

2.3 Basic Design for Optimum Project Planning

2.3.1 Design Concept

The planning for the Project means the preparation of a cooperation project involving the rebuilding of school facilities and the provision of basic educational equipment, etc. for 37 main schools and 24 satellite schools, totalling 61 sites, in four provinces, i.e. Ha Giang, Lai Chau, Cao Bang and Bac Can, in the Northern Mountain Region in Vietnam. The basic design for the Project is conducted in line with the design concept regarding the following factors.

(1) Natural Conditions

The four subject provinces of the Project are located in the Northern Mountain Region which borders China and Laos and which belongs to the subtropical monsoon zone. From the climatic point of view, the rainy season is from May to mid-September. Meteorological statistics for the last 10 years show that Ha Giang Province has the highest annual rainfall of 2,550 mm of the four provinces while Bac Can Province has the lowest annual rainfall of 1,500 mm. The monthly rainfall peaks in July during the rainy season and reaches 600 mm in Ha Giang and Lai Chau Provinces and 300 mm in Cao Bang and Bac Can Provinces. All four provinces are hardly affected by typhoons because of their location in the inland mountain area. Humidity is high in the range of 80% throughout the year. The annual temperature fluctuations show a similar pattern for all four provinces in that the temperature during the rainy season is the highest with a mean maximum temperature of 35 - 37°C. December and January are the coldest months with a mean maximum temperature of 5°C. While the subject sites are widely distributed in areas between lowland and mountain land with an elevation of 1,500 m, those at a high elevation record a maximum temperature of 2 - 3°C lower than that of lowland sites. Dense fog occurs during the rainy season in the mountain areas and Lai Chau and Ha Giang Provinces lying in the north-western mountain area experience a hot north-western wind caused by the foehn phenomenon.

A special feature of the mountain climate to be noted is the large hailstones

in winter which can even damage tiled roofs. Whirlwinds also occur, damaging tiled or thatched roofs.

Given the above climatic conditions, the adoption of certain principles for the design of the primary school buildings is deemed appropriate. Natural ventilation should be incorporated in the design as much as possible in view of the high temperature and high humidity environment in order to secure a pleasant indoor environment. However, windows should be able to be closed in order to shut out the inflow of outside air in winter when the temperature is low and the humidity is high. In addition, thermal roof insulation is required to prevent an increase of the indoor temperature during the daytime in the rainy season. The roof structure should be strong and durable to resist hailstones, whirlwinds and other adverse weather conditions.

(2) Social Conditions

The Northern Mountain Region where the subject area of the Project (Project Area) is an area of least economic development in Vietnam. Of the 38 communes in which the subject schools are located, 10 are listed among the 1,000 poorest communes in Vietnam. Many others are areas of ethnic minorities which are mainly engaged in slash and burn agriculture and the proportion of poor people is extremely high.

Educational development in the Northern Mountain Region also lags behind that in plain areas due to economic as well as geographical difficulties. The low population density makes it difficult to distribute appropriate schools within travelling distance of children. The ratio of those people who have not completed primary education and the illiteracy rate among the population of 15 year olds and older are, therefore, higher than in other regions. Improvement of the school environment in mountain areas is hampered by the facts that children of ethnic minorities generally constitute an important part of family labour from a very young age and that young girls in some areas tend to marry at a very young age. Moreover, the standard curriculum for primary education in Vietnam is difficult for children of ethnic minorities who speak different languages, often resulting in their repetition of the same grade or dropping out.

In terms of the availability of infrastructure, 20 of the 38 communes are

currently supplied with electricity and it will be possible to install an electrical system for the planned facilities at 32 of the 61 sites. Water supply is possible at 37 sites using well water. At other sites, river water is used although some areas of the northeastern part of Ha Giang Province rely entirely on rainwater because of the lack of alternative water sources due to the local geological and topographical conditions. Sites in the northern part of Lai Chau Province and western and northeastern parts of Ha Giang Province are located in mountain areas which are remote from the provincial capital. It will, therefore, be difficult to procure basic construction equipment and materials near these sites. The local road conditions are unfavourable and it will be difficult to transport equipment and materials to these sites during the rainy season.

Against the background of the social conditions described above, the facility design must ensure the lowest financial burden on local people in terms of the facility maintenance cost. Ground clearance and other work necessitated by the Project and paid for by the local community should also be minimised. Although it is planned to supply electricity to all communes in Vietnam by the year 2010, the installation of lighting equipment and an electrical system is only feasible under the Project at those sites which will have electricity supply by the time of completion of the planned facilities.

In regard to water supply facilities, a system designed to maintain clean sanitation facilities will be introduced. At those sites where groundwater is available, a water supply system consisting of a well as well as a water storage tank will be introduced. A water storage tank will be installed at other sites on the condition that local people will work to create a system to draw river water to the site. In areas where rainwater is used, a system to collect rainwater from the building roof and to store it in a water tank will be installed.

In regard to construction equipment and materials, those which can be transported to the site will be designed. All equipment, materials and construction methods will be those which can be properly maintained by local people.

(3) Permission by the Ministry of Construction

When a foreign company carries out a construction work in Vietnam, it

needs to receive a Contractor License from the Ministry of Construction. This license is issued by the Law concerning Investments from Abroad and Construction Works by Foreign Companies (Law No.42 enacted in June 1996). In August of 1997, with the effectuation of the Regulation concerning Operations and Applications of ODA (Law No.87) providing that construction works project in the scheme of ODA should be implemented in compliance with given government rules and when there is another agreement with the donor, with that agreement, it came to be clear that securement of required licenses should be shouldered by the recipient side.

(4) Use of Local Construction Companies, Equipment and Materials

The main construction companies operating in the subject provinces are either state enterprises controlled by the Ministry of Construction or small private enterprises. These companies have an average of 10 - 20 engineers and the annual turnover is often around US\$ 1 million. Many state enterprises have been involved in the construction of local primary schools. The planned facilities under the Project adopt specifications similar to the standard design set by the Ministry of Education and Training and none of the facilities are beyond the technological capability of local construction companies. Given the prospect of simultaneous construction work at many sites in a wide area, the adoption of a work regime under which several local construction companies will be used as subcontractors to proceed with the works at 3 to 5 sites that is thought to be a number which can be handled by each company is judged to be appropriate. For this purpose, it will be essential to establish a supervisory system vis-à-vis local construction companies to ensure uniform work in terms of technology and quality at all of the sites.

All equipment and materials will be those which can be procured locally in order to facilitate maintenance work in the post-Project period.

(5) Management and Maintenance Capabilities of Project Implementation Body

While the project implementation body is the Ministry of Education and Training, the district people's committees in each province will be

responsible for the management and maintenance of the new facilities. Direct management will be the responsibility of the school management committee, consisting of the headmaster and representatives of the commune's people's committee and parents group. In regard to the school running expenses, the personnel cost of teachers and other school staff members will be appropriated in the budget of the provincial people's committee while the maintenance cost will essentially be paid by the local people's committee and parents. The annual management and maintenance budget in fiscal 1997/98 of the surveyed schools is 9.3 million VD. In addition, local people provide the materials and labour required for maintenance work. Given this financial situation, it is important for the project design to ensure a low maintenance cost. Solid but simple facilities should be constructed using locally procured materials so that facility maintenance does not require special skills and will not be expensive.

(6) Facility and Equipment Grades

The facility construction priority under the Project will be the construction of the required number of classrooms at each site and only the minimum number of administration rooms from the viewpoint of school management will be constructed. The building specifications will ensure safety and sufficient durability vis-à-vis such natural phenomena as hailstones, whirlwinds and downpours in the subject provinces and the lowest maintenance cost over a long period of time. They will also aim at reducing the overall construction cost as much as possible. The grades of the buildings and fixtures will be based on the standard design specifications set by the IRDS of the Ministry of Education and Training. The contents of the educational equipment and materials will be compatible with the standard teaching materials set which is currently employed by the same Ministry under the World Bank project.

(7) Construction Schedule

The project sites are widely distributed in four provinces in the Northern Mountain Region and the construction work will be greatly hampered during the rainy season from June to September. Transportation to remote sites in Ha Giang and Lai Chau Provinces in particular will be difficult during this period. In addition, the number of workable days at the sites will

be reduced to less than 50%. Thus, in these provinces, the construction time is expected to run about 15 months. Even at sites in Bac Can Province, which is the nearest to Hanoi, the capital of Vietnam, and in Cao Bang Province, where the roads are relatively good, the disruptive effects of the rainy season on earth work, concrete structural work and finishing work will mean that a construction period of 13 months will be required. For the preparation of an efficient construction schedule, it is essential to aim at completing the earth work through roofing work between mid-September and the next rainy season.

2.3.2 Basic Design

(1) Site Use and Facility Layout Plan

As the site conditions vary from one subject school to another, optimum site use and facility layout must be planned based on the following principles and taking the shape, surrounding environment and layout of the existing facilities, etc. into careful consideration.

- When new facilities are to be constructed on the premises of an existing school, the new buildings will be constructed without the prior demolition of the existing facilities in order to ensure the availability of temporary classrooms as long as there is space for the new facilities. In addition, the location of the new facilities should be determined to secure the safe use of the existing buildings during the construction period.
- The site plan should allow for the future extension or addition of facilities.
- The building axis should be parallel to the east-west axis to prevent direct sunlight, etc. entering the buildings in the morning and evening.
- The buildings should have an open aspect to the south and should be a sufficient distance from the existing facilities and neighbouring site to maximum natural ventilation.
- If the site is sloping, the facilities should be basically located to accommodate the sloping land. Even if ground levelling and other work is required, the facility layout should ensure the minimum work volume required and the safety of the facilities after

completion.

(2) Building Plan

1) Basic Principles of Building Plan

Given the priority of constructed the required number of classrooms at the minimum cost, the following principles will be adopted for the building plan.

- The administration rooms to be introduced are a headmaster's room and a teaching aid room with the former also acting as an administration room. A meeting space will be created in the teaching aid room in which a table and chairs will be provided. Main schools will be provided with a headmaster's room and a teaching aid room while small satellite schools will only be provided with a teaching aid room.
- In view of efficient land use, a two-story building will, in principle, be constructed to accommodate both classrooms and administrative rooms if the number of classrooms exceeds five. However, a single-story building will be constructed if so demanded by the actual site conditions, surrounding environment and work conditions at mountainous sites. In the case of satellite schools with a small number of classrooms, the basic building unit will be a single-story building with 2 - 4 classrooms.
- From the structural point of view, a two-story classroom building should have an even number of classrooms, including administration rooms. The standard building type has 5, 7 or 9 classrooms. If the number of classrooms exceeds nine, more than one standard types will be combined in an appropriate manner to achieve the required number of classrooms.
- The standard type of single-story building has 2, 3 or 4 classrooms which will be combined to produce the required number of classrooms.
- The classroom buildings will be of the gallery-type construction.

2) Room Size of Classroom Building

●Classrooms

The floor area of a classroom is determined based on 1.2 m²/pupil in

accordance with the standard design for school facilities used by the Ministry of Education and Training. The classroom capacity is set at 40 pupils in view of the suggested 36 - 40 pupils/class of the same standard design. In areas where the class size of every grade does not exceed 30 pupils, 30 pupil classrooms will be introduced. In the case of satellite schools and others where the class size does not exceed 15 - 20 pupils, combined teaching (involving two or more grades) or the splitting of classrooms will be introduced.

- Floor area of 40 pupil classroom: $5.7 \text{ m} \times 7.6 \text{ m} = (43.32 \text{ m}^2)$
- Floor area of 30 pupil classroom: $5.7 \text{ m} \times 6.7 \text{ m} = (38.19 \text{ m}^2)$

●Headmaster's Room

For convenience in terms of the floor plan and structural plan, half the span of that of a classroom will be used to create an area of $5.7 \text{ m} \times 3.8 \text{ m}$ (21.66 m^2). As the design standards for school facilities of the Ministry of Education and Training adopt a floor area of $15 \text{ m}^2 - 18 \text{ m}^2$ for a headmaster's room, the planned headmaster's room will also be used as an administration room.

●Teaching Aid Room

Half the span of that of a classroom will be used to create an area for the storage of teaching aids and textbooks to be loaned to pupils. In addition to shelves, a work table and chairs will also be provided so that the room can also be used as a meeting room.

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

The classroom building size varies from five classrooms to 11 classrooms for main schools and from three classrooms to 11 classrooms for satellite schools in correspondence with the number of pupils of the subject schools. For the efficient construction of classroom buildings, the standard types shown in Table 2-5 are introduced and the combination of these standard types should meet the school size variations.

Table 2-5 Standard Types of Classroom Buildings

Classroom Building Type	Details					Floor Area	
	Stories	Classrooms		Headmaster's Room	Teaching Aid Room	Building Floor Area (m ²)	Work Floor Area (m ²)
		40 Pupils	30 Pupils				
9A (a.b)	2	9		1	1	702.24	720.60
7A (a.b)	2	7		1	1	585.20	601.28
6	2	6				409.64	421.16
5A (a.b)	2	5		1	1	409.64	421.16
3PL(a.b)	1	3			1	199.50	210.78
3L	1	3				171.00	180.00
2PL(a.b)	1	2			1	142.50	151.50
4PS(a.b)	1		4		1	226.13	238.34
3PS(a.b)	1		3		1	175.88	186.08
3S	1		3			150.75	158.94
2PS(a.b)	1		2		1	125.63	133.82

4) Sanitation Facilities

Because of the absence of water supply and sewerage systems at the subject sites, the storage and dipping method will basically be used to deal with night soil. At those sites where well water or river water can be used for cleaning purposes, a simple septic tank system for ground infiltration will be used. The number of cubicles will be three each for boys and girls (total: six) for schools with nine or more classrooms, two each (total: four) for schools with five to eight classrooms and one each (total: two) for schools with up to four classrooms. In the case of urinals, open urinals will be installed. In order to ensure a hygienic environment, the sanitation building will be located at an adequate distance from the classroom building and existing facilities. As an accessory to the sanitation facilities, a water supply system will be installed for cleaning and hand-washing purposes. A dug well and water storage tank will be introduced in the case of those sites where well water is available while a water storage tank will be introduced at those sites where river water can be used. The work to supply river water to the site will be the responsibility of the local commune. At sites where only rainwater can be used, a water storage tank will be introduced with an appropriate system to collect rainwater from the building roof.

Table 2-6 Types of Sanitation Facilities

Classroom Building Type	No. of Classrooms	Details				Floor Area	
		Boy's Toilets		Girls' Toilets		Building Floor	Work Floor
		Cubicles	Urinals	Cubicles	Urinals	(m ²)	(m ²)
W1	up to 4	1	4	1	4	4.8	33.8
W2	5-8	2	6	2	6	8.8	42.6
W3	9 or more	3	8	3	8	12.8	51.4

5) Cross-section

A sloping roof will be used in view of the high rainfall and to contain a temperature increase because of strong solar radiation. In the case of a two-story building, the floor height will be 3.3 m for both the ground and first floors so that a large air volume in a room suppresses any increase of the room temperature and the walls are high enough to accommodate large windows for good natural ventilation as well as natural lighting.

In the case of a single-story building, the height of the eaves is set at 3.3 m in order to secure a ceiling height similar to that of a two-story building.

(3) Structural Plan

1) Structural Method

● Two-story Classroom Building

The structural method to be used is the existing local method involving a rigid frame RC structure with cast-in-place concrete. The partition walls will be brick masonry. The roof will have a purlin structure using structural steel on top of a slab floor with brick masonry supports. The floor will be a slab-on-earth floor.

● Single-Story Classroom Building

The structural method to be used is brick masonry strengthened by reinforced concrete. At those sites to which bricks cannot be transported, masonry work with concrete blocks produced on site will be employed. The roof will have a purlin structure using structural steel on top of a slab floor with brick masonry supports. The floor will be a slab-on-earth floor.

2) Loads and External Force

The structural design standards of Vietnam (Tieu Chuan Viet Nam, Hanoi, 1994) will be applied together with the corresponding Japanese standards (AIJ) or US standards (ACI).

- Live load :roof 150 kg/m²
classroom 200 kg/m²
corridor 400 kg/m²
staircase 500 kg/m² (RC two-story building)
- Wind load :127 kg/m²
- Seismic force: $V = ZIC/12 * W$
 - W: dead weight of building
 - Z: site factor
 - I: coefficient of __
 - C: coefficient of standard shearing force

3) Foundation Structure

All of the subject sites except for a few sites in lowland areas are located in a mountain basin, on a hillside or at the piedmont of basically limestone mountains. The geological conditions up to 1.0 m below the ground surface which were visually observed by means of digging at each site during the basic design survey reveal gravelly soil with or without clay in lowland areas and gravelly soil, weathered rock and/or bedrock, etc. at hillside and mountain areas. Soft ground unsuitable for the planned building work was not found at any of the sites and all of the sites are judged to have suitable ground with an expected bearing strength of 10 tons/m² or more.

The planned foundation structure for the planned facilities is RC continuous footings for the two-story classroom buildings and continuous footings using natural stones, which is the traditional local method, for the single-story classroom buildings. The foundation width should be sufficiently wide to provide a minimum design bearing strength of 10 tons/m².

Building work standards in Vietnam compulsorily require a ground survey by means of boring when the construction of a two-story building is planned. The foundation design at the detailed design stage will accordingly be conducted with reference to the boring survey report prepared by the Vietnamese side. A plate bearing test will be conducted at the actual

foundation bottom depth at the construction stage prior to the foundation work in order to confirm the ground bearing strength.

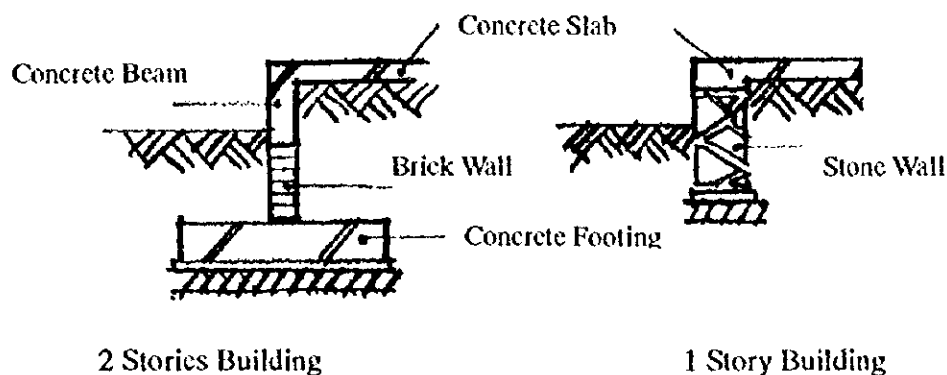


Fig. 2-4 Standard Foundation Drawing by Building Type

4) Structural Materials

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

- Cement :normal Portland cement
- Aggregate :crushed stone; river sand
- Reinforcing bars :round bars; deformed bars; grid bars

(4) Building Services

1) Electrical Installation

Among the 38 subject communes, 20 communes currently receive electricity supply. In view of the Government of Vietnam's plan to electrify the entire country by the year 2010, electric lighting and ceiling fans will be installed under the Project at 20 communes (32 sites) which already receive electricity supply. The luminous intensity at sites subject to electrical installation work will be approximately 200 lx for classrooms, headmaster's rooms and teaching aid rooms to be provided by locally procured fluorescent lamps. The minimum quantity of lighting equipment will be installed for corridors and other places.

A lightning rod will be provided for both two-story and single-story buildings.

2) Water Supply System

A water supply system will be introduced for the cleaning of sanitation facilities and hand-washing. A dug well, hand pump and water storage tank will be introduced at those sites where groundwater can be tapped while a water storage tank will be introduced at those sites where river water can be used. The work to convey river water to the site will be the responsibility of the local commune in question. At those sites where only rainwater can be used, a water storage tank will be introduced to provide a system to collect rainwater from the building roof.

3) Drainage System

No sewerage system currently exists at the project sites. Consequently, the natural drainage of rainwater to irrigation channels and/or small rivers near the sites will be employed. Foul water from the sanitation facilities and miscellaneous waste water will be infiltrated into the ground via a simple septic tank at sites where the supply of well water or river water for cleaning and other purposes is anticipated. At other sites, night soil will be dipped.

All sanitation items will be procured locally. Cubicles will be of the Asian type while urinals will be of the open type with local specifications. Wash basins will have a concrete terrazzo finish.

Table 2-7 (1) Type of Facilities, Sanitation Buildings and Floor Area by School

NO.	Name of School	No of Class-rooms Required		Facility Type		Calculation of Floor Area													Foundation Type		Building Service				
		Type of Class-room / Large / Small		Class-rooms	Head-Teachers Room	Teach-rooms	Classroom Unit										Sanitation Building W: Wear Closet L: Latrine	Total Floor Area (a)+(b) (m ²)	Type	Type					
							2F		1F																
				9A	7A	6	5A	3PL	3L	2PL	4PS	3PS	3S	2PS	3	2	1	(a)	(b)	(a)+(b)	Electrical Installation	Water Supply Facilities			
HA GIANG																									
HG01	1-5 Vi Xuyen	9	L9A	9	1	1												702,240	WG	42,400	744,640	A	○	RT	
	Km23 Vi Xuyen	-		9	1	1												702,240	1		42,400	744,640			
	Sub Total	9		9	1	1												702,240			42,400	744,640			
HG02	Due Duc	6	L3PL+3PL	6	1	1												399,000	W2		33,600	432,600	B	○	RT
	Km 9 Lang Nung	5	S3S+2PS	5	1	1												276,375	W2		33,600	309,975	B	○	BH
	Sub Total	11		11	1	2												675,375	2		67,200	742,575			
HG03	Tan Nam	7	L7A	7	1	1												585,200	W2		33,600	618,800	A		BH
	Ngoi Ham	3	S3PS	3	1	1												175,875	W1		24,800	200,675	B		BH
	Sub Total	10		10	1	2												761,075	1		58,400	819,475			
HG04	Vinh Phuc	11	L6+5A	11	1	1												819,280	WG		42,400	861,680	A	○	BH
	Vinh Thanh	7	L7A	7	1	1												595,200	W2		33,600	618,800	A	○	BH
	Sub Total	18		18	2	2												1,404,480	1		76,000	1,480,480			
HG05	Quan Ba Town	5	L5A	5	1	1												409,640	W2		33,600	443,240	A	○	BH
	Bao An	3	S3PS	3	1	1												175,875	W1		24,800	200,675	B	○	BH
	Sub Total	8		8	1	2												585,515	1		58,400	643,915			
HG06	Minh Sen	5	L5A	5	1	1												409,640	W2		33,600	443,240	A		RT
	Bo Phang	3	S3PS	3	1	1												175,875	W1		24,800	200,675	B		RT
	Sub Total	8		8	1	2												585,515	1		58,400	643,915			
HG07	Mau Due	6	L3PL+3PL	6	1	1												399,000	W2		33,600	432,600	B		BH
	Ngam Soc	3	L3PL	3	1	1												199,500	L1		24,800	224,300	B		RT
	Sub Total	9		9	1	2												598,500	1		58,400	656,900			
HG08	Xa Phin	5	S3PS+2PS	5	1	1												301,500	L2		33,600	335,100	B		RT
	Lung Hoa A	5	S3S+2PS	5	1	1												276,375	L2		33,600	309,975	B		RT
	Sub Total	10		10	1	2												577,875	2		67,200	645,075			
HG09	Pe Lo	5	S3PS+2PS	5	1	1												301,500	L2		33,600	335,100	B		RT
	Coc Soc	3	S3PS	3	1	1												175,875	L1		24,800	200,675	B		RT
	Sub Total	8		8	1	2												477,375	1		58,400	535,775			
HG10	Thien Phang	5	L3PL+2PL	5	1	1												342,000	L2		33,600	375,600	B		RT
	Kheu Tao	-		5	1	1												342,000	1		33,600	375,600			
	Sub Total	5		5	1	1												342,000	1		33,600	375,600			
	Main Schools	64		64	10	10												4,669,000	2	8	0	353,600	5,022,600	4	
	Satellite Schools	32		32	1	8												2,040,950	0	3	5	224,800	2,265,750	3	
	Total	96		96	11	18												6,709,950	2	11	5	578,400	7,288,350	7	

Table 2-7 (3) Type of Facilities, Sanitation Buildings and Floor Area by School

NO.	Name of School	Calculation of Floor Area													Foundation Type		Building Service								
		No of Class-rooms Required		Facility Type										Total Floor Area (m ²)	Type	Type	Water Supply Facilities								
		Type of Class-room / Large / Small	Classrooms Unit		Class-rooms	Head-master's Room	Teach-er's Room	Sanitation Building W/ Water Closet										Erectrical Installation							
			2F	1F				9A	7A	6	5A	3PL	3L	2PL	4PS	3PS	3S		2PS	(a)	(b)	(a)+(b)			
CAO BANG																									
CB01	Soe Giang	5	L 5A	1	5	1	1	1	1	1	1	1	1	1	1	1	409,640	W2	W1	33,600	443,240	A	○	BH	
	Truc Long	3	S 3PS	1	3	1	1	1	1	1	1	1	1	1	1	1	175,875	W1		24,800	200,675	B	○	BH	
	Sub Total	8		2	8	1	2	2	2	2	2	2	2	2	2	2	585,515	1	1	58,400	643,915				
CB02	Nguyen Binh Town	5	L 5A	1	5	1	1	1	1	1	1	1	1	1	1	1	409,640	W2	W1	33,600	443,240	A	○	BH	
	Na Con	3	L 3PL	1	3	1	1	1	1	1	1	1	1	1	1	1	199,500	W1		24,800	224,300	B	○	BH	
	Sub Total	8		2	8	1	2	2	2	2	2	2	2	2	2	2	609,140	1	1	58,400	667,540				
CB03	Lang Mon	5	L 5A	1	5	1	1	1	1	1	1	1	1	1	1	1	409,640	W2	W1	33,600	443,240	A	○	RT	
	Na Bao	5	S 3PS+2PS	1	5	1	1	1	1	1	1	1	1	1	1	1	301,500	W2	W1	33,600	335,100	B	○	RT	
	Sub Total	10		2	10	2	2	2	2	2	2	2	2	2	2	2	711,140	1	1	67,200	778,340				
CB04	Nuoc Hai	-																							
	Khu May Koo	6	L 3PL+3PL	1	6	1	1	1	1	1	1	1	1	1	1	1	399,000	W3		42,400	441,400	B	○	BH	
	Sub Total	6		1	6	1	1	1	1	1	1	1	1	1	1	1	399,000	1		42,400	441,400				
CB05	Ba Thieu	7	L 7A	1	7	1	1	1	1	1	1	1	1	1	1	1	585,200	W3		42,400	627,600	A	○	BH	
	Tan Hong	-																							
	Sub Total	7		1	7	1	1	1	1	1	1	1	1	1	1	1	585,200	1		42,400	627,600				
CB06	Cao Chuong	5	L 5A	1	5	1	1	1	1	1	1	1	1	1	1	1	409,640	W2	W1	33,600	443,240	A	○	BH	
	Lung Hang	-																							
	Sub Total	5		1	5	1	1	1	1	1	1	1	1	1	1	1	409,640	1		33,600	443,240				
CB07	Quang Han	5	L 5A	1	5	1	1	1	1	1	1	1	1	1	1	1	409,640	W2	W1	33,600	443,240	A	○	BH	
	Ban Mac	3	S 3PS	1	3	1	1	1	1	1	1	1	1	1	1	1	175,875	W1		24,800	200,675	B	○	RT	
	Sub Total	8		2	8	1	2	2	2	2	2	2	2	2	2	2	585,515	1	1	58,400	643,915				
CB08	Phuc Sen	5	L 3PL+2PL	1	5	1	1	1	1	1	1	1	1	1	1	1	342,000	W2	W1	33,600	375,600	B	○	BH	
	Ban Gao	3	S 3PS	1	3	1	1	1	1	1	1	1	1	1	1	1	175,875	W1		24,800	200,675	B	○	BH	
	Sub Total	8		2	8	1	2	2	2	2	2	2	2	2	2	2	517,875	1	1	58,400	576,275				
CB09	Lac Giao	5	L 3PL+2PL	1	5	1	1	1	1	1	1	1	1	1	1	1	342,000	W2	W1	33,600	375,600	B	○	BH	
	Chi Thao	5	S 3PS+2PS	1	5	1	1	1	1	1	1	1	1	1	1	1	301,500	W2	W1	33,600	335,100	B	○	BH	
	Sub Total	10		2	10	2	2	2	2	2	2	2	2	2	2	2	643,500	2	2	67,200	710,700				
CB10	Thong Hue	7	L 7A	1	7	1	1	1	1	1	1	1	1	1	1	1	585,200	W2	W1	33,600	618,800	A	○	BH	
	Co Chia	-																							
	Sub Total	7		1	7	1	1	1	1	1	1	1	1	1	1	1	585,200	1		33,600	618,800				
CB11	Trung Khanh Town	11	L 6+5A	1	11	1	1	1	1	1	1	1	1	1	1	1	819,280	W3		42,400	861,680	A	○	RT	
	Keo Lum(Khu 6)	-																							
	Sub Total	11		1	11	1	1	1	1	1	1	1	1	1	1	1	819,280	1		42,400	861,680				
	Main Schools	60		10	60	10	2	2	2	2	2	2	2	2	2	2	4721,880	2	8	0	353.6	5075.480		9	
	Satellite Schools	28		3	28	3	7	7	7	7	7	7	7	7	7	7	1729,125	1	2	4	208.8	1937.925		6	
	Total	88		17	88	13	17	17	17	17	17	17	17	17	17	17	6451,005	3	10	4	562.4	7073.405		15	

(5) Building Materials

1) Basic Concept

All building materials for the Project will be procured locally based on the application of traditional local methods to ensure easy maintenance of the facilities by local people after their completion.

2) Main Materials in Use

●Roofing Materials

Schools in the subject provinces generally have a bamboo or wooden roof truss with palm leaf or tile roofing. As a result, the roofs are liable to repetitive damage by hailstones and whirlwinds, etc. and rapidly deteriorate. Other roofing materials include corrugated cement asbestos sheeting, corrugated resin sheeting and corrugated steel sheeting. Corrugated steel sheeting will be used for the Project based on the general assessment of various roofing materials in terms of durability, transportation efficiency and workability.

●Windows and Doors

Local schools commonly have wooden board casement windows. When they are closed on a rainy, windy or cold day, no light comes through these windows. Under the Project, glass louvre windows will be employed in view of efficient natural lighting and ventilation. These windows will be protected by an iron grid for security and to prevent damage to the glass.

●Wall Finishing

Mortar based with a paint finish which is commonly used locally will be employed.

●Floor Materials

Locally available floor materials include mortar, cement tiles, mosaic tiles, terrazzo and ceramic tiles. Under the Project, a site polished terrazzo finish will be employed because of its good durability, economy and easy maintenance.

●Sanitation Fixtures

Cubicles will be the Asian type. Walls will be partially tiled in view of

easy maintenance and cleaning.

Table 2-8: Main Finishing Materials

Section		Material Presently Used	Material Used under the Project	Reason of Choice
Outside	Roof	tile roofing or truss with palm leaf	corrugated steel sheeting	weatherproofness, thermal insulation and easy maintenance
	Outside Wall	Mortar with a paint	do.	easy maintenance
	Window	Wooden board casement	latticed glass jalousie with wooden frame	efficient natural lighting and ventilation, with iron grill against damage and for security
	Foundation (aboveground part)	Mortar	do.	durability, cost efficiency and easy maintenance
Inside	Floor	mortar, cement tiles, mosaic tiles, terrazzo,	polished terrazzo (classrooms and office rooms)	durability, easy operation and easy maintenance
			mortar (corridor and lavatories)	durability, cost efficiency and easy maintenance
	Inside Wall	mortar with a paint	do.	easy maintenance
	Ceiling	Left unpainted, mortar with a paint, etc.	Exposed concrete with a paint	easy maintenance

(6) Equipment and Fixtures

1) Educational Fixtures

The desks, chairs and school furniture required for the classrooms, headmaster's room and teaching aid room will be provided under the Project. Their specifications will be based on the relevant standard specifications set by the Ministry of Education and Training. These items will be made of wood, taking the domestic manufacturing technology, ease of procurement, quality and durability into consideration and will be procured in Vietnam. Two sizes are planned for pupil's desks and chairs to meet the physical difference between lower grade pupils and higher grade pupils. Table 2-7 lists the educational fixtures for each type of room.

Table 2-9 Educational Fixtures by Type of Room

Type of Room	Item	Quantity	Dimensions (mm)
40 Pupil Classroom	Two-seater pupils' desks	20	1100W·590(525)H·400D
	Pupils' chairs	40	375(325)H
	Teacher's desk	1	1200W·750H·558D
	Teacher's chair	1	
	Blackboard	1	3600W·1200H
30 Pupil Classroom	Two-seater pupils' desks	15	1100W·590(525)H·400D
	Pupils' chairs	30	375(325)H
	Teacher's desk	1	1200W·750H·558D
	Teacher's chair	1	
	Blackboard	1	3600W·1200H
Headmaster's Room	Headmaster's desk	1	1500W·750H·625D
	Headmaster's chair	1	
	Storage cabinet	3	750W·1800H·400D
	Meeting tables (two-seater)	4	1500W·750H·500D
	Teachers' chairs	8	
Teaching Aid Room	Storage cabinets	7	750W·1800H·400D
	Meeting tables (two-seaters)	4	1500W·750H·500D
	Teachers' chairs	8	

2) Teaching Aids

The range of teaching aids and their specifications are compatible with the standard teaching equipment (aid) set employed by the Ministry of Education and Training for the primary school project of the World Bank. All of the items will be procured in Vietnam. Table 2-8 lists the teaching aids and others to be provided for both the main and satellite schools.

Table 2-10 List of Teaching Aids Provided for Each School

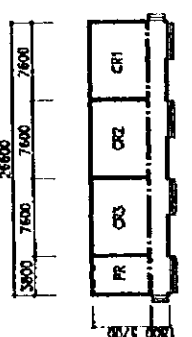
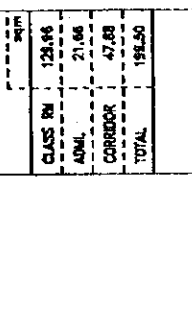
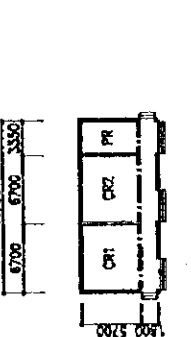
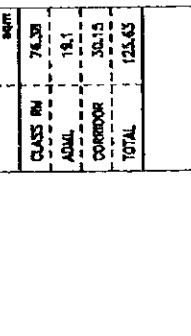
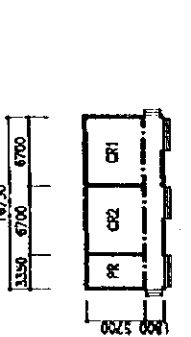
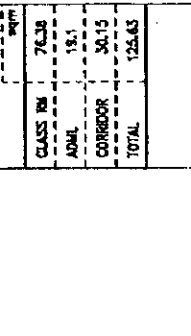
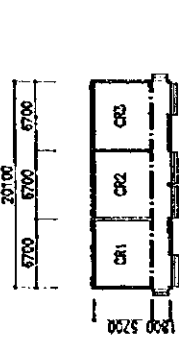
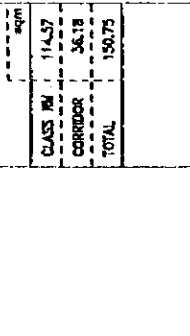
No.	Item	Quantity
I	Teaching Aids for Vietnamese Language	
I-01	Textbook on Vietnamese Letters /Numbers (G 1)	2sets
I-02	Textbook on Vietnamese (Grade 1)	2sets
I-03	Textbook on Vietnamese Letters	10sets
I-04	Textbook on Vietnamese Writing	2sets
I-05	Textbook on Vietnamese Reading	2sets
I-06	Textbook on Vietnamese (Grade 2)	1sets
I-07	Textbook on Vietnamese (Grade 3)	1sets
I-08	Textbook on Vietnamese (Grade 4)	1sets
I-09	Textbook on Vietnamese (Grade 5)	1sets
II	Teaching Aids for Science and Arithmetic	
II-01	Steel Plate (30 cm x 40 cm)	3

II-02	Magnet (d: 13 mm)	60
II-03	Balance	1sets
II-04	Clock Dial	1
II-05	Measuring Tools (Compass; Triangle; Protractor; Ruler)	3sets
II-06	Plastic Measuring Cup	1sets
II-07	Teaching aid to explain volumetric principles	5sets
II-08	Wall-Mounted Thermometer	5sets
II-09	North-Pointing Needle	5sets
II-10	Globe	1sets
II-11	Astronomical Models (Sun; Earth; Moon)	1sets
II-12	Gyroscope (plastic)	1sets
II-13	Anemoscope/Anemometer	1sets
II-14	Wind Power Generator	1sets
II-15	Manual Power Generator	1sets
II-16	Teaching aid to explain electric principles	1sets
II-17	Model to explain principles of gear movement	1sets
II-18	Magnifying Glass	5sets
III	Teaching Aids for Social Studies	
III-01	Administrative Map of Vietnam	one / classroom
III-02	Textbook on History of Vietnam (Grade 4)	1
III-03	Textbook on History of Vietnam (Grade 5)	1
IV	Teaching Aids for Music	
IV-01	Cassette Tape of Standard Music and Songs	1
IV-02	Cassette Tape Player	1
V	Teaching Aids for Health and Physical Education	
V-01	Skipping Rope	40sets
V-02	Football	5
V-03	Inflator	1
V-04	Dental Model	1sets

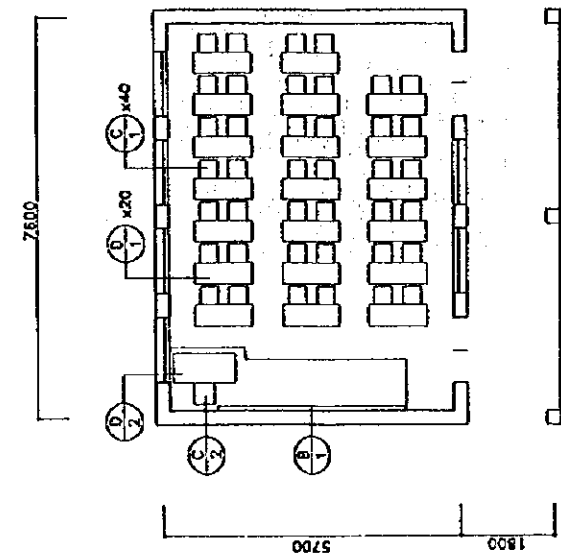
- (7) Basic Design Drawings**
 - 1) Standard-Type Facilities**
 - 2) Furniture Layout**
 - 3) Standard Plan and Elevation of Facilities**
 - 4) Detailed Standard Cross-section of Facilities**
 - 5) Standard Plan, Elevation and Cross-section of Sanitation Facilities**

COMBINATION UNIT PLANS-1

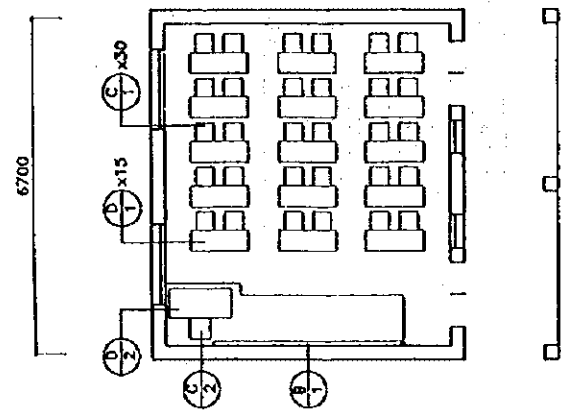
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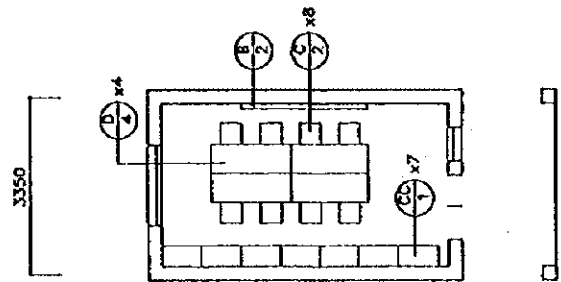
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<table border="1"> <tr><td>4PSb</td><td>sqm</td><td>30150</td></tr> <tr><td>CLASS RM</td><td>152.76</td><td></td></tr> <tr><td>ADM.</td><td>19.1</td><td></td></tr> <tr><td>CORRIDOR</td><td>54.27</td><td></td></tr> <tr><td>TOTAL</td><td>226.13</td><td></td></tr> </table>	4PSb	sqm	30150	CLASS RM	152.76		ADM.	19.1		CORRIDOR	54.27		TOTAL	226.13			<table border="1"> <tr><td>W3/L3</td><td>sqm</td><td>42.4</td></tr> <tr><td>TOTAL</td><td></td><td>42.4</td></tr> </table>	W3/L3	sqm	42.4	TOTAL		42.4
4PSb	sqm	30150																					
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TOTAL	226.13																						
W3/L3	sqm	42.4																					
TOTAL		42.4																					



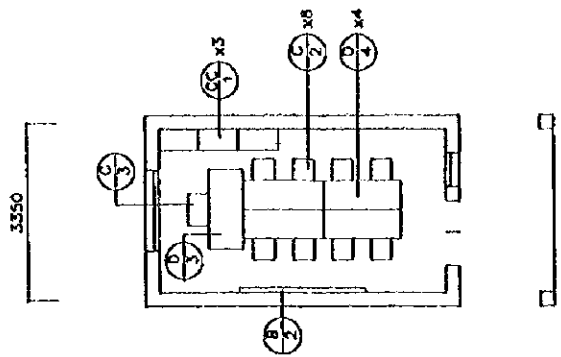
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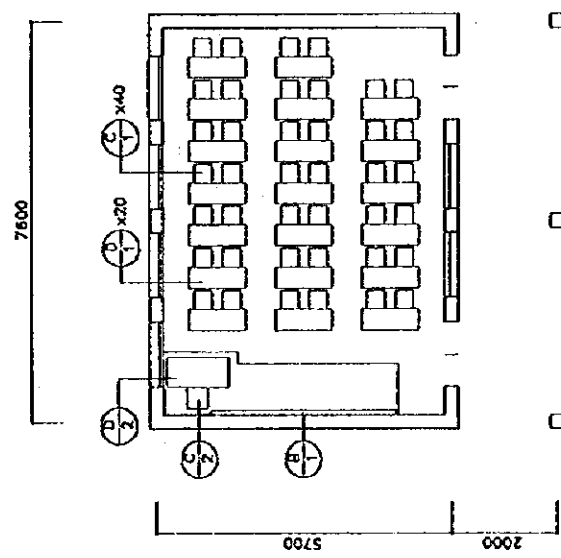
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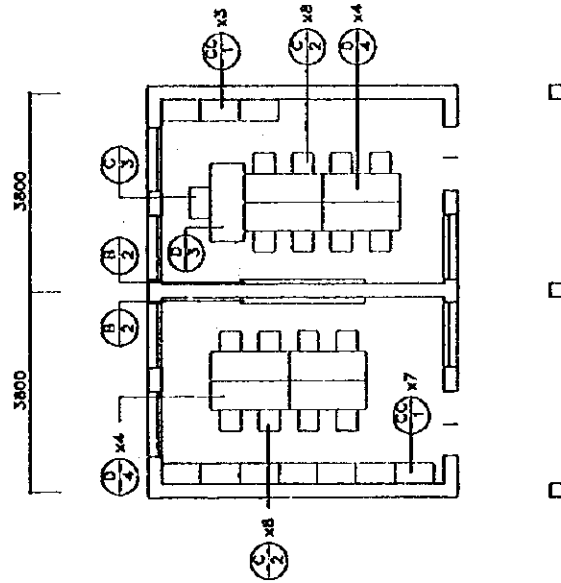
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SCHOOLMASTER ROOM—TYPE S

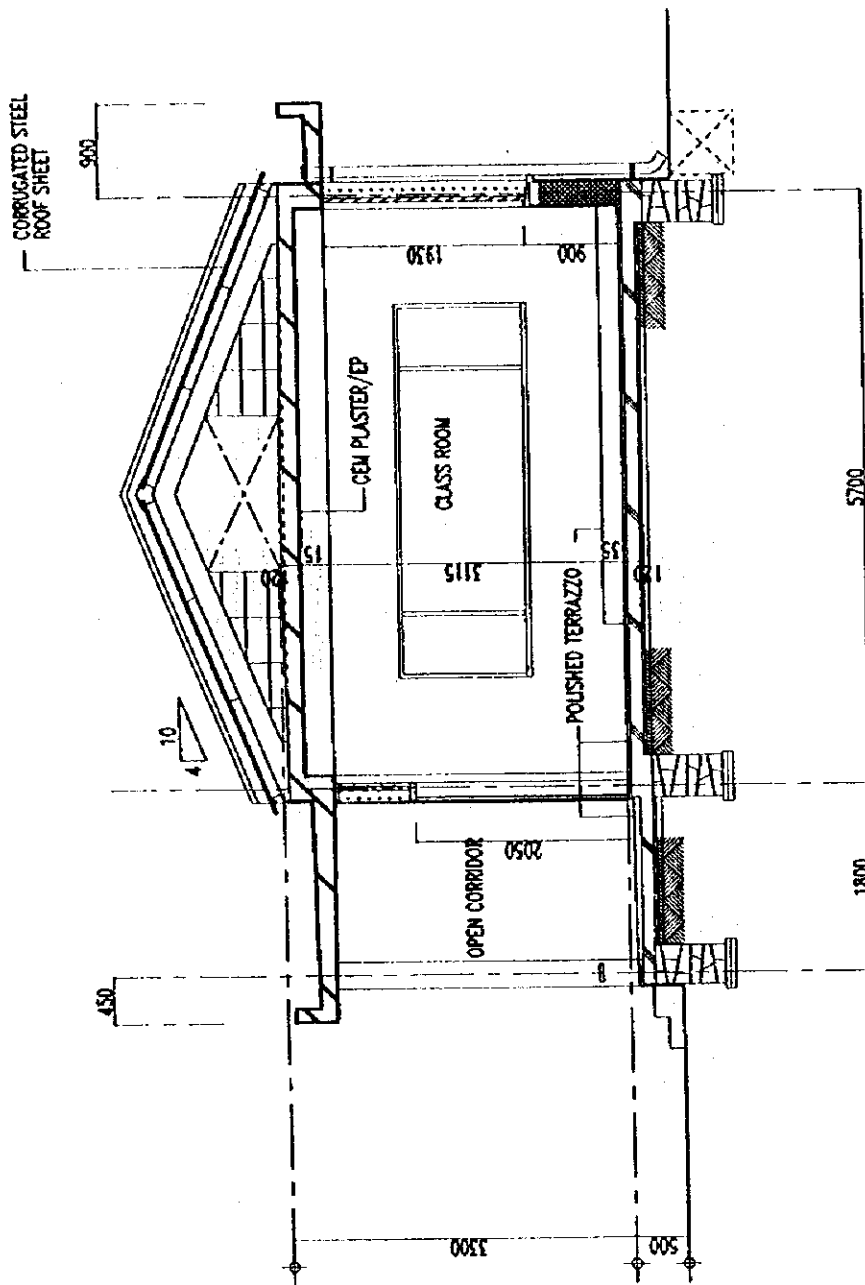


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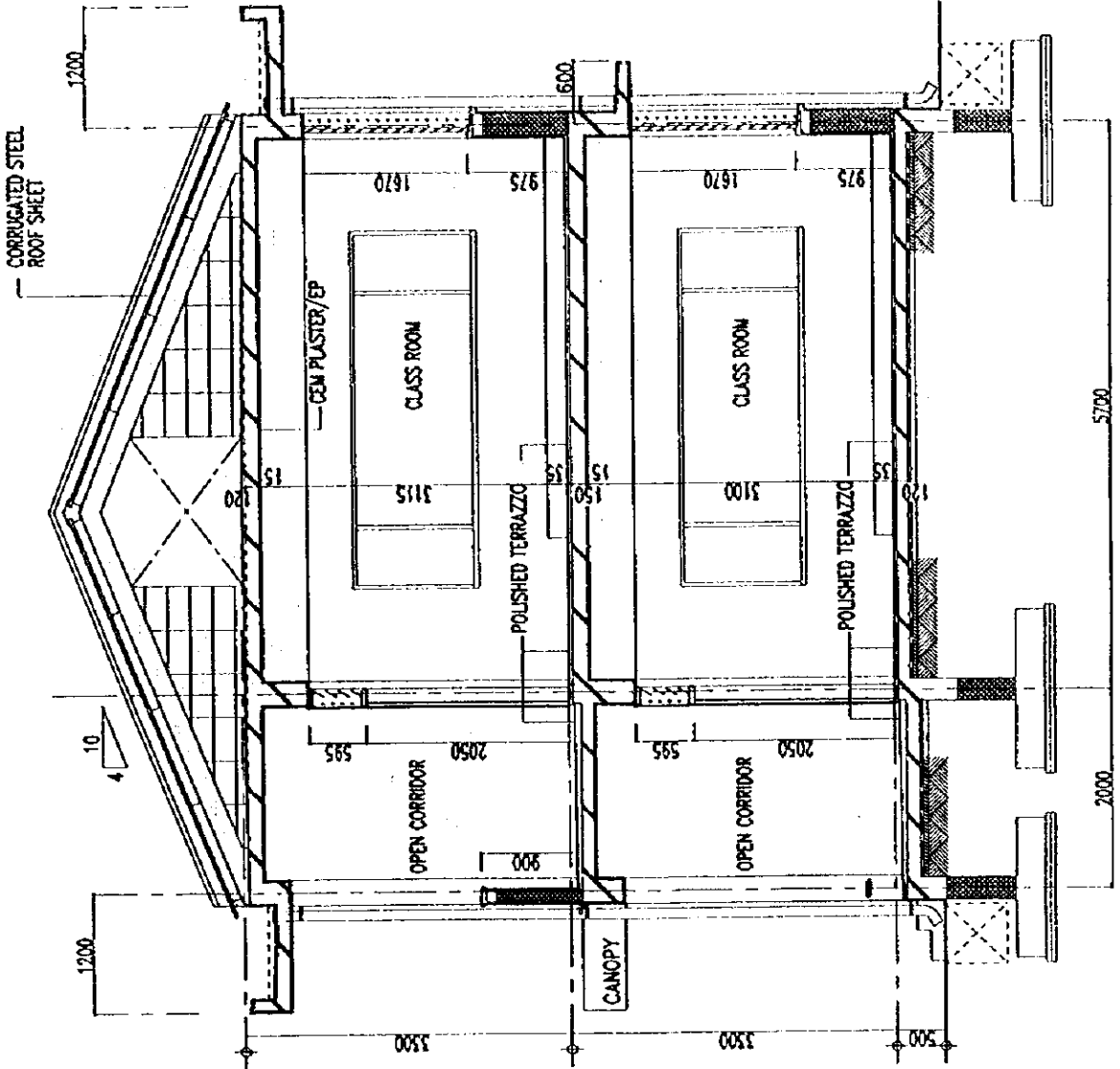


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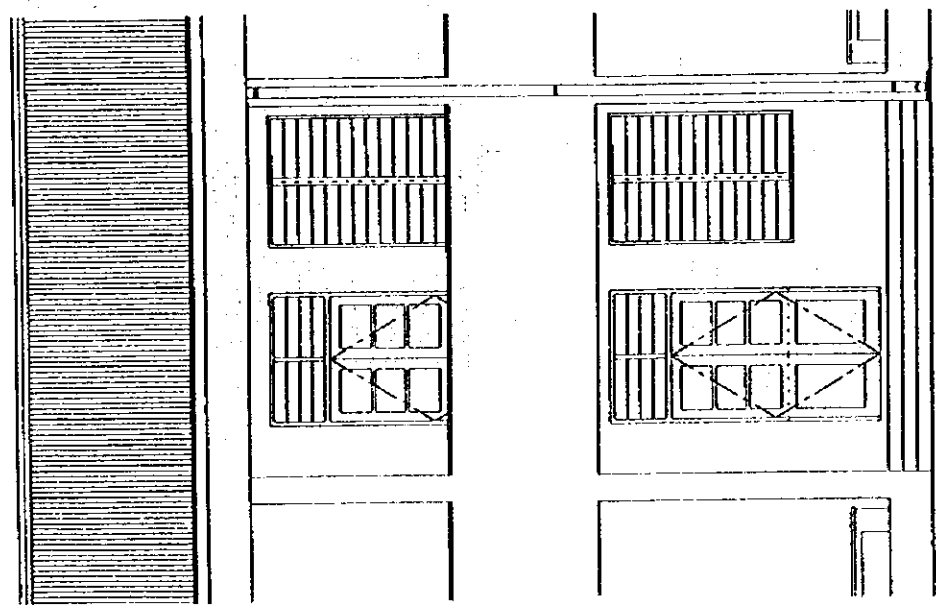
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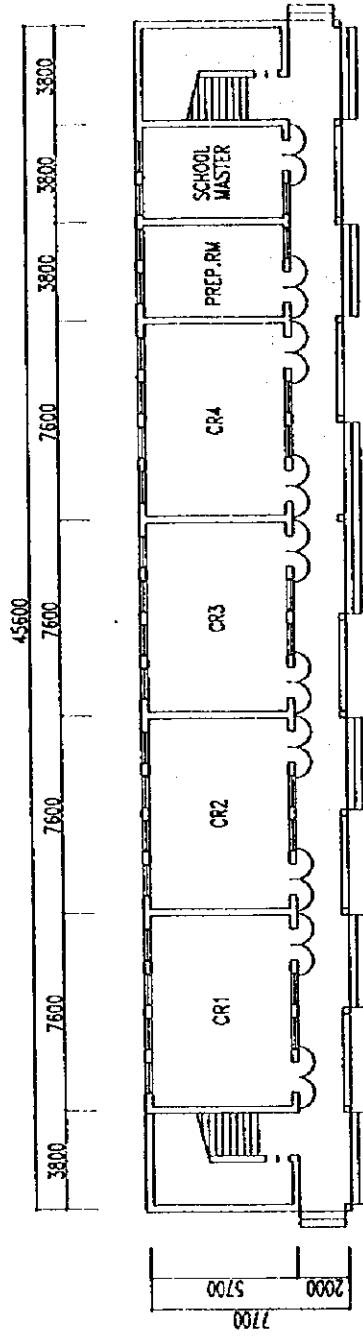
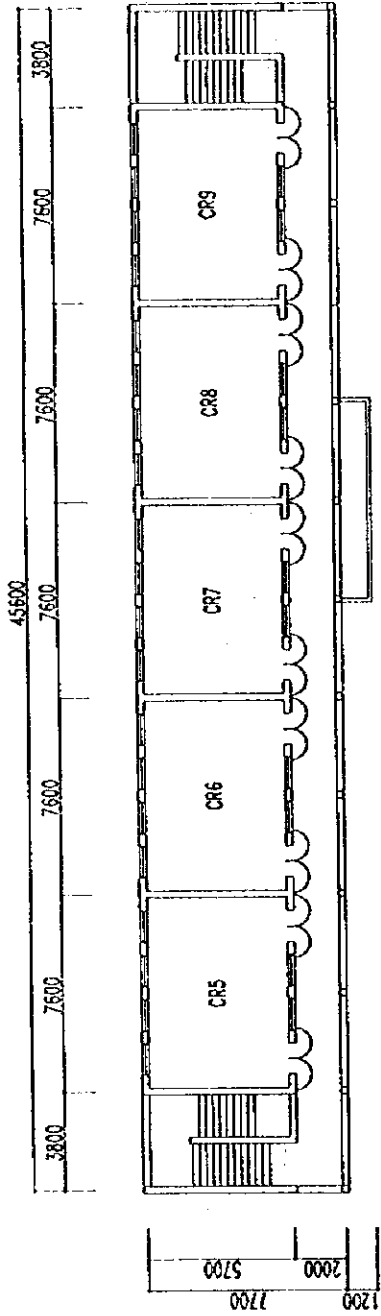


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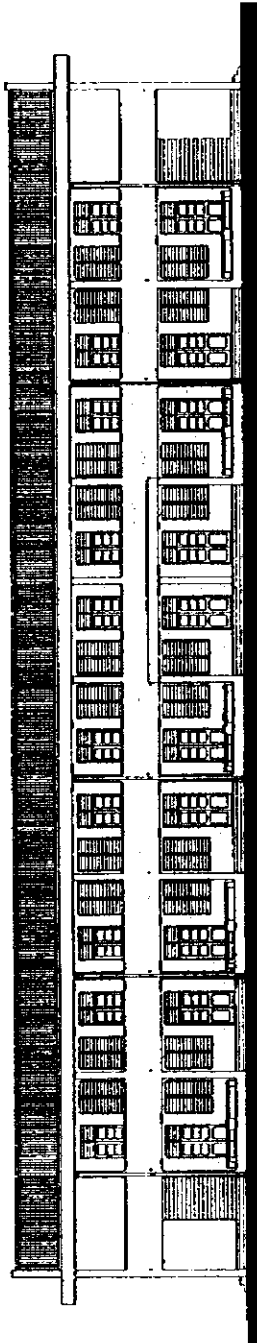
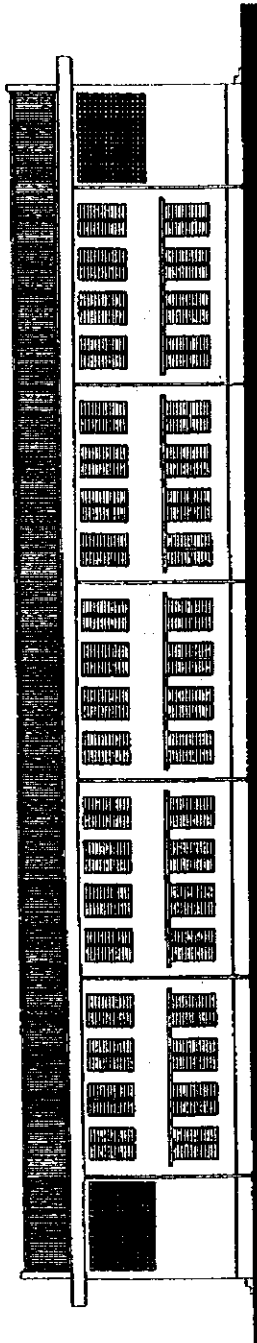
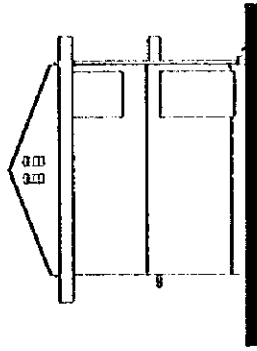
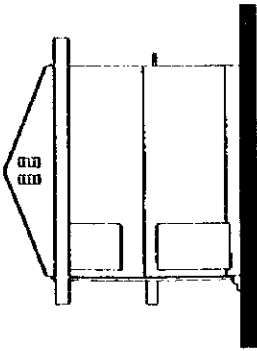


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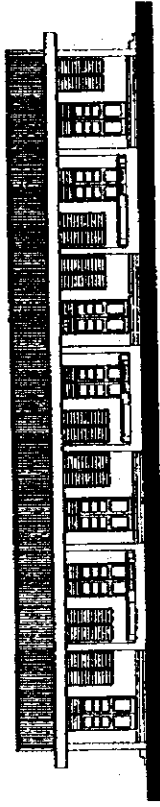
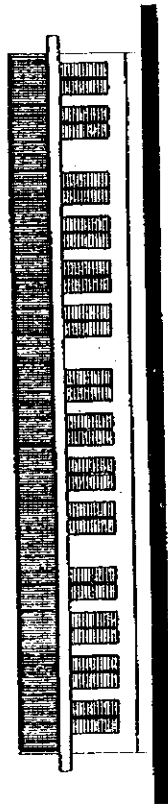
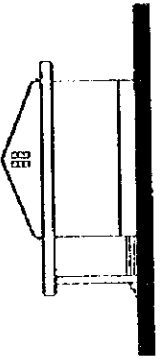




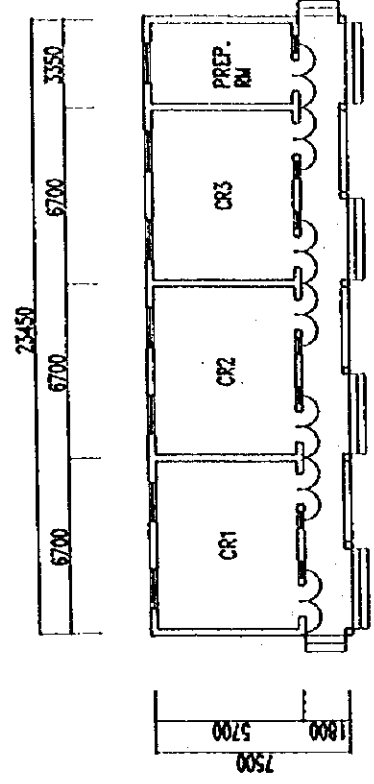
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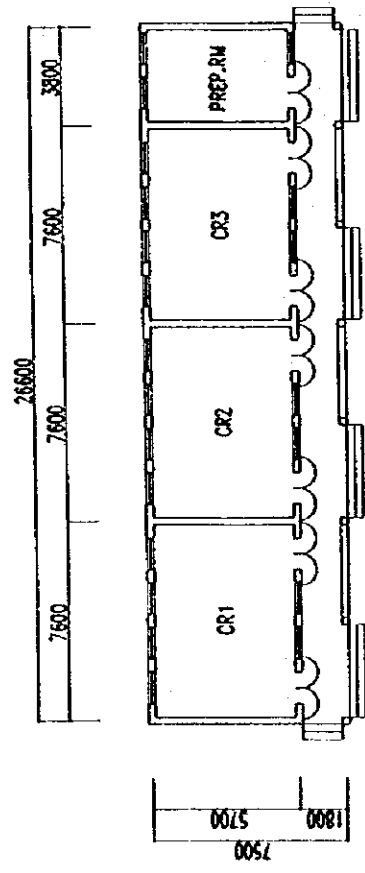
TYPICAL ELEVATIONS (9A)



3PL ELEVATIONS



SPS PLAN



3PL PLAN

CHAPTER 3
IMPLEMENTATION OF THE PROJECT

CHAPTER 3 IMPLEMENTATION OF THE PROJECT

3.1 Implementation Plan

3.1.1 Implementation Principles

(1) Basic Framework for Project Implementation

The actual implementation of the Project, i.e. the Project for Improvement of the Facilities of Primary Schools in the Northern Mountain Region in the Socialist Republic of Vietnam, will require the cabinet approval of the Government of Japan following examination of the details of the Project provided by the present Basic Design Report by the Japanese government organisations concerned. After such decision has been made, the Exchange of Notes (E/N) will be signed by the Government of Japan and the Government of Vietnam to proceed to the implementation stage.

The actual work for the Project will be conducted through the preparation of detailed design documents by a Japanese consultant and construction work by a Japanese contractor. The said consultant and contractor will conduct the respective work in accordance with the consultancy and construction agreements concluded by them and the project implementation agency in Vietnam as required by the grant aid scheme of the Government of Japan. These two separate agreements must be verified by the Government of Japan.

(2) Project Implementation System

The project implementation agency in Vietnam is the Ministry of Education and Training and the official E/N regarding the implementation of the Project will be concluded by the said Ministry and the Japanese Embassy in Vietnam.

The Project Management Committee, headed by the First Vice-Minister of the Ministry of Education and Training, will have the actual management responsibility for the Project. The party on the Vietnamese side to the detailed design agreement and the design and supervision agreement with

the Consultant and to the construction agreement with the Contractor will be the Ministry of Education and Training. The Project Management Committee will also be responsible for land preparation and power supply at all of the subject sites even though the work will be directly conducted by the Provincial and District People's Committees governing these sites. The work involving the special technologies required by the planned facilities will be arranged by the IRDS in its capacity as a member of the Project Management Committee.

(3) Consultant

Following the signing of the E/N by the two governments, the Ministry of Education and Training will conclude a design and supervision agreement, involving the detailed design and supervision of the construction work, with a Japanese consultancy firm. In view of the smooth progress of the Project, the Consultant involved in the basic design of the Project will be awarded a contract to conduct the detailed design and construction work supervision. Upon verification of the agreement by the Government of Japan, the Consultant will conduct the detailed design for the planned facilities and equipment, etc. based on the Basic Design Report through consultations with the Project Management Committee of the Ministry of Education and Training and will also prepare the tender documents. Following approval of the detailed design and tender documents by the Ministry of Education and Training, the Consultant will conduct the tender procedure to select the Contractor on behalf of the project implementation agency, i.e. Ministry of Education and Training, and will also supervise the entire construction work conducted by the Contractor.

(4) Contractor

The work of the Contractor will consist of the construction of school facilities and the procurement of educational equipment and materials. The successful Contractor will be selected through open competitive bidding held for Japanese construction companies with the appropriate qualifications. In principle, the lowest bidder will be declared successful and will conclude a construction agreement with the Ministry of Education and Training. Upon verification of the construction agreement by the Government of Japan, the Contractor will complete the construction work within the period

specified by the agreement and will hand over the completed facilities, together with the duly procured educational equipment and materials, to the Ministry of Education and Training after inspection of their satisfactory condition.

(5) Areas of Work for Local Consultant and Subcontractors

Among local consultants with expertise in regard to the design of school facilities, the IRDS of the Ministry of Education and Training has the richest technical capability and experience from design to construction. As the IRDS has the dual character of being a subordinate organization of the Ministry of Education and Training and a business enterprise, it will be able to jointly work with the Japanese Consultant to prepare the detailed design drawings or can be commissioned to conduct some of the work involved. As staff members of the IRDS have assisted the implementation of work for the Project for Improvement of Facilities of Primary Schools in coastal regions in the past in terms of design and work supervision, the appointment of many staff members of the IRDS who are familiar with the construction of primary school facilities in Vietnam is judged to be highly effective for the efficient supervision of the application of uniform technical standards given the many construction sites under the Project.

Local construction companies include those controlled by the Ministry of Construction and Ministry of Transport and Telecommunications and private companies. Both public and private construction companies have been acquiring expertise and experience in recent years with the injection of foreign capital. These companies will act as subcontractors for the Japanese Contractor for the implementation of the construction work under the Project. Although the construction work size at each site under the Project is small, the overall construction work size is quite large because of the involvement of 61 sites throughout four provinces. Given the capability and experience of local companies, the appropriate division of the Project Area is desirable in view of the appointment of a local subcontractor for each area. The establishment of uniform work processes is essential in order to complete the construction work at all sites on time and Japanese process control techniques, etc. should be introduced.

3.1.2 Implementation Conditions

(1) General Conditions of Local Construction Industry and Regional Characteristics

1) Local Construction Industry

The four provinces in the Northern Mountain Region where the Project will be implemented are considered to be areas of lesser socio-economic development in Vietnam and the main local industries are agriculture and forestry. Except for urban areas, the construction demand is low except for some public work (road construction) and minor office development. Local construction companies comprise public companies controlled by the Ministry of Construction and Ministry of Transport and Telecommunications and some private companies established after the introduction of a market economy. In regard to the local manufacturing factories for building materials, Cao Bang and Ha Giang Provinces have a cement factory while all four provinces have local brick-making factories.

2) Labour Conditions

Although simple labourers can be hired near the subject sites, there is a shortage of skilled workers specialising in form work, reinforcing bar work, plaster work and building services work, etc., making it necessary to hire such workers in urban areas. In view of the local labour conditions and construction skills, the recruitment of skilled workers through local subcontractors is essential together with the appointment of many foremen to provide direct guidance for and to supervise such skilled workers and the systematic transfer of Japanese work control techniques in view of the implementation of the construction work with uniform technical standards. Moreover, the introduction of effective as well as appropriate technical improvements is necessary while using local construction methods and local materials.

3) Construction Materials

The procurement of all construction materials required for the construction of primary education facilities in Vietnam is possible in Vietnam. However, as the subject sites are located in four northern mountain provinces of lesser economic development vis-à-vis the rest of the country, it will be difficult to

procure the necessary quantity of materials in these four provinces. Even though there is a cement factory in Ha Giang and Cao Bang Provinces, the cement quality is slightly questionable for building structure use. Accordingly, use of this cement will be limited to the finishing and filling of mortar walls. Cement for structural use will, therefore, be procured in Hanoi. Reinforcing bars, roofing sheets and fixtures, etc. will similarly be procured in and around Hanoi. While bricks, one of the basic materials, can be procured in the provincial capitals, the use of concrete bricks manufactured on site in lieu of bricks is judged appropriate for remote sites in mountain areas in Lai Chau and Ha Giang Provinces because of the poor road conditions. Forms are generally made of wood in Vietnam while supports and scaffolding materials are generally made of wood or bamboo. Steel pile supports, etc. are not popularly used except for large construction work.

4) Transportation Conditions

Transportation to the planned construction sites in the four northern mountain provinces will be conducted in four steps, i.e. (i) transportation from Hanoi to each provincial capital, (ii) transportation from the provincial capital to the main cities in districts, (iii) transportation from the main cities in districts to the main schools sites and (iv) transportation from the main school sites to satellite school sites.

National roads exist between Hanoi and the provincial capitals. It is a distance of some 500 km from Hanoi to Lai Chau Province, the remotest province of the four provinces, via National Route 6. The distance between Hanoi and Ha Giang Province is 320 km via National Route 2. The distance between Hanoi and Bac Can Province is 162 km via National Route 3 while the distance between Hanoi and Cao Bang Provinces, which is located beyond Bac Can Province, is 281 km via National Route 3. As most national roads have simple paving, no special problems for transportation are anticipated.

Provincial roads, most of which are unpaved, are used for transportation from the provincial capitals to districts. Provincial and district roads in Lai Chau and Ha Giang Provinces in particular are often mountain roads over mountain passes and there are many river crossings without a bridge, making transportation to mountain or remote sites difficult in the rainy season. Provincial and district roads in Bac Can and Cao Bang Provinces pose fewer difficulties compared to roads in the other two provinces.

Vehicle access is possible in most cases from the district centre to the main school site in each commune even though the roads are unpaved. After district roads, commune roads leading to two sites have a suspension bridge which is impassable by vehicle, making transportation by cart or hand necessary. The distance from a main school to a satellite school varies from 2 km to 8 km. Of the 24 satellite school sites, 15 sites can be reached by vehicle on flat roads. Access to the other sites, however, involves mountain roads or farm roads. Six sites can be reached by cart and three sites require manual transportation. The transportation of materials to the satellite school sites will be conducted using the corresponding main school sites as a base. However, it will be necessary to carefully plan the transportation schedule during the dry season for those sites where cart or hand transportation is necessary in view of the difficulty of transportation during the rainy season.

(2) Points to Note for Construction Work

The following points must be noted in regard to the construction of the planned school facilities under the Project.

- During the construction period, a monthly work progress meeting should be held with the participation of members of the School Construction Committee at the central government level (Ministry of Education and Training), provincial government level (Education and Training Bureau) and district authority level (Education and Training Office) and representatives of the People's Committees. This regular meeting should be designed to provide detailed reporting on the work progress to the Vietnamese side in order to facilitate the latter's understanding of and cooperation for the work and to ensure proper budgetary appropriation, etc. by the latter.
- At sites with existing school facilities, the construction plan must ensure the safety of children, etc. during the construction period and the school management at each site must be properly consulted in this regard.
- The construction plan must ensure punctual and efficient construction work in view of the completion of the work at a large number of sites distributed in a geographically wide area while maintaining uniform technical standards at all sites.

- Prior to the actual work, each type of work should be demonstrated so that the workers involved properly understand the principles, processes and objectives, etc. of the work. This demonstration is designed to facilitate the transfer of technology by the Japanese side.
- The material transportation and construction work schedules should be prepared so as to avoid the rainy season in order to maximise the transportation and work efficiency.
- The construction schedule must envisage the completion of the roofing work prior to the rainy season so that the internal finishing work can be conducted in the rainy season.
- The quality and quantitative availability of local construction materials must be carefully checked and multiple supply sources should be established to stimulate competitive pricing and also to ensure a stable supply.

(3) Division of Work over Two Fiscal Years

The Project involves the construction of 344 classrooms, etc. at 61 sites (37 main school sites and 24 satellite school sites) scattered in four provinces of the Northern Mountain Region. Given the capability of local construction companies, the simultaneous commencement of the work in all the provinces is possible provided that each subcontractor is made responsible for 4 - 6 sites. The construction schedule will be significantly disrupted by the rainy season from June to September and the work efficiency at remote sites in Lai Chau and Ha Giang Provinces in particular will drop to less than 50% of the normal level during the rainy season. Even in Bac Can Province which is relatively near to Hanoi, the construction work in mountain areas during the rainy season will be greatly disrupted by the rainy season, making the completion of the work in 12 months difficult. Consequently, division of the work over two fiscal years for appropriate funding under Japan's grant aid scheme is judged appropriate.

3.1.3 Scope of Work

(1) Division of Work

The adoption of the following division of work between the Government of

Vietnam and the Government of Japan appears appropriate for the planned construction work under the Project.

1) Work to be Undertaken by Japanese Side

●Construction of Facilities

Construction of classroom buildings (classrooms and administration rooms) and sanitation buildings

Table 3-1 Number of Sites and Classrooms by Province

Province	Type of School	Number of Sites	Number of Classrooms
Ha Giang	Main	10	64
	Satellite	8	32
	Sub-total	18	96
Lai Chau	Main	11	89
	Satellite	6	28
	Sub-total	17	117
Cao Bang	Main	10	54
	Satellite	7	34
	Sub-total	17	88
Bac Can	Main	6	32
	Satellite	3	11
	Sub-total	9	43
Total	Main	37	245
	Satellite	24	99
	Sub-total	61	344

●Provision of Equipment

Provision of such furniture/fixtures as desks and chairs for teachers and pupils, bookshelves, cabinets and blackboards, etc. and basic teaching aids, including textbooks

2) Work to be Undertaken by Vietnamese Side

- Geological surveying (boring survey and laboratory soil test) at each of the planned sites for two-story classroom buildings and preparation of survey reports which must be presented to the Japanese Consultant prior to the commencement of the detailed design work
- Land preparation prior to the commencement of the construction work (including banking and other work if necessary)

- Removal or transfer of existing buildings and structures which obstruct the construction work
- Incidental outdoor work, such as ground preparation, landscaping, fencing, gate and exterior lighting, etc.
- Supply of electricity to the site boundary at those sites where the use of electricity is planned
- Construction of river water supply system to a water storage tank on the premises at those sites where the use of river water is planned.

3.1.4 Consultant Supervision

(1) Basic Principles for Detailed Design and Work Supervision and Points to Note

The Consultant for the Project, responsible for the detailed design of the facilities and equipment for the Project, will be selected by the Ministry of Education and Training of the Government of Vietnam from among Japanese consultants with the necessary experience of educational facility projects as well as grant aid projects and, therefore, which are capable of performing the required consultancy work for the Project. The selected Consultant will conduct the detailed design of the planned facilities and equipment through consultations with the Government of Vietnam, taking the findings of the Basic Design Study into consideration, and will prepare the necessary tender documents. At the supervision stage of the construction work and equipment installation work, etc., the Consultant will appoint full-time, on-site supervisors to provide the necessary guidance for the Contractor and subcontractors and to liaise with members of the School Construction Committee (representing the Ministry of Education and Training, Education Bureau of the provincial government, Education Office of the district authority, People's Committee of the commune concerned and the schools in question) and with other government ministries involved in the Project. The Consultant is expected to conduct the following work.

- Detailed design (preparation of tender documents, such as specifications and detailed drawings, for the construction work and equipment procurement, etc.)
- Arrangements for the tender process and construction agreement

(preparation of construction agreement guidelines and draft construction agreement, preparation of construction work details, announcement of tender, pre-qualification work, tender supervision, assessment of bids, selection of Contractor, agreement negotiations on behalf of the client (Ministry of Education and Training) and witnessing of the agreement

- Inspection and approval of the drawings, etc. submitted by the Contractor (inspection and approval/disapproval of shop drawings, construction plan and samples of construction materials, building service materials and equipment to be submitted by the Contractor)
- Work supervision (examination of the construction plan and construction schedule and provision of guidance for the Contractor)
- Reporting of work progress (reporting of the work progress to the Ministry of Education and Training and other related organizations and management of monthly meetings to be attended by the School Construction Committee (representatives of the Ministry of Education and Training, provincial government and district authority) and the Contractor)
- Provision of assistance for the payment approval process (examination of invoices for various components of the construction work payable during the construction period and following the completion of the work)
- Witnessing of inspection (inspection of the work quantity completed at various stages between the commencement and completion of the construction work and inspection of the work quality)

(2) General Supervision Regime

The Project demands the proper management of the quality, progress and safety of the construction work at sites distributed over a wide area. The Consultant will assign two Japanese engineers, four assistant supervisors from Vietnam and/or a third country and four assistants as full-time staff members to provide appropriate guidance, to coordinate the work with the school authorities as well as district, provincial and central government organisations and to promote the smooth progress of the work based on the design documents. During the construction period, additional engineers (chief engineer and building engineers) will be dispatched from Japan at the start of the construction work, at the time of interim inspection and at the time of completion inspection.

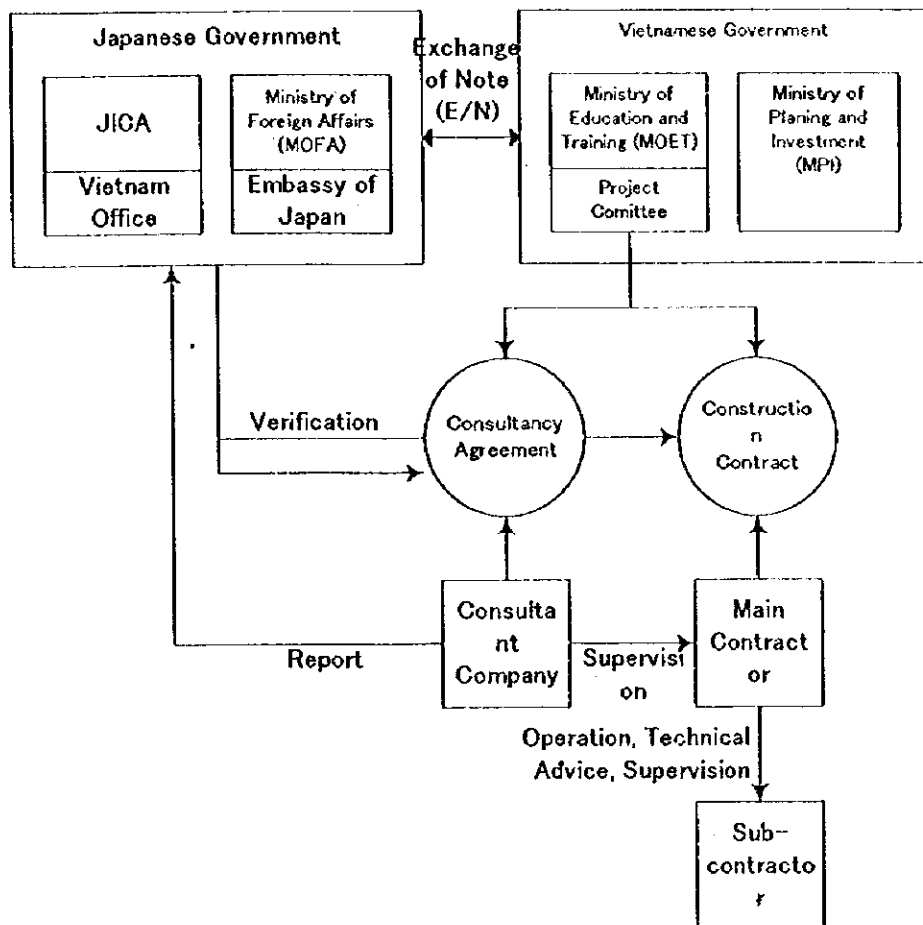


Fig. 3-1 Project Implementation Regime

(3) Work Supervision Regime

The construction work will be conducted by the Japanese Contractor which will use a number of local construction companies as subcontractors. It will be essential for the Japanese Contractor to conduct the appropriate assignment of personnel and to employ an appropriate work system to ensure uniform construction skills and quality control among the many subcontractors. A central construction management office will be established at Ha Giang in Ha Giang Province and a provisional construction management office will be established in each of the remaining three provinces to effectively manage the construction work at 61 sites (38 main school sites and 23 satellite school sites) in the four provinces. A material stock yard, reinforcing bar processing workshop, form processing workshop and accommodation facilities will be provided together with an office building at these office sites.

The on-site supervision regime which is deemed necessary in view of the scale and contents of the planned facilities is shown in Fig. 3-2.

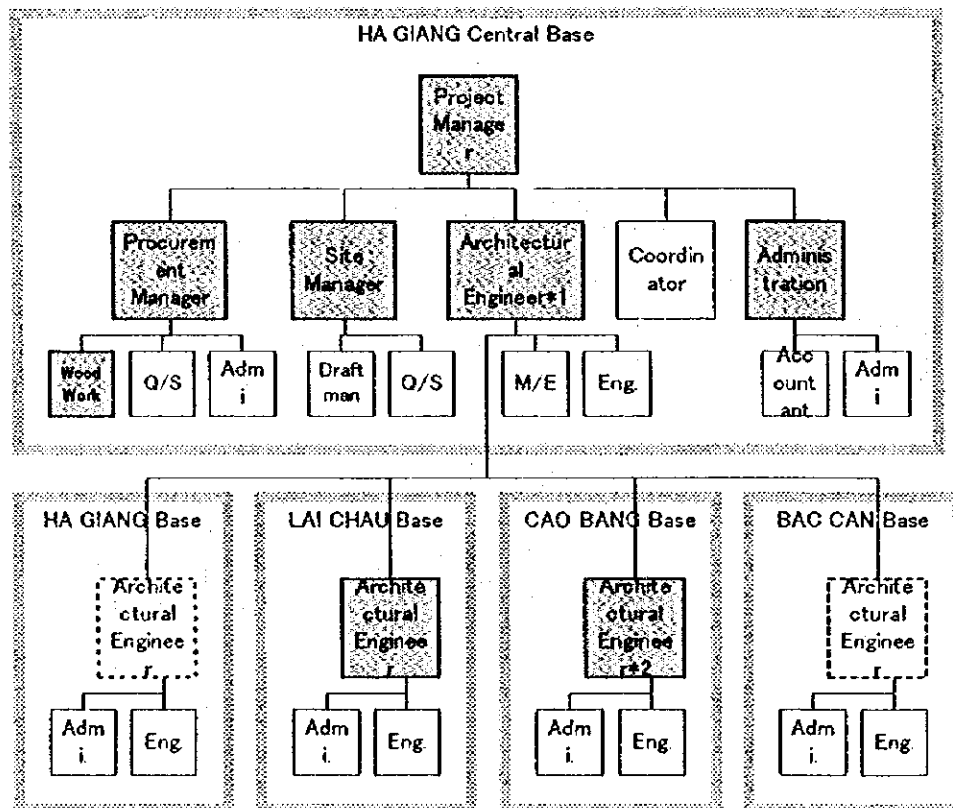


Fig. 3-2 On-Site Supervision Regime

3.1.5 Procurement Plan

All the main construction equipment and materials will be procured locally. The decision on local suppliers will be made based on the supply capacity and durability and other qualitative aspects of the materials to be supplied. Several suppliers will be selected in order to ensure the stable supply and quality of products. The procurement plan for the main equipment and materials is described below.

(1) Structural Work

- **Cement** : Locally produced cement; to be procured in Hanoi
- **Reinforcing Bars** : Made in Vietnam or a third country and distributed in Vietnam; to be procured in Hanoi
- **Aggregate** : Fine aggregate (river sand) and coarse aggregate (crushed stone) to be procured near each site; stones will be pulverised to obtain fine aggregate in mountain areas where it is difficult to obtain river sand
- **Concrete** : A concrete mixer will be provided at each site/ standard mixture ratios based on the design mixture strength will be established; accurate consumption volumes of cement, crushed stone, sand and water will be checked; a wheel barrow or concrete bucket will be used for concrete placing
- **Forms** : In principle, wooden forms; careful attention should be paid to the building of pillars and beams, etc. to ensure high structural precision
- **Bricks** : Both structural and face bricks will be procured in and around the provincial capital
- **Concrete Blocks** : To be manufactured on site at those sites in remote mountain areas to which the transportation of bricks from the provincial capital is difficult
- **Structural Steel for Roof** : To be procured in Hanoi; the length will be the minimum unit length for site assembly using belts in view of ease of transportation

(2) Finishing Work, Windows and Doors

- Floor Materials : On-site polished terrazzo using crushed granite which is available near the sites
- Wall Tiles : Locally marketed ceramic tiles
- Mortar : Cement mortar to be arranged on site; river sand available near the site or pulverised stones will be used as the sand; finishing cement will be procured in each province
- Paint : Made in Vietnam or a third country and available in the domestic market
- Wooden Fittings : Locally produced wood will be procured with control of the final product grade, quality, drying and anti-termite treatment
- Aluminium Fittings(jalousie frame) : Made in Vietnam or a third country and available in the domestic market
- Glass : 3 - 5 mm thick clear glass made in Vietnam
- Metal Fittings : Locally available products
- Roofing Material : Corrugated steel sheets made in Vietnam or a third country; to be procured in Hanoi
- Ceiling Material : Vinyl chloride sheeting made in Vietnam or a third country; to be procured in Hanoi

(3) Plumbing

- Piping : Locally available products
- Valves : Locally available products
- Sanitary Fixtures : Locally available products
- Well Pumps : Locally available products

(4) Electrical Installations

- Lighting : Locally available products
Fixtures
- Cables : Locally available products
- Conduits : Locally available products (PVC conduit pipes)
- Wiring : Locally available products
Accessories
- Distribution : Locally available products
Boards
- Lightning : Locally available products
Rods

(5) Educational Equipment

- Furniture : Wooden furniture to be manufactured locally
- Blackboards : To be manufactured locally
- Textbooks : Locally available products (designated items by the
Ministry of Education and Training)

Table 3-2 Construction Material Procurement Sources

Item	Procurement Sources			Remarks	
	Viet Nam		Japan		Third Country
	Local Product	Product from Third Country			
Sand	<input type="radio"/>				
Gravel	<input type="radio"/>				
Cement	<input type="radio"/>				
Form Materials	<input type="radio"/>				
Steel Bar	<input type="radio"/>	<input type="radio"/>			
Steel		<input type="radio"/>			
Brick	<input type="radio"/>				
Concrete Block	<input type="radio"/>				
Corrugated Steel Sheet	<input type="radio"/>	<input type="radio"/>			
Timber	<input type="radio"/>				
Wooden Sash Frames	<input type="radio"/>				
Louver Window	<input type="radio"/>	<input type="radio"/>			
Glass	<input type="radio"/>	<input type="radio"/>			
Metal Fittings		<input type="radio"/>			
Roof Drains	<input type="radio"/>				
Paint		<input type="radio"/>			
Wall Tiles	<input type="radio"/>	<input type="radio"/>			
Terrazzo Tiles	<input type="radio"/>				
Piping	<input type="radio"/>	<input type="radio"/>			
Meters	<input type="radio"/>	<input type="radio"/>			
Valves	<input type="radio"/>	<input type="radio"/>			
Sanitary Fixtures		<input type="radio"/>			
Well Pumps		<input type="radio"/>			
Conduit Pipes	<input type="radio"/>	<input type="radio"/>			
Cables	<input type="radio"/>	<input type="radio"/>			
Power Boards	<input type="radio"/>	<input type="radio"/>			
Lightning Rods		<input type="radio"/>			
Lighting Fixtures	<input type="radio"/>	<input type="radio"/>			
Ceiling Fans		<input type="radio"/>			
Power Outlets		<input type="radio"/>			
Furniture	<input type="radio"/>				
Black Board	<input type="radio"/>				
Teaching Aids	<input type="radio"/>				
Theodolite, Measure			<input type="radio"/>		
Vehicles		<input type="radio"/>			
Stationery	<input type="radio"/>	<input type="radio"/>			
Communication Equipment	<input type="radio"/>	<input type="radio"/>			

3.1.6 Implementation Schedule

In the case of the Project's implementation with grant aid provided by the Government of Japan, a design and supervision agreement will be concluded between the Vietnamese Ministry of Education and Training and the Consultant following the signing of the E/N by the two countries. Based on this agreement, the detailed design drawings and tender documents will be prepared by the Consultant, and the pre-qualification and tender will be conducted. The construction work under the Project will commence after the conclusion of a construction work agreement between the successful bidder in the tender and the Ministry of Education and Training. In all, the construction of the new school facilities will start after the three stages described above.

(1) Detailed Design

Following the conclusion of the detailed design agreement, the Consultant will conduct the detailed design and prepare the tender documents based on the contents of the Basic Design. The tender documents will consist of the detailed design drawings, specifications and bill of quantities. At the detailed design stage, the Consultant will maintain close contact with Vietnamese organizations to produce the final results. Approximately three months will be required from the conclusion of the detailed design agreement to the completion of the detailed design documents, etc.

(2) Tender

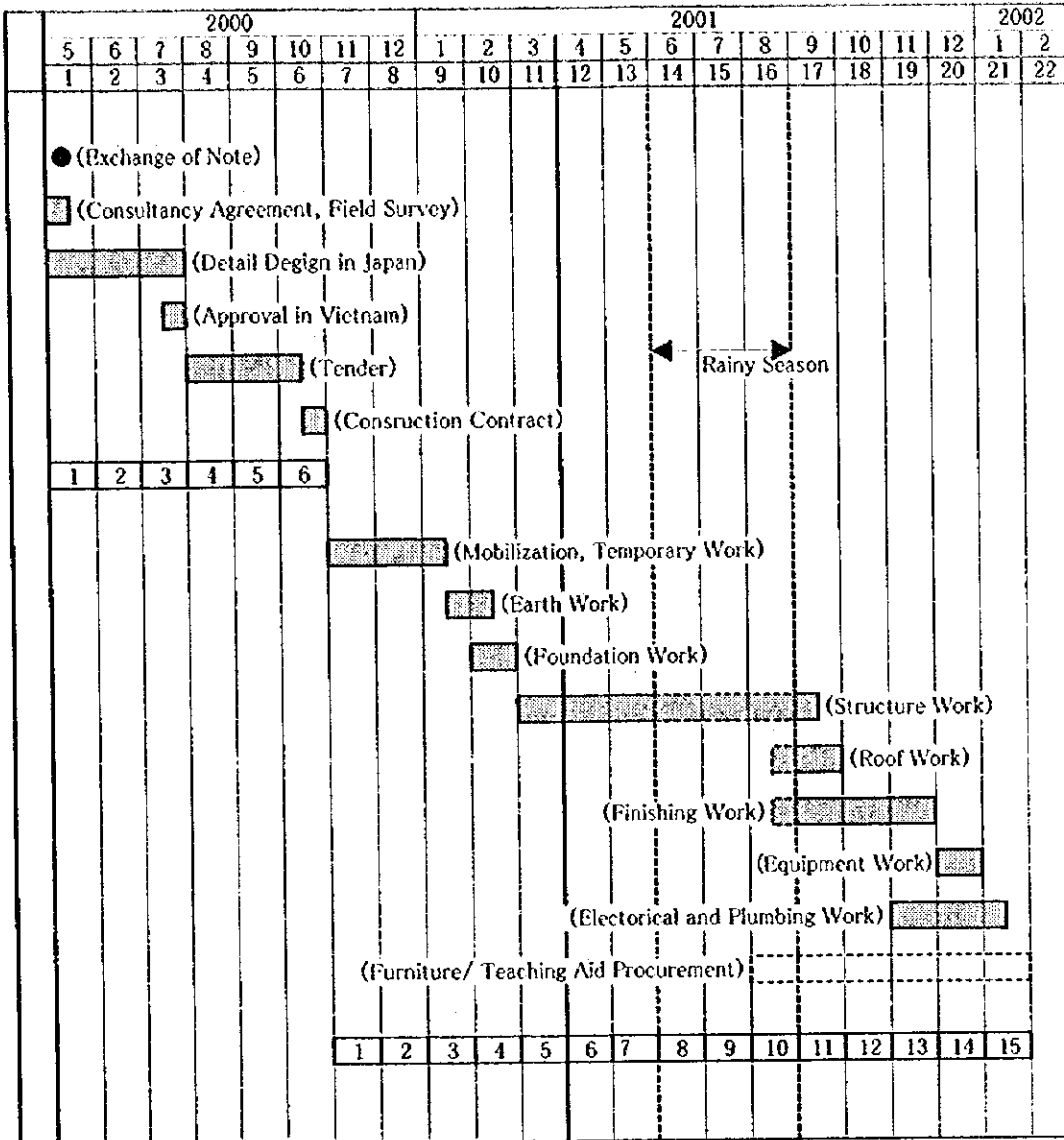
Following the conclusion of the design and supervision agreement, the Consultant will publicly announce the prequalification for tender for the construction work in Japan on behalf of the Ministry of Education and Training which is the project implementation agency. The actual tender will take place in Japan, attended by persons concerned, and the prequalified construction companies will be invited to submit their bids. The bidder with the lowest bidding price will be declared the successful bidder provided that the contents of the bid are assessed as being adequate and will conclude the construction agreement with the Ministry of Education and Training. This agreement will become valid when verified by the Government of Japan. It is estimated that approximately 3.5 months will be required from the

conclusion of the design and supervision agreement with the Consultant to the conclusion of the construction agreement.

(3) Construction Work

After conclusion of the construction agreement, the agreement must be verified by the Government of Japan prior to the commencement of the construction work. The required period of construction will be two months for site preparation followed by 12 months for actual construction at the sites near a provincial capital and 13 months for remote sites in mountain areas. The construction work will commence simultaneously in the four subject provinces. If each subcontractor which is responsible for several sites in the same work area can efficiently organise and utilise the workers, equipment and materials for the temporary work between its own sites, it will be possible to complete the construction work at all sites in 15 months.

Table 3-3. Project Improvement Schedule



3.1.7 Obligations of Government of Vietnam

The necessary measures to be taken by the Government of Vietnam in connection with the implementation of the Project, agreed upon in the Minutes of Discussions for the Basic Design Study, are listed below.

- (1) To provide data and information necessary for the Project.
- (2) To prepare the land for the Project and to secure the rights to construct school buildings.
- (3) To secure, clear, level and reclaim the sites (with the consent of the local community) for the Project prior to the implementation of the Project.
- (4) To provide proper access roads to the project sites, if necessary.
- (5) To provide topographical survey maps of all of the sites in the Draft Report prior to the detailed design stage of the Project.
- (6) To provide soil boring test reports on all of the sites where defined as necessary in the Draft Report prior to the detailed design stage of the Project.
- (7) To remove existing facilities (with the consent of the local community), if necessary, and to take the necessary measures to guarantee the continuation of school lessons during the construction period.
- (8) To undertake incidental outdoor work, such as landscaping, fencing (to act as the border between the project sites and surrounding land), exterior lighting and other incidental facilities on and around the project sites, if necessary.
- (9) To provide facilities for the distribution of electricity, water supply, telephone, drainage, sewerage and other incidental facilities up to the border of the project sites, if necessary.
- (10) To allocate an appropriate budget and teaching and administration staff members for the proper and effective operation and maintenance of the buildings and equipment provided by Japanese grant aid.
- (11) To ensure the adequate distribution of textbooks to pupils of the schools to be constructed under the Project either free or at minimal cost in

order to enhance the effects of the Project.

(12) To bear the commission of a Japanese bank for its banking services based on the banking arrangements, namely the advising commission of the "Authorisation to Pay" and payment commission.

(13) To ensure the prompt unloading, tax exemption, customs clearance at ports of disembarkation and internal transportation in Vietnam of the materials and equipment required for the Project purchased with Japanese grant aid.

(14) To exempt Japanese nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Vietnam in response to the supply of products and services under the verified contracts.

(15) To accord Japanese nationals whose services may be required in connection with the supply of products and services under the verified contracts such facilities as may be necessary for their entry to Vietnam and stay therein for the performance of their work in accordance with the relevant laws and regulations of the Socialist Republic of Vietnam.

(16) To provide all permission, licenses and other authorisation required for the implementation of the Project, if necessary.

(17) To properly maintain and effectively use the schools constructed under the Project at the responsibility of the School Management Committee members.

(18) To supervise and provide guidance for the maintenance activities to be regularly conducted by the School Management Committee members, if necessary.

(19) To bear all necessary expenses, other than those to be borne by the Japanese grant aid, within the scope of the Project. The Vietnamese side will be responsible for allocating counterpart funds to meet any necessary expenses.

3.2 Operation and Maintenance Plan

(1) Operation and Maintenance System

The School Management Committee, members of which consist of representatives of the commune's people's committee and parents and the headmaster/deputy headmaster, will be responsible for the operation and maintenance of the new school facilities and equipment under the control of the District People's Committee. In practice, the headmaster and teaching as well as administration staff members will generally control the equipment, etc. while also organizing cleaning and maintenance with the help of pupils, parents and local people. What is particularly important for daily maintenance is the cleaning of the sanitation facilities to maintain their proper functioning and hygienic conditions. In the case of toilets provided with a septic tank for the processing of foul water, it will be necessary to clean the septic tank approximately twice a year. In the case of toilets for which dipping will be employed, dipping should be conducted when necessary. In regard to other facilities, no maintenance or repair cost should be incurred for approximately five years after completion, except for the changing of electric bulbs, provided that they are used in a proper manner. In the long-term, it will eventually be necessary to replace or repair the desks, chairs, window frames and doors, etc. and to repaint the external walls. All of the necessary items for these purposes will be locally available and their replacement or repair can be adequately conducted by local people who are the beneficiaries of the Project.

(2) Operation and Maintenance Cost

1) Personnel Cost

The Project aims at replacing deteriorated classrooms and adding new classrooms at the subject main and satellite schools to improve the school facilities and convenience of attending school. With the completion of the Project, the total capacity of the subject schools will increase by 2,316 pupils while the number of classes will only increase by 21 (+2.1%) because of the integration and reorganisation of the current classes with a small number of pupils to the standard class size of 30 - 40 pupils. This increase in

the number of classes will necessitate an increase of 16 teachers. However, this represents only a 1.5% increase and the subsequent increase of the personnel cost can be absorbed given the size of the current budget and its annual increase rate.

2) Electricity Cost

The electrical facilities of lighting, power outlets and a ceiling fan system will be installed under the Project at about a half of the sites which already receive electricity supply. Past surveys on the electricity bill for primary schools along the coast found a monthly cost of 50,000 - 1,000,000 VD (¥500 - ¥10,000 by our own investigation). The large variation is due to the fact that some schools use lighting in the night-time for night school. The average annual electricity cost is 3,600,000 VD (¥36,000) or 300,000 VD per classroom. As the size of the subject schools (total of the planned number of classrooms for main and satellite schools) under the Project is 5 - 18 classrooms, the annual electricity cost is expected to be between a minimum of 1,500,000 VD and a maximum of 5,400,000 VD.

3) Maintenance and Repair Cost

- The annual operation and maintenance cost of the planned facilities is estimated in the following manner to reflect the real operating and maintenance conditions.
- One-fifth of fluorescent lamps will be replaced every year.
- Cleaning of the septic tank or dipping of toilets will be conducted with the help of local people and no cost is accounted for.
- While the replacement of broken window glass can be kept to a minimum as long as proper management is conducted, one-twentieth of window glass is assumed to require replacement.
- In the case of such furniture as desks and chairs, it is assumed that one-twentieth will require repair every year.
- Painting of the internal and external walls should preferably be conducted approximately every 10 years. As this is not absolutely essential for maintenance purposes, the cost is accounted for reference purposes here on the grounds that repainting work will be conducted depending on the financial ability of each commune.

The estimated electricity cost and maintenance/repair cost based on the

above assumptions are shown in Table 3-3.

Table 3-4 Annual Operation and Maintenance Cost (Unit: 1,000 VD)

Item	Assumption	Annual Cost per Classroom	Annual Cost by Type of School		
			5 Classroom School	11 Classroom School	18 Classroom School
Electricity Cost		300	1,500	3,300	5,400
Replacement of Fluorescent	1/5 of total every year	200	1,000	2,200	3,600
Replacement of Broken Glass	1/20 of total every year	110	550	1,210	1,980
Furniture Repair	1/20 of total every year	100	500	1,100	1,800
Total		710	3,550	7,810	12,780
Repainting of External Walls	every 10 years	360	1,800	3,960	6,480
Repainting of Internal Walls	every 10 years	400	2,000	4,400	7,200
Total (Reference)		1,470	7,350	16,170	26,460

4) Operation and Maintenance Budget

The annual operation and maintenance cost is 0.7 million VD per classroom, totalling 3.6 million VD for the smallest school of the five classroom type and 12.8 million VD for the largest school of the 18 classroom type. The annual operation and maintenance cost of the subject schools for fiscal 1997/98 was an average of 9.3 million VD. As the estimated annual operation and maintenance cost of the new facilities is similar to the cost so far, it is judged feasible for local people to bear the operation and maintenance cost as has so far been the case.

CHAPTER 4
PROJECT EVALUATION AND RECOMMENDATIONS

CHAPTER 4

PROJECT EVALUATION AND RECOMMENDATIONS

4.1 Project Effects

The Government of Vietnam adopted the Doi Moi policy in 1986, paving the way for a market economy and liberalisation of the domestic economy to the external world. The Eighth Congress of the Communist Party in 1996 confirmed the achievements of the 10 years of the Doi Moi policy and continuation of the liberalisation policy and adopted a strategy to achieve the industrialisation and modernisation of the country by the target year of 2020. The Sixth Five Year Plan approved by the National Assembly in November, 1996 held human resources development as the basis of social infrastructure as one of the country's highest priorities.

Based on the above Five Year Plan, the Government of Vietnam adopted an improved enrolment rate for primary education, improved efficiency of education and the training of a large number of qualified teachers, etc. as the targets of the Five Year Educational Development Plan (1996/97-2000/01), the master plan for the education sector, and has so far achieved some success. However, the present situation is that it is difficult to sufficiently meet the fiscal requirements to achieve these targets solely by means of self-help efforts. Meanwhile, in the midst of a widening regional socio-economic gap in the country, the educational gap between the Northern Region as well as the Central Mountain Region and regions in the Northern Plain where investment in education has been relatively high is becoming very serious as illustrated by the extremely low levels of such educational indices as the enrolment rate, drop-out rate, repetition rate and number of qualified teachers. It is both geographically and economically difficult to locate school facilities at a reasonable density which allows easy travel to school in the Northern Mountain Region which is inhabited by ethnic minorities and which has a low population density. Remote schools are mainly satellite schools with only lower grade classes and many pupils drop out of primary education after finishing satellite school because of the difficulty of attending the main school which has higher grade classes. Moreover, the current school facilities are predominantly poor and almost of a temporary nature at both main and satellite schools, resulting in a poor educational environment.

In the 16 inland provinces in the Northern Mountain Region, the drop-out rate of 7.1% and the repetition rate of 5.4% are lower than the national average of 6.3% for the former and 4.4% for the latter. The corresponding figures for the four northernmost provinces (Ha Giang, Lai Chau, Cao Bang and Bac Can) are 12.5% and 8.2%, double the national average. Even though there is no statistical data on the completion rate, the ratio of Grade 5 pupils in fiscal 1998 vis-à-vis Grade 1 pupils in fiscal 1994 is 35.4% for Lai Chau Province, 39.7% for Cao Bang Province and 40.7% for Ha Giang Province, suggesting a completion rate of less than 40%.

The World Bank is currently planning the construction of primary schools under its Primary Education Project in six provinces, including Lao Cai Province and Son La Province, in the Northern Mountain Region. The remaining eight provinces (Ha Giang, Lai Chau, Cao Bang, Bac Can, Tuyen Quang, Thai Nguyen, Phu Tho and Bac Giang), however, have no prospect of improving the educational facilities, causing concern in regard to a further widening of the educational gap.

The subject four provinces of the Project represent high priority areas for the improvement of primary education because of their inferior socio-economic status among these eight provinces. It is believed that the improvement of school facilities and the environment in areas where the existing facilities are extremely deteriorated and where the appropriate distribution of schools with a catchment area of a reasonable size is difficult and the improvement of travelling conditions to remote satellite schools will improve both the enrolment rate and completion rate and, therefore, the necessity and suitability of the Project are judged to be very high. The implementation of the Project is expected to have the following effects.

(1) Effects on Educational Environment

1) Improvement of Facilities Through Rebuilding of Classrooms

The Project Area suffers from the worst poverty in Vietnam and the specifications and deterioration of existing school facilities are far worse than those in coastal areas where similar projects have been implemented by the Japan grant co-operation. The facilities of main schools are mainly wooden structures with bamboo, palm leaf or mud walls except for office areas, etc. or are very old brick masonry structures. Similar, most satellite

school buildings are in bad condition with wooden structures and bamboo or mud walls, which cause the bad and dangerous educational environment.

Out of 38 main schools and 37 satellite schools, 516 classrooms which were surveyed in the mission, the 284 classrooms were judged as decrepit and in danger of collapse. With the implementation of the Project, these 284 classrooms will be rebuilt as to improve vastly the educational environment of these schools.

2) Improvement of School Attendance (Travelling) Conditions at Satellite Schools in Remote Areas

Sixteen of the 24 satellite schools subject to cooperation under the Project are incomplete schools (with only lower grade classes) in remote areas. As it is necessary for the pupils in these areas to attend a main school in order to move up to higher grades, there is limited access to higher grades, resulting in a decline of the completion rate.

With the implementation of the Project, these satellite schools will be improved to complete schools teaching all grades and the access to higher grades will be vastly improved coupled with improvement of both the enrolment rate and completion rate. It is estimated that the implementation of the Project will make it possible for an additional 1,761 pupils (49.0%) to attend the 24 satellite schools.

Table 4-1 Improved Enrolment Capacity and Rate of Increase

	Subject Schools of the Project	Present No. of Pupils	No. of Pupils After the Project	Increase of No. of Pupils	Rate of Increase
Ha Giang	10 Main Schools	3,309	3,954	645	19.5%
	8 Satellite Schools	1,011	1,492	481	47.6%
	Sub-Total	4,320	5,446	1,126	26.1%
Lai Chau	11 Main Schools	5,376	5,925	549	10.2%
	6 Satellite Schools	1,325	1,685	360	27.2%
	Sub-Total	6,701	7,610	909	13.6%
Cao Bang	10 Main Schools	4,976	4,319	-657	-13.2%

	7 Satellite Schools	876	1,722	846	96.6%
	Sub-Total	5,852	6,041	189	3.2%
Bac Can	6 Main Schools	1,716	1,734	18	1.0%
	3 Satellite Schools	379	453	74	19.5%
	Sub-Total	2,095	2,187	92	4.4%
Total	37 Main Schools	15,377	15,932	555	3.6%
	24 Satellite Schools	3,591	5,352	1,761	49.0%
	Sub-Total	18,968	21,284	2,316	12.2%

* Reduction through counting the number of pupils (especially of higher grades) currently attending main schools from satellite school catchment areas as satellite school pupils after improvement of satellite schools into complete schools. Total number of increase is positive.

3) Improvement of Teaching With New Teaching Aids/Equipment

At present, teaching is conducted using only textbooks and a blackboard at most of the schools. Although some main schools possess some teaching aids/equipment, the quantity is inadequate for their provision in every classroom. None of the satellite schools have any teaching aids/equipment.

Under the Project, the standard teaching aid set designated by the Ministry of Education and Training will be provided at all of the subject main and satellite schools. This standard teaching aid set consists of nine items for Vietnamese language, 18 items for science studies and arithmetic, three items for social studies and six items for physical education, health and music, indicating an emphasis on science studies and arithmetic. The provision of such teaching aids/equipment is expected to improve learning by pupils, resulting in improvement of promotion rate, etc.

4) Improvement of Enrolment Rate and Completion Rate

Although the gross enrolment rate of the 38 main schools and 170 satellite schools surveyed of 130.6% is not particularly low, the drop-out rate and the number of pupils in each grade suggest a low internal efficiency expressed by the promotion rate and completion rate, etc. While the enrolment rate is

seemingly high because of various factors, including the high entry age due to a high proportion of pupils who are beyond the standard ages and the existence of pupils from neighbouring communes across school boundaries, it does not necessarily mean that the opportunity to attend school is readily available throughout the Project Area.

Such social factors as poverty, language and customs and a lack of understanding of the importance of education among ethnic minorities are certainly major causes of the poor enrolment situation as well as low internal efficiency. Meanwhile, factors related to infrastructure, including the deterioration of facilities, financial burden of repair and maintenance, lack of access to higher grades in remote areas and lack of desks and chairs, etc., also directly and indirectly affect the enrolment situation and internal efficiency.

Improvement of the enrolment rate and completion rate can be anticipated under the Project through the appropriate assignment of teachers and the distribution of textbooks by the Vietnamese site in addition to the improvement of infrastructure.

Table 4-2 Expected Improvement of Gross Enrolment Rate

	As of Fiscal 1998/99				Planned		Increase of Gross Enrolment Rate	
	38 Subject Schools		Provincial Total		38 Subject Schools		38 Subject Schools	Provincial Total
	No. of Enrolled Pupils	Gross Enrolment Rate	No. of Enrolled Pupils	Gross Enrolment Rate	No. of Enrolled Pupils	Increase of Pupils		
Ha Giang	7,167	109.6%	101,191	120.8%	7,796	629	9.6%	0.75%
Lai Chau	8,617	131.1%	81,294	117.6%	9,233	616	9.3%	0.89%
Cao Bang	6,452	163.3%	85,877	132.5%	6,532	80	2.0%	0.12%
Bac Can	2,587	133.5%	45,383	129.4%	2,710	123	6.3%	0.35%
Total, Average	24,823	130.6%	313,745	125.1%	26,271	1,448	7.7%	0.53%

5) Contribution to Improved Secondary Education Conditions

Among the subject schools, 20 schools share the school facilities with

secondary schools in that the facilities are used for secondary schools in the morning and for primary schools in the afternoon (two shift system). With the implementation of the Project, these schools will be able to separately operate as primary schools and secondary schools. Consequently, secondary schools will be able to provide full-time education and a qualitative improvement of secondary education by means of teaching the full curriculum, etc. is expected to be achieved.

(2) Improvement of Public Hygiene

At present, many of the subject schools either do not have any sanitation facilities or have very simple facilities consisting of simple holes enclosed by palm leaves or bamboo. Therefore, not only the health environment of the school is worsened but the state of hygiene in the surrounding area is also adversely affected through the contamination of well water. Under the Project, a simplified septic tank will be installed at sites where water supply is possible. At sites without a constant water supply, night soil will be kept in a concrete storage tank and subsequently treated in an appropriate manner (for example, eventual use as manure), thus improving the public health environment at every site. As wash basins will be provided at sanitation facilities with water supply, hand washing after using the sanitation facilities will become a habit, improving awareness of the importance of hygiene. Moreover, the introduction of separate sanitation facilities for boys and girls under the Project will improve the school environment, encouraging girls to willingly attend school.

(3) Effects on Local Community

Even today, school facilities in the subject provinces are used for literacy education, adult education, health education on mothers and babies and other social education activities. As educational facilities will be much improved by the Project, the subject schools are expected to play a more important role as community centres. In addition, a reduction of the repair cost necessitated by the deteriorated facilities which has so far been borne by local people will contribute to improving the financial situation of local people.

4.2 Recommendations

The Project is expected to have a number of positive effects as described in 4.1 and will also contribute to the improvement of primary education among the general public. Given such positive effects, its implementation as a grant aid project of the Government of Japan is judged to be appropriate. The Vietnamese side appears to have sufficient manpower, technical expertise and funding to continually manage the facilities to be constructed under the Project. Nevertheless, the following requirements should be met by the Vietnamese side for the smooth and effective implementation of the Project.

(1) New Recruitment and Retraining of Teachers

The Project involves the replacement and increase of the number of classrooms, etc. at 37 main schools and 24 satellite schools in four provinces and the number of classes in the four provinces will increase by 21, from 1,009 classes to 1,030 classes. This will create a shortage of 16 teachers against the present number of teachers. It will, therefore, be necessary to recruit 16 new teachers to meet this shortage. Of the 1,073 teachers at present, 346 teachers (32.1%) are assistant teachers who have undergone a three year teacher training course after completing primary or secondary education. The Education Bureau of each provincial government has been conducting the retraining of these assistant teachers every year and is expected to continue such training in order to improve the quality of education.

(2) Self-help Efforts for Improvement of Satellite Schools in Remote Areas

The Project aims at the improvement of 24 out of a total of 170 satellite schools. In order to improve the enrolment rate and completion rate, improvement of the facilities by means of the self-help efforts of local communities, the introduction of new classrooms for higher grade pupils and the recruitment and assignment of the required number of new teachers are necessary to serve those pupils of satellite schools in remote areas who are currently unable to attend the respective main schools. Moreover, in the case of those main schools which currently provide accommodation

facilities or which are capable of running accommodation facilities in view of the strong need for such facilities, the further improvement/introduction of such facilities with the active cooperation of local people is hoped for.

(3) Improvement of Social Conditions in Areas of Ethnic Minorities

One requirement for an improved primary school enrolment rate and completion rate in the subject provinces is improvement of the social, economic and family conditions of local children. A questionnaire survey conducted at meetings with local people found that such family conditions as financial difficulties, household work and a low awareness of the importance of education on the part of parents are the main causes of dropping out, indicating the strong influence of family conditions on school attendance. Moreover, the difference between ethnic languages and Vietnamese which is used in school is cited as a major reason for the failure of lower grade pupils to advance to higher grades. In order to improve the enrolment rate and completion rate in areas of ethnic minorities, improvement of the social environment by means of promoting development projects in other sectors and collaborating with other donors will be required in addition to improvement of the facility conditions under the Project.

(4) Enhancement of School Enrolment Opportunity Through Distribution of Textbooks

Primary education in Vietnam is both compulsory and free. Textbooks are also free of charge for children of families which meet certain conditions, including war damage to their homes. In principle, however, textbooks must be paid for. As a result, the textbook possession rate at the subject schools is 80 - 90% and the rate at some schools is as low as 60%. Textbooks should either be distributed free of charge or assistance measures to allow the purchase of textbooks at the minimum cost are necessary to ensure the school attendance of all children who currently do not attend school and also to maximise the positive effects of the Project.

APPENDIX

- 1. Member of the Survey Team**
 - 1-1. Basic Design Study Team**
 - 1-2. Basic Design Study Draft Report Explanation Team**
- 2. Survey Schedule**
 - 2-1. Basic Design Study**
 - 2-2. Basic Design Study Draft Report Explanation**
- 3. List of Party Concerned in Recipient Country**
- 4. Minutes of Discussion**
 - 4-1. Basic Design Study**
 - 4-2. Consultation on the Draft Basic Design**
- 5. Request Letter by Ministry of Education and Training Regarding Change in **Recipient Schools**
- 6. Cost Estimation Borne by the Recipient Country**
- 7. Administration and Facilities Conditions of Schools**
- 8. Drawings of Proposed Site Plan**
- 9. Reference**

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4. Chief Consultant /Architectural Design & Equipment Planner, Mr. Akihiko TAKEUCHI
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2. Survey Schedule /2-1. Basic Design Study

			Officials			Consultants						
			Team Leader	Project Coordinator	Technical Adviser	Chief Consultant	Social Environment Specialist	Facility Planner 1	Construction Planner	Facility Planner 2	Procurement Planner	
1	11-Apr	su	•Tokyo→Hong Kong(CX509) •Hong Kong→Ha Noi(VN791)									
2	12-Apr	mo	•Courtesy visit to JICA •Courtesy visit to EOJ •Discussion w/MPI •Discussion w/WB									
3	13-Apr	tu	•Discussion w/BADC •Discussion w/ADB •Discussion w/MOET-Inception Report, Questionnaire, Schedule Arrangement									
4	14-Apr	we	•Discussion w/MOET-Scope of Project •Discussion w/UNICEF									
5	15-Apr	th	•Ha Noi→Cao Bang(car 280km, 8-10hrs)									
6	16-Apr	fr	•Courtesy visit to DOET of Cao Bang •Visit to sites in Cao Bang									
7	17-Apr	sa	•Visit to sites in Cao Bang									
8	18-Apr	su	•Cao Bang→Ha Noi(car 280km, 8-10hrs)									
9	19-Apr	mo	•Discussion w/MOET •Discussion w/NIES					•Technical survey				
10	20-Apr	tu	•visit to school by WB proect					•Technical survey				
11	21-Apr	we	•Discussion w/MOET		•HAN →TYO			•Technical survey			•Tokyo→Hong Kong •Hong Kong→Ha Noi	
12	22-Apr	th	•Signing on Minutes •Report to JICA, EOJ					•Technical survey				
13	23-Apr	fr	•Ha Noi→HK(CX790) •Hong Kong→Tokyo(CX500)			Consultants						
						Team A			Team B			
						Chief Consultant	Facility Planner 2	Procurement Planner	Social Environment Specialist	Facility Planner 1	Construction Planner	
14	24-Apr	sa	•Ha Noi→Son La(car 340km, 8-10hrs) •Son La→Lai Chau(car 160km, 4-5hrs) •Discussion w/DOET(Lai Chau)									
15	25-Apr	su	•Survey on sites									
16	26-Apr	mo	•Survey on sites									
17	27-Apr	tu	•Survey on sites •Lai Chau→Dien Bien (car 100km, 3hrs)						•Survey on sites •Lai Chau→Dien Bien (car 100km, 3hrs)			
18	28-Apr	we	•Survey on sites						•Survey on sites			
19	29-Apr	th	•Meeting within Team									
20	30-Apr	fr	•Survey on sites						•Survey on sites			
21	1-May	sa	•Discussion w/DOET, PC(Lai Chau)									
22	2-May	su	•Dien Bien→Ha Noi(car VN493, 1200-1300)									
23	3-May	mo	•Meeting within Team									
24	4-May	tu	•Discussion with WB, UNICEF, UNDP									
			•Ha Noi→Ha Giang (car 320km, 8-10hrs)						•Ha Noi→Bac Kan (car 160km, 4-5hrs) •Discussion w/DOET(Bac Kan) •BAC KAN→CAO BANG (car 120km, 3-4hrs)			
25	5-May	we	•Discussion w/DOET, PC(Ha Giang) •Survey on sites						•Discussion w/DOET, PC(CaoBang) •Survey on sites			

			Consultants					
			Team A			Team B		
			Chief Consultant	Facility Planner 2	Procurement Planner	Social Environment Specialist	Facility Planner 1	Construction Planner
26	6-May	th	•Survey on sites			•Survey on sites		
27	7-May	fr	•Survey on sites			•Survey on sites		
28	8-May	sa	•Survey on sites			•Survey on sites		
29	9-May	su	•Meeting within Team			•Meeting within Team		
30	10-May	mo	•Survey on sites			•Survey on sites		
31	11-May	tu	•Survey on sites			•Survey on sites		
32	12-May	we	•Survey on sites			•Survey on sites		
33	13-May	th	•Survey on sites			•Survey on teacher training school • Technical survey •Discussion w/DOET, PC(CaoBang)		
34	14-May	fr	•Survey on sites			•Cao Bang → Bac Kan (car 120km, 3-4hrs) • Survey on sites		
35	15-May	sa	•Survey on sites			•Discussion w/DOET, PC(BacKan) •Survey on sites		
36	16-May	su	•Meeting within Team			•Meeting within Team		
37	17-May	mo	•Survey on teacher training school • Technical survey •Discussion w/DOET, PC(Ha Giang)			•Survey on sites		
38	18-May	tu	•Ha Giang → Ha Noi (car 320km, 8-10hrs)			•Survey on sites		
39	19-May	we	• Technical survey •Discussion w/IRDS			•Survey on sites •Survey on teacher training school • Technical survey •Discussion w/DOET, PC(BacKan)		
40	20-May	th	•Discussion w/MOET			•BAC KAN → HA NOI (car 160km, 4-5hrs)		
41	21-May	fr	•Meeting within Team					
42	22-May	sa	•Discussion w/MOET					
43	23-May	su	•Discussion w/MOET					
44	24-May	mo	•Analyzing data					
45	25-May	tu	•Report to JICA, EOJ					
			•Ha Noi → Hong Kong(CX790)					
			•Hong Kong → Tokyo(CX500)					

*ABREVIATION

- ADB= Asia Development Bank
- BADC= Belgium Administration for Development Cooperation
- DOET= Department of Education and Training (Vietnam)
- EOJ= Embassy of Japan
- EU= Europe Union
- IRDS= Institute of Research and Development of School (Vietnam)
- JICA= Japan International Cooperation Agency
- MOET= Ministry of Education and Training (Vietnam)
- MPI= Ministry of Planning and Investment (Vietnam)
- NIES= National Institute of Educational Science (Vietnam)
- PC= People's Committee (Vietnam)
- WB= World Bank Group

2-2. Basic Design Study Draft Report Explanation

			Officials	Consultants		
			Team Leader	Chief Consultant	Facility Planner 1	Construction Planner
1	4-Oct	mo		•Tokyo→Hong Kong(CX509) •Hong Kong→Ha Noi(VN791)		
2	5-Oct	tu	•Courtesy visit to EOJ •Courtesy visit to JICA •Discussion w/MOET			
3	6-Oct	we	•Discussion w/MPI •Discussion w/MOET			
4	7-Oct	th	•Discussion w/MOET •Discussion w/Delegation of EU			
5	8-Oct	fr	•Discussion w/WB •Discussion w/UNICEF			
6	9-Oct	sa	•Visit to Construction site in Quang Ninh (phase 4/2)			
7	10-Oct	su	•Analizing data			
8	11-Oct	mo	•Discussion w/MOET			
9	12-Oct	tu	•Signing on Minutes •Report to JICA, EOJ			
10	13-Oct	we		•Ha Noi→Hong Kong(CX790) •Hong Kong→Tokyo(CX500)		

*ABRIVIATION

- EOJ= Embassy of Japan
- EU= Europe Union
- JICA= Japan International Cooperation Agency
- MOET= Ministry of Education and Training
- MPI= Ministry of Planning and Investment
- WB= World Bank Group

3. List of Party Concerned in Recipient Country

□ Abbreviation

Dept.	=Department
DOET	=Department of E&T
DOC	=Department of Construction
DOL	=Department of Land
DPI	=Department of Planning Investment
Div.	=Division
PC.	=People's Committee
SOET	=Section of Education and Training

中央政府関連機関及び国際機関

●教育訓練省

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副大臣 Vice Minister

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Vice Director/ Planning and Finance
Department (PFD).

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計画財務局上級専門員 Senior Expert/ PFD

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計画財務局上級専門員 Senior Expert/ PFD

Mr. Truong Thanh Hai
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Director/ International Relations Department
(IRD)

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国際関係局専門員 Expert/ IRD

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Vice Director/ Primary Education Department
(PED)

Mr. Le Tien Thanh
初等教育局上級専門員 Senior Expert/ PED

Mr. Pham Chi Dai
学校施設設計研究所副所長
Vice Director/ Institute of Design and Research
for School (IRDS)

●計画投資省

Ministry of Planning and Investment (MPI)

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科学教育環境局副局長
Vice Director/ Division of Science, Education,
Environment (DSEE)

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Mr. Ngo Tuan Dung
科学教育環境局専門員 Vice Expert/ DSEE

Mr. Tran Tuan Anh
対外経済関係局専門員 Expert/ Foreign
Economic Relations (FER)

Ms. Nguyen Thanh Hai
対外経済関係局専門員 Expert/ FER

●カリキュラム開発・教授法開発センター国立教育 科学研究所

Research Center for Curriculum Development &
Teaching Methodology/ National Institute of
Education Science

Mr. Do Dinh Hoan
所長 Director

Mr. Nguyen Huu Chau
副所長 Vice Director General

●世界銀行 World Bank

Mr. Christopher Shaw
人的資源開発上級専門家

Senior Human Resources Development
Specialist

Ms. Vu Thanh Binh

実施担当官 (教育)

Operation Officer-Education

●アジア開発銀行 Asian Development Bank

Mr. Ho Le Phong

プログラム実施担当官

Program Implementation Officer

●ベルギー開発協力事務所

Belgium Administration for Development Cooperation

Mr. Paul Verle

開発担当官 Development Counselor

●国連児童基金(ユニセフ)

United Nations Children Fund (UNICEF)

Mr. Erik Benzent

上級プロジェクト担当官 Senior Project Officer

Ms. Nguyen Thi Bich

プロジェクト担当官補 Assistant Project
Officer

Mr. Hoang Van Sit

プログラム担当官 (教育) Programme
Officer-Education

●イギリス大使館

British Department for International Development
(DFID)

Dr. Julia Hawkins

ヴェトナム現地マネージャー

Vietnam Field Manager

Dr. Kevin Higgins

ブリティッシュカウンセル副所長

Vice Director/ British Council

●欧州連合ヴェトナム国派遣欧州委員会

Europe Union (EU), Delegation of the European
Commission to Vietnam

Mr. Emmanuel Le Clerc

開発担当補佐 Development Assistant

Mr. Michele Nori

開発担当補佐 Development Assistant

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Mr. Bui Quyet Chien

局長 Director

Mr. Pham Van Cuong

副局長 Vice Director

Mr. Trinh Ngoc Xuyen

建設検査員 Construction Inspector

Ms. Nguyen Thi Hanh

通訳 Interpreter

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●ハザン省人民委員会

Provincial PC of Ha Giang

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Mr. Hoang Van Sun

副事務局長 Vice Head of Secretariat

投資計画局 DPI

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教育訓練局 DOET
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局長 Director

Mr. Lai Huu Mien
副局長 Vice Director

Mr. Luong Van Soong
副局長 Vice Director

Mr. Vu Hong Chuong
事務局長 Head of Secretariat

Mr. Duong Tien Soa
計画財政課長
Head/ Div. of Planning and Finance

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建設担当専門員
Expert/ Charge of Construction

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Ms. Hung Thi Hong
局員 Officer

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Training College

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副校長 Vice Principal

Mr. Vu Mi Vu
副校長 Vice Principal

Mr. Dang Vu Hai

教務主任 Chief/ Dept. of Educational Affairs

Ms. Tran Kim Mon
教務副主任
Assistant Chief/ Dept. of Educational Affairs

Mr. Ngac Giang Hoi
教務副主任
Assistant Chief/ Dept. of Educational Affairs

Mr. Nguyen Van Khai
自然科主任 Chief/ Dept. of Science

Ms. Vu Thi Khanh Dan
社会科主任 Chief/ Dept. of Social Study

Ms. Le Minh Ngoc
特殊科主任 Chief/ Dept. of Special Subjects

Mr. Dang Ngoc Can
思想政治科主任
Chief/ Dept. of Ideological Study

Mr. Nguyen Gia Luong
労働組合委員長 Chairperson/ Teachers' Union

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校長 Principal

Ms. Le Thi Can
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Vice Head/ SOET.

Mr. Phan Van Tuong
Vi Xuyen 町人民委員会副委員長
Vice Chairperson/ Sub-town PC

Mr. Nguyen huu Viet
Vi Xuyen 町地政担当官
Officer/ Charge of Land Affairs

●HG2. Dao Duc Basic School

Mr. Nong Thi Sinh
校長 Principal

Ms. Tran Anh Quang
副校長 Vice Principal

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Vice Head/ SOET.

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Dao Duc 村人民委員會副委員長
Vice Chairperson/ Commune PC

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校長 Principal

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Officer/ District Construction Div.

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Chairperson/ Commune PC

Mr. Hoang Viet Tien
Vinh Phuc 村地政担当官
Officer/ Charge of Land Affairs

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●HG6. Minh Son P.S.

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Secretary/ Commune PC

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Chairperson/ Commune People Front

●HG9. Po Lo P.S.

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Mr. Hoang Trung Tuan
Then Phan 村吏員
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Mr. Nguyen Van Ton
建設局局長 Director/ DOC

Mr. Nguyen Van Hanh
土地管理局副局長 Vice Director/ DOL

●Lai Chau 省教員養成學校 Lai Chau Teacher
Training College

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Head of Education management

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Vice Head/ Div. of Education management

Mr. Ha Van Tinh
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Mr. Do Huu Thuan
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Chairperson/ Commune PC

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Mr. Nguyen Duc Hien
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Mr. Sung Chu Thenh

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Mr. Le Van Tao
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Mr. Tran Van Qua
副校長 Vice Principal

Mr. Nguyen Minh Khanh
父兄會會長 Head/ Parents Association

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Mr. Nguyen Ky
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Head/ District, Div. of Planning and Investment

●LC8. Quai Nua P.S.

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Vice Head/ SOET.

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Vice Head/ District Section of Land Affairs

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Chairperson/ Commune PC

●LC10. Ta Ngao P.S.

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Parent Association, Secretary / Communist Party

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村共产党支部第一書記
First Secretary/ Commune Communist Party

Mr. Trieu Tien Quang
村戰線連盟主席 Head/ Commune People Front

Mr. Cheo Kin Cuoi
村公安長 Head/ Commune Public Safety

Mr. Mua A Tua
Sin Ho 郡人民委员会委員長
Chairperson/ District PC

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Mr. Nguyen Huong Ly
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Mr. Nguyen Van Thanh
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Mr. Trinh Huu Khang
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Head/ Commune, Charge of Construction

Mr. Tran Van Phuc
教育訓練室室長 Head/ SOET

●CB2. T.T. Nguyen Binh P.S.

Mr. Mac Thanh Bang

校長 Principal

Mr. Luc Thi Mai
副校長 Vice Principal

Mr. To Dinh Tong
父兄会 Parents Association

Mr. Le Huy Phuong
父兄会 Parents Association

Mr. Ma Tu Tho
Nguyen Binh 郡教育訓練室副室長
Vice Head/ SOET.

Mr. Hoang Manh Hung
Nguyen Binh 郡共産党支部書記
Secretary/ District Communist Party

Mr. Luc Van Hoan
教育訓練室担当 Officer/ SOET

Mr. Ha Huu Hoa
Nguyen Binh 郡人民委員会委員長
Chairperson/ District PC

●CB3. Lang Mon P.S.

Mr. Vyo Hung Cuong
校長 Principal

Mr. Mong Thi Dung
父兄会員 Parents Association

Mr. Luong Van Toan
父兄会員 Parents Association

Mr. Nong Thi Non
教員 Teacher

Mr. Dam Van Tien
村人民委員会委員長
Chairperson/ Commune PC

Mr. Luc Van Hoang
Nguyen Binh 郡教育訓練室スタッフ
Officer/ SOET.

Ms. Hoang Thi Lien
師範協議書記 Secretary/Teachers' Association

●CB4. Nuoc Hai P.S.

Mr. Truong Ngoc Chien
校長 Principal

Mr. Nguyen Thi Huyen
副校長 Vice Principal

Mr. Bui Thanh Binh
父兄会会長 Head/ Parents Association

Mr. Ta Binh
父兄会員 Parents Association

Mr. Cam Van Ro
父兄会員 Parents Association

Mr. Nong The Canh
村人民委員会委員長
Chairperson/ Commune PC

Mr. Trinh Xuan Boi
村土地管理担当
Officer/ Commune, Charge of Land Affairs

Mr. Tran Thi Hong
Hoa An 郡教育訓練室副室長
Vice Head/ SOET.

●CB5. Be Trieu P.S.

Mr. Tran Thi Hong
教育訓練室副室長 Vice Head/ SOET.

Mr. Le Thi Bat
校長 Principal

Mr. Nong Ich Quang
父兄会会長 Head/ Parents Association

Mr. Pham Ngoc Son

Vo Dao 村人民委員会委員長
Chairperson/ Commune PC

Mr. Be Nhat Phong
Da Lan 村人民委員会委員長
Chairperson/ Commune PC

Mr. Pham Trong Ro
村人民委員会委員長
Chairperson/ Commune PC

Mr. Le Hoang Bac
村土地管理担当
Officer/ Commune Land Affairs Div.

Mr. Sam Thi Hien
村労働組合主席
Chairperson/ Commune Labor Union

Mr. Hoang Trung Truc
村労働室室長
Chief/ Commune, Charge of Labor

●CB6. Cao Chuong P.S.

Mr. Chung Thi Kim
副校長 Vice Principal

Mr. La Van Giap
教員 Teacher

Mr. Nong Thai Thin
父兄会会長 Head/ Parents Association

Mr. Tran The Nguyen
父兄会 Parents Association

Mr. La Van Ngoan
村人民委員会委員長
Chairperson/ Commune PC

Mr. Nong Xuan Khoanh
村人民委員会書記 Secretary/ Commune PC

Mr. Dinh Xuan Cam
Tra Linh 郡教育訓練室スタッフ

Officer/ SOET.

●CB7. Quang Ha P.S.

Ms. Lam Thi Nhai
校長 Principal

Mr. Be Hi Dan
父兄会会長 Head/ Parents Association

Mr. Be Xuan Hai
父兄会 Parents Association

Mr. Le Quang Kiem
村人民委員会委員長
Chairperson/ Commune PC

Mr. Dinh Xuan Cam
Tra Linh 郡教育訓練室スタッフ
Officer/ SOET.

Mr. Nong Van Dam
Tra Linh 郡教育訓練室室長代理
Officer/ SOET.

●CB8. Phuc Sen P.S.

Mr. Ha Doan Vanh
校長 Principal

Ms. Luong Thi Ry
父兄会 Parent Association

Mr. Be Van Son
父兄会 Parents Association

Mr. Hoang Trung Kin
父兄会 Parents Association

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村共産党支部長
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Mr. Bui The Truong
教育訓練局局員 Officer/ DOET

●CB9. Lac Giao P.S.

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Ms. Ly Thi Hue
副校長 Vice Principal

Ms. Be Thi Tiem
教員 Teacher

Ms. Nong Thi Mue
教員 Teacher

Ms. Dinh Van Hien
父兄会 Parents Association

Mr. Sam Dai Long
父兄会 Parents Association

Mr. Be Ich Quyet
父兄会 Parents Association

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Quang Hoa 郡教育訓練室室長 Head/ SOET.

Mr. Trieu Van Kiem
Quang Hoa 郡教育訓練室スタッフ
Officer/ SOET.

●CB10. Thong Hue P.S.

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校長 Principal

Mr. Hoang Sau

父兄会会長 Parents Association

Mr. Be Van Nhi
副校長 Vice Principal

Mr. Nong Ich Kiem
父兄会 Parents Association

Mr. Nhan Vaan Mau
父兄会 Parents Association

Mr. Be Xuan Hanh
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Mr. Ha Phap
Trung Khanh 郡教育訓練室室長 Head/ SOET.

Mr. Vu Xuan Binh
Trung Khanh 郡教育訓練室書記
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●CB11. T.T. Trung Khanh P.S.

Mr. Hoang Thi Van
校長 Principal

Mr. Nong Thi At
副校長 Vice Principal

Mr. Nong Thanh Tung
父兄会員 Parents Association

Mr. Dinh Van Tu
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Chairperson/ Commune PC

Mr. Nong Van Nhan
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Mr. Hoang Van Giong
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Mr. Ha Phap
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Mr. Vu Binh
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Provincial PC of Bac Can

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人民委員会副委員長 Vice Chairperson

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教育訓練局計画財務室長
Head/ DOET, Div. of Planning and Finance

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Vice Head/ DOET, Div. Universal of Primary
and Secondary Education

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教育訓練局小中普及室スタッフ
Officer/ DOET, Div. of Universal of Primary and
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Mr. Luan Hoang Kiem
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Mr. Trieu Ngoc Lieu
計画投資局副局長 Vice Director/ DPI

Ms. Ly Thi Hoa
計画投資局専門員 Expert/ DPI

Mr. Ma Dinh Khoa
建設局局長 Director/ DOC

Mr. Hoang Ha
土地管理局専門員 Expert/ DOL

Mr. Ly Duc Toan

財務局専門員 Expert/ DOF

●BC1. Banh Trach P.S.

Mr. Duong Van Huan
校長 Principal

Mr. Pong Phuc Hoc
父兄会 Parents Association

Mr. Nguyen Van Thuan
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Mr. Nguyen Van Hop
村人民委員会委員長
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Mr. Duong Van Hoa
Ba Bo 郡教育訓練室副室長
Vice Head/ SOET.

●BC2. Binh Trung P.S.

Mr. Mai Doan Ta
校長 Principal

Mr. Nong Thi Nga
副校長 Vice Principal

Mr. Nguyen Van Vang
父兄会 Parent Association

Mr. Tran Van Luu
村人民委員会委員長
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Mr. Ma Doan Tuong
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Mr. Hoang Van Luu
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Mr. Trieu Thi Mai
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Mr. Hoang Van Mao
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●BC3. Nhu Co P.S.

Mr. Mathi Thoan
校長 Principal

Mr. Duong Van Lap
副校長 Vice Principal

Mr. Duong Van Luan
父兄会 Parents Association

Mr. Duong Thanh Mau
村人民委員会委員長
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Mr. Ha Sy Huynh
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Mr. Vu Xuan Hong
村人民委員会委員 Officer/ Commune PC

Mr. Pham Thi Lien
Cho Moi 郡教育訓練室室長
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●BC4. Vi Huong P.S.

Mr. Trieu Thi Vuong
校長 Principal

Mr. Hua Thi Hai
教員 Teacher

Mr. Vi Van Dang
父兄会 Parents Association

Mr. Hoang Sinh Ky
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●BC5. Xuat Hoa P.S.

Mr. Hoang Thi Tuyet
校長 Principal

Mr. Trieu Thi Thai
副校長 Vice Principal

Mr. Nguyen Van Vang
教員 Teacher

Mr. Tran Hai Nhu
父兄会 Parents Association

Mr. Nong Cao Nguyen
父兄会 Parents Association

Mr. Hoang Van Ho
村人民委員会委員長
Chairperson/ Commune PC

Mr. Nong Van Doan
村人民委員会委員 Officer/ Commune PC

●BC6. Bang Van P.S.

Mr. Tran Quang Thai
校長 Principal

Mr. Hoang Thi Tuyen
副校長 Vice Principal

Mr. Hoang Van Khau
父兄会会長 Head of Parents Association

Mr. Nong Thanh Bach
村人民委員会委員長 Chairperson/ Commune

PC

Mr. Chu Dang Bao
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