

**Ministry of Education
The Republic of the Union of Myanmar**

**PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR IMPROVEMENT OF
EDUCATION COLLEGE
IN
THE REPUBLIC OF THE UNION OF MYANMAR**

June, 2014

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**CONSORTIUM OF
YAMASHITA SEKKEI INC.
KRI INTERNATIONAL CORPORATION
BINKO INTERNATIONAL LTD.**

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PREFACE

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey on the Project for Improvement of Education College in the Republic of the Union of Myanmar to the consortium consist of Yamashita Sekkei Inc., KRI International Corporation and Binko International Ltd.

The survey team held a series of discussions with the officials concerned of the Government of Myanmar, and conducted field investigations. As a result of further studies in Japan, the present report was finalized.

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

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Myanmar for their close cooperation extended to the survey team.

June, 2014

Takao Toda
Director of Human Development Department
Japan International Cooperation Agency

Summary

1. Overview of the Country

The Republic of the Union of Myanmar (referred to below as Myanmar) is located between North Latitude (NL) 10 degrees and NL 28 degrees along the western side of the Indochina Peninsula. It has a coastline some 2,000 km long facing onto the Andaman Sea and the Bay of Bengal and is bordered by the People's Republic of China to the northeast, by Laos to the east, by Thailand to the southeast, by Bangladesh to the west and by India to the northwest. It has a land area of some 680,000 km² (1.8 times the land area of Japan) and a population of approximately 63.67 million (as of 2012, IMF estimate)

The administrative divisions of Myanmar comprise seven states and seven regions. Taungoo Township, the planned location of this project, is located approximately 80 km south of the capital city, Nay Pyi Taw, in the northeastern part of Bago Region, which is more or less in the center of the country.

Most of the land of Myanmar is in the tropical or subtropical zone, but as the land extends in a narrow strip north to south with highland areas, there are typically large differences in climate depending on the location. The year is divided into the dry season from late October to March, the hot season from April to May, and the rainy season from June to mid-October.

According to IMF statistics, Myanmar's nominal GDP for FY2012/13 was US\$55.3 billion and the nominal per capita GDP was US\$868. The economic growth rate is steady, at 5.9% and 6.4% in 2011/12 and 2012/13, respectively. Since the coming into office of the civilian government in 2011 in particular, the Myanmar boom has brought about a development demand and with the start of natural gas exports to Thailand, the construction of a pipeline to China, foreign and domestic investment in light industries such as garment manufacture, the development of special economic zones and large-scale real-estate development, the market is brisk.

The breakdown of Myanmar's GDP by industry sector in FY 2010/11 was primary industries 37.9%, secondary industries 24.1% and tertiary industries 38.0%. Year on year the proportion occupied by primary industries is shrinking while the proportion occupied by the secondary and tertiary industries is growing. This trend is expected to continue in the future, and the development of the human resources needed in the secondary and tertiary sectors poses a problem.

2. Background to History and Overview of the Project

The present administration which came to power in March 2011 under President Thein Sein, conscious of the need to raise the level of education in Myanmar to international standards, in the academic year 2011/12 increased the number of schools providing basic education (primary and middle schools) by 18% and the number of teachers by 55% in comparison with 1988/89. However, the number of children attending primary and middle schools will tend to increase in the future; in

2013/14, there were 57,300 primary and middle schools with approximately 7.85 million students and some 253,000 teachers, and while the number of schools and the number of students compared to 2011/12 increased roughly 47% and 4.3% respectively, the number of teachers increased by only a very low 0.4%. Further, in addition to the Ministry of Education's target of having a teacher in every classroom and the increase in the number of students brought about by population growth, it is expected that as a result of ceasefire agreements with ethnic minorities there will be an increase in the number of children attending school in ethnic minority areas, so that there will be an even greater need for more teachers.

The 10-points education policy, announced as guidance before the Assembly of the Union by the President in March 2011, is deemed to indicate the orientation of future educational development and long-term educational planning. With respect to the basic education sector, the policy puts forward such targets as (1) the implementation of a system of free and compulsory primary education, (2) the raising of school enrollment rates, (3) the improvement of teachers' capabilities and (4) the raising of educational levels to international standards, indicating the need for an improvement in the number and quality of teaching staff. In conformity with the President's 10-points education policy, the "Basic Education Sector National Education Promotion 20 Year Long Term Plan (2011/12 – 2030/31)" was drawn up; and this plan includes the expansion of the Education Colleges (EC) as a means of expanding their capacity to train primary and middle-school teachers.

Teachers for the primary and middle schools are trained at the 21 ECs located throughout the country. The increase in recent years in the number of children attending school has necessitated an increase in the number of teachers, but as the present situation at individual ECs with regard to the lack or deterioration of facilities, the lack of equipment, etc., was not known, with the cooperation of the Ministry of Education (MOE) of Myanmar, JICA implemented fact-finding surveys at 20 of the existing ECs. The results of these surveys have made clear the level of hazard at each EC and the need for the rebuilding of facilities.

At the same time, in order to increase the number of trainee the MOE has developed the "Development Plan for Education Colleges with Teacher Demand" to increase the trainee intake capacity from the present 9,000 per year to 12,000 per year. This plan includes increasing the annual intake capacity at 4 ECs (Yankin EC, Taungoo EC, Pyay EC, Lashio EC) to around 1,000 students, and with respect to Taungoo EC (TEC) and Pyay EC in particular, as the existing facilities are old and dilapidated and the grounds are cramped the top priority is the rebuilding of these two ECs in new locations. Taking into consideration this policy and the results of the above-mentioned fact-finding survey of the ECs by JICA, the MOE has given top priority to the rebuilding of TEC in a new location, and Japan received a request for the provision of these facilities and equipment under Japanese Grant Aid.

TEC will be rebuilt in a location fitting as a center of excellence for the ECs, being close to Nay Pyi Taw, the capital city and easily accessible from ECs throughout the country. This being the case, the new college is being planned as a model school for the other ECs and will be furnished with the

latest facilities and equipment. The content of the request is as shown below.

Table i Content of the Request by the Government of Myanmar

Facility	An Education College (1,000 trainees intake capacity) : Administration Building (including Assembly Hall/Gymnasium), Teaching Building, Hostel, Dining Hall/Kitchen, Ancillary Facilities, Electrical/Mechanical/Plumbing and Sanitation System, Furniture etc.
Equipment	Equipment necessary to the above-noted facilities

3. Summary of Survey Results and Content of the Project

On the basis of the above, from October 2012 JICA dispatched a Preparatory Study Team, the Team implemented fact-finding surveys at 20 of the existing ECs and examined priority of project site in Field Survey I in October 2012, and implemented selection of project site and establishment of priority of facilities and equipment components in Field Survey II in December 2012, but as in Field Survey II the Myanmar side proposed farmland as the construction site. The farmland is used for farming activities including rice farming, and JICA classified the project into “Category B” provided in the JICA Guidelines for Environmental and Social Considerations, and an Environmental and Social Considerations Study was added, from March 2013 up to August 2013 the Environmental and Social Considerations Study Team was dispatched on three occasions. As the study concluded that the project was not likely to have significant impact which requires environmental and social considerations, the site was approved as the project site in June 2013. Upon the decision, Natural Condition Survey and Building Planning Confirmation Survey Team was dispatched in June 2013. On the basis of the analysis carried out in Japan after their return, the Study Team compiled a Facility Plan and an Equipment Plan, and in December 2013 an explanation was given in Myanmar of the summary of the results of the Preparatory Study, and the Preparatory Study Report was drawn up.

(1) Scope of the Project

In accordance with the policy of making TEC, fitted with the latest equipment, a center of excellence for ECs and on the basis of “the New TEC Master Plan” drawn up by the MOE, a study was made of the facilities to be constructed and equipment to be provided. The New TEC will have an annual trainee intake capacity of 1,000 and an annual enrollment capacity of 1,500; 500 trainees in the first year of the Diploma in Teacher Education Course (DTED), 500 in the second year of the same course and 500 in the Diploma in Teacher Education Competency Course (DTEC), and it was ascertained that this was a scale both reasonable and necessary for bringing to fruition the plan being promoted by the MOE to expand the total number of newly-trained teachers turned out by all the ECs from the current 8,500 per year to 11,000 per year.

(2) Examination of the Content of the Request

It was agreed and recorded in the Minutes of Discussions that the facilities to be constructed

under Japanese grant aid would be selected in accordance with the priority ranking and that those facilities not covered by the grant aid would be constructed by the Myanmar side.

As a result of an analysis of the content of the field surveys, budgetary constraints on the Japanese side and consideration of the degree of urgency, all facilities ranked A priority and the B-priority Hostel were selected as the facilities to be constructed under Japanese grant aid; and the facilities for which each country shall take responsibility were determined as shown below.

In order to be able to open TEC fully immediately after completion of construction by the Japanese side, the B-priority hostels with 1,000 trainees intake capacity were included in the work to be undertaken by the Japanese side.

The educational equipment and furniture to be provided under the grant aid shall be the equipment and furniture incidental to the below-noted facilities to be constructed under the Japanese grant aid.

Table ii Facilities to be Constructed by with Both Country

Japanese side	Administration Building, Teaching Building, Dining hall and 4 Hostels (with 1,000 trainees intake capacity) etc.
Myanmar side	Practicing School and Staff Houses etc.

Table iii Outline of the Scope of the Project

Outline of the project																			
Construction of new EC	(1) Facilities of the new education college																		
	<table border="1"> <thead> <tr> <th>Facility</th> <th>Floor area (m²)</th> </tr> </thead> <tbody> <tr> <td>Administration Building, two-story (including an assembly hall)</td> <td>2,457</td> </tr> <tr> <td>Teaching Building, two-story</td> <td>4,257</td> </tr> <tr> <td>Hostels, two-story x 2 (for 200 trainees each)</td> <td>4,192</td> </tr> <tr> <td>Hostels, two-story x 2 (for 300 trainees each)</td> <td>6,318</td> </tr> <tr> <td>Dining hall, one-story</td> <td>675</td> </tr> <tr> <td style="text-align: right;">Subtotal</td> <td>17,899</td> </tr> <tr> <td>Ancillary facilities (Gym storage, electric room, guardhouses, etc.)</td> <td>300</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>18,199</td> </tr> </tbody> </table>	Facility	Floor area (m ²)	Administration Building, two-story (including an assembly hall)	2,457	Teaching Building, two-story	4,257	Hostels, two-story x 2 (for 200 trainees each)	4,192	Hostels, two-story x 2 (for 300 trainees each)	6,318	Dining hall, one-story	675	Subtotal	17,899	Ancillary facilities (Gym storage, electric room, guardhouses, etc.)	300	Total	18,199
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	Subtotal	17,899																	
	Ancillary facilities (Gym storage, electric room, guardhouses, etc.)	300																	
Total	18,199																		
(2) Equipment to be installed in the facilities																			
<ul style="list-style-type: none"> • Electrical work: Power supply system (including power receiving, transformer and distribution systems), emergency generation system, lighting and receptacle, communication systems (including LAN systems), public address system, fire alarm system and lightning protection system • Mechanical work: Air-conditioning and Ventilation system • Plumbing and sanitation work: Sanitary equipment, water supply system, drainage/sewerage system, fire extinguishing equipment and deep well 																			
(3) Furniture																			
<ul style="list-style-type: none"> • Furniture for class rooms, laboratories, co-curriculum class rooms, a library, administration offices, an assembly hall, a dining hall and hostels 																			
Provision of machinery	(1) For Main subjects : LL equipment, computers and geography																		
	(2) For Laboratory equipment : Science, physics, chemistry and biology experiments																		
	(3) For Co-curricular subjects : Physical education, home economics, fine arts, agriculture, music and industrial arts																		
	(4) For Preparation and management of teaching materials: Audio-visual equipment, computers and printer																		

4. Construction Period of the Project and Project Cost Estimation

Taking into account the scale of the facilities, local construction conditions, the budgeting systems of the governments of both countries, preparation of the project site, etc., the construction period needed for the implementation of this project is expected to be approximately 23 months (detailed design and tenders, approximately 8 months; construction of the facilities approximately 15 months; installation of equipment in the final month of construction and inspection, 1 month). The project cost by the Government of Myanmar (GOM) is estimated to be 96 million yen.

5. Evaluation of the Project

(1) Relevance

The implementation of this project under the grant aid program of the Government of Japan (GOJ) is considered relevant in terms of the following.

(2) Necessity

From now on 11,000 new primary and middle school teachers will be needed each year, and in order to meet this demand it is planned to raise total annual trainee intake capacity at all 21 ECs from the current 9,000 to 12,000 by “Development Plan for Education Colleges with Teacher Demand” developed by the MOE. In particular, the annual trainee intake capacity at four ECs (Yankin EC, TEC, Pyay EC and Lashio EC) is planned with 1,000 trainees each.

The MOE announced at the September 2012 development seminar for donors (Consultation Meeting with Development Partners for the Improvement of Education Sector in Myanmar) that as part of its “Basic Education Sector National Education Promotion 20 Year Long Term Plan (2011/12 – 2030/31)” it would like with the assistance of donors to rebuild TEC and Pyay EC on new sites and increase the annual trainee intake capacity of each EC to 1,000. This is an indication that in addition to being of the highest priority after the construction of the Yankin and Lashio ECs that the MOE will undertake itself.

In the Comprehensive Education Sector Review (CESR) that the GOM is currently implementing with the assistance of donors, studies are being made towards extending the length of primary and secondary education from the current 11 years to 12 years. If this is decided on, still more primary and middle-school teachers will need to be trained, so that dealing with the expansion of TEC is of the highest priority.

For the reason mentioned above, the expansion of TEC with an annual intake capacity of 1,000 trainees is considered highly relevant.

(2) Effectiveness

The outputs to be expected from the implementation of this project are as given below, and thus this project is expected to be effective.

Table iv Quantitative Effects

Indicator	Baseline value (2012)	Target value (2019)
Number of enrolments in TEC per year (person)	395	1,500
Number of trainees who can study in good learning environment of TEC (person)	0	1,500
Number of newly-qualified trainees as a teacher from TEC per year (person)	263	1,000

Table v Qualitative Effects

1. Expansion and improvement of facilities and equipment will improve the learning environment in TEC. The improved environment will enable high-quality teaching.
2. Production of qualified teachers at TEC will improve the quality of education at primary and middle schools.

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Location Map

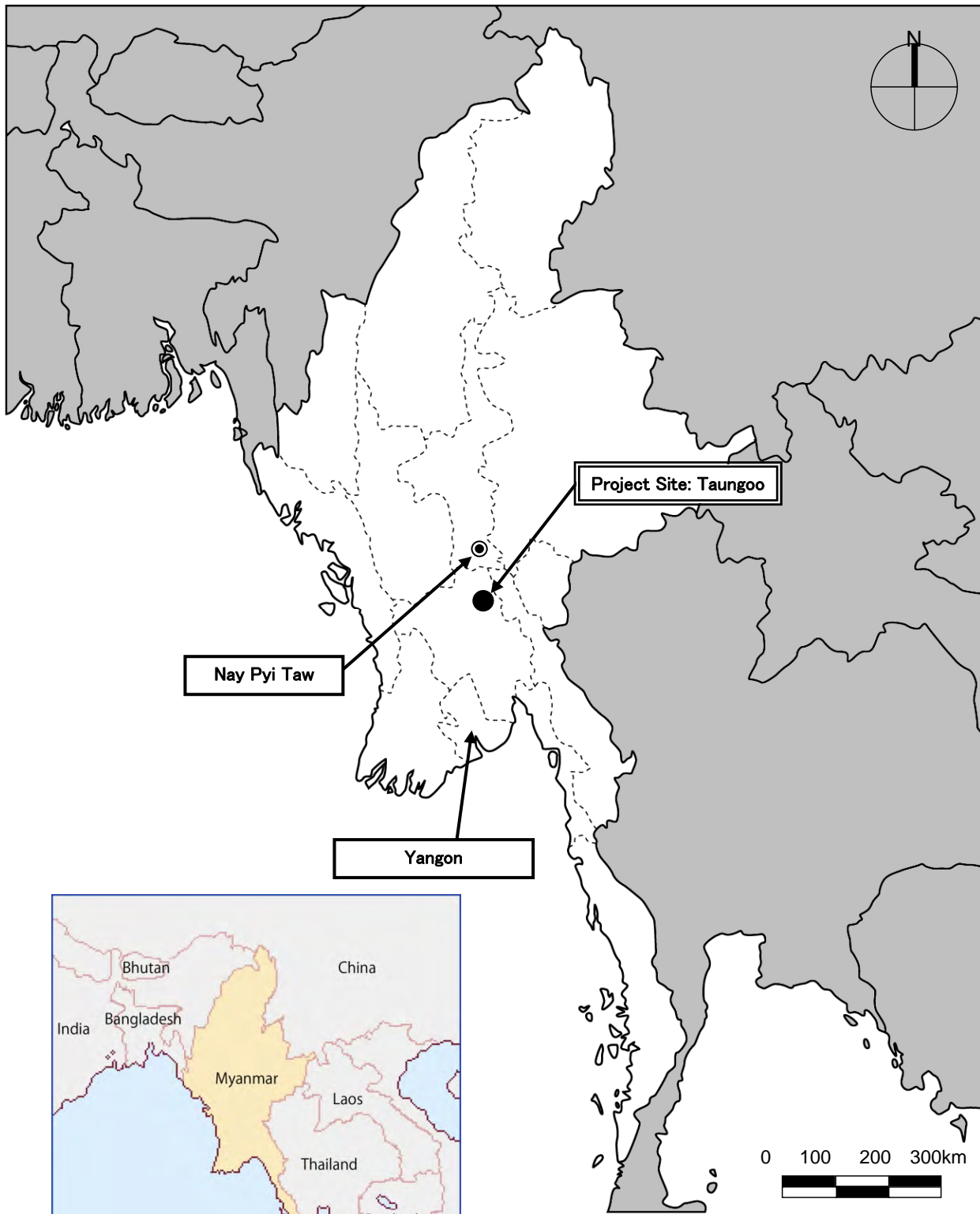


Figure i : Country Surroundings Map

Source : Web Site of Foreign Ministry

Figure ii : Project Site Map

Source : Foreign Ministry

Perspectives

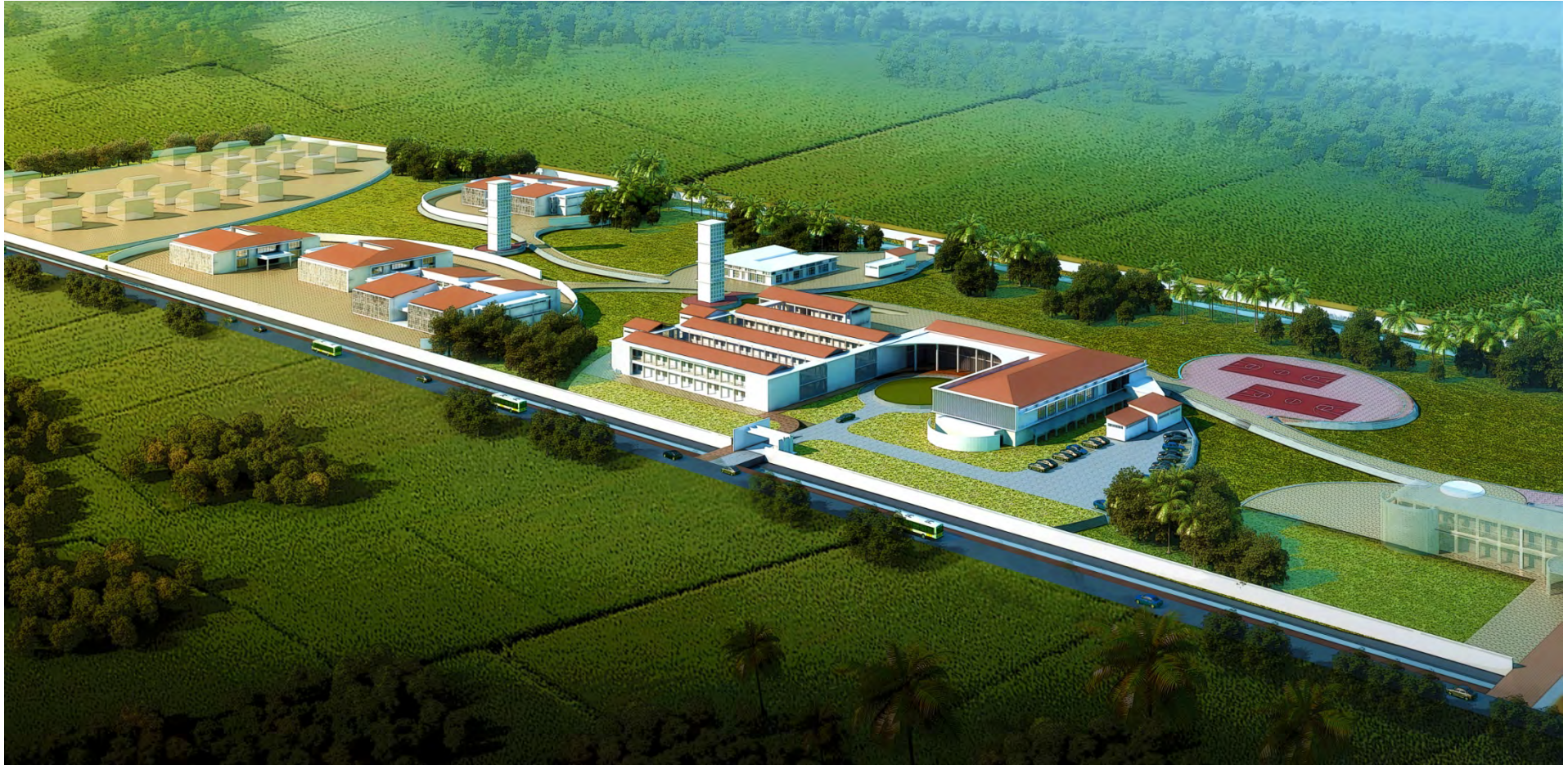


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Abbreviations

ADB	Asian Development Bank
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BS	British Standards
CCA	Child Centered Approach
Cert.TEd	Certificate in Teacher Education
CESR	Comprehensive Education Sector Review
DEPT	Department of Educational Planning and Training
DOHE	Department of Higher Education
DP	Development Partner
DTEC	Diploma in Teacher Education Competency Course
DTed	Diploma in Teacher Education Course
EC	Education College
EFA	Education for All
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
E/N	Exchange of Notes
EOJ	Embassy of Japan
G/A	Grant Agreement
GDP	Gross Domestic Product
GOM	Government of Myanmar
GOJ	Government of Japan
IMF	International Monetary Fund
IOE	Institute of Education
JATC	Junior Assistant Teacher Certificate Correspondence Course
JIS	Japanese Industrial Standards
LAN	Local Area Network
LED	Light Emitting Diode
MOBA	Ministry of Border Affairs
MOE	Ministry of Education
MOECAF	Ministry of Environmental Conservation and Forestry
UNDR	University for Development of National Races
PQ	Prequalification
PTR	Pupil Teacher Ratio
SS	Suspended Solids
TEC	Taungoo Education College
TTDC	Taungoo Township Development Committee

Chapter 1 Background of the Project

Chapter 1 Background of the Project

1-1 Background of the Project and Request from the Recipient Country

Since 2011 the GOM, conscious of the need to raise educational levels in the country to international standards, has given priority to such measures as the abolition of fees for compulsory education, the improvement of the school environment, the development of teaching skills, improvement of pay and benefits for teachers, etc., has increased the number of schools providing basic education (primary / middle schools) by 18% and the number of teachers by 55% (as of 2011/12, compared with 1988/89), and is engaged in a number of initiatives such as the plan to expand the Child-Centered Approach (CCA) to primary school teachers by 2015.

Basic education teachers are trained at 21 ECs around the country. The increase in the number of children attending school in recent years has brought about a need to further increase the number of teachers, which has made the building of new ECs and the expansion and improvement of existing ECs a pressing issue. However, the present state of individual ECs with regard to the lack or deterioration of facilities, the lack of equipment, etc., was not known; and with the cooperation of the MOE of Myanmar, JICA implemented fact-finding surveys at 20 of the existing ECs. The results of these surveys have made clear the level of hazard at each EC and the need for the rebuilding of facilities.

At the same time, in order to increase the number of trainees the MOE has developed a plan for the expansion of the overall capacity to turn out new teachers by all the ECs including the newly-built Lashio EC from the present 8,500 per year to 11,000 per year; but expanding the annual number of new teachers to 11,000 means it will be necessary to increase the annual trainee intake capacity of the 21 ECs to 12,000. This expansion plan includes increasing the annual intake capacity at 4 ECs (Yankin EC, TEC, Pyay EC, Lashio EC) to around 1,000 trainees each, and with respect to TEC and Pyay EC in particular, as the existing facilities are old and dilapidated and the grounds are cramped the top priority is the rebuilding of these two ECs in new locations. Taking into consideration this policy and the results of the above-mentioned fact-finding survey of the ECs by JICA, the MOE has given top priority to the rebuilding of TEC in a new location, and Japan received a request for the provision of these facilities and equipment under Japanese Grant Aid.

TEC will be rebuilt in a location fitting as a center of excellence for the ECs: close to Nay Pyi Taw, the capital city, easily accessible from ECs throughout the country and where land for rebuilding can be easily secured. This being the case, the new EC is being planned as a model EC furnished with the latest facilities and equipment. The content of the request is as shown below.

Table 1-1 Content of the Request by the Government of Myanmar

Facility	An Education College (1,000 trainees intake capacity) : Administration Building (including Assembly Hall/Gymnasium), Teaching Building, Hostel, Dining Hall/Kitchen, Ancillary Facilities, Electrical/Mechanical/Plumbing and Sanitation System, Furniture etc.
Equipment	Equipment necessary to the above-noted facilities

Chapter 2 Contents of the Project

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

2-1-1 Outline of the Project

The purposes of the project of constructing a new TEC with 1,000 trainees intake capacity per year are 1) to contribute to the achievement of the goal of providing the trainee intake capacity of 12,000 per year of all the ECs in the country combined by enabling the TEC to train 1,500 trainees (consisted of the first year of DTEd, the second year of the same course and DTEC each 500 trainees, ratio of female 7: male 3) every year under the current education schedule of [3 Semester System] at ECs and provide a total of 1,000 graduated trainees consisted of 500 DTEd of the second year (DTEd-2) and 500 DTEC and 2) to be a model EC by showing facilities and equipment.

2-1-2 Goals of the Project

This project is to contribute to the achievement of the overall goals of the “Development Plan of Education Colleges with Teacher Demand” by constructing facilities of TEC with 1,000 trainees intake capacity sufficient to enrol 1,500 trainees per year under the current education schedule at ECs. Implementation of this project is expected to improve the quality of the primary and secondary education in Myanmar.

The scope of work of the grant aid assistance consists of construction of the administration offices, class rooms, hostels, a dining hall and an assembly hall of TEC and procurement of equipment and furniture required for the training at the EC.

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

2-2-1-1 Basic Policy

(1) Development Plan for Education Colleges with Teacher Demand

The MOE planned to increase the capacity to produce new teachers of all the ECs combined from 8,500/year to 11,000/year in the “Basic Education Sector National Education Promotion 20 Year Long Term Plan (2011/12 – 2030/31)” in order to meet need to increase the number of teachers. ECs trains teachers for primary and lower secondary education and approximately 10 percent of graduated trainees in each year proceed to bachelor education courses at Institute of Education (IOE) where trains teachers for upper secondary. Therefore, 12,000 trainees per year intake capacity of all the ECs is required to produce 11,000/year new teachers. The MOE is planning to increase the capacity of four ECs, i.e. Yankin, Taungoo, Pyay and Lashio ECs, to 1,000 in order to meet a need of the 12,000/year capacity.

These figures per year are calculated based on the following annual education schedule.

(2) Annual Education Schedule of ECs [3 Semester System]

ECs have major three training courses consists of DTEd-1, 2 and DTEC. Annual schedule of these courses impose 2 semesters (16 weeks each) and bloc teaching with 45 days. ECs divide into three terms, and in every term only two courses trainees of three stay at ECs for training and trainees of the rest course stays at home town for bloc teaching. This means if EC has 1,000 trainees intake capacity EC can train approximately 1,500 trainees annually.

			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	DTEd	1st Year	1st Semester (16w)				2nd Semester (16w)				Bloc Teaching (45day)				
2	DTEd	2nd Year	1st Semester (16w)				Bloc Teaching (45day)				2nd Semester (16w)				
3	DTEC		Bloc Teaching (45day)				2nd Semester (16w)				1st Semester (16w)				


 Stay at Hostel in EC

Figure 2-1 Annual Education Schedule of ECs

(3) Outline of the Master Plan of New TEC by the MOE

The MOE prepared the master plan for the construction of new TEC in accordance with the policy of “constructing new TEC with the newest facilities to make it a centre of excellence for ECs” in 2013. The Survey Team studied the master plan to design facilities to be constructed and equipment to be procured.

Table 2-1 Outline of the Master Plan

Item	Outline
1) Teacher Education Courses	<ul style="list-style-type: none"> • Three courses consists of DTEd-1, 2 and DTEC, with 500 trainees in each course. • Three semesters system (16 weeks for one semester, the rest for bloc teaching)
2) Capacity	<ul style="list-style-type: none"> • 1,500 trainees enrollment per year • Boarding college with 1,000 trainees intake capacity, 700 females and 300 males • A class unit of 50 trainees takes lessons. • The practicing school consists of pre-school and Grades 1 to 9.
3) Main research functions	<ul style="list-style-type: none"> • Joint research with Yankin EC on revision of the curriculum • Assistance to the revision by conducting trial lessons (including the use of video images) to evaluate the curriculum revision • Studies on teaching methods and preparation of teaching materials using multimedia
4) Facilities and equipment	<p>Facilities:</p> <ul style="list-style-type: none"> • A model for the Campus Master Plan • A model for durability, safety and fire prevention: facility plan, structures and materials • A model for facility maintenance: energy saving, water treatment, cleaning, landscaping, etc. • Use of the assembly hall as a gymnasium • Use of the dining hall in two-shifts • Improvement in the living environment in the hostels (in convenience and hygiene, four trainees per room) • An care room <p>Teaching equipment and furniture:</p> <ul style="list-style-type: none"> • A model for teaching equipment and furniture plan

	<ul style="list-style-type: none"> • A model for maintenance of teaching equipment • Use of the Internet by lecturer/tutor and trainees for self-study
5) Management methods	<ul style="list-style-type: none"> • Use of the facilities for self-study (computer application room, Language Laboratory (LL) and library) after school • The same number of staff members and the same organizational structure, increase in the numbers of lecturer/tutors for male subject, maintenance and kitchen staff

(4) Scope of Work of the Japanese Assistance

1) ECs Requiring Urgent Reconstruction

The current state of all the ECs, with the exception of Lashio EC, which was under construction, was examined in Field Survey I. The Survey identified four ECs, *i.e.* Yankin EC, Mandalay EC, TEC and Pyay EC, as the ECs requiring urgent facility improvement because of the extremely poor learning and living environments and highly dangerous state of decrepit and damaged facilities.

Of the four ECs, the MOE was planning to reconstruct the Main Building of Yankin EC with the budget of fiscal 2012/2013. While a site for the relocation of Mandalay EC had not been found, the MOE had already secured sites for the relocation of TEC and Pyay EC.

The Survey Team concluded that it would be impossible to include construction of new Mandalay EC in the execution schedule of this project because no site for the relocation has been found.

Table2-2 Dangerous States Four ECs and Plans for their Improvement

EC	State of the existing facilities	Improvement plan
Yankin EC	The Main Building is in a dangerous state because of the damage caused by termites.	The Main Building is to be reconstructed with the budget of the 2012/13 fiscal year.
Mandalay EC	Learning and living environments are extremely poor. The existing buildings have been damaged so severely that they are in a dangerous state.	No site for relocation has been found.
TEC	Learning and living environments are extremely poor. The existing buildings are unsafe against disasters.	New facilities are to be constructed on a new site.
Pyay EC	Learning and living environments are extremely poor. The existing buildings have been damaged so severely that they are in a dangerous state.	New facilities are to be constructed on a new site.

2) Reasons for the Selection of TEC for the Project Implementation

The original plan of the MOE was to reconstruct Taungoo and Pyay ECs among the above-mentioned four ECs as model facilities equipped with the newest equipment. However, its final request for assistance to the GOJ included the reconstruction of only TEC.

The main reasons mentioned below.

- There is an urgent need to relocate TEC for disaster prevention because its campus is very small and adjacent to residential houses.
- A plot is secured for the construction of new facilities.
- As all the teacher training courses consists of DTed, DTEC and Junior Assistant Teacher

Certificate (JATC) are provided at TEC, it is easy to expand all courses because of teaching staff member have enough experience in teaching of all courses.

- TEC is easily accessible for inspection by ECs related personnel from anywhere in the country because of its central location in the country and its proximity to the capital, Nay Phi Taw.

(5) Project Components

It was agreed and recorded in the Minutes of Discussions that the facilities to be constructed under Japanese grant aid would be selected in accordance with the priority ranking and that those facilities not covered by the grant aid would be constructed by the Myanmar side.

As a result of an analysis of the content of the field surveys, budgetary constraints on the Japanese side and consideration of the degree of urgency, all facilities ranked A priority and the B-priority Hostel were selected as the facilities to be constructed under Japanese grant aid; and the facilities for which each country shall take responsibility were determined as shown below.

In order to be able to open TEC fully immediately after completion of construction by the Japanese side, the B-priority hostels with 1,000 trainees intake capacity were included in the work to be undertaken by the Japanese side.

The educational equipment and furniture to be provided under the grant aid shall be the equipment and furniture incidental to the below-noted facilities to be constructed under the Japanese grant aid.

Table2-3 Facilities to be Constructed by with Both Country

Japanese side	Administration Building, Teaching Building, Dining Hall and 4 Hostels (with 1,000 trainees intake capacity) etc.
Myanmar side	Practicing School and Staff Houses etc.

(6) Selection of the Project Site

The MOE proposed a plot, which was to be distributed to retired military personnel, managed by the Land Record Department, Ministry of Agriculture and Irrigation, for the construction of new TEC during the Field Survey I conducted in October 2012. The plot is located in Tha Win Nge Village approx. 20 km north of the centre of Taungoo.

The MOE newly proposed an approx. 50-acre (approx. 202,000 m²) plot in Sin Zeik Village along the Htee Hlaing Road which connects the centre of Taungoo and the Yangon-Mandalay Highway during the Field Survey II conducted in December 2012. The MOE concluded that the plot proposed during the Field Survey I was not appropriated because it was too far from the town centre for the local TEC staff to commute to and from. Since this plot is classified as farmland in accordance with the provision of the Farm Land Law of Myanmar and is used for farming activities including rice farming, this project was classified into a Category B project provided in JICA Guidelines for Environmental and Social Considerations. Therefore, an environmental and social considerations

study was carried out as stipulated in the guidelines.

As the study concluded that the project was not likely to have significant impact which requires environmental or social considerations described in Item 2-2-5, the site was approved as the project site. The area of the project site was reduced from the approx. 50 acres to 41.19 acres (approx. 167,000 m²) because only the land use right holders of the 41.19 acres of land had agreed to transfer the right to the project.

(7) Transportation for Commute

The Existing TEC is located in Taungoo downtown, and trainees is boarded in hostels and limited number of TEC's staff lives in staff houses in TEC, the rest of staff and student of practicing school lives in downtown and suburbs and commutes by public or private transportation.

The Project site is located at farming area where are approximately 8 km far from Taungoo downtown and no public transportation from the downtown. The transportation between the Project site and the downtown is necessary for commute of EC's staff and student of practicing school. As a result of discussion at explanation of draft final report, the MOE has initiated to negotiate with Taungoo Township Committee in order to prepare transportation for the commute.

2-2-1-2 Policy on Natural Environmental Conditions

(1) Considerations on Temperature and Sunlight

It is hot all the year around in Taungoo with an annual average temperature of 26.4°C. It is very humid and hot in the rainy season between May and September. Therefore, measures against high temperatures and high humidity will be required. The facilities will be designed to create a good indoor environment using natural ventilation, in principle, instead of air-conditioning. Rooms in buildings will be located in such a way to use the south-westerly wind, which is predominant throughout the year, efficiently to ventilate the rooms.

In principle, measures such as construction of eaves and wing walls to block direct sunlight and improvement of the heat insulation performance of roofs will be used to alleviate the effects of the strong sunlight during the day.

(2) Consideration on Inundation

Although the annual rainfall in Taungoo is approx. 1,600 mm, it sometimes rains intensively in a short period of time. In principle, inundation of buildings at the time of such heavy rain will be prevented by raising ground level of the building sites and surrounding area and installing drainage ditches around buildings to allow rapid discharge of rainwater to a drainage system at the boundary of the site.

2-2-1-3 Policy on Socio-Economic Conditions

(1) Consideration on Gender

New TEC is a boarding college. The number of trainees intake in the EC will be 1,000, 700 of which will be female. Most of the 122 staff members are women. Therefore, there will be more toilet

facilities for women than men.

In the campuses of the existing coeducational ECs, female hostels are located far from male hostels and are surrounded by barbed-wire fences. In the campus of new TEC, female hostels will be constructed at a single location far from the male hostels and fenced.

(2) Design in Consideration of Religion

More than 90 % of Myanmarese is Buddhists. There is a prayer space in each hostel of every existing EC. Therefore, each of the hostels planned to be constructed will also have a prayer space.

2-2-1-4 Policy on Construction and Procurement Conditions

(1) Construction Permission and Building Regulations

Obtaining a construction permit requires inspection of design drawings by the MOE and inspection of structural drawings by the Ministry of Construction (MOC). The consultant requests the MOE to submit application drawings for the inspection, and also the MOE to submit the permitted drawings to Taungoo Township Development Committee (TTDC) as notification.

1) Building Regulations

Facilities will be designed in accordance with the standards and regulations of Taungoo Township.

- a. The distance between an exterior wall of a building and the boundary line of the site should be between three feet and five feet.
- b. The regulation on building height allows construction of two-story and three-story buildings.

2) Fire-fighting Regulations

The Taungoo Township Fire Department will inspect design drawings. The facilities will be designed in accordance with the fire-fighting standards mentioned below which were provided by the fire department.

- a. At least two fire extinguishers will be installed at places where risk of fire is high such as a kitchen and halls.
- b. In the other areas, fire extinguishers will be installed at intervals of 15 m x 15 m.
- c. Recommended equipment
 - Fire exits and fire ladders
 - Fire alarm system

(2) Quality and Availability of Materials and Equipment in the Local Market

The main construction materials and equipment can be easily procured in the local market, because such materials and equipment manufactured locally and imported from Thailand and China etc. by agents are readily available in the local market. Those locally available materials and equipment do not seem to have problems in the quality.

(3) Labour Conditions

In Myanmar, construction work is implemented from 09:00 to 17:00, in general. However, as there is no regulation on the hours of construction work, work is often implemented during the night to shorten construction periods. Although the Project site is located outside the town, the ordinary working hours, *i.e.* from 09:00 to 17:00, will be used in the preparation of the construction schedule with the concern over the effect of construction noise in the surrounding area and damage caused by lighting in the night on crops.

There are not many skilled workers in various work categories in Taungoo. Most of those workers are found in major cities including Yangon, Nay Phi Taw and Mandalay. Therefore, the skilled workers in these cities will be employed in the project.

2-2-1-5 Policy on Utilization of Local Contractors

The government-run public construction corporations used to implement almost all the construction projects in Myanmar. However, the number of private construction companies has been on the increase for the last ten years with the progress in the privatization of the construction industry. Implementation of many large-scale development projects in Yangon with foreign investment is being planned at the moment. However, there used to be only small-scale development projects in Yangon, public works in Nay Phi Taw and other areas and development projects in Mandalay by Chinese investment until recently. In these recent construction projects, a new standard construction method using reinforced concrete structures, instead of traditional half-timber structures, was used. Many local construction companies have technical capacity to work with Japanese construction companies in projects in which this new construction method is used. As this new construction method has been used in construction of educational facilities commissioned by the MOE in the last few years, this method will be used as the primary construction method in the project.

2-2-1-6 Policy on Operation and Management

The existing TEC is operating by a principal, a vice-principal and three heads of department mainly, and the new TEC can be operated by the existing operation system. The existing numbers of lecturer/tutors of TEC are confirmed that they can teach 1,000 trainees because they have enough time for more teaching. However, the MOE is planning to allocate additional lecturer/tutors for physical education and industrial art for male subject, facility maintenance staff (plumbing, mechanical, electrical and building etc.) and kitchen staff.

Although no one is assigned to maintain the existing facilities of TEC at present, the MOE is planning to allocate the number of full-time facility maintenance staff before completion of the Project. It is not known what level of knowledge of facility maintenance the new maintenance staff have. However, judging from the current level of personal wages, it is unlikely that people with advanced knowledge in facility maintenance will be assigned to TEC. Therefore, equipment and apparatus relatively easy to maintain which are used in the existing ECs and similar facilities will be procured. In the selection of the equipment and apparatus for facilities which require daily maintenance, availability of consumables and maintenance parts will be used as the primary criterion so that the

maintenance costs will not be a burden to the TEC management.

Educational equipment included in the standard lists of the equipment of MOE for EC which are being used in the ECs or which can be operated by lecturer/tutors will be considered for procurement in this project.

At the time of handover, the equipment supplier will provide TEC's staff with training on its operation and maintenance as a measure to ensure correct and safe use of the procured equipment.

2-2-1-7 Policy on Grade Setting of Facilities and Equipment

The grades of the new facilities will be determined by using the designs and specifications of the existing ECs and similar facilities as reference, assuming the use of the latest local construction method and giving priority to ease of use and maintenance and durability of the facilities. Functional designs for the class rooms and hostels, which can be used as the model designs for future EC construction projects, will be developed.

The grades of the teaching equipment to be procured in this project will be ones which can be operated by the college staff at work and can be easily operated by trainees and which can be maintained by a local agent.

2-2-1-8 Policy on Construction Period

Construction work is completely suspended during the approximately 10-day-long new-year holidays in mid-April. During the rainy season between May and September, particularly large precipitation is recorded between June and August at the Project site. Adverse effects of rain on the foundation work and delays in the outdoor construction work are expected during this period. Therefore, the project period will be designed with these conditions taken into consideration.

2-2-2 Basic Design (Facility Plan/Equipment Plan)

2-2-2-1 Examination of the Contents of the Request

The original request from the GOM was provision of facilities and equipment to the plan of transforming TEC and Pyay EC into centres of excellence equipped with the newest equipment which serve as models for the expansion of the other ECs. The MOE and the Japanese side held discussions and agreed that the Japanese assistance should be provided to construction of TEC whose site was better located as a site of a model EC.

Facilities required for TEC with the intake capacity of 1,000 trainees include class rooms, co-curriculum class rooms, laboratories, administration offices, a library, an assembly hall, a dining hall, hostels, staff houses and a practicing school. The MOE requested assistance to construction of all those facilities. However, in the end, it was decided that the Japanese side would construct the priority-A facilities (class rooms, co-curriculum class rooms, laboratories, administration offices, a library, an assembly hall and a dining hall) and the priority-B facilities (four hostels for 1,000 trainees intake capacity), as mentioned above, and the Myanmar side would construct the remaining a practicing school with pre-school, primary and middle school and the priority-C facility, staff houses.

Educational equipment and furniture required in the facilities to be constructed by the Japanese

side in accordance with their priority ranking were selected.

The table below shows the facilities and equipment in the scope of work the Japanese assistance .

Table 2-4 Outline of the Scope of the Project

Outline of the project																			
Construction of new EC	(1) Facilities of the new education college																		
	<table border="1"> <thead> <tr> <th>Facility</th> <th>Floor area (m²)</th> </tr> </thead> <tbody> <tr> <td>Administration Building, two-story (including an assembly hall)</td> <td>2,457</td> </tr> <tr> <td>Teaching Building, two-story</td> <td>4,257</td> </tr> <tr> <td>Hostels, two-story x 2 (for 200 trainees each)</td> <td>4,192</td> </tr> <tr> <td>Hostels, two-story x 2 (for 300 trainees each)</td> <td>6,318</td> </tr> <tr> <td>Dining hall, single-story</td> <td>675</td> </tr> <tr> <td style="text-align: right;">Subtotal</td> <td>17,899</td> </tr> <tr> <td>Ancillary facilities (Gym storage, electric room, guardhouses, etc.)</td> <td>300</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>18,199</td> </tr> </tbody> </table>	Facility	Floor area (m ²)	Administration Building, two-story (including an assembly hall)	2,457	Teaching Building, two-story	4,257	Hostels, two-story x 2 (for 200 trainees each)	4,192	Hostels, two-story x 2 (for 300 trainees each)	6,318	Dining hall, single-story	675	Subtotal	17,899	Ancillary facilities (Gym storage, electric room, guardhouses, etc.)	300	Total	18,199
	Facility	Floor area (m ²)																	
	Administration Building, two-story (including an assembly hall)	2,457																	
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	Dining hall, single-story	675																	
	Subtotal	17,899																	
	Ancillary facilities (Gym storage, electric room, guardhouses, etc.)	300																	
Total	18,199																		
(2) Equipment to be installed in the facilities																			
<ul style="list-style-type: none"> • Electrical work: Power supply system (including power receiving, transformer and distribution systems), emergency generation system, lighting and receptacle, communication systems (including LAN systems), public address system, fire alarm system and lightning protection system • Mechanical work: Air-conditioning and Ventilation system • Plumbing and sanitation work: Sanitary equipment, water supply system, drainage/sewerage system, fire extinguishing equipment and deep well 																			
(3) Furniture																			
<ul style="list-style-type: none"> • Furniture for class rooms, laboratories, co-curriculum class rooms, a library, administration offices, an assembly hall, a dining hall and hostels 																			
Provision of machinery	(1) For Main subjects : LL equipment, computers and geography																		
	(2) For Laboratory equipment : Science, physics, chemistry and biology experiments																		
	(3) For Co-curricular subjects : Physical education, home economics, fine arts, agriculture, music and industrial arts																		
	(4) For Preparation and management of teaching materials: Audio-visual equipment, computers and printer																		

2-2-2-2 Basic Design

(1) Site Zoning Plan

The site will be divided into four functional zones, ①Administration and Education Zone, ② Hostel and Dining Zone, ③Staff House Zone and ④Practicing School Zone.

The administration and education zone consisting of the administration building, assembly hall and teaching building is located in the centre of the site. The practicing school and sports fields to be used by students of both the practicing school and TEC will be located in the western part of the site. The

hostel and dining hall and the staff house zones will be located adjacent in the eastern side of the site. In this way, education part and residential part will be demarcated clearly.

The access routes to the administration and education zone and practicing school zone, where there will be many visitors and users from outside, will be designed on the northern side from the main access road. Meanwhile, the service access route to the TEC, the dining hall and kitchen will be designed on the southern side. With this design of clear separation of access routes of people and services/goods, confusion will be avoided.

(2) Facility Layout Plan

A turnaround will be constructed in front of the administration building entrance for visitors and other people coming in and going out of the TEC through the main gate by vehicles. This access route will be the main access route to the TEC. The dining hall will be constructed between the teaching building and hostels for the convenience of trainees. The female and male hostels will be located in the northern and southern sides of the site, respectively, in the design to ensure sufficient distance between them as well as the existing hostels. A gate specifically for the practicing school will be constructed to allow direct access to the school from the main road on the north of the site. Each Bulding will be one or two story building as well as Existing EC buildings.

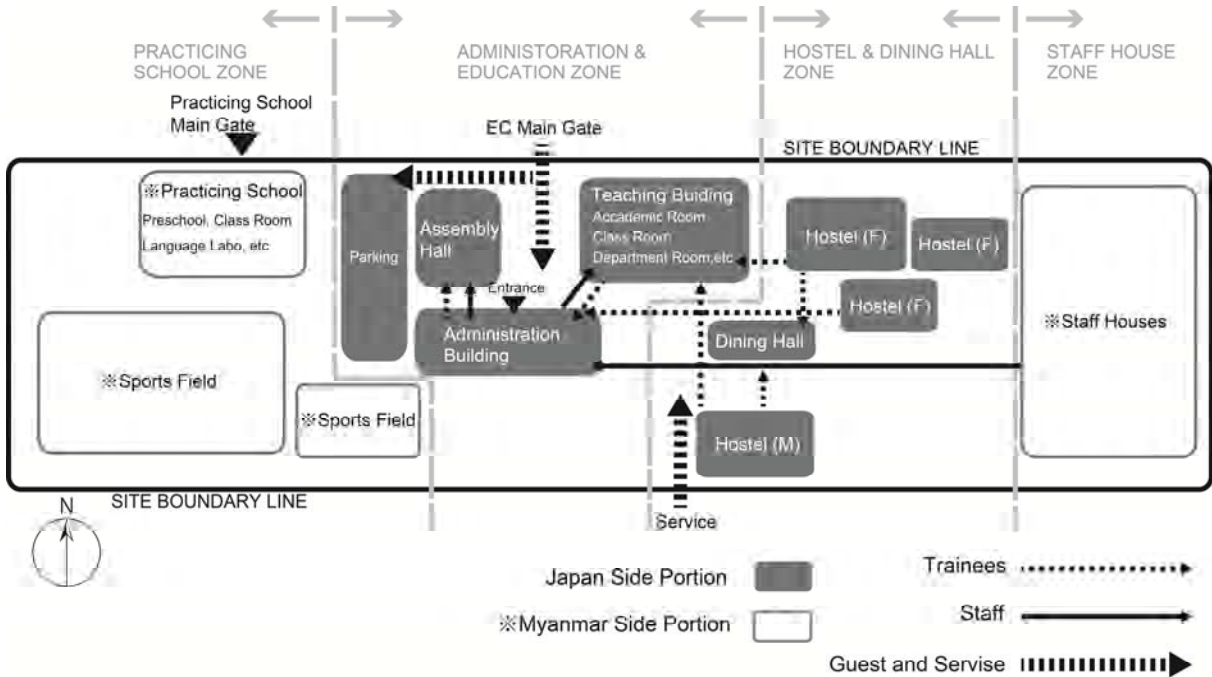


Figure 2-2 Site Zoning and Facility Layout Plan

(3) Facility Plan for Each Building

- Teaching Building

The teaching building will be a two-story building. A total of 20 class rooms for the DTED course (a two-year course) and the DTEC (a one-year course) will be housed in the block to accommodate a total of 1,000 trainees in both courses at the designated rate of 50 trainees per class room. Natural lighting will be utilised to the maximum with the design of creating a courtyard in the centre of the building. As each floor will have a large floor area, staircases will be constructed at three locations for the convenience of movement between the ground and first floors. There will be a department rooms in the southern part of the first floor for the lecturer/tutor to ensure safety in the Teaching building. Storage space for teaching materials and storerooms will be created at appropriate locations. Toilets will be constructed at either end of the building away from class rooms in order to separate from general rooms for hygienic. The teaching building and the administration building will be linked with a connecting passageway.

Rooms based on the curriculum will be constructed in the teaching building as the following list.

Table 2-5 Rooms in the Teaching Building

Room			Remarks
Type of room	Quantity	Floor area (m ²)	
Class Rooms	20	1,201	A class room will have to have a floor area which allows approx. 1.2 m ² of floor area to each of 50 trainees in a class (the design floor area: 60.08 m ²). There will be a space to install a stage and a desk of lecturer/tutor.
Laboratory (Chemistry)	1	85	There will be a space to install furniture to store experimental apparatus. The class will be divided in six groups of eight or nine trainees and each group will use one of the laboratory tables to carry out experiments. In order to ensure sufficient space to conduct practical lessons, the floor area per trainee of approx. 1.9 m ² will be used in the design. Water supply and sewerage systems required for experiments and washing experimental apparatus will be installed in the laboratory. As reagents are used in experiments, laboratory tables with chemical-resistant table tops will be installed in the laboratory.
Laboratory (Biology)	1	85	The same specifications with the other laboratories are adopted.
Laboratory (Physics)	1	85	The same specifications with the other laboratories are adopted.
Laboratory (Science)	1	85	Science experiment for primary school level will be conducted. The same specifications with the other laboratories are adopted.
Industrial Art Room	1	85	Large items of teaching equipment required for industrial arts lessons such as drawing boards will be stored in the common storeroom of the building. Furniture to store small equipment will be installed in the room. The scale of the room will be similar to the other rooms for co-curricular subjects. Trainees will carry out practices in the same grouping as mentioned above. As a heavy load is applied on a work table in some practical lessons, tables with sufficient load bearing capacity will be installed in the room.
Domestic Science Room	1	85	Trainees will practice cooking and sewing with sewing machine in this room. Water supply and sewerage systems required for cooking etc. will be installed in the room.
Art Room	1	85	The art room has a large space to have painting lessons. Therefore, each trainee will use an individual desk and chair. A space required for a lesson will be created by moving the desks and chairs in accordance with the contents of the lesson.
Music Room	1	86	Trainees will practice musical instruments while seated on the floor as in

Room			Remarks
Type of room	Quantity	Floor area (m ²)	
			the existing ECs. Stands to place instruments will be installed. The floor will be finished with wooden flooring for the comfort of sitting on it.
Language Laboratory	1	95	Trainees will take practical language lessons in booths. 25 booths which is the one for the two persons will be installed.
Audio visual Room	1	68	Media-based audio-visual education will be provided to trainees. A public announcement system will be installed.
Computer Room	1	86	Practical lessons by using computers will be provided. Chairs and desks for 50 trainees will be installed in the room. A packaged air conditioner will be installed in the room to reduce the heat load by computers. A required number of power outlets will be installed in the room.
Department Rooms	4	240	Preparation rooms for lecturer/tutors of various subjects equipped with a desk, a chair and a cabinet for each lecturer/tutor.
Floor area – subtotal	2,371 m ²		
Common Area	–	1,886	Common use corridors, W.C, storerooms, machine room, staircases, etc.
Floor area – total	4,257 m ²		

- Administration Building (including the Assembly Hall)

The Administration building will be composed of facilities required for the management of the college including principal and vice-principal rooms, head of department rooms, department rooms and meeting rooms. The library for trainees and care room in which sick and injured trainees get treatment will be on the ground floor of the block for easy access by trainees. A passageway will be constructed between this building and the teaching building to shorten the circulation to the teaching building for lecturer/tutors. There will be a foyer with direct access to the assembly hall at the entrance of the administration building. This design will alleviate congestion of the traffic when a large number of trainees and lecturer/tutors go to and come out of the hall.

The assembly hall will be a one-story building with double height ceiling. Capacity of number of trainees is set on 1,000 all trainees with standing style referring to morning assembly. It will have approximate 800 seats and be a necessary minimum space. By adopting stacking chairs, it will be easily used as gymnasium and minimize store space of the chairs. There will be multi-purpose backstage for visiting lecturers at the sides of the stage.

Table 2-6 Rooms in the Administration Building (including the Assembly Hall)

Room			Remarks
Type of room	Quantity	Floor area (m ²)	
Principal Room	1	59	To be equipped with reception space, space for meeting with lecturer/tutors. An exclusive toilet is established as well as existing principal room.
Vice-Principal Room	1	33	To be equipped with space for the meeting with lecturer/tutors
Library	1	94	To brows books to trainees DEPT has been planning to purchase additional necessary books for the Taungoo EC as a model EC. Therefore, the library will be designed to accommodate approx. 10,000 books including 4,000 books in the existing library and 6,000 books to be procured in the future.

Room			Remarks
Type of room	Quantity	Floor area (m ²)	
Administration Office	1	75	Office of non-lecturer/tutor
Care Room	1	39	The room will be equipped with beds for sick trainees and treatment of injured trainees.
Meeting Room 1	1	78	Large meeting room to be used for meetings with visitors and meetings of lecturer/tutor, 42 seats (mainly for meetings with high-ranking administrators and senior officials and meetings of lecturer/tutor)
Meeting Room 2	1	17	Small meeting room to be used for meetings with visitors and meetings of lecturer/tutor, 12 seats (mainly for departmental meetings)
Head of Administration Department Room	1	39	To be equipped with space for the meeting with lecturer/tutors
Head of Training department Room	1	39	To be equipped with space for the meeting with lecturer/tutors
Head of Academic Department Room	1	39	To be equipped with space for the meeting with lecturer/tutors
Department Rooms	4	168	Preparation rooms for lecturer/tutors on various subjects equipped with a desk, a chair and a cabinet for each lecturer/tutor
Print Room	1	39	To be used for printing and binding of teaching materials
Assembly Hall	1	645	To be used for school events, seating capacity of approx. 800, also to be used as a gymnasium
Backstage 1	1	37	To be used as a waiting room of lecturers
Backstage 2	1	37	Waiting room/equipment storage space, sound control booth
Floor area – subtotal	1,438 m ²		
Common Area	–	1,019	Entrance foyer, common use corridors, W.C, storeroom, machine room, staircases, etc.
Floor area – total	2,457 m ²		

- Dining Hall

The plan with kitchen centered in the building gives good efficiency on shorting the circulation from the pantry to the dining table area. The dining hall will be used in two shifts. Therefore, it will have 500 seats, half the number of the trainees. The dining rooms of male and female trainees in the existing colleges are separated with partition wall or being housed in separate buildings. In the layout plan of the dining hall of this project, the dining rooms will be separated by self-standing partition to response to the change of ratio of male and female trainees in the future.

Table 2-7 Rooms in the Dining Hall

Room			Remark
Type of room	Quantity	Floor area (m ²)	
Dining Hall	1	590	To secure 500 seats. Self-standing partition will be set to divide male and female space variably.
Kitchen	1	80	Cooking stoves, cooking tables and table to place cooking equipment and food items will be installed.
Floor area – subtotal	662 m ²		
Common Area	–	13	The fuel storage room will be directly accessible from outside since the fuel, sawdust, is delivered and withdrawn frequently. A storeroom for food items will be constructed and food shelves will be installed in the storeroom.
Floor area – total	675 m ²		

- Hostels (Male Hostel: 1 building with 300 capacity, Female Hostel : 1 building with 300 capacity and 2 buildings with 200 capacity)

As basic ratio of male and female trainees is 300 and 700, Two hostels will have a capacity of 200 trainees with two stories (Hereinafter referred to as Hostel A) and two hostels will have a capacity of 300 trainees with two stories (Hereinafter referred as Hostel B), totally Four hostels will be constructed and 1,000 trainees will be accommodated. In the floor plan of the hostels, each room in both male and female hostels has four beds and bedside lockers to store trainees' personal belongings. The hostels of the existing ECs have side corridors and the rooms are surrounded by walls on three sides. Therefore, a room has an opening only on the side of the corridor. With absence of better choice, an opening was created on the wall opposite to the corridor to allow natural ventilation. Because of the new opening, there is no soundproofing or privacy in the room. In the design of this project, a courtyard will be created in a hostel building and rooms will be located around the courtyard and along the external walls. These two rows of rooms will be separated by an interior corridor which facilitates natural ventilation and lighting. It provides improved dwelling environment than the conventional design.

Table 2-8 Rooms in a Hostel A

Room			Remarks
Type of room	Quantity	Floor area (m ²)	
Bedrooms	50	972	Four beds per room, a design floor area of approx. 4.86 m ² per person or 19.44 m ² per room.
Study Rooms	6	117	Self-study rooms for trainees
Housemaster Rooms	4	48	The room is set to observe trainees altitudes as well as the existing hostels. Each housemaster controls approx. 50 trainees.
Prayer Space	1	39	To be used as a prayer space for trainees
Floor area – subtotal	1,176 m ²		
Common Area	–	920	Common use corridors, toilets, bathrooms, storerooms, equipment/ machinery room, balconies, staircases, etc.
Floor area – total	2,096 m ²		

Table 2-9 Rooms in a Hostel B

Room			Remarks
Type of room	Quantity	Floor area (m ²)	
Bedrooms	75	1,458	Four beds per room, a design floor area of approx. 4.86 m ² per person or 19.44 m ² per room.
Study Rooms	7	104	Self-study rooms for trainees
Housemaster Rooms	4	66	The room is set to observe trainees altitudes as well as the existing hostels. There will be two housemaster's rooms with a floor area of 13.50 m ² on each floor of the hostels. A housemaster controls approx. 50 trainees.
Prayer Space	2	65	To be used as a prayer space for trainees
Floor area – subtotal	1,693 m ²		
Common Area	–	1,466	Common use corridors, toilets, bathrooms, storerooms, equipment/ machinery room, balconies, staircases, etc.
Floor area – total	3,159 m ²		

- Ancillary facilities

The ancillary facilities mentioned below will be constructed as independent structures.

Table 2-10 Ancillary Facilities

Ancillary facility		Remarks
Type of room	Floor area (m ²)	
Pump Room	50	To be located on the base of the overhead water tank
Electrical Room	52	To be equipped with an incoming panel, main distribution board, generator, etc
Gym Storage	38	To store equipment used in the physical education classes
Agricultural Storage	65	To store equipment used in the practical lessons in agriculture
Guard house	18	To be constructed at the main gate on the northern side and the service gate on the southern side
Outdoor W.C	77	Separate male and female toilet blocks will be constructed near the dining hall
Total floor area	300 m ²	

(4) Section Plan

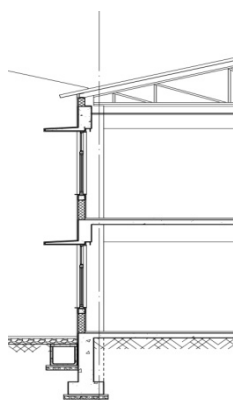


Figure 2-3
Teaching Building
Section Plan

The building story height is to be minimized to in 3.6m to reduce construction cost in the extent of keeping function of facilities.

As main ventilation system is to be natural ventilation system, the maximum ceiling and window height is secured to facilitate natural ventilation. Also, it is to be efficient measurement against high temperature by securing height volume without ceiling. However, class rooms including co-curricular and rooms relevant to administrative work will have ceiling for sound proofing.

Rooms to be equipped with air conditioners including computer rooms will have suspended ceilings to reduce air-conditioning load. As the temperature is high and the sunlight is strong throughout the year at the project site, canopy will be established above the windows.

(5) Structure Design

1) Soil Condition of the Project Site and the Foundation Plan

According to the geological survey result, the layer of 1.5m-3.0m below the ground level has an bearing capacity more than 8.0 ton / sm. As a consideration for the previous use of the site, which was paddy filed, the foundation level is designed at 2.5m below the ground level.

2) Superstructure Design

Rigid frame structure with reinforced concrete will be adopted for the new buildings as a general construction method in Myanmar. Masonry concrete block will be used for exterior and interior wall other than bearing walls.

3) Condition of Structure Design

The load and the external force adopted in the Project are set as follows in consideration of the local natural condition, the standard and the building use.

a. Dead Load

It is calculated according to each finishing and construction material used in the Project.

b. Live Load

It is calculated according to Japanese architectural standard and values of live load for main room are as follows.

- Class Room / Laboratory 2,300 N/m²
- Department Room / Office 2,900 N/m²
- Library / Storeroom 7,800 N/m²
- Corridor 3,500 N/m²

c. Seismic Load

It is calculated according to the map of the earthquake zoning in Myanmar.

According to the map, the Project site is located in seismic zone IV (Server Zone) and ground acceleration is 0.3-0.4g.

d. Construction Material

Concrete: Design strength $F_c = 21 \text{ N/mm}^2$

Reinforcing Bar : Yield Strength 345 N/mm^2 , 295 N/mm^2 or equivalent strength reinforcing bar of the above condition in use of local general standard such as ASTM.

(6) Electrical Plan

1) Power Receiving and Transforming Facilities

11kV high voltage line is reaching to Taungoo University which is located 1.4km from the Project site. The Project site will receive the high voltage line by extending the above line to the project site by Myanmar side. Therefore, Power receiving station is assumed to set along south road. As a transformer has proper specification defined by electrical government corporation, the specification shall be considered to meet their instruction.

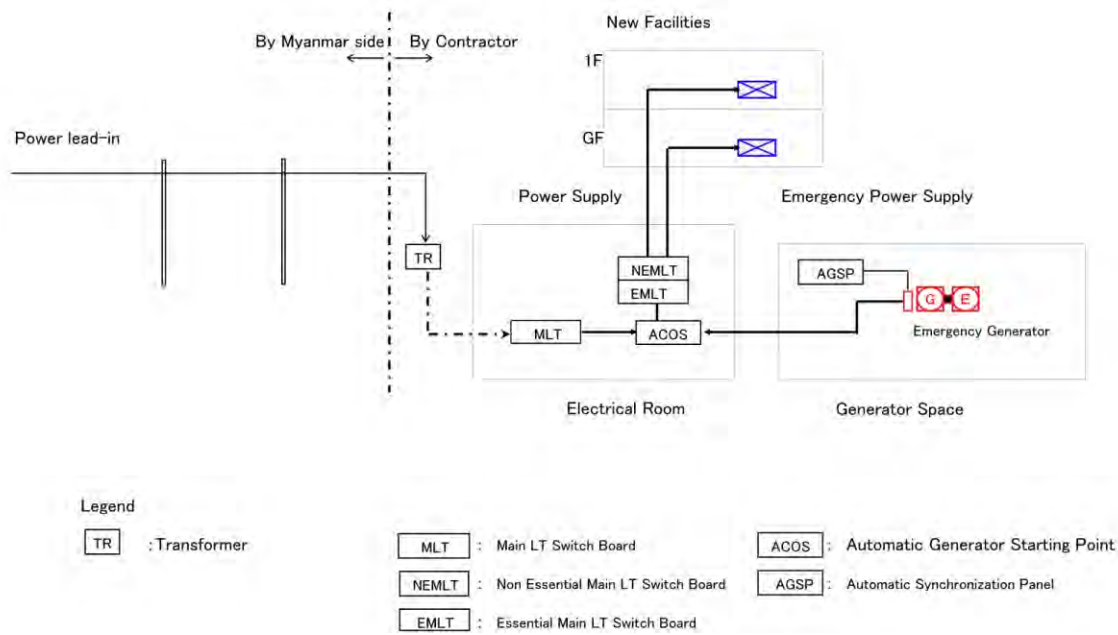


Figure: 2-4 Power Distribution Diagram

2) Power Supply

- **Main Power Supply**

The power is supplied through the underground wiring in the Project site from the panel board to the lighting distribution switchboard and the power control board in the new facilities.

- **Emergency Generator**

In general, power outage occurs a few times in short time in a day. Therefore, emergency generator will be installed to keep the minimum function of the facility and so parts of power supply of the new buildings will be covered by generator circuit.

To reduce influence of noise and exhausted gas into building and surroundings of the site, low-noise generator will be installed.

Table 2-11 Load of Emergency Generator Power Supply

Scope of supply area	Load
Hostels (common area in each floors)	Power outlet
Language Laboratory	Power outlet
Computer Room	Power outlet
Administrative rooms (Administration Office · Principal Room, etc)	Power outlet
Common Equipment	Water supply pump, Public address system

3) Lighting and Power Outlet

A lighting distribution switchboard is to be installed on each floor with an appropriate circuit configuration. Conduit wiring for secondary circuitry will run from the switchboard to the lighting

fixtures and receptacles.

- Lighting

General Lighting : Lighting fixtures mainly using fluorescent lamp are to be selected.

Emergency Lighting : Built-in battery wall-type emergency lighting equipments are installed in necessary rooms and corridors.

- Power Outlet

Receptacles for general use are to be with switches and grounding terminals.

4) Telephone System

The telephones are to be installed in the necessary rooms.

5) LAN System

The outlets of LAN and LAN cables are to be plotted in the necessary rooms. (Server and Switching hub equipments will be installed by Myanmar side.)

6) Public Address System

The public address system is to be installed for general announcement and emergency communication in the facilities. Also, public address system is to be installed in assembly hall. Sound booth to control the system is established at backstage.

7) Fire Alarm System

Manual Fire Alarm System is to be installed by request from local fire department and to secure safety of the facilities having a capacity of 1,000 trainees.

8) Fire Extinguisher

According to instruction of local fire department, Fire Extinguisher is basically to be installed every 15m x 15m.

9) Lightning Protection System

A lightning conductor is to be installed on the roof for lightning protection.

(7) Mechanical Plan

1) Air Conditioning and Ventilation

- Ceiling fans are to be installed in general rooms which are not furnished with air conditioning equipment.
- Package air-conditioner is to be adopted in principal, vice-principal room and computer room for reduction of heat load from computers.
- Mechanical ventilations to be installed in W.C for moisture prevention and keeping hygienic.

2) Sanitary Equipments

Sanitary equipments such as water closet and washing basin are properly to be installed.

3) Water Supply System

As city-water supply line does not reach to the Project site and it will be not enough to secure necessary water amount with only one deep well, two deep well for both Administration and Education zone and Hostel and Dining hall are to be established as water resource.

Gravity water supply system is to be adopted. Well water goes through gravity filtration and retained in reservoir tank. Then, the water is pumped up to elevated tank and finally supplies to each building.

Table 2-12 Estimation of Water Supply Amount

User	Assumption of Number of person	Assumption of water supply amount per unit (liter/person · day)	Assumption of water supply amount per day (m ³ /day)
Hostel (Including Dining Hall)	1000	(180L/ person×0.5)	90 m ³
*Staff houses	180	(180L/ person×0.5)	16 m ³
Sub Total			106 m ³
EC Trainee	1000	(55L/person×0.5)	28 m ³
EC Lecturer/ Tutor	181	(120L/person×0.5)	11 m ³
Practicing School students	760	(55L/person×0.5)	21 m ³
Practicing Teacher	20	(120L/person×0.5)	2 m ³
Sub Total			62 m ³
Total			168 m ³

Note : Assumption of water supply amount per unit (liter/person day) is calculated 50 percent of water supply amount of Japanese standard. The above water supply amount includes for sewage water

*Although staff houses and practicing school are to be scope of Myanmar side construction, capacity of water tank and elevated water tank includes those capacities to supply water as soon as Myanmar side construction is completed.

As a result of well recovery test, it is possible to secure the above amount of necessary water supply. According to the result of water quality test, it is confirmed that water quality meets WHO standard except for iron. Drinking water is to be supplied through simple filtration system.

Water supply systems are to be divided into two lines, the one is for administrating and education facilities, the other one is for hostel and dining hall facilities., gravity filtration systems which is able to maintain the system for long term with low cost, are installed for the both water supply lines. The filtration is expected to effect to reduce iron in the well water by exposing in the air.

Capacity of each water supply lines is as follows.

- Water Supply Line for Hostel and Dining Hall Facilities

Note: Capacity is for 1,000 trainees of all hostels to be built by Japanese and Myanmar side.

Reservoir tank 110m³ (necessary water supply amount per day)

Elevated water tank 15m³ (Approximate 10 % of the above tank)

Deep well pump Pumping discharge 240L/min (satisfying necessary water supply

- amount in a day with 10 hours)
- Lifting pump Pumping discharge 700L/min (3 times of average water supply amount per hour is secured)
- A Water Supply Line for administration and Education Facilities
- Reservoir tank 65m³ (necessary water supply amount per day)
- Elevated water tank 15m³ (Approximate 20 % of the above tank)
- Deep well pump Pumping discharge 240L/min (satisfying necessary water supply amount in a day with 7 hours)
- Lifting pump Pumping discharge 700L/min (3 times of average water supply amount per hour is secured)

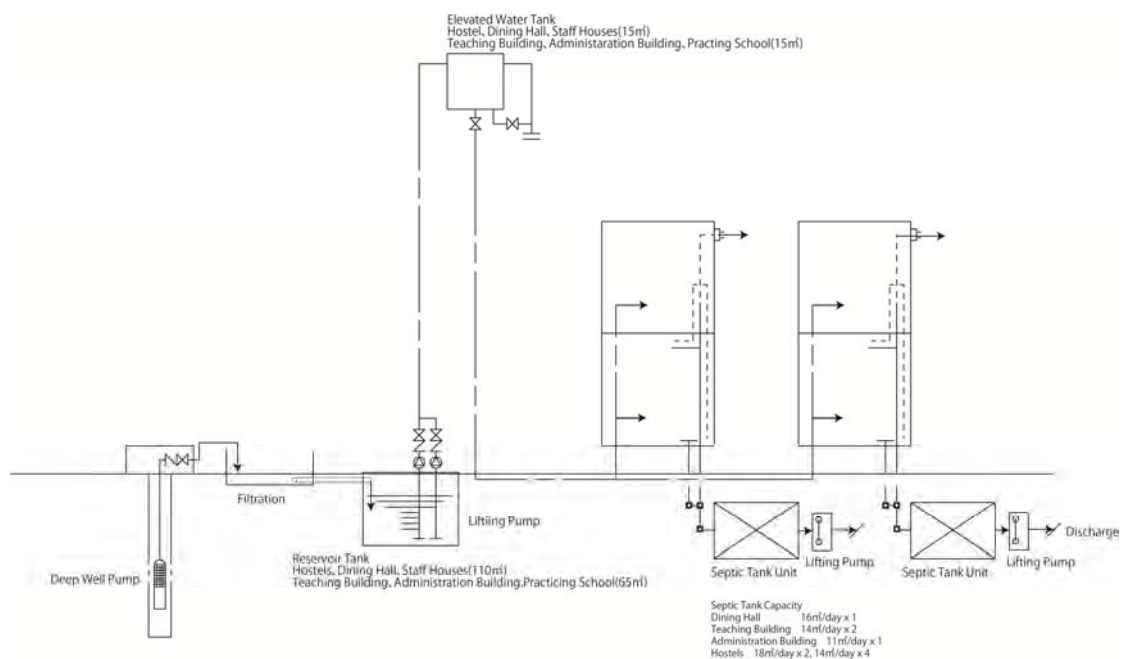


Figure: 2-5 Diagram of Water Supply System

4) Drainage System

The soil condition of the Project site is composed of silt stratum and so that water penetration into the underground cannot be expected. As a consideration for contamination of environment, there is a difficulty to take a local general measure which is to discharge to creeks surrounding the Project site after simple penetration treatment of sewage water.

Therefore, electrolysis septic tank is to be adopted and treatment water will be discharged into the creeks.

Treatment ability of electrolysis septic tank (common in each unit)

Input water quality : BOD200ppm、SS200ppm

Output water quality : less than BOD30ppm、SS50ppm

Table 2-13 Capacity of Treatment in Each Units

Facilities		Treatment Capacity
Administration and Education	Administration Building and Assembly Hall	11 m ³ /day 1unit
	Teaching Building	14 m ³ /day 2units
Hostels		18 m ³ /day 2units, 14 m ³ /day 4units
Dining hall		16 m ³ /day 1unit

Based on use amount of reagent mentioned in standard equipment list defined by DEPT, it is judged that the use amount of reagent in laboratories is a little amount and discharged to general sewerage line by diluting the reagent with water is appropriate measure.

(8) Construction Material Plan

1) Basic Policy

- a. It is encouraged to use local procured material as much as possible to reduce construction cost and period of construction.
- b. Considering the climate, it is encouraged to use weather resistant and easy maintain material to reduce running cost of the facilities.

2) Materials

a. Structure Materials

The new buildings are to be constructed in combination of reinforced concrete rigidframe and concrete block masonry walls which are widely adopted in the local construction method as well as existing buildings. Steel truss is to be adopted for roof structure.

b. Materials of Exterior Finish

The main exterior finish materials are as follows.

Table 2-14 Main Materials of Exterior Finish

Part	Material	Remark
Exterior wall	Paint	Common in local
Pitched Roof	Corrugated metal roof	Common in local
Flat Roof	Membrane water proofing, water proof mortal, water proof paint	Durability and water proof
Exterior Windows	Aluminum anodized	Durability and water proof

c. Materials of Interior Finish

The main exterior finish materials are as follows.

Table 2-15 Materials of Interior Finish

■Teaching Building

Room Name	Follow	Wall	Ceiling	Remark
Class Room	Dust proof paint on moral screening	Paint	Acoustic Board	Durable/ Easy to clean
Laboratories	Dust proof paint on moral screening	Paint	Acoustic Board	Durable/ Easy to clean
Industry Art Room	Dust proof paint on moral screening	Paint	Acoustic Board	Durable/ Easy to clean
Domestic Science Room	Dust proof paint on moral screening	Paint	Acoustic Board	Durable/ Easy to clean
Art Room	Wood Flooring	Paint	Acoustic Board	Sound insulation
Music Room	Wood Flooring	Paint	Acoustic Board	Sound insulation
Language Laboratory	Wood Flooring	Paint	Acoustic Board	Sound insulation
Audio Visual Room	Wood Flooring	Paint	Acoustic Board	Sound insulation
Computer Room	Wood Flooring	Paint	Acoustic Board	Sound insulation
Department Room	Dust proof paint on moral screening	Paint	Acoustic Board	Durable/ Easy to clean

■Administration Building (Including Assembly Hall)

Room Name	Floor	Wall	Ceiling	Remark
Principal and Vice Principal Room	Wood Flooring	Paint	Acoustic Board	Sound insulation
Library	Dust proof paint on moral screening, Tiles	Paint	Acoustic Board	Durable/ Easy to clean
Administration Office	Dust proof paint on moral screening	Paint	Acoustic Board	Durable/ Easy to clean
Care Room	Dust proof paint on moral screening	Paint	Acoustic Board	Durable/ Easy to clean
Meeting Room	Wood Flooring	Paint	Acoustic Board	Sound insulation
Head of Department Room	Wood Flooring	Paint	Acoustic Board	Durable/ Easy to clean
Department Room	Dust proof paint on moral screening	Paint	Acoustic Board	Durable/ Easy to clean
Assembly Hall	Wood Flooring	Acoustic Board , Paint	Acoustic Board	Sound insulation

■Dining Hall

Room Name	Floor	Wall	Ceiling	Remark
Dining Hall	Dust proof paint on moral screening, Tiles	Paint	Plaster Board, Paint	Durable/ Easy to clean
Kitchen	Dust proof paint on moral screening	Paint	Paint	Durable/ Easy to clean

■Hostel

Room Name	Floor	Wall	Ceiling	Remark
Bed Rooms and House Master Rooms	Dust proof paint on moral screening	Paint	(GF) Paint (1F) Plaster Board, Paint	Durable/ Easy to clean

Room Name	Floor	Wall	Ceiling	Remark
Study Room	Dust proof paint on moral screening	Paint	(GF) Paint (1F) Plaster Board, Paint	Durable/ Easy to clean
Prayer Space	Dust proof paint on moral screening , Tiles	Paint	Plaster Board, Paint	Durable/ Easy to clean

■ Common Area

Room Name	Floor	Wall	Ceiling	Remark
Corridor	Dust proof paint on moral screening , Tiles	Paint	(GF) Paint (1F) Plaster Board, Paint,	Durable/ Easy to clean
W.C	Dust proof paint on moral screening	Tiles+ Paint	(GF) Paint (1F) Water Proofing Board, Paint	Durable/ Easy to clean

(9) Educational Furniture Plan

Necessary educational furniture for the facilities constructed by the Japanese assistance is to be selected in accordance with the following policies.

- a. Necessary furniture is planned for operation and management of TEC.
- b. Quantity of furniture is planned according to number of trainees and lecturer/tutors.
- c. Desks and chairs for class rooms are planned basically to procure wooden made in Myanmar for easy repair.

1) Overview of educational furniture

The following is the overview of necessary furniture for TEC.

Table2-16 Summary of Necessary Furniture for TEC

Room Name	Necessary furniture
Principal/Vice Principal Room	Desk, Chair, Wooden Shelf, Book Shelf.
Head of Department Room	Desk, Chair
Department Room	Desk, Chair, Wooden Shelf, Book Shelf
Administration Office	Desk, Chair, Wooden Shelf, Book Shelf
Print Room	Table, Book Shelf , Wood Shelf
Assembly Hall	Approx. 800 pcs. allowing storing chair. Assembly hall use both of assembly and gymnasium
Library	Book Shelf, Magazine Rack, Library Card Cabinet, Reading Desk and Chair
Care Room	Chair, Wooden Shelf, Bed
Dining Hall	Dining Table, Chair
Kitchen	SUS Cooking Table, Rack, Pipe Rack
Hostel Bedroom	A Bed and Bedside Cabinet for Each Trainee
Class Room	Desk, Chair, Black Board, Teaching Platform
Laboratory (4 Rooms)	Lab Table 6pcs. (Material of top board: heat resistance) and Chair 50pcs. for each Lab., Wooden Shelf, Black Board, Teaching Platform
Music Room	Teaching Platform, Black Board etc. without Desk/Chair for student same as current situation
Art Room	Teaching Platform, Black Board, Desk, Chair,
Computer Room	Black Board, Teaching Platform, Table, Chair 50pcs for student
Industrial Art Room	Teaching Platform, Desk, Chair 50pcs, Work Table 6pcs.

Room Name	Necessary furniture
Domestic Science Room	Teaching Platform, Desk , Chair, Table, Wooden Shelf
Storage	Pipe Rack
Audio Visual Room	Teaching Platform, Desk, Chair 50pcs
Language Laboratory	LL Booth for 50 trainees, Chair, Black Board, Teaching Platform
Meeting Room	Table, Chair
Physical Education Storage	Wooden Shelf for Equipment

2) List of educational furniture

The following is the list of necessary furniture for TEC.

Table2-17 List of Planned Furniture for TEC

Subject/Room	Name	Quantity
Principal/Vice Principal/Head of Department	Desk A	5
Head of Department/Department Office	Desk B	74
Principal /Vice Principal /Class Room /Laboratory /Industrial Arts /Domestic Science /Computer /Audio Visual /Dept. Office/Library/Admin. Office/Care Room	Desk C	53
Class Room/Art /Computer /Audio Visual	Desk (Class Room Type)	1,150
Class Room/Laboratory/Industrial Arts /Domestic Science /Computer /Audio Visual /Print Room /Study (Hostel)	Table 1	173
Vice Principal /Head of Department /Meeting(Small) /Meeting(Large) /Entrance(Hostel)/Prayer Space(Hostel)	Table 2	58
Entrance (Hostel) /Prayer Space (Hostel)	Table 3	2
Laboratory	Lab Table	24
Dining	Dining Table	63
Industrial Arts /Domestic Science	Work Table	16
Principal /Vice Principal /Head of Department	Chair A	5
Principal /Vice Principal /Head of Department/Class Room /Laboratory/ Industrial Arts /Domestic Science /Music /Fine Art / Language Laboratory/Computer /Audio Visual /Dept. Office/ Library/ Admin. Office/Care Room	Chair B	126
Vice Principal /Head of Department / Meeting (Small) /Meeting (Large)	Chair C	70
Assembly Hall	Chair D	828
Class Room/Fine Art /Language Laboratory/ Computer /Audio Visual /Library /Care Room /Study (Hostel)	Chair E	1,483
Dining	Chair (Dining)	504
Laboratory	Laboratory Chair	300
Principal	Sofa Set	1
Storage/Admin. Office/ Head of Department/ Dept. Office	Shelf 1 (with Door)	27
Dept. Office /Bathroom (Hostel)	Shelf 2 (without Door)	37
Principal /Vice Principal /Head of Department /Laboratory /Storage /Care Room	Shelf 3 (Large, with Glass Door)	46
Principal /Vice Principal /Head of Department /Audio Visual / Meeting (Small) / Meeting (Large) /Admin. Office	White Board	9
Storage	Book Shelf 2 (with Glass Door)	97
Principal /Dept. Office/ Admin. Office /Care Room /Print Room / Laboratory/ Industrial Arts /Domestic Science /Music / Fine Art /Computer	Book Shelf 1 (Small, without Door)	83
Dept. Office /Admin. Office	Book Shelf 2 (Large, without Door)	63
Library/Print Room	Book Shelf 3 (without Door)	50
Library	Magazine Rack	1
Library	Library Card Cabinet	2
Class Room /Laboratory /Language Laboratory /	Black Board	30

Subject/Room	Name	Quantity
Computer		
Class Room /Laboratory /Language Laboratory /Computer /Audio Visual	Teaching Platform	31
Language Laboratory	Desk for LL Main Unit	1
Language Laboratory	Side Desk for LL Main Unit	1
Language Laboratory	LL Booth for 50 Trainees	25
Care Room /Bedroom /Housemaster Room (Hostel)	Bed	1,018
Bedroom (Hostel)	Bedside Cabinet	1,000
Kitchen	SS Table 1 (Small)	19
Kitchen	Pipe Rack (Large)	7
Care Room	Chair	3

2-2-2-3 Equipment Plan

(1) Overall plan

Necessary equipment for TEC is planned in accordance with the following condition.

1) Criteria for equipment selection

- a. Equipment which is consistent with “the standard lists of the equipment” in kind and quantity
- b. Equipment which is necessary to operate current curriculum for TEC
- c. Equipment which is necessary for preparation of teaching material and research of teaching method improvement
- d. Equipment which is a basic and manual operation model in principal
- e. Equipment which is same grade as the existing ones used in ECs currently.

2) Criteria for quantity selection

The quantity is calculated based on “the standard lists of the equipment” and applied with 50 trainees per a class. In case that there is any existing equipment which can be used continuously and functionally, the quantity is calculated including quantity of the existing equipment.

The quantity is planned by the following policy.

- a. General educational equipment (printing machine, color printer etc.): minimum quantity necessary for TEC operation.
- b. Equipment for laboratory: core equipment is planned one unit for each laboratory table. (Six laboratory tables are planned in each laboratory.)
- c. One video camera and digital camera are planned for preparation of video teaching material and research of teaching method.

(2) Equipment plan

The following list is an outline of planned equipment for each subject and department, based on “the standard lists of the equipment” and existing equipment.

Table2-18 Major Educational Equipment by Subjects

Subject	Major Equipment
General Science	Compass, Prism Set, Spring Balance Set, Measuring Cylinder Set, Flask Set, Funnel Set, Burette Set, Rubber Stopper Set, Troughs (Glass), Alcohol Lamp Set, Delivery Tube, Test-tube Set, Stand Set, Rubber Tube, Goggle, Glove Set, Globe, Beaker Set, Spatula, Mirror & Lens Set, Hand Lens (Magnifier), Optical Bench, Balance Set, Stereo Inclined Microscope, Basins (Evaporating), Retort, Iron Filling, Hygrometer (Universal), Solar System Model: Main equipment is planned 1 unit per table.
Physics	Spring Set, Optical Bench, Balance Set, Digital Balance, Meter Ruler, Thermometer, Electric Experiment Set, Potentiometer Set, Micrometer, Magnet Set, Protractor, Stand with Pulley, Specific heat Set, Resonance Column Set, Calculator, Sonometer, Hydrometer, Multimeter : Main equipment is planned 1 unit per table.
Biology	Compound Microscope, Staining Set with Plain Slides, Dissecting Set: Main equipment is planned 1 unit per table.
Chemistry	Pipette set, Beaker Set, Beaker Tong, Stand Set etc.: Main equipment is planned 1 unit per table.
Geography	Compass with Cover, Globe: Main equipment is planned 1 unit per table.
Physical Education	Soccer Goal Net (pair), Whistle, Table Tennis Racket Set, Starting Block, Shot Put, Discus, Javelin, Goal Ring for Basketball Game (Pair), Chess Set, Chest Expander, Waist Rotate Machine, Tape Measure: Based on the ratio of “the standard lists of the equipment”, 5, 13, or 17 pcs. are planned by kinds of sport.
Domestic Science	Kitchen Set, Sawing Set : planned 1 set for 1 table
Fine Art	Compass, Scissors for Painting Arts, Model (Geometrical), Color Slide, Brush Set for Painting Arts, Board Set, Drawing Model Set: planned 1unit per person for individual use and 1 unit per class for a class use.
Agriculture	Grafting and Gardening Set: planned 1 set for 1 table
Music	Xylophone with Stand, CD Player: The number of necessary Xylophone with Stand is planned depend on ratio of “the standard lists of the equipment” and the existing quantity.
Industrial Arts	Drawing Board with Fixed T-square, Mathematical Instrument Box, Plug and Socket Set, Lamp and Bulb Set, Basic Electrical Writing Set, Voltmeter, Starter, Paper Cutter, Paper Needles, Scissors for Industrial Arts, Stapler with Clip, Awl, Clay Work & Cane Bamboo Work Set, Woodworking Set: At present TEC does not have Industrial Arts equipment because of the female college, thus planned 1unit per person for individual use and 1 unit per class for a class use.
Language Laboratory	50 units LL for 1 class and 1 unit for a lecturer/tutor are planned.
Audio Visual	EVD Player, Projector Set, Video Camera, Digital Camera: One set is planned for Model EC in order to prepare multimedia educational method.
Computer	Laptop Computer of 50 units for 1 class, One Desktop Computer for lecturer /tutor: projector and printer are planned in order to give lecture by showing images on screen.
Principal Room	One Laptop Computer for operation and management.
Vice Principal Room	FAX, Printing Machine (Automatic), Mimeograph: each one set is planned for correspondence and print of teaching materials and examination papers.
Department Office	2 sets of Myanmar Typewriter are planned for correspondence document to student and others..
Administration Office	One Laptop Computer is planned for management.
Head of Department	One computer for each Head of Department is planned for preparation of teaching materials (3 sets).
Assembly Hall	Large Wall Clock is planned.

(3) Planned Equipment

Table2-19 Planned Equipment List for EC

Subject/Room Name	Description	Quantity
General Science	Compass	6
Geography	Compass with Cover	50
General Science/Physics	Prism Set	6
General Science	Spring Balance Set	6
Physics	Spring Set	6
General Science	Measuring Cylinder Set	1
General Science/Chemistry	Flask Set	1
General Science/Chemistry	Funnel Set	1
General Science/Chemistry	Burette Set	1
Chemistry/ Physics	Pipette Set	1
General Science/Chemistry/ Physics	Rubber Stopper Set	2
Chemistry	Beaker Tong	6
General Science	Troughs (Glass)	12
General Science/Physics/Chemistry	Alcohol Lamp Set	1
General Science/Chemistry	Delivery Tube	6
General Science/Physics/Chemistry	Test Tube Set	1
General Science/Chemistry	Stand Set	1
General Science/Chemistry	Rubber Tube	12
General Science	Goggle	6
General Science/Physics	Glove Set	6
General Science/Geography	Globe	6
General Science/Chemistry	Beaker Set	1
General Science	Spatula	6
General Science	Mirror & Lens Set	1
General Science	Hand Lens (Magnifier)	6
General Science/Physics	Optical Bench	6
General Science/Chemistry /Geography/Physics	Balance Set	1
Physics	Digital Balance	6
General Science/Physics	Meter Ruler	6
General Science/Physics/Chemistry	Thermometer (-5- 100 degree)	6
Physics	Potentiometer Set	1
General Science	Stereo Inclined Microscope	6
Biology	Compound Microscope	4
General Science	Basins (Evaporating)	6
General Science/Physics/Chemistry	Retort	6
General Science/Physics	Electric Experiment Set	1
Physics	Micrometer	6
Physics/Geography	Magnet Set	1
General Science	Iron Filling	6
General Science	Hygrometer (Universal)	6
General Science	Solar System Model	6
Physics	Protractor	6
Physics	Stand with Pulley	6
Physics	Specific Heat Set	1
Physics/General Science	Resonance Column Set	6
Physics	Calculator	6
Physics	Sonometer	1
Physics	Hydrometer	2
Physics	MultiMate	4
Biology	Staining Set with Plain Slides	6
Biology	Dissecting Set	4
Assembly Hall	Wall Clock	1

Subject/Room Name	Description	Quantity
Physical Education	Soccer Goal Net (Pair)	1
Physical Education	Whistle	2
Physical Education	Table Tennis Racket Set	9
Physical Education	Starting Block	4
Physical Education	Shot Put(Male)	4
Physical Education	Discus(Male)	3
Physical Education	Javelin(Male)	3
Physical Education	Goal Ring for Basketball Game (Pair)	1
Physical Education	Chess Set	2
Physical Education	Chest Expander	3
Physical Education	Waist Rotate Machine	1
Physical Education	Tape Measure	1
Domestic Science	Kitchen Set	1
Domestic Science	Sawing Set	1
Fine Art	Compass	50
Fine Art	Scissors for Painting Arts	50
Fine Art	Model (Geometrical)	1
Fine Art	Color Slide	1
Fine Art	Brush Set for Painting Arts	6
Fine Art	Board Set	10
Fine Art	Drawing Model Set	1
Agriculture	Grafting and Gardening Set	1
Music	Xylophones with Stand	3
Music	CD Player	1
Industrial Arts	Drawing Board with Fixed T-square	50
Industrial Arts	Mathematical Instrument Box	50
Industrial Arts	Plug and Socket Set	1
Industrial Arts	Lamp and Bulb Set	1
Industrial Arts	Basic Electrical Writing Set	1
Industrial Arts	Pliers Set	1
Industrial Arts	Voltmeter	6
Industrial Arts	Starter	6
Industrial Arts	Paper Cutter	1
Industrial Arts	Paper Needles	10
Industrial Arts	Scissors for Industrial Arts	6
Industrial Arts	Stapler with Clip	6
Industrial Arts	Awl	25
Industrial Arts	Clay Work & Cane Bamboo Work Set	1
Industrial Arts	Woodworking Set	1
Language Laboratory	LL Set for 50 Trainees and 1 Lecturer/Tutor	1
Audio Visual Room	EVD Player	7
Computer Room	Desktop Computer (with MS Office)	1
Principal /Vice Principal /Head of Department /Dept. Office / Admin. Office / Computer Room	Laptop Computer (with MS Office)	64
Computer Room	TV Set	1
Computer Room	Printer(Color Inkjet)	1
Computer Room	Printer(Laser B&W)Set	1
Computer Room	Scanner	1
Audio Visual Room	Projector Set	2
Audio Visual Room	Video Camera	1
Audio Visual Room	Digital Camera	1
Vice Principal	FAX	1
Vice Principal	Printing Machine (Automatic)	1
Vice Principal	Mimeograph	1
Dept. Office	Myanmar Typewriter	2

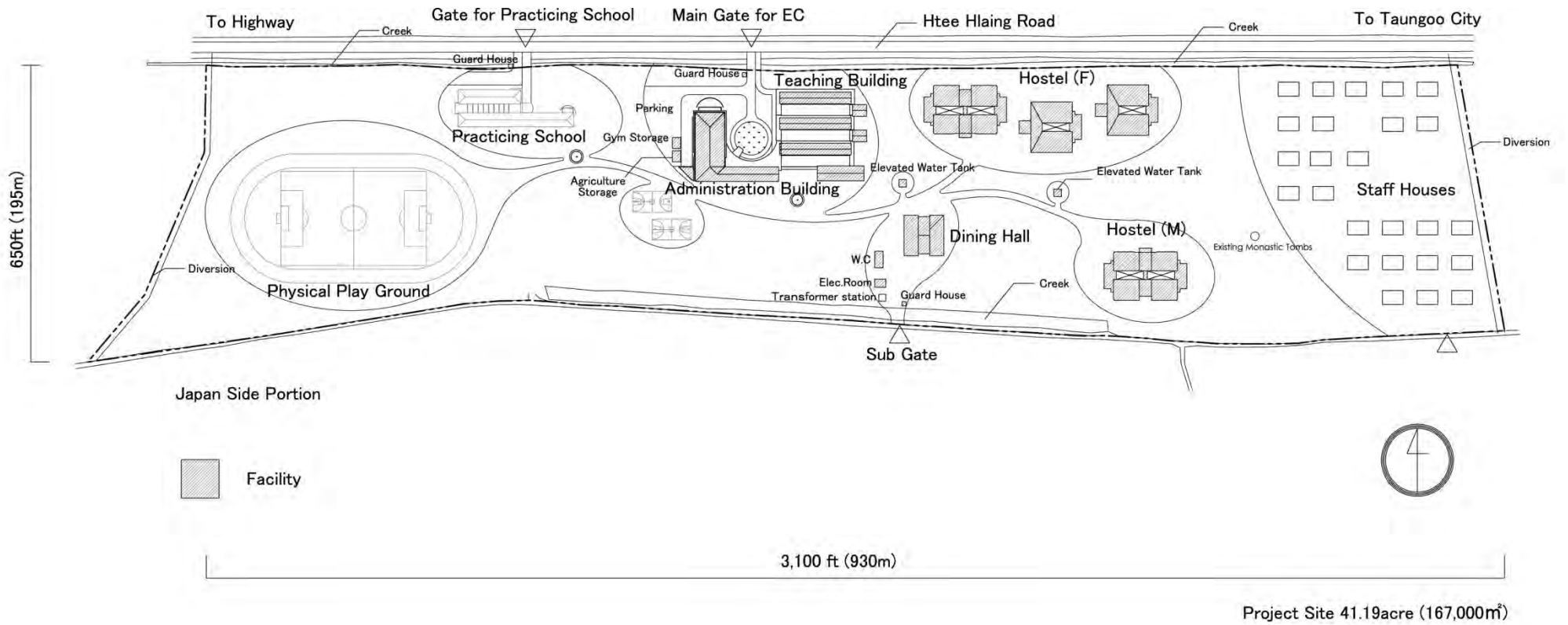
Subject/Room Name	Description	Quantity
Industrial Arts	Iron with an Ironing Board	11
Industrial Arts	Vice Bench	6
Physics	Simple Pendulum Set	1
Audio Visual Room	Multimedia Instrument Set for Editing Teaching Materials	1
Language Laboratory/Computer Room	Router (computing)	2

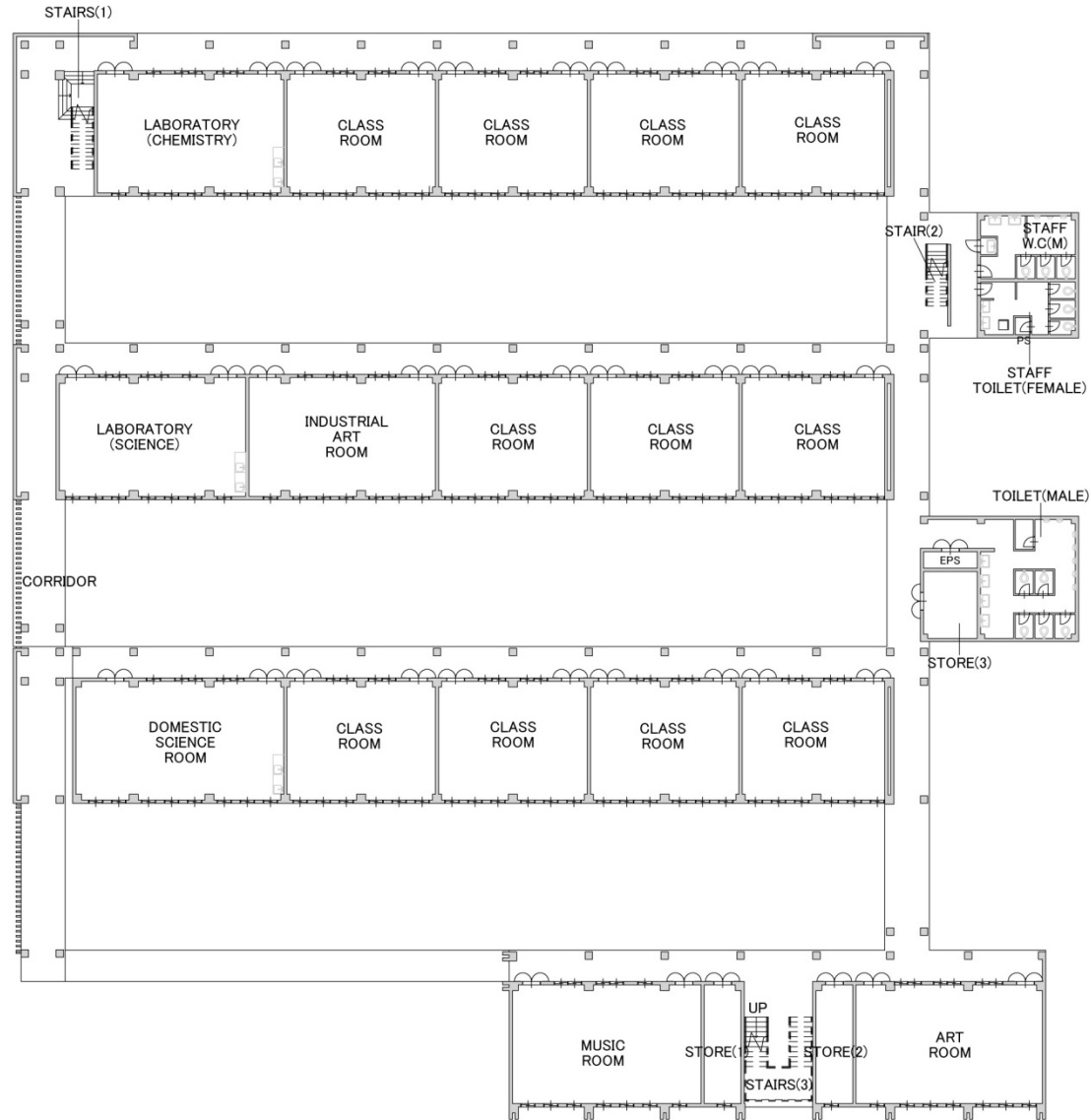
2-2-3 Outline Design Drawing

1. Site Plan

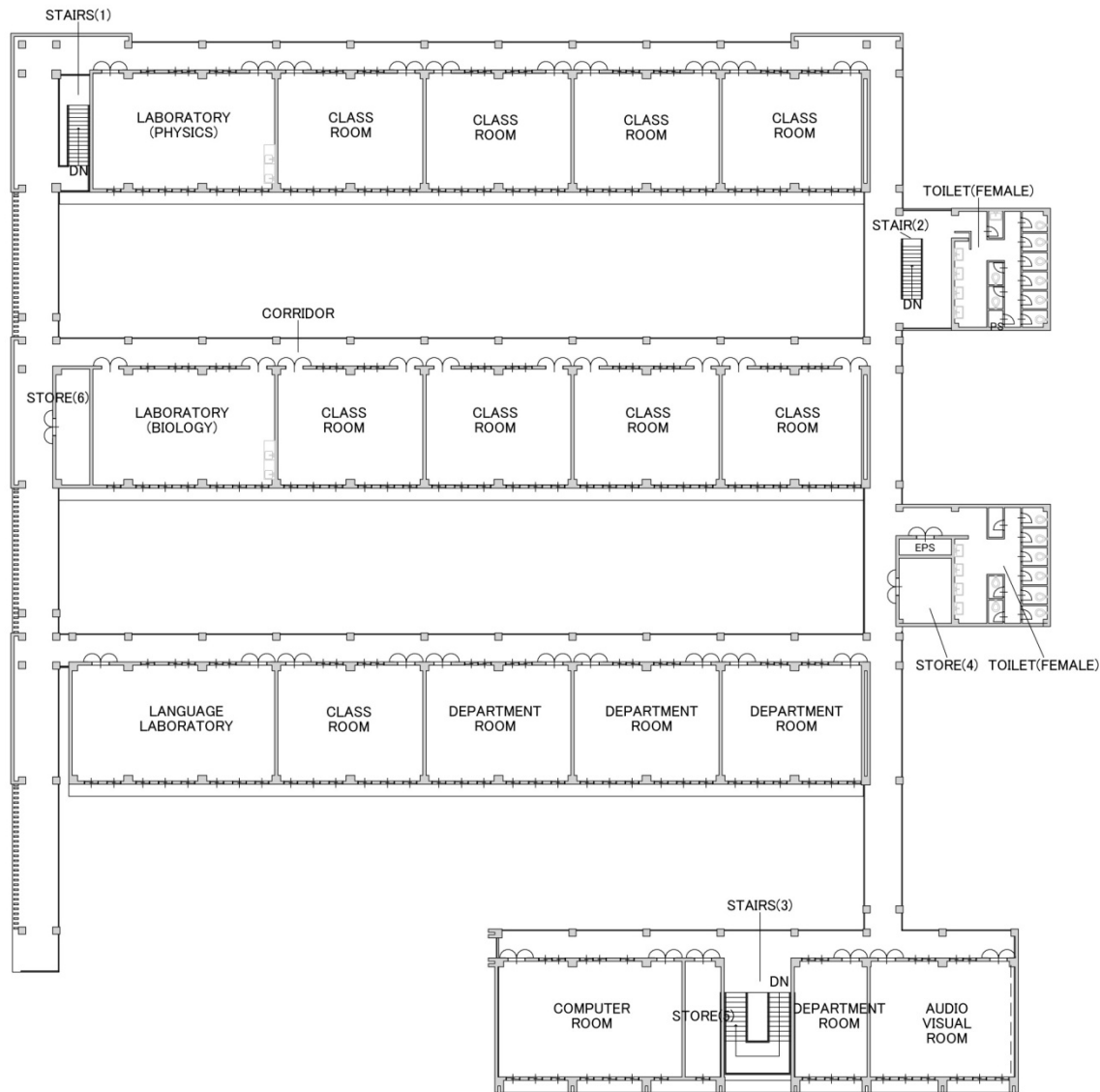
Facility Plan

2. Teaching Building GFL Plan
3. Teaching Building 1FL Plan
4. Teaching Building Roof Plan
5. Teaching Building Elevation
6. Teaching Building Section
7. Administration Building GFL Plan
8. Administration Building 1FL Plan
9. Administration Building Roof Plan
10. Administration Building Elevation
11. Administration Building Section
12. Dining Hall GFL Plan
13. Dining Hall Roof Plan
14. Dining Hall Elevation
15. Dining Hall Section
16. Hostel GFL Plan
17. Hostel 1FL Plan
18. Hostel Roof Plan
19. Hostel Elevation
20. Hostel Section
21. Practicing School GFL Plan
22. Practicing School 1FL Plan
23. Practicing School Roof Plan
24. Practicing School Elevation
25. Practicing School Section

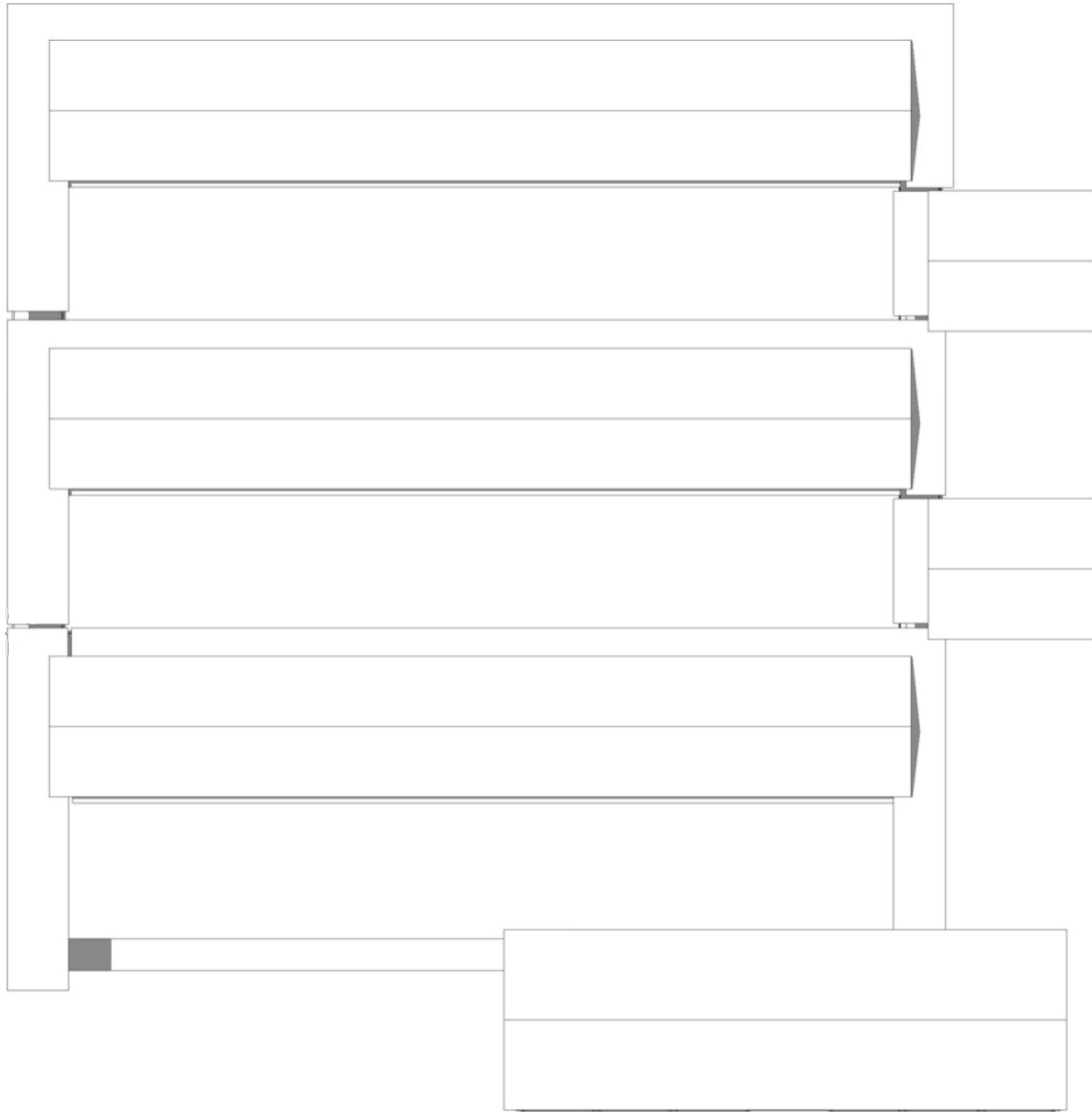


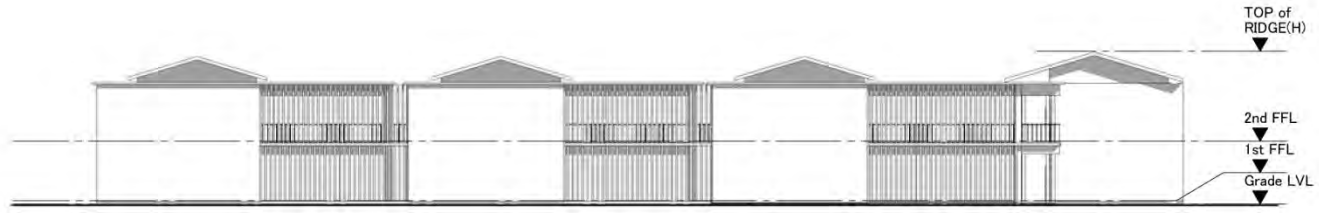


Teaching Building GFL Plan



Teaching Building 1FL Plan





West Elevation



East Elevation

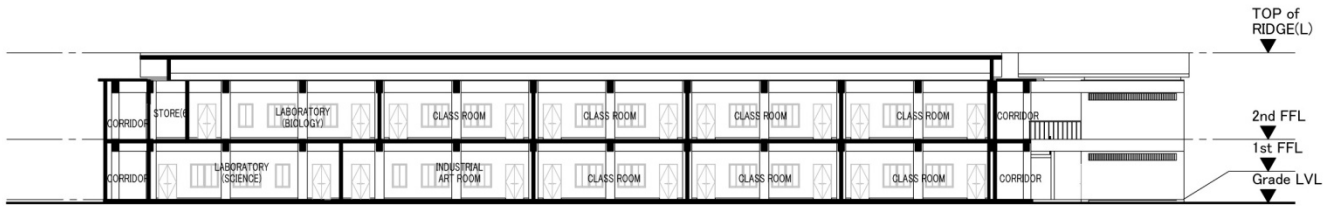
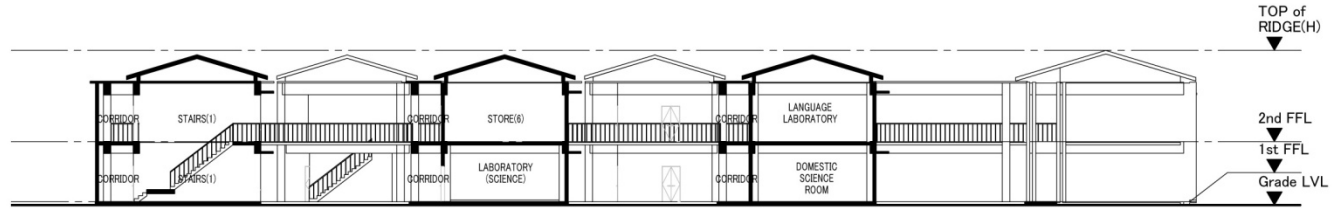


South Elevation



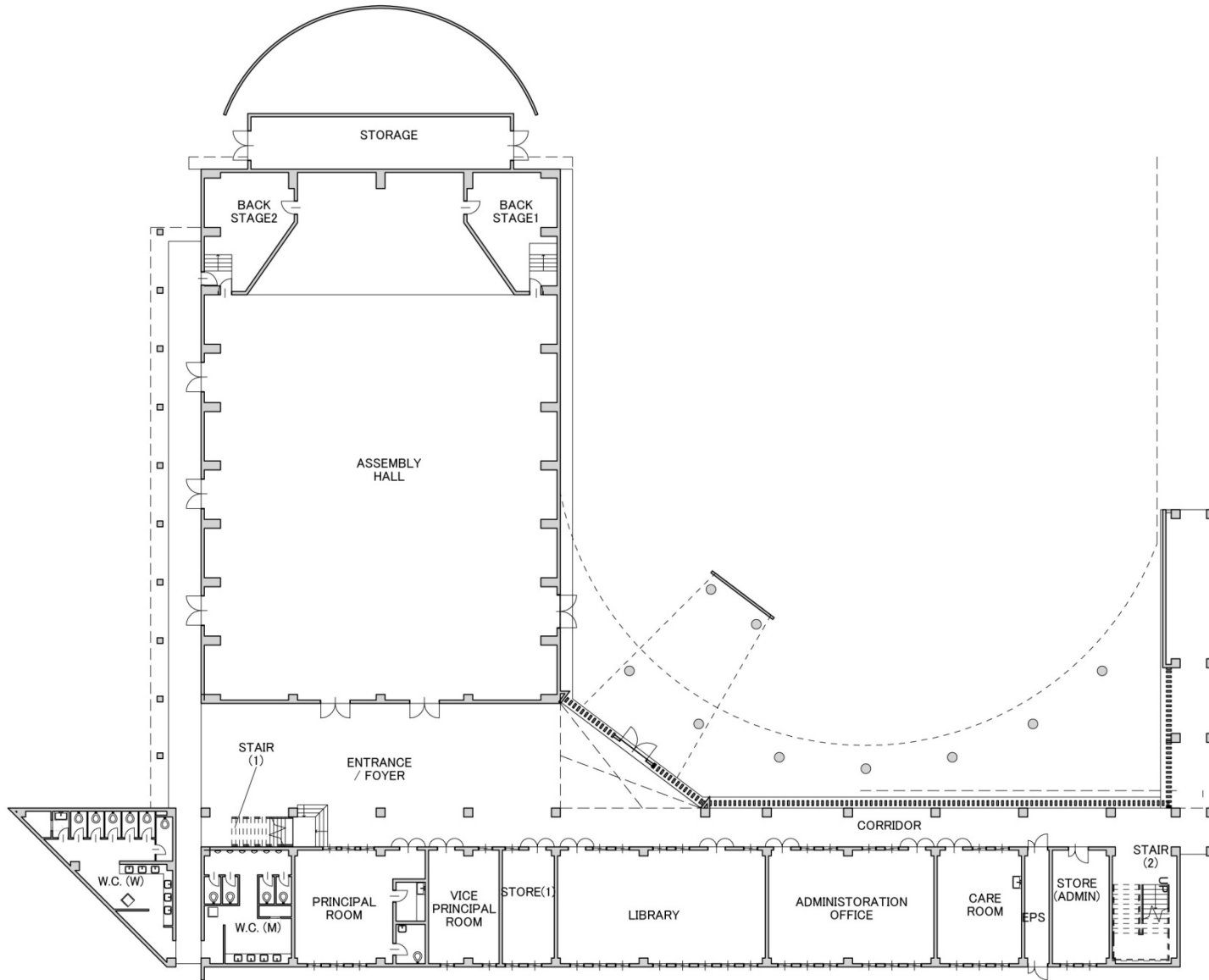
North Elevation

Teaching Building Elevation

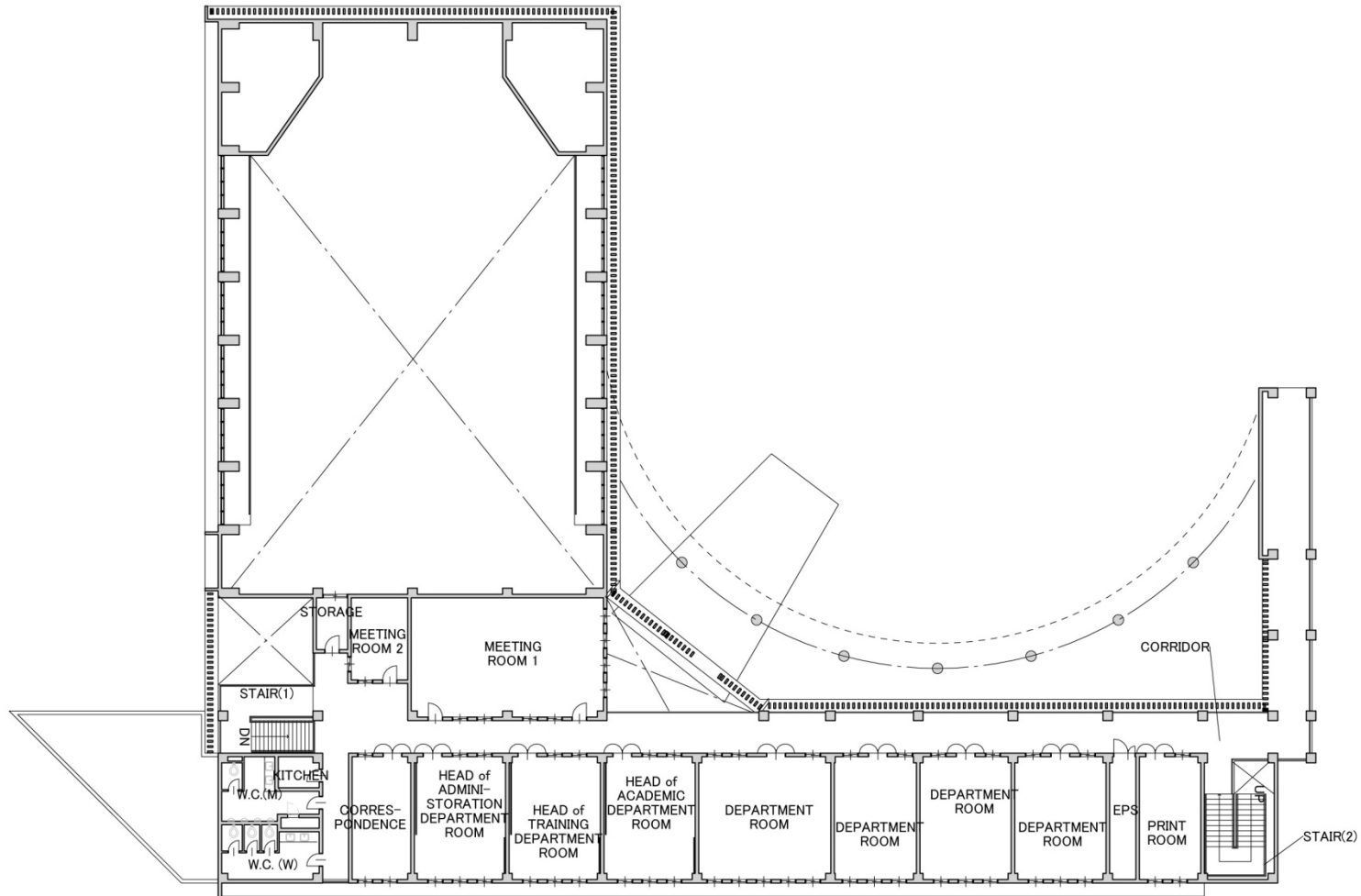


Teaching Building Section

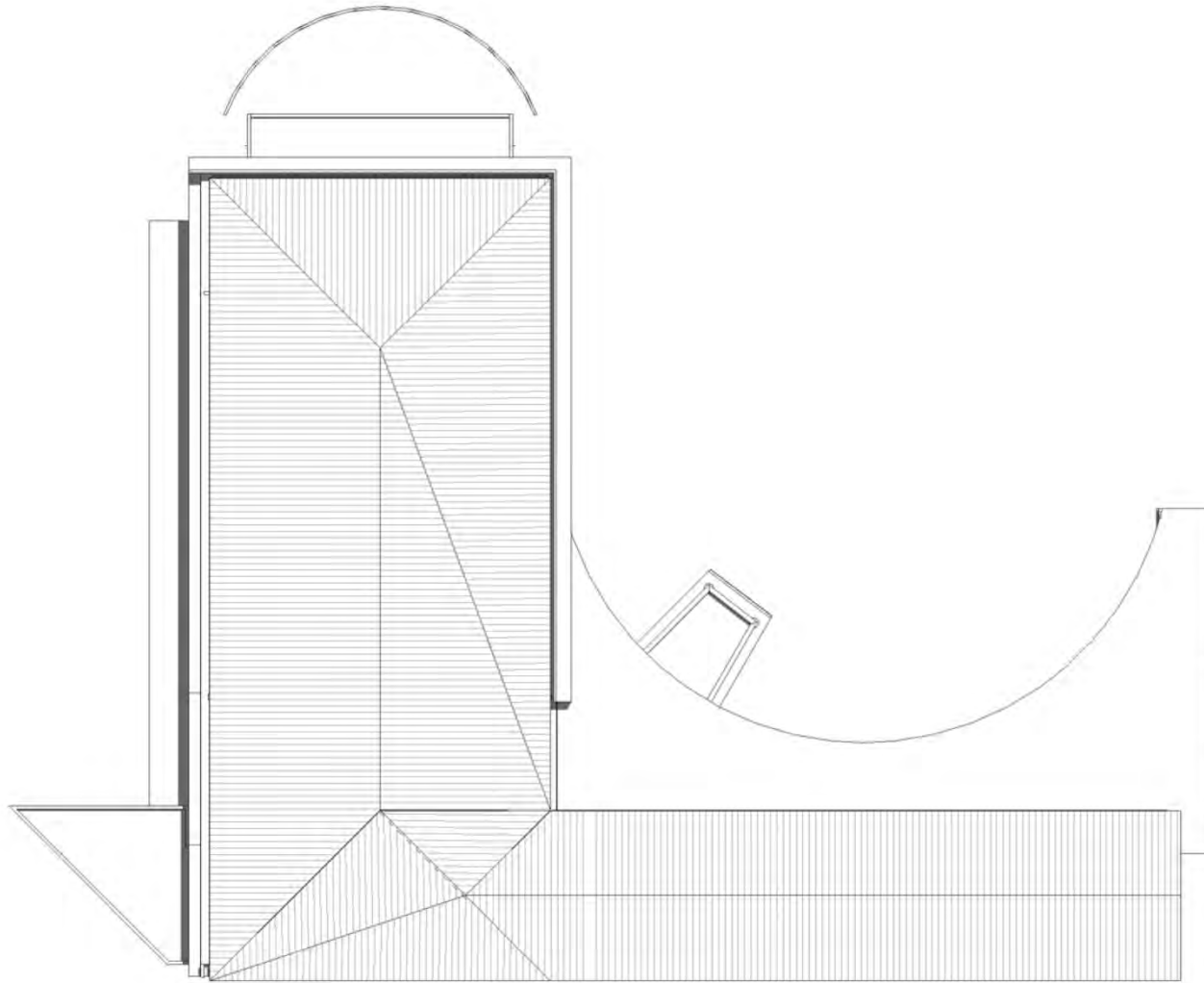
the Project for Improvement of Education College in the Republic of the Union of Myanmar



Administration Building GFL Plan



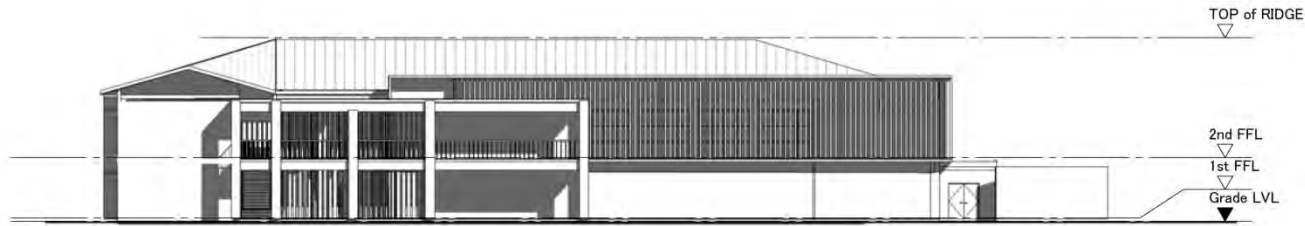
Administration Building 1FL Plan



Administration Building Roof Plan



West Elevation



East Elevation

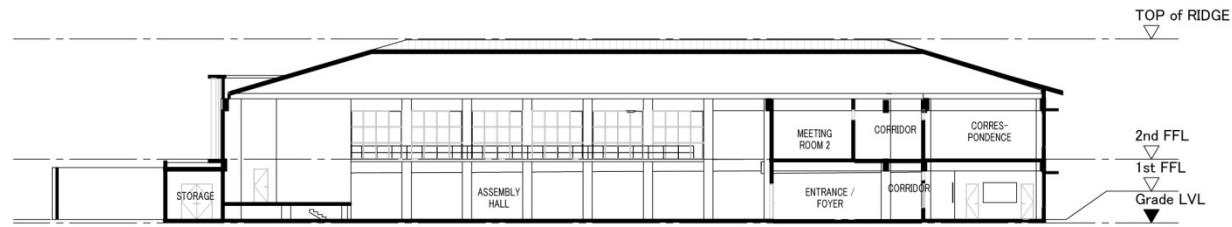
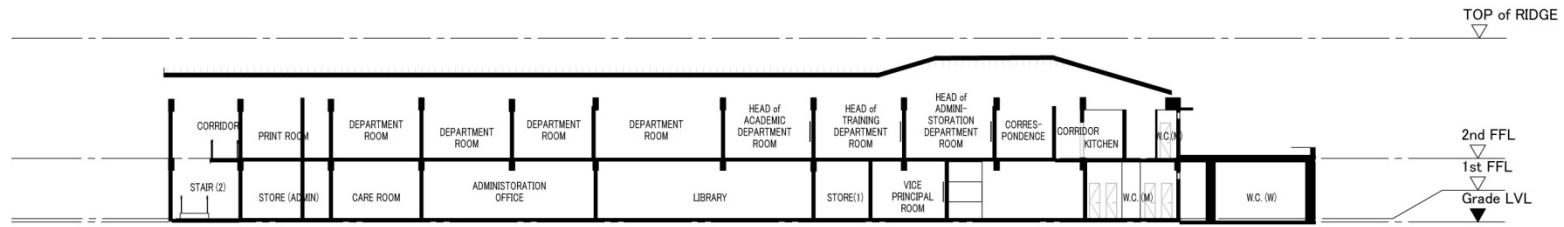
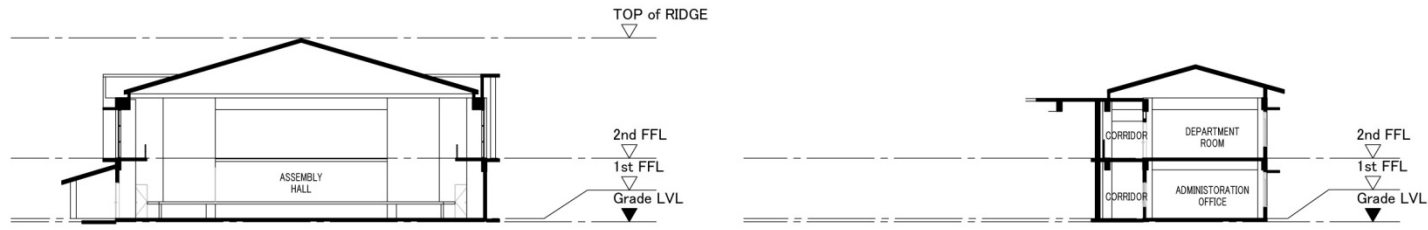


South Elevation



North Elevation

Administration Building Elevation

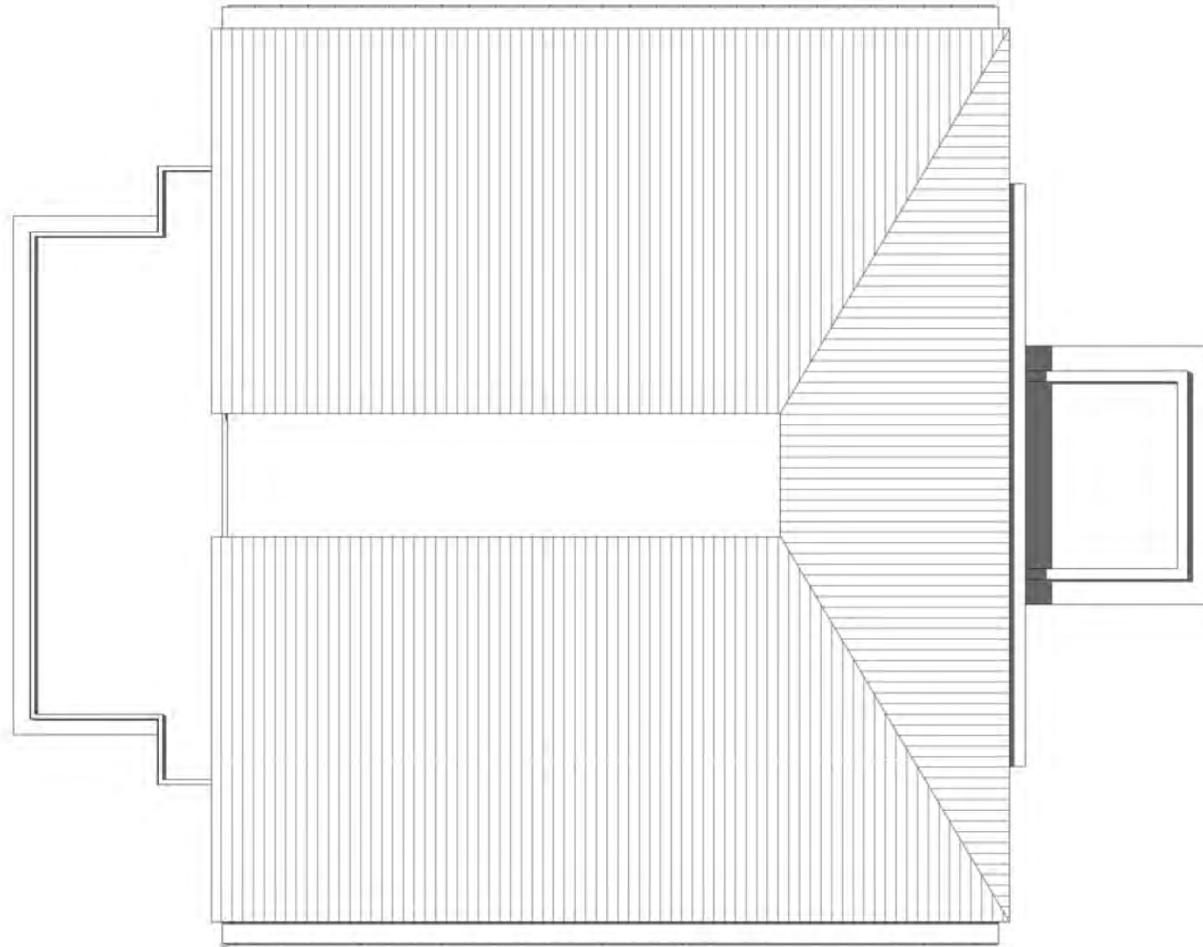


Administration Building Section



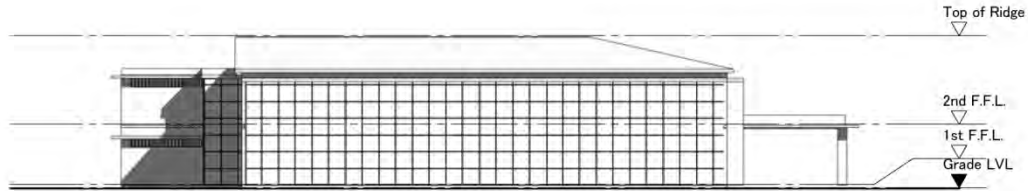


Hostel A 1FL Plan

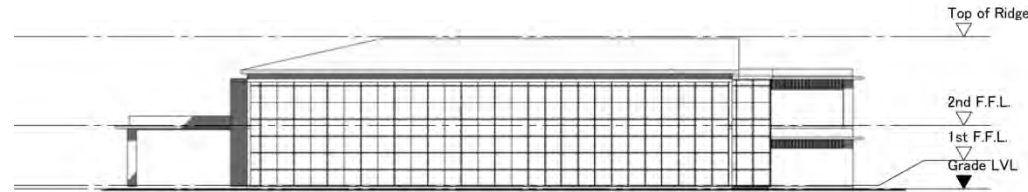


Hostel A Roof Plan

Elevation 1



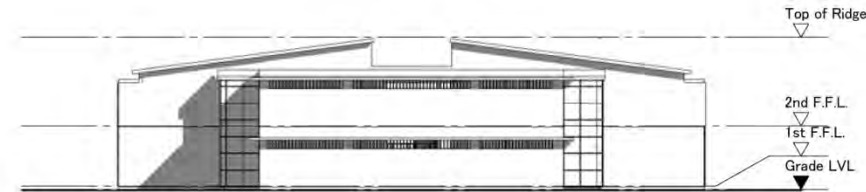
Elevation 2



Elevation 3

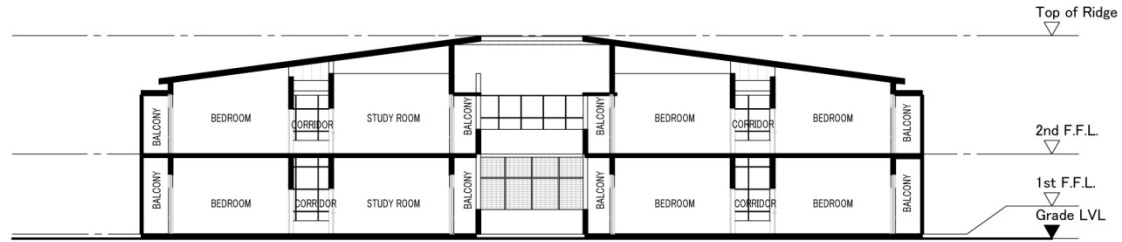


Elevation 4

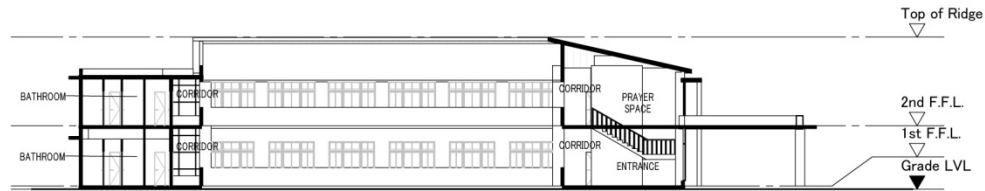


Hostel A Elevation

Section 1

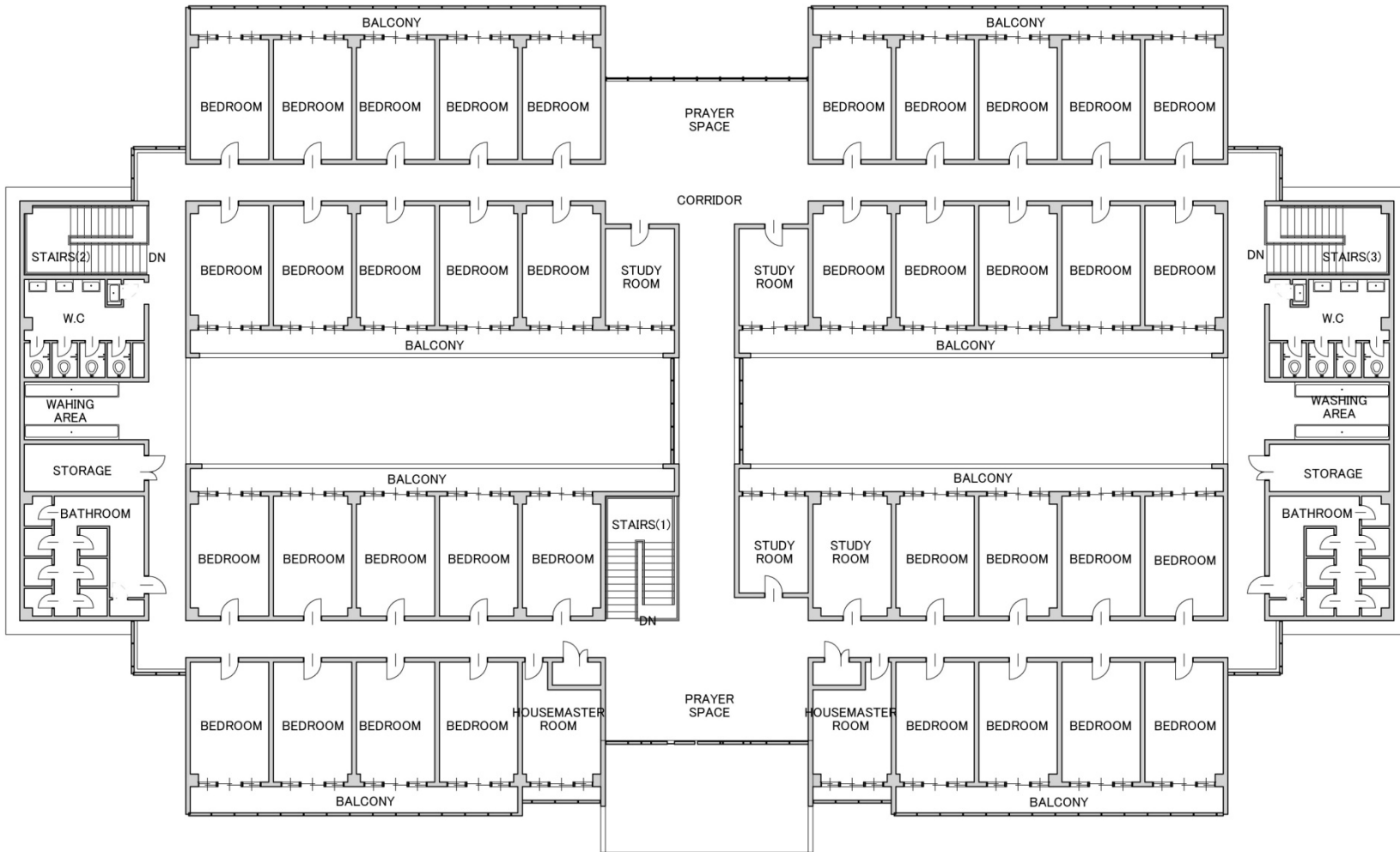


Section 2

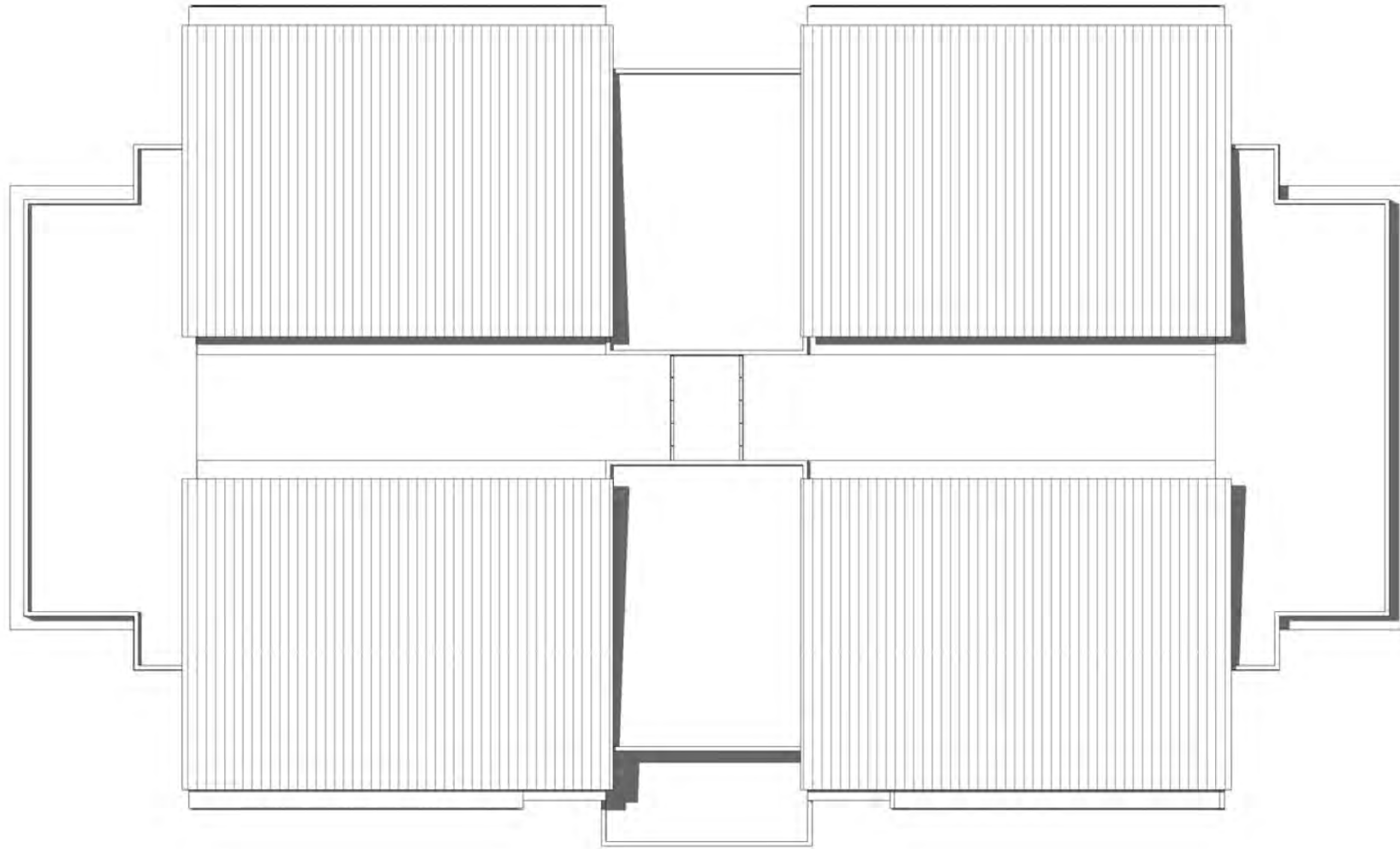


Hostel A Section





Hostel B 1FL Plan

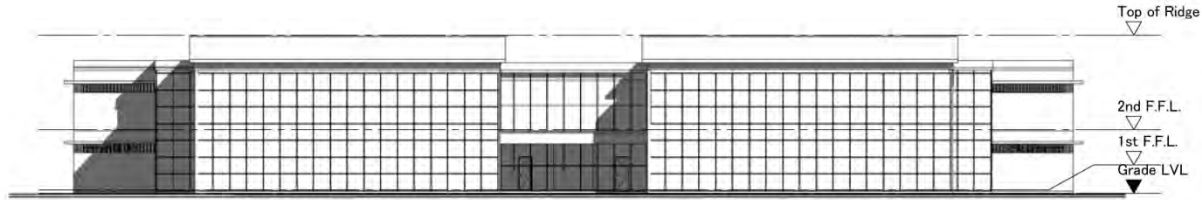


Hostel B Roof Plan

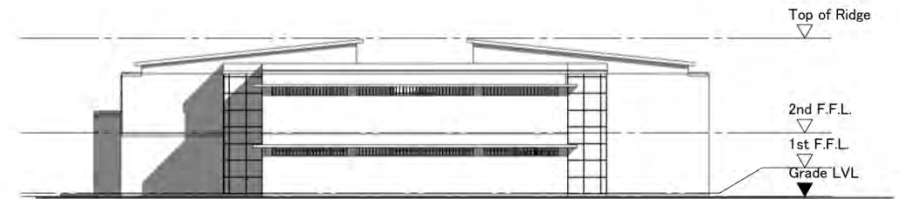
Elevation 1



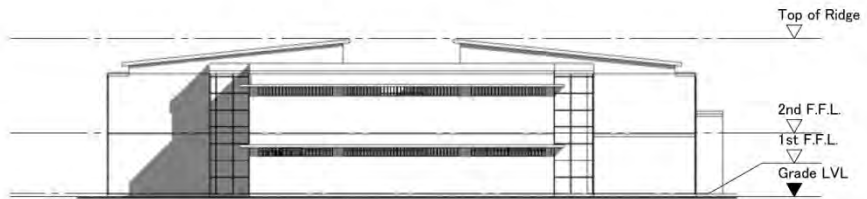
Elevation 2



Elevation 3

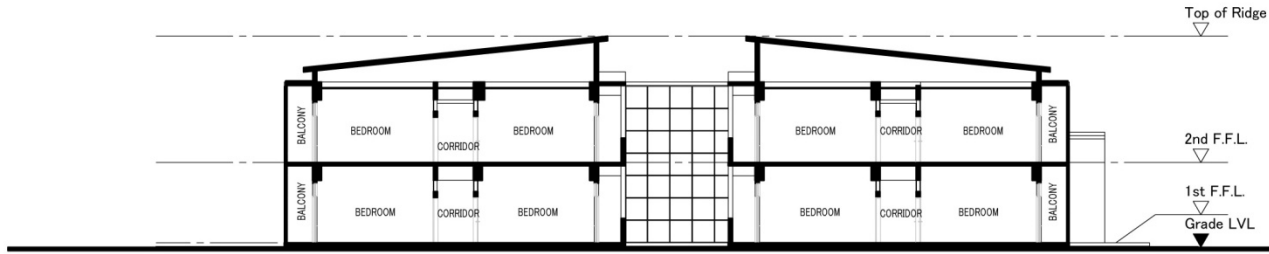


Elevation 4



Hostel B Elevation

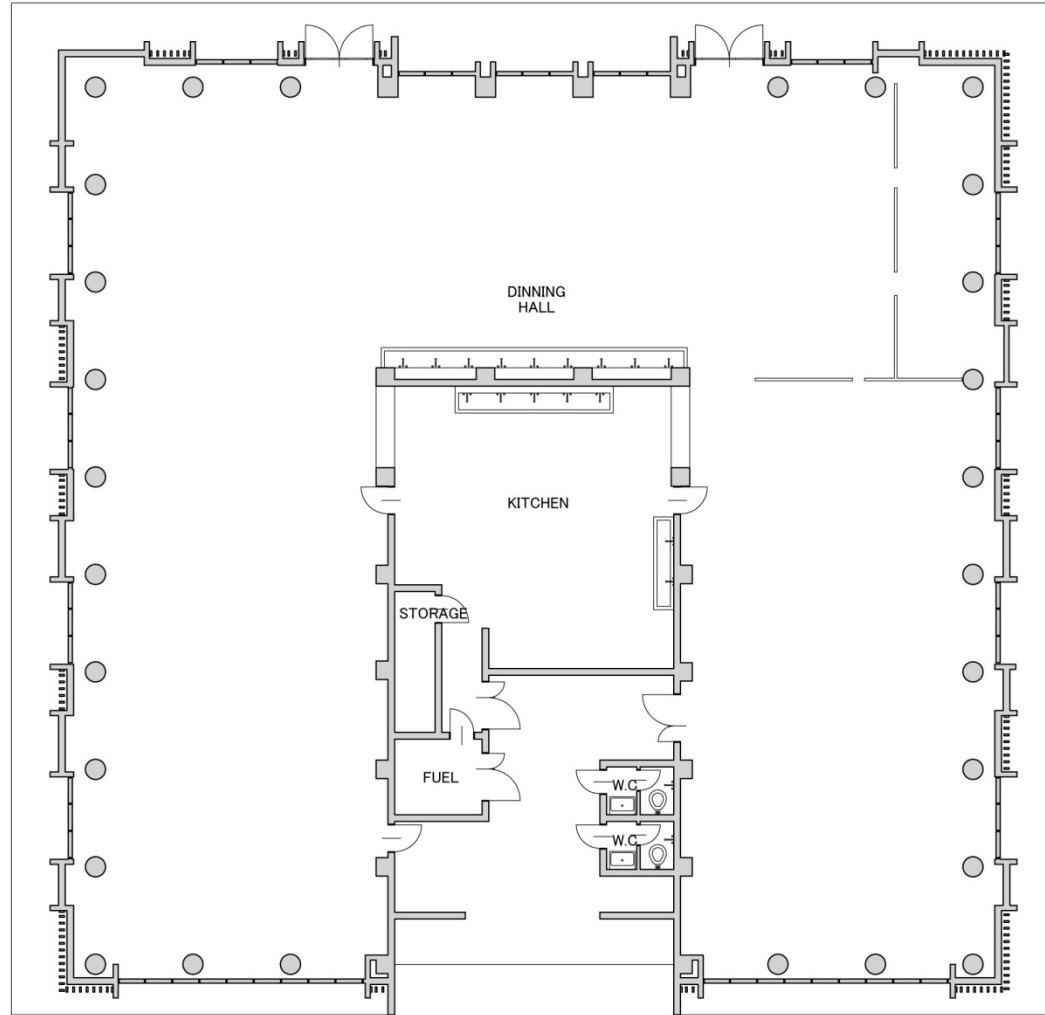
Section 1



Section 2



Hostel B Section



Dining Hall GFL Plan

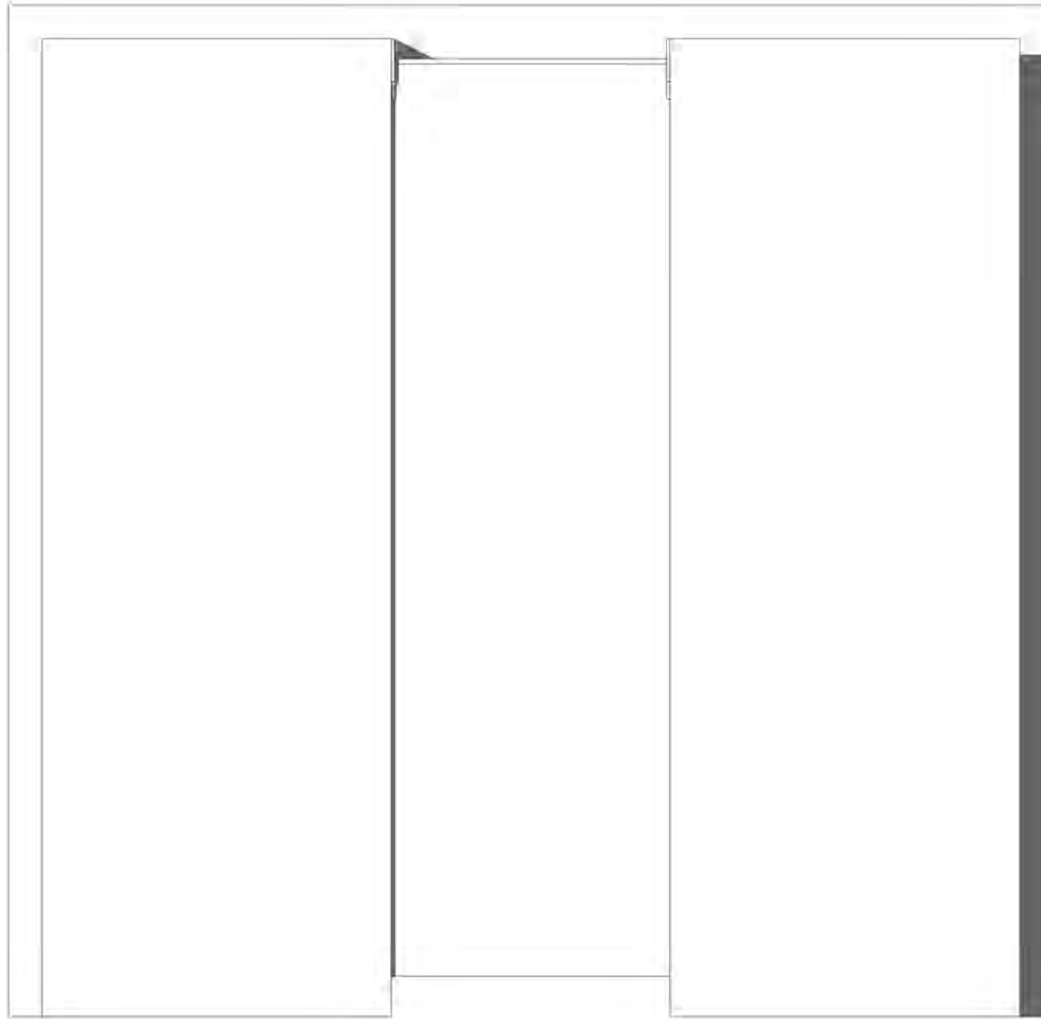
Section 1



Section 2



Dining Hall Section



North Elevation



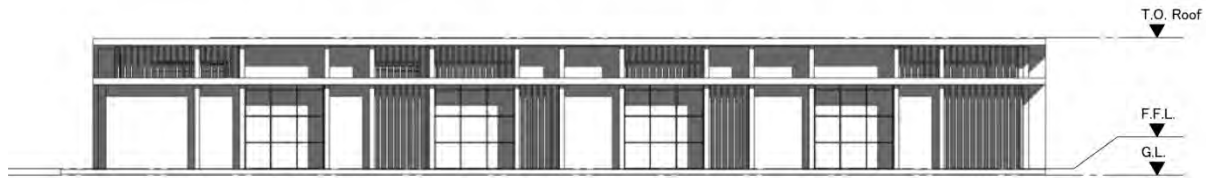
South Elevation



East Elevation



West Elevation



Dining Hall Elevation

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The Project consists of construction works of educational facilities and procurement and installation of educational equipment, which is to be carried out in accordance with Japan's Grant Aid Scheme.

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be signed between the Government of Japan (GOJ) and the Government of Myanmar (GOM) to make a pledge for assistance, which is followed by the conclusion of the Grant Agreement (hereinafter referred to as "the G/A") between JICA and the GOM to define the necessary articles to implement the Project, such as payment conditions, responsibility of the GOM, and procurement conditions. After the signing of the G/A, the GOM will conclude a consulting services agreement for the Project with the consultant in Japan which conducted the Survey, and the consultant will start the detailed design and preparation of tender documents for the Project. Upon completion of tender documents, tender procedure will take place for selection of a construction contractor and an equipment supplier, who are Japanese juridical persons. The respective contractors will execute construction of facilities and procurement and installation of equipment.

The Agreement with the consultant and the contracts with the construction contractor and the equipment supplier are to verify by JICA in order to fulfill accountability to Japanese tax payers.

After the commencement of construction works, a construction supervision organization is to formulate by the MOE, consultant and contractors.

(1) Implementing Organization

The responsible organization of the GOM for the Project is the MOE, who will be a signatory of agreements and contracts. The DEPT and a Principal of TEC, who is going to make use of the facilities/equipment, are to be in charge of overall coordination of the Project.

(2) Consultant

After the signing of the E/N and the G/A, the MOE will conclude a consulting services agreement for detailed design and supervision of the Project with a consultant in Japan and obtain verification of JICA in accordance with Japan's Grand Aid Scheme. The consultant will prepare detailed design documents and tender documents based on the Preparatory Survey Report (hereinafter referred to as "the Report"), and obtain consent of the MOE.

In implementing tenders and construction works, the consultant is to assist tendering procedure of facilities and to supervise the construction works based on the tender documents. Also in the equipment works, the consultant is to assist tendering procedure and supervise procurement, installation and operation training based on the tender documents.

1) Detailed Design

The services are to design facilities in detail and to review equipment plan based on the Report, and prepare tender documents including drawings, specifications, instructions to tenderers, draft of contracts and cost estimation for construction works and equipment works.

2) Assistance of Tendering

The services are to assist tendering by the implementing agency to select a construction contractor and an equipment supplier and conclude the contracts, and to assist reporting the result to the GOM and JICA.

3) Supervision

The services are to confirm whether or not the construction contractor and the equipment supplier are carrying out their respective works in accordance with the provision of the relevant contracts, respectively, and to ensure that the contracted obligations are properly fulfilled. In addition, the consultant is to give the construction contractor and the equipment supplier instructions and advices and to coordinate their works for smooth implementation of the Project from the standpoint of fairness. Details of supervision services are as follows,

- Examining and confirming implementation plan, shop drawings, specifications of equipment and the other relevant documents submitted by the contractor and the supplier.
- Examining and confirming quality and performance of construction materials, equipment and furniture delivered.
- Examining building equipment and educational equipment for delivery, installation and instruction for operation.
- Observing and reporting the progress of the construction works and the equipment works
- On-site witnessing the handover facilities and the installed equipment

In addition to the services mentioned above, the consultant is to report the progress of the Project, procedure of payment, handover the facilities and equipment etc.

(3) The Construction Contractor and the Equipment Supplier

The construction contractor and the equipment supplier are to be selected by the open tender intended for Japanese firms. The MOE will conclude a construction works contract and the equipment works contract separately with the lowest tenderer, as a general rule of the Japan's Grand Aid Scheme. The construction contractor and the equipment supplier are to construct facilities, procure and install equipment and provide operation training of equipment to the Myanmar side in accordance with each contract. The equipment supplier is to submit the MOE a contact address list of manufacturers and local agents of supplied equipment to order spare part and consumables supply and operation training

for a fee after handing over.

(4) Local Consultants and Local Construction Companies

The supervisor(s) of the Japanese consultant will hire local consultant(s) as supervision assistant. Local construction contractors are expected to work on the Project as subcontractors of the Japanese construction contractor.

2-2-4-2 Implementation Conditions

(1) Construction Conditions

The overall construction conditions in Myanmar are described as follows,

- Many contractors of Yangon and Mandalay have substantial technical capabilities to work on the Project as subcontractors of the Japanese construction contractor.
- Most of construction materials are imported from Thailand and China etc. and those materials are also widely available in the local markets.
- Reinforced-concrete rigid frame structure with concrete-block walls is becoming popular in urban areas.
- Necessary skilled workers can be recruited in Myanmar.

(2) Points to be Considered on Construction Works

1) Schedule Control

The schedule of construction works will be influenced by rain and rain water for five months during the rainy season from May to September. In order to complete the Project on schedule, it is required to secure flood less temporary work area and road, and temporary discharge water system for rain and underground water during foundation works and external works. Japanese construction contractor is to prepare the above temporary works and construction schedule in consideration of the above-mentioned constraint, and have regular meetings with relevant agencies of the GOM and consultants in order to control the implementation schedule and complete the Project on schedule.

2) Security Control

By providing limited number of gates for the Project site and enclosing the site with temporary fences, the construction contractor will control vehicles and workers coming into and out the site for the safety of neighborhood and traffic. In addition, Myanmar side will set up two diversions at east and west end of the site instead of existing two roads in the Project site.

3) Burglary Prevention of Construction Materials

Security guards for burglary prevention of construction materials are to work for watch around the clock, taking turns, for site in consultation with the DEPT, TEC, consultant and contractor.

(3) Points to be Considered on Procurement of Equipment

Items of equipment which has difficulty to interface with construction works will not be included. However, it is necessary to contact closely with construction contractor and equipment supplier for smooth delivery and installation.

2-2-4-3 Scope of Works

The Project will be implemented through bilateral cooperation between the GOM and the GOJ. In case that the Project is implemented under Japan's Grant Aid Scheme, the works borne by each government are as the followings,

(1) Works Borne by the Grant Aid from the GOJ

Consulting services, construction of facilities and procurement and installation of equipment as the followings are borne by the GOJ.

1) Consulting Services

- Preparation of detailed design documents and tender documents of the facilities/ equipment
- Assistance for selection and contracting with a construction contractor and an equipment supplier
- Supervision of construction of facilities, and procurement, installation and initial operation and maintenance training of equipment.

2) Construction of Facilities and Procurement and Installation of Equipment

- Construction of the facilities
- Procurement, transportation to the Project site and installation of construction materials, furniture and equipment
- Trial operations and adjustment of equipment
- Explanation and initial training of operation and maintenance of equipment

(2) Works Borne by the GOM

1) Works are to complete before construction commencement by Japanese side

a) To secure the Project site

The MOE has acquired 41.19 acre of farmland as the project site and has paid some of compensation and the rest is unpaid. Thus, the MOE plans to obtain the budget for the unpaid compensation and the refund budget for paid compensation to Welfare Fund of the MOE.

b) To bank soil at building sites and its surroundings and three access roads, and back filling of irrigation channel

For preventing inundation of buildings is to bank soil to raise the existing ground level of the

building sites and surrounding area, and bank soil for three access roads construction and back fill soil into irrigation channel for land preparation.

- c) To set up two diversions at east and west end of the Project site

Neighborhood has used the existing two pathways in project site, thus, two diversions are to set up at east and west end of the project site.

- d) To obtain a building permit

Obtaining a construction permit requires inspection of design drawings by the MOE and inspection of structural drawings by the MOC with approximately two months.

- 2) Works are to complete before construction completion by Japanese side

- a) To lead electric power line to the Project site

Electric power line with 11kV is to lead from Taungoo University to the project site approximately 1.4km length.

- b) To construct a fence enclosing the Project site and gates

- c) To construct a practicing school and staff houses, etc. including equipment and furniture, which are not constructed by the Grant Aid from the GOJ

- 3) Necessary cost from consultant agreement to relocation to new TEC

- a) Cost related to Banking Arrangement (B/A), Authorization to Pay (A/P) and Payment Charge for consultant, construction contractor and equipment supplier

- b) Cost for relocation to new TEC after construction completion

Table2-20 Works Borne by the GOM and Implementation Schedule

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
E/N			▲	▲																										
G/A			▲	▲																										
Consultant Agreement																														
Detail Design, Tender and Contract																														
Construction																														
Equipment Procurement																														
Works Done by MOE																														
Building Permit																														
1) Land acquisition compensation																														
2) Banking soil at building sites, its surroundings																														
Banking soil at three access roads																														
Back fill of irrigation channel																														
Set up two diversions																														
3) Leading electric power line to the Project site																														
4) Construction of fence enclosing the Project site and gates																														
5) Construction of practicing school, staff houses, etc																														
6) Commissions (A/P, payment) and others (including relocation)																														

E/N: Exchange of Notes G/A: Grant Agreement

2-2-4-4 Consultant Supervision

(1) Supervision Policy

In accordance with the Japan’s Grant Aid Scheme, the consultant is to form a project team to ensure smooth implementation of the Project from detailed design to construction supervision based on the Report. The principles for supervision of construction works and equipment works are as the followings.

- To keep close contacts with the officials in charge of the Project of both governments to ensure completion of construction of the facilities and procurement/installation of the equipment without delay
- To give prompt and proper instructions and advices with justice to the construction contractor, the equipment supplier and other concerned parties.
- To give proper advices on the initial training for operation and maintenance of the facility and the equipment at the time of handover. To confirm the completion of construction works and equipment works in compliance with contents of the contract, to witness handover of the facility and the equipment, and to conclude the consulting services by obtaining the MOE’s consent.

(2) Supervision Plan

In view of many types and a large floor area of buildings of the Project, the consultant will dispatch qualified engineer(s) and local engineer(s) to the Project site, while dispatch the following engineers to the Project site as needed from time to time.

- Chief Consultant : Overall supervision
- Architectural Design : Explanation of design intent, check of shop drawings and material specifications
- Structural Design : Check of bearing capacity of soil and structural materials
- Mechanical Design : Explanation of design intent, midterm and final inspection of plumbing works and air conditioning works
- Electrical Design : Explanation of design intent, midterm and final inspection of electrical works
- Furniture Planning: Check of production drawings and inspection of products
- Equipment Planning: Instruction of equipment installation, coordination with construction works, witness of numerical examination, initial operation and maintenance training, and check of operation and maintenance manuals, etc.

(3) Construction Supervision by the Construction Contractor

In order to complete construction of the facilities within the scheduled period in conformity with the contract documents, the construction contractor needs to have a capability to execute the construction works with appropriate technic and management. Moreover, the construction contractor needs to send resident supervisor(s) at the Project site in order to complete the Project in the required quality.

(4) Equipment Installation Works

- Installation, trial operation, quantity inspection and instruction of equipment operation
- Preparation of a list of the points of major equipment which are causing failure/trouble, and handover the list to the MOE

2-2-4-5 Quality Control Plan

There is no concrete batcher plant in Taungoo. However, the building scale is large and the required concrete volume is huge, a lot of drum type mixers for concrete mixing will be placed in Project site, and mixing concrete will be casted by man power. According to the meteorological data of Taungoo from year 1950 to 2005, the averaged monthly temperature is over 25 degrees Celsius except December and January. Therefore, concrete is assumed to be type of hot weather concreting, and required appropriate control of temperature and quality.

The supporting layer of the ground has plenty of ground water, therefore, the foundation works

need to be done with pumping up water, and the construction contractor is to prepare a construction execution plan including the above-mentioned pumping up water to make quality control of the construction works.

The quality control plan of the main construction work types is as followed,

Table2-21 Quality Control Plan

Work Type	Control Parameter	Control Value	Test Method	Quality Standards	Frequency of Measurement	Analysis of Results
Earth work	Bearing capacity of ground	Ra=78kN/m ² or more (long-term)	Plate bearing test	BS	Multi- locations	Test report
	Slope angle	Within planned range	Gauge, visual	JIS	As needed	Photos, documents
	Bedding accuracy	Within +0~-5cm	Level, visual	"	"	"
	Supporting layer height	Within +0~-3cm	"	"	"	"
	Thickness of replaced soil	+5cm~0	"	"	"	"
Reinforcement bars	Reinforcement cover thickness	Places not in contact with soil: 30m/m	Visual, measurement	Specifications	As needed	Photos, documents
		Places in contact with soil: Footing 60m/m	"	"	"	"
		Other 40m/m	"	"	"	"
	Processing accuracy	Stirrup, hoop ±5m/m	"	"	"	"
	Others ±10m/m	"	"	"	"	"
	Tensile test	Standard strength or more	On-site sampling or sampling at shipping	BS, ASTM	1 test on 3 test pieces per 200t of steel bars with given diameter	Test report
Concrete work (mixing at site)	Compressive strength	Designed strength 21N/mm ²	Attend at test site (any time)	BS, ASTM	3 or more test pieces per 50m ³	Test report
	Slump value	15cm±2.5cm	Attend at work site	"	For each placing	Photos, documents
	Chloride content	0.3kg/m ³ or less	Test pieces, attend at work site	"	"	"
	Air content	45% ±1.5%	Attend at work site	"	"	"
	Concrete temperature	35 deg. or less	Attend at work site	"	"	"
	Performance accuracy	10mm per 1m or less	Measuring	JIS	After form removal	"
Masonry (concrete block)	Compressive strength	According to each plant management value	Attend at compression test site after selection of adopted factory	Myanmar Standard, BS	Once before first shipment from factory	Test report
Plastering, Painting, Roof waterproofing, Fixtures	Materials, storage methods, work methods, mixing, coating thickness, curing, work accuracy	According to particular specifications	Same as left	Same as left	As needed	Photos, documents
Water supply & drainage	Water supply pipes	Leaking	Water pressure test (1.75MPa for 60 min.)	BS	On completion of pipe laying, for each system	Test result report
	Drainage pipes	"	Water filling test	"	"	"
Electrical work	Cables	Within planned range	Insulation test	BS	"	"
			Conductivity test			

2-2-4-6 Procurement Plan

(1) Building Materials

1) Procurement Policy

Most of the construction materials can be procured locally. This is favorable for maintenance after completion of the Project.

2) Procurement Plan

- Structural Frame Works

The local materials such as reinforcing bars, concrete material and formworks, and concrete blocks for walls, etc. will be procured locally.

- Interior and Exterior Finishing Works

Materials for the interior and the exterior finishing will be procured in local markets, including imported products, such as aluminum sashes, tiles, ribbed metal roofing, paint and glasses, etc.

- Air-Conditioning and Plumbing Works

Air-conditioners, exhaust fans, ceiling fans, pumps, tanks and sanitary wares, etc. will be procured in local markets, including imported products.

- Electrical Works

Lighting fixtures, power panels, cables/wires and conduit/pipes, etc. will be procured in local markets, including imported products.

- Furniture

Wooden furniture for class room, dining and hostel etc. will be procured local products. This is favorable for maintenance after completion of the Project. The stainless steel made product for kitchen will be procured in local market, including imported products.

Table2-22 Procurement Plan of Major Construction Materials

Item	Procurement Plan			Remarks
	Local	Japan	Third Country	
Temporary Work				
Scaffold	○			Single pipe scaffold is popular
Temporary Fence	○			Barbed wire is popular
Temporary Office	○			Timber made is popular
Material				
Portland Cement	○			Products made in Thailand and China etc. can be procured locally
Aggregate	○			Can be procured locally
Deformed Bar	○			Products made in ASEAN can be procured
Veneer Form	○			Products made in Thailand and China, etc. can be procured locally
Concrete Block	○			Can be procured locally
Waterproofing Material	○			Products made in ASEAN can be procured
Light Gauged Steel	○			Products made in ASEAN can be procured
Color Metal Roofing	○			Products made in Thai etc. can be procured locally
Aluminum Door/Window	○			Products made in ASEAN can be procured and local processing
Wooden Door	○			Can be procured locally

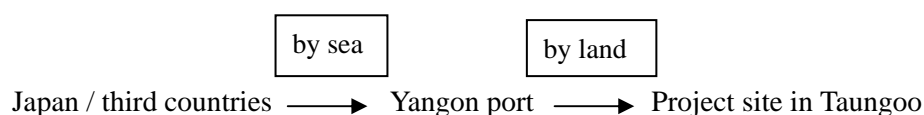
Item	Procurement Plan			Remarks
	Local	Japan	Third Country	
Glass	○			Products made in ASEAN and China, etc. can be procured locally
Tile	○			Products made in Thai and China, etc. can be procured locally
Acoustic Board	○			Products made in Thai etc. can be procured locally
Cement Board	○			Products made in Thai etc. can be procured locally
Paint	○			Products made in Thai and China, etc. can be procured locally
Mechanical/Electrical Works				
Air-conditioner	○			Products made in ASEAN and China, etc. can be procured locally
Exhaust Fan	○			Products made in ASEAN and China, etc. can be procured locally
Pump	○			Products made in ASEAN and China, etc. can be procured locally
Pipe and Fittings	○			Products made in ASEAN and China, etc. can be procured locally
Sanitary Ware	○			Products made in Thai and China, etc. can be procured locally
Distribution Panel	○			Products made in ASEAN and China, etc. can be procured locally
Conduit Pipe, wire	○			Products made in ASEAN and China, etc. can be procured locally
Lighting Fixtures	○			Products made in ASEAN and China, etc. can be procured locally
Lightning Arrester	○			Products made in ASEAN and China, etc. can be procured locally
Furniture				
Wooden Furniture	○			Can be procured locally

(2) Educational Equipment

Laboratory equipment and glass ware made in China and India, and computer, printer and printing machine made in ASEAN countries, Taiwan and China can be procured through the local manufacture's agents popularly. Some local agents have services engineers for the equipment. Educational equipment will be procured from Japan, Myanmar and the third countries in consideration with local agent's ability on sale and maintenance.

(3) Transportation plan

The educational equipment procured in Japan will be contained in a container by sea. The main port for disembarkation in Myanmar will be Yangon where frequent mixed cargo services from Japan are in service. After passing customs at the bonded warehouse in Yangon port, educational equipment will be forwarded to the Project site by equipment suppliers using trailers. The well-maintained trunk roads which are linked to the Project site from Yangon port will not bring particular problems to transport the equipment.



The total length of the transportation from Japan including the departure and arrival of ship to Yangon port and custom clearance is estimated approximately one month and half. The procurement from the third countries will be shipped to Yangon port by a container as well.

2-2-4-7 Operation and Maintenance Training Plan

On-site training will be conducted by technical staffs from the manufacture's agents in order to maintain and operate the educational equipment appropriately, when it is delivered. It aims to maintain the equipment by the Myanmar side in the future by providing contact lists of manufacture's agents and the operational manuals etc. and by advising establishment of maintenance organization.

- For operation (specifications of equipment, procedures of operation, function-check, etc.)
- For repair and maintenance (daily checkup, cleaning, adjustment and trouble shooting, etc.)

2-2-4-8 Implementation Schedule

When the Project is implemented by the Japan's Grant Aid, the implementation schedule until the commencement of construction works is as followed.

- The E/N is signed between the GOM and the GOJ, and the G/A is signed between the GOM and JICA.
- JICA recommends a Japanese consultant to the GOM.
- The agreement of consulting services for the Project is concluded between the MOE and the consultant.
- The construction works is commenced after the detailed design, tender in Japan and conclusion of the contract for construction works and equipment works with the verification by JICA.

(1) Detailed Design Phase

The consultant prepares the detailed design documents and the tender documents based on the Report, which consist of detailed design drawings, specifications, calculation, and tender documents, etc. The consultant has close talks and meetings with the MOE at the beginning and the end of the detailed design phase, and completes the detailed design after submission of the final deliverables.

(2) Tender Assistant / Supervision Phase

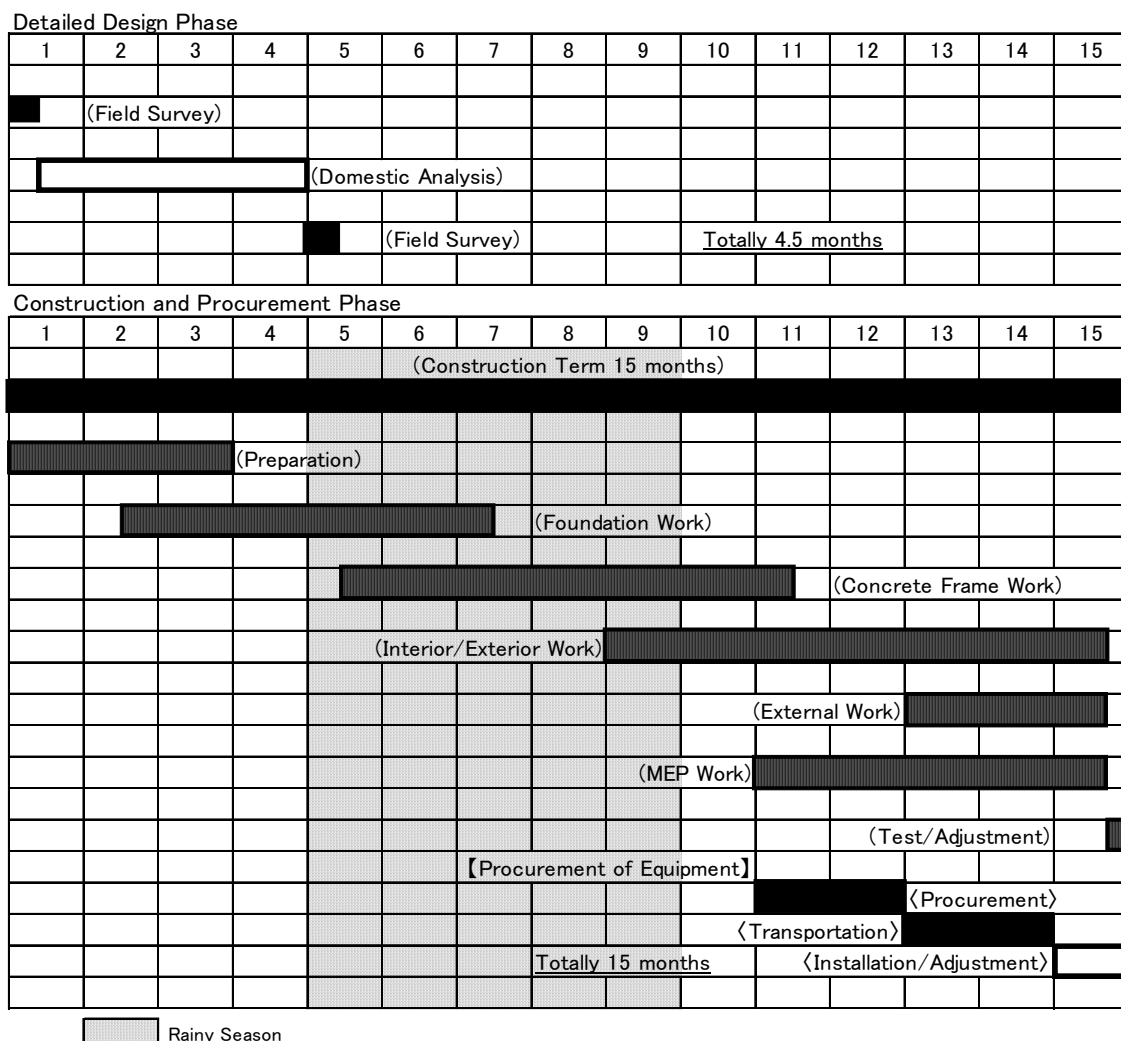
After detailed design phase, the prequalification (P/Q) of the tender for construction works will be announced in Japan by the MOE with the consultant's assistance. According to the result of evaluation of the P/Q, the MOE will invite the qualified Japanese construction contractors to tender. The equipment suppliers will be selected through tender separately from the construction tender, and the MOE will invite Japanese equipment suppliers who declare the intent to participate. Then the MOE with the consultant's assistance will conduct the tenders of construction and equipment works in

Japan respectively in the presence of persons involved, and the tenderers who bid the lowest prices and evaluate as appropriate offers will make contracts as the winning tenderers with the MOE respectively.

(3) Construction / Equipment Procurement

The contracts for the construction contractor and the equipment supplier are to verify by JICA, and upon the verification the construction works and the equipment works will be commenced respectively. The construction contractor is to prepare flood less temporary work area and discharge water system for foundation work in rainy season from May to September, it will take totally approximately 15 months of construction works judged from the scale of the Project, the local climatic conditions and the local construction conditions, realization of which needs smooth procurement of construction materials and equipment, prompt execution of relevant procedures by the Myanmar side and implementation of the scope of works to be borne by the Myanmar side. The equipment supplier is to install the equipment in the final construction month in parallel with construction works.

Table2-23 Implementation Schedule



2-2-5 Environmental and Social Considerations (Summary)

(1) EIA and Environmental Permits

1) Environmental Conservation Rules	<p>Environmental Conservation Rules was enacted in 2012 for the purpose to manage environment in Myanmar. However, Environmental Conservation Rules, EIA (Environmental Impact Assessment) Procedures, National Environmental Quality Standards drafted by (Ministry of Environmental Conservation and Forest: MOECAF) are being discussed for approvals as of December 2013.</p>
2) Environmental Impact Assessment	<p>According to MOECAF, the regulations on EIA have been developed by MOECAF having a technical assistance from ADB (Asian Development Bank) and referring to the JICA Guidelines for Environmental and Social Considerations, which are being reviewed and discussed in the Parliament for a final approval as of August 2013 in reference to opinions from relevant Ministries and industries. Therefore the approval period and details of the EIA regulations are unknown at the moment.</p> <p>Therefore, there has not been developed an EIA report on the Taungoo Educational College (TEC) project. According to MOECAF, however, an EMP (Environmental Management Plan) will be required at least for the project. At the timing before the approval of EIA regulations, based on a discussion between MOECAF and MOE held on August 2013, MOECAF has agreed to accept and evaluate an environmental and social considerations report to be prepared by the JICA Preparatory Survey Team in replace of the EMP and other necessary documents which will be required by the new rules and procedures.</p>
3) Farmland Law	<p>Farmland Law enacted in 2012 is applicable to the project land of paddy and farmland. The law stipulates land ownership, persons who have rights for farming and compensations and etc. as shown below.</p> <ul style="list-style-type: none"> • Land ownership : The State is original owner of all lands. • Rights for farming : Giving permission for farming in conformity with this law and bylaw, rule and regulation of this law • Farmland Certificate : Settlement and Land Records Departments issue land Use Certificates • Compensations : Confiscated farms are to be compensated without any lose

(2) Explanation to the Local Stakeholders

1) Consultations and Meetings	<p>The first land acquisition consultation meeting was held on 3rd Dec. 2012 (can be considered as the Cut-off-date (only land users who have right for farming before the date, have a right to receive compensation) for the land acquisition) by MOE to discuss the land acquisition issues with 11 persons who have rights for farming (Land Users) in the project site at that time and relevant stakeholders. After that, Stakeholders Meetings (SHM) and questionnaire surveys on the project were held in the surrounding villages of the project site as well as communities around the existing TEC.</p>
2) Questionnaire Surveys	<p>As a result of questionnaire surveys which were conducted in surrounding three villages of the project site, it has been confirmed that all 60 villagers (respondents for the surveys) have expressed their agreement for the project.</p>
3) Meeting Results	<ul style="list-style-type: none">• The final project site proposal excluding three land users among 11 land users has been agreed among relevant stakeholders.• Compensation value (20Lakh Kyat/acre) and the Compensation methods (cash and alternative lands have been agreed between the land users and MOE.• For requests expressed from the questionnaires respondents and participants of SHMs, Director General at DEPT of MOE issued a concrete plan (including necessary budgets and coordination with relevant official entities) for countermeasures for these requests (see below) dated on 27th August 2013 which was delivered as an MOE letter addressed to the Chief Consultant at JICA Preparatory Survey Team as well as it C.C. (Carbon Copy) to the JICA Myanmar office.• Constructions of two diversion pathways in the project area in replace of the existing two pathways, Construction of Fence, Deployment of security guards, Repair of the University Road, Operation of School Buses, Priority employment of near villagers for the project, Priority of school enrolment of children of near villages and assistance for village electrification.

(3) Pollution Control

<p>1) Air Quality</p>	<ul style="list-style-type: none">• Generation source of air pollutants will be from a kitchen facility to be constructed in the new TEC. Rice Husk is planned to be used as fuel for the kitchen in the new TEC in the same way the existing TEC. The kitchen is planned to be used in regulated times of two times per day (in morning and evening).• As a back-up power supply, a diesel engine generator which shall have an environmental performance is planned to be operated in limited utilization based on an assumption of the power failure frequency (0.5 hour per day of 15days per month).• Hostels in the new TEC are planned to be connected to the electricity distribution system in the new TEC by which no emission of air pollutants will be expected.• The proposed project site and the surroundings are a flat and broad paddy and farmland, in addition, number of the surrounding residential people (receptors) is limited. <p>Therefore, it can be considered that significant impact on air quality is not expected by the implementation of the project.</p>
<p>2) Water Quality</p>	<ul style="list-style-type: none">• Waste water from the new TEC is planned to be treated with aerated waste water treatment facilities and then the treated waste water is planned to be discharged to the nearest drainage system (creeks).• Standard septic tanks (anaerobic biological treatment) in Myanmar which are used in the existing TEC and the Taungoo University located close to the project site are simple penetration treatment types, however due to the soil condition of the project site is composed of silt stratum in which water penetration into the underground cannot be expected, therefore the aerated waste water treatment facilities are planned to be installed.• Liquid solutions used for chemical and science practical trainings in classes of the new TEC are general ones such as hydrochloric acid (35%) and etc. of which quantities used for one training are limited of several hundred milliliters whereby a general disposal method of dilution with water for such solutions in order to reduce impact on surrounding environment is planned to be discharged as domestic waste water.

<p>3) Wastes</p>	<p><Domestic Solid Waste></p> <ul style="list-style-type: none"> • Wastes from the new TEC will be domestic solid waste. • Taungoo Township Development Council (TTDC) has responsibility for solid waste management in Taungoo Township. • However, according to TTDC, the new TEC is to be constructed in far from the center of Taungoo, therefore, collection and transportation will be charged for the waste from the new TEC. • In this regard, MOE has proposed to allocate a budget of 1,267,200Kyat/year for 2 times/ week collection of solid waste management by TTDC services. <p><Sludge from waste water purification systems></p> <ul style="list-style-type: none"> • In addition, MOE has proposed to allocate a budget of 172,800kyat/4times/year for de-sludge activities for the new TEC to be done by the TTDC services. <p>TTDC is planning to introduce a separation collection system of solid waste. Therefore, TEC will be requested to co-operate separation discharge of its solid waste as part of environmental education.</p>
<p>4) Noise and Vibration</p>	<ul style="list-style-type: none"> • As a back-up power supply, a diesel engine generator which shall have an equivalent environmental performance of such generators of low noise emission is planned to be operated in limited utilization based on an assumption of the power failure frequency (0.5 hour per day of 15days per month). • Discharge of traffic noise by the use of wheeled vehicles for the school commuting is predicted. However, the vehicles seen in Taungoo are generally relatively new (last 10 years old) types of used Japanese cars whereby heavy noise level is not predicted by the commute to the new TEC with such vehicles.
<p>5) Subsidence</p>	<ul style="list-style-type: none"> • A large amount of ground water use is not planned for the project whereby ground subsidence is not predicted by captive consumption of ground water. • According to TTDC, there is no standard of quantity of ground water pump-up in Myanmar.
<p>6) Odor</p>	<ul style="list-style-type: none"> • Solid waste including organic matter such as kitchen waste discharged from the new TEC is planned to be collected by TTDC public service.

	<ul style="list-style-type: none"> • Therefore, it can be predicted that odor will not be generated from the new TEC.
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(4) Natural Environment

1) Protected Areas	<ul style="list-style-type: none"> • No protected area is located in and around the project site.
2) Ecosystem	<ul style="list-style-type: none"> • The project site does not encompass primeval forests, tropical rain forests, ecologically valuable habitats and protected habitats of endangered species designated by the country's laws or international treaties and conventions. (not designated area such as forest and others). • Demolition of a branch stream of irrigation systems which has been operated to be used since early stage of 2013 in the project site is not expected to have negative impact on surrounding ecosystem,. • Waste water from the new TEC is planned to be treated with aeration waste water purification systems. • Therefore it is considered that no impact on surrounding ecosystem is predicted.
3) Hydrology	<ul style="list-style-type: none"> • There is no surface water such as rivers in and around the project site. • Demolition of the branch stream of irrigation systems as mentioned in the item 2) above is not expected to have negative impact on surface water and ground water.
4) Topography and Geology	<ul style="list-style-type: none"> • Large scale excavation is not planned in the project site where is a flat paddy and farmland. • However, a method of earth filling is planned to be applied for the construction of each facility of the new TEC, necessary soil for which is planned to be procured by partially excavating of surface soil of the site. • Levels of the earth filling and excavating are around 1 to 2m and the areas excavated are planned to be used as temporal regulation ponds during heavy rain. Therefore, it can be considered that the earth filling and excavating are limited levels which possible impacts on topography and geology in the project site are small.

(5) Social Environment

1) Resettlement	<p><Resettlement></p> <ul style="list-style-type: none">• There is no residential house at all in the project site where is the existing paddy and farmland whereby resettlement is not caused by the project. <p><Compensation></p> <ul style="list-style-type: none">• The first consultation meeting on land acquisition was held by MOE on 3rd Dec. 2013, in which compensation values of 20 Lakh Kyat/acre was basically agreed by the participants.• Seven (7) among the eight (8) of the land users (or Project Affected Persons: PAPs) finally eligible for the compensation have been compensated by MOE in the methods of cash compensation and alternative lands.• Advance payment has been paid to the remaining one (1) land user (PAP), of which unpaid amount is scheduled to be paid by the end of March 2014.• For the alternative lands, two plots among the land plots acquired by MOE have been allocated to the relevant land user (PAP).• The two plots of 1.78 acre have been decided by MOE to be excluded from the project site for the alternative lands, by which total area of the project site will be 41.19 acre. <p><Discussions></p> <ul style="list-style-type: none">• As specified the item (2) above, the project summary and the land acquisition have adequately been explained and discussed among relevant land users (PAPs) and relevant stakeholders <p><Budgets></p> <ul style="list-style-type: none">• MOE initially allocated 500 Lakh Kyat from its internal budget of “Welfare Fund”.• The fund can be reimbursed in the 2014/15 fiscal year budget (A MOE budget proposal was submitted by DG at DEPT, MOE on 19th August 2013). <p><Monitoring></p> <ul style="list-style-type: none">• Monitoring plans on land acquisition have not been proposed by
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	<p>MOE.</p> <ul style="list-style-type: none"> • Therefore, it is necessary that preparation of the monitoring plan is to be recommended to MOE. <p>< Grievance Redress System ></p> <ul style="list-style-type: none"> • A grievance redresses system consisted of MOE, TEC TTDC, RLRD and others has been proposed to be organized by MOE in order to become functional in the project construction as well as operation stages.
<p>2) Living and Livelihood</p>	<p><Impacts on Living and Livelihood ></p> <ul style="list-style-type: none"> • Less than 10% of total annual income of each land user (PAP) has been confirmed as impacts on the livelihood caused by the land acquisitions of which compensation of 20 Lakh Kyat/acre is an equivalent value of about 15 year profitability of the paddy and farmland. • Surrounding residential people (receptors) are very limited around 2km of the project site which is a paddy and farmland. • Therefore, impacts on living and livelihoods of the land users (PAPs) and surrounding villagers are not predicted. • Impacts of traffic congestions and accidents are predicted by the commute to the new TEC, however, which are limited times in morning and evening of 5 days per week. Therefore, such impacts can be managed by operating school buses which is under planning by MOE, considering staggered and group commuting to the new TEC and implementing safe traffic educations to parents and surrounding peoples. <p><Irrigation Water Right ></p> <ul style="list-style-type: none"> • Water right for irrigation distributed by a irrigation channel constructed in the project area is allocated to not only project site but also farmlands of a total area of 12.84 acres of seven persons who have right for farming in the lands, where are located in the east (the downstream area) of the project site. • In answer to MOE’s inquiry through the existing TEC, all those 7 persons expressed abandonment of the water right for the sake of the project. • As for the reasons of the abandonment, it can be considered the

	<p>following points.</p> <ul style="list-style-type: none"> • Experiences of usage of the irrigation water by those farmers are substantively less because that the operation of the irrigation channel was started in the early stage of this year. • Those farmers may focus on beans which require less water rather than the paddy rice for cultivation in the farmlands. <p><Rainwater Drainage></p> <ul style="list-style-type: none"> • North side of the project site faces a rainwater drainage system of which water is actually used for farmlands of the east of the site. • As mentioned in the item 2) of (4), impacts on the farming activities can be managed by proper operation and maintenance of the waste water treatment facilities. • With regard to areas where are planned to be excavated in the project site for the earth filling, those areas are planned to be used as temporal regulation ponds during heavy rain, thus it is predicted that mosquito will be generated during rainy season. However, it is considered that the mosquito can be cleaned up by the general countermeasures such of periodic cleaning, fish stock (if possible) and use of commercially available insecticides (such as mosquito coils and others) where necessary.
3) Heritage	<ul style="list-style-type: none"> • Local archeological, historical, cultural, and religious heritages are not existed in the project area (excluding three tombs constructed in 70 years ago are in the project site). • However, demolition of the tombs has been agreed by the land users, surrounding villagers and the Shan Ywa Monastery. • In accordance with communications with the present chief priest of the Shan Ywa Monastery, if anything is found while moving or clearing the tombs, those remains shall be floated to a river according to ritual.
4) Landscape	<ul style="list-style-type: none"> • There no specific landscape to be considered in the project site where is located in a flat and broad paddy and farmland. • The project is school facilities of 2 stories to be constructed in the project site having enough land space. In addition a method of earth filling is planned to be applied for the construction of each facility of the new TEC, necessary soil for which is planned to be procured by

	<p>excavating of surface soil of the site.</p> <ul style="list-style-type: none"> • Levels of the earth filling and excavating are around 1m and the areas excavated are planned to be used as temporal regulation ponds during heavy rain. • Therefore, it can be considered that project facilities as well as the earth filling and excavating of around 1 to 2m are limited levels which possible impacts on landscape in the project site are small. • In addition, two small size elevated water tanks (15m³ capacity each and about 22 m high) are planned to be constructed roughly in the central location of the project site of which area is 41.19 acres (167,000 m²)
5) Ethnic Minorities and Indigenous Peoples	<ul style="list-style-type: none"> • Ethnic minorities and indigenous peoples are not identified in and around the project site.
6) Working Conditions	<ul style="list-style-type: none"> • Due to the nature of general construction work and methods will be applied for the construction of the new TEC, it is considered that working conditions will have nothing special such as using toxic chemical substances and methods required for high-rise buildings. • There have been no specific rules for Occupational safety and Personal Protective Equipment (PPE) so far in Myanmar. • In this regard, it is considered that Factories Act 1951 is regarded as the existing Legal framework related to occupational safety in Myanmar which provides requirements concerning with working hours, working days, overtime, and certain health and safety measures. • The first law on safety and health in workplaces is being drafted by the Ministry of Labour, Employment and Social Security and will be promulgated in 2013.

(6) Others

1) Impacts during Construction Phase	<p><Pollution during Construction></p> <ul style="list-style-type: none"> • It is considered that air pollution and noise and vibration caused by the use of heavy vehicles and equipment to be used for the construction are predicted during the construction period. • However, due to the fact that the project site is an open and flat paddy and farmland, it is considered that exhaust gases, noise and vibration, dusts by the use of well maintained heavy vehicles and
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	<p>equipment are easily diffused into surrounding ambient environment for the construction period.</p> <ul style="list-style-type: none"> • In addition, surrounding residential people (receptors) are very limited around the project site which is a paddy and farmland. • Soil contamination by oil spills from engines and hydraulic systems of heavy vehicles and equipment to be used for the construction is predicted only for the construction period. However, the operation of such vehicle and equipment is estimated to 3-4 numbers per day, it is considered that the quantity of oil spills are limited which can be managed by daily visual inspections • In addition, it can be considered that waste water and solid waste during the construction, which are generally controlled by contractors, are managed by daily oversight and visual inspection • Dust of dried soil stirred up by such heavy vehicle and equipment operation on site especially in dry season, can be managed by water spring. <p>< Impacts on Natural Environment (Ecosystem) during Construction ></p> <ul style="list-style-type: none"> • Due to the nature of general construction methods are applied for the construction of the new TEC, it is considered that impacts on natural environment are limited and small. <p><Impacts on Social Environment during Construction></p> <ul style="list-style-type: none"> • It can be considered that there will be social impacts such as traffic congestions, traffic accidents and STD like HIV/AIDS and so on which can basically be managed by the introduction of time regulations for the construction and implementation of safety and public health education to workers as well as the surrounding peoples.
<p>2) Monitoring</p>	<ul style="list-style-type: none"> • Monitoring plans and the systems have not been prepared by MOE. • However, it is predicted that extend of possible impacts by the project are small, therefore, sophisticated monitoring which use accurate and advanced equipment are not required, but simple monitoring by doing general oversights, visual inspections and periodical inspections and simple tests are enough for the project • Those points above shall be recommended to MOE and contractors through MOE.

3) Electricity Power Supply	<ul style="list-style-type: none">• The new TEC is planned to be connected to electricity grid systems and telecommunication network.• However, the connections is relatively small scale, therefore, it is considered that there are no impacts caused by the connections.
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(7) Overall Evaluation

With considering of all discussions in this section, it is expected as overall evaluation that there are no significant negative and adverse impacts on natural and social environments in cases where proper environmental management plans, monitoring systems and the grievance redress system as well as allocation of necessary budgets are appropriately introduced and implemented for the project.

2-3 Obligations of Recipient Country

The GOM is to undertake the following measures including works described in 2-2-4-3 for the implementation of the Project under the Japan's Grant Aid Scheme.

(1) Related to Construction

- To secure the Project site
- To bank soil at building sites and its surroundings and three access roads, and back filling of irrigation channel
- To set up two diversions at east and west end of the Project site
- To lead electric power line to the Project site from Taungoo University
- To construct a fence enclosing the Project site and gates
- To construct a practicing school and staff houses etc. including equipment and furniture, which are not constructed by the Grant Aid from the GOJ

(2) Related to Operation and Maintenance

- To procure and install general furniture, equipment and fittings, etc. not borne by the Japan's Grant Aid
- To procure consumables and spare parts necessary for the proper maintenance and operation of the completed facilities and equipment
- To operate the facilities and equipment appropriately and effectively

(3) Related to Procedures

- To bear commissions, namely advising commissions of A/P and payment commissions to the Japanese Bank for the banking services based on B/A
- To obtain a building permission inspected by the MOE and the MOC
- To obtain relevant permissions, licenses and other authorization as may be necessary for the implementation of the Project
- To ensure prompt unloading, customs clearance and tax exemption of equipment imported from Japan and/or third countries based on the verified contracts
- To exempt Japanese nationals engaged in the implementation of the Project from custom duties, internal taxes and other fiscal levies which may be imposed in Myanmar.
- To accord Japanese nationals engaged in the implementation of the Project such facilities as may be necessary for their entry into Myanmar and stay therein
- To bear all the expenses, other than those covered by the Japan's Grant Aid, necessary for the implementation of the Project

2-4 Project Operation Plan

2-4-1 Maintenance Plan

(1) Operation System

As described in 2-2-1-6, the new TEC can be operated by the existing operation system, and the existing numbers of lecturer/tutors of TEC can teach 1,000 trainees. However, TEC becomes a coeducational boarding college, the MOE is planning to allocate additional three lecturer/tutors of physical education and two lecturer/tutors of industrial art for male subject. Furthermore, the MOE also plans to allocate three teachers for practicing school, multiple facility maintenance staff (mechanical, electrical and facility) and kitchen staff duo to increasing facility size. By utilizing the above mentioned operation system and staff members can be operated the new TEC.

(2) Transportation for Commute

The Project site is located at farming area where is approximately 8 km far from Taungoo downtown and no public transportation from the downtown. The transportation between the Project site and the downtown is necessary for commute of EC's staff and student of practicing school. The MOE has initiated to negotiate with Taungoo Township Committee in order to prepare transportation for the commute.

(3) Maintenance System

At present, TEC has no maintenance staff for facility and equipment, and requests for repairing the facilities to outside construction companies and repairing the educational equipment to the MOE. There is much failure equipment due to no repairing expenses allocate by the MOE sometime, and in case of urgent and charged small repairing cost staff repairs the equipment by own money.

After completion of the Project, the MOE is planning to allocate full-time facility maintenance staff, and the staff will execute daily inspection and repair procedure as task.

Repair of educational equipment will be taken same procedure as usual, therefore, quick response by the MOE for repairing application is desirable, and equipment is to propose based on basic equipment which is less maintenance by particular engineer or manufacture's agents as possible.

2-4-2 Operation Plan

(1) Facilities

Daily cleaning and repair of attrition, break and aging are important for the maintenance of facilities.

Repair is mainly for finishes of the interior and the exterior which protect the structure of the facilities. In the case of Japan, refurbishment is expected to have every 10 years for retaining the facilities function.

Items for periodical inspection and repair works which affect the life span of the facilities will be shown on the Maintenance Manuals submitted by the construction contractor at the handover of the new facilities, which explains methods of inspection and regular cleaning. In general, the outline of the periodical inspection of the facilities is as follows,

Table2-24 Outline of Periodical Inspection (Facilities)

	Contents of Inspection	Numbers of Inspection
Exterior	<ul style="list-style-type: none"> • Repair/ repaint of exterior walls • Inspection and repair of roofs • Inspection and repair of sealing of exterior fittings • Regular inspection and cleaning of gutters and manholes 	Repaint once/5 years, repair once/3 years Inspection once/3 years, repair once/10 years Once/year Once/year
Interior	<ul style="list-style-type: none"> • Renewal of the interior • Repair / repaint of partition walls • Renewal of ceiling materials • Adjustment of doors and windows • Exchange of fixtures of fittings 	As needed As needed As needed Once/year As needed

(2) Facility equipment

Facility equipment needs preventive maintenance on the daily basis before repair of breaks and exchange of parts. The life span of facility equipment can be extended by normal operation and daily inspection/fueling/cleaning/repair, etc. These daily inspections can prevent happening and expanding of accidents.

The generator and pumps, etc. require periodical maintenance, and it is necessary to have annual periodical inspections by outside maintenance companies etc. The life spans of main items of facility equipment are as follows,

Tble2-25 Life-Span of Equipment

	Equipment	Life-span
Electrical	• Distribution Panel	20 – 30 years
	• LED Lamp	20,000 – 40,000 hours
	• Generator	15 years
Plumbing	• Pump, Pipe, Valve	15 years
	• Tank	20 years
	• Sanitary Ware	25 – 30 years
Air-conditioning	• Air-conditioner	10 years
	• Exhaust Fan	20 years

(2) Educational Equipment

It will be highly important to check and clean the equipment regularly in order to maintain the equipment appropriately after daily use. In addition, the equipment is to be used only for the purpose

of the equipment based on the operation manual. Therefore, the initial operation and management training is to be given to the staffs in advance of the handover of the equipment.

2-4-3 Timing and Cost of Renewal Plan

Facility material and equipment can be performed their functions for a long period if daily maintenance is conducted. However, material and equipment have its own life span respectively and its function is deteriorated once it reaches the end of the life span, necessitating its renewal.

The renewal timing and cost of the major works and equipment which are planned under the Project shows as below. The MOE is to allocate the necessary budget for the renewal of works and equipment.

The renewal cost is estimated based on the following conditions;

- Renewal is limited to items with a life span less than 20 years.
- Excluding breakdowns due to inadequate use/operation
- Renewal cost is based on current price without escalation
- Exchange rate: 1 US\$=99.77 Yen , 1 Kyat = 0.103 Yen

(1) Facilities

Table 2-26 Timing and Cost of Renewal

Facilities: Building Work

Part	Work Item	Lifespan	Renewal Schedule	Unit	Renewal Cost
Exterior		(Year)		(m ²)	(kyat)
Roof	Asphalt Waterproofing (with concrete layer)	30	-	-	-
	Metal Roofing	20~25	-	-	-
	Waterproof Paint	5~10	Re-paint within 10 years	730	6,100,000
Exterior	Paint on Wall	5	Re-paint within 5 years	23,900	168,000,000
	Paint on Board	5	Re-paint within 5 years	430	3,000,000
	Aluminum Window	40	-	-	-
Interior					
Floor	Ceramic Tile	30	-	-	-
	Wooden Flooring	20~25	-		
	Dust Proof Paint	5	Re-paint within 5 years	10,300	58,400,000
Wall	Paint on Mortar	5	Re-paint within 5 years	32,000	199,000,000
	Ceramic Tile	30	-	-	-
Ceiling	Acoustic Board	20	-	-	-
	Paint on Board/Concrete	5	Re-paint within 5 years	10,400	61,000,000
Others		(Year)			
	Paint on Wooden Door	5	Re-paint within 5 years	2,300	7,600,000
	Paint on Steel	5	Re-paint within 5 years	2,100	6,900,000
	Wooden Door	25~30	-	-	-

Mechanical and Electrical Work

Part	Work Item	Lifespan (Year)	Renewal Schedule	(No.)	Renewal Cost (Kyat)
Air-Conditioning.	Air-Conditioner	10	Re-place within 10 years	7	22,200,000
	Exhaust Fan	20	-	-	-
Plumbing	Lifting Pump	15	Re-place within 15 years	4	31,100,000
	Deep Well Pump	15	Re-place within 15 years	2	4,100,000
	Sanitary Ware	25~30	-	-	-
	Valve and fixtures	20	-	-	-
	Fire Extinguisher (body rusted)	10	Re-place between 10 years	156	25,100,000
Electrical	Panel	30	-	-	-
	Lighting Fixture	20	-	-	-
	Fire Alarm Bell	10~15	Re-place between 10 years	45	40,800,000
	Switch, Receptacle	20	-	-	-
	Generator	15	Re-place within 15 years	1	31,700,000

(2) Equipment

Manufacturers are to supply spare parts and consumables for the supplied equipment at least 5 years after the handing over. And during the period of 5 year, it is possible to be procured spare parts. After the period, it may be difficult to be procured spare parts due to model change and/or discontinued product of the supplied equipment. As renewal timing of equipment is depends on manufacturers maintenance support policy, thus it is difficult to specify the renewal timing.

2- 5 Project Cost Estimation

2-5-1 Initial Cost Estimation

The Project Cost to be borne by the Myanmar Side is estimated as followed.

Table 2-27 Estimated Project Cost to be Borne by the Myanmar Side

Items borne by the Myanmar side	Estimated Cost (Kyat)
(1) Related to Construction	
1) Land acquisition compensation (budget request for payment and refund)	82,380,000
2) Banking soil at building sites, its surroundings and three access roads, back filling of irrigation channel, and set up two diversions	62,285,000
3) Leading electric power line to the Project site	30,870,000
4) Construct of fence enclosing the Project site and gates	143,910,000
5) Construction of a practicing school and staff houses etc. including equipment and furniture, which are not constructed by the Grant Aid from the GOJ	576,380,000
(2) Related to Procedures	
Commissions (A/P, B/A and Payment) and others (including relocation)	37,000,000
Total	932,825,000

*Estimated cost of 1) to 5) is referred to the DEPT's calculation in December 2013.

Estimated Condition: estimated in July 2013 with exchange rate 1 kyat = 0.103yen

2-5-2 Operation and Maintenance Cost

(1) Estimated Operation and Maintenance Cost

The Table 2-29 is shown an estimated cost of annual operation and maintenance for new TEC with 1,000 trainees intake capacity and 760 students of the practicing school after completion of the Project. After decision of transportation measurement for the commute between downtown and the Project site by the MOE before the TEC opening, the transportation cost will be calculated.

Table 2-28 Annual Operation and Maintenance Cost

Item	2012-2013	After completion of the Project
	Expenses(Kyat)	Expenses(Kyat)
(1) Personal and travel expenses (including practicing school)	151,070,677	186,056,000
1) Personal expenses	149,675,827	184,338,000
2) Travel expenses	1,394,850	1,718,000
(2) Operation and maintenance expenses	40,352,620	80,285,000
3) Goods and services	34,786,620	47,567,000
4) Maintenance Charge (machinery, building and vehicle)	5,326,000	23,979,000
5) Waste Disposal Cost (domestic solid waste and sludge.)	-	1,440,000
6) Transportation	-	+ α
7) Others (10% of 3) to 5))	240,000	7,299,000
Total	191,423,297	266,341,000

(2) Conditions of Calculation

1) Personal Expenses

At present, total of 133 staff consist of 113 staff (5 executives, 66 lecturer/tutors and 42 admin. officers) for EC and 20 staff (1 headmaster, 16 teachers and 3 admin. officers) for the practicing school are allocated, after the completion of the Project, approximately 17 staff consist of 3 physical education lecturer/tutors, 2 industrial art lecturer/tutors, 3 practicing school teachers, multiple maintenance staff and kitchen staff will be allocated as additional new staff. EC and practicing school can be operated by these 150 staff.

Personal expense in 2016/17 is calculated by 133 staff plus additional 17 staff plus inflation rate from 2012/13 to 2016/17. A half of expected inflation rate is adopted.

$$149,675,827 \text{ Kyat} / 133 \times 150 \times 1.092 = 184,338,000 \text{ Kyat}$$

2) Travel Allowance

Travel allowance is calculated by same method as the personal expenses.

$$1,394,850 \text{ Kyat} / 133 \times 150 \times 1.092 = 1,718,000 \text{ Kyat}$$

3) Goods and Services

Fuel/oil and electricity charge are included in the items of expenditure. These items calculated by the difference of facility scale between the existing and the new. The rest is calculated by same method as the personal expense.

$$28,167,350 \text{ Kyat} / 133 \times 150 \times 1.092 = 34,690,000 \text{ Kyat} \dots\dots\dots (a)$$

- Fuel/oil

One generator is planned, and operation cost is calculated by consumer of oil.

Operating generator for 15 days in a month, 30 minutes per day and plus inflation rate.

$$\text{Diesel oil } 14 \text{ liter per hour} \times 0.5 \text{ hours} \times 15 \text{ days} \times 12 \text{ months} \times 823 \text{ Kyat /liter} = 1,036,980 \text{ Kyat}$$
$$1,036,980 \text{ Kyat per year} \times 1.092 = 1,132,000 \text{ Kyat} \dots\dots\dots (b)$$

- Electricity charge

Electricity charge is calculated by capacity of transformer between the existing and the new and plus inflation rate.

$$2,688,870 \text{ Kyat per year} \times 400/100 \times 1.092 = 11,745,000 \text{ Kyat} \dots\dots\dots (c)$$

$$(a) + (b) + (c) = 47,567,000 \text{ Kyat per year}$$

4) Maintenance Cost

- Facilities repairing cost

Although the facilities repairing cost varies year by year, the averaged cost for 10 years after completion of the Project is assumed to be 0.1 percent of the direct construction cost.

Approx. 11,650,000 Kyat (d)

- Facility equipment repairing cost

The facility equipment repairing cost will be small for the first five years after the completion of the Project. However, after the five years, replacement of spare parts or equipment itself will be necessary. The averaged cost of facility equipment repair for first 10 years is assumed approximately 0.2 percent of the direct equipment cost.

Approx. 8,272,000 Kyat (e)

- Equipment maintenance cost

Equipment maintenance is taken by the DEPT in principle. Even after the completion of the Project, this situation will be same as before, accordingly this maintenance management system is supposed to continue, therefore, no cost calculation.

- Vehicle maintenance cost

Cost is calculated by inflation only.

3,716,000 Kyat per year x 1.092 = 4,057,000 Kyat (f)

(d) + (e) + (f) = 23,979,000 Kyat per year

5) Waste Disposal Cost

- Solid waste collection by the TTDC

Collection 2 times per week by the TTDC services: 1,267,200 Kyat per year (g)

- De-sludge activities by the TTDC

4 times per year by the TTDC services: 172,800 Kyat per year (h)

(g) + (h) = 1,440,000 Kyat per year

6) Others

(3) + 4) + 5)) x 10% = 1,440,000 Kyat

(2) Expected Budgetary Balance after Completion of the Project

At present, a budget allocated by the DEPT is applied to all of the operation and maintenance cost of TEC. The personal expense for additional staff will be allocated by the MOE. Accordingly, increment of budget allocation from the DEPT is important to be secured the operation and maintenance cost of new TEC.

The operation and maintenance cost of new TEC after completion of the Project is estimated to be 80,285,000 Kyat which will increase by 99% from 40,352,620 Kyat in 2012/13 due to the expansion of scale. The estimated cost is equivalent of approximately 0.01% of the MOE budget, 0.2% of the DEPT's current budget and 1.1% of current budget to whole EC in 2013/14 respectively, and also from 2012/13 budget of the MOE increases 51.2% and 14.8%, and budget to whole EC increases 191% and 50% year by year greatly. Therefore operation and maintenance cost of new TEC is expected to be secured.

Chapter 3 Project Evaluation

Chapter 3 Project Evaluation

3-1 Preconditions

The GOM is to complete the following measures before the implementation of the Project:

- 1) To submit an EMP (Environmental Management Plan) to the MOECAF
- 2) To complete the following works within the scope of work of the Myanmar side by the construction commencement
 - To bank soil at building sites and its surroundings and three access roads, and back filling of irrigation channel
 - To set up two diversions at east and west end of the Project site
 - To obtain a building permission inspected by the MOE and MOC
- 3) To execute prompt unloading, customs clearance and tax exemption of imported equipment for the Project
- 4) To lead electric power line to the Project site from Taungoo University during the construction works by the Japanese side
- 5) To implement the following works within the scope of work of the Myanmar side in parallel with the construction works by the Japanese side and later on
 - To construct a fence enclosing the Project site and gates
 - To construct the facilities not included in the scope of work of the Japanese side (*e.g.* a practicing school and staff houses etc.)

3-2 Necessary Inputs by Recipient Country

The GOM is to implement the following measures to realise and maintain the effects of the Project:

- 1) To allocate teaching and other staff required for the operation and management of a coeducational college with enrolment of 1,500 trainees per year
 - To allocate three additional lecturer/tutors of physical education and two additional of industrial arts as male subject
 - To allocate three additional teachers of the practicing school
 - To allocate the multiple facility maintenance staff and kitchen staff
- 2) To secure a source of the operation and maintenance cost after the completion of the project (budget allocation by the MOE)
- 3) To secure transportation of the commute for TEC's staff and student of the practicing school from the downtown
- 4) To transfer the educational equipment and furniture in the existing facilities which are to be used in the new facilities
- 5) To transfer general furniture, fixtures and equipment which are not procured by the Japanese side from the existing facilities, install and utilise them in the new facilities and procure new furniture,

etc. to fill deficits.

- 6) Measures for output from the Environmental and Social Considerations Study
 - To implement EMP and monitoring

3-3 Important Assumptions

Realisation and maintenance of the outcomes of this project will require fulfilment of the following important assumptions:

- The MOE will allocate 1,500 trainees (ratio of male 3 and female 7) to TEC every year continuously
- Approximately 760 student will continue to study at the practicing school every year continuously
- Mandatory primary education will be required by law and enrolment rate in primary education will increase
- Almost all the graduates of the ECs will become teachers as has been the case

3-4 Project Evaluation

3-4-1 Relevance

The implementation of this project under the grant aid program of the GOJ is considered relevant in terms of the following.

(1) Necessity

An analysis of the current states of the factors affecting the demand and supply of teachers, including the number of vacancies represented by the difference between the appropriate number of teachers and the number of teachers at work, the number of additional teachers required in response to the gradual increase in the number of students as a result of the extension of compulsory education and the number of resigning teachers, from now on 11,000 new primary and middle school teachers will needed each year. In order to meet this demand it is planned to raise total annual trainee intake capacity at all 21 ECs from the current 9,000 to 12,000 by “Development Plan for Education Colleges with Teacher Demand” developed by the MOE. In particular, the aim is to achieve this by expanding the annual trainee intake capacity at four ECs (Yankin EC, TEC, Pyay EC and Lashio EC) to 1,000 trainees each.

(2) Appropriateness of the Selection of the Target College

A newly-acquired construction site has been prepared in Taungoo, close to the capital Nay Pyi Taw and offering ease of access from all other ECs, and the provision of assistance in the form of a grant aid project to construct an EC furnished with the latest facilities and equipment that will be a model college for the other ECs is an appropriate choice.

(3) Priority

The MOE announced at the September 2012 development seminar for donors (Consultation Meeting with Development Partners for the Improvement of Education Sector in Myanmar) that as part of its “Basic Education Sector National Education Promotion 20 Year Long Term Plan (2011/12 – 2030/31)” it would like with the assistance of donors to rebuild TEC and Pyay EC on new sites and increase the annual trainee intake capacity of each EC to 1,000. This is an indication that in addition to being of the highest priority after the construction of the Yankin and Lashio ECs that the MOE will undertake itself.

In the Comprehensive Education Sector Review (CESR) that the GOM is currently implementing with the assistance of donors, studies are being made towards extending the length of primary and secondary education from the current 11 years to 12 years. If this is decided on, still more primary and middle school teachers will need to be trained, so that dealing with the expansion at the present time of TEC is of the highest priority.

For the reasons mentioned above, the implementation of this project is considered highly relevant.

3-4-2 Effectiveness

The outputs to be expected from the implementation of this project are as given below, and thus this project is expected to be effective.

(1) Quantitative Effects

Relocation of TEC to newly constructed larger facilities on the new site is expected to create the following effects.

Table 3-1 Quantitative Effects

Indicator	Baseline value (2012)	Target value (2019) 3 year past after the Project completion
Number of enrolments in TEC per year (person)	395	1,500
Number of trainees who can study in good learning environment of TEC (person)	0	1,500
Number of newly-qualified trainees as a teacher from TEC per year (person)	263	1,000

Bases for the estimation of the indicators

1. Number of enrolments in TEC per year

The total number of enrolled trainees was 395. 132, 166 and 97 trainees were enrolled in DTED-1, DTED-2 and DTEC, respectively in school year 2011/12. As the project aims at increasing the number

of enrolments to 1,500, the target will be 1,500.

2. Number of trainees who can study in good learning environment of TEC

Trainees is now studying in bad learning environment of the existing TEC, and after the project completion a total of 1,500 trainees per year can study in good learning environment of new TEC.

3. Number of newly-qualified trainees as a teacher from TEC per year

In the school year 2011/2012, a total of 263 trainees were graduated, consists of 166 trainees who had completed DTED-2 and all 97 trainees who had completed DTEC. The 17 of the 166 graduated trainees of DTED 2 continued their study at the Institute of Education (IOE), an institution to train high school teachers, therefore 246 of 263 graduated trainees became teachers.

TEC will have a total of 1,500 trainees, consists of 500 trainees each in DTED-1, DTED-2 and DTEC, and a total of 1,000 trainees who have completed their courses, 500 in DTEC and 500 in DTED-2, will become newly-qualified trainees as a teacher.

(2) Qualitative Effects

1. Expansion and improvement of facilities and equipment will improve the learning environment in TEC. The improved environment will enable high-quality teaching.
2. Production of qualified teachers at TEC will improve the quality of education at primary and middle schools.

[Appendices]

- 1 Member List of the Study Team
- 2 Study Schedule
- 3 List of Parties Concerned in the Recipient Country
- 4 Minutes of Discussions
- 5 References

1. Member List of the Study Team

1. Member List of the Study Team

(1) Field Survey I (Oct. 7 ~ Nov. 3, 2012)

Name	Post	Period of Stay	Company name
Mr. OKAMURA Akio	Team Leader	Oct. 7~Oct. 12	Senior Advisor to the Director General, and Director for Planning and Coordination Division, Human Development Department, JICA
Mr. YASUMATSU Shigeru	Chief Consultant / Architectural Planning	Oct. 7~Nov. 3	Yamashita Sekkei Inc.
Mr. TSUMOTO Tadayoshi	Deputy Chief Consultant / Architectural Planning	Oct. 7~Nov. 3	Yamashita Sekkei Inc.
Mr. MOCHIZUKI Hiroaki	Architectural / Mechanical Design	Oct. 7~Nov. 3	Yamashita Sekkei Inc.
Mr. NAGAI Sugashi	Educational Planning 1	Oct. 7~Nov. 3	KRI International Corp.
Mr. WADA Yasushi	Educational Planning 2	Oct. 7~Nov. 3	KRI International Corp.
Mr. SUZUKI Osamu	Construction Planning / Cost Estimate	Oct. 7~Nov. 3	Yamashita Sekkei Inc.
Ms. ASANUMA Yasuko	Equipment Procurement Planning 1	Oct. 7~Nov. 3	Binko International Ltd.
Ms. NISHIKI Kazue	Equipment Procurement Planning 2	Oct. 7~Nov. 3	Yamashita Sekkei Inc.
Mr. KURODA Shingo	Coordinator	Oct. 7~Oct. 21	Yamashita Sekkei Inc.

(2) Field Survey II (Dec. 2 ~ Dec. 22, 2012)

Name	Post	Period of Stay	Company name
Mr. SAKUMA Jun	Team Leader	Dec. 2~Dec. 9	Deputy Director General, and Group Director for Basic Education, Human Development Department, JICA
Ms. IKEDA Ami	Cooperation Planning	Dec. 2~Dec. 9	Basic Education Division 1, Basic Education Group, Human Development Department, JICA
Mr. YASUMATSU Shigeru	Chief Consultant / Architectural Planning	Dec. 2~Dec. 8	Yamashita Sekkei Inc.
Mr. TSUMOTO Tadayoshi	Deputy Chief Consultant / Architectural Planning	Dec. 2~Dec. 22	Yamashita Sekkei Inc.
Mr. YOKOYAMA Motoharu	Architectural / Mechanical Design	Dec. 2~Dec. 22	Yamashita Sekkei Inc.
Mr. NAGAI Sugashi	Educational Planning 1	Dec. 8~Dec. 20	KRI International Corp.
Mr. SUZUKI Osamu	Construction Planning / Cost Estimate	Dec. 2~Dec. 22	Yamashita Sekkei Inc.
Ms. ASANUMA Yasuko	Equipment Procurement Planning 1	Dec. 2~Dec. 22	Binko International Ltd.

(3) Field SurveyⅢ Environmental and Social Considerations -1 (Mar. 3 ~ Mar. 16, 2013)

Name	Post	Period of Stay	Company name
Mr. YASUMATSU Shigeru	Chief Consultant / Architectural Planning	Mar. 3~Mar. 9	Yamashita Sekkei Inc.
Mr. IGARASHI Kenji	Environmental and Social Considerations	Mar. 3~Mar. 16	KRI International Corp.

(4) Field SurveyⅢ Environmental and Social Considerations -2 (Mar. 23 ~ Apr. 13, 2013)

Name	Post	Period of Stay	Company name
Mr. YASUMATSU Shigeru	Chief Consultant / Architectural Planning	Apr. 6 ~ Apr. 13	Yamashita Sekkei Inc.
Mr. IGARASHI Kenji	Environmental and Social Considerations	Mar. 23 ~ Apr. 13	KRI International Corp.

**(5) Field SurveyⅢ Natural Condition Survey and Building Planning Confirmation
(Jun. 30 ~ Jul. 6, 2013)**

Name	Post	Period of Stay	Company name
Mr. TSUMOTO Tadayoshi	Deputy Chief Consultant / Architectural Planning	Jun. 30 ~ Jul. 6	Yamashita Sekkei Inc.
Mr. YOKOYAMA Motoharu	Architectural / Mechanical Design	Jun. 30 ~ Jul. 6	Yamashita Sekkei Inc.

(6) Field SurveyⅢ Environmental and Social Considerations -3 (Aug. 1 ~ Aug. 31, 2013)

Name	Post	Period of Stay	Company name
Mr. IGARASHI Kenji	Environmental and Social Considerations	Aug. 1~Aug.31	KRI International Corp.

(7) Explanation of Draft Final Report (Dec. 22 ~ Dec. 29, 2013)

Name	Post	Period of Stay	Company name
Mr. SUEMORI Mitsuru	Team Leader	Dec. 22 ~ Dec. 27	Special Advisor, JICA
Mr. MATSUYAMA Takeshi	Cooperation Planning	Dec. 22 ~ Dec. 27	Deputy Director, Basic Education Division 1, Human Development Department, JICA
Mr. YASUMATSU Shigeru	Chief Consultant / Architectural Planning	Dec. 22 ~ Dec. 28	Yamashita Sekkei Inc.
Mr. YOKOYAMA Motoharu	Architectural / Mechanical Design	Dec. 22 ~ Dec. 28	Yamashita Sekkei Inc.

2. Study Schedule

2. Study Schedule

(1) Field Survey I (Oct. 7, ~Nov. 3, 2012)

No.	Date		JICA	Consultant Team	
			Team Leader	Team-A	Team-B
			Mr. OKAMURA	Mr. YASUMATSU Mr. MOCHIZUKI Mr. WADA Ms. NISHIKI Mr. KURODA	Mr. TSUMOTO Mr. NAGAI Mr. SUZUKI Ms. ASANUMA
1	Oct. 7	Su	Narita-Bangkok-Yangon		
2	Oct. 8	Mo	JICA and EOJ, BERDC/Materia land Equipment Survey		
3	Oct. 9	Tu	BERDC/Material and Equipment Survey, Yangon-Naypyitaw		
4	Oct. 10	We	Discussion with DEPT, MOE, Data Collection		
5	Oct. 11	Th	Naypyitaw-Yangon	Taungoo EC Survey (Pago Div.)	
			-Bangkok		
6	Oct. 12	Fr	-Narita	Yankin EC Survey (Yangon)	Meikhtila EC Survey (Mandalay Div.)-Mandalay
7	Oct. 13	Sa		Material and Equipment Survey (Yangon)	Material and Equipment Survey (Mandalay)
8	Oct. 14	Su		Yangon-Hpa-an	Mandalay-Nyaung Shwe
9	Oct. 15	Mo		Hpa-an EC Survey (Kayin)-Mawlamyaing	Taunggyi EC Survey (Shan South)
10	Oct. 16	Tu		Mawlamyaing EC Survey (Mon)	Nyaung Shwe-Mandalay
11	Oct. 17	We		Mawlamyaing-Yangon	Mandalay EC Survey
12	Oct. 18	Th		Hlegu EC Survey (Yangon Div.)	Sagaing EC Survey (Sagaing Div.)
13	Oct. 19	Fr		Thingangyun EC Survey (Yangon)	Sagaing UDNR/IOE Survey
14	Oct. 20	Sa		Interview for Kyaukphyu EC (Rakhine), Bogalay EC (Ayeyarwaddy Div.) in Yangon	Interview for Myitkyina EC (Kachin), Monywa EC (Sagain Div.) in Mandalay
15	Oct. 21	Su		Yangon-Pathein	Mandalay-Nyaung Oo
16	Oct. 22	Mo		Pathein EC Survey (Ayeyarwaddy Div.)	Pakokku EC Survey (Magway Div.)
17	Oct. 23	Tu		Myaungmya EC Survey (Ayeyarwaddy Div.)	Nyaung Oo-Pyay
18	Oct. 24	We		Pathein-Yangon	Pyay EC Survey (Pago Div.)
19	Oct. 25	Th		Interview for Dawei EC (Tanintharyi Div.) in Yangon	Pyay-Naypyitaw
20	Oct. 26	Fr		Yangon-Naypyitaw	Interview for Magway EC (Magway Div.) in Naypyitaw
				Survey Report to DG of DEPT	
21	Oct. 27	Sa		Documentation	
22	Oct. 28	Su		Team meeting, Documentation	
23	Oct. 29	Mo		Discussion on Technical Notes with DG of DEPT, Data Collection	
24	Oct. 30	Tu		Discussion on Technical Notes with DG of DEPT, Documentation	
25	Oct. 31	We		Confirmed Sign on Technical Notes with DG of DEPT, Naypyitaw-Yangon, Material and Equipment Survey (Yangon)	
26	Nov. 1	Th		BERDC/Material and Equipment Survey (Yangon)	
27	Nov. 2	Fr		Report to JICA/EOJ, Material and Equipment Survey, Yangon-Bangkok	
28	Nov. 3	Sa		-Narita	

EC: Education College	DEPT: Department of Educational Planning and Training
MOE: Ministry of Education	BERDC: Basic Education Resource
UDNR: University for Development of National Races	IOE: Institute of Education

(2) Field Survey II (Dec. 2 ~ Dec. 22, 2012)

No.	Date		JICA	Consultant Team			
			Team Leader		Mr. TSUMOTO		
			Coop. Planning		Mr. YOKOYAMA		
			Mr. SAKUMA	Mr. YASUMATSU	Ms. ASANUMA	Mr. NAGAI	Mr. SUZUKI
		Ms. IKEDA					
1	Dec. 2	Su	Narita-Bangkok-Yangon				Narita-Bangkok-
2	Dec. 3	Mo	JICA, EOJ	Survey (Yangon), Yangon-Naypyitaw			Survey Cost Collection (Yangon)
3	Dec. 4	Tu	Discussion with Deputy Minister, DG of DEPT, MOE				Survey Cost Collection (Yangon)
4	Dec. 5	We	Discussion with Deputy Minister, DG of DEPT, MOE				Construction Cost Survey (Yangon)
5	Dec. 6	Th	Sign on Minutes of Discussions, Napyitaw-Taungoo, New Taungoo Site Survey, Taungoo-Yangon				New Taungoo Site Survey
6	Dec. 7	Fr	Report to JICA, EOJ, Material and Equipment Survey (Yangon)				Construction Cost Survey (Yangon)
				Yangon-Bangkok			
7	Dec. 8	Sa	Yangon-Bangkok	-Narita	Construction Condition Survey (Yangon)	Narita-Bangkok-Yangon	Construction Cost Survey (Yangon)
8	Dec. 9	Su	-Narita		Yangon-Myitkyina (Kachin) by Airplane		
9	Dec. 10	Mo			Myitkyina EC Survey (Kachin)		
10	Dec. 11	Tu			Myitkyina (Kachin)-Yangon by Airplane		
11	Dec. 12	We			Yangon-Taungoo EC Survey (Bago Reg.)		
12	Dec. 13	Th			Taungoo EC, New Site Survey (Bago Reg.), DEPT Data Collection		
13	Dec. 14	Fr			Taungoo EC, New Site Survey (Bago Reg.), DEPT Data Collection		
14	Dec. 15	Sa			Taungoo EC, New Site Survey, Planning (Bago Reg.)		
15	Dec. 16	Su			Taungoo-Naypyitaw		
16	Dec. 17	Mo			Discussion with DG of DEPT		
17	Dec. 18	Tu			Planning and Documentation		
18	Dec. 19	We			Discussion on Technical Notes with DG of DEPT	Naypyitaw-Yangon-Bangkok	Naypyitaw-Yangon
19	Dec. 20	Th			Discussion with DEPT, Naypyitaw-Yangon	-Narita	Construction Cost Survey (Yangon)
20	Dec. 21	Fr			Report to JICA, EOJ, Cost Survey, Yangon-Bangkok		Construction Cost Survey, Yangon-Bangkok
21	Dec. 22	Sa			-Narita		-Narita
	EC: Education College DEPT: Department of Educational Planning and Training						
	DG: Director General						
	JICA: Japan International Cooperation Agency EOJ: Embassy of Japan						

(3) Field SurveyⅢ Environmental and Social Considerations -1 (Mar. 3 ~ Mar. 16, 2013)

No.	Date		Consultant Team	
			Mr. YASUMATSU	Mr. IGARASHI
1	Mar.3	Su	Narita-Bangkok-Yangon	
2	Mar.4	Mo	JICA, EOJ, Collection of Quotation in Yangon	
3	Mar.5	Tu	Yangon-Naypyitaw, Discussion with DG of DEPT	
4	Mar.6	We	Survey on Taungoo Project Site, Existing Taungoo EC, Taungoo University	
5	Mar.7	Th	Naypyitaw-Yangon, Selection of Local Consultant	
6	Mar.8	Fr	Contract with Local Consultant and Discussion	
			Yangon-Bangkok	
7	Mar.9	Sa	-Narita	Discussion with Local Contractor
8	Mar.10	Su		Yangon-Naypyitaw, Documentation
9	Mar.11	Mo		Introdaction of Local Consultant to DEPT and Discussion
10	Mar.12	Tu		Environmental and Social Considerations Study (Naypyitaw/Taungoo)
11	Mar.13	We		
12	Mar.14	Th		↓
13	Mar.15	Fr		Environmental and Social Considerations Study, Yangon-Bangkok
14	Mar.16	Sa		-Narita

(4) Field SurveyⅢ Environmental and Social Considerations -2 (Mar. 23 ~ Apr. 13, 2013)

No.	Date		Consultant Team	
			Mr. YASUMATSU	Mr. IGARASHI
1	Mar.23	Sa		Narita-Bangkok-Yangon
2	Mar.24	Su		Schedule Arrangement, Discussion with Local Consultant
3	Mar.25	Mo		Discussion with JICA
4	Mar.26	Tu		Discussion with Local Consultant, Yangon-Naypyitaw
5	Mar.27	We		Environmental and Social Considerations Study (Taungoo/Naipyitaw)
6	Mar.28	Th		
7	Mar.29	Fr		
8	Mar.30	Sa		
9	Mar.31	Su		
10	Apr.1	Mo		
11	Apr.2	Tu		
12	Apr.3	We		
13	Apr.4	Th		
14	Apr.5	Fr		↓
15	Apr.6	Sa	Narita-Bangkok-Yangon	Environmental and Social Considerations Study
16	Apr.7	Su	Documentation	Taungoo-Naypiytaw, Preparation of Report
17	Apr.8	Mo	Yangon-Naypyitaw (by Airplane), Team Meeting, Preparation of Report	
18	Apr.9	Tu	Report and Discussion with DG of DEPT	
19	Apr.10	We	Naypyitaw-Yangon, Discussion with Local Consultant	
20	Apr.11	Th	Report to JICA, EOJ, Discussion with Local Consultant	
21	Apr.12	Fr	Documentation, Yangon-Bangkok	
22	Apr.13	Sa	-Narita	

**(5) Field SurveyⅢ Natural Condition Survey and Building Planning Confirmation
(Jun. 30 ~ Jul. 6, 2013)**

No.	Date		Consultant Team	
			Mr. TSUMOTO	Mr. YOKOYAMA
1	June 30	Su	Narita-Bangkok-Yangon	
2	July 1	Mo	Negotiation and Contract for Natural Condition Survey (Yangon)	
3	July 2	Tu	Yangon - Naypyitaw (by Airplane), Meeting with JICA Staff, Discussion with DG of DEPT	
4	July 3	We	Survey on Taungoo Site with Local Surveyor and DEPT, and Taungoo EC Practicing School, Discussion with DG of DEPT	
5	July 4	Th	Naypyitaw-Taungoo. Site Survey, Taungoo-Yangon	
6	July 5	Fr	Preparation of Report, Yangon - Bangkok	
7	July 6	Sa	-Narita	

(6) Field SurveyⅢ Environmental and Social Considerations -3 (Aug. 1 ~ Aug. 31, 2013)

No.	Date		Consultant Team	
			Mr. IGARASHI	
1	Aug 1	Th	Narita-Bangkok-Yangon	
2	Aug 2	Fr	Report to JICA, EOJ. Discussion with Local Consultant	
3	Aug 3	Sa	Discussion with Local Consultant (Yangon)	
4	Aug 4	Su	Yangon - Naypyitaw	
5	Aug 5	Mo	Discussion with DG of DEPT	
6	Aug 6	Tu	Environmental and Social Considerations Study (Naypyitaw/Taungoo)	
7	Aug 7	We		
8	Aug 8	Th		
9	Aug 9	Fr		
10	Aug 10	Sa		
11	Aug 11	Su		
12	Aug 12	Mo		
13	Aug 13	Tu		
14	Aug 14	We		
15	Aug 15	Th		
16	Aug 16	Fr		
17	Aug 17	Sa		
18	Aug 18	Su		
19	Aug 19	Mo		
20	Aug 20	Tu		
21	Aug 21	We		
22	Aug 22	Th		
23	Aug 23	Fr		
24	Aug 24	Sa		
25	Aug 25	Su		
26	Aug 26	Mo	↓	
27	Aug 27	Tu	Environmental and Social Considerations Study (Naypyitaw/Taungoo)	
28	Aug 28	We	Report to DG of DEPT	
29	Aug 29	Th	Naypyitaw - Yangon	
30	Aug 30	Fr	Report to JICA, EOJ, Discussion with Local Consultant, Yangon - Bangkok	
31	Aug 31	Sa	- Narita	

(7) Explanation of Draft Final Report (Dec. 22 ~ Dec. 29, 2013)

No.	Date		JICA	Consultant Team
			Mr. SUEMORI	Mr. YASUMATSU
			Mr. MATSUYAMA	Mr. YOKOYAMA
1	22-Dec	Sun	Narita-Yangon	
2	23-Dec	Mon	Discussion with JICA, EOJ, Yangon-Naypyitaw	
3	24-Dec	Tue	Team meeting, Discussion with DG of DEPT (Presentation on the draft report)	
4	25-Dec	Wed	(National Holiday) Team Meeting	
5	26-Dec	Thu	Documentaion, Signing Minutes of Discussions with DEPT-DG, Naypyitaw-Yangon, Report to EOJ, JICA	
			Yangon-	
6	27-Dec	Fri	Narita	Survey on Yankin EC, Construction Material, Yangon-
7	28-Dec	Sat		Narita

3. List of Parties Concerned in the Recipient Country

Organization	Position	Name
Ministry of Education		
	Deputy Minister	U Aye Kyu
DEPT	Director General	U Ko Ko Tin
	Director General	U Bo Win
	Deputy Director General	U Win Myiant Maung
	Director (Admin/Finance)	U San Lwin
	Director	Daw Khin Khin Htay
	Director (Planning)	Daw Khin Mar Htwe
	Director	Daw Khin Nan Hliay
	Director	Daw Aye Chir
	Director	Daw Khin Khin Atay
	Deputy Director	U Ko Lay Win
	Deputy Director	U Soe Kyaw Thu
	Deputy Director	Daw Mu Mu Auing
	Deputy Director (Admin/Finance)	Daw Khin Khin Gyi
	Deputy Director	Daw San San Myint
	Assistant Director	Daw Ni Ni Hlaing
	Assistant Director	Daw Aye Aye Mon Oo
	Assistant Director	U Win
	Head of Department	Daw Hla Than Htay
	Planning officer	Daw Aye Aye Tint
	Assistant Lecturer	U Kyaw Win Maw Tum
1. Yankin EC		
	Principal	Daw Khin Wai Myint
	Head of Admin.	Daw San Khin
	Head of Academic	U Aung Myat Soe
	Assistant Lecturer	U Win Pe
	Assistant Lecturer	Daw Aye Aye Win
	Assistant Lecturer	U Kyaw Win Maw Tun
2. Mandalay EC		
	Principal	Daw Khin Mya Thet
	Vice Principal	U Bo Myint
	Head of Administration	Daw Yi Yi Mar
	Head of Academic	Daw May Khing
	Head of Training	Daw Khn Than Aye
	Sociology Assistant Lecturer	U Kan Tun
	Chemistry Assistant Lecturer	Daw Than Than Su
	Physics Assistant Lecturer	Daw Khin

	Economy Assistant Lecturer	Daw Khin Mya Maw
	Geology Assistant Lecturer	Daw Soe Soe Aye
	Biochemical Assistant Lecturer	Daw Khin San Shwe
	History Assistant Lecturer	Daw Sein
	Mathematics Assistant Lecturer	U Soe
	Mathematics Assistant Lecturer	U Zaw Min
	Physics Assistant Lecturer	Daw Hyay Kyi
	Physics Assistant Lecturer	Daw Myat Myat Hla
	Chemistry Assistant Lecturer	Daw Khin Mar
	Agriculture Assistant Lecturer	Daw Khin Khin win
	Agriculture Assistant Lecturer	U Win Lwin
	Domestic Science Assistant Lecturer	Daw Phuu Wai
	Fine Art Assistant Lecturer	Daw Khin Myo Myat
	Cook	U San Hling
	Cook	U Kyaw Zaya
3. Mawlamyaing EC		
	Principal	Daw Myat Myat Wai
	Vice Principal	Daw Khin Htar Mon
	Head of Administrator	Daw Myint Win
	Head of Academic	Daw Khin San Win
	Head of Training	Daw Myint Myint San
4. Patheingyi EC		
	Head of Administrator	Daw Aye Aye Thowng
	Head of Academic	Daw Than Than Swe
	Head of Training	Daw Than Than Naing
	Tutor	U Mgint Ang
	Assistant Lecturer	Daw Yin Yin Kyi
	Clark	U Ko Ko
	Assistant Lecturer	Daw Phan Wai Tun
	Tutor	Daw Hla Hla Myint
	Tutor	Daw Tin Ma Latt
5. Taungtha EC		
	Principal	Daw Kyu Kyu
	Vice principal	Daw Aye Chit
	Head of Administration	U Hrang Bawi Pum
	Assistant Lecturer	Daw Soe Soe Mar
	Assistant Lecturer	Daw Nay New
	Assistant Lecturer	Daw San San Win
	Assistant Lecturer	Daw S Myint Khin an Myint

	Assistant Lecturer	Daw Nge Nge Zinz
	Assistant Lecturer	Daw Khin Phone Htin
	Assistant Lecturer	Daw Nu Nu Yi
	Tutor	Daw San Myint Kyi
	Tutor	Kim Myint Myimt Theim
	Tutor	Daw Soe Soe Maw
	Tutor	Daw Kyi Kyi Win
	Tutor	Daw Myo Myo Swe
	Tutor	Daw Sandar Kyaw
	Tutor	Daw Aye Aye Mon
	Tutor	Daw San Yu Mawu
	Tutor	Daw Khihik Pyone New
	Tutor	Daw Phn Mar Aung
	Tutor	Daw Kyi Kyi Win
	Tutor	Myint Myint Sang
	Tutor	Su Su Left
	Tutor	Daw Kyi Kyi Ton
	Tutor	Daw San San Myint
	Library for EC teacher and trainees in charge	Daw Nu Nu
	Staff Officer	U Myint Thu
	Headmaster (Practicing School)	Daw Khin Hnin Ye
	English junior teacher	Kyk Thin Kyaw
	English junior teacher	Nytar Bu Taer
6. Taunggyi EC		
	Principal	Daw Nan Phyu Phanng
	Vice-Principal	Daw Than Aye
	Head of Administration	Daw Win Sandar Tint Shein
	Head of Academic	Daw Cherry Htun
	Head of Training	Daw Koh Bu
	Assistant Lecturer	Daw Naw Ehhtoo
	Assistant Lecturer	Daw Nan Aye Thin
	Assistant Lecturer	Daw Mi Mi Aung
	Music Tutor	To Ni Ni Win
	Agriculture Tutor	Wai Wai Khaing
	Agriculture Tutor	Aye A Nyunt
	Agriculture Tutor	Khin Lay Yee
	Chemistry Tutor	Yin Yin Hla
	Assistant Lecturer	Myat Tin Zar Kyaw
	Assistant Lecturer	Sao Myat Mon

	Tutor	Khin Toe Yee
	Assistant Lecturer	Daw Sei Sein
	Assistant Lecturer	Daw Jennifer
	Assistant Lecturer	Daw Chaw Su Win
	Assistant Lecturer	Daw Nyo
	Assistant Lecturer	Daw Aye Aye Khaing
	Science Tutor	Daw Khin Hnin
	Assistant Lecturer	Daw Ni Ni wai
	Tutor	Daw May Nyunt
	Tutor	Daw Nu Nu Lay
	Assistant Lecturer	Daw Aye Aye nude
	Tutor	Daw Khin Win Yee
	Tutor	Daw Mya Win
	Headmaster (Practicing School)	U Mya Than
7. Magway EC		
	Principal	U Anung Ba Thein
	Admin. Officer	U Sein Myint
8. Monywa EC		
	Principal	U Khin Ma Aye
	Head of Department	U Ye Swie
	Translator	Chan Myae Nay Chi
9. Myitkyina EC		
	Principal	Daw Myint Myint
	Head of Administration	U Htin Bay
	Head of Academic	Daw Ong Mi Mi
	Head of Training	Daw Hla Yin
	Office in charge	U Soe Htet Aung
	Assistant Registrar	Daw Tin Aye Mu
	Assistant Registrar	U Sau Htang
10. Dawei EC		
	Principal	Daw Aye Aye
	Head of Administration	Daw Aye Myint Ky
	Head of Academic	Daw Ni Ni Than
11. Kyaukphyu EC		
	Head of Administration	Dr Wai Wai Oo
	Tutor	U Oo Khin Mawng
12. Sagain EC		
	Principal	Daw Shw Shw Toe
	Head of Administration	U Htein Win

	Head of Academic	Dr. Khin Saw Lwin
	Head o Training	Daw Aye
	English Language Teaching Assistant Lecturer	U Ne Win
	English Language Teaching Tutor	U Cho Thein Uo
	English Language Proficiency Assistant Lecturer	U Min Nyi Nyi Zaw
	Correspondence Course in Charge	Daw Tin Tin Ohu
	Chemistry Assistant Lecturer	Daw Tin Tin Aye
	Physics Tutor	Daw Zaw May Co
	General Science Assistant Lecturer	U Amug Myint
	Biology Tutor	Daw Tyint Thint
	Agriculture Tutor	Daw Thi Thi Naing
	Music Tutor	Yin Yin Han
	Agriculture Assistant Lecturer	Daw Yin Yin Mu
	Agriculture Tutor	Daw Than Than Soe
13. Mejktila EC		
	Mathematics Tutor	U Myint Khing
	Domestic Science Tutor	Daw Nyo Nyo Kyi
	English Tutor	Khin Khet Khine
	English Tutor	Ayea Myat Mon
	Computer Specialist	Tin May Htwe
	Industrial Arts Tutor	Myint Thein
	Physics Assistant Lecturer	Kay Thi Auang
	Tutor	Kyu Kyu Myint
	Chemistry Tutor	Aye Aye Thin
	Biology Tutor	Daw Khin Cho Aye
	General Science Assistant Lecturer	Yan Aung
	Fine Arts Tutor	Kyaw Soe Aung
	Physical Exercise Tutor	Myint Ayea
	Physical Exercise Tutor	Soe Soe Yee
	Physical Exercise Tutor	Thant Zin
	Education Philology Tutor	Khin San Myint
	English Academy Tutor	Hnin New Linn Myint
	Junior Teacher (Practicing School)	Daw Tin Zar Thing
	Tutor (Practicing School, Pre-school)	Khinkmo Kyaw
14. Myaungmya EC		
	Principal	Daw Aye Aye Myint
	Vice Principal	Daw Thar Aye
	Head of Administration	U Kyaw Wai
	Head of Academic	Daw Hnin Kyu Oo

	Head of Training	Daw Khin Hlaing
	Assistant Lecturer	Daw Nilar
	Assistant Lecturer	Daw Hnin Yu Lwin
	Engineer	U San Htay
	Tutor	Daw Thet Su Hlaing
	Tutor	Daw Nwet Nwet Kyi
	Tutor	Daw Nyunt Nyunt shwe
	Assistant Lecturer	Daw Mon Mon Myint
	PAT (Practicing School)	U Myo Win Htun
	PAT (Practicing School)	Daw Khin Mi Mi
	PAT (Practicing School)	Daw Pyone Pyone Mar
	PAT (Practicing School)	Daw Theezar Shein
	PAT (Practicing School)	Daw Myint Myint Oo
15. Hlegu EC		
	Principal	U Nay Aung Nain
	Head of Administration	Daw Khin Khin Win
	Head of Academic	Daw Win Theingi Kyaw
	Tutor	Daw Tin Than Oo
	Tutor	U Nan Shin Khwat
	Assistant Lecturer	U Tin Soe
	Assistant Lecturer	U Myint Kyaw
	Assistant Lecturer	Daw Khin Aye Nywnt
16. Thingangyun EC		
	Principal	Daw Yu Yu Khaing
	Head of Training	Daw Ahmer Cho
	Head of Academic	Daw Khin Cho Myunt
	Assistant Lecturer	Daw Po Po
	Assistant Lecturer	U Tun Naing
	Assistant Lecturer	U Soe Naing
	Assistant Lecturer	Daw Kyin Win
	Tutor	Daw Htay Htay Han
	Assistant Lecturer	U Kyaw Myint
	Tutor	Daw Son Son Myint
	Tutor	Daw Khin Aye Mu
	Assistant Lecturer	Daw Thu Zen Thein
17. Hpa-an EC		
	Principal	Daw Than Than Tint
	Vice Principal	Daw Cho Cho Tint
	Head of Administration	U Kyaw Win

	Head of Training	Daw Tin Mar Nyo
18. Bogalay EC		
	Principal	U Chit Ko Ko
	Head of Administration	Daw Myint Myint Thu
19. Pyay EC		
	Principal	Daw San Myint
	Vice-Principal	Daw Than Than Mu
	Head of Administration	Daw Li Li Shwe
	Head of Academic	Daw Nyein Thi Aung
	Head of Training	Daw Thin Yu
	Assistant Lecturer	Daw Khin Myint
	Assistant Lecturer	Daw Shwe Hinn Si
	Assistant Lecturer	Daw New we Htun
	Assistant Lecturer	U Thein Myint
	Assistant Lecturer	Daw Khin San Win
	Assistant Lecturer	Daw Aye Win
	Assistant Lecturer	Daw Mi Mi Khaing
	Assistant Lecturer	Daw Tin Myo Khaing
	Assistant Lecturer	Daw Lai Yee
	Tutor	U Aung Win
	Tutor	Daw Nay Chhi
	Tutor	Daw Thaw War
	Engineer	U Kyaw Kyaw Min
20. Pakokku EC		
	Principal	Daw Khin San Myint
	Vice-Principal	U Soe Thant
	Head of Administration	Daw Nu Nu Lwin
	Head of Training	Daw Ya Nyo
	Assistant Lecturer	Daw May Yhu Swe
	Assistant Lecturer	Daw Htay Htay Maw
	Assistant Lecturer	U Aung Kyaw San
University for the Development of the National Races of the Union		
	Rector	U Soe Tint
	Pro Rector(Admin.)	U Khin Maung Win
	Pro-Rector (academic)	U Htay Lwin
	Senior Head (admin.)	U Kyaw Kyaw Tun
	Senior Head (training)	U Thein Tint
	Professor	Dr. Cho Cho Mar
	Professor	Daw Khin San Thint

	Professor	U Khin Maung Aye
	Lecturer	Daw Khin Wah Wah
	Assistant Lecturer	Daw Nant Hpwa Soe Lay
	Assistant Lecturer	Daw Thuza
	Assistant Lecturer	U Zam Shin Khine
Sagaing Institute of Education		
	Rector	Yin Win Maung
	Pro-Rector	Tint Tint
	Head of Finance and Administration Dept.	Tun Thein
	Head of Academic Assistant Dept.	Nyunt Nyunt Thein
	Section Head of Finance and Admin. Dept.	Tun Lwin
	Registrar	Kyi Lin
Ministry of Agriculture and Irrigation, Land record Dept.		
	Surveyor	U Myint Thwin Oo
Taungoo Township Community		
	District Commissioner (General Administration Dept.)	U Kyaw Thet
	Executive Officer (Township Development Committee)	U Thuya Myint Aung
	Deputy Director (Irrigation Department)	U Tin Aung
	Deputy Director (Irrigation Department)	U Thein Kyaw
	Assistant Director (Land Record Department)	U Mya Saung
	Deputy Staff Officer (Land Record Department)	U Win Kyi
	Departmental Officer (Township Fire Brigade)	U Htin Aung Lin
Taungoo Township Community Development Committee		
	Committee Member	U Tin Win
	Committee Member	U Maung Mya
	Committee Member	U Myint Nyo
Taungoo Township Community Village Committee		
	Committee Member	U Myint Lwin
	Committee Member	U Kyaw Htwe
Taungoo Infrastructure Supply Community		
	Assistant Engineer (Telecommunication)	Daw Khin Thuzar Kyaw
	Assistant Engineer (Electrical Supply Enterprise)	U Zaw Zaw Aung
Taungoo Metrology Station		
	Deputy Officer	Daw Thuzar Moe
Ministry of Construction		
	Executive Engineer	Daw Ei Ei Myo
	Superintending Engineer	U Thein Oo
	Executive Engineer (Water Treatment Department)	U Ye Myint

4. Minutes of Discussions

(1) Field Survey II

MINUTES OF DISCUSSIONS
ON PREPARATORY SURVEY ON THE PROJECT FOR
REHABILITATION OF EDUCATION COLLEGES
IN
THE REPUBLIC THE UNION OF MYANMAR

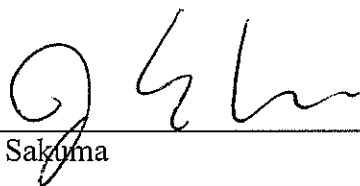
In response to a request from the Government of the Republic of the Union of Myanmar (hereinafter referred to as "Myanmar"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Rehabilitation of Education Colleges in Myanmar (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA has sent Myanmar the Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Mr. Jun Sakuma, Deputy Director General and Group Director for Basic Education, Human Development Dept., JICA and is scheduled to stay in Myanmar from December 2 to 21, 2012.

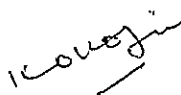
The Team held a series of discussions with the officials concerned of the Myanmar Side and conducted field survey at the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets.

Nay Pyi Taw, December 6, 2012



Mr. Jun Sakuma
Leader,
Preparatory Survey Team,
Japan International Cooperation Agency



Mr. Ko Ko Tin
Acting Director General,
Department of Educational Planning and
Training,
Ministry of Education, Myanmar

ATTACHMENT

1. Objectives of the Project

This Project aims at strengthening teacher training system by improving its infrastructure and equipment of educational facilities for Education Colleges (hereinafter referred to as "EC"s).

2. Title of the Project

Both sides discussed and confirmed the name of the Project as "the Project for Rehabilitation of Education Colleges in the Republic of the Union of Myanmar".

3. Purpose of the Preparatory Survey

The Myanmar side understood that the purposes of this preparatory survey were to explain the Japan's Grant Aid Scheme to Myanmar side and to formulate the Project to satisfy the conditions of the Japan's Grant Aid, as explained by the Team with the Inception Report.

The Myanmar side further understood that the implementation of the Project would be finally determined by the Government of Japan based on the result of this survey.

4. Responsible and Implementing Organization

The responsible organization of the Project is Department of Educational Planning and Training, Ministry of Education and the concerned organizations of the Project are Department of Basic Education 1, 2 and 3. The organization chart of the implementing organization is shown in ANNEX 1.

5. Target EC Selection Criteria

Both sides agreed that the final candidate site for the Project is Taungoo EC based on the criteria described in ANNEX 2.

6. Project Components

(1) For the Taungoo EC site

The Team confirmed that the Project components requested by the Myanmar side are described in ANNEX 3. Both sides agreed that the appropriateness and feasibility of the request would be further assessed by JICA from the technical and financial point of view. The components to be supported by the Project will be selected based on the overall result of this survey and within the budget constraints of the Government of Japan. Both sides agreed that project components to be supported by the Government of Japan were prioritized based on the following conditions and the priority of facilities was categorized (from A to D) as in ANNEX 3.

- 1) Basic facilities equivalent to those of the existing EC, which can be managed and maintained properly.

- 2) Standard facilities based on the curriculum of teacher training.
- 3) Other necessary facilities based on the policy concept for the future teacher education reform.

The Myanmar side requested Japanese side to cover the 1,000 trainees' capacity in academic and administration facilities and hostels of Taungoo EC as a model EC based on the 20 Year Long Term Basic Education Development Plan which was approved by Union Minister for Education and submitted to Ministry of National Planning and Economic Development. Although the Team basically understood the importance of this policy, the both sides agreed that capacity of the academic and administration facility and hostels will be decided based on the overall result of this survey taking into consideration of priority of facility and within the budget constraints of the Government of Japan. Both sides agreed that Japanese side will propose a master plan on facilities of Taungoo EC with 1,000 trainees' capacity so that Myanmar side will construct the rest of facility which will not be covered by Japanese side.

The priority of equipment will be based on the facility and its priority order described in ANNEX 3. Equipment which functions well in current Toungoo EC will not be provided by Japanese side.

(2) For target site with the provision of equipment

Myanmar side explained that they place a high priority on the construction and provision of equipment for Taungoo EC over the provision of equipment for other ECs. Therefore, both sides agreed that the equipment for other ECs will not be included in the Project.

7. Social and Environmental Considerations

The Team explained JICA socio-environmental guidelines and necessary procedures and requested the Myanmar side to provide the detailed data on the new candidate site for Toungoo EC. The Team also requested the Myanmar side to provide information with regard to the environmental regulations such as EIA (Environmental Impact Assessment) and compensation mechanism for those who will be impacted, which will be applied to the land acquisition for the Project. The Myanmar side understood that the Myanmar Government must carefully consider social and environmental impacts by the Project and must comply with both of the environmental regulations of the Myanmar and JICA socio-environmental guidelines.

The Team also explained that the information and reports on social and environmental consideration for the Project will be made public, to which the Myanmar side agreed.

Both sides confirmed that there is possibility that the overall survey schedule may be

reviewed and delayed, in order to ensure the necessary procedures for social and environmental consideration.

8. Measures to be Taken by Myanmar Side for Securing the Land

The Myanmar side has agreed to provide evidence of land ownership or proper land use right of Taungoo EC site authorized by the Myanmar Government to the Japanese side by the time of next survey planned in April, 2013. The Team requested the Myanmar side to provide information on procedure and schedule for transferring land ownership or proper land use right, which comply with the environmental regulations of Myanmar and JICA, by the end of December, 2012.

The Team explained the following conditions that are to be met when the land ownership is transferred from private person or entity, to which the Myanmar side understood.

- (1) The infrastructure must not be site specific.
- (2) The impacts must be minor, that is, involve no more than 10 percent of the area of any holding and require no physical relocation.
- (3) The land required to meet technical project criteria must be identified by the affected community, not by line agencies or project authorities (nonetheless, technical authorities can help ensure that the land is appropriate for project purposes and that the project will produce no health or environmental safety hazards).
- (4) The land in question must be free of squatters, encroachers, or other claims or encumbrances.
- (5) Verification (for example, notarized or witnessed statements) of the voluntary nature of land donations must be obtained from each person donating land.
- (6) If any loss of income or physical displacement is envisaged, verification of voluntary acceptance of community-devised mitigatory measures must be obtained from those expected to be adversely affected.
- (7) If community services are to be provided under the project, land title must be vested in the community, or appropriate guarantees of public access to services must be given by the private titleholder.
- (8) Grievance mechanisms must be available.

9. Japan's Grant Aid Scheme

9-1. The Myanmar side understood the Japan's Grant Aid Scheme described in ANNEX4-1 and 4-2, which were explained by the Team.

9-2. The Myanmar side assured to take the necessary measures, as described in ANNEX 5, for smooth implementation of the Project.

10. Schedule of the Study

10-1. The Team members from consultants will continue further studies in Myanmar until

December 21, 2012. The Team will prepare a draft report of this survey, which includes the outline designs of the target EC, based on the technical survey by the consultants. The draft report will be presented to Myanmar side in April, 2013.

10-2. After the contents of the report are accepted in principle by the Government of Myanmar, JICA will recommend to the Government of Japan the final approval of the Project.

10-3. The above mentioned schedule is subject to be reviewed and changed.

11. Other Relevant Issues

11-1. With regard to the implementation of the Project, the Myanmar side has committed to take appropriate measures to exempt custom duties, value-added tax, and other fiscal levies which may be imposed in Myanmar

11-2. Myanmar side has committed to take all necessary measures to assure security and issue travel permit of Japanese nationals engaging in the Project.

11-3. The Myanmar side has agreed to provide the education statistics necessary for the estimation of the expected student enrollment of Taungoo EC and nationwide.

11-4. Myanmar side will coordinate with concerned organizations to be able to secure the budget for additional teacher allocation and maintenance cost necessary for Taungoo EC.

END

ANNEX 1: Organization Chart of the Department of Educational Planning and Training, Ministry of Education, Myanmar

ANNEX 2: Conditions and Criteria for selecting target EC for improving its infrastructure and equipment

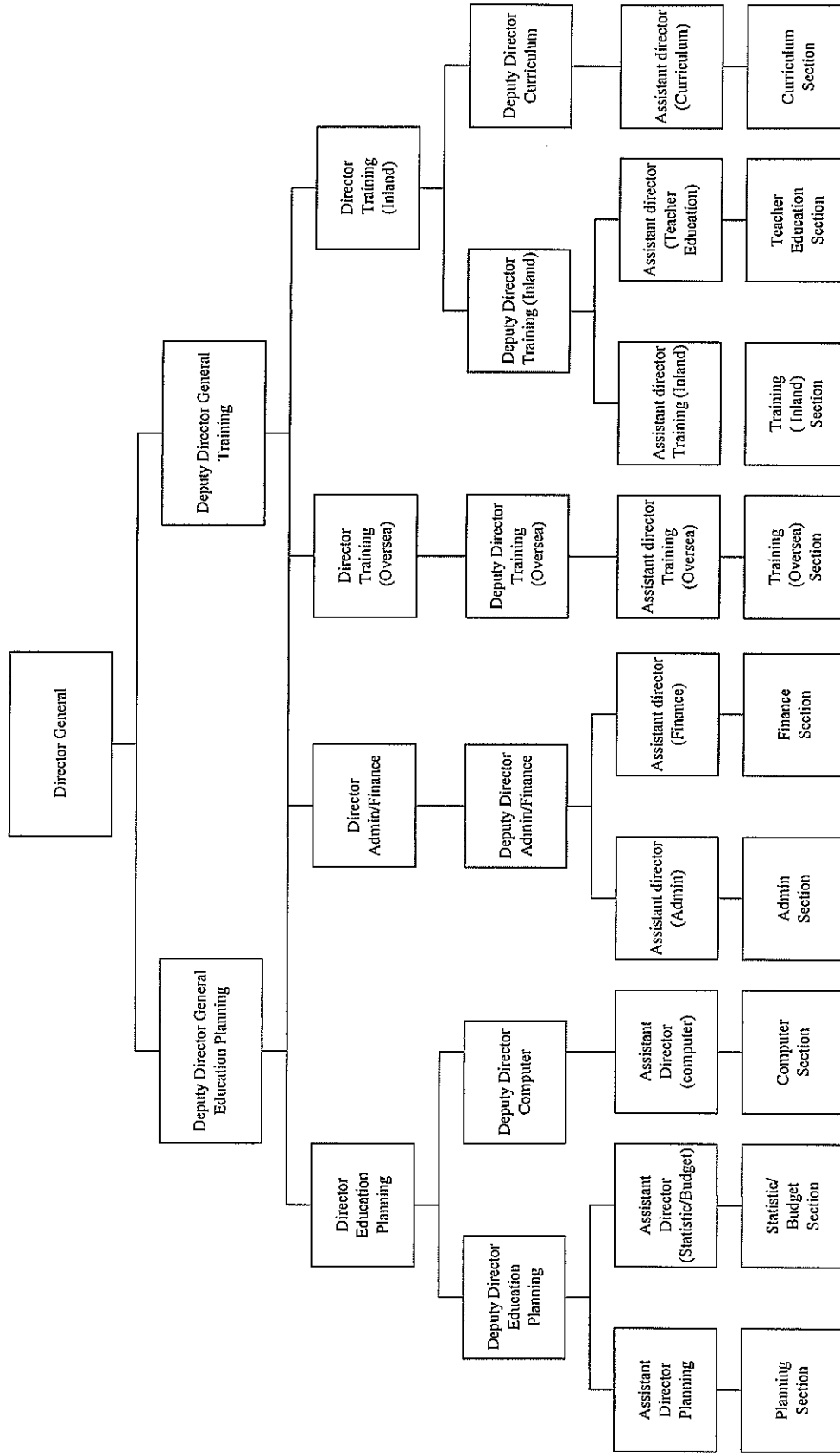
ANNEX 3: Proposed components

ANNEX 4-1: Japan's Grant Aid

ANNEX 4-2: Flow Chart of Japan's Grant Aid Procedures

ANNEX 5: Major Undertakings by each Government

ANNEX 1: Organization Chart of Department of Education Planning and Training



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ANNEX 2: Conditions and Criteria for Selecting Target EC for improving the infrastructure and equipment

<Required Conditions>

- Land ownership or proper land use right for college facility construction is legally secured with written evidence with its clear boundary, and the documentation of legal land ownership by the Government is to be submitted to the Team.
- No other plan exists for current/ongoing facility improvement by the Myanmar Government, other donors, NGOs, etc.
- Topographically/environmentally safe and appropriately sized land for construction is secured.
- Access approaches for construction vehicles are properly provided.
- There is no security concern such as conflict/dispute between villages, communities, etc. around the site.
- Extensive site preparation works such as site leveling, reclamation, removal of obstacles from the site will not be required for the construction of the Project facilities.

< Criteria for Prioritization>

- Urgency of facility rehabilitation (Study environment, Insufficient and decrepit/undamaged facility)
- Consistency with development plan by the Myanmar side
- Eligibility as a new model college (Executing whole teacher training courses, accessibility from whole country, etc.)
- Site conditions for facility construction (Securing land for facility construction, impact to surrounding and environment, and security)
- Core Education College in Region/State and/or significance of supporting national races in border area
- Infrastructure (Existing infrastructure condition, feasibility of new infrastructure development)
- Less natural disaster experience (Flood, Cyclone, Earth Quake, Arsenic Pollution, etc.)
- Experience of LCA (Learner-Centered Approach) and CCA (Child-Centered Approach) training.
- School management and operation budgets are to be properly secured and to be allocated on schedule.



- Present and future demand can be quantitatively estimated by a set of data.

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ANNEX 3: Proposed Components

<Facilities>

Component	Priority	Remarks
Class Rooms	A	
Co-curriculum Class Room combined with Academic Office	A	
Laboratory	A	
Computer Application Room, LL Room, Audio Visual room (including Internet access for teachers as well as trainees)	A	
Administration Office	A	
Academic Department Office	A	
Library	A	
Assembly Hall and Gymnasium	A	
Dining Hall with Kitchen	A	
Hostel (for female and male)	B	Full capacity of hostel will not be covered by Japanese side.
Staff Houses for Teaching staff and Others	C	
Practicing School for Pre-School, Primary and Middle School	B	
Agriculture Practicing Field	D	Agriculture Practicing Field will not be covered by Japanese side.
Physical Play Ground	D	Physical Play Ground will not be covered by Japanese side.
Others	C	

* "A" are high-priority components.

<Equipment>

The following list is in priority order;

- Classroom Furniture (Black/Green Board, Desk, Chair and others)
- Subject Equipment and Furniture
- Laboratory Equipment and Furniture

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- Computer Application Room, LL, and Audio visual Equipment and Furniture(including Internet facilities and network accessories)
- Physical Education, Music, Painting and Pre-vocational Equipment
- Presentation Tool (OHR Computer, Projector, EVD, Visual Presenter, Television and others)
- Teaching Material Preparation (Printing Equipment)
- Assembly Hall Equipment (Audio Visual)and Furniture
- Gymnasium Sport Equipment and Furniture
- Library Equipment and Furniture
- Office Equipment and Furniture
- Hostel Equipment and Furniture
- Dining and Cooking Equipment and Furniture
- Others

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JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures :

- Preparatory Survey
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
 - Agreement concluded between JICA and a recipient country
- Implementation
 - Implementation of the Project on the basis of the G/A

2. Preparatory Survey**(1) Contents of the Survey**

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.

- Preparation of a outline design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Outline Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority

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deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant Aid, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.



FLOW CHART OF JAPAN'S GRANT AID PROCEDURES

Stage	Flow & Works	Recipient Government	Japanese Government	JICA	Consultant	Contract	Others
Application	<p>(T/R : Terms of Reference)</p> <p>Request → Screening of Project → Evaluation of T/R → Project Identification Survey*</p>						
Project Formulation & Preparation	<p>Preparatory Survey</p> <p>Preliminary Survey* → Field Survey Home Office Work Reporting</p> <p>Outline Design → Selection & Contracting of Consultant by Proposal → Field Survey Home Office Work Reporting</p> <p>Explanation of Draft → Final Report</p> <p>*if necessary</p>						
Appraisal & Approval	<p>Appraisal of Project</p> <p>Inter Ministerial Consultation</p> <p>Presentation of Draft Notes</p> <p>Approval by the Cabinet</p>						
Implementation	<p>(E/N: Exchange of Notes)</p> <p>(G/A: Grant Agreement)</p> <p>(A/P: Authorization to Pay)</p> <p>E/N and G/A</p> <p>Banking Arrangement</p> <p>Consultant Contract → Verification → Issuance of A/P</p> <p>Detailed Design & Tender Documents → Approval by Recipient Government → Preparation for Tendering</p> <p>Tendering & Evaluation</p> <p>Procurement /Construction Contract → Verification → A/P</p> <p>Construction → Completion Certificate → A/P</p> <p>Operation → Post Evaluation Study</p>						
Evaluation & Follow up	<p>Ex-post Evaluation → Follow up</p>						

Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure lots of land necessary for the implementation of the Project and to clear the sites;		●
2	To construct the following facilities		
	1) The building	●	
	2) The gates and fences in and around the site		●
	3) The parking lot	●	
	4) The road within the site	●	
	5) The road outside the site		●
3	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites		
	1) Electricity		
	a. The distributing power line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, common waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
4	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		●
6	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To ensure that the Facilities and the products be maintained and used properly and effectively for the implementation of the Project		●
8	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
9	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●

(B/A : Banking Arrangement, A/P : Authorization to pay)

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(2) Explanation of Draft Final Report

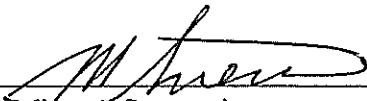
**MINUTES OF DISCUSSIONS
ON
PREPARATORY SURVEY ON
THE PROJECT FOR
REHABILITATION OF EDUCATION COLLEGES
IN
THE REPUBLIC OF UNION OF MYANMAR**

The Japan International Cooperation Agency (hereinafter referred to as "JICA") had conducted the field survey as a part of the Preparatory Survey on the Project for Rehabilitation of Education Colleges in the Republic of Union of Myanmar (hereinafter referred to as "the Project") from October 2012 to September 2013. Based on the results of the field survey and subsequent technical examinations conducted in Japan, JICA prepared the Draft Preparatory Survey Report.

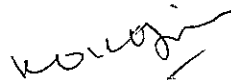
In order to explain the contents of the report and discuss with the officials concerned of the Government of Myanmar (hereinafter referred to as "the Myanmar side"), JICA sent the Survey Team (hereinafter referred to as "the Team"), which was headed by Mr. Mitsuru Suemori, Senior Advisor of JICA and stayed in the country from 22 to 26 December, 2013.

As a result of discussions, both sides have confirmed the main items described in the attached sheet.

Nay Pyi Taw, December 26, 2013



Mr. Mitsuru Suemori
Leader
Preparatory Survey Team
Japan International Cooperation Agency



Mr. Ko Ko Tin
Director General,
Department of Educational Planning and
Training,
Ministry of Education,
The Republic of Union of Myanmar

ATTACHMENT

1. Official Request for the Project

Both sides confirmed that the Myanmar side should submit “the Application Form for Grant Aid from Japan”, which is a necessary document for approval for the Project by the Government of Japan, to the Embassy of Japan by the end of January 2014.

2. Contents of the Draft Report

The Myanmar side agreed and accepted in principle the contents of the draft report as explained by the Team.

3. Teacher Education Plan for the Project

The Myanmar side explained the Team that the Project should be designed based on the Master Plan of New Taungoo Education College and Teacher Education Plan as the page 01 and 02 in ANNEX.

4. Components to be Covered by the Project

Both sides confirmed that full-scale operation of the new Taungoo Education College should be commenced just after completion of the Project. Based on the above, both sides agreed on components to be covered by the Project and by the Myanmar side as the page 03, 04, and 08 of ANNEX.

5. Major Undertakings to be taken by the Myanmar side

Both sides agreed that the major undertakings to be taken by each government for the Project as the page 09 of ANNEX.

The Myanmar side assured to take a full responsibility for the items as the page 10 of ANNEX in accordance with the schedule as the page 12 of ANNEX, and agreed to allocate necessary budget for the Project as the page 11 of ANNEX.

6. Operation and Maintenance

Both sides agreed on items and tentative annual cost for operation and maintenance for the facility and equipment after completion of the Project as the page 13 and 14 of ANNEX.

The Team explained that transportation for EC lecturers/tutors, staff and teachers/students for practicing school is necessary as shown in the page 13 of ANNEX, and the Myanmar side agreed to consider the necessary measures to cover.

7. Project Cost Estimation

The Myanmar side understood that the Project cost estimation as the page 11 of ANNEX was not final at this stage and would be set and approved by the Government of Japan after thorough examinations.

8. Environmental and social considerations

The Myanmar side assured that instead of the Environmental Management Plan and other

necessary documents, which will be required by the new rules and procedures, an environmental and social considerations report for the Project to be prepared by the Team could be accepted and evaluated by the Ministry of Environmental Conservation and Forest.

9. Confidentiality of the Information Related to the Project

Both sides confirmed that all the information related to the Project including design documents of facilities and equipment shall not be released to any outside parties before concluding all contracts for the Project.

Furthermore, both sides agreed that the Project cost estimation as the page 11 of ANNEX shall never be duplicated or released to any outside parties before concluding all contracts for the Project.

10. Final Report of the Preparatory Survey

JICA will submit the final report of the Preparatory Survey to the Government of Myanmar by the end of June, 2014.

11. Other relevant issues

11-1. Building permission

The Myanmar side assured that the Ministry of Education should facilitate all the process for obtaining the building permission for the facilities of the Project within two months after application.

11-2. New Project in Basic Education Sector

The Myanmar side explained the Team that Ministry of Education would facilitate the approval process for the Project for Curriculum Reform at Primary Level in Basic Education within the Government of Myanmar by the mid of February 2014.

END

ANNEX SUMMARY OF PREPARATORY SURVEY REPORT



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(DRAFT)
SUMMARY OF
PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR REHABILITATION OF EDUCATION COLLEGE
IN THE REPUBLIC OF THE UNION OF MYANMAR

December, 2013

Japan International Cooperation Agency (JICA)

Consortium of
Yamashita Sekkei Inc.
KRI International Corporation
Binko International Ltd.

④

01 Outline of the Master Plan of New Taungoo Education College

Item	Outline
1) Teacher Education Courses	<ul style="list-style-type: none"> • DTEd (for 1 to 2 Years) and DTEC (for 1 Year) • Two Semesters (16 weeks/semester), the rest for bloc teaching
2) Capacity	<ul style="list-style-type: none"> • Boarding college • 1,000 trainees (700 females and 300 males) • 50 trainees per class • Practicing school: pre-school (1 class) , Grades 1 to 9 (2 classes each). 40 students per class
3) Main Research Functions	<ul style="list-style-type: none"> • Joint research with Yankin EC on revision of the curriculum • Studies on teaching methods and teaching materials using multimedia
4) Facilities and Equipment	<p>Facilities:</p> <ul style="list-style-type: none"> • A model for the Campus master plan, durability, safety and fire prevention • A model for facility maintenance: energy saving, water treatment etc. • Improvement in the living environment in the hostels <p>Teaching Equipment and Furniture:</p> <ul style="list-style-type: none"> • A model for teaching equipment and furniture plan • A model for maintenance of teaching equipment
5) Management Methods	<ul style="list-style-type: none"> • Use of the facilities for self-study after school • Same number of staff members and organizational structure • Add lecturers/tutors for male physical education, industrial art, maintenance staff etc.

02 Teacher Education Plan

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(1) Course Capacity Plan

MOE plans to allocate 1,000 trainees continuously from Bago Region and Kayah State

Schedule	Number of trainees	Annual Graduated	Hostel Capacity	Ratio (Male : Female)
Current Schedule	DTEd-1 (132), DTEd-2 (166), DTEC (97) total 395 trainees	263	350	0:10
Project Schedule	DTEd-1 (500), DTEd-2 (500), DTEC (500) total 1,500 trainees	1,000	1,000	3:7

(2) Education Schedule

The Project is planned based on the following schedule.

Project Schedule

	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 DTEd													
	1st Semester (16w)												
	2nd Semester (16w)												
2 DTEd													
	1st Semester (16w)												
	Bloc Teaching (45day)												
	2nd Semester (16w)												
3 DTEC													
	Bloc Teaching (45day)												
	2nd Semester (16w)												
	1st Semester (16w)												

Stay at Hostel in EG

03 Major Components to be covered by the Project

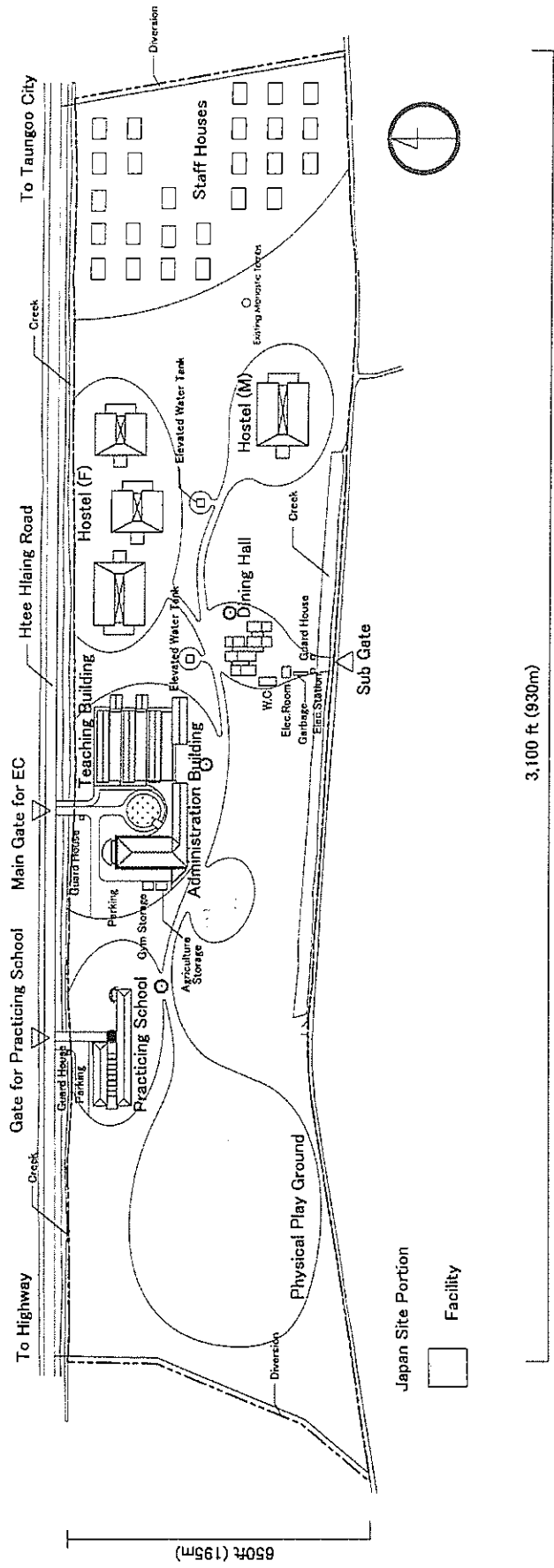
Major Components	Priority	Coverage
Class Rooms	A	Covered by Japanese Grant Aid
Co-curriculum Class Room combined with Academic Office	A	
Laboratory	A	
Computer Application Room, LL Room, Audio Visual Room (Including Internet Access for Teachers as well as trainees)	A	
Assembly Hall and Gymnasium	A	
Administration Office	A	
Academic Department Office	A	
Library	A	
Dining Hall with Kitchen	A	
Hostel (for female and male)	B	
Practicing School for Pre-school ,Primary and Middle school	B	
Staff Houses for Teaching staff and Others	C	
Agriculture Practicing Field	D	
Physical Play Ground	D	

04 Components of Facility Construction

	Facility	Floor Area
Japanese Side	<ul style="list-style-type: none"> • Administration Building (including a assembly hall) • Teaching Building • Hostels (1,000 trainees capacity in 4 hostels) • Dining Hall with Kitchen • Ancillary Facilities (gym storage, electric room etc) 	<p>2,457 m²</p> <p>4,257 m²</p> <p>10,260 m²</p> <p>675 m²</p> <p>300m²</p>
	Total	17,949m ²
Myanmar Side	<ul style="list-style-type: none"> • Practicing School (760 students) • Staff Houses (13 households) • Agriculture Practicing Field • Physical Play Ground • Others (garage etc.) 	<p>2,671 m²</p> <p>1,338 m²</p>

05 Site Plan

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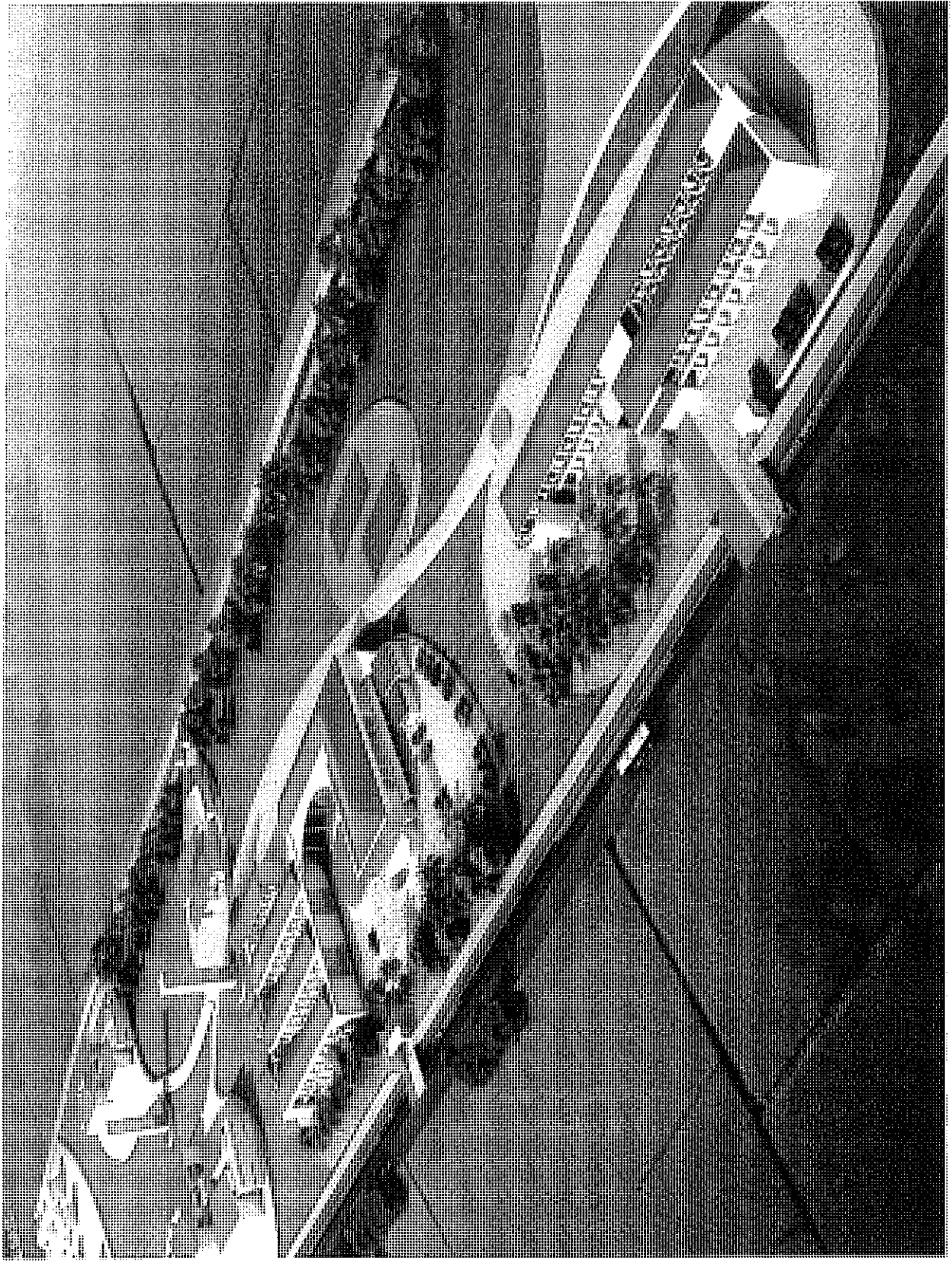
Project Site 41.19acre (167,000m²)

06 Bird Eye Perspective1

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07 Bird Eye Perspective 2



(14)

08 Outline of Facility Programming

Building Name	Room Name	Furniture	Equipment
Administration Building	Principal, Department Head Rooms, Department Rooms, Administration Office, Print Room, Library, Care Room etc.	Desk, Chair, Shelf, Reading Table etc.	Computer, Printer, Printing Machine, etc
Teaching Building	Class Rooms (20), Laboratory (4), Industrial Art, Domestic science, Art, Music, LL, Computer, Audio Visual Rooms etc.	Desk, Chair, Black Board, Lab. Table, LL Booth etc.	Lab., Co-curricular, Audio visual, LL, computer etc.
Hostels	Bed Rooms (4 trainee/room x 250), Study Rooms etc	Bed, Cabinet etc.	—
Dining Hall with Kitchen	Dining (male 150 seats, female 350 seats) 2 shift, Kitchen, staff (20 seats)	Table, Chair, Cooking Table etc.	—
Ancillary Facilities	Pump Room, Electric Room, Gym, Agricultural storages, Guard house etc.	—	—

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10 Major Undertakings by the Myanmar Side

1. Related to Construction <ul style="list-style-type: none">• To secure the Project site• To bank soil at buildings sites and its surroundings and three access roads, and back filling of irrigation channel• To set up two diversions at east and west end of the Project site• To lead electric power line to the Project site from Taungoo University (1.4 km)• To construct fence enclosing the Project site• To construct other facilities with equipments and furniture, which are not constructed by the Grant Aid from the GOJ
2. Related to Maintenance and Operation <ul style="list-style-type: none">• Procurement and installation of general furniture, equipment and fittings, etc. not borne by Japan's Grant Aid• Procurement of consumables and spare parts necessary for the proper maintenance and operation• Appropriate and effective operation of the completed facilities and equipment
3. Related to Procedures <ul style="list-style-type: none">• Costs related to Banking Arrangement (B/A), Authorization to Pay (A/P) and Payment Charge• To obtain a building permission inspected by MOE and MOC• Obtaining relevant permissions, licenses and other authorizations as may be necessary for the Project• Prompt unloading, customs clearance and tax exemption of the products for the Project• Exemption of Japanese nationals from custom duties, internal taxes and fiscal levies• According Japanese nationals for their entry into Myanmar and stay therein• Bearing all expenses other than those borne by Japan's Grant Aid, necessary for the Project

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11 Project Cost Estimation

(1) Cost to be borne by the Japanese side

This item is closed due to the confidentiality.

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(2) Cost to be borne by the Myanmar side

Items borne by the Myanmar side (Related to Construction)	Estimated Cost (Kyat)
1) Land acquisition compensation (budget request for re-fund)	82,380,000
2) Banking soil at building sites, its surroundings and three access roads, back filling of irrigation channel, and set up two diversions	362,285,000
3) Leading electric power line to the Project site (1.4 km extension)	30,870,000
4) Construct of fence enclosing the Project site	143,910,000
5) Construction of other facilities with equipments and furniture, which are not constructed by the Grant Aid from the GOJ	1,205,960,000
6) Commissions (A/P, B/A and Payment) and others (including relocation)	37,000,000
Total	1,862,405,000

1) to 5) estimated by DEPT in August 2013

(3) Conditions of Estimation

1) Time of Estimation	July 2013
2) Exchange rate	1USD = 99.77JPY
3) Implementation period	As per Tentative Mater Schedule
4) Others :	The rules of Japan's Grant Aid Scheme were applied in estimating the cost

12 Tentative Master Schedule

	2014			2015												2016		
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
E/N	Cabinet approval			E/N														
G/A	G/A			Budgetary Period 24 months														
Consultant Agreement							Construction Contract											
Detail Design, Tender and Contract				Rainy Season			Construction Period 15 months											
Construction				Completion														
Equipment Procurement																		
Works Done by MOE																		
Building Permit	Payment																	
1) Land acquisition compensation	▲			Budget Allocation														
2) Banking soil at building sites, its surroundings																		
Banking soil at three access roads																		
Back fill of irrigation channel																		
Set up two diversions																		
3) Leading electric power line to the Project site																		
4) Construction of fence enclosing the Project site																		
5) Construction of practicing school, staff houses, etc																		
6) Commissions(A/P, payment) and others (including relocation)				▲ EC Open														

E/N: exchange of Notes G/A: Grant Agreement

13 Operation and Maintenance after the Completion of the Project

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(1) Transportation

For EC Lecturers/Tutors before staff houses completion
For EC staff who live in Taungoo town
For practicing school staff who live in Taungoo town
For practicing school students who live in Taungoo town

(2) Operation and Maintenance Organization

At Present (133)	<ul style="list-style-type: none"> • EC: 113 staff (executives 5, lecture/tutor 66, admin. officer 42) • Practicing School: 20 staff (headmaster 1, teachers 16, admin. officer 3)
Additional Personnel	<ul style="list-style-type: none"> • Physical education lecture/tutor (3), industrial art lecture/tutor (2) • Practicing school teacher (3) • Necessary number of Maintenance staff (Water, Mechanical, Electrical, Building, etc), kitchen staff

40

14 Annual Cost for Operation and Maintenance after the Completion of the Project

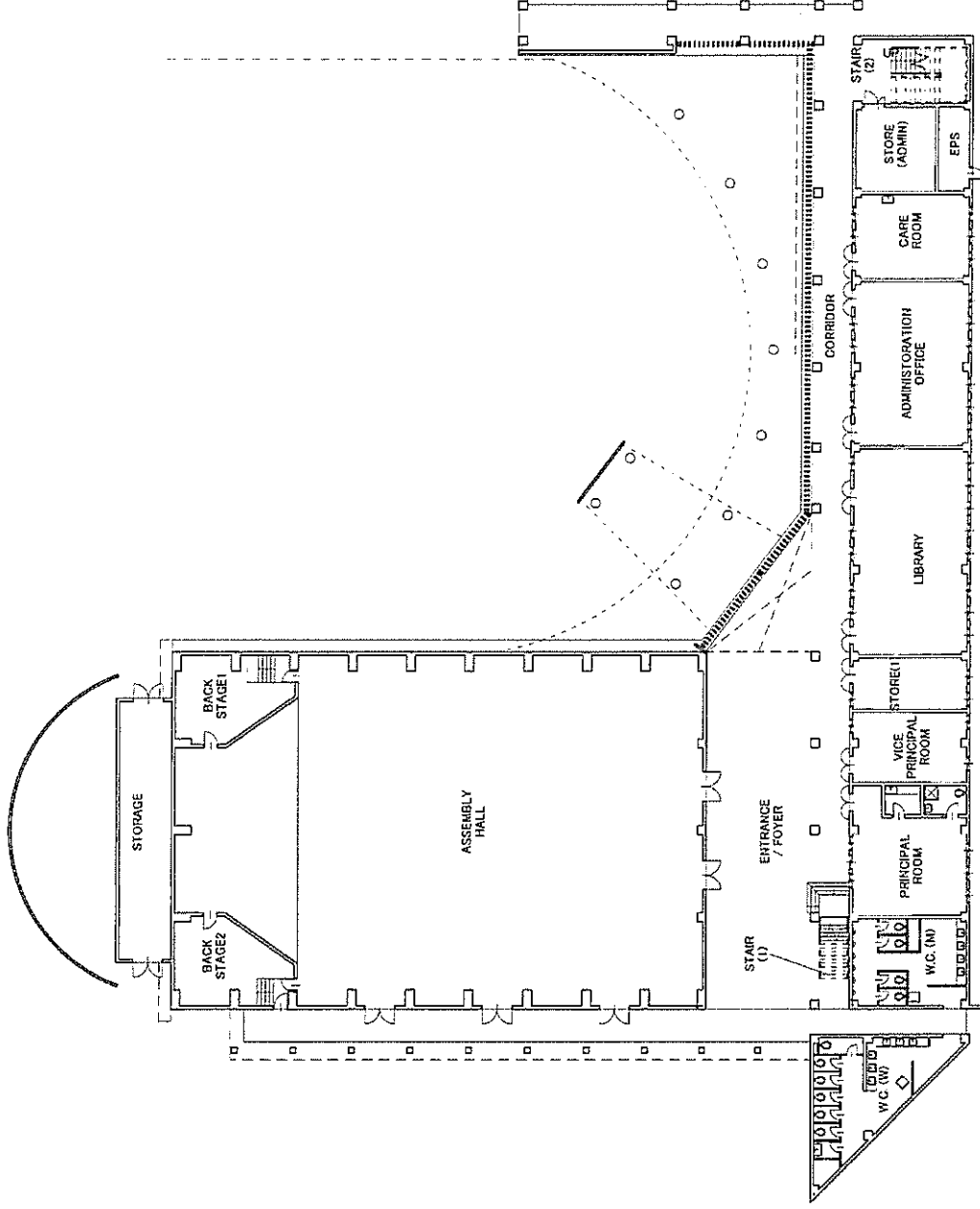
(3) Operation and Maintenance Cost

Item	Estimated by Consultant Team	
	After completion of the Project Expenses (Kyat)	2012-2013 (Reference) Expenses (Kyat)
(1) Personnel and travel expenses (including practicing school)	181,094,000	151,070,677
1) Personnel expenses	179,422,000	149,675,827
2) Travel expenses	1,672,000	1,394,850
(2) Operation and maintenance expenses	76,073,000	40,352,620
3) Goods and services	43,706,000	34,786,620
4) Maintenance Charge (machinery, building and vehicle)	23,979,000	5,326,000
5) Waste Disposal Cost (domestic solid waste and sludge.)	1,440,000	-
6) Transportation	Necessary Expense (+ α)	
7) Others (10% of 3) to 5))	6,912,000	240,000
Total	257,131,000 + α	191,423,297

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15 Facilities Plan (Administration Building GFL)



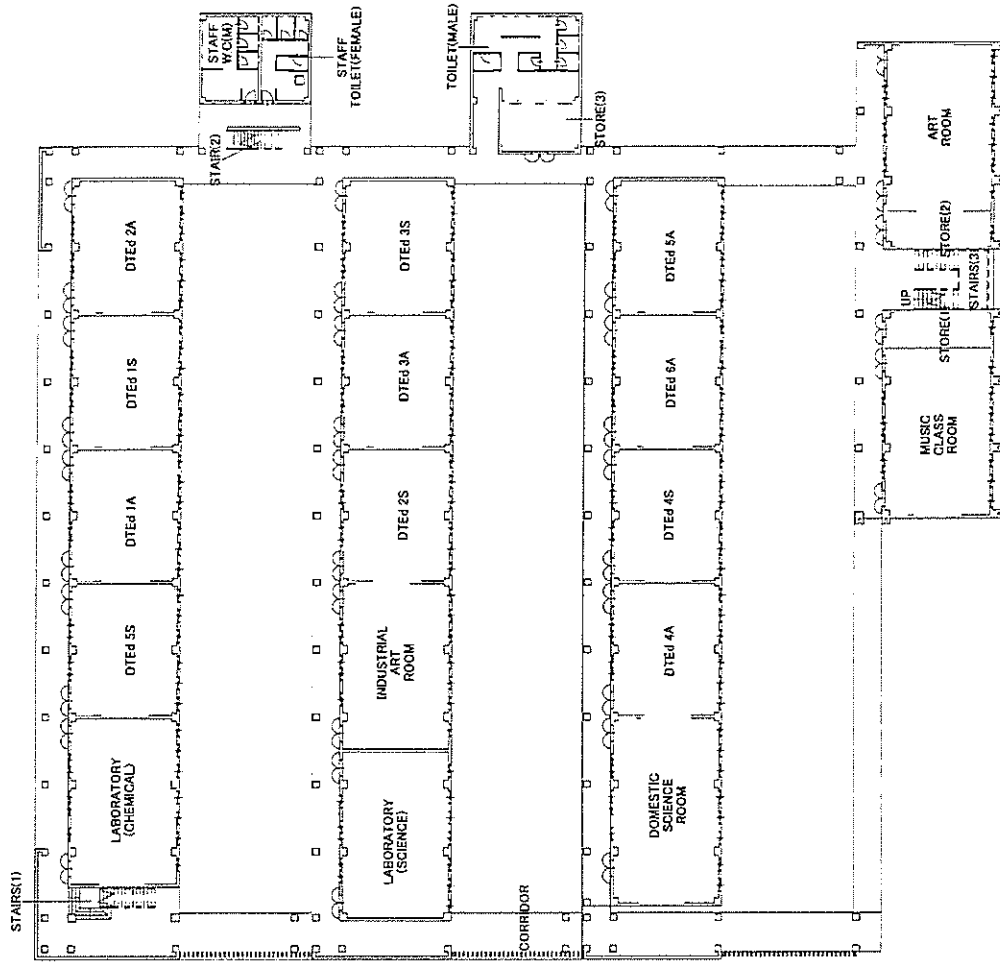
Administration Building GFL Plan

the Project for Rehabilitation of Education College in the Republic of the Union of Myanmar

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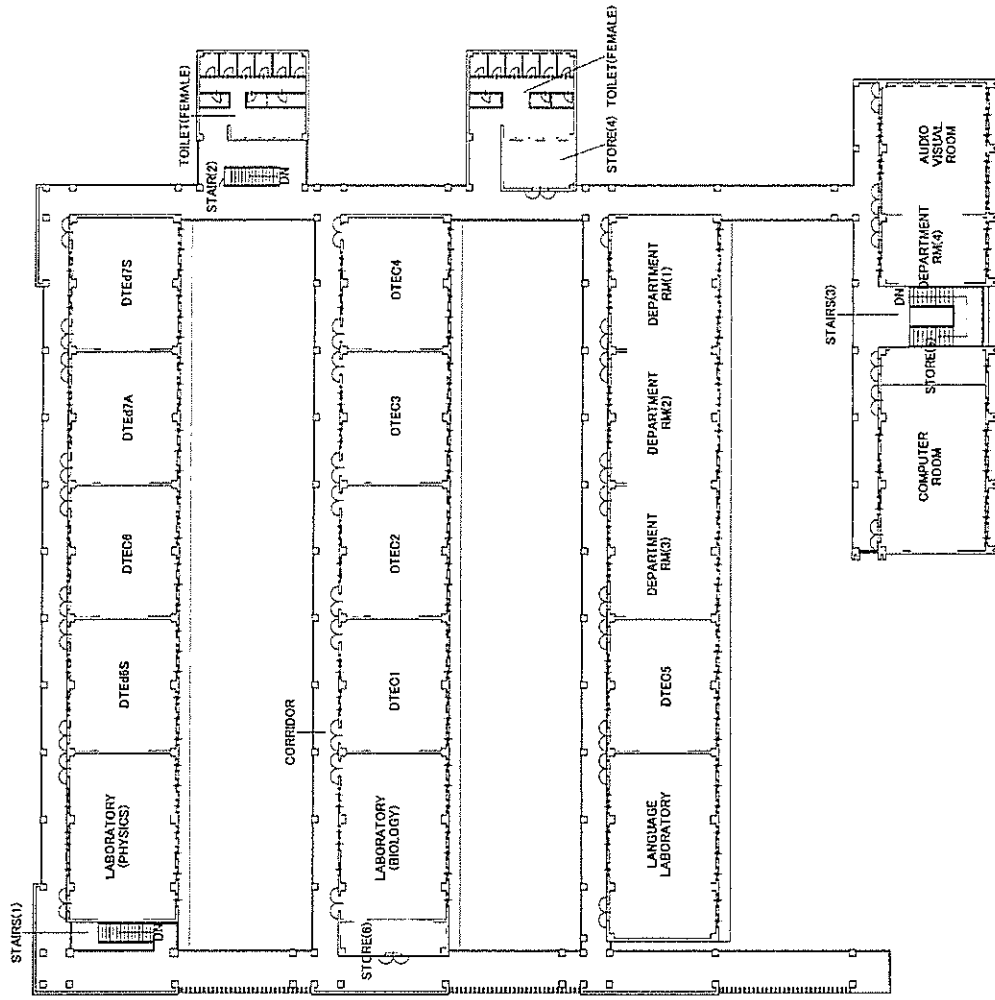
17 Facilities Plan (Teaching Building GFL)



Teaching Building GFL Plan

the Project for Rehabilitation of Education College in the Republic of the Union of Myanmar

18 Facilities Plan (Teaching Building 1FL)



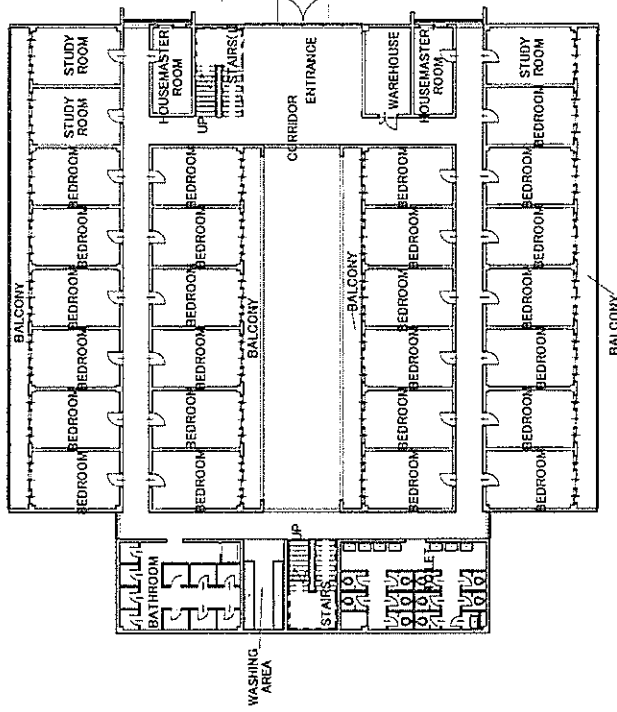
Teaching Building 1FL Plan

the Project for Rehabilitation of Education College in the Republic of the Union of Myanmar

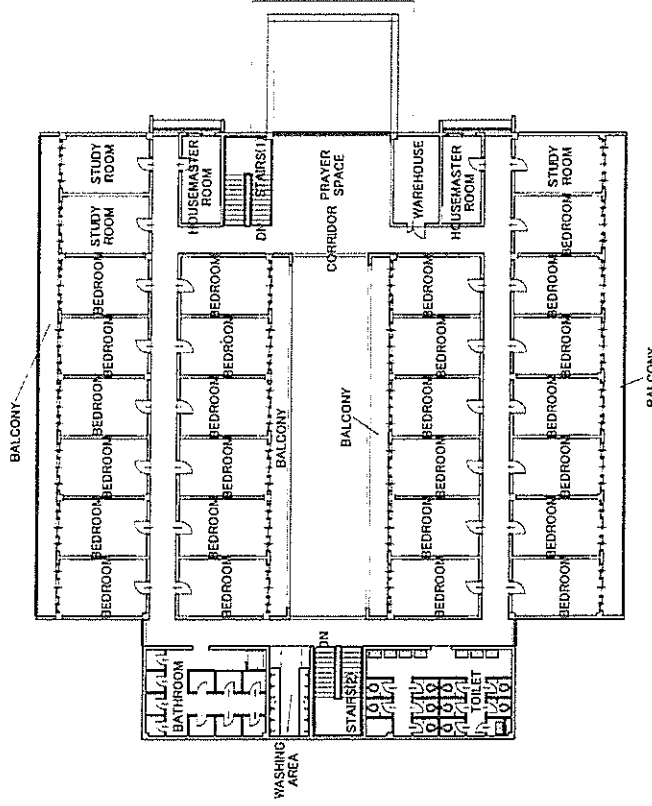
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19 Facilities Plan (Hostel GFL & 1FL)



Hostel GFL Plan



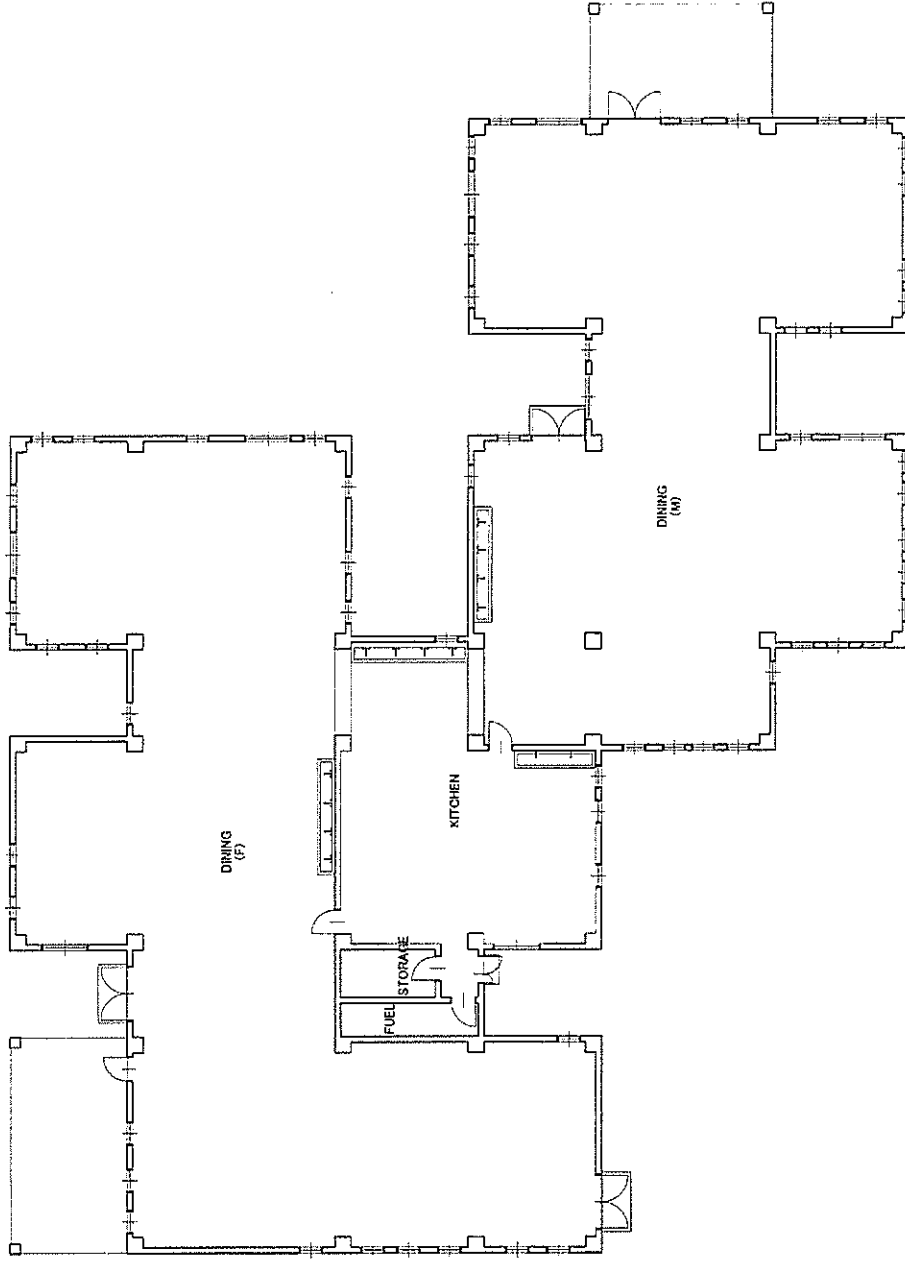
Hostel 1FL Plan

Hostel Plan

the Project for Rehabilitation of Education College in the Republic of Myanmar

46

20 Facilities Plan (Dining Hall)



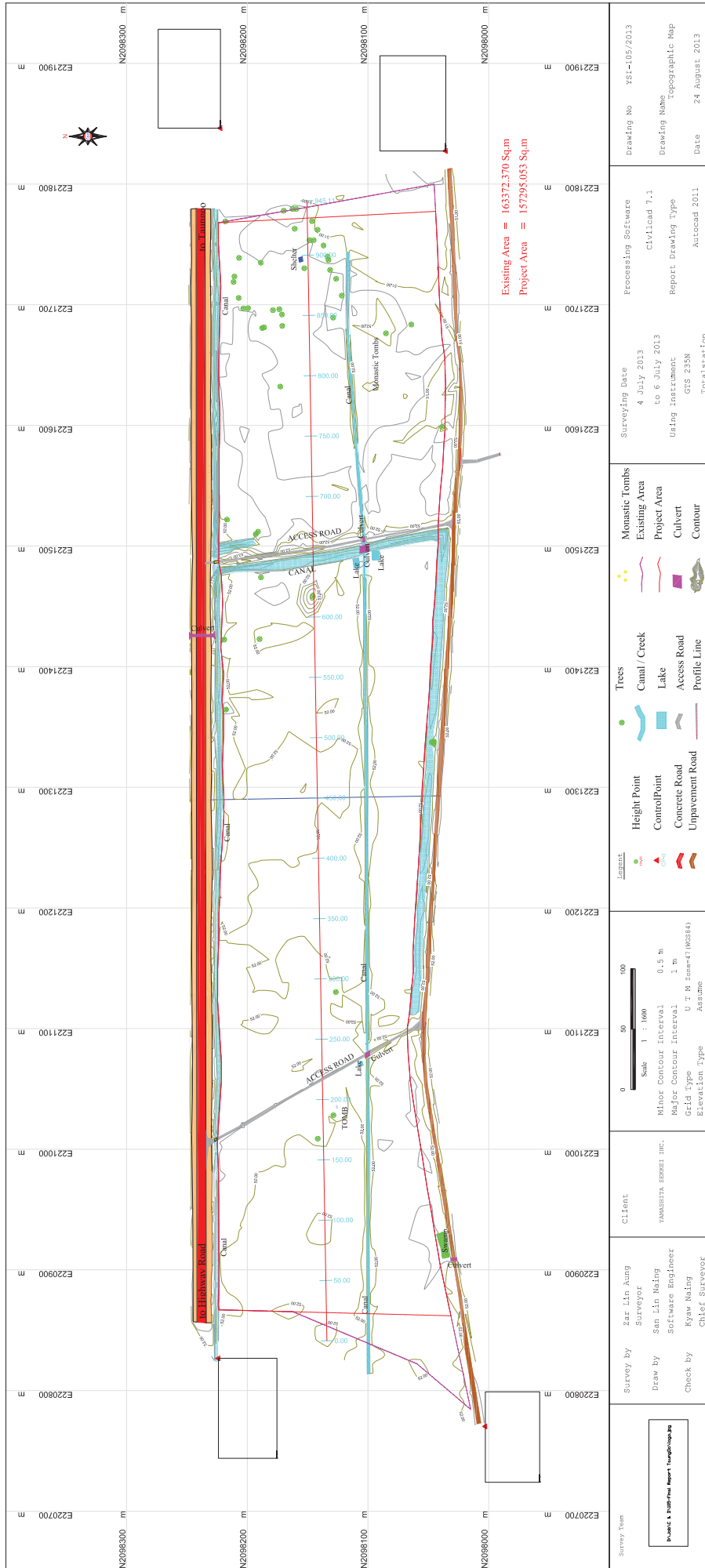
Dining Hall GFL Plan

the Project for Rehabilitation of Education College in the Republic of Myanmar

5. References

5. References

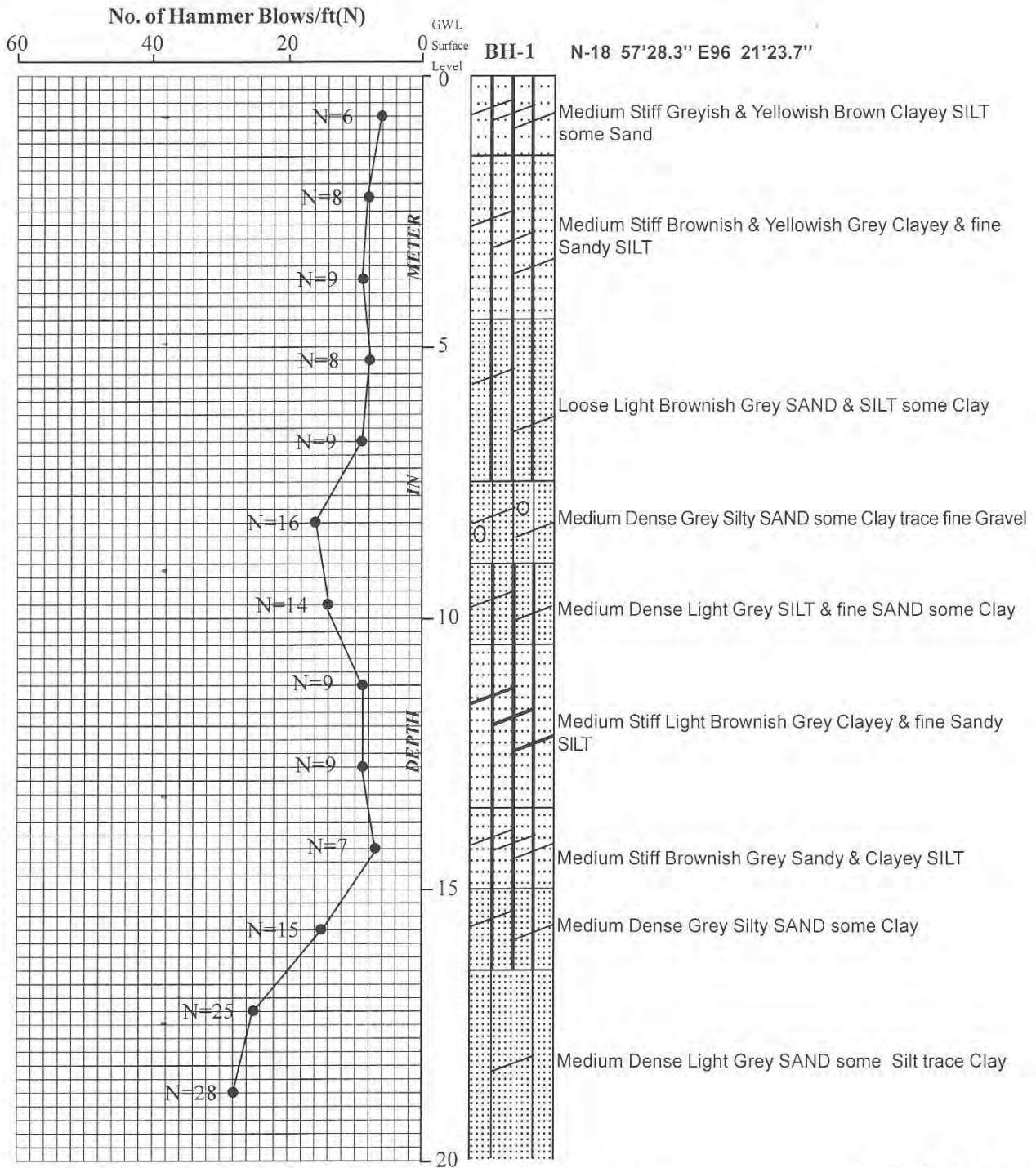
5-1 Topographic Map of the Site



5-2 Boring Data of the Site
Location of Bore Hole (BH)

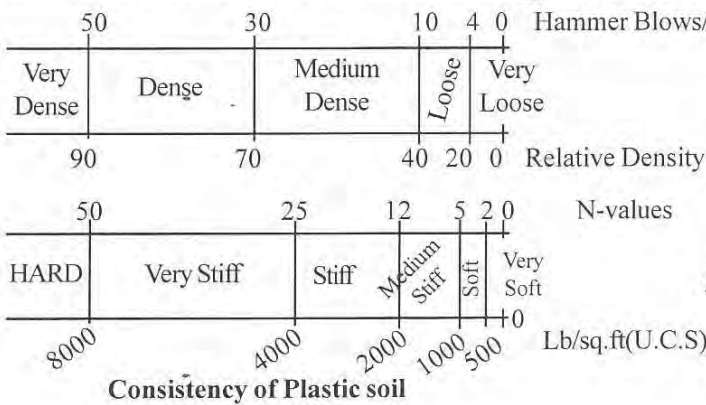


(1) Soil Profile of BH-1



Scale 1" = 2.5 m

Figure 2.1



SOIL PROFILE OF BORE HOLE NO.(1)
PROPOSED 2 & 3 STOREYED BUILDING
'REHABILITATION OF EDUCATION
COLLEGE IN MYANMAR' PROJECT SITE,
NEAR THE SHAN VILLAGE, SIN SEIK,
TAUNGGO TOWNSHIP, BAGO REGION.

(2) Soil Profile of BH-2

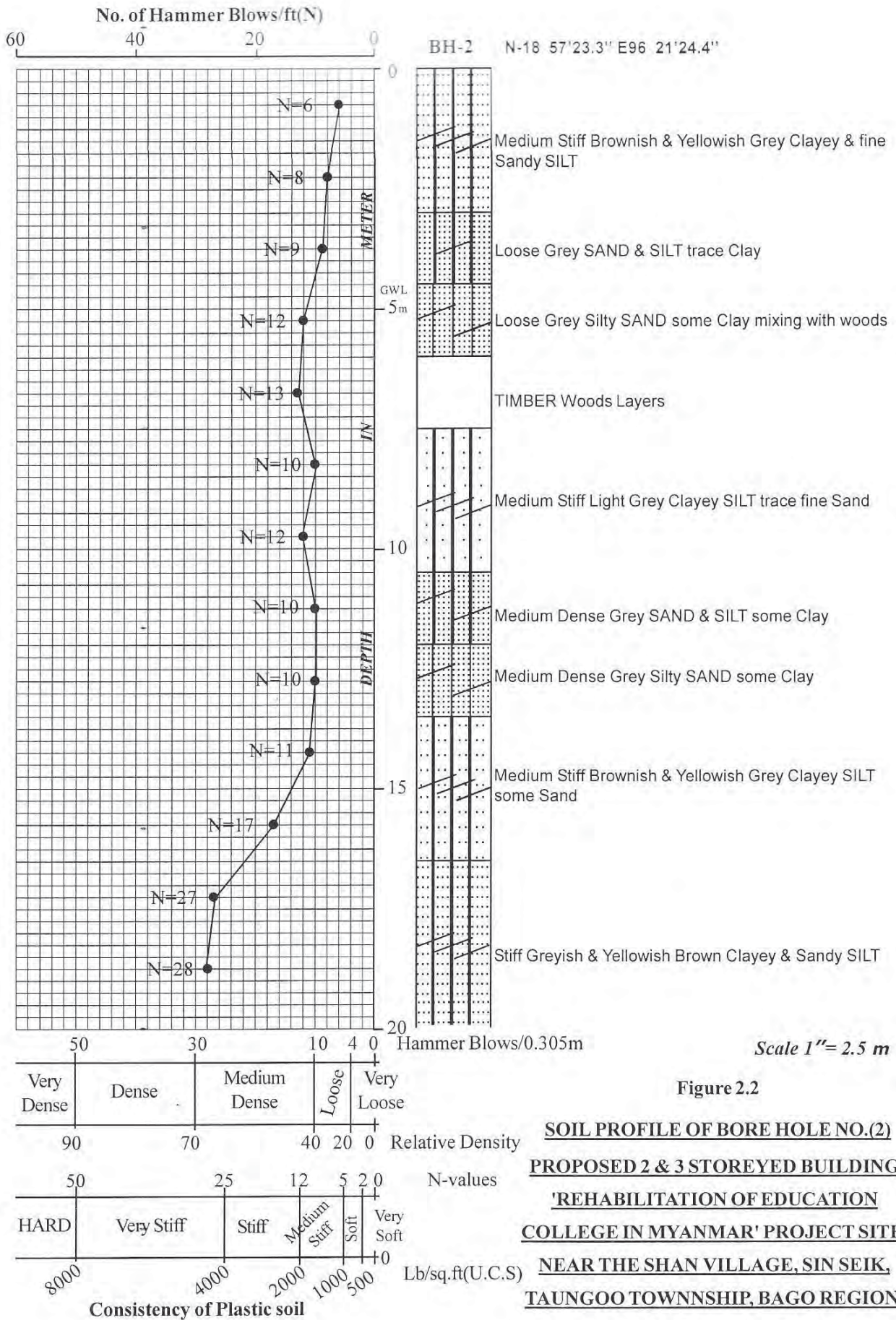
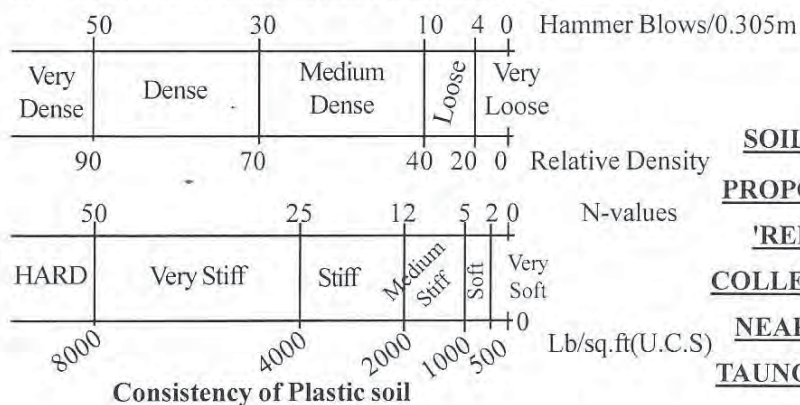
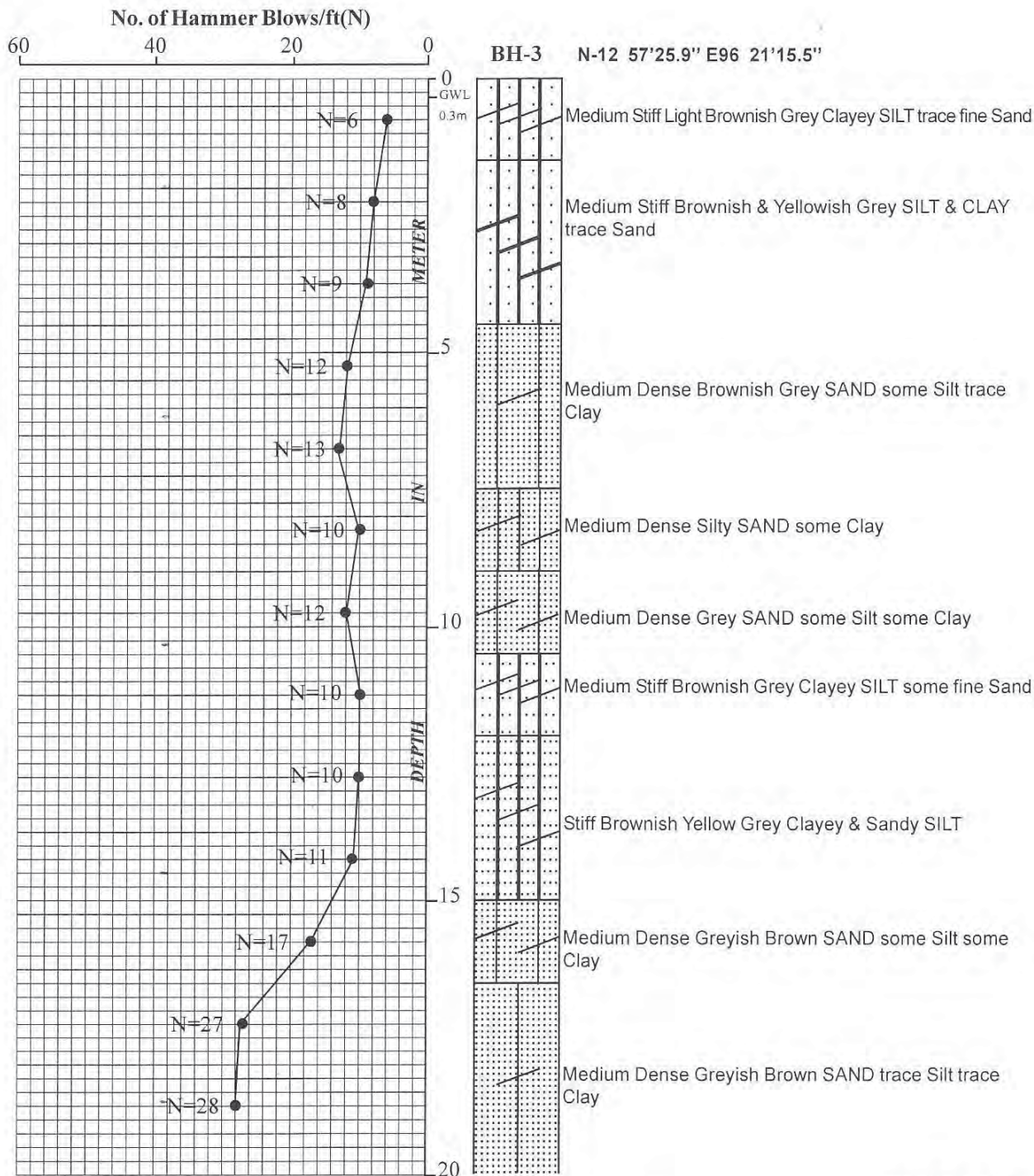


Figure 2.2

SOIL PROFILE OF BORE HOLE NO.(2)
PROPOSED 2 & 3 STOREYED BUILDING
'REHABILITATION OF EDUCATION
COLLEGE IN MYANMAR' PROJECT SITE,
NEAR THE SHAN VILLAGE, SIN SEIK,
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(3) Soil Profile of BH-3



Scale 1" = 2.5 m

Figure 2.3

SOIL PROFILE OF BORE HOLE NO.(3)
PROPOSED 2 & 3 STOREYED BUILDING
'REHABILITATION OF EDUCATION
COLLEGE IN MYANMAR' PROJECT SITE,
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TAUNGOO TOWNSHIP, BAGO REGION.

(4) Soil Profile of BH-4

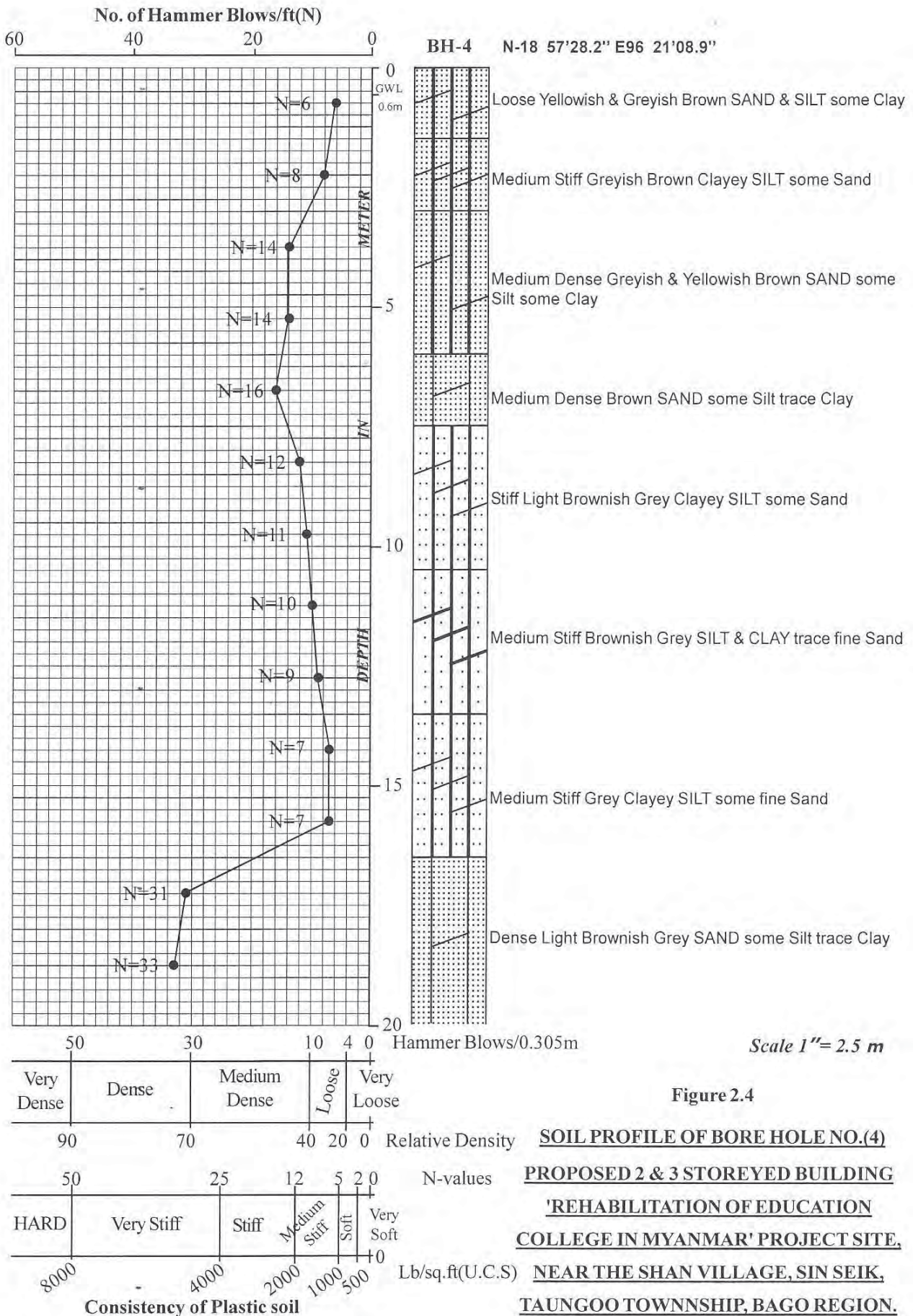


Figure 2.4

SOIL PROFILE OF BORE HOLE NO.(4)
PROPOSED 2 & 3 STOREYED BUILDING
'REHABILITATION OF EDUCATION
COLLEGE IN MYANMAR' PROJECT SITE,
NEAR THE SHAN VILLAGE, SIN SEIK,
TAUNGOO TOWNSHIP, BAGO REGION.

(5) Soil Profile of BH-5

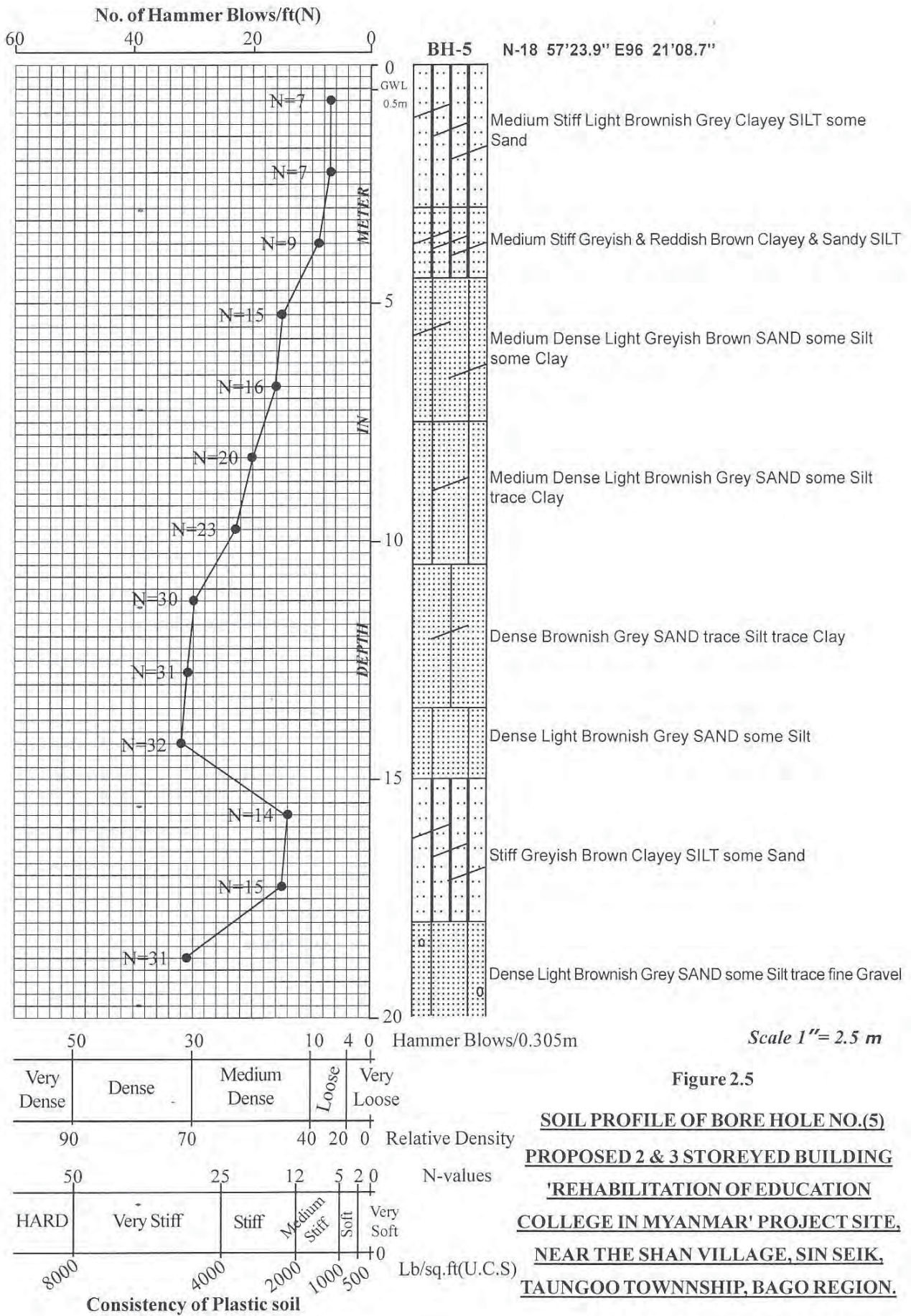


Figure 2.5

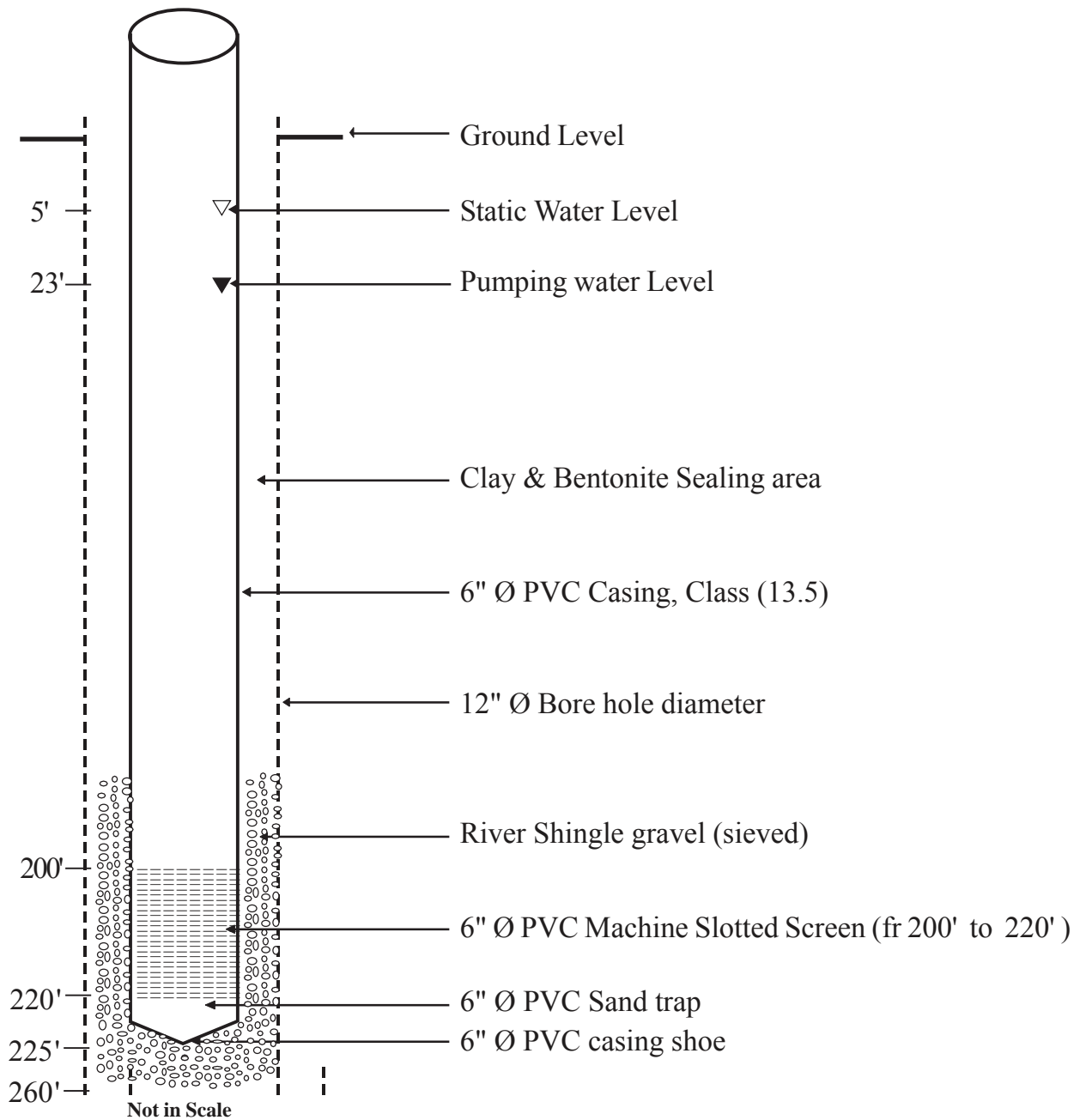
**SOIL PROFILE OF BORE HOLE NO.(5)
 PROPOSED 2 & 3 STOREYED BUILDING
 'REHABILITATION OF EDUCATION
 COLLEGE IN MYANMAR' PROJECT SITE,
 NEAR THE SHAN VILLAGE, SIN SEIK,
 TAUNGOO TOWNNSHIP, BAGO REGION.**

5-3 Groundwater capacity Measuring Test

(1) Section of Drilled Tube Well

6"Ø Tube Well Design

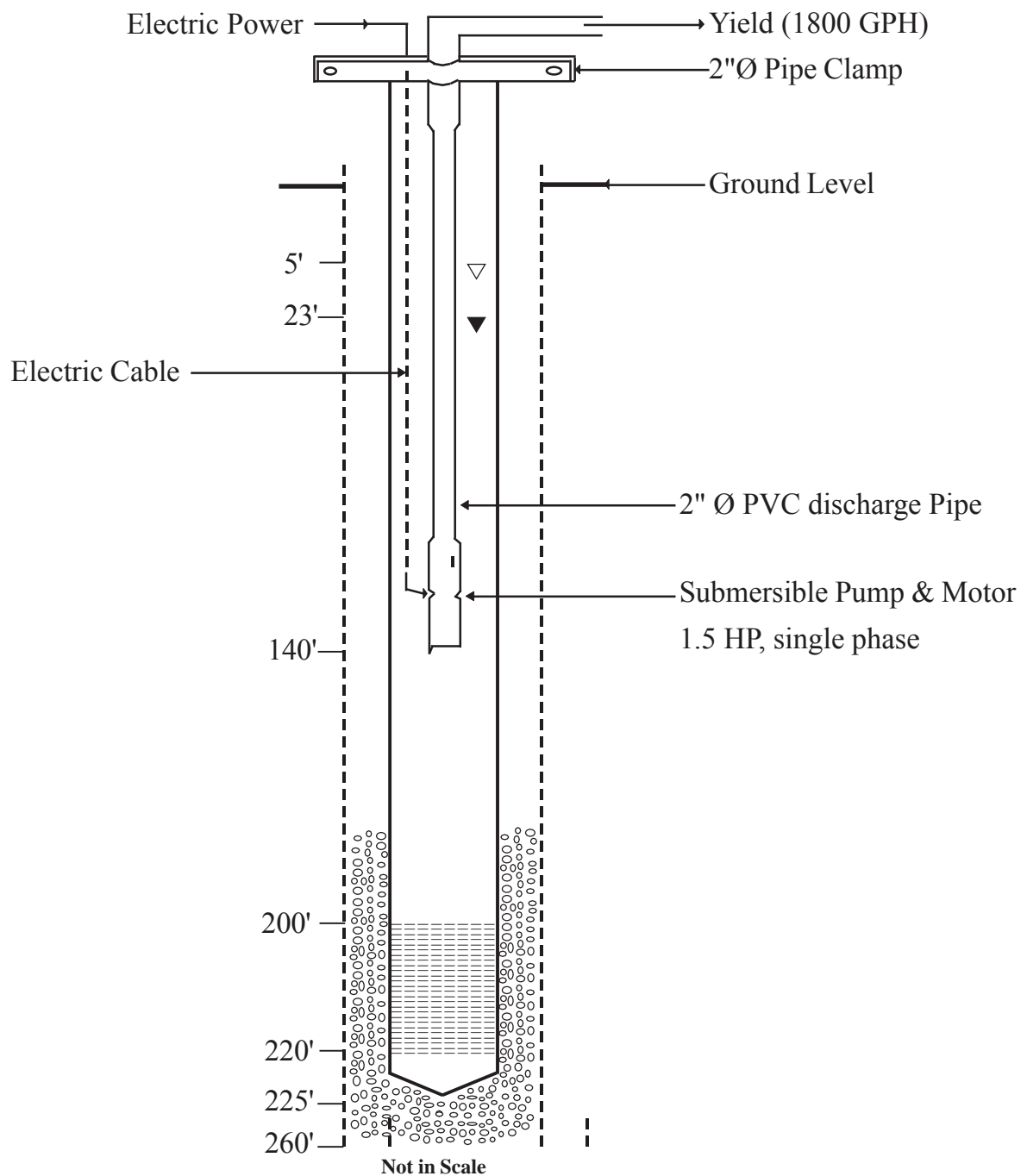
Location : New Education college project, Sinseik village, Taungoo district, Bago Region.



(2) Section of Yield Test

Pumping Out System by submersible pump

Location : New college project, Sinseik village, Taung Ngu district, Bago Region.



(3) Water Quality Analysis-1



LABORATORY



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WTL-RE-001

W0813 053

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Issue: 1.0/ Page 1 of 1

WATER QUALITY TEST RESULTS FORM

Client U Win Myint
Nature of water Tube Well Water
Location New College Project, Taung Ngu Township.
Date and Time of collection 3.8.2013
Date and Time of arrival at Laboratory 9.8.2013
Date and Time of commencing examination 10.8.2013
Date and Time of completing 11.8.2013

Results of Water Analysis

WHO Drinking Water Guideline
(Geneva - 1993)

Table with 4 columns: Parameter, Value, Unit, and Guideline. Rows include Phosphate, pH, Colour (True), Turbidity, Conductivity, Total Hardness, Total Alkalinity, Phenolphthalein Alkalinity, Calcium Hardness, Iron, Magnesium Hardness, Manganese, Carbonate (CaCO3), Chloride (as CL), Sodium chloride (as NaCL), Bicarbonate (HCO3), Sulphate (as SO4), Total Solids, Suspended Solids, Dissolved Solids, Phenolphthalein Acidity, Methyl Orange Acidity, and Salinity.

Remark: This certificate is issued only for the receipt of the test sample.

(If any)

Tested by

Signature: Zaw Hein Oo

Name: B.Sc (Chemistry)
Chemist

ISO TECH Laboratory.

Approved by

Signature: Win Myint

Name: B.E (Civil) 1980, M.MES
Technical Officer

ISO TECH Laboratory

(a division of WEG Limited)

(4) Water Quality Analysis-2



LABORATORY



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W0913 032

WATER QUALITY TEST RESULTS FORM

Client U Win Myint
Nature of Water Tube Well Water
Location New College Project, Taung Ngu Township.
Date and Time of collection _____
Date and Time of arrival at Laboratory 4.9.2013.
Date and Time of Commencing examination 5.9.2013
Date and Time of Completing 6.9.2013

Results of Water Analysis

WHO Drinking Water Guideline
(Geneva - 1993)

Temperature (°C)	°C	
Fluoride (F)	mg/l	1.5 mg/l
Lead (as Pb)	mg/l	0.01 mg/l
Arsenic (As)	Nil	0.01 mg/l
Nitrate (N.NO ₃)	mg/l	50 mg/l
Chlorine (Residual)	mg/l	
Ammonia (NH ₃)	mg/l	
Ammonium (NH ₄)	mg/l	
Dissolved Oxygen (DO)	mg/l	
Chemical Oxygen Demand (COD)	mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20°C)	mg/l	

Remark: This certificate is issued only for the receipt of the test sample.
(If any)

Tested by

Signature: Hein:

Name: Zaw Hein Oo
B.Sc (Chemistry)
Chemist
ISO TECH Laboratory.

Approved by

Signature: [Signature]

Name: U Win Myint
B.Sc (Civil) 1980, M.M.P.S
Technical Officer
ISO TECH Laboratory