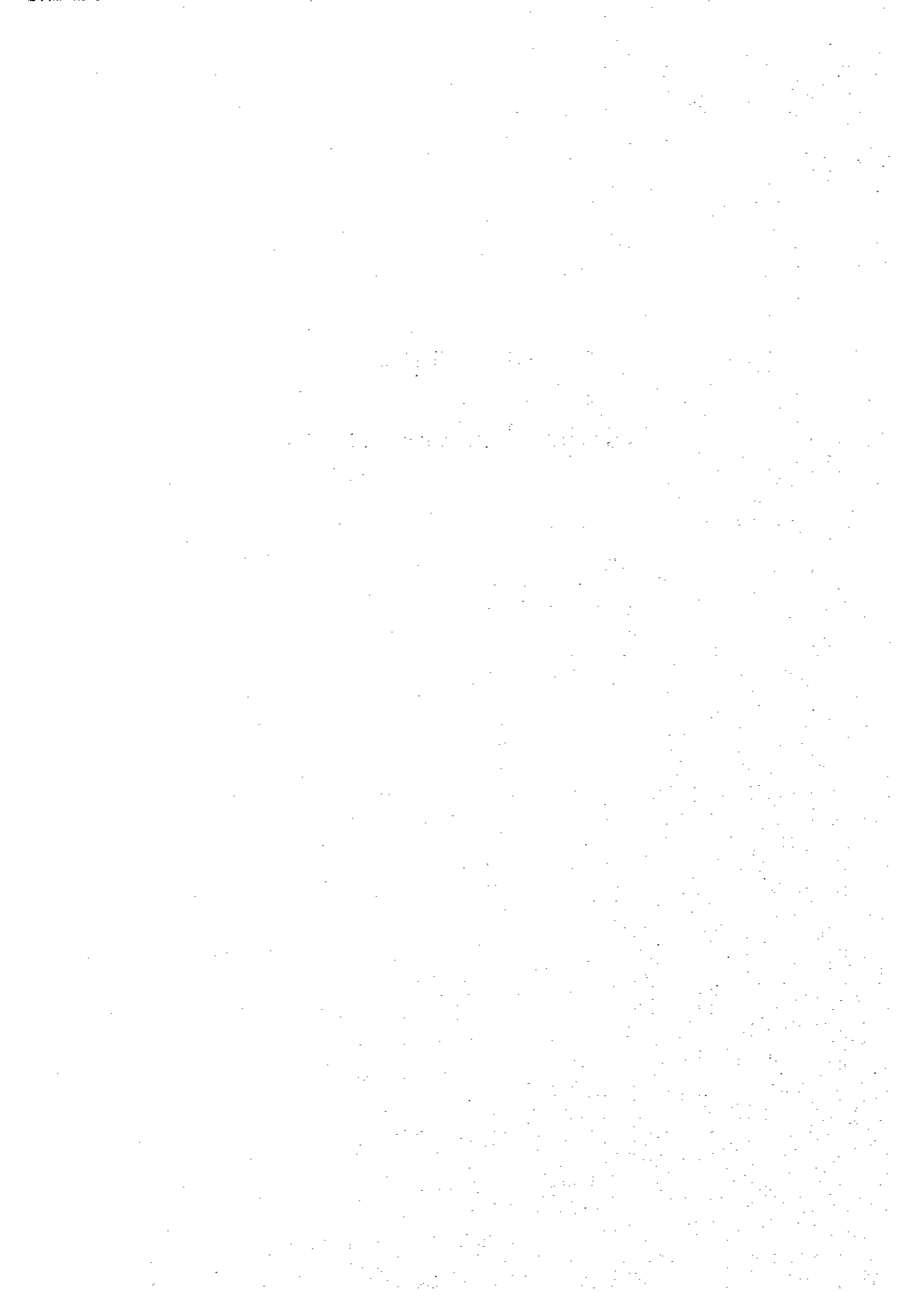
CHAPTER 2   CONTENTS OF THE PROJECT

2.1   Objectives of the Project

The Government of Viet Nam aims at narrowing the economic development gap between Viet Nam and other countries in Asia by achieving industrialisation and modernisation through a smooth shift towards a market economy and external liberalisation of its economy. The Sixth Five Year Plan (1996/97 - 2000/01) approved by the People's Congress in November, 1996 affords education the status of one of the four priority national targets, i.e. stabilisation of the economy and society, conquering of poverty and under-development, fostering and consolidation of human resources and stabilisation and consolidation of international relations. Based on the development strategy put forward by this five year plan, the Government of Viet Nam has prepared "the Five Year Educational Development Programme" with a target year of 2000 in which a qualitative and quantitative improvement of primary education nationwide is an important component. The concrete targets of the programme include an increase of primary school pupils from the current 10.2 million to approximately 11.3 million as a step towards the full school enrollment of children of primary school age and an increase of the successful course completion rate from 71% at present to 79%. In order to achieve these targets, it is planned to train 160,000 new teachers, to re-train 80,000 existing teachers and to improve 79,216 classrooms, including the addition of 37,000 new classrooms aimed at eradicating the three shift school system.

The current figures for primary education in Viet Nam put the gross school enrollment rate at 115% and the net school enrollment rate at 87% with 5.9% of pupils repeating the same grade, a further 5.9% leaving school without completing the course and a course completion rate of 70.99% (Educational Statistics for 1996/97). The average period of schooling of those pupils successfully completing the primary education course is 8.1 years which is well above the formal compulsory primary education period of five years, indicating the poor efficiency of primary education. While all educational inputs, i.e. facilities, teaching materials and teachers, etc., are currently in short supply to meet the targets set for the year 2000, the deterioration of school buildings and shortage of classrooms in particular constitute serious bottlenecks. Most of the existing school buildings were constructed in 1975 or earlier and classrooms of durable construction account for less than half of those of a temporary nature of 32.4%. In addition, the absolute shortage of classrooms necessitates a two shift as well as three shift school system in many parts of the country. The construction of new classrooms and improvement of the existing classrooms are, therefore, urgent tasks to achieve the planned eradication of the three shift system and the increase of the school enrollment rate.

The objectives of the Project are to replace or add primary school buildings and to provide basic educational equipment for a total of 80 primary schools in seven provinces, i.e. Quang Ninh along the northern coast and Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa and Binh Thuan along the central coast. The Project is the last stage of a series of Japanese ODA projects aimed at improving primary education facilities in Viet Nam is its top priority area consisting of 16 provinces, all of which are subject to severe typhoon damage.

2.2 Basic Concept of the Project

(1) Consultations on Contents of the Request and Items Confirmed

    1) Confirmation of Contents of the Request

The original request made by the Government of Viet Nam consisted of the construction of facilities and the supply of equipment as described below for 120 primary schools in seven provinces (Quang Nam Da Nang, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa, Binh Thuan and Quang Ninh) which were not covered by the previous projects out of the 16 top priority provinces.

School Facilities :	classrooms; headmaster's room; staffroom; toilets; bicycle parking
Equipment :	pupils' desks and chairs; teachers' desks and chairs; fixtures, including blackboards and cabinets

Quang Nam Da Nang Province has now been divided into part of Da Nang City, which is directly controlled by the central government and which consists of old Da Nang City and some neighbouring districts, and part of Quang Nam Province as a result of the reorganization of administrative boundaries in December, 1996. The schools in Quang Nam Da Nang Province which were included in the original request are mainly located in present Quang Nam Province although some are in new Da Nang City due to their location in neighbouring districts of old Da Nang City. The Primary Education Facilities Improvement Programme of Viet Nam did not include Da Nang in the geographical areas for Japanese assistance as improvement work in five major cities, including Da Nang, would be conducted under the Primary Education Project of the World Bank. However, as these schools, now located in the administrative area of new Da Nang City, were not and will not be added to the scope of the Primary Education Project, the Government of Viet Nam made a strong request to the Government of Japan to include these schools in the scope of the present project. The Study Team

judged this request to be reasonable and decided to include these schools, now located in new Da Nang City, in the examination of the appropriate scope of the Project.

2) Consultations on Seven Subject Provinces

The subject provinces suggested by the original request following completion of the Phase III Project are Quang Nam, Quang Ngai and Binh Dinh Provinces along the southern central coast for the Phase IV Project and Phu Yen, Khanh Hoa and Ving Tuang Provinces along the southern central coast and Quang Ninh Province along the northern coast, totalling seven provinces. As each phase of the Project in the past had three provinces as the project areas, the addition of one province would clearly result in a smaller number of classrooms to be constructed in each subject province because of the budgetary limits of the Project. Understanding this situation, the Government of Viet Nam still requested that the present project include seven provinces, including Quang Ninh Province which had been omitted from the previous phases in efforts to create project areas for efficient project implementation. However, the province had been included in the top priority area right from the beginning of the Project in view of damage to school buildings caused by typhoons. It was, therefore, judged that its inclusion in the present phase was appropriate given the geographical division of the aid areas among donors. Following consultations with the Viet Nam side, the Study Team decided to include Quang Ninh Province in the scope of the Study, taking the budget size, construction period and other relevant conditions into consideration.

3) Discussions on and Confirmation of Subject Schools of the Study

Given the scale of cooperation in the previous three phases, each of which was conducted on a single fiscal year basis, it was decided that the number of schools subject to the Study would be 40 schools in three provinces, i.e. Quang Nam, Quang Nga and Binh Dinh, for the Phase IV Stage 1 Project and a further 40 schools in four provinces, i.e. Phu Yen, Khanh Hoa, Binh Thuan and Quang Ninh, totalling 80 schools. As in the case of the previous phases, these 80 schools were suggested by the Ministry of Education and Training as schools meeting the following selection criteria among the 120 originally requested schools.

• Urgent rebuilding is necessary as partial repair would not achieve adequate improvement due to severe deterioration

• The two shift system has already been introduced because of an increase of pupils and further pupils cannot be accepted

- The size, shape and topographical conditions of the site are all suitable for the construction of new facilities

- There is an access road to the site which is capable of supporting the traffic of construction vehicles

Of the 80 schools included in the Minutes of Discussions for the Basic Design Study, the substitution of five schools by other schools was subsequently requested. In the case of four schools, the substitution request was made prior to the implementation of the site survey. In the case of the remaining school, overlapping with another donor (WVI) was found during the site survey and a survey on a substitute school was requested (see the Appendix for the Letter of Request for five substitute schools prepared by the Ministry of Education and Training). The actual site survey was, therefore, conducted at 80 schools following the substitution of five schools (Table 2-1).

4) Discussions on and Confirmation of Facilities

When discussing the actual contents of the facilities, the highest priority was given to the construction of the maximum number of classrooms within the budget and the construction of bicycle parking facilities was left to the self-help efforts of parents. For the same reason, it was decided to withdraw the dual corridor design employed in Phase I and Phase II in order to reduce the area of facilities other than classrooms. Accordingly, it was confirmed that the single corridor design introduced in Phase III would be employed.

Table 2-1   Eighty Selected Schools for Site Survey

Quang Nam/Da Nang

QN1	Que Chau
QN2	Ly Tu Trong
QN3	Dai Thang
QN4	Duy Phu
QN5	Le Hong Phong
QN6	Thai Phien
QN7	Tien Chau
QN8	Vo Thi Sau
QN9	Tam Quang
QN10	Le Do
QN11	Dong Phu
QN12	Le Van Tam
DN1	Hoa Son
DN2	Hoa Lien

Quang Ngai

QG1	Binh Hoa
QG2	Tinh Ha No.2
QG3	Nghia Phu
QG4	Pho Thanh
QG5	Cho Chua
QG6	Quang Phu No.1
QG7	Son Lang No. 1
QG8	Ba Vi
QG9	Tra Phu
QG10	Duc Loi
QG11	Pho Cuong No.1
QG12	Son Tinh

Binh Dinh

BD1	Dap Da
BD2	My An
BD3	An Hoa No.2
BD4	Canh Hiep
BD5	Vinh Thinh
BD6	Le Hong Phong
BD7	Phuoc Thanh
BD8	Tay Phu
BD9	Tam Quan Nam
BD10	An Thanh
BD11	Cat Khanh
BD12	Hoai Huong
BD13	Nhon Binh No.1
BD14	Vo Xan

Phu Yen

PY1	Hoa Thinh 2
PY2	Hoa Thanh 1
PY3	Hoa Quang No. 2
PY4	Hoa Tri 1
PY5	An Cu
PY6	Xuan Loc 1
PY7	La Hai 1
PY8	Cung Son 2
PY9	Hai Rieng

Khanh Hoa

KH1	Phuoc Tien
KH2	Tan Lap 1
KH3	Van Luong 1
KH4	Van Phu
KH5	Ninh An
KH6	Ninh Giang
KH7	Thi Tran 2
KH8	Yersin
KH9	Cam Hai Tay
KH10	Cam Hoa 1

Binh Thuan

BT1	Tra Tan 1
BT2	Ham Thang
BT3	La Gi 1
BT4	Phan Ri Thanh 2
BT5	Dong Kho
BT6	Phan Ri Cua 4
BT7	Tan Lap 1
BT8	Tan Lap 3
BT9	Hung Long
BT10	Mui Ne (Tien Thanh)
BT11	Duc Long

Quang Ninh

QI1	Tran Quoc Toan
QI2	Cam Som
QI3	Hong Thai Tay
QI4	Quang Trung
QI5	Cong Hoa 2
QI6	T.T. Tien Yen
QI7	T.T. Binh Lieu
QI8	Ba Che
QI9	Ha Long
QI10	T.T. Dam Ha

(2) Selection of Candidate Recipient Schools

The priority ranking indices described below were determined to objectively judge the suitability of the 80 schools selected by the Ministry of Education and Training vis-a-vis the selection criteria for the schools subject to cooperation and each school was evaluated based on these indices.

1) Urgent Need for Rebuilding Due to Deterioration

Most of the selected schools were constructed in 1975 or earlier and are fairly deteriorated. In addition, while repeated damage caused by typhoons and floods have forced extensive repair work, there is a high risk of structural collapse. In fact, the Government of Viet Nam classifies these types of building as temporary classrooms. The schools are ranked A, B or C depending on the number of temporary classrooms found by the site survey.

- School where the ratio of temporary classrooms is between 75% and 100% .... A
- School where the ratio of temporary classrooms is between 50% and 74% .... B
- School where the ratio of temporary classrooms is below 50% C

2) Shortage of Classrooms and Necessity to Build New Classrooms

The selected schools currently employ a two shift or three shift system to meet the educational demand of an increasing number of pupils. Some of the schools have established branch schools and borrow the classrooms of secondary schools during the afternoon while others borrow facilities belonging to the People's Committee, nursery schools or temples for use as classrooms.

The guidelines of the Ministry of Education and Training regarding the introduction of branch schools state that a branch school must be established for younger pupils (Grades 1 and 2) in areas where the travelling distance to the school exceeds 2.5 km. Many of the existing branch schools, however, are located near the main schools as they were mainly introduced to reduce the classroom shortage. Consequently, the actual configuration of grades in branch schools upto the final grade varies from one school to another. Three ranks, i.e. A, B and C, are introduced with the A ranking indicating the largest shortage of classrooms.

- School which borrows classrooms externally .... A

- School with a class-classroom ratio of ≥ 20 .... A

- School with a class-classroom ratio of 1.5 - 1.9 .... B

- School with a class-classroom ratio of ≤ 1.5 C

3) Evaluation of Site Suitability and Workability

The schools are ranked A, B or X depending on the degree of constraints regarding site suitability and workability with Rank A denoting the least constraints.

- No problems are anticipated in regard to the size,
  shape and topographical conditions of the site .... A

- The site requires large-scale land preparation work, such as filling .... B

- Unsuitable site for project implementation in terms of the size,
  shape and/or topographical conditions of the site X

4) Evaluation of Site Access Road

- Good passage all year round for construction vehicles .... A

- Difficult passage during the rainy season .... B

- Impassable by construction vehicles X

Table 2-2 Evaluation Results of Selected Schools

Quang Nam/Da Nang

NO.	Name of School	Deterioration Level /Rebuilding Urgency	Classroom Shortage	Land Conditions on Site	Road Access Conditions
QN1	Que Chau	A	A	B	A
QN2	Ly Tu Trong	A	B	A	A
QN3	Dai Thang	A	B	A	A
QN4	Duy Phu	A	A	A	B
QN5	Le Hong Phong	A	B	A	A
QN6	Thai Phien	A	B	A	A
QN7	Tien Chau	A	B	B	B
QN8	Vo Thi Sau	A	A	A	A
QN9	Tam Quang	A	B	A	A
QN10	Le Do	A	B	A	B
QN11	Dong Phu	A	B	A	A
QN12	Le Van Tam	A	B	A	A
DN1	Hoa Son	A	A	A	A
DN2	Hoa Lien	B	A	B	A

Quang Ngai

NO.	Name of School	Deterioration Level /Rebuilding Urgency	Classroom Shortage	Land Conditions on Site	Road Access Conditions
QG1	Binh Hoa	A	A	A	A
QG2	Tinh Ha No.2	A	B	B	A
QG3	Nghia Phu	A	A	B	A
QG4	Pho Thanh	A	A	A	A
QG5	Cho Chua	A	C	A	A
QG6	Quang Phu No.1	A	A	A	A
QG7	Son Lang No.1	A	B	A	B
QG8	Ba Vi	A	B	A	B
QG9	Tra Phu	A	B	A	A
QG10	Duc Loi	A	A	A	A
QG11	Pho Cuong No.1	A	B	A	A
QG12	Son Tinh	A	B	B	A

Binh Dinh

NO.	Name of School	Deterioration Level /Rebuilding Urgency	Classroom Shortage	Land Conditions on Site	Road Access Conditions
BD1	Dap Da	A	A	B	A
BD2	My An	B	A	B	A
BD3	An Hoa No.2	A	B	A	A
BD4	Canh Hiep	A	A	A	A
BD5	Vinh Thinh	A	A	A	B
BD6	Le Hong Phong	B	A	A	A
BD7	Phuoc Thanh	B	A	A	B
BD8	Tay Phu	A	B	A	A
BD9	Tam Quan Nam	A	B	A	A
BD10	An Thanh	A	B	A	A
BD11	Cat Khanh	B	A	A	B
BD12	Hoai Huong	A	B	B	A
BD13	Nhon Binh No.1	B	A	A	A
BD14	Vo Xan	A	A	B	A

Phu Yen

NO.	Name of School	Deterioration Level /Rebuilding Urgency	Classroom Shortage	Land Conditions on Site	Road Access Conditions
PY1	Hoa Thinh 2	A	B	B	A
PY2	Hoa Thanh 1	A	C	A	A
PY3	Hoa Quang No. 2	A	A	A	A
PY4	Hoa Tri 1	A	A	A	A
PY5	An Cu	A	A	B	A
PY6	Xuan Loc 1	B	A	B	A
PY7	La Hai 1	A	B	B	A
PY8	Cung Son 2	A	C	B	B
PY9	Hai Rieng	B	A	A	B

Khanh Hoa

NO.	Name of School	Deterioration Level /Rebuilding Urgency	Classroom Shortage	Land Conditions on Site	Road Access Conditions
KH1	Phuoc Tien	A	A	A	A
KH2	Tan Lap 1	A	B	A	A
KH3	Van Luong 1	B	A	A	A
KH4	Van Phu	A	A	A	A
KH5	Ninh An	A	A	A	A
KH6	Ninh Giang	A	C	A	A
KH7	Thi Tran 2	A	B	A	A
KH8	Yersin	B	A	B	A
KH9	Cam Hai Tay	A	B	B	A
KH10	Cam Hoa 1	B	A	A	A

Binh Thuan

NO.	Name of School	Deterioration Level /Rebuilding Urgency	Classroom Shortage	Land Conditions on Site	Road Access Conditions
BT1	Tra Tan 1	A	A	A	A
BT2	Ham Thang	A	B	B	A
BT3	La Gi 1	A	A	B	A
BT4	Phan Ri Thanh 2	A	A	B	A
BT5	Dong Kho	A	B	A	A
BT6	Phan Ri Cua 4	A	A	A	A
BT7	Tan Lap 1	A	A	A	A
BT8	Tan Lap 3	A	B	A	A
BT9	Hung Long	A	A	B	A
BT10	Mui Ne (Tien Thanh)	A	B	A	A
BT11	Duc Long	A	B	A	A

Quang Nhin

NO.	Name of School	Deterioration Level /Rebuilding Urgency	Classroom Shortage	Land Conditions on Site	Road Access Conditions
QI1	Tran Quoc Toan	B	A	A	A
QI2	Cam Som	A	A	A	A
QI3	Hong Thai Tay	A	A	B	A
QI4	Quang Trung	A	B	B	A
QI5	Cong Hoa 2	A	C	A	A
QI6	T.T. Tien Yen	A	B	A	A
QI7	T.T. Binh Lieu	A	A	A	B
QI8	Ba Che	A	B	A	B
QI9	Ha Long	A	A	A	B
QI10	T.T. Dam Ha	A	A	A	B

The evaluation results show that all of the 80 selected schools are ranked A in terms of the rebuilding urgency and necessity for additional classrooms. In terms of the site conditions, 22 sites (schools) require full-scale filling or major land preparation work as they are currently used as paddy fields or located on lowland. As there is no alternative for these sites in view of their location in paddy field areas, land preparation, i.e. filling and banking, at paddy fields earmarked as new school building sites must be conducted by the Vietnamese side prior to the commencement of construction work. Similar land preparation was smoothly conducted in the past three phases through cooperation between the local People's Committees and local inhabitants and, therefore, the work is judged not to pose any constraint on the implementation of the Project.

As far as the site access road conditions are concerned, the access road at all of the sites is capable of supporting the traffic of vehicles transporting construction equipment and materials. At 38 sites, the access road is rendered impassable due to flooding during the rainy season. However, it has been confirmed that the road impassability generally only lasts for less than one week and will not hinder the construction work. Given these evaluation results, it is judged that all 80 of the surveyed schools are suitable as candidate recipient schools.

(3) Size and Contents of Planned Facilities

The Project aims at the rebuilding of deteriorated school buildings and the construction of additional classrooms to eradicate the classroom shortage, staffrooms, toilets and water supply systems. As the size of the subject schools varies from 15 classes upto 56 classes, the number of classrooms to be rebuilt and the number of new classrooms to be added differ from one school to another depending on the conditions and layout of the existing facilities and the conditions for branch school integration. The calculation criteria described below are used to determine the design size of each school, reflecting its specific conditions.

1) Calculation of Number of Required Classrooms
   • In planning the number of classrooms for each school, it is aimed at achieving a class-classroom ratio of 1.5, which is the target for school facility improvement set by the Ministry of Education and Training, as the combined figure of main and branch schools after any branch school integration or withdrawal as a result of project implementation.

- Of the existing classrooms subject to rebuilding, those which are judged to be made safe for future use by partial repair are excluded from the scope of rebuilding.

- In response to the expected increase of pupils in the future, the number of necessary classrooms is further corrected to prevent the introduction of the three shift system by considering the likely trend of pupil increase in the next five years, in terms determined by comparing the number of school age children (6 - 10 years old) and the number of pre-school age children (1 - 5 years old) in the catchment area of each school. In the past phases, one multi-purpose classroom was included to serve special subjects, such as music and art, etc., in addition to general classrooms. However, every school has subsequently used this classroom as a general classroom to alleviate the general classroom shortage. Accordingly, no multi-purpose classroom will be provided under the present phase of the Project to increase the number of general classrooms where possible.

The process to calculate the required number of classrooms for each school is shown below.

```
┌─────────────────────────────────────┐
│ ▷ Selection of subject schools and   │
│   examination of project contents    │
└─────────────────────────────────────┘
            │
            │        ┌──────────────────────────────────────────────────────────┐
            │        │ Selection of subject classes of the project: Criteria for │
            │        │ selection                                                  │
            │        │  1. All existing classes of main schools are selected as   │
            │◀───────┤     subject schools                                        │
            │        │  2. Branch schools located within a 2.5 radius of main     │
            │        │     schools will be integrated to their respective main    │
            │        │     schools                                                │
            │        │     (Schools not requesting for integration will be        │
            │        │     excluded)                                              │
            │        │  3. Higher grades (GR 3, GR 4 and GR 5) of branch schools  │
            │        │     located outside a 2.5 km radius of main schools will be │
            │        │     integrated to their respective main schools            │
            │        │     (Schools not requesting for integration will be        │
            │        │     excluded)                                              │
            │        └──────────────────────────────────────────────────────────┘
            ▼
┌─────────────────────────────────────┐
│ ▷ Compilation of number of pupils of │
│   integrating classes                │
└─────────────────────────────────────┘
            │        ┌──────────────────────────────────────────────────────────┐
            │◀───────┤ • Calculation of appropriate number of classes based on a  │
            │        │   maximum class size of 40 students                        │
            ▼        └──────────────────────────────────────────────────────────┘
┌─────────────────────────────────────┐
│ ▷ Compilation of appropriate number  │
│   of classes for subject schools     │
└─────────────────────────────────────┘
            │        ┌──────────────────────────────────────────────────────────┐
            │◀───────┤ • Division of the number of classes by the target          │
            │        │   class-classroom ratio of 1.5 adopted by the Ministry of  │
            │        │   Education and Training                                   │
            ▼        └──────────────────────────────────────────────────────────┘
┌─────────────────────────────────────┐
│ ▷ Total number of classrooms         │
│   required [A]                       │
└─────────────────────────────────────┘
            │        ┌──────────────────────────────────────────────────────────┐
            │◀───────┤ • Analysis & decision of usable existing classrooms [B]    │
            ▼        └──────────────────────────────────────────────────────────┘
┌─────────────────────────────────────┐
│ ▷ Number of classrooms to be newly   │
│   constructed  [C] = [A] - [B]       │
└─────────────────────────────────────┘
            │        ┌──────────────────────────────────────────────────────────┐
            │        │ • Analysis on pre-school child growth rate (population of  │
            │◀───────┤   0 - 5 in age) in the subject school areas                │
            │        │ • Adjustment arrangements in order to achieve future       │
            │        │   target ratio : [C] ≦ 2.0                                 │
            ▼        └──────────────────────────────────────────────────────────┘
┌─────────────────────────────────────┐
│ ● Decision on facility type          │
│                                      │
└─────────────────────────────────────┘
```
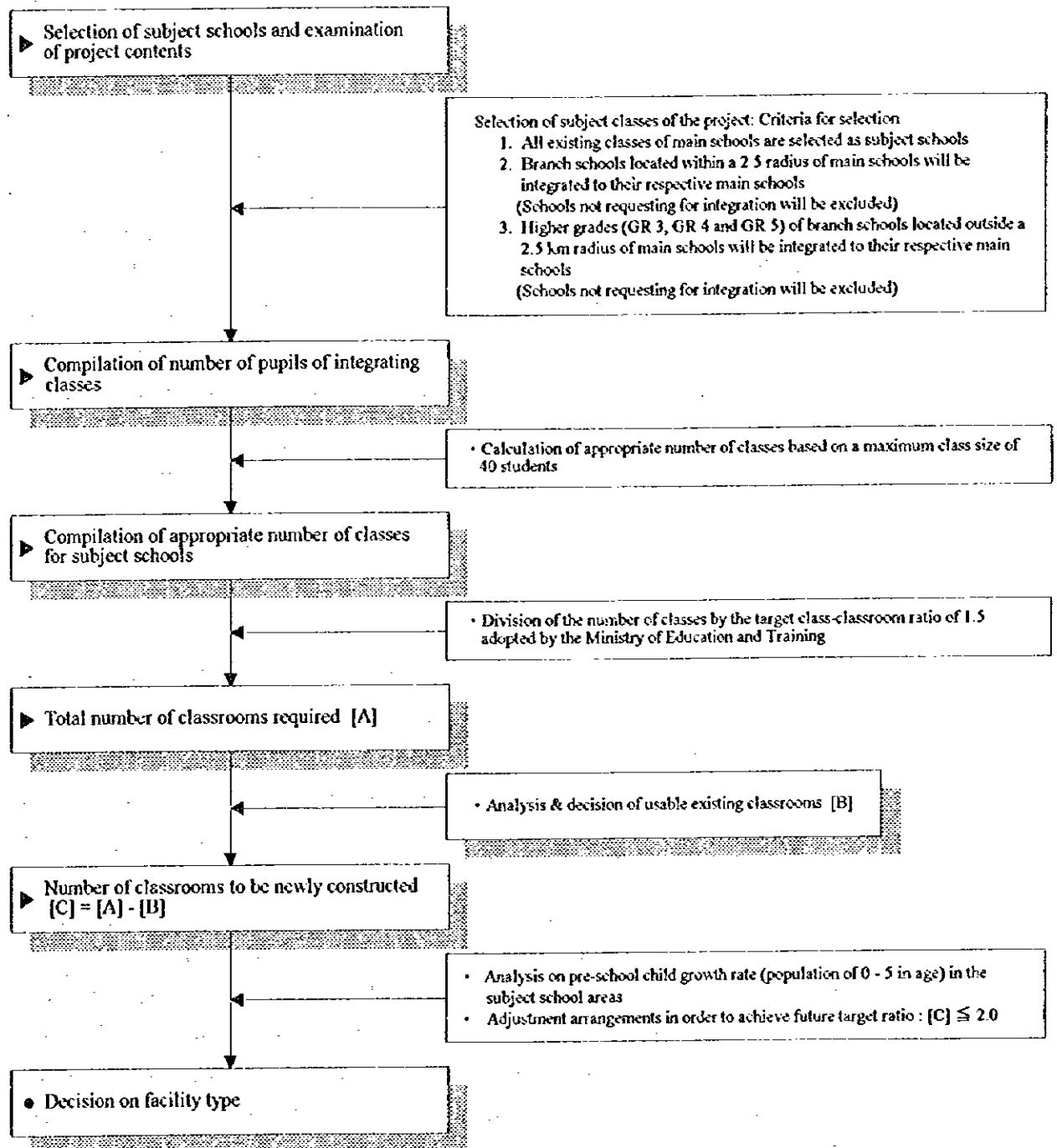
Fig.2-1 Computation Flow Chart for Required Number of Classrooms

2) Administration Rooms

The Vietnamese request for facilities includes such administration rooms as a headmaster's room and staffroom. In the past phases, an independent headmaster's room was not provided and headmaster's quarters were set aside in the staffroom. The visit to inspect the use situation of the facilities constructed in Phase I which were handed over in February, 1996 found that the headmaster's quarters had been made into a semi-independent room using screens or furniture. As the teachers generally conduct their daily administrative work in the classrooms, the staffroom appears to be used to provide offices for the deputy headmaster and accounting section or as a room for administration staff members responsible for the control of textbooks and other teaching materials and for the running of pioneer (youth) groups, etc. It is also used as a meeting room if necessary. The field survey for the Project also found that the teachers prefer to conduct their daily administrative and other work in the classroom and that private items are not kept in the staffroom. In order to respect the present form of use, the staffroom under the Project will be divided into the headmaster's office and staffroom (also acting as a meeting room) while the floor area will remain the same. In the past phases, educational equipment was stored on shelves in the multi-purpose classroom. Because of the withdrawal of this room in the present phase, however, a separate preparation room for educational equipment will be introduced.

3) Toilets

Although toilet facilities currently exist at 42 of the 80 schools surveyed, most are out of order or are not fit for actual use. Branch schools have hardly any toilet facilities. This lack of toilet facilities is a reflection of not only the lack of funding to construct them on the part of the schools but also the local reality that private houses in rural and mountain villages do not have proper toilets. This situation suggests the strong desirability of the construction of hygienic toilet facilities from the viewpoint of securing a good educational environment as well as ensuring public health. The provision of assistance for public health education in addition to the construction of toilets is also necessary. This poor state of affairs appears to reflect not only the funding shortage for the construction of toilet facilities but also the social environment in Viet Nam, particularly the fact that ordinary households in local rural as well as mountain villages lack hygienic toilet facilities. The provision of adequate toilet facilities is necessary from the viewpoint of improving the hygiene environment in general and the environment around educational facilities in particular. In this context, the cooperation should include education on toilet use and on the general importance of ensuring a hygienic environment. As only seven schools of the 80 are located in an area served by water supply and sewerage services, a water supply system using

groundwater for washing and cleaning and a simplified septic tank for ground infiltration will be provided for the planned toilets as in the case of the previous phases.

4) Equipment

The request for equipment consists of basic school fixtures and teaching materials. The school fixtures include desks and chairs for teachers and pupils, blackboards and cabinets, etc. for use in the classrooms, headmaster's room, staffroom and preparation room. The teaching materials are essential textbooks for such subjects as the Vietnamese language, arithmetic, general science, social studies, health and physical education and music and should be compatible with those provided under the Primary Education Project of the World Bank. The textbooks provided by the World Bank are those versions revised in the 1996 school year based on the curriculum and textbook development by the Ministry of Education and Training and can be procured locally. A keyboard musical instrument (electronic organ) was provided in the past phases although it is not included in the scope of the teaching materials/equipment for the World Bank Project. The field survey confirmed that this electronic organ is indeed used by the Phase I schools, that the provision of an electronic organ is strongly requested by all of the schools and that an electronic organ is used for teacher training at the provincial teacher training schools in the project areas. It is, therefore, judged to be highly appropriate to continue to provide an electronic organic under the present phase.

(4) Examination Results

Having thoroughly examined the requested facilities and equipment for the candidate recipient schools, the new phase of the Project is judged to be highly necessary, urgent and suitable as a grant aid project of the Government of Japan to succeed the previous Phase I through Phase III Projects. The appropriate contents of the Project in terms of the number of recipient schools and facility size are outlined below by province.

1) Recipient Schools and Number of Classrooms

Quang Nam Province	14 schools with	137 classrooms
Quang Ngai Province	12 schools with	175 classrooms
Binh Dinh Province	14 schools with	188 classrooms
Phu Yen Province	9 schools with	107 classrooms
Khanh Hoa Province	10 schools with	136 classrooms
Binh Thuan Province	11 schools with	140 classrooms
Quang Ninh Province	10 schools with	116 classrooms
Total	80 schools with	1,000 classrooms

2) Planning Facilities

• Rebuilding and extension of classrooms, headmaster's room, staffroom-cum-meeting room and preparation room

• New construction of toilets and water supply and drainage systems

Table 2-3 shows the examination results and planned facilities for each recipient school.

Table 2-3 Examination Results and Planned Facilities

PROVINCE : QUANG NAM /DA NANG CITY

NO. ※▲:Site	Name of Main/Branch School	Distance to Site	No. of Pupils *■=Integrating						No. of Classes						Pupils Total [A]	No. of Classes Desired [B]=[A]/40	MOET std No. of Rooms [C]=[B]/1.5	Available Rooms (Present) [D]	Rooms Required [E]=[C]-[D]	New Rooms to Construc [F]	No. of Classes [G]	No. of Rooms [H]	Class/Room Ratio [I]=[G]/[H]	Class/Room Ratio (Entire School)
			G1	G2	G3	G4	G5	Total	G1	G2	G3	G4	G5	Total										
QN 1 Que Chau	Phau Hieu 12	2.00	59	52	67	64	78	142	2	2	2			6							6	4	1.50	
	Thon 3	4.00	30	16	0	0	0	0	1	1				2							2	1	2.00	
	Thon 6b	7.00	15	14	16	0	0	0	1	1	1			3							3	2	1.50	
	Thon 4	0.30	97	68	87	72	82	406						0							0	1	0.00	
▲	New Site	0.00												12	548	14	9	0	9	9	14	9	1.52	1.45
QN 2 Ly Tu Trong	Thon 9	0.00	95	73	99	89	131	487							625	16	10	3	7	8	16	11	1.42	1.44
	Thon 7	1.50	25	27	0	0	0	52						0							0	0	—	
	Thon 6	2.50	22	22	13	17	0	30	1	1				2							2	2	1.00	
	Thon 5	3.00	33	29	29	27	54	56	1	1				2							2	2	1.00	
	Thon 2	3.00	72	58	73	54	61	0	3	2	3	2	2	12							12	7	1.71	
QN 3 Dai Thang	Dai Thang	0.80	0	0	100	195	198	493	0	0				0							0	0	—	
	Xuan Nam	1.20	16	23	0	0	0	0	1	1				2							2	1	2.00	
	Xuan Dong	1.00	43	33	0	0	0	0	1	1				2							2	1	2.00	
▲	Phu An	0.00	57	58	0	0	0	115	1					18	710	18	12	0	12	11	18	11	1.61	
	Binh Dong	0.60	29	36	0	0	0	0	1	1				2							2	1	2.00	
	Binh Tay	0.60	25	0	39	0	0	39	1	0	1			1							1	1	2.00	
	Phu Long	1.00	29	31	63	0	0	63	1	1	1			2							2	1	1.00	
	Giang Hoa	1.30	26	23	0	0	0	0	1	1	0			2							2	1	2.00	
QN 4 Duy Phu	Thon 7	2.30	34	93	97	74	130	428	2	2				0							0	0	—	
	Thon 1	5.00	70	69	44	54	0	98						4							4	4	1.00	
▲	Thon 7	0.80	66	0	0	0	0	66						0	592	15	10	0	10	11	15	11	1.35	1.25
QN 5 Le Hong Phong	Le Hong Phong	0.00	97	73	87	83	85	425	2	2	2			0	625	16	10	3	7	8	16	11	1.42	
	Sub 1	1.00	23	15	0	0	0	38	1					8							8	6	1.33	
	Sub 2	2.00	83	68	73	64	70	70	2	2	2	2	0	2							2	2	1.00	
	Sub 3	2.50	38	28	0	66	0	0	1	1	0	2		9							9	6	1.50	
	Sub 4	2.20	55	89	66	70	92	92	2	3	2	1		3							3	1	3.00	
	Sub 5	2.50	37	0	26	35	0	0	1	0	1	1	0	6							6	4	1.50	
	Sub 6	3.00	46	67	36	34	36	0	1	2			1	6							6	4	1.50	
QN 6 Thai Phien	Hiep Thung	1.00	30	45	35	45	0	155						0							0	0	—	
	Phuoc An	1.00	70	65	65	76	75	351						0							0	0	—	
	Dong Tri	2.00	33	0	0	38	38	109						0							0	0	—	
	Au Treu	3.00	38	40	34	41	0	75	1					2							2	2	1.00	
▲	New Site	3.00												17	690	17	12	0	12	11	17	11	1.57	1.45
QN 7 Tien Chau	Tien Chau	0.10	62	54	59	54	73	302	2	2				0							0	0	—	
	Thon 1	0.30	35	28	27	26	0	116	2	1				0							0	0	—	
	Thon 3	0.10	51	57	61	73	55	189	1					4							4	3	1.33	
	Thon 4	2.00	15	13	0	0	0	0						2							2	2	1.00	
▲	New Site													0	607	15	10	0	10	9	15	9	1.69	1.51

Table: School facilities planning (Quang Nam / Da Nang) — Integrating computation

NO. Name of School ※▲ Site	Name of Main/Branch School	Distance to Site	Pupils G1	G2	G3	G4	G5	Total	Cl. G1	G2	G3	G4	G5	Total	Pupils Total [A]	No. of Classes Desired [B]=[A]/40	MOET std No. of Rooms [C]=[B]/1.5	Available Rooms (Present) [D]	Rooms Required [E]=[C]-[D]	New Rooms to Construc [F]	No. of Classes [G]	No. of Rooms [H]	Class/Room Ratio [J]=[G]/[H]	Class/Room Ratio (Entire School)
QN Vo Thi Sau 8	Dau Trung	1.00	90	72	66	58	115	401						0							0	0	—	
	Thanh Toa	1.00	60	36	28	59	0	183						0							0	0	—	
▲	New Site													0	584	15	10	0	10	11	15	11	1.33	1.33
QN Tam Quang 9	Tam Quang ▲	0.00	154	202	192	173	172	893						0	973	24	16	4	12	13	24	17	1.43	1.43
	Thon 1	0.50	80	0	0	0	0	80						0							0	0	—	
QN Le Do 10	Thon 2a ▲	0.00	56	45	55	94	134	384						0	384	10	6	0	6	8	6	5	1.20	1.33
	Thon 1	3.00	30	20	15	30	0	95	1	1	1	1	0	4							4	2	2.00	
	Thon 3-4	3.00	36	42	46	0	0	124	1	2	1	0	0	4							4	3	1.33	
	Thon 2b	4.00	22	0	0	0	0	22	1	0	0	0	0	1							1	1	1.00	
QN Dong Phu 11	Dau Tn	1.00	40	31	73	110	147	401						0							0	0	—	
	Thon 2	1.00	90	72	41	0	0	203						0							0	0	—	
	Thon 3	3.00	27	18				62	1	1				2							2	2	1.00	
	Thon 4	4.00	28	22				29	1	1				2							2	2	1.00	
	Thon 5	4.00	25	20				65	1	1				2							2	2	1.00	
▲	New Site													0	760	19	13	0	13	12	19	12	1.58	1.39
QN Le Van Tam 12	Le Van Tam	0.10	84	83	88	84	78	417						0							0	0	0.00	
▲	New Site													0	417	10	7	0	7	8	10	8	1.30	0.95
DN Hoa Son 1	Xuan Phu	0.30	119	77	99	94	98	291	3	2				5							5	3	1.67	
	An Ngai Tay	4.00	104	78	67	67	79	213	3	2				5							5	3	1.67	
	An Ngai Dong	5.00	29	29	41	22	0	63	1	1				2							2	1	2.00	
	Dai La	4.00	28	21	0	0	0	0	1	1	0	0	0	2							2	1	2.00	
	Hoa Khe	3.00	18	21	0	0	0	0	1	1	0	0		2							2	2	1.00	
▲	New Site													0	567	14	9	0	9	9	14	9	1.58	1.59
DN Hoa Lien 2	Quan Nam	1.00	105	88	90	104	98	0	3	3	3	3	3	15							15	9	1.67	
	Truong Dinh	2.00	40	32	27	28	19	0	1	1	1	1	1	5							5	3	1.67	
	Trung Son	1.50	29	0	0	20	0	20	1					1							1	1	1.00	
	Van Duong	1.50	44	52	56	63	116	331						0							0	0	—	
	Huong Phuoc	0.30	36	35	0	0	0	71						0							0	0	—	
	Tan Ninh	1.00	41	25	35	35	0	136						0							0	0	—	
▲	New Site													0	558	14	9	0	9	9	14	9	1.58	1.59
	Total							8,640						130	8,640	216	144	10	134	137	346	241	1.55	1.44

PROVINCE : QUANG NGAI

NO. ※▲: Site	Name of Main/Branch School	Distance to Site	No. of Pupils (▓=Integrating)						After Integration: No. of Classes						Computation: No. of New Classrooms						No. of Classes & rooms			
			G1	G2	G3	G4	G5	Total	G1	G2	G3	G4	G5	Total	Pupil Total [A]	No. of Classes Desired [B]=[A]/40	MOET std No. of Rooms [C]=[B]/1.5	Available Rooms (Present) [D]	Rooms Required [E]=[C]−[D]	New Rooms to Construc [F]	No. of Classes [G]	No. of Rooms [H]	Class/Room Ratio [0]=[G]/[H]	Class/Room Ratio (Entire School)
QG 1 Binh Hoa	Dong Trung A	2.00	0	0	41	36	67	144						0							0	0	—	
	Lac Son	0.50	28	30	24	25	0	107						0							0	0	—	
▲	Dong Trung B	0.00	38	32	0	0	0	70						0	895	22	15	0	15	15	22	15	1.49	
	An Cuong	3.00	45	42	40	38	35	200						0							0	2	0.00	
	Long Binh	2.00	42	39	31	34	0	146						0							0	0	—	
	Ngoc Huong	1.50	38	0	0	0	34	72						0							0	0	—	
	An Khuong?	1.50	0	0	0	0	14	14						0							0	0	—	
	Loc Tu	2.00	32	40	37	33	0	142						0							0	0	—	1.32
QG 2 Tinh Ha No.2	Tinh Ha No.2	0.00	98	108	77	218	271	772						0	1,137	28	19	0	19	19	28	19	1.50	
▲	Ha Nhai	1.50	104	78	98	0	0	280	2	2				4							0	4	1.00	
	Tho Loc	1.50	67	74	85	0	0	85						0							0	0	—	1.41
QG 3 Nghia Phu	Tu Lam	0.50	0	0	156	192	191	539						0							0	0	—	
	Co So II Uy Ban	0.20	206	192	0	0	0	398						0	937	23	16	0	16	15	23	15	1.56	
▲	New Site	0.00																				20		1.56
QG 4 Pho Thanh	Pho Thanh	0.00	362	248	158	167	165	1,100	2	2				0	1,391	35	16	2	16	20	35	22	1.58	
▲	Long Thanh	3.00	86	83	117	168	123	291	2	2	3			7			23		21		7	7	1.00	
	Tan Loc	1.50	90	82	78	0	0	0			2	0		6							6	3	2.00	1.49
QG 5 Cho Chua	Phu Vinh	0.00	164	109	116	112	113	614						0	989	25	16	0	16	11	25	11	2.25	
▲	Phu Binh	1.00	78	84	72	55	86	375						0							0	8	0.00	1.30
QG 6 Quang Phu No.1	Quang Phu	0.00	177	164	153	158	140	792						0	989	25	16	2	14	11	25	17	1.45	1.45
QG 7 Son Lang	Truong Chinh	0.00	43	43	41	38	32	197						0							0	0	—	
	Tram Dau	0.30	117	39	76	104	94	274						0							0	0	—	
	Nha Tre	0.50	0	162	75	0	0	156						0							0	0	—	
	Xom Ca Tu	1.50	39	0	0	0	0	237						0		20	14	0	14	14	0	0	—	
	Lang Dau	3.00	42	0	0	0	0	39						0	817						0	0	—	
	Nuoc Rec	2.00	35	0	0	0	0	42						0							0	0	—	
	Nuoc Nia	10.00	72	0	0	0	0	35	2					2						15	2	2	1.00	
▲	Xom Song	1.50	34	0	0	0	0	0						0							0	0	—	
▲	New Site							34						0							20	15	1.36	1.32
QG 8 Ba Vi	Truong Xe	0.20	35	109	126	76	31	377						0							0	0	—	
	Mang Con	0.50	35	0	0	0	0	35						0							0	0	—	
	Go Vans	1.00	30	0	0	0	0	30	2					2	507	13	8	0	8	9	2	2	1.00	
	Mioc Xuyen	3.00	75	40	0	0	0	0	1	1				3							3	2	1.50	
	Mang Den	3.00	30	40	0	0	0	0		1				2							2	1	2.00	
	Y Vxrg	2.00	30	0	0	0	0	30						0							0	0	—	
	Nuoc Ui	3.00	75	0	0	0	0	0	2					2							2	1	2.00	
▲	Go Nang	1.50	35	0	0	0	0	35						0							0	0	—	
▲	New Site																				13	9	1.41	1.41
QG 9 Tra Phu	Tra Phu	0.00						783						0	783	20	13	0	13	13	20	13	1.51	1.51
			149	183	161	125	165	783																

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NO. Name of School ※▲:Site	Name of Main/Branch School	Distance to Site	No. of Pupils G1	G2	G3	G4	G5	Total	No. of Classes G1	G2	G3	G4	G5	Total	Pupils Total [A]	No. of Classes Desired [B]=[A]/40	MOET std No. of Rooms [C]=[B]/1.5	Available Rooms (Present) [D]	Rooms Required [E]=[C]-[D]	New Rooms to Construc [F]	No. of Classes [G]	No. of Rooms [H]	Class/Room Ratio [I]=[G]/[H]	Class/Room Ratio (Entire School)
QG Duc Loi 10	Duc Loi	0.40	106	73	78	41	65	184	3	2				5							5	4	1.25	
	THCS Duc Loi	0.40	107	77	59	30	75	348						0							0	0	–	
	Vinh Phu	1.00	37	24	35	64	30	153	1					1							1	1	1.00	
	An Mo	0.50	47	33	29	28	37	127	1					1							1	1	1.00	
▲	New Site														812	20	14	0	14	13	20	13	1.56	1.44
QG Pho Cuong No.1 11	Pho Cuong	0.40	118	102	148	124	181	673	3	3				0							0	0	–	
	Thanh Son	1.50	118	120	73	82	0	155						6							6	5	1.20	
	Thuy Thach	1.50	40	37	0	0	0	37	1					1							1	1	1.00	
▲	New Site														865	22	14	0	14	15	22	15	1.44	1.36
QG Son Tinh 12	Truong Tho	0.50	169	131	143	131	124	698	3	3	4			0							0	0	–	
	Lien Hiep	1.50	101	102	125	113	78	191	1	1	1			10							10	6	1.67	
* One G3 class from Lien Hiep will be transferred	Lien Quyet Thang	2.00	26	20	19	17	0	0	1	1	1	1	0	4							4	3	1.33	
▲	New Site														889	22	15	0	15	15	22	15	1.48	1.51
	Total							11,011						54	11,011	275	184	4	180	175	329	230	1.43	

* ■ =integrating

PROVINCE : BINH DINH

NO. ※▲:Site	Name of Main/Branch School	Distance to Site	Before: Pupils G1	G2	G3	G4	G5	Total	Before: Classes G1	G2	G3	G4	G5	Total	Pupils Total [A]	Classes Desired [B]=[A]/40	MOET std Rooms [C]=[B]/1.5	Avail. Rooms [D]	Rooms Req. [E]=[C]-[D]	New Rooms [F]	Classes [G]	Rooms [H]	Ratio [I]=[G]/[H]	Ratio (Entire School)
1 BD Dep Da ▲	Bang Chau	0.00	175	104	85	114	190	668						0	931	23	16	0	16	15	23	15	1.55	
	Nguyen Truong T	0.00	0	69	41	39	0	149						0							0	0	–	
	Bang Chau Trung	0.30	41	28	30	25	0	55	1	1				2							2	2	1.00	
	Mi Hoa	1.50	43	33	34	25	0	59	1	1				2							2	2	1.00	1.44
2 BD My An	Chanh Giao	1.20	36	61	0	0	116	213						0							0	0	–	
	Thuan Dao	2.90	78	45	48	39	36	123	2	1				3							3	3	1.00	
	Hoa Ninh	2.40	34	33	35	43	0	78		1				2							2	2	1.00	
	Xuan Thanh	2.10	184	180	155	81	0	236	5	5				10							10	5	2.00	
	Xuan Phuong	1.80	34	33	36	41	0	77	1	1				2							2	2	1.00	
▲	New Site														727	18	12	0	12	11	18	11	1.65	1.53
3 BD An Hoa No.2 ▲	Khu B	0.00	75	75	48	108	80	386						0	1,134	28	19	3	16	17	28	20	1.42	
	Khu A	0.60	90	73	104	68	97	432						0							0	0	–	
	Khu C	0.80	76	81	79	40	40	316						0							0	0	–	1.42
4 BD Canh Hiep	Canh Hiep	1.00	171	115	78	52	50	466						0							0	0	–	
	Hiep Hung	3.00	31	26	0	0	0	0	1	1	0	0	0	2							2	2	1.00	
	Suoi Da	3.00	32	22	0	0	0	0	1	1	0	0	0	2							2	1	2.00	
	Canh Giao	24.00	30	20	0	0	0	0	1	1	0	0	0	2							2	2	1.00	
▲	New Site														466	12	8	0	8	8	12	8	1.46	1.36
5 BD Vinh Thinh No.1 ▲	Vinh Thinh	0.00	0	0	0	130	204	334						0	969	24	16	5	11	11	24	16	1.51	
	Vinh Giang	0.50	70	38	0	0	0	108						0							0	0	–	
	Hop Tac Xa	0.50	68	77	69	67	0	281						0							0	0	–	
	Vinh Thai	1.50	137	114	132	0	0	246	4					4							4	3	1.33	1.49
6 BD Le Hong Phong	Le Hong Phong	0.80	485	247	273	0	374	1,379						0							20	0	0.00	
	PPCS Le Hong P	0.40	0	235	88	0	0	323						0							0	0	–	
	PTTH Quoc Hoc	0.80	0	0	212	492	0	704						0							0	0	–	
▲	New Site														2,406	60	40	20	20	19	60	39	1.54	1.02
7 BD Phuoc Thanh ▲	Phuoc Thanh	0.00	145	132	80	173	64	594						0	966	24	16	6	10	9	24	15	1.61	
	Phuoc Thanh Mu	1.00	66	65	64	84	93	195						0							0	0	–	
	Binh An	1.50	109	120	141	84	93	177	3	4	3			10							10	7	1.43	1.55
8 BD Tay Phu ▲	Phu Tho	0.00	148	105	89	90	103	535						0	1,101	28	18	6	12	11	28	17	1.62	
	Qey da	1.00	40	35	33	38	60	98	1	1				3							3	2	1.50	
	Qay Me	0.50	37	37	60	38	0	135	1					1							1	1	1.00	
	Phu My	1.00	93	98	68	94	73	333	2					2							2	2	1.00	
	Dong Do	2.00	30	0	0	0	0	0	1					1							1	1	1.00	1.50

				Before Integration						After Integration															
NO.	Name of School ※▲: Site	Name of Main/Branch School	Distance to Site	No. of Pupils * ▨=Integrating						No. of Classes						Computation: No. of New Classrooms						No. of Classes & rooms			
				G1	G2	G3	G4	G5	Total	G1	G2	G3	G4	G5	Total	Pupils Total [A]	No. of Classes Desired [B]=[A]/40	MOET std No. of Rooms [C]=[B]/1.5	Available Rooms (Present) [D]	Rooms Required [E]=[C]-[D]	New Rooms to Construc [F]	No. of Classes [G]	No. of Rooms [H]	Class/Room Ratio [I]=[G]/[H]	Class/Room Ratio (Entire School)
BD 9	Tam Quan Nam	Loi Tay Cu	1.50	74	0	63	41	75	253						0							0	0	–	
		Loi Tay Moi	1.50	77	96	36	36	36	0	2	3	1	1	1	8							8	4	2.00	
		Duong 4	2.00	0	59	71	77	0	148	0	2				2							2	3	0.67	
		Loi Bac	2.50	36	0	32	0	0	32	1	0				1							1	1	1.00	
		Trung Trinh 1	0.50	0	37	70	35	66	208						0							0	0	–	
		Trung Trinh 2	0.50	41	0	0	32	0	73						0							0	0	–	
		Chom Chua	1.00	38	35	38	37	69	217						0							0	0	–	
		Tang Long Cu	0.40	79	37	29	31	0	176						0							0	0	–	
		Tang Long Moi	0.40	0	73	30	33	64	0	0	2	1	1	2	6							6	3	2.00	
		▲ New Site														1,107	28	18	0	18	19	28	19	1.46	1.49
BD 10	An Thanh	▲ The Thanh	0.00	112	93	92	95	155	547						0	702	18	12	3	9	9	18	12	1.46	
		An Thuong	2.50	66	78	47	74	37	111	2	2	1			5							5	5	1.00	
		Hoi An	3.00	56	55	34	44	0	44	2	2	1			5							5	4	1.25	
		Phu Van	3.00	39	37	31	34	0	0	1	1	1	1	0	4							4	3	1.33	1.31
BD 11	Cat Khanh	▲ Thang Kien	0.00	156	138	102	102	198	696						0	1,238	31	21	6	15	15	31	21	1.47	
		An Phu	0.30	118	112	101	70	0	283	4					4							4	1	4.00	
		Chanh Loi	0.50	135	48	106	105	0	259	5					5							5	5	1.00	1.48
BD 12	Hoai Huong	Truong Chinh	0.30	65	33	0	63	247	408						0							0	0	–	
		Ca Cong	0.50	57	78	91	108	0	0	2	2	3	3	0	10							10	7	1.43	
		Trung Ly	0.20	36	67	146	61	0	310						0							0	0	–	
		Dong Ly	0.25	36	34	0	0	0	70						0							0	0	–	
		▲ New Site														788	20	13	0	13	13	20	13	1.52	1.49
BD 13	Nhon Binh No.1	▲ Nhon Binh No.1	0.00	152	129	135	130	141	687						0	1,369	34	23	7	16	15	34	22	1.56	
		Cap 2	0.40	0	90	90	80	0	260	0					0							0	0	–	
		Luong Nong Tay	0.80	76	75	46	41	38	200	2					2							2	2	1.00	
		Luong Nong Dong	1.00	74	68	45	0	34	147	2					2							2	2	1.00	
		Diem Nghiep	1.50	74	40	45	0	30	75	2	1				3							3	2	1.50	
		Dong Dinh	2.00	36	0	0	0	0	0	1	0	0	0	0	1							1	1	1.00	1.46
BD 14	Vo Xan	▲ Vo Xan	0.00	266	220	269	235	220	1,210						0	1,210	30	20	4	16	16	30	20	1.51	
		Tran Quang Dieu	2.00	95	84	0	0	0	0	3	2	0	0	0	5							5	3	1.67	1.53
		Total							15,114						111	15,114	378	252	60	192	188	489	351	1.39	1.39

PROVINCE : PHU YEN

Before Integration — No. of Pupils (■ = Integrating)

NO. / ※▲: Site	Name of Main/Branch School	Distance to Site	G1	G2	G3	G4	G5	Total
1 ▲ PY Hoa Thinh 2	My Xuan	0.00	100	59	178	0	132	469
	My Phu	0.80	33	72	0	179	68	247
	My Truong	0.50	29	38	56	0	0	123
	My Dien	1.00	35	30	0	0	0	65
	My Lam	0.70	29	0	0	0	0	0
	My Canh	1.00	21	13	0	0	0	0
2 ▲ PY Hoa Thanh 1	Vang Nam Trong	0.00	121	105	95	120	112	553
	Vung Nhon	1.50	35	28	32	0	0	32
3 PY Hoa Quang No.2	Mau Lam	0.15	0	0	69	129	116	314
	Hanh Lam	1.50	54	56	49	49	58	156
	▲ Mau Lam Bac	0.00	73	72	0	0	0	145
	Thanh Lam	1.00	41	39	33	0	0	113
4 PY Hoa Tri 1	Phung Tuong	0.50	127	123	107	104	106	317
	Long Phung	1.00	71	62	39	71	79	322
	Long Tuong	1.50	37	33	36	33	0	69
	▲ Phung Nguyen	2.00	34	37	31	31	27	0
								708
5 PY An Cu	Doi	0.80	0	76	81	0	74	231
	Dinh Cu	1.00	135	37	37	0	0	172
	▲ Mei	0.00	0	0	0	0	0	0
	Hoa Lhong	0.50	28	71	41	126	40	274
	Hoa Nuoc	1.50	12	31	0	42	65	207
	Dia	1.30	56	17	69	0	0	111
	Xam Cam	1.50	33	33	33	42	42	120
				65	45			
6 ▲ PY Xuan Loc	Chanh Loc	0.00	143	121	122	140	128	654
	Tho Loc	1.50	47	47	42	36	0	78
	Kinh Te Moi	2.00	23	23	29	65	39	133
	Diem Truong	3.00	56	37	35	0	0	0
7 PY Le Hai	Chua	0.80	79	97	99	89	95	459
	Ga	0.20	51	61	67	68	75	322
	Long Binh	1.20	31	23	24	22	0	46
	Long Thang	0.80	35	0	0	0	0	0
	Long Ha	1.50	41	53	45	62	44	0
	Long An	1.20	8	12	10	0	0	0
	▲ New Site							

After Integration — Computation: No. of New Classrooms / No. of Classes & rooms

Site	Pupils Total [A]	No. of Classes Desired [B]=[A]/40	MOET std No. of Rooms [C]=[B]/1.5	Available Rooms (Present) [D]	Rooms Required [E]=[C]-[D]	New Rooms to Construc [F]	No. of Classes [G]	No. of Rooms [H]	Class/Room Ratio [I]=[G]/[H]	Class/Room Ratio (Entire School)
PY Hoa Thinh 2	904	23	15	0	15	15	23	15	1.51	1.30
(My Phu)							3	5	0.60	
(My Truong)							0	0	–	
(My Dien)							0	0	–	
(My Lam)							1	1	1.00	
(My Canh)							2	1	2.00	
PY Hoa Thanh 1	585	15	10	0	10	9	15	9	1.63	1.51
(Vung Nhon)							2	2	1.00	
PY Hoa Quang No.2	728	18	12	2	10	9	18	11	1.65	1.48
(Mau Lam)							0	0	–	
(Hanh Lam)							4	4	1.00	
(Thanh Lam)							0	0	–	
PY Hoa Tri 1	708	18	12	0	12	11	18	11	1.61	1.64
(Phung Tuong)							8	3	2.67	
(Long Phung)							0	0	–	
(Long Tuong)							2	3	0.67	
(Phung Nguyen)							5	3	1.67	
PY An Cu	1,115	28	19	3	16	15	28	18	1.55	1.66
(Doi)							0	0	–	
(Dinh Cu)							0	0	–	
(Hoa Lhong)							6	1	6.00	
(Hoa Nuoc)							4	3	1.33	
(Dia / Xam Cam)							2	2	1.00	
PY Xuan Loc	865	22	14	0	14	13	22	13	1.66	1.60
(Tho Loc)							3	3	1.00	
(Kinh Te Moi)							3	3	1.00	
(Diem Truong)							6	2	3.00	
PY Le Hai	827	21	14	0	14	13	21	13	1.59	1.73
(Ga)							0	0	–	
(Long Binh)							2	2	1.00	
(Long Thang)							2	1	2.00	
(Long Ha)							12	5	2.40	
(Long An)							3	2	1.50	

NO. Name of School ※▲: Site	Name of Main/Branch School	Distance to Site	No. of Pupils (■=Intergrating)						No. of Classes						Computation: No. of New Classrooms						No. of Classes & rooms			
			G1	G2	G3	G4	G5	Total	G1	G2	G3	G4	G5	Total	Pupils Total [A]	No. of Classes Desired [B]=[A]/40	MOET std No. of Rooms [C]=[B]/1.5	Available Rooms (Present) [D]	Rooms Required [E]=[C]-[D]	New Rooms to Construc [F]	No. of Classes [G]	No. of Rooms [H]	Class/Room Ratio [I]=[G]/[H]	Class/Room Ratio (Entire School)
PY Cung Son 2 8	Dong Hoa	1.50	70	69	71	71	60	202	2	2				4							4	4	1.00	
	Truong Chua	3.00	0	0	0	0	0	0	0	0	1	0	0	1							1	2	0.50	
	Hon Ngang	0.30	74	23	47	0	26	170						0							0	0	—	
	Kiem Lam	0.30	0	31	31	86	57	205						0							0	4	0.00	
	Tay Hoa	1.50	92	83	70	88	75	233	3	2				5							5	7	0.71	
	Tinh Son	5.00	60	60	45	60	38	0	2	2	2	3	1	10							10	5	2.00	
	▲ New Site														810	20	14	0	14	13	20	13	1.56	1.15
PY Hai Rieng 9	HaiRieng	1.00	237	177	176	217	192	585	7	5				12							12	5	2.40	
	Thon1	3.50	40	42	34	29	0	0	2	1	1	1	0	5							5	4	1.25	
	Thon3	5.00	49	36	44	0	0	0	1	0	1	0	0	1							1	2	0.50	
	Buon Tho	2.00	18	14	0	0	0	0	2	2	1	0	0	5							5	1	5.00	
	Buon Dien	5.00	22	42	0	0	0	0	2	2	0	0	0	4							4	2	2.00	
	Buon Bach	7.00	14	10	9	4	0	0	1	1	0	0	0	2							2	1	2.00	
	▲ New Site														585	15	10	0	10	9	15	9	1.63	1.82
	Total							7,835						134	7,127	178	119	5	114	107	297	195	1.52	1.52

PROVINCE : KHANH HOA

NO. / Site	Name of Main/Branch School	Distance to Site	G1	G2	G3	G4	G5	Total	G1	G2	G3	G4	G5	Total(Cl)	Pupils Total [A]	Classes Desired [B]=[A]/40	MOET std Rooms [C]=[B]/1.5	Available Rooms [D]	Rooms Required [E]=[C]-[D]	New Rooms Construc [F]	Classes [G]	Rooms [H]	Class/Room Ratio [G]/[H]	Class/Room Ratio (Entire School)
KH1 Phuoc Tien	▲ Phuoc Tien	0.00	400	395	433	380	323	1,931						0	1,931	48	32	11	21	22	48	33	1.46	1.46
KH2 Tan Lap 1	▲ Tan Lap	0.00	236	272	240	211	169	1,128						0	1,128	28	19	0	19	20	28	20	1.41	1.41
KH3 Van Luong 1	▲ Hieu Long	0.00	177	171	246	214	165	973						0	973	24	16	5	11	11	24	16	1.52	1.50
	Luong Hai	0.60	88	98	0	0	0	0	3	3	0	0	0	6							6	3	2.00	
KH4 Van Phu	▲ Phu Cang 2	0.00	36	41	109	71	130	387						0	489	12	8	0	8	9	12	9	1.36	1.36
	Kinh Te Moi	7.50	73	47	52	30		0	2	2	1	1	0	6							6	3	2.00	
	Vinh Hue	2.10	42	36	0	0	0	0	1	1				2							2	1	2.00	
	Cay Gao	1.20	42	36	0	0	0	0	1	1				2							2	1	2.00	
	Phu Cang 2 19/5	0.50	64	41	0	35	0	35	2	1				3							3	2	1.50	
	Van Phu2	0.50	0	0	36	31	0	67						0							0	0	–	1.86
KH5 Ninh An	▲ Ninh	0.00	76	66	98	79	89	408		2				3	819	20	14	5	9	9	20	14	1.46	1.46
	Lac Hoa	2.00	59	42	58	46	41	145	1					3							3	3	1.00	
	Ngoc son	1.00	25	40	47	32	40	184						0							0	0	–	
	Phu Gia	0.50	39	43	0	0	0	82						0							0	0	–	
		4.00	30	20	0	0	0	0	1	1				2							2	1	2.00	1.25
KH6 Ninh Giang	▲ My Chauh	0.00	44	37	34	67	29	211						0	779	19	13	0	13	13	19	13	1.50	1.50
	Phong Phu	0.70	127	76	102	77	75	457						0							0	0	–	
	Phu Thinh	1.50	36	33	0	0	0	0	1	1				2							2	1	2.00	
	Tuanh Chau	0.50	35	24	26	0	26	111						0							0	0	–	2.00
KH7 Thi Tran 2	▲ T.T Khauh Vinh	0.00	64	67	75	144	110	460	4	3				7	548	14	9	0	9	9	14	9	1.52	1.59
	Amamoo	1.00	133	98	88	134	0	88						0							7	4	1.75	
KH8 Yarsin	Tau Suong	0.20	149	102	179	140	140	704						0							0	0	–	
	Tho Mo	0.60	36	68	0	0	0	104	1	1	0	0		2							2	2	1.00	
	Suoi Leu	3.00	22	17	0	0	0	0	1	0	0	0		1							1	1	1.00	
	Suoi Giot	7.00	28	11	0	0	0	0						0										
	▲ New Site														808	20	13	0	13	13	20	13	1.55	1.45
KH9 Cam Hai Tay	▲ Bai Gieng	0.00	145	136	196	142	166	785	1	1	1	1	1	0	1,129	28	19	0	19	19	28	19	1.49	1.57
	Bao Uinh	3.00	77	65	67	70	65	344						0							0	0	–	
	Tau Hai	5.00	28	18	20	23	21	0	1	1	1	1	1	5							5	3	1.67	
	Hai Trieu	1.00	75	54	39	38	0	0	2	2	1	1	0	6							6	3	2.00	
KH10 Cam Hoa 1	Giuse	0.70	83	71	73	68	71	366						0	1,077	27	18	6	12	12	27	18	1.50	1.33
	▲ Cuu Loi	0.00	101	100	69	73	73	416	3	2				5							27	18	1.50	
	Van Tu	1.20	102	89	113	91	91	295													5	6	0.83	
Total								9,681						52	9,681	242	161	27	134	137	294	198	1.48	1.48

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PROVINCE : BINH THUAN

NO. ※▲: Site	Name of Main/Branch School	Distance to Site	No. of Pupils G1	G2	G3	G4	G5	Total	No. of Classes (Total)	Pupils Total [A]	No. of Classes Desired [B]=[A]/40	MOET std No. of Rooms [C]=[B]/1.5	Available Rooms (Present) [D]	Rooms Required [E]=[C]-[D]	New Rooms to Construc [F]	No. of Classes [G]	No. of Rooms [H]	Class/Room Ratio [I]=[G]/[H]	Class/Room Ratio (Entire School)
BT1 Tra Tan 1	▲ Thon 1	0.00	206	146	157	139	129	777	0	825	21	14	2	12	11	21	13	1.59	
	Thon 5	3.00	123	62	53	42	38	0	9							9	4	2.25	
	Thon 4	1.20	84	36	30	18	0	48	3							3	2	1.50	1.72
BT2 Ham Thang	Co So A	0.20	183	132	157	137	92	701	0							0	0	–	
	Co So B	1.50	61	40	44	29	37	110	3							3	4	0.75	
	Co So C	2.50	68	42	62	55	57	174	3							3	4	0.75	
	▲ New Site								3	985	25	16	0	16	15	25	15	1.64	1.33
BT3 Lag 1	Lag 1	0.80	345	273	0	0	159	432	8							8	4	2.00	
	Lag 2	0.80	0	0	258	256	38	552	0							0	0	–	
	▲ New Site									984	25	16	0	16	15	25	15	1.64	1.72
BT4 Phan Ri Thanh 2	Binh Thuy	0.50	115	94	175	209	157	750	0							0	0	–	
	Binh Le	0.50	180	161	39	0	0	380	0							0	0	–	
	▲ New Site								0	1,130	28	19	0	19	19	28	19	1.49	1.49
BT5 Dong Kho	Dong Kho P.S.	0.00	143	141	156	167	125	732	0	732	18	12	3	9	9	18	12	1.53	
	Ta Trang	1.50	32	36	0	0	0	0	2							3	5	0.60	
	Ta Pao	1.80	67	0	0	0	0	0	1							0	0	–	1.25
BT6 Phan Ri Cua 4	▲ Phan Ri Cua	0.00	230	185	194	131	68	808	0	808	20	13	2	11	12	20	14	1.44	1.44
BT7 Tan Lap 1	▲ Thon 7	0.00	138	51	120	168	173	650	0	706	18	12	2	10	9	18	11	1.60	
	Km 28	1.00	61	101	56	0	0	56	3							3	2	1.50	1.59
BT8 Tan Lap 3	▲ Km 32	0.00	97	79	102	114	55	447	0	447	11	7	0	7	9	11	9	1.24	
	Lap Binh	5.00	88	93	37	0	0	0	6							6	3	2.00	1.43
BT9 Hung Long	▲ Hung Long A	0.00	108	118	78	381	36	378	0	1,035	26	17	3	14	13	26	16	1.62	
	Hung Long B	1.50	153	109	145	145	135	657	0							0	0	–	1.62
BT10 Mui Ne	Mui Ne A	0.50	137	137	129	129	98	227	6							6	2	3.00	
	Mui Ne B	0.30	137	96	84	189	40	313	5							6	7	0.86	
	▲ New Site									540	14	9	0	9	9	14	9	1.50	1.42
BT11 Duc Long	Duc Long	0.00	358	303	263	242	198	1,364	0	1,364	34	23	4	19	19	34	23	1.48	1.50
	Total		358	303	263	242	198	10,686	50	9,556	239	159	16	143	140	289	193	1.50	1.50

PROVINCE : QUANG NINH

NO. / ※▲ Site	Name of Main/Branch School	Distance to Site	Pupils G1	G2	G3	G4	G5	Total	Classes G1	G2	G3	G4	G5	Total	Pupils Total [A]	No. of Classes Desired [B]=[A]/40	MOET std No. of Rooms [C]=[B]/1.5	Available Rooms (Present) [D]	Rooms Required [E]=[C]-[D]	New Rooms Construc [F]	No. of Classes [G]	No. of Rooms [H]	Class/Room Ratio [I]=[G]/[H]	Class/Room Ratio (Entire School)
Qi1 Tran Quoc Toan	Tran Quoc Toan	0.50	0	209	185	241	204	839						0							0	0	-	1.53
1	Phan Hieu	1.50	213	0	0	0	0	0	5					5							5	4	1.25	
▲	New Site														839	21	14	0	14	13	21	13	1.61	
Qi2 Cam Son	Cao Son	1.50	154	160	165	169	172	506	5	5				10							0	0	-	1.52
2	Cam Son	0.50	125	104	104	123	94	550						0							10	7	1.43	
▲	New Site														1,056	26	18	0	18	17	26	17	1.55	
Qi3 Hong Thai Tay	Lam Xa	0.00	137	126	145	176	153	737						0	865	22	14	0	14	13	22	13	1.66	1.51
3	Truong Moi	1.50	58	70	61	35	32	128	2	2				4							4	4	1.00	
Qi4 Quang Trung	Quang Trung	0.00	143	144	154	193	176	810						0	810	20	14	0	14	13	20	13	1.56	1.59
4	Dong Noi	2.50	26	27	0	0	0	0	1	1	0	0		2							2	1	2.00	
Qi5 Cong Hoa	Cong Hoa	0.00	145	123	132	120	116	636						0	636	16	11	0	11	11	16	11	1.45	
Qi6 T.T Tien Yen	Thi Tran	0.00	98	106	106	193	139	642						0	856	21	14	3	11	11	21	14	1.53	1.53
6	Dong Tien	0.50	51	31	33	33	0	115						0							0	0	-	
	Long Chau	1.00	37	30	32	32	0	99						0							0	0	-	
Qi7 T.T Binh Lieu	T.T Binh Lien	0.00	163	167	160	156	112	758						0	758	19	13	3	10	9	19	12	1.58	
Qi8 Ba Che	Thi Tran	0.00	95	136	127	127	108	593						0	593	15	10	2	8	9	15	11	1.35	1.32
8	Khu Hai	2.00	32	0	0	0	0	0	1	0	0	0	0	1							1	1	1.00	
Qi9 Ha Long	Ha Long	0.00	131	112	124	123	130	620						0	620	16	10	0	10	11	16	11	1.41	1.54
9	Ha Long 1	3.00	48	53	37	37	0	0	2	2	1	1	1	6							6	3	2.00	
Qi10 T.T Dam Ha	T.T Quang Ha	0.00	72	78	112	112	139	513						0	513	13	9	0	9	9	13	9	1.43	1.43
	Total							7,546						28	7,546	189	126	8	118	116	217	144	1.50	1.50

Total (7 Provinces)								**70,513**						559	68,675	1,717	1,145	130	1,015	1,000	2,261	1,552	1.46	1.46

2.3 Basic Design

2.3.1 Basic Design Principles

The Project aims at rebuilding existing facilities, mainly classrooms, as well as adding new facilities and supplying basic school fixtures and teaching materials for 80 primary schools in six provinces along the south-central coast (Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa and Binh Thuan) and one province along the northern coast (Quang Ninh). The basic design for the Project is conducted in line with the following principles, taking the results of consultations with the Government of Viet Nam and the findings of the reviews of the previous three phases of the Project into consideration.

(1) Design Principles Regarding Natural Conditions

Of the subject provinces of the Project, six provinces lying along the south-central coast are situated in the sub-tropical monsoon zone and, therefore, the temperature is high throughout the year with a mean minimum temperature of 20°C or higher and a mean maximum temperature of 25 – 35°C. Although the mean minimum temperature of 15°C during winter in Quang Ninh Province along the northern coast is somewhat lower than that in the six provinces further south, the temperature during the other three seasons is more or less the same as that in the southern provinces. Consequently, the same building plan can be used for all seven subject provinces. A crucially important feature of the building plan is to effectively suppress any increase of the indoor temperature due to solar radiation on the roof and, therefore, a dual roof structure with a trussed roof being placed over concrete slabs will be adopted as in the case of the Phase III Project. In view of the location of all of the provinces in areas prone to severe typhoon damage, sufficient measures will be employed to prevent collapse of the roof due to a typhoon. The height of the ground floor will be set higher than the highest flood water level recorded in the past at each site to prevent the new buildings from being submerged due to future floods. In the case of the planned site being a new site, banking will be conducted in principle as work to be undertaken by the Government of Viet Nam to raise the ground elevation of the entire site. Mechanical building services will be kept to a minimum and natural ventilation and natural lighting will be utilised as much as possible. The building axis should run from east to west to avoid the penetration of morning and evening sun into the classrooms. Eaves will be introduced above the windows and openings to efficiently shut out rain. Local aseismatic standards will be employed as weak earthquakes occasionally occur.

(2) Design Principles Regarding Social Conditions

The standard design specifications for primary school facilities set by the Ministry of Education and Training, taking the lifestyle and customs in Viet Nam into consideration, will be respected, and the design of the new school facilities should act as a model design for similar facilities to be constructed in other areas of the country with the self-reliant efforts of the Government of Viet Nam and the Vietnamese people in the future. As the new school facilities to be constructed under the Project are expected to serve as evacuation shelters for local people at the time of such natural disasters as typhoons and floods and also for such social education as extramural education, literacy education, mother and child health care education and environmental hygiene education, the specifications for the night-time lighting system and water supply and drainage systems should be appropriate to support these activities. As a measure to respond to the anticipated increase of school age children (6 - 10 years of age) as well as pre-school age children (1 - 5 years of age) in the catchment areas of these schools, the number of classrooms is set to accommodate the increased number of pupils with two-shift schooling.

(3) Design Principles Regarding Building Permit and Approval

The Project requires the final approval of the Government Office (Prime Minister's Office) for its implementation in Viet Nam. The procedure to apply for this approval involves an initial application to the Ministry of Planning and Investment by the Ministry of Education and Training, which is the project implementation body, for examination. Upon finding the Project to be acceptable, the Ministry of Planning and Investment forwards the project implementation application to the Government Office for its final approval. This process usually requires at least one month to complete. In addition, the Contractor (a Japanese construction company) selected through tender must obtain a Contractor License for implementation of the Project from the Ministry of Construction as required by the Decree on Foreign Investment and Construction Projects by Foreign Companies in Viet Nam (Decree No. 42/CP, 16th July, 1996). This requirement should be incorporated in the project implementation schedule so that all the legal requirements are met prior to the actual implementation of the Project.

(4) Design Principles Regarding Use of Local Construction Companies and Locally Produced Construction Equipment and Materials

Many construction companies operating in the subject provinces are public companies controlled by the Ministry of Construction. In general, these companies have 15 - 20 engineers and an annual turnover of approximately one million US$. Local construction companies were employed as subcontractors in the previous three phases based on their

past work performance and technical/organizational strength and each subcontractor was given an average of three sites to work on. Similar arrangements will be made for the present phase of the Project to use local construction companies operating in the subject provinces. Given the prospect of employing a score of subcontractors for the 80 sites which are located in different parts of the country, the establishment of a work management system capable of ensuring the uniform application of technology and uniform quality at all the sites is extremely important.

In principle, all construction equipment and materials will be locally procured to facilitate the maintenance of the facilities after their handing over to the Vietnamese side. In view of the timely and proper procurement of the construction equipment and materials in accordance with the progress of the construction work as a whole, it will be necessary to establish a system for the central procurement and control of such equipment and materials. The experience obtained in the previous phases indicates the importance of particularly careful arrangements for the procurement of timber and the manufacture of wooden fixtures at the initial stage of the construction work. Procurement in Hanoi, Ho Chi Minh and/or Da Nang will be planned for finishing materials and electrical equipment and materials as it is difficult to obtain the necessary quantities in the subject provinces.

(5) Design Principles Regarding Management and Maintenance Capabilities of Project Implementation Agency

The school management and maintenance responsibilities fall on the school governing committee which is comprised of the headmaster and representatives of parents and the local People's Committee. The design of the new facilities should ensure that no special maintenance skills are required. The use of local construction equipment and materials for the building structure, as well as building services, together with a strong and simple structure will facilitate easy and low cost maintenance following the handing over of the new facilities to the Vietnamese side.

In regard to cleaning, particularly the cleaning of toilets, thorough washing after use and the periodic removal of sludge in the septic tank are essential to maintain their function. The lack of cleaning work, the lack of a water supply system to assist cleaning and the lack of an appropriate drainage system are the main causes of the existing toilet facilities not fully performing their function.

In view of the shortcomings of the existing toilet facilities, such physical facilities as water supply and drainage systems should be constructed under the Project, accompanied by the

provision of manuals explaining how to use and maintain the toilets and auxiliary systems and also by the provision of assistance for hygiene education.

(6) Design Principles Regarding Facility and Equipment Grades

The specifications of all the facilities to be constructed under the Project must permit sufficient resistance and durability against the onslaught of typhoons and floods. In addition, from the functional point of view as well as from the viewpoint of the construction cost, the facilities must be presented as useful models for any self-reliant efforts on the part of Viet Nam to construct similar primary schools in other parts of Viet Nam. The building structure design should, therefore, ensure sufficient structural strength and the cost of the buildings should be lowered as much as possible without compromising their safety and functions. The design for the planned grades of all the facilities and fixtures, etc. should be based on the standard specifications set by the Facility Design Research Institute (IRDS) of the Ministry of Education and Training. In the case of educational materials, these should be compatible with the educational materials procured under the Primary School Project of the World Bank, should be available locally and should be of a standard with which existing teachers can deal with.

(7) Design Principles Regarding Construction Schedule

Given the actual construction performance of the local construction companies employed as subcontractors in Phase I and Phase II for which the final handing over of the new school facilities has already been completed, it should, in principle, be possible for the new subcontractors to complete the required construction work within 10 months at each site. There are, however, some uncertain factors which could affect the schedule, including the negotiation period with prospective subcontractors and the likely arrival of typhoons between October and December. Very careful preparation of the implementation plan is, therefore, necessary so that the construction work is completed within a single fiscal year to meet the requirement of Japanese grant aid. In the past, one subcontractor has been given 3 - 4 sites to work on and a similar arrangement appears appropriate for the Project to conduct efficient work management, taking the general work capacity of local construction companies into consideration.

Table2-4 Subject Area by Terms and Contents of the Project

		Number of Schools	Number of Classrooms
Term I Subject Area			
	Quang Nam	14	137
	Quang Ngai	12	175
	Binh Dinh	14	188
	Sub Total	40	500
Term II Subject Area			
	Phu Yen	9	107
	Khanh Hoa	10	137
	Binh Thuan	11	140
	Quang Ninh	10	116
	Sub Total	40	500
Term I & II Total		80	1,000

2.3.2 Basic Design Components

(1) Building Layout Plan

The site conditions of the 80 recipient schools naturally differ from one school to another. The best layout plan will be prepared for each school, taking the site shape, surrounding environment and existing facility layout, etc. into consideration. The following design principles will be adopted for the preparation of the building layout plan.

1) In the case of new facilities to be constructed on the premises of an existing school, the new facilities will be constructed in new places as long as the relevant land is available so that demolition of the existing facilities will not be required in view of the difficulty of finding temporary classrooms during the construction period. In addition, the safe use of the existing facilities during the construction period should prominently feature in the layout design of the new facilities.

2) The layout plan should allow for the future extension of the new facilities.

3) The layout plan should maximise the size of the school playground.

4) In principle, the axis of the new buildings should run in the east-west direction so that morning and evening sun does not enter the buildings.

5) The south side of the new buildings should be wide open to facilitate natural ventilation in the buildings. A sufficient distance should be provided between the new facilities and existing facilities as well as neighbouring sites for the same purpose.

6) The new buildings should preferably be constructed on flat ground and should also avoid low ground which may be liable to flooding. If the new buildings are constructed on banked ground, their position should be at a sufficient distance from the edge of the banked area.

(2) Building Plan

1) Basic Principles for Building Plan

The following principles are adopted for the building plan, taking the consultation results with the Vietnamese side into consideration, to construct the required number of classrooms at the lowest possible cost.

- Following the example of the building plan employed in the Phase III Project, the administration rooms will be located in the two story classroom building to avoid the construction of an independent, single-story administration building.

- The dual corridor structure will be replaced by a single corridor structure to achieve a compact floor plan.

- Eaves will be introduced above the classroom windows to effectively prevent sunlight and rainwater from entering the classrooms.

- A double roof structure will be employed to ensure heat insulation within the building.

2) Determination of Room Sizes in Classroom Building

The size of the various rooms in the classroom building is determined as follows in accordance with the standard design of the Ministry of Education and Training as in the case of the previous phases.

- Classroom : 43.32 m² (5.7 m × 5.7 m) based on a maximum of 40 pupils per classroom

- Headmaster's Room : 21.66 m² (5.7 m × 3.8 m) using half the span of a classroom

- Staffroom (Meeting Room) : 43.32 m² (5.7 m × 7.6 m) which is the same as the classroom size; teachers will conduct their administrative and class preparation work in the classrooms and will not store private items in the staffroom; the staffroom will also be used as an

administrative and class preparation work in the classrooms and will not store private items in the staffroom; the staffroom will also be used as an office for administration staff, including the deputy headmaster, and as a meeting room

- Preparation room
: 21.66 m² (5.7 m × 3.8 m) using half the span of a classroom and used to store equipment and teaching materials

3) Standardisation of Classroom Units and Combination of Standard Unit Types to Suit School Size

The planned new classroom building will have 8 - 21 classrooms depending on the number of pupils at each school. In order to ensure the efficient construction of the classroom buildings, the standard unit types shown in the following table will be introduced so that the combination meets the required variation of the actual building size of each school.

Table 2-5 Standard Classroom Unit Types

Type of Facility	Components of Facility				
	Number of Classrooms	Headmaster's Office	Staff Room/ Meeting Room	Preparation Room	Floor Area (m²)
Type - 6	6	-	-	-	409.64
Type - 8	8	-	-	-	526.68
Type - 10	10	-	-	-	658.92
Type - 7A	7	1	1	1	600.40
Type - 9A	9	1	1	1	717.44
Type - 11A	10	1	1	1	834.48

4) Toilet Building

As water supply and sewerage services are currently unavailable at the project sites, the new toilet building will, in principle, be served by a simplified septic tank for ground infiltration. Cleaning after use and the regular removal of sludge from the septic tank are essential for the maintenance of the functions of the toilet facilities. Few of the existing schools have toilet facilities and the existing facilities are often out of use because of the lack of appropriate cleaning and other maintenance work, in turn mainly caused by the lack of a water supply system, despite the small size of most of the facilities. To rectify these shortcomings, a water supply system using groundwater will be introduced under the Project. In addition, hygiene education on the importance of regular cleaning and maintenance should be provided for all potential users. Based

on the toilet building design adopted in the previous two phases, there will be two types of toilet building, the selection of which will depend on the actual school size. The selection of the minimum necessary type for each school is essential to ensure proper cleaning and maintenance given the current maintenance capability of each school.

The opening of the toilet building should be as large as possible to permit maximum ventilation and a sufficient distance between the toilet building and other buildings should be planned in order to avoid any negative impacts on the surrounding environment of other buildings.

Table 2-6 Combination of Unit Types to Suit School Size

No. of Class-Rooms	Combination of Standard Types	Class-Rooms	Head-Masters Office	Staff Room	Prepara-tion Room	Floor Area (m²)	Remarks
7	Type 8	7	1	0	1	658.92	Existing facility will be used for construction of a new staff room
8	Type 8	8	0	0	0	658.92	Existing facility will be used for construction of an administration room
9	Type 9A	9	1	1	1	717.41	
11	Type 11A	11	1	1	1	834.48	
12	Type 6 + Type 6	12	0	0	0	819.28	Existing facility will be used for construction of an administration room
13	Type 7A + Type 6	13	1	1	1	1,010.04	
15	Type 7A + Type 8	15	1	1	1	1,127.06	
17	Type 9A + Type 8	17	1	1	1	1,244.12	
19	Type 11A + Type 8	19	1	1	1	1,361.16	
	Type 7A + 2×Type 6	19	1	1	1	1,419.68	
21	Type 6 + 2×Type 8	21	1	0	1	1,463.00	Existing facility will be used for construction of a new staff room

Table 2-7 Toilet Building Types

Type	School Size	Toilet Facilities				Floor Area (m²)
		Boys		Girls		
		Closets	Urinals	Closets	Urinals	
A	Upto 16 classrooms	3	5 (connected type)	3	5	50.84
B	17 or more classrooms	5	10 (connected type)	5	9	73.80

Table 2-8 shows the types of facilities and toilet buildings and the total floor area by school.

Table 2-8 Type of Facilities, Toilet Buildings and Floor Area by School

NO.	Name of School	No. of Class-Rooms Required	Facility Type (0*:Existing Facility to be used)				Classroom Unit								Calculation of Area						Foundation Type		
			Class-rooms	Head-Master's	Staff/ Meeting Room	Pre-peration Room	6	8	10	7A	9A	11A	KH	2KH	[a] (m²)	Open Stairs [b] (m²)	Toilet Bldg A	Toilet Bldg B [c] (m²)	[c] (m²)	Total Area [a]+[b]+[c] (m²)	A	B	C
PROVINCE : QUANG NAM/DA NANG																							
QN1	Que Chau	9	9A	9	1	1	1					1				717.44	46.2	1		50.84	814.48	1		
QN2	Ly Tu Trong	7	8	8	0*	0*	0*		1							526.68	46.2	1		50.84	623.72	1		
QN3	Dai Thang	12	6+6	11	1	0*	1	2								819.28	0	1		50.84	870.12	1		
QN4	Duy Phu	10	11A	11	1	1	1						1			834.48	46.2	1		50.84	931.52	1		
QN5	Le Hong Phong	7	8	8	0*	0*	0*		1							526.68	46.2	1		50.84	623.72	1		
QN6	Thai Phien	12	11A	11	1	1	1						1			834.48	46.2	1		50.84	931.52		1	
QN7	Tien Chau	10	9A	9	1	1	1					1				717.44	46.2	1		50.84	814.48		1	
QN8	Vo Thi Sau	10	11A	11	1	1	1						1			834.48	46.2	1		50.84	931.52	1		
QN9	Tam Quang	12	7A+6	13	1	1	1	1			1					1,010.04	46.2		1	73.80	1,130.04	1		
QN10	Le Do	6	8	8	0*	0*	0*		1							526.68	46.2	1		50.84	623.72	1		
QN11	Dong Phu	13	6+6	12	0*	0*	0*	2								819.28	0	1		50.84	870.12		1	
QN12	Le Van Tam	7	8	8	0*	0*	0*		1							526.68	46.2	1		50.84	623.72			1
DN1	Hoa Son	9	9A	9	1	1	1					1				717.44	46.2	1		50.84	814.48	1		
DN2	Hoa Lien	9	9A	9	1	1	1					1				717.44	46.2	1		50.84	814.48			1
	Total	134		137	9	8	9	5	4	0	1	4	3	0	0	10,128.52	554.4	13	1	734.72	11,417.64	9	3	2
PROVINCE : QUANG NGAI																							
QG1	Binh Hoa	15	7A+8	15	1	1	1		1		1					1,127.08	92.4		1	73.80	1,292.28			1
QG2	Tinh Ha No.2	19	11A+8	19	1	1	1		1				1			1,361.16	92.4		1	73.80	1,527.36	1		
QG3	Nghia Phu	16	7A+8	15	1	1	1		1		1					1,127.08	92.4	1		50.84	1,270.32		1	
QG4	Pho Thanh	21	6+6+8	20	1	1	1	2	1							1,463.00	92.4		1	73.80	1,629.20	1		
QG5	Cho Chua	10	11A	11	1	1	1						1			834.48	46.2	1		50.84	931.52			1
QG6	Quang Phu No.1	14	7A+8	15	1	1	1		1		1					1,127.08	92.4		1	73.80	1,293.28		1	
QG7	Son Lang	14	7A+8	15	1	1	1		1		1					1,127.08	92.4	1		50.84	1,270.32	1		
QG8	Ba Vi	8	9A	9	1	1	1					1				717.44	46.2	1		50.84	814.48	1		
QG9	Tra Phu	13	7A+6	13	1	1	1	1			1					1,010.04	46.2	1		50.84	1,107.08		1	
QG10	Duc Loi	13	7A+6	13	1	1	1	1			1					1,010.04	46.2	1		50.84	1,107.08		1	
QG11	Pho Quang No.1	14	7A+8	15	1	1	1		1		1					1,127.08	92.4		1	73.80	1,293.28	1		
QG12	Son Tinh	15	7A+8	15	1	1	1		1		1					1,127.08	92.4		1	73.80	1,293.28			1
	Total	174		175	12	12	12	4	8	0	8	1	2	0	0	13,158.64	924	6	6	747.84	14,830.48	5	4	3

NO.	Name of School	No. of Class-Rooms Required	Facility Type (0*=Existing Facility to be used)												Calculation of Area					Foundation Type		
				Class-rooms	Head-Master's	Staff/ Meeting Room	Pre-paration Room	Classroom Unit							[a]	Open Stairs [b]	Toilet Building		Total Area [a]+[b]+[c]	A	B	C
								6	8	10	7A	9A	11A	KH2	KH1	(m²)	(m²)	A	B [c] (m²)	[a]+[b]+[c] (m²)			
PROVINCE : BINH DINH																							
BD1	Dap Da	16	7A+8	15	1	1	1		1		1					1,127.08	92.4		1	1,293.28	1		
BD2	My An	12	11A	11	1	1	1						1			834.48	46.2	1		931.52	1	1	
BD3	An Hoa No.2	17	9A+8	17	1	1	1		1			1				1,244.12	92.4	1	1	1,410.32	1		
BD4	Canh Hiep	8	10	8	1	1	1			1						658.92	46.2		1	755.96	1		
BD5	Vinh Thinh	11	6+6	11	1	0*	1	2								819.28	0			870.12		1	
BD6	Le Hong Phong	20	7A+6+6	19	1	1	1	2			1					1,419.68	46.2	1	1	1,539.68	1		
BD7	Phuoc Thanh	10	9A	9	1	1	1					1				717.44	46.2		1	837.44	1		
BD8	Tay Phu	12	6+6	11	1	0*	1	2								819.28	0		1	893.08	1		
BD9	Tam Quan Nam	18	11A+8	19	1	1	1		1				1			1,361.16	92.4		1	1,527.36	1		
BD10	An Thanh	9	10	9	1	0*	1			1						658.92	46.2	1		755.96	1		
BD11	Cat Khanh	15	7A+8	15	1	1	1		1		1					1,127.08	92.4		1	1,293.28	1		
BD12	Hoai Huong	13	7A+6	13	1	1	1	1			1					1,010.04	46.2	1		1,107.08	1		
BD13	Nhon Binh No.1	16	8+8	15	1	0*	1		2							1,053.36	92.4		1	1,219.56	1		
BD14	Vo Xan	16	10+6	16	0*	0*	0*	1		1						1,068.56	46.2		1	1,165.60			1
Total		193		188	13	9	13	8	6	3	4	2	2	0	0	13,919.40	785.4	6	15	15,600.24	11	2	1
First Term Total		501		500	34	29	34	16	19	3	13	7	7	0	0	37,206.56	2263.8	25	15	41,848.36	25	2	6

NO.	Name of School	No. of Classrooms Required	Facility Type (0*:Existing Facility to be used)	Classrooms	Head-Masters	Staff/Meeting Room	Pre-paration Room	[a] (m²)	Open Stairs [b] (m²)	Toilet Building A	Toilet Building B	[c] (m²)	Total Area [a]+[b]+[c] (m²)	Foundation Type A	B	C
PROVINCE : PHU YEN																
PY1	Hoa Thinh 2	15	7A+8	15	1	1	1	1,127.08	92.4	1		73.80	1,293.28			1
PY2	Hoa Thanh 1	10	9A	9	1	1	1	717.44	46.2	1		50.84	814.48		1	
PY3	Hoa Quang 2	10	9A	9	1	1	1	717.44	46.2	1		50.84	814.48		1	
PY4	Hoa Tri	12	11A	11	1	1	1	834.48	46.2	1		50.84	931.52	1		
PY5	An Cu	16	7A+8	15	1	1	1	1,127.08	92.4		1	73.80	1,293.28	1		
PY6	Xuan Loc	14	7A+6	13	1	1	1	1,010.04	46.2	1		50.84	1,107.08			1
PY7	Le Hai	14	7A+6	13	1	1	1	1,010.04	46.2	1		50.84	1,107.08	1		
PY8	Cung Son	14	7A+6	13	1	1	1	1,010.04	46.2	1		50.84	1,107.08	1		
PY9	Hai Rieng	10	9A	9	1	1	1	717.44	46.2	1		50.84	814.48		1	
Total		114		107	9	9	9	8,271.08	508.2	7	2	503.48	9,282.76	4	3	2
PROVINCE : KHANH HOA																
KH1	Phuoc Tien	21	KH1	22	1	1	1	1,580.40	0	1		73.80	1,654.20		1	
KH2	Tan Lap 1	19	KH2	20	1	1	1	1,652.04	66	1		73.80	1,791.84		1	
KH3	Van Luong 1	11	11A	11	1	1	1	834.48	46.2	1		50.84	931.52	1		
KH4	VanPhu	8	9A	9	1	1	1	717.44	46.2	1		50.84	814.48		1	
KH5	Ninh An	9	9A	9	1	1	1	717.44	46.2	1		50.84	814.48		1	
KH6	Ninh Giang	13	7A+6	13	1	1	1	1,010.04	46.2	1		50.84	1,107.08		1	
KH7	Thi Tran 2	9	9A	9	1	1	1	717.44	46.2	1		50.84	814.48	1		
KH8	Yersin	13	7A+6	13	1	1	1	1,010.04	46.2	1		50.84	1,107.08	1		
KH9	Cam Hai Tay	19	11A+8	19	1	1	1	1,361.16	92.4	1		73.80	1,527.36		1	
KH10	Cam Hoa 1	12	6+8	12	1	1	1	936.32	46.2	1		50.84	1,033.36	1		
Total		134		137	10	10	10	10,536.80	481.8	7	3	577.28	11,595.88	4	6	0
PROVINCE : BINH THUAN																
BT1	Tra Tan 1	12	11A	11	1	1	1	834.48	46.2	1		50.84	931.52	1		
BT2	Ham Thang	16	9A+6	15	1	1	1	1,127.08	46.2		1	73.80	1,247.08		1	
BT3	Le Gi 1	16	9A+6	15	1	1	1	1,127.08	46.2		1	73.80	1,247.08		1	
BT4	Pha Ri Thanh 2	19	9A+10	19	1	1	1	1,376.36	92.4		1	73.80	1,542.56	1		
BT5	Dong Kho	9	9A	9	1	1	1	717.44	46.2	1		50.84	814.48		1	
BT6	Phan Ri Cua 4	11	6+8	12	1	1	1	936.32	46.2	1		50.84	1,033.36			1
BT7	Tan Lap 1	10	9A	9	1	1	1	717.44	46.2	1		50.84	814.48		1	
BT8	Tan Lap 3	7	9A	9	1	1	1	717.44	46.2	1		50.84	814.48	1		
BT9	Hung Long	14	7A+6	13	1	1	1	1,010.04	46.2	1		50.84	1,107.08	1		
BT10	Mui Ne	9	9A	9	1	1	1	717.44	46.2	1		50.84	814.48			1
BT11	Duc Long	19	7A+6+6	19	1	1	1	1,419.68	46.2	1		73.80	1,539.68	1		
Total		143		140	11	11	11	10,700.80	554.4	7	4	651.08	11,906.28	5	4	2

PROVINCE : QUANG NINH

NO.	Name of School	No. of Class-Rooms Required	Facility Type (0=Existing Facility to be used)				Calculation of Area									[a] (m²)	Open Stairs [b] (m²)	Toilet Building A	B	[c] (m²)	Total Area [a]+[b]+[c] (m²)	Foundation Type A	B	C
				Class-rooms	Head-Masters	Staff/Meeting Room	Pre-paration Room	Classroom Unit 6	8	10	7A	9A	11A	KH2	KH1									
Q1	Tran Quoc Toan	14	7A+6	13	1	1	1	1			1					1,010.04	46.2	1		50.84	1,107.08	1		
Q2	Cam Som	18	9A+8	17	1	1	1		1			1				1,244.12	92.4		1	73.80	1,410.32		1	
Q3	Hong Thai Tay	14	7A+6	13	1	1	1	1			1					1,010.04	46.2	1		50.84	1,107.08		1	
Q4	Quang Trung	14	7A+6	13	1	1	1	1			1					1,010.04	46.2	1		50.84	1,107.08		1	
Q5	Cong Hoa	11	11A	11	1	1	1						1			834.48	46.2	1		50.84	931.52	1		
Q6	T.T. Tien Yen	11	11A	11	1	1	1						1			834.48	46.2	1		50.84	931.52	1		
Q7	T.T. Binh Lieu	10	9A	9	1	1	1					1				717.44	46.2	1		50.84	814.48	1		
Q8	Ba Che	8	9A	9	1	1	1					1				717.44	46.2	1		50.84	814.48	1		
Q9	Ha Long	10	11A	11	1	1	1						1			834.48	46.2	1		50.84	931.52		1	
Q10	T.T.Dam Ha	9	9A	9	1	1	1	1				1				717.44	46.2	1		50.84	814.48	1		
Total		118		116	10	10	10	3	1	0	3	4	3	0	0	8,930.00	508.2	9	1	531.36	9,969.56	6	4	0
Second Term Total		509		500	40	40	40	15	6	1	12	17	7	1	1	38,438.68	2052.6	30	10	2,263.20	42,754.48	19	17	4
Total		1,010		1,000	74	69	74	31	25	4	25	24	14	1	1	75,645.24	4316.4	55	25	4,641.20	84,602.84	44	26	10

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5) Section Plan

In principle, the section plan for the Project will inherit that adopted by the Phase III Project which was prepared by taking the semi-tropical monsoon climate of Viet Nam into consideration. However a double roof structure will be employed to improve the heat insulation of the building as agreed during consultations with the Vietnamese side. A relatively high ceiling height of 3.3 m for both the ground floor and first floor will be designed with a view to enlarge the indoor air volume to suppress a temperature rise and large windows will be incorporated for good natural ventilation and lighting. The floor height of the ground floor will be individually determined for each site based on past flood records in order to prevent flooding of the building in the future. Eaves and horizontal louvres will be introduced above the windows and other openings to prevent both direct sunlight and rain entering the building. A large opening will be introduced in the case of the toilet building to allow odour to escape and to facilitate good natural lighting.

(3) Structural Plan

1) Structural System

The structural system for the new buildings to be constructed under the Project will be the popular local system, i.e. a rigid pillar and beam structure with cast-in-place concrete. The floor will be a concrete slab to compensate for the soft ground and also to prevent the banked ground being washed away by flood. The partition walls will be made of burnt bricks. The roof will have a concrete slab base with reinforced brick struts and a precast concrete purlin roof structure. The wooden structural materials will be treated to deter termites and will be firmly secured to the struts using anchor bolts.

2) Loads and External Force

The following design loads will be adopted in accordance with Viet Nam's structural design standards (Tieu Chuang Viet Nam, Hanoi, 1994), along with the codes of the American Concrete Institute (ACI) and Architectural Institute of Japan (AIJ).

① Live Load : Roof Area .... 150 kg/m^2

Classroom .... 200 kg/m^2

Corridors .... 400 kg/m^2

Stairs .... 500 kg/m^2

② Wind Load : 127 kg/m^2

③ Seismic Load : V = ZIC/12 W

        W : building weight (dead weight + live weight)

        Z : geographical coefficient

        I : importance of use coefficient

        C : standard shear force coefficient

④ Soil Bearing Capacity: 10 tons/m²

3) Structural Frame Plan

The vertical external force acting on the dead load will be dealt with by RC pillars and beams with a span of 3.8 m × 5.7 m while the horizontal external force will be dealt with by a rigid pillar and beam structure and also by the rigidity of the floor slabs. With regard to the foundations, either independent footings or continuous concrete footings will be used depending on the soil bearing capacity at each site. The local construction method using bamboo piles will be employed for those sites characterised by soft ground with a high regular groundwater table while a combination of bamboo piles and ground improvement work will be employed for sites characterised by soft ground with a low regular groundwater table. Fig. 2-2 shows the different foundation types to be employed under the Project.
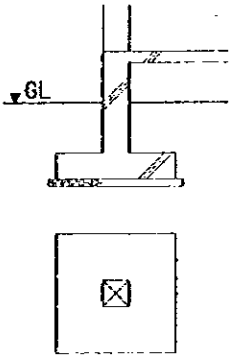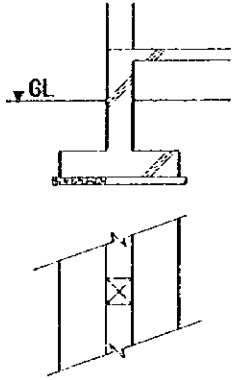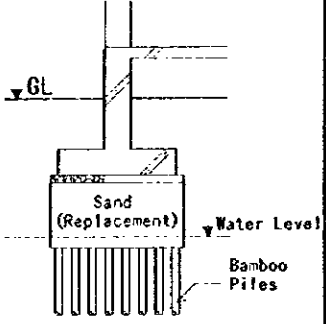
Foundation Type	Type A (Column Footing)	Type B (Continuous Footing)	Type C (Continuous Footing + Bamboo Pile)
Soil Bearing Capacity (R kg/cm2)	R > 1.5	1.5 > R > 0.5	0.5 > R
Shape			

Fig. 2-2   Standard Foundation Types

4) Structural Materials

All structural materials will be procured locally and the main items are listed below.

- Cement   :   normal Portland cement
- Aggregate   :   crushed stone and river sand
- Reinforcing Bars   :   round bars, deformed bars, meshed reinforcing bars
- Bricks   :   structural bricks
- Piles   :   bamboo piles (the use of concrete piles may be considered depending on the site conditions)

(4) Building Services Plan

1) Electrical Installation

The planned facilities will be designed to achieve the maximum use of natural lighting so that, in principle, daytime teaching will not require any lighting. However, an electrical lighting system will be provided for the evening use of the school buildings for social education and other purposes. Locally procured fluorescent lamps will be installed in the classrooms, headmaster's room and staffroom-cum-meeting room to provide a luminous intensity of some 200 lux. Ceiling fans will also be installed in these rooms.

2) Water Supply System

A shallow well will be dug at each site, excepting for seven schools where municipal water supply is already available, as a water supply source and groundwater will be pumped to a storage tank. A water consumption rate of 5 litres/pupil/day is assumed for drinking and cleaning purposes. The water will be purified by a simplified filtering tank. As the manual pump adopted for the Phase I Project has been found to be incapable of providing the required water volume, an electric pump which is popularly used in Viet Nam will be provided.
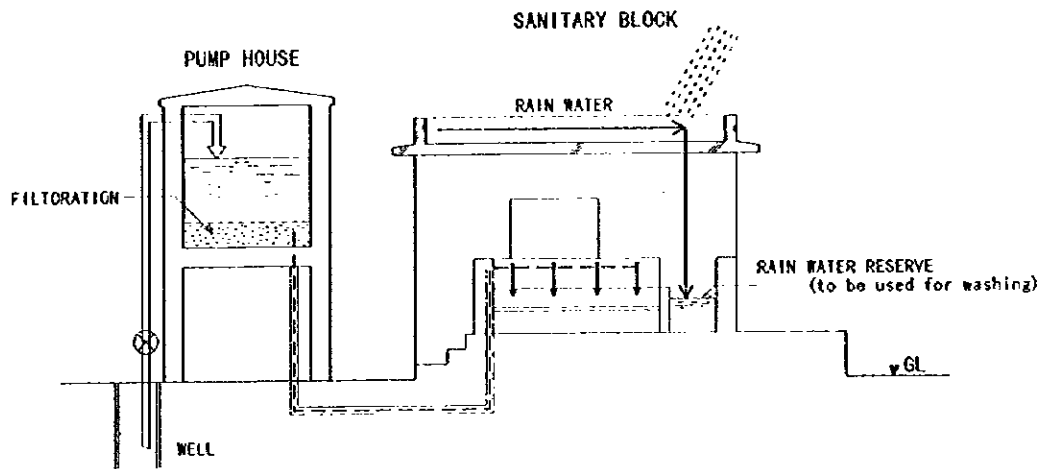
Fig. 2-3   Water Supply System

3) Drainage System

As no sewer facilities exist at any of the sites, rainwater will be drained to an irrigation channel, canal or stream near each site. The sewage from the toilets and miscellaneous waste water will be treated in a simplified septic tank and final disposal will be made by means of ground infiltration using a seepage pit and dipping operation. All sanitary fixtures will be procured locally. The closets will be Asian-style closets while the urinals will be the open-type based on local specifications. The toilet floor will have a concrete terrazzo tile finish.
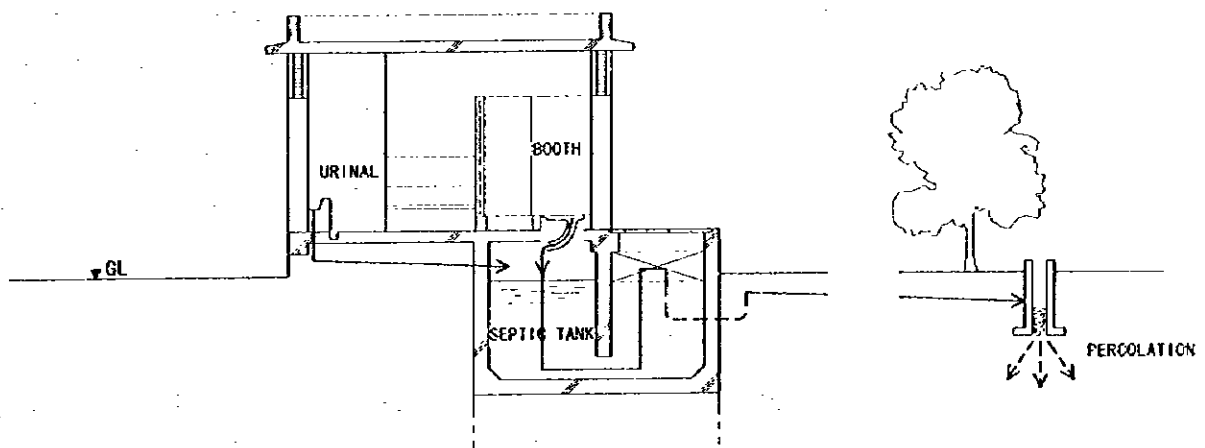
Fig. 2-4   Drainage System

(5) Construction Materials Plan

1) Basic Principle

The basic principle in terms of the procurement of construction materials under the Project is the use of local materials to allow the use of local construction methods and to ensure easy and low cost maintenance.

2) Main Construction Materials

① Roofing Materials

The common roof structure for schools in Viet Nam consists of a wooden roof truss with roof tiles being directly placed on the wooden rafters. Because of the absence of roof sheathing or ceiling, the roof tiles will directly constitute the ceiling. Once this type of roof collapses due to a typhoon, however, the classrooms below are rendered useless. To avoid this, a concrete slab roof will be introduced under the Project with a pitched tiled roof above it for waterproofing and heat insulation purposes. The precast concrete purlin will be firmly fixed to the brick struts built above the concrete slabs using anchor bolts while each roof tile will be tied to the rafter using steel wire to resist the strong winds of typhoons.

② Windows and Doors

Schools in Viet Nam usually have flush, double-leaf, hinged wooden plate windows. These windows are closed when it rains and in cold weather, thus failing to provide any light. Under the Project, glass jalousie windows with a wooden frame will be used to facilitate good natural lighting and ventilation. Iron grills will also be installed outside the windows for security purposes and to protect the glass. With regard to the doors, popularly used wooden doors will be employed.

③ Floor, Walls and Ceiling

Several types of floor finishings are available in Viet Nam, including mortar, cement tiles, terrazzo and ceramic tiles. Terrazzo will be used due to their durability and easy maintenance. The walls will have a mortar base with a paint finish. The ceilings will be exposed concrete with a paint finish.

Table 2-9 Main Finishing Materials

Item		Local Specifications	Selected Specifications for the Project	Reasons for Selection
External Finishings				
	Roof	tiles	corrugated cement sheets (non asbestos)	popularity, weatherability and good heat insulation
	External Walls	mortar base with paint finish	as left	easy maintenance
	Windows	wooden plate	wooden frame with glass jalousie and iron grill	good lighting, damage prevention and security
	Exposed Foundations	mortar	as left	durability and economy
Internal Finishings				
	Classrooms	Floor: mortar/cement tiles/ terrazzo/ceramic tiles	terrazzo	durability, workability and easy maintenance
	Headmaster's Room	Walls: mortar base with paint finish	as left	easy maintenance and workability
	Staffroom (Meeting Room)	Ceiling: decking	exposed concrete with paint finish	easy maintenance and workability
	Corridor Toilets	Floor: mosaic tiles	as left	easy maintenance and economy
		Walls: mortar	mortar base with paint finish partly with tiles	easy maintenance and economy
		Ceiling: decking	as left	workability and economy

(6) Equipment Plan

The scope of the equipment plan for the Project includes basic school fixtures and teaching materials with are essential for the improvement of primary education, taking the fixtures, etc. provided in the previous phases and the findings of the field survey for the Project into consideration.

1) School Fixtures

The actual items to be provided as school fixtures under the Project for the classrooms, headmaster's room, staffroom-cum-meeting room and preparation room will, in principle, be the same as those provided under the Phase III Project. The specifications of such items will match the standard specifications set by the Ministry of Education and Training and these items will be locally procured wooden products, emphasising such factors as the use of local manufacturing skills, ease of raw material availability, good quality and durability. The pupils' desks and chairs will be made in

- 47 -

two sizes to accommodate the different body sizes of the pupils of the lower and upper grades. Table 2-10 shows the range of fixtures to be provided for each room.

2) Educational Equipment and Materials

The range of educational materials to be provided and their specifications will be compatible with those used by the Primary School Project of the World Bank. All equipment and materials will be procured in Viet Nam. Table 2-10 lists the educational equipment and materials to be provided under the Project for each school.

Table 2-10 Fixtures by Room

Room	Item	Symbol	Quantity
Classroom	Pupil's Desk (two-seater)	D/1	20
	Teacher's Desk	D/2	1
	Pupil's Chair	C/1	40
	Teacher's Chair	C/2	1
	Blackboard	B/1	1
Headmaster's Room	Headmaster's Desk	D/3	1
	Conference Desk (two-seater)	D/4	4
	Teacher's Chair	C/2	8
	Headmaster's Chair	C/3	1
	Storage Cabinet	S/2	1
Staff Room-cum-Meeting Room	Teacher's Desk	D/2	5
	Conference Desk (two-seater)	D/4	8
	Teacher's Chair	C/2	21
	Storage Cabinet	S/2	2
	Blackboard	B/1	1
Preparation Room	Teacher's Desk	D/2	1
	Conference Desk (two-seater)	D/4	4
	Teacher's Chair	C/2	9
	Storage Cabinet	S/2	4

Table 2-11 Educational Equipment & Materials

NUMBER	ITEM	AMOUNT
I	LITERATURE - VIETNAMESE LANGUAGE	
I -01	Letter and Number (Grade 1)	2 sets
I -02	Set of Letter for Teaching Syllables (Grade 1)	2 sets
I -03	Set of Letter for Learning Syllables	10 sets
I -04	Set of letter for Teaching Writing	2 sets
I -05	Set of Pictures for Story-telling (Grade 1)	2 sets
I -06	Set of Pictures for Story-telling (Grade 2)	1 set
I -07	Set of Pictures for Story-telling (Grade 3)	1 set
I -08	Set of Pictures for Story-telling (Grade 4)	1 set
I -09	Set of Pictures for Story-telling (Grade 5)	1 set
II	MATHEMATICS AND SCIENCE	
II -01	Magnetic Board (30cm × 40cm)	3
II -02	Magnetic Block (13mm $\oint$)	60
II -03	Scale and Weight	1 set
II -04	Clock Face	1
II -05	Set of Measuring Devices • Compass • Right Triangle • Protractor • Metre Stick	2 sets
II -06	Cubic Metre	1 set
II -07	Cube Pieces	5 sets
II -08	Wall Thermometer	1 set
II -09	Compass	5 sets
II -10	Globe (physical)	1 set
II -11	Administration Globe	1 set
II -12	Plastic Gyroscope (plastic)	1 set
II -13	Arrow for Showing Wind Direction	1 set
II -14	Generator by Wind Energy	1 set
II -15	Generator: Hand Operated	1 set
II -16	Electrical Model Making Set for Demonstration	1 set
II -17	Gear Model	1 set
II -18	Magnifying Glass	2 sets
III	SOCIAL STUDY	
III-01	Administrative Map of Vietnam	5 sets
III-02	Set of Pictures for Teaching History (Grade 4)	1 set
III-03	Set of Pictures for Teaching History (Grade 5)	1 set
IV	MUSIC	
IV-01	Songs Record Tape	1 set
IV-02	Tape Player	1 set
IV-03	Electric Organ	1
V	HEALTH & PHYSICAL EDUCATION	
V -01	Skipping Rope	40 sets
V -02	Succor Ball	5
V -03	Set of Model Teeth & Toothbrush	1 set

TYPE:10
TOTAL FLOOR AREA : 658.92 m2
EXTERNAL STAIRCASE AREA : 46.20 m2

TYPE:11A
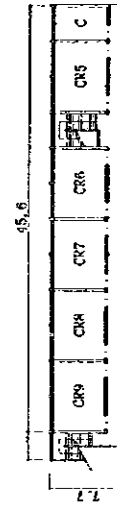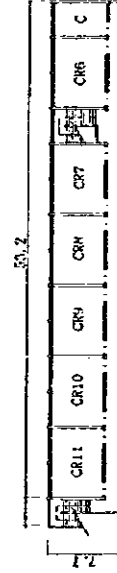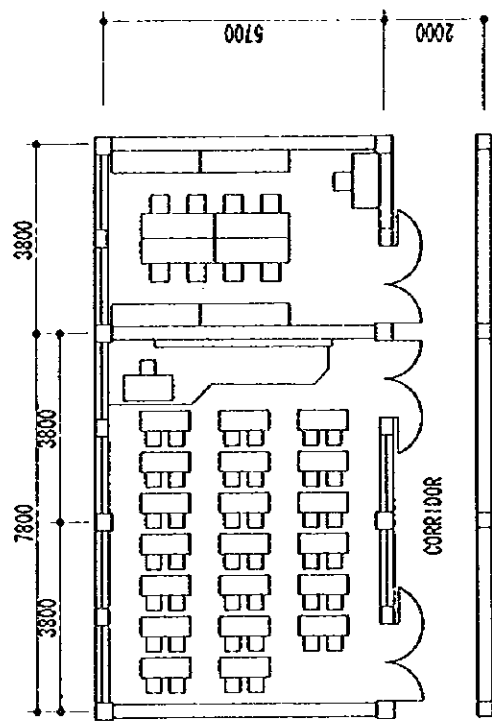TOTAL FLOOR AREA : 834.48 m2
EXTERNAL STAIRCASE AREA : 46.20 m2

TYPE:8
TOTAL FLOOR AREA : 526.68 m2
EXTERNAL STAIRCASE AREA : 46.20 m2

TYPE:9A
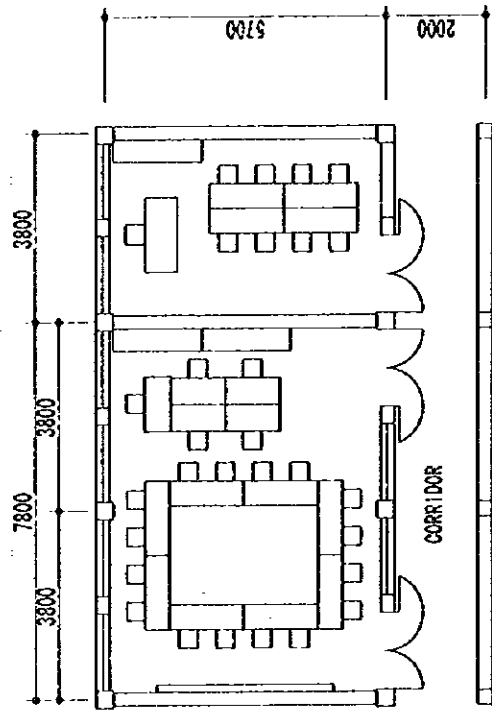TOTAL FLOOR AREA : 717.44 m2
EXTERNAL STAIRCASE AREA : 46.20 m2

TYPE:6
TOTAL FLOOR AREA : 409.64 m2
EXTERNAL STAIRCASE AREA : 46.20 m2
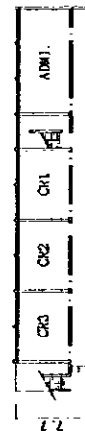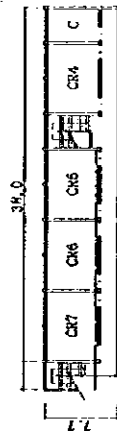
TYPE:7A
TOTAL FLOOR AREA : 600.40 m2
EXTERNAL STAIRCASE AREA : 46.20 m2

COMBINATION UNIT PLAN
1/300

CLASS ROOM
43.32sqm(36~40 seats)

PREPARATION & STRAGE ROOM
21.66sqm

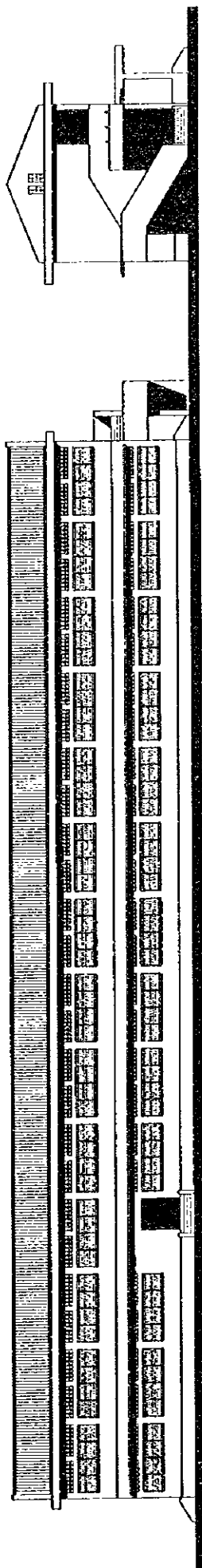ADMINISTRATION & CONFERENCE ROOM
43.32sqm

SCHOOL MASTER ROOM
21.66sqm

FURNITURE LAYOUT
1/150
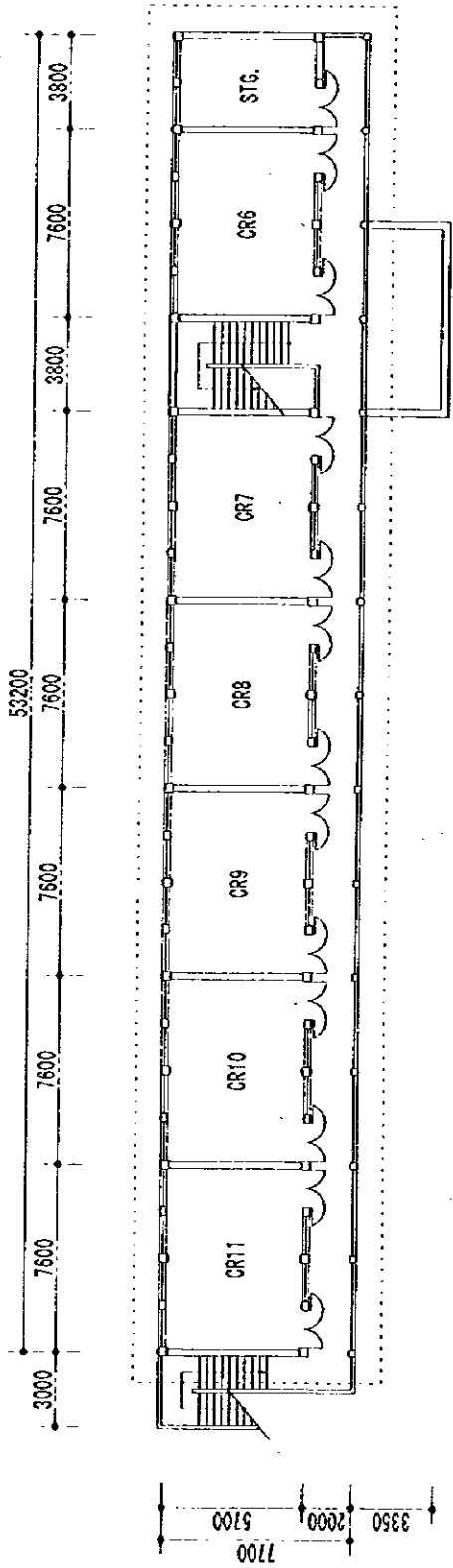
1st FLOOR PLAN
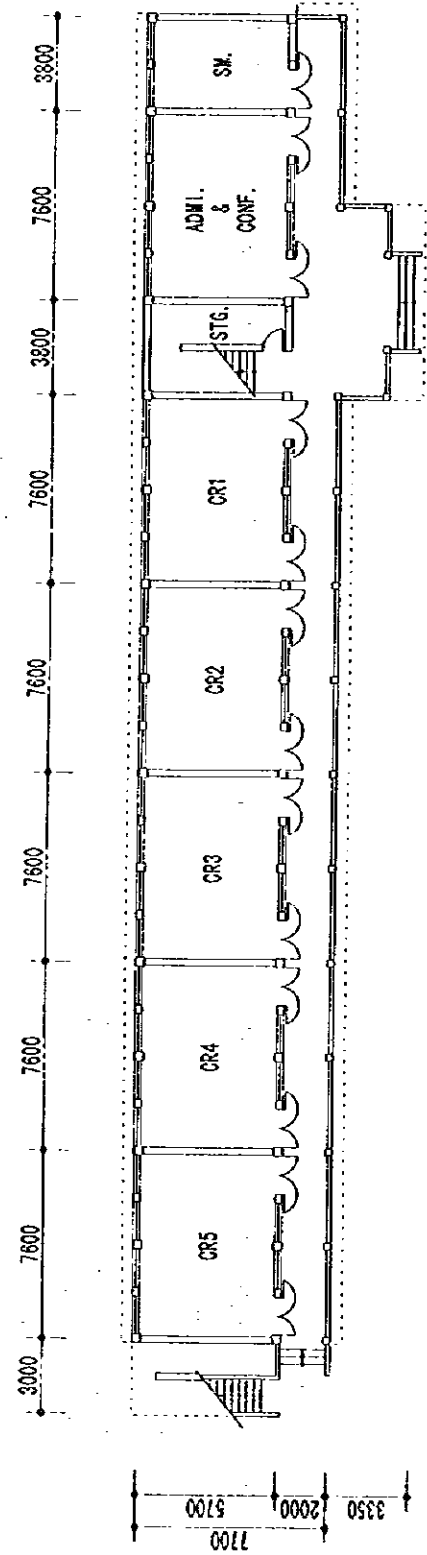
GROUND FLOOR PLAN

TYPICAL PLAN
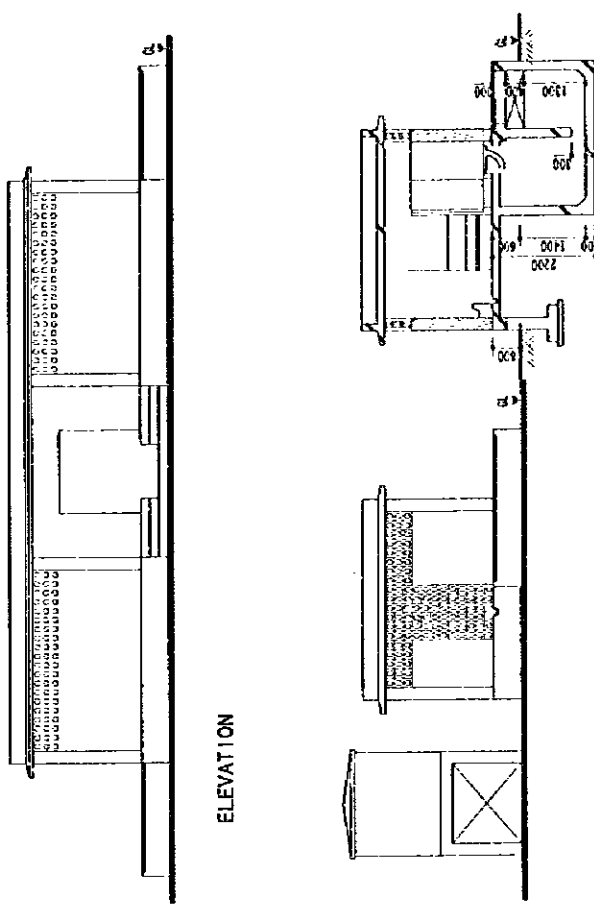1/300

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TYPICAL ELEVATION
1/300

FAN WINDOW (SCREEN BLOCK)

GLASS LOUVER WINDOW W/ BURGLAR BAR

EP. FINISH ON MORTAR

MORTAR

1900

CORRGATED SHEET (NONE ASBEST) @900

PC RAFTER (120 x 180) @900

BRICK WALL #2500

FLOURESCENT LIGHTENING FIX

CEILING FAN

CEM PLASTER(EP)

OPEN

CLASS ROOM

POLISHED TERRAZZO

EP. FINISH

CLASS ROOM

POLISHED TERRAZZO

POLYETHYLENE FILM

SAND LAYER

CRUSHED BRICK SAND

OPEN CORRIDOR

POLISHED TERRAZZO

OPEN CORRIDOR

WATER PROOF CEM MORTAR

DOWNSPOUT PVC φ100

EP. FINISH ON MORTAR

RSL

2FL

1FL

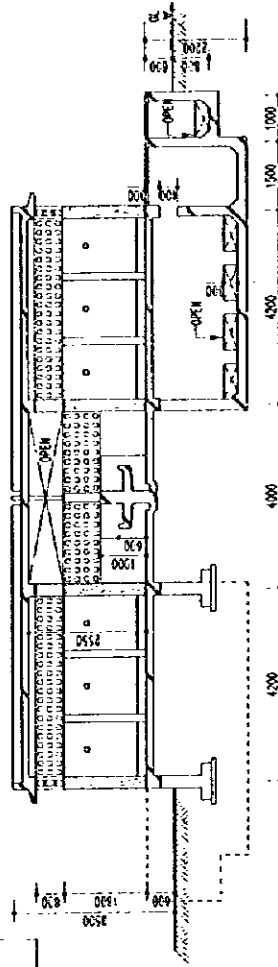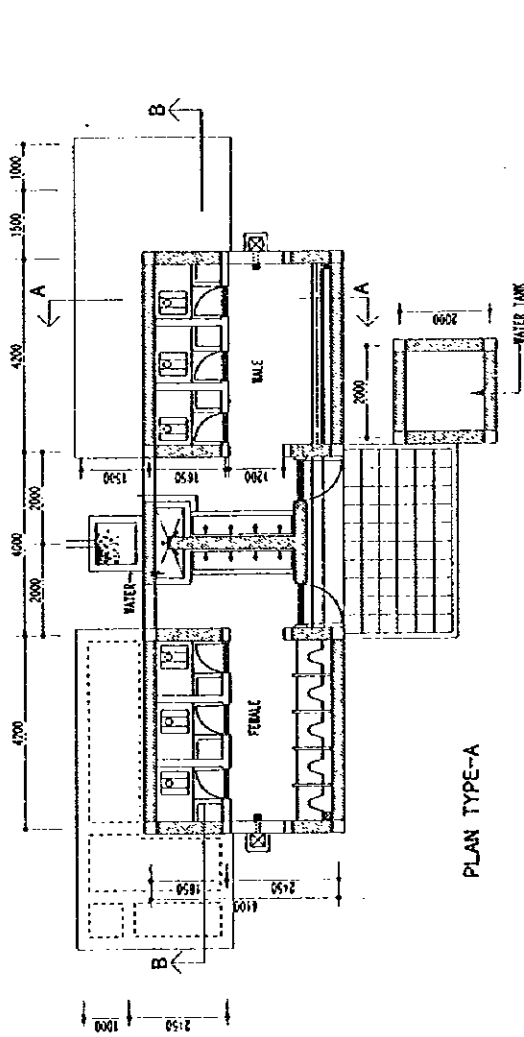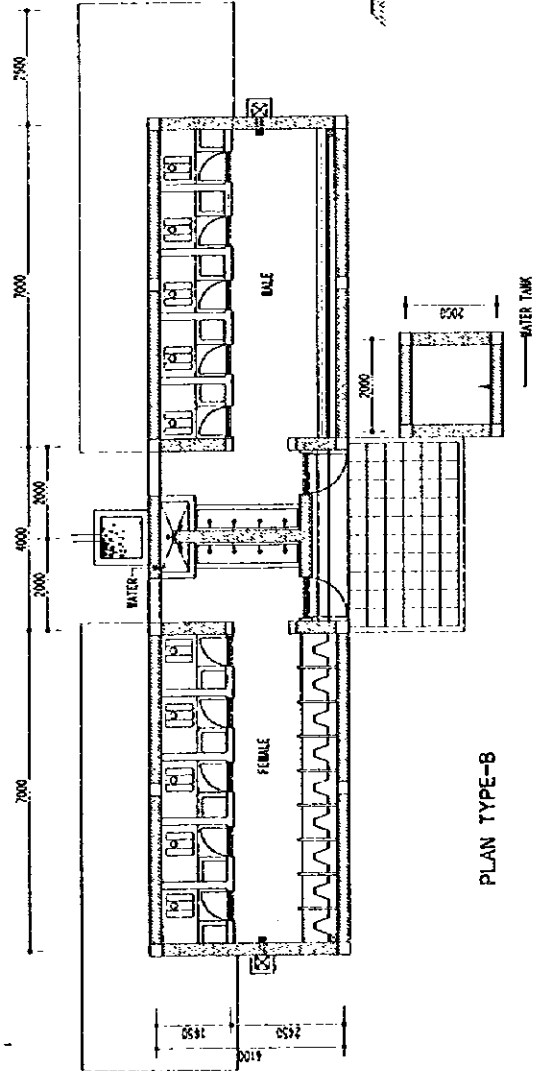GL

7330

3300

3300

700

650

550

5700

2000

750

450

3600

ELEVATION

A-A SECTION

ELEVATION

B-B SECTION

PLAN TYPE-A

PLAN TYPE-B

MALE

FEMALE

WATER TANK

WATER

MALE

FEMALE

WATER TANK

WATER

SANITARY BLOCK
(NO SCALE)