Southern Nations, Nationalities and Peoples' Regional State Education Bureau
Federal Democratic Republic of Ethiopia

PREPARATORY SURVEY REPORT ON THE PROJECT FOR CONSTRUCTION OF PRIMARY AND SECONDARY SCHOOLS IN THE SOUTHERN NATIONS, NATIONALITIES AND PEOPLES' REGIONAL STATE IN THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

DECEMBER 2012

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)
MOHRI, ARCHITECT & ASSOCIATES, INC.

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Preface

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey on “the Project for Construction of Primary and Secondary Schools in the Southern Nations, Nationalities and Peoples’ Regional State in the Federal Democratic Republic of Ethiopia” and entrust the said survey to Mohri, Architect & Associates, Inc.

The survey team held a series of discussions with the officials concerned of the Government of Ethiopia, 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 Ethiopia for their close cooperation extended to the survey team.

December 2012

Nobuko Kayashima
Director General,
Human Development Department
Japan International Cooperation Agency

Summary

1. Overview of the Country

The Federal Democratic Republic of Ethiopia (hereinafter referred to as “Ethiopia”) is a republic of 1.104 million sqkm with a population of approximately 84.73 million (World Bank, 2011). Its population is the second largest amongst African nations. It is an in-land country bordered by Somalia on the east, by Sudan and South Soudan on the west, by Kenya on the south, by Eritrea on the north and also by Djibouti on the southeast. The Ethiopian Highland and other plateaus occupy the majority of the land, and those vary from 1,500 to 4,000 m above sea level. Ethiopia belongs to the tropical and temperate climate zones, however, the climate differs from one place to another. Addis Ababa, the capital city of Ethiopia, is located at 2,400 m above sea level, and the average annual temperature is 16C. The seasons in Ethiopia are mainly defined by a rainy season and a dry season. Furthermore, the former is divided into two: a small rainy season from April to May, and a main rainy season from June to September.

The main industry of Ethiopia is agriculture which provides 85 % of the employment. The GNI per capita of Ethiopia is 400 USD (World Bank, 2011), and 45 % of it is agricultural industry. The Ethiopian economy heavily relies on the primary industry. The major export items are coffee and oil seeds which are prone to be affected by the global market and the climate.

2. Background and Outline of the Project

Ethiopia has introduced the Education Sector Development Program (ESDP) in 1997 and currently, ESDP Phase IV (2010/11-14/15) is in place. Owing to the projects under ESDP, Primary GER (G1-8) improved from 41.8% in 1997/98 to 96.4% in 2010/11 nationwide. As for Secondary GER (G9-12), it rose from 8.8% to 23.7% during the same period. The breakdown of Secondary GER in 2010/11 is 38.4% and 8.1% for G9-10 and G11-12 respectively. Although GERs steadily rise, regional and gender disparities of GERs is a critical issue. Furthermore, a lack of teachers and classrooms, and access to Second Cycle Primary (G5-8) education and Secondary education have become problematic due to the rapid increase of access to First Cycle (G1-4) primary education.

Southern Nations, Nationalities and Peoples’ Regional State (hereinafter referred to as “SNNPR”), where the Project is planned, saw the First Cycle Primary (G1-4) GER at 122.9%, and the Second Cycle Primary (G5-8) GER at 73.8%. Secondary GERs are further reduced to 35.5% for General Secondary (G9-10) and 5.9% for Preparatory Secondary (G11-12).

The higher the education level, the lower the access indicator, the reason of which can be attributed to a limited number of complete schools that can teach all 8 grades at the primary level. The number of schools which cover G5 education or higher is particularly limited. There are 4,528 schools at which G4 students can attend, while the number reduces to 2,317 for G5 students in SNNPR. The limited access for higher graders is especially critical in rural areas. On the other hand, classrooms are overcrowded with students in complete schools, due to their limited number.

The number of secondary schools is further limited. While there are 1,760 schools available for G8 education, only 250 schools are available for G9 education. In addition, most of such secondary schools are concentrated in urban areas, and accordingly, the classrooms are highly overcrowded in urban secondary schools. On the other hand, there are almost no secondary schools in rural areas, leaving access to secondary education very difficult.

Against this backdrop, SNNPR Education Bureau (hereinafter refereed to as “SNNPREB”) initially requested the Government of Japan to assist in: i) establishing new primary schools, ii) upgrading existing primary schools and, iii) establishing new secondary schools.

3. Summary of the Survey and the Contents of the Project

In response to the request, JICA dispatched the preparatory survey team in November 2011 and February 2012. As the result of Field Surveys and discussions between the Japanese side and the Ethiopian side, in light of the pressing need to construct secondary schools, it was agreed that the Project would focus on establishing new secondary schools (10 schools) and extending/upgrading existing primary schools (11 schools) in order to upgrade incomplete primary schools to complete ones and to mitigate the number of overcrowded classrooms.

Following the analysis in Japan, the Survey to explain the Draft Report of the Project was carried out in July 2012. The Project plan was finalized after the Survey to explain the Draft Tender Documents in October 2012.

Based upon the request, the survey results and the series of discussions with the Ethiopian side, the Project plan has been drawn up as follows.

3-1. Facility Plan

(1) Facility Components

The facility components of the Project will be as follows.

Type	Requested components
Secondary School	Classrooms, Library room, Science laboratories (Chemistry, Physics, Biology), ICT Center, Satellite receiver center, Technical drawing room (Only for G9-12 schools), Toilet (Students), Director's Office (with secretary), Deputy director's office (2), Administration and finance office, Record room, Store room, Janitor room, Mini-media room, Toilet (Teachers and staff), Staff room, Department head's office
Primary school	Classrooms

(2) Project Schools and Facility Size

[Establishment of new secondary schools]

The Project schools and their size are as per the table below. The number of classrooms to be built was calculated based upon the projected number of students in 2014/15, with the assumptions of 40 students per classroom and double shift schooling. Furthermore, the library, technical drawing room and toilet buildings are planned according to the size and target grades of the respective schools.

No.	Construction Site	Grade	Important facilities to be built				
			No. of CRs	Library	Science lab	Tec Drawing room	Toilet bldg
S-1	Kulito	G9-12	32	Large	3	Yes	4
S-2	Berkuncho	G9-10	16	Small	3	-	4
S-3	Jawe	G9-10	16	Small	3	-	4
S-4	Belesto	G9-10	32	Large	3	-	4
S-5	Kuka Tumticha	G9-10	12	Small	3	-	4
S-6	Camp Sefer	G9-12	32	Large	3	Yes	4
S-7	Tiya	G9-10	8	Small	3	-	2
S-8	Gurumo Koyisha	G9-10	16	Small	3	-	4
S-9	Jata	G9-10	8	Small	3	-	2
S-10	Chamo	G9-12	32	Large	3	Yes	4
Total			**204**	**Large:4 Small:6**	**30**	**3**	**36**

[Extension of existing primary schools]

The Project schools and their size are as per the table below. As for the number of classrooms, the insufficient number of classrooms was calculated based upon the projected number of students as well as 50 students per classroom and current school shift. As a result, it has been confirmed that all schools lack classrooms and depending on the scale of need, 4 or 8 classrooms will be built.

No.	Primary School	shift	**No. of CRs to be built**
P-1	Tercha	2	**4**
P-2	Duna	1	**4**
P-3	Addis Fana	2	**8**
P-4	Botre	2	**8**
P-5	Koyite Millennium	1	**8**
P-6	Tankaro	2	**4**
P-7	Abosto Tula	2	**8**
P-8	Abeyot Fere	2	**8**
P-9	Bajo	1	**8**
P-10	Hagiye	1	**8**
P-11	Edget Bandnet	2	**4**
TOTAL		-	**72**

3-2. Furniture and Equipment

The minimum basic furniture will be procured for secondary and primary schools. No equipment will be included in the Project.

3-3. Soft Component

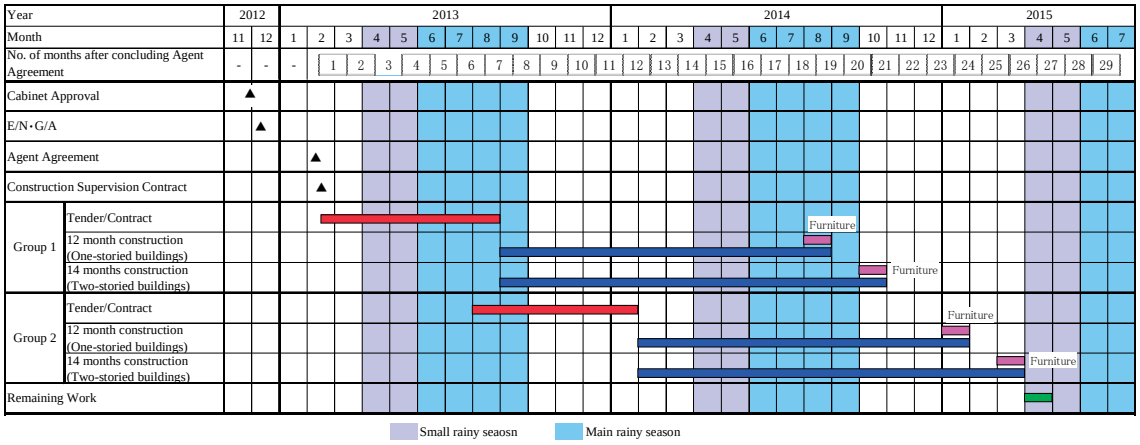
The community, led by the PTA, has been already supporting schools both financially and physically through provision of labor for small-scale facility maintenance. The same kind of active support by the community is expected for the facilities constructed by the Project. Thus there is no planned soft component in this Project.

4. Implementation Schedule and Cost Estimation

After concluding the Agent Agreement and the construction supervision contract, preparing tender documents to select contractors, conducting tenders and tender evaluation, negotiating the contract, and obtaining approvals from the concerned parties, construction contracts will be concluded. This process is assumed to take about 6.5 months.

It is estimated to take about 12 and 14 months to construct one-storied buildings and two-storied buildings respectively. The entire Project period from the commencement to closing the office, is set at 26.5 months. The table below shows the tentative implementation schedule, assuming that the Cabinet approves the Project in November 2012.

Implementation Schedule



The Project cost to be borne by the Ethiopian side is estimated to be 18,352,000 Birr.

5. Project Evaluation

5-1. Relevance

The Project objective is to improve teaching and learning environments in primary and secondary schools in the target areas, which corresponds to the purposes of the Japanese Grant Aid, such as “Basic Human Needs”, including primary and secondary education, and “Human Resource Development”. Also, this Project is expected to contribute to the fulfillment of the ESDP promulgated by the Ministry of Education in terms of expanding education facilities.

On the other hand, it is normal practice for each school under the Project to perform operation and maintenance tasks in which high skills are not required. Thus, it is expected that the Project schools will be used in good condition continuously. Furthermore, construction of the Project schools is implementable without difficulties under the Grant Aid Scheme.

Additionally, the Project will be able to utilize lessons learned and feedback from the preceding projects under the Japan’s Grant Aid Scheme for Community Empowerment implemented in the

country as to manage the Project more efficiently and effectively. It can be noted as a comparative advantage of the Project. On account of these given justifications, the Project proves to be adequate for the Japanese Grant Aid.

5-2. Effectiveness

(1) Quantitative results

The effectiveness of the Project will be proven by raising the indicators from the baseline data to the desired value.

Indicators	Baseline data (Year 2012)	Desired value (Year 2018)
① The enrollment capacity at the secondary level in the targeted school catchments in rural areas.	0	6,080[1]
②No. of students who can enjoy quality classrooms in the new Project secondary schools in urban areas.	0	10,240[2]
③No. of students who can enjoy quality classrooms in the Project primary schools.	2,750	8,550

(2) Qualitative results

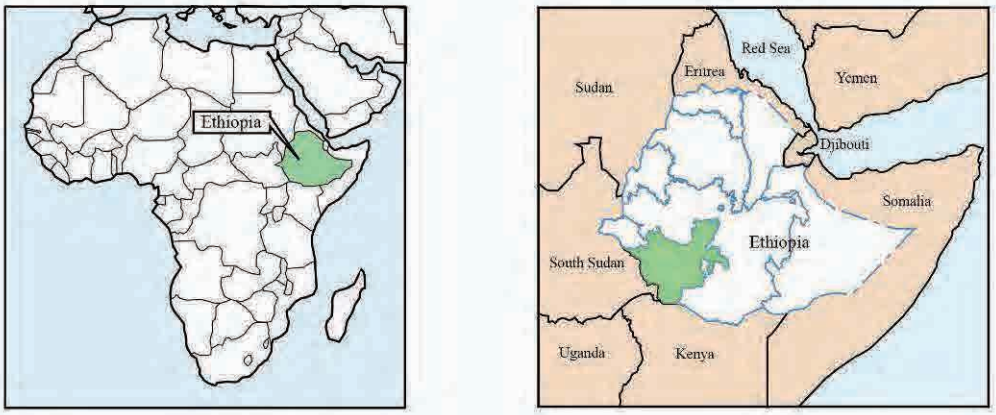
- The quality of education will be improved, owing to the improvement in the teaching and learning environment in the Project schools.
- The attendance rate and drop out rate will be improved owing to the increase in the number of secondary schools from 5 to 15 in the target areas.
- By upgrading incomplete primary schools to complete ones, the commuting distance of students will be shortened. Thus the attendance and drop out rates will be improved.

[1] 40 students per classroom (double shift) according to SNNPRSCS and the same number of enrollment per year are assumed.
[2] Ditto

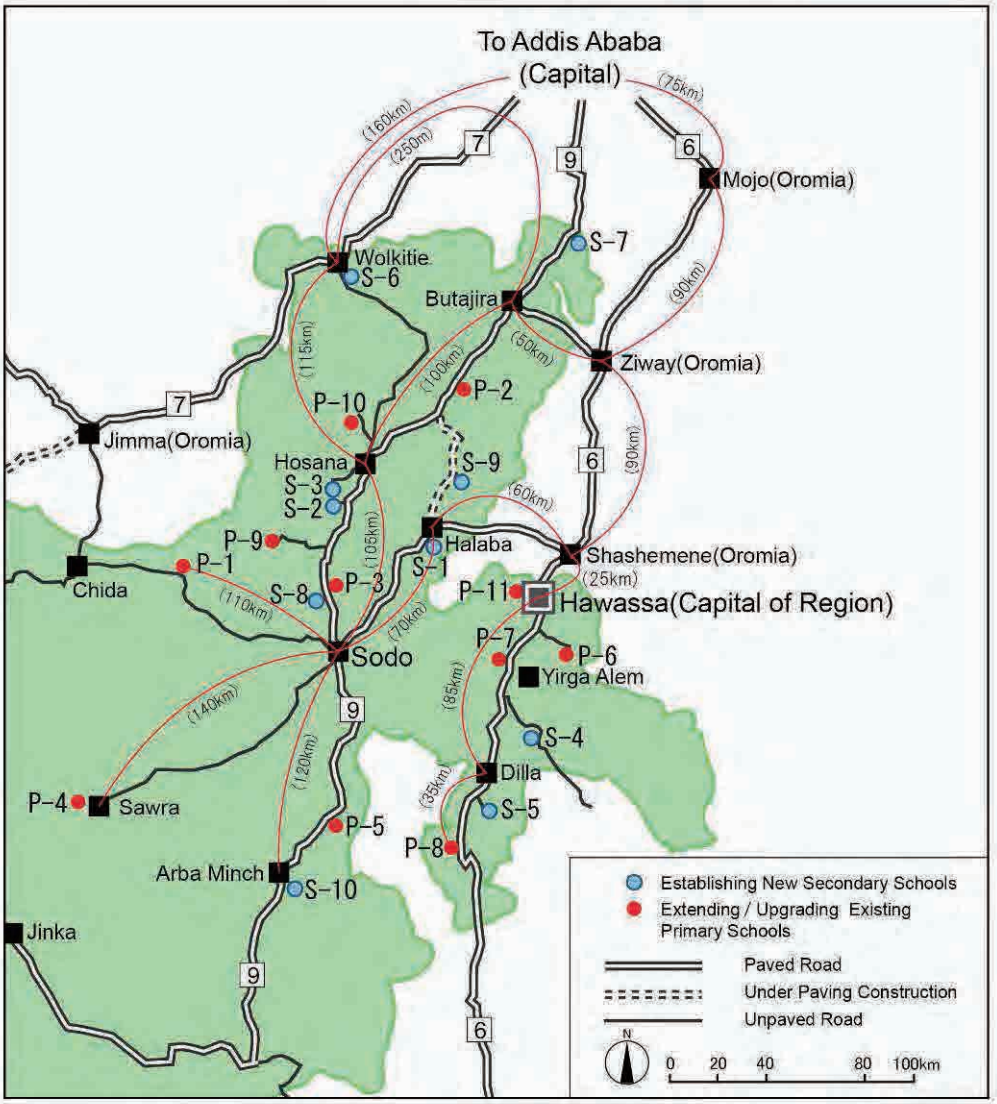
Index

Appendices

Ethiopia Project Site Location Map



SNNPR Project Site Location Map



Perspective (Secondary School)

Perspective (Primary School: P4C Type)

List of Tables and Figures

Abbreviations

A/M	Agreed Minute on Procedural Details
B/A	Banking Arrangement
BA/BS	Bachelor of Art/Science
BOFED	Bureau of Finance and Economic Development
BOQ	Bill of Quantity
CR	Classrooms
DCSA	Design and Construction Supervision Authority
E/N	Exchange of Notes
EBCS	Ethiopia Building Code Standard
ESDP	Education Sector Development Program
G/A	Grant Agreement
GEQIP	General Education Quality Improvement Program
GER	Gross Enrollment Ratio
GNI	Gross National Income
JICS	Japan International Cooperation System
MoFED	Ministry of Finance and Economic Development
NGO	Non Governmental Organization
PSR	Pupil Section Ratio
PTA	Parent-Teacher Association
RC	Reinforced Concrete
SNNPREB	Southern Nations, Nationalities and Peoples' Regional State Education Bureau
SNNPRSCS	Southern Nations, Nationalities and Peoples' Regional State School Construction Standards
TTC	Teacher Training College
WEO	Woreda Education Bureau

CHAPTER 1 BACKGROUND OF THE PROJECT

Chapter1 Background of the Project

1-1 Background of the Grant Aid

The Federal Democratic Republic of Ethiopia (hereinafter referred to as "Ethiopia") has introduced the Education Sector Development Program (ESDP) in 1997 and currently, ESDP Phase IV (2010/11-14/15) is in place. ESDP-IV aims to improve quality, access and equity of education, thereby realizing universal primary education by 2015. Furthermore, it envisages realizing universal general secondary education (G9-10) by 2020. In order to fulfill these goals, it is said that 135,000 and 44,500 classrooms need to be built during Phase IV for primary and secondary levels respectively.

Owing to the projects under ESDP, Primary GER (G1-8) improved from 41.8% in 1997/98 to 96.4% in 2010/11 nationwide. As for Secondary GER (G9-12), it rose from 8.8% to 23.7% during the same period. The breakdown of Secondary GER in 2010/11 is 38.4% and 8.1% for G9-10 and G11-12 respectively. Although GERs steadily rise, regional and gender disparities of GERs is a critical issue. Furthermore, a lack of teachers and classrooms, and access to Second Cycle Primary (G5-8) education and Secondary education have become problematic due to the rapid increase of access to First Cycle (G1-4) primary education.

Southern Nations, Nationalities and People's Regional State (hereinafter referred to as "SNNPR"), where the Project is planned, saw the First Cycle Primary (G1-4) GER at 122.9%[3], and the Second Cycle Primary (G5-8) GER at 73.8%. Secondary GERs are further reduced to 35.5% for General Secondary (G9-10) and 5.9% for Preparatory Secondary (G11-12).

The higher the education level, the lower the access indicator, the reason of which can be attributed to a limited number of complete schools that can teach all 8 grades at the primary level. The number of schools which cover G5 education or higher is particularly limited. There are 4,528 schools at which G4 students can attend, while the number reduces to 2,317 for G5 students in SNNPR. The limited access for higher graders is especially critical in rural areas. On the other hand, classrooms are overcrowded with students in complete schools, due to their limited number.

The number of secondary schools is further limited. While there are 1,760 schools available for G8 education, only 250 schools are available for G9 education. In addition, most of such

[3] All education statistics of SNNPR quoted in this page are from the Education Statistics Annual Abstract 2010/11 issued by SNNPR unless otherwise mentioned.

secondary schools are concentrated in urban areas, and accordingly, the classrooms are highly overcrowded in urban secondary schools. On the other hand, there are almost no secondary schools in rural areas, leaving access to secondary education very difficult.

Against this backdrop, SNNPR Education Bureau (hereinafter refereed to as “SNNPREB”) initially requested the Government of Japan to assist in: i) establishing new primary schools, ii) upgrading existing primary schools and, iii) establishing new secondary schools.

In response to the request, JICA dispatched the preparatory survey team in November 2011 and February 2012. As the result of Field Surveys and discussions between the Japanese side and the Ethiopian side, and in light of the pressing need to construct secondary schools, it was agreed that the Project would focus on establishing new secondary schools and extending/upgrading existing primary schools in order to upgrade incomplete primary schools to complete ones and to mitigate overcrowded classrooms. Following the analysis in Japan, the Survey to explain the Draft Report of the Project was carried out in July 2012. The Project plan was finalized after the Survey to explain the Draft Tender Documents in October 2012.

1-2 Project Sites and Their Surroundings

1-2-1 Infrastructure

(1) Transportation and access road

The Project sites are scattered widely in an area of 300km diameter. 11 of the 21 sites either face paved main roads or are located less than 500m off the main roads. However, the remaining 10 sites are situated far off the main roads, and one has to travel on a rough road for between 15 minutes and 3 hours.

The overall access to all sites is good during the dry season, however, the access roads of some sites may require repair if they become too muddy during the rainy season.

(2) Electricity and plumbing system

Of all 21 sites, electricity is available at 20 sites, while water supply is available at 15 sites. Almost all schools use the pit type latrine and the water-tank type is not typical at schools in the target areas. Furthermore, many schools do not have any hand washing basins.

1-2-2 Natural Conditions

(1) Climate

SNNPR features a big difference in altitude, from Lake Rudolf at 376m to Mount Guge at 4,203m and all 21 sites are situated between 1,237m～2,713m above sea level. The temperature is pleasant overall throughout the year. Table 1-1 shows altitude, climate zone, annual temperature, and annual precipitation of 3 major cities in SNNPR. Some Project sites receive heavy precipitation, over 200mm per month, between June and September, the main rainy season.

Table 1-1 Altitude, climate zone, average temperature, and precipitation by major city

City	Altitude	Climate Zone	Temperature (Annual average)	Precipitation (Annual average)
Arba Minch	1,250 m	Tropical	21C	830 mm
Hawassa	1,700 m	Temperate	19C	1,030 mm
Hosana	2,350 m	Temperate	18C	1,200 mm

(2) Site condition

① Topographic survey[4]

Table 1-2 shows the level difference and size of each 21 sites.

② Soil survey[5]

Table 1-2 shows whether or not each site has black cotton soil.

[4] The survey was conducted from August to October 2012 at 21 Project sites.
[5] Ditto

Table 1-2 Summary of Topographic and Soil Surveys at 21 Sites

Type	No.	Zone/ Sp.Woreda	Woreda	Construction Site/ School Name	Level Diff(m)*	Size (sqm)	Black Cotton Soil
Secondary School	S-1	Halaba	Halaba Town	Kulito	2	29,301	No
	S-2	Hadiya	Soro	Berkuncho	10	25,609	Yes
	S-3	Hadiya	Lemo	Jawe	17	45,172	Yes
	S-4	Sidama	Aleta Wondo Town	Belesto	15	16,174	No
	S-5	Gedeo	Dilla Zuriya	Kuka Tumticha	10	6,464	Yes
	S-6	Guraghe	Wolkitie Town	Camp Sefer	16	60,428	Yes
	S-7	Guraghe	Soddo	Tiya	10	79,650	Yes
	S-8	Wolayita	Bolloso Sorrie	Gurumo Koyisha	5	28,733	No
	S-9	Siltie	Sankura	Jata	4	86,300	No
	S-10	Gamo Gofa	Arba Minch Town	Chamo	16	30,450	Yes
Primary School	P-1	Dawuro	Mareka	Tercha Primary School	18	38,636	Yes
	P-2	Siltie	Worabe Town	Duna Primary School	7	24,039	Yes
	P-3	Wolayita	Areka Town	Addis Fana Primary School	19	35,142	Yes
	P-4	Gamo Gofa	Sawula Town	Botre Primary School	41	50,701	No
	P-5	Gamo Gofa	Mearab Abaya	Koyite Millennium Primary School	14	133,202	No
	P-6	Sidama	Malga	Tankaro Primary School	7	18,090	No
	P-7	Sidama	Dale	Abosto Tula Primary School	7	13,436	Yes
	P-8	Gedeo	Yirga Chefe Town	Abeyot Fere Primary School	12	39,784	Yes
	P-9	Kembata Tembaro	Tembaro	Bajo Primary School	16	15,378	Yes
	P-10	Hadiya	Misha	Hagiye Primary School	7	74,570	Yes
	P-11	Hawassa City	-	Edget Bandnet Primary School	1	5,001	No

*The level difference is between the lowest point and the highest point of each site.

1-3 Social and Environmental Consideration

The Project will construct school facilities within the existing primary schools or on vacant lands for new secondary schools. There will be no forced settlement of any people from the Project sites. The Project does not need to attain large land development for construction, while felling is necessary in several sites. There will be no negative impact on the eco-system or social issues. According to “JICA Guidelines for Environmental and Social Considerations,” the

Project is categorized as “C,” which is likely to have minimal or little adverse impact on the environment and society.

CHAPTER 2 CONTENTS OF THE PROJECT

Chapter2 Contents of the Project

2-1 Basic Concept of the Project

2-1-1 Overall Goal and Project Objective

The Project contributes to a part of the plan stipulated in the above-mentioned ESDP-IV.
The Project objective is to "improve teaching and learning environment in primary and secondary schools in the target areas," through establishing new secondary schools and constructing additional classrooms for existing primary schools, and its overall goal is to "improve access to and quality of primary and secondary education in SNNPR.

2-1-2 Outline of the Project

The Project will establish 10 new secondary schools and extend 11 existing primary schools in 9 zones, Halaba Special Woreda, and Hawassa City[6].

The secondary school facilities to be built per school include: Classrooms (8-32), a library room, science laboratories, a technical drawing room (for 3 schools), an ICT center, a satellite receiver center, toilet (for students), a director's office with a secretary's office, deputy director's offices, department heads' offices, a staff room, an administration and finance office, a store room, a mini-media room, toilet (for teachers and staff), a record room and a janitor room. In addition, basic furniture will be procured for each room.

Regarding the Project site locations, 4 secondary school sites are situated in urban areas, while the remaining 6 sites are in rural areas. By establishing new secondary schools, it is expected to mitigate the overcrowded classrooms in urban areas and to improve access to secondary education in rural areas.

The primary school facility to be built is 4 or 8 classrooms per school with minimum basic furniture for the classrooms. While 8 primary schools are "incomplete," the remaining 3 schools are complete schools. By extending the existing schools, the 8 former incomplete schools will be upgraded to be "complete" ones and overcrowded classrooms in the latter complete schools will be mitigated .

[6] SNNPR consists of 14 zones, 4 special woredas and 1 City Administration.

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

2-2-1-1 Basic Policy

(1) Project schools

The Project selects schools from the requested site list consisting of ① Establishment of new secondary schools (10 schools) and ② Extension of existing primary schools (11 schools). The following policies are considered when selecting the Project schools.

- Establishment of new secondary schools (①) is prioritized over extension of existing primary schools（②） in light of the pressing need to improve access to secondary education.
- The respective priority orders set among ① secondary schools and ② primary schools are considered. The said priorities were set based upon the need for classroom construction.

(2) Selection criteria

It has been agreed that the Project schools should satisfy the following pre-conditions.

① There should be a justifiable need for enrollment in primary and/or secondary schools.
② No other plan exists for current/ongoing facility improvement by the Government of Ethiopia, other donors, NGOs, etc at the sites to avoid duplication.
③ Topographically/environmentally safe and appropriately sized land for construction is secured.
④ The sites should be secured by the responsible organization. (The landownership or right to use the land should be verified by presenting valid documents when necessary.)

(3) Outline of the planned components

① Establishment of new secondary schools

The minimum basic facilities to operate secondary schools will be built, the components of which are selected from the requested facility components. The number of classrooms to be built is planned school by school according to the expected future enrollment of each school.

Furthermore, 7 out of 10 schools will cover only general secondary level (G9-10), whereas the remaining 3 schools will cover both general and preparatory secondary levels (G9-12) because the need for constructing schools covering both levels has been confirmed for the latter group.

② Extension of existing primary schools

Facility components are selected from ones specified in the agreed Minutes of Meetings. It should be noted that the Project does not plan any facility for Pre-primary level (KG) which is annexed to the respective primary schools.

③ Furniture and equipment

The minimum basic furniture will be procured for secondary and primary schools. Other necessary equipment and teaching aids shall be procured by the Ethiopian side.

(4) Setting size of the Project schools

The number of classrooms to be built is planned school-wise, following the expected number of enrollments in 2014/15, based on the projection which was submitted by SNNPREB.

2-2-1-2Policy for Natural Environmental Conditions

(1) Climate condition

The Project area is located between the temperate and the torrid zones and thus has distinguishable rainy and dry seasons. The precipitation is the maximum in August and is observed at about 240mm in the month, depending on the place. The areas also have relatively stable temperatures throughout the year. The highest temperature is about 30°C even during the dry season and it gets cold in the morning and evening. Therefore, it is necessary to install appropriate openings to take measure against cold and to design buildings considering flooding and the sound of rain during the rainy season.

(2) Use of wood and measures against termites

In Ethiopia, it is conventional to use eucalyptus logs for roof trusses for various buildings, including schools and houses, as eucalyptus is fairly durable and less costly than other options.
As there are a few reports on termite damage, termite-proof measures will be applied to the wood.

(3) Topography and site condition

8 out of all 21 sites are flat, while the remaining 13 sites are partially or totally sloped. As for the latter sloped sites, building layout plans are made to avoid steep slopes. In principle, buildings will be one-storied, however, two-storied building are also planned at the sites located in urban areas or small-space sites.

(4) Soil condition

Of 21 sites, black cotton soil is observed at 6 new secondary school sites and 7 existing primary school sites (Refer to Table 1-2). In general, black cotton soil is easily distinguished by its color but occasionally it requires examination by touch. When it gets wet, its cubic content increases, and it may affect the floor foundation and others. Therefore, countermeasures such as soil improvement work will be implemented.

(5) Earthquake

Primary school buildings nearby one of the Project sites (S-3:Jawe) were damaged by an earthquake in 2010. Since the damages were only observed in buildings having been constructed during a certain period of time, the damages are deemed to have been caused by construction defects.

The Project follows the Ethiopia Building Code Standard (EBCS) for structural design. According to EBCS, there are five scales to indicate the degree of earthquake danger, from zone 0 to zone 4. The standard sets zone 4 for the African Great Rift Valley that runs from the north to the south of the country. The further from this valley, the smaller the degree of danger becomes. In fact, only earthquakes less than a magnitude of 7 on the Richter scale have been reported during the last 100 years at the Great Rift Valley, the area having the highest scale of degree of danger. However, many of the Project sites are located in high-risk zones: 12 sites including Jawe belong to zone 4, 8 sites to zone 3, and the last one to zone 2.

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

(1) Gender

According to the SNNPR School Construction Standard (hereinafter referred to as SNNPRSCS), toilet blocks for female students are separated from those for their male counterparts. The Project shall be in accord with the standard. Also, those toilet blocks shall be located as far from each other as possible to avoid interference.

(2) Measures to be taken for physically challenged students

To assist physically challenged students, slopes will be built on the ground floor of all the facilities of the new schools for ease of usage by wheel-chairs. Also, paved passages will be built between the zones.

2-2-1-4Policy for Construction and Procurement of Construction Materials

(1) Construction method

Reinforced concrete will be the main structure in constructing buildings, as it is relatively easy

and conventional in Ethiopia.

(2) Construction materials

Construction materials shall be selected considering durability, cost effectiveness and ease of maintenance. Almost all necessary construction materials for the Project, including imported products, are available in Ethiopia and accordingly all construction materials for the Project will be procured in the domestic market.

As a construction boom has been also taking place in local cities of SNNPR, the supply and price of major construction materials, such as iron, are not stable. Thus, it is absolutely necessary to check the supply and price of construction material at every planning phase of the Project.

(3) Rules and regulation

The facility plan is based upon SNNPRSCS to design buildings. The design will be similar to ones constructed under the Grant Aid in the past. Furthermore, as for structural and utility plans, the Project refers to EBSC and similar types of local buildings.

2-2-1-5Policy for Procuring Consultants and Contractors

This Project will be implemented under the Grant Aid for Community Empowerment. The Japanese Procurement Agent will provide the procurement services for products and services, including a Construction Supervision Consultant, Contractors, and Suppliers on behalf of SNNPREB.

(1) Construction supervision consultants

The Japanese consultant that has conducted the Preparatory Survey will be selected as a construction supervision consultant, having been recommended by JICA. The Japanese consultant will supervise the work together with a local consultant that will be subcontracted. In Ethiopia, the consultants are categorized from 1 to 5[7] based on their size, capacity, etc. The Project will employ a consultant categorized at 3 or above. Scope of works of the local consultant includes drafting design drawings, assisting tenders, supervising construction, etc.

(2) Contractors

Contractors will be selected from amongst Ethiopian companies through competitive tenders. Because the entire Project is large in scale and construction sites are scattered widely, several contractors shall be employed for construction work. And thus, there will be a multiple number

[7] Highest: Category 1, Lowest: Category 5

of construction lots, the division of which is determined based upon geography, amount of construction work, accessibility, etc.

Likewise, the contractors are also categorized into 10 categories[8] based on their capacity (ex. number of engineers). Each category has its own maximum amount for receiving an order. In other words, the smaller each lot, the higher the possibility for small scale contractors to bid. Thus, in setting the size of lots, the Project will set such pre-qualification as to allow only contractors in category 1 to bid in.

Furthermore, in the tenders, the Project will request bidders to submit a summary of past construction experience, the number of engineers, the number of owned construction equipment, and technical proposals, in order to select contractors with sufficient technical capacity.

2-2-1-6Policy for Operation and Maintenance Plan

With regard to the operation and maintenance of primary and secondary schools in SNNPR, the Woreda government is responsible for the salary of school teachers and staff and SNNPREB is responsible for distributing textbooks to schools, while other teaching materials, stationeries, library books, examination related expenses and expenses for the school activities are born by the respective schools within the school budget. Regarding the facility maintenance, including daily cleaning, the PTA has been the main body to assist both financially and physically by providing labor. The system of operation and maintenance is in place in the Region, thus a soft component concerning this will not be included in the Project.

2-2-1-7Policy for Quality Control

The selected local consultant shall control quality under the supervision of the Japanese consultant during the period of construction supervision. As for concrete, which will be the main structural body of the buildings, the utmost attention shall be paid. For this purpose particularly, the Japanese supervisor will direct the local consultant to select appropriate materials for concrete, mixing and casting. In addition, other measures such as concrete strength testing, which is not in common in rural Ethiopia, shall be carried out.

Furthermore, ① a joint kick off meeting and ② regular workshops are planned in order for the Japanese consultant, the local consultant, the contractors and other stakeholders to have a common understanding of design, construction schedule and quality. At this moment, it is

[8] Highest: Category 1, Lowest: Category 10

assumed that at the joint kick off meeting, participants will confirm design, construction schedule and quality and the Japanese consultant will show examples of past projects. On the other hand, at the regular workshops, it is planned to invite stakeholders of later lots to see on-going construction sites.

2-2-1-8Policy for Setting Grades of Facility and Furniture

This Project will set a relevant grade for the facility and furniture for primary and secondary schools by considering the points of functionality, cost and ease of maintenance. For this, the specification and grades specified in SNNPRSCS and those applied for schools now being constructed under the Project for Construction of Secondary Schools in Amhara Region[9] and the schools constructed by other donors are referred to.

2-2-1-9Policy for Implementing Schedule

The construction schedule will be divided into 2 groups, consisting of the precedence group (Group 1) and successive group (Group 2) with a overlapping period. This allows for adjustment of the size and number of lots and components of Group 2, should the fund become short or surplus depending on the bidding result of Group 1. By doing so, the balance of supervision work can be arranged to reduce the overconcentration period.

The schedule also takes the main rainy season (mid June to mid September) into account, as the effectiveness and quality of earth work, structural work and finishing work will be adversely affected during the rainy season. Furthermore, since a new school year begins around September 20, the schedule aims to complete as many schools as possible around September.

2-2-2 Basic Plan

2-2-2-1Contents of the Request

(1) Final requested schools

SNNPREB initially had made 3 types of requests, for a total of 27 schools: ①Establishment of new primary schools (12 schools), ②Extension of existing primary schools (8 schools), and ③ Establishment of new secondary schools (7 schools). As a consequence of discussions between the Japanese side and SNNPREB during Field Survey I, with consideration of facility needs, efficiency of construction supervision and possible Project size, the request was short-listed in

[9] Proceeding project under Japan's Grant Aid for Community Empowerment.

order of priority as follows:

①Establishment of new secondary schools (10 schools)
②Extension of existing primary schools (11 schools)

Following a few changes in schools, the final requested schools were confirmed during Field Survey II as in Table 2-1. And, every school/site was visited for a detailed survey.

As for the priority among each type, the order was reconsidered after the detailed site survey based upon the specified criteria. (A: the highest priority. D: the lowest priority.)

① Establishment of new secondary schools

A: Candidate sites which have already opened a temporary secondary school

B: Candidate sites, the construction purpose of which is to reduce the congestion in the existing secondary school in the town.

C: New establishment in rural areas

② Extension of existing primary schools

A: Primary schools which exceed PSR:50 under double shift schooling

B: Primary schools which exceed PSR:50 under single shift schooling

C: Primary schools, the PSR of which is below 50, however who are operating double shift schooling

D: Primary schools, the PSR of which is below 50, operating single shift schooling

Table 2-1 Final requested schools

Type	No.	Zone/ Sp.Woreda**	Woreda	Construction Site/ School Name	Priority order (Before Site Survey)	Final Priority order
Secondary School	S-1*	Halaba	Halaba Town	Kulito	9	3
	S-2	Hadiya	Soro	Berkuncho	8	2
	S-3	Hadiya	Lemo	Jawe	10	7
	S-4	Sidama	Aleta Wondo Town	Belesto	2	5
	S-5	Gedeo	Dilla Zuriya	Kuka Tumticha	1	8
	S-6*	Guraghe	Wolkitie Town	Camp Sefer	7	4
	S-7	Guraghe	Soddo	Tiya	3	9
	S-8	Wolayita	Bolloso Sorrie	Gurumo Koyisha	5	6
	S-9	Siltie	Sankura	Jata	4	10
	S-10*	Gamo Gofa	Arba Minch Town	Chamo	6	1
Primary School	P-1	Dawuro	Mareka	Tercha Primary School	3	9
	P-2	Siltie	Worabe Town	Duna Primary School	6	10
	P-3	Wolayita	Areka Town	Addis Fana Primary School	10	1
	P-4	Gamo Gofa	Sawula Town	Botre Primary School	4	3
	P-5	Gamo Gofa	Mearab Abaya	Koyite Millennium Primary School	2	6
	P-6	Sidama	Malga	Tankaro Primary School	9	8
	P-7	Sidama	Dale	Abosto Tula Primary School	8	2
	P-8	Gedeo	Yirga Chefe Town	Abeyot Fere Primary School	7	4
	P-9	Kembata Tembaro	Tembaro	Bajo Primary School	1	5
	P-10	Hadiya	Misha	Hagiye Primary School	5	11
	P-11	Hawassa City	-	Edget Bandnet Primary School	11	7

* G9-12 Schools

** All are zones except Halaba and Hawassa.

As for secondary schools, SNNPREB had initially requested to cover both general and preparatory secondary levels (G9-12) for S-1, S-6, and S-7 schools. However, the need for preparatory level education was not confirmed at S-7 school site, while the need was clear at S-10 site, as it has been temporarily teaching G9-11, using the facility of a primary school adjacent to the site. Accordingly, it has been determined that S-1, S-6, S-10 will cover both general and preparatory secondary levels.

(2) Components of the request

① Facility components

The table below shows the details of initially requested facility components.

Table 2-2 Initially Requested facility components

Type	Requested components
Secondary school	Classrooms (32), Library room, Science laboratories（Chemistry, Physics, Biology）, Toilet (students) (2), ICT center, Satellite receiver center, Guidance & counseling room, Resource center, Special needs education room Offices (13), Staff room, Clinic, Toilet (teachers) (2), Electric distribution room, Guard room, Mini-media room, Extracurricular club rooms (12), Rooms for departments (10)
Primary school	Classrooms (16), Library room, Toilet (2), Science laboratory, Resource center, Office room (3)

Following a series of discussions with SNNPREB, with consideration of education policy and actual use of the facilities, the components were short-listed as per Table2-3. Furthermore, as for primary schools, it was mutually agreed that the Project might cover only a part of the components, depending on the entire Project size.

Table 2-3 Short-Listed Requested facility components

Type	Requested components
Secondary School	Classrooms, Library room, Science laboratories (Chemistry, Physics, Biology), ICT Center, Satellite receiver center, Technical drawing room (Only for G9-12 schools), Toilet (Students), Director's Office (with secretary), Deputy director's office (2), Administration and finance office, Record room, Store room, Janitor room, Mini-media room, Toilet (Teachers and staff) , Staff room, Department head's office
Primary school	Classrooms, Library room, Resource center, Toilet (for students), Director's office, Deputy director's office(s), Staff room, Administration office, Store room, Toilets (for teachers and staff)

② Furniture and equipment components

As for components other than the facility, it was agreed as follows.

Table 2-4 Components other than facility (final)

Type	Requested components
Furniture	Basic furniture (desks, chairs, and chalkboards) will be covered by the Project
Equipment	Will not be covered by the Project
Vehicle	Will not be covered by the Project

2-2-2-2Project Schools

(1) Selection of the Project schools

All final requested schools specified in Table 2-1 were visited for a detailed survey during Field Survey II and confirmed to satisfy the afore-mentioned selection criteria (refer to 2-2-1-1 (2) Selection criteria) and thus are eligible for the Project. Since SNNPREB requests covering as many schools as possible, the Project covers all 21 sites as Project schools.

(2) Relevance of the Project schools

① Establishment of new secondary schools

4 requested sites are located in urban areas, while the remaining 6 are in rural areas. Every urban site has an existing secondary school in its school catchment area, which is highly overcrowded and operates under double shift schooling. On top of that, 3 out of 4 schools observe a PSR almost at 80. Thus, establishment of a secondary school is needed in each respective catchment area to address the issue. The table below shows information including PSR on the existing secondary schools in the respective catchment areas.

Table 2-5 Information of the Existing Secondary School of Each School Catchment Area (as of 2011/12)

No.	Existing secondary school in the catchment	Grade Level	Shift	Total Enrollment	Total Section	PSR
S-1	Halaba Secondary and Preparatory School	G9-12	Double	4,015	52	77.2
S-4	Aleta Wondo Secondary and Preparatory School	G9-12	Double	3,732	58	64.3
S-6	Goro Secondary and Preparatory School	G9-12	Double	3,898	49	79.6
S-10	Chamo Secondary and Preparatory School	G9-11	Double	1,911	25	76.4

On the other hand, no rural sites have existing secondary schools in the respective catchment areas, leaving G8 graduates no choice but to travel 20-30km or rent a room in town for secondary education. Consequently, many drop-outs have been observed and/or students opt not to go to secondary school in rural areas. Thus, establishment of new secondary schools is necessary in rural areas, thereby increasing the access to secondary education.

② Extension of existing primary schools

3 requested schools are “complete” ones covering G1-8, while the remaining 8 schools are “incomplete” ones. The complete schools are all situated in urban areas, having over 1000 students. Due to a lack of facilities, all of them are under double shift schooling. On top of that, one of the schools observes a PSR over 80 and thus the need for additional classroom construction was confirmed to mitigate the congestion. The following table indicates information of each primary school.

As for “incomplete” ones, they are situated both in urban and rural areas. For the incomplete schools, construction of additional classrooms is needed from the viewpoint of improving access to higher grades. Furthermore, SNNPRREB has promulgated the policy to upgrade all incomplete schools to complete ones.

Table 2-6 Information of the Requested Primary Schools (as of 2011/12)

No.	Primary School	Urban/ Rural	Shift	Grade level	Enroll-ment	No. of Sections	PSR
P-1	Tercha	Rural	Double	G1-5	267	6	44.5
P-2	Duna	Urban	Single	G1-4	240	5	48.0
P-3	Addis Fana	Urban	Double	G1-8	2,356	27	87.3
P-4	Botre	Urban	Double	G1-8	3,360	49	68.6
P-5	Koyite Millennium	Rural	Single	G1-5	385	6	64.2
P-6	Tankaro	Rural	Double	G1-5	223	5	44.6
P-7	Abosto Tula	Rural	Double	G1-5	1,077	13	82.8
P-8	Abeyot Fere	Urban	Double	G1-8	1,752	29	60.4
P-9	Bajo	Rural	Single	G1-4	645	10	64.5
P-10	Hagiye	Rural	Single	G1-5	353	8	44.1
P-11	Edget Bandnet	Urban	Double	G1-5	724	15	48.3

Schools in shade: complete schools

(3) Projected number of students

SNNPREB projected the enrollment of 2014/15 (the expected year of school opening) for the respective Project schools, the details of which are as follows.

【Establishment of new secondary schools】

Different projection methods were applied to ① schools in urban areas, and ②schools in rural areas.

①Secondary schools in urban areas （S-1, S-4, S-6, S-10）

As for 4 Project schools in urban areas, there is an existing secondary school in each school catchment area. Thus, the enrollment projection of 2014/15 regarding each Project school was made based upon the actual enrollment of 2011/12 of the existing school in each catchment area. A further assumption was made that half of the projected number of students will transfer to the new Project school, while the other half of them will remain in the existing school. However, as for S-10 school, it is assumed that all the projected number of students will transfer to the new Project school, because the school has been temporarily operating and there is no other existing secondary school in its catchment area.

In order to project the future enrollment, an enrollment increase rate of 8.1% per year was applied. This coefficient is based upon the average annual secondary enrollment increase over the past 5 years.

Table 2-7 Projected Number of Students (Urban Secondary Schools)

No.	Existing school in the catchment area			Project School	
	School Name	2011/12 Actual enrl	2014/15 Projection	Construction Site	2014/15 Projection
S-1	Halaba	4,015	5,072	Kulito	**2,536**
S-4	Aleta wondo	3,732	4,714	Belesto	**2,357**
S-6	Goro	3,898	4,924	Camp Safer	**2,462**
S-10	Chamo	1,911	2,414	Chamo	**2,414**

② Secondary schools in rural areas（S-2, S-3, S-5, S-7, S-8, S-9）

On the other hand, there is no existing school in each school catchment area in rural areas. Thus, the secondary enrollment of 2014/15 (G9-10) of each Project school was projected based upon the actual primary enrollment of 2011/12 (G6-8) in the catchment. Additionally, the student increase/decrease associated with promotion from one grade to the next was considered: G6→G7 : 100% , G7→G8: 100%, G8→G9: 75%, G9→G10: 70%[10].

Table 2-8 Projected Number of Students (Rural Secondary Schools)

No.	Catchment (No.of existing primary schools in the catchment)	Year	G6	G7	G8	G9	G10	A total of 2014/15
S-2	Berkuncho (8 schools)	2011/12	842	885	872			
		2012/13		842	885	654		
		2013/14			842	664	458	
		2014/15				**632**	**465**	**1,097**
S-3	Jawe (5 schools)	2011/12	834	795	975			
		2012/13		834	795	731		
		2013/14			834	596	512	
		2014/15				**626**	**417**	**1,043**
S-5	Kuka Timticha (5 schools)	2011/12	712	764	843			
		2012/13		712	764	632		
		2013/14			712	573	442	
		2014/15				**534**	**401**	**935**
S-7	Tiya (6 schools)	2011/12	514	426	427			
		2012/13		514	426	320		
		2013/14			514	320	224	
		2014/15				**386**	**224**	**610**
S-8	Gurumo Koiysha (13 schools)	2011/12	936	1,006	857			
		2012/13		936	1,006	643		
		2013/14			936	755	450	
		2014/15				**702**	**529**	**1,231**
S-9	Jata (4 schools)	2011/12	378	166	127			
		2012/13		378	166	95		
		2013/14			378	125	67	
		2014/15				**284**	**88**	**372**

[10] As for G6→G7, G7→G8, G9→G10, the coefficients are based upon the annual average over the past 5 years respectively, while the coefficient of G8→G9 is from the short term target indicator of SNNPREB.

【Extension of existing primary schools（P1～P11）】

In order to project the enrollment of 2014/15, an enrollment increase rate of 5.7% per year was applied to the actual enrollment of 2011/12. This coefficient is based upon the average annual primary enrollment increase over the past 5 years. It should be noted that the projection does not assume any transfer from any other schools.

Table 2-9　Projected Number of Students (Primary Schools)

No.	Name of Primary school	Enrollment	Projection
		2011/12	2014/15
P-1	Tercha	267	**315**
P-2	Duna	240	**284**
P-3	Addis Fana	2,356	**2,781**
P-4	Botre	3,360	**3,968**
P-5	Koyite Millennium	385	**455**
P-6	Tankaro	223	**264**
P-7	Abosto Tula	1,077	**1,272**
P-8	Abeyot Fere	1,752	**2,070**
P-9	Bajo	645	**761**
P-10	Hagiye	353	**418**
P-11	Edget Bandnet	724	**855**

(4) Planning the facilities and setting the school size

The size and facilities of each Project school is set based upon the expected enrollment of 2014/15 and the condition of existing facilities.

【Classrooms】

① Establishment of new secondary Schools

Besides the expected enrollment of 2014/15, the following conditions are considered in calculating the necessary number of classrooms. The result of the calculation is shown in Table2-10.

- PSR = 40 (as per SNNPRSCS)
- Double shift schooling[11]
- Necessary no. of classrooms = Expected enrollment÷40÷2（round-up）
- Necessary no. of classrooms is adjusted to a multiple of 4 (round-up), based upon SNNPRSCS which stipulates that 4 classrooms are the basic unit of a classroom building.[12]

[11] In principle, single shift schooling is appropriate. However, according to actual operation at many secondary schools, double shift schooling will be applied in the Project schools.

[12] Since secondary schools cover 4 grades, i.e. G.9-12, 4 classrooms are the basic unit of a school building.

Based upon the above, the number of classrooms to be built varies from 8 to 32 among the secondary schools, and a total of 204 classrooms will be built for secondary schools.

Table 2-10　No. of Classrooms to be Built（Secondary Schools）

No.	Construction Site	Grade Level	Exp. Enrollment	Necessary no. of CRs	No. of CRs to be built
S-1	Kulito	G9-12	2,536	32	**32**
S-2	Berkuncho	G9-10	1,097	14	**16**
S-3	Jawe	G9-10	1,043	14	**16**
S-4	Belesto	G9-10	2,357	30	**32**
S-5	Kuka Tumticha	G9-10	935	12	**12**
S-6	Camp Sefer	G9-12	2,462	31	**32**
S-7	Tiya	G9-10	610	8	**8**
S-8	Gurumo Koyisha	G9-10	1,231	16	**16**
S-9	Jata	G9-10	372	5	**8**
S-10	Chamo	G9-12	2,414	31	**32**
Total			15,057	189	**204**

② Extension of existing primary schools

Likewise, the following factors are considered when calculating the necessary number of classrooms for the primary level.

- PSR = 50 (as per SNNPRSCS)
- Shift: Current school shift of each school
- Appropriate no. of sections ＝ Expected enrollment ÷50（round-up）
  （if less than 8, the number is adjusted to 8, as a complete schools has 8 grades.）
- Appropriate no. of classrooms = appropriate no. of sections ÷ shift(round-up)
- No. of usable classrooms = No. of classrooms which were confirmed usable for long years at the site survey
- Necessary no. of classrooms = Appropriate no. of classrooms – No. of usable classrooms

As the table below shows, the necessary number of classrooms varies from 3 to 32 among primary schools. In light of the request by SNNPREB to cover all schools and the size of the entire Project, the schools whose necessary number of classrooms is greater than 8 will have 8 classrooms respectively, while the remaining schools will have 4 classrooms[13] per school. Consequently, a total of 72 classrooms will be built.

[13] Primary education consists of 2 cycles, each of which covers 4 grades. Thus, as with the case with the secondary level, SNNPRSCS stipulates that 4 classrooms are considered the basic unit of a school building.

Table 2-11 No. of Classrooms to be Built (Primary Schools)

No.	Primary School	Exp. Enrollment	shift	Appropri-ate no. of sections	Appropri-ate no. of CRs	No. of usable CRs	Necessa-ry No. of CRs.	**No. of CRs to be built**
P-1	Tercha	315	2	8	4	0	4	**4**
P-2	Duna	284	1	8	8	5	3	**4**
P-3	Addis Fana	2,781	2	56	28	4	24	**8**
P-4	Botre	3,968	2	80	40	8	32	**8**
P-5	Koyite Millennium	455	1	10	10	0	10	**8**
P-6	Tankaro	264	2	8	4	0	4	**4**
P-7	Abosto Tula	1,272	2	26	13	4	9	**8**
P-8	Abeyot Fere	2,070	2	42	21	4	17	**8**
P-9	Bajo	761	1	16	16	0	16	**8**
P-10	Hagiye	418	1	9	9	0	9	**8**
P-11	Edget Bandnet	855	2	18	9	5	4	**4**
TOTAL		13,443	-	281	162	30	132	**72**

【Other building facilities】

① Establishment of new secondary schools

Each new secondary school will have building facilities other than classrooms as per the final request components. As for library rooms, technical drawing rooms, and toilet buildings, the size and/or number of them to be built will vary according to the size of each school, however, as for the other facilities, all schools will have the standard sized ones.

- Library room: For a school expecting an enrollment of more than 2000, a large type with a capacity of 200 will be built; and for a school expecting an enrollment of less than 2000, a small type with a capacity of 100 will be built. This is in accordance with SNNPRSCS, which sets different sizes of libraries according to the expected number of users.
- Technical drawing room: Each of 3 schools, namely S-1, S-6 and S-10, which plan to cover G9-12 will have a technical drawing room, while the remaining schools will have no technical drawing room. This is because the science/technology stream of G11-12 has Technical Drawing as a subject, while the subject is not taught at G9-10 level.
- Toilet building: 2 schools whose planned number of classrooms is 8 will have a total of 2 toilet buildings (16 booths in total); a female toilet building (8 booths per building) for students and teachers/staff to share, and a male toilet building (8 booths per building) for students and teachers/staff. The remaining schools will have 4 toilet buildings; 2 toilet buildings for female and male students separately (8 booths per building x 2 buildings = 16 booths in total) and 2 buildings for female and male staff separately (4 booths per building x 2 buildings = 8 booths in total).

The following table summarizes the facilities to be built school by school.

Table 2-12 Important Facilities to be Built

No.	Construction Site	Grade	Expected enrollment	Important facilities to be built				
				No. of CRs	Library	Science lab	Tec Drawing room	Toilet bldg
S-1	Kulito	G9-12	2,536	32	Large	3	Yes	4
S-2	Berkuncho	G9-10	1,097	16	Small	3	-	4
S-3	Jawe	G9-10	1,043	16	Small	3	-	4
S-4	Belesto	G9-10	2,357	32	Large	3	-	4
S-5	Kuka Tumticha	G9-10	935	12	Small	3	-	4
S-6	Camp Sefer	G9-12	2,462	32	Large	3	Yes	4
S-7	Tiya	G9-10	610	8	Small	3	-	2
S-8	Gurumo Koyisha	G9-10	1,231	16	Small	3	-	4
S-9	Jata	G9-10	372	8	Small	3	-	2
S-10	Chamo	G9-12	2,414	32	Large	3	Yes	4
Total			**15,057**	**204**	**Large:4 Small:6**	**30**	**3**	**36**

② Extension of existing primary schools

Considering the size of the Project, only classrooms will be built and no other facility is planned. This policy is commonly applied to all primary schools.

2-2-2-3Architectural Plan

(1) Layout plan

① Establishment of new secondary schools

- "Classroom buildings," "Administration buildings, laboratory buildings, and a library building," and "toilet buildings" will be zoned respectively for better function.
- The classroom buildings will be laid out in parallel with a unified distance so that they appear in a regular pattern.
- Administration buildings, laboratory buildings and the library building will be laid out in an "O" shape with a courtyard in the center, so that they become united as a zone.
- 2 administration buildings are planned, both of which will be laid out by the main entrance. A schoolyard with flag poles will be constructed in front of the zone for assembly.
- Toilet for teachers and staff will be built nearby the zone of "administration, laboratory and library," while the toilet for students will be constructed nearby the classroom zone. As for small schools (S-7 and S-9) where students and teachers/staff share the toilet together, toilets will be installed in a spot close to the respective zones.

② Extension of existing primary schools

- The new building will be constructed in such a place that the circulations of construction work and school life do not overlap as much as possible for the sake of safety.

(2) Floor plan

In principle, the size of each facility component follows SNNPRSCS. In the case that the facility standard of a room is not set in SNNPRSCS and/or that the facility standard set is considered not appropriate for use and capacity, the facility size set for the Amhara Project has been referred to and/or the appropriate facility size has been set.

①. Classrooms

The size for one secondary classroom is set at 7.4 m x 6.60 m = 48.84 sqm (SNNPRSCS: 46.08 sqm) in order to accommodate 40 tablet-chairs. A 1.65 m-wide corridor will be established in front of the classrooms. There will be one entrance to the classroom and a transom window will be provided above the door leaf. The entrance side window will be a tall side-light while the other side will be windows with large openings. A chalkboard and a notice board will be put on the front wall and a chalkboard will be installed on the other side of the classroom.

The size for one primary classroom is set at 8.0 m x 6.60m = 52.80 sqm in order to accommodate 25 combined-desks (for 50 students). According to SNNPRSCS, there are two separate classroom sizes, 56.00 sqm for the first cycle graders (G1-4) and, 50.24 sqm for the second cycle graders (G5-8). However, the Project plans a unified classroom size for all grades, considering all-grade use under double shift schooling. The width of the corridor, the layout of the openings and a chalk board will follow the policies applied to the secondary classroom, however, a notice board will be installed on the front wall.

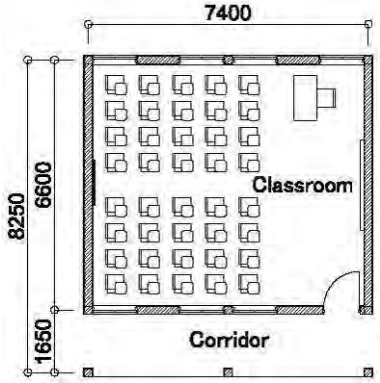


Figure 2-1 Classroom Plan (Secondary)

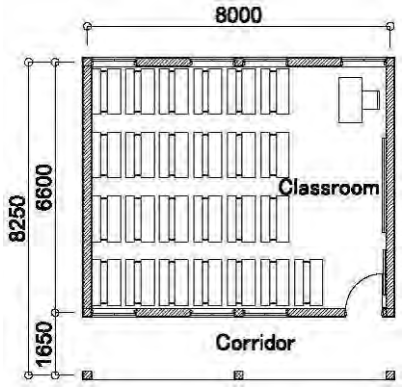


Figure 2-2 Classroom Plan (Primary)

②. Library Room

A library room will be composed of a stack room, a space for librarians, and a reading space. SNNPRSCS sets several library sizes depending on accommodation capacity. (109.00 sqm for 50 students, 159.00 sqm for 100 students, 259.00 sqm for 200 students, etc.) The Project sets 2 sizes for library rooms: for 200 students (29.60m×8.25m = 244.20 sqm) and for 100 students (22.20m×8.25m = 183.15 sqm).

There will be two entrances, and the windows will have large openings for both the entrance side and the other side. A chalkboard and a notice board will be installed on the wall of the reading space.

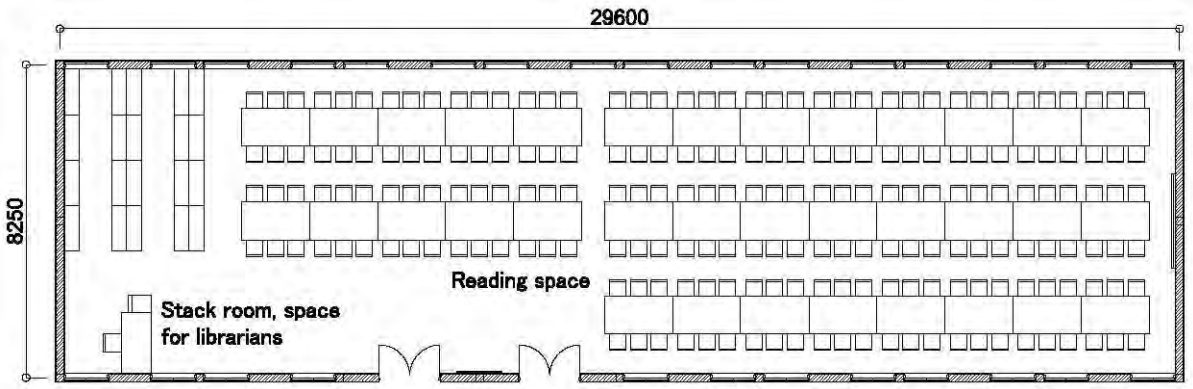


Figure 2-3 Library room（capacity: 200）

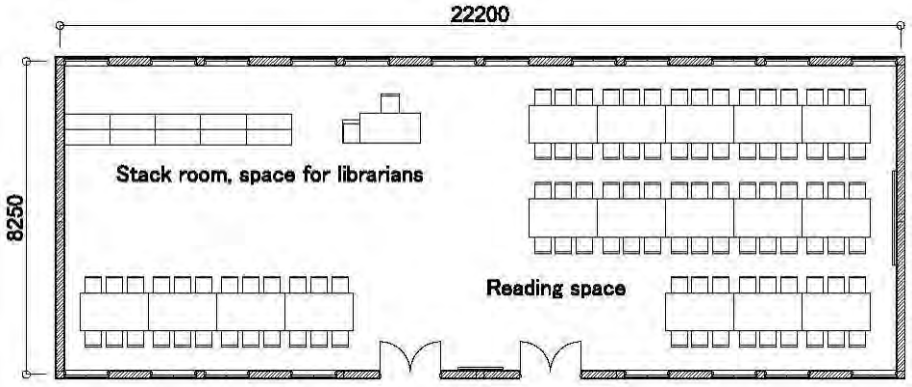


Figure 2-4 Library room (capacity: 100）

③. Science Laboratories (One each for Physics, Chemistry and Biology)

Separate laboratories will be built for Physics, Chemistry and Biology, and each laboratory will be composed of a laboratory space, teacher's room and storage. SNNPRSCS sets separate sizes for a Physics/Chemistry laboratory (152.75 sqm) and a Biology laboratory (108.00 sqm) and thus the Project follows the policy to set the size for a Physics/Chemistry laboratory as 152.63 sqm and for a Biology laboratory as 122.10 sqm, both including teacher's room and storage.

Inside each laboratory, a counter with sinks and water supply pipes will be provided on the entrance side. In addition, a demonstration table will be set by the blackboard. There will be one entrance to the laboratory and the laboratory space. The teacher's room and storage will be connected so that one can walk through the area. The windows will have large openings on both the entrance side and the opposite side. A chalkboard will be put on the front wall whereas two notice boards will be set on the rear wall.

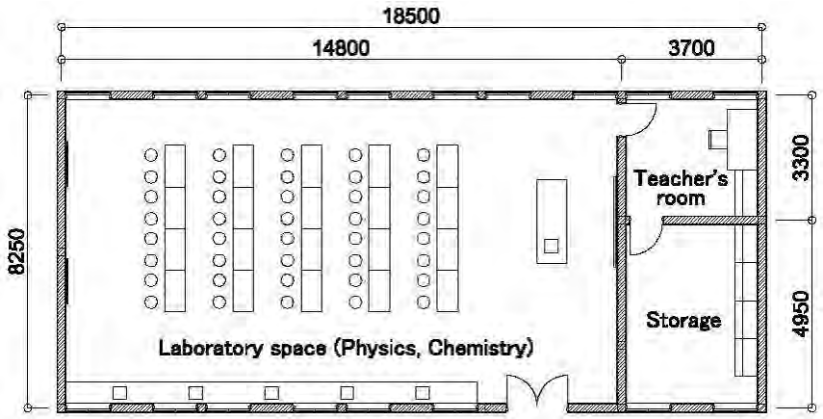


Figure 2-5 Physics/Chemistry Laboratory

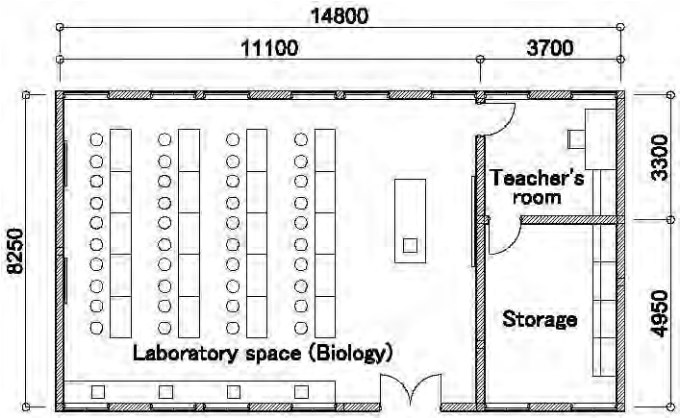


Figure 2-6 Biology Laboratory

④. Technical Drawing Room

The size of the technical drawing room is set at 61.05 sqm (SNNPRSCS: 56.00 sqm) in order to accommodate 40 drawing desks. There will be one entrance and the windows on the entrance side and the opposite side will have large openings.

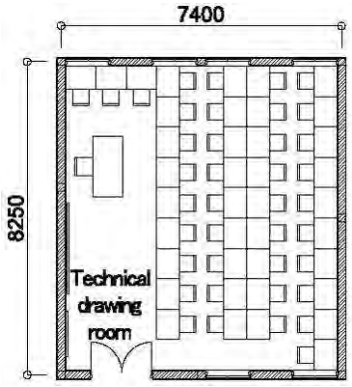


Figure 2-7 Technical Drawing Room

⑤. ICT Center

An ICT center and a satellite receiver room will be built adjacent to each other because their functions are highly linked to each other. There will be an anterior chamber to place electronic devices. The size of the ICT center will be 61.05 sqm (SNNPRSCS: 56.00 sqm) to accommodate 20 computer desks, while the size of the satellite receiver room will be 18.32 sqm (SNNPRSCS: 16.00 sqm.) Each room will have one entrance to the anterior room. The windows on the entrance side and the opposite side will have large openings.

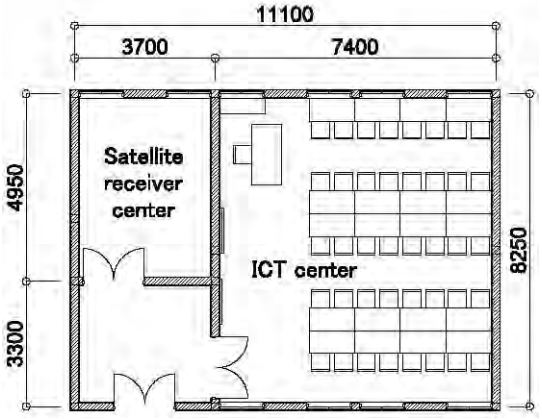


Figure 2-8 ICT Center & Satellite Receiver Room

⑥. Administration Building

There will be 2 administration buildings considering different functions. The Administration building A will have 7 rooms, the breakdown of which is 1 director's room, 2 deputy-director rooms, 1 secretary room, 1 administration & finance room, 1 janitor room and 1 mini-media room. The Administration building B will have 4 rooms, the breakdown of which is 1 staff room, 1 department heads' room, 1 store room and 1 record room.

The director's room, the secretary's room and the deputy director's rooms will be connected so that one can walk through those areas. Likewise, the record room and the storage will be also connected. The accommodation capacity of the staff room is 30, while that of department head's room is 8.

For both Administration buildings, tall side-lights will be installed on the entrance side while windows with large openings will be installed on the other side of the room. A 1.65m-wide corridor will be established in front of the above rooms.

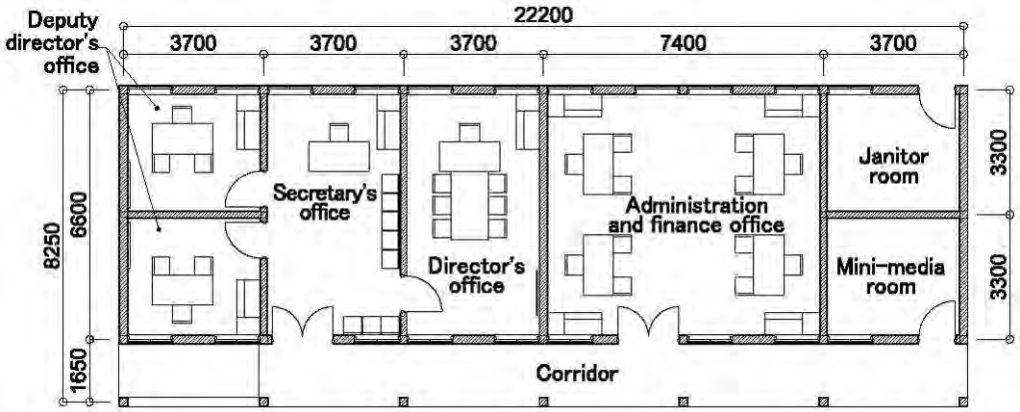


Figure 2-9 Administration Building A

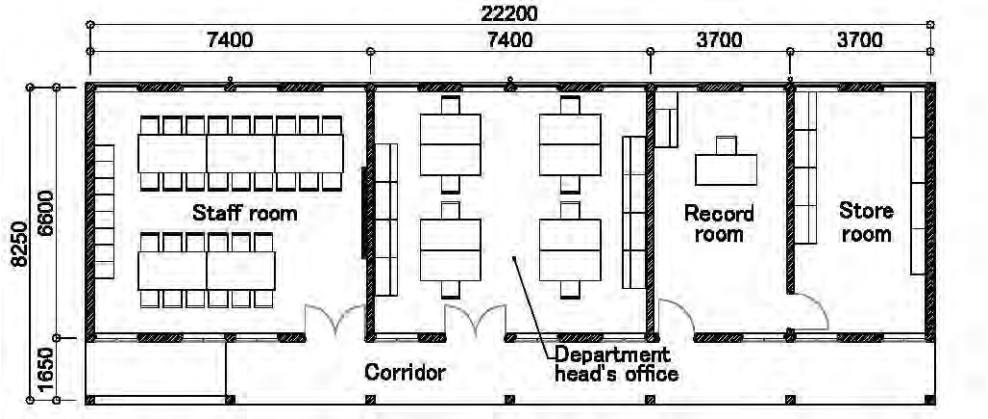
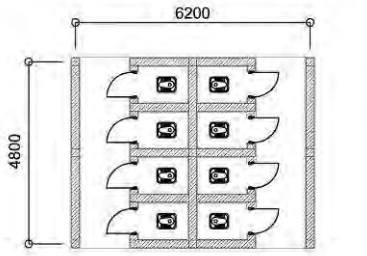


Figure 2-10 Administration Building B

⑦. Toilet

Two types of toilets will be constructed for secondary schools. One type has 8 booths, and the other one has 4 booths. All toilets will be Turkish style. Each booth will be 1.55m×1.2m=1.86 sqm in size. Sewer water will be washed into a pit for removal.



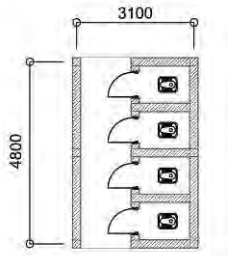


Figure 2-11 Toilet 1 (8 booths) Figure 2-12 Toilet 2 (4 booths)

(3) Building prototypes

The facility of each school will be combination of several prototypes listed in the following table.

① Establishment of new secondary schools

Table 2-13 Planned Facility Prototypes（Secondary schools）

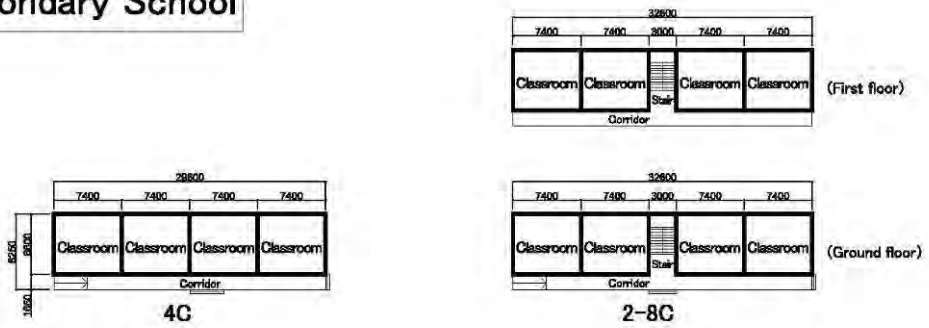
Building	Name of Prototype	No. of Rooms/ Details of the Building	No. of Storey	Area (sqm)
Classroom A	4C	Regular classrooms (4)	1	244.20
Classroom B	2-8C	Regular classrooms (8)	2	537.90
Library A	RL	Library room（capacity : 200）	1	244.20
Library B	RS	Library room (capacity:100)	1	183.15
Science Laboratory A	LA	Science Laboratory (Physics /Chemistry)	1	152.63
Science Laboratory B	LB	Biology laboratory, ICT center, Satellite receiving room	1	213.68
Science Laboratory C	LT	Science laboratory(Physics/ Chemistry), Technical drawing room	1	213.68
Administration Building A	AA	Director's office, Secretary office, Deputy director's offices (2), Administration and finance room, Janitor room and Mini-media room	1	183.15
Administration Building B	AB	Staff room, Department head's room, Record room, and Store room	1	183.15
Toilet 1	T8	8 booths（For students and teachers）	1	29.76
Toilet 2	T4	4 booths（For teachers and staff）	1	14.88

② Extension of existing primary schools

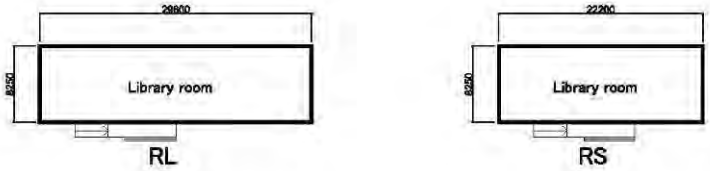
Table 2-14 Planned Facility Prototype（Primary schools）

Building	Name of Prototype	No. of Rooms/ Details of the Building	No. of Storey	Area (sqm)
Classroom	P-4C	Regular classrooms (4)	1	264.00

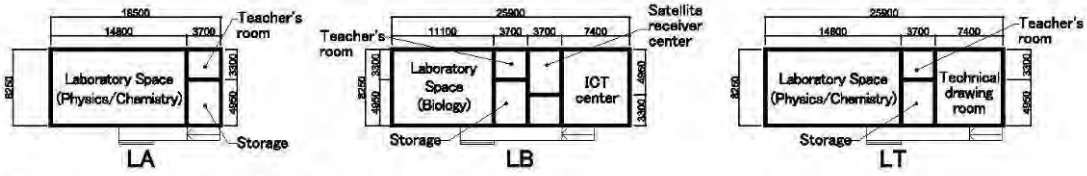
Secondary School



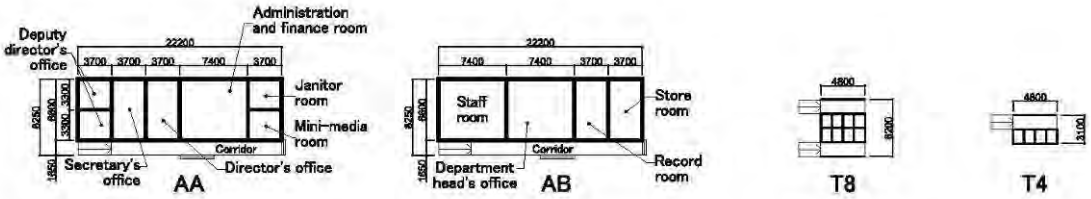
Classroom Building



Library Building

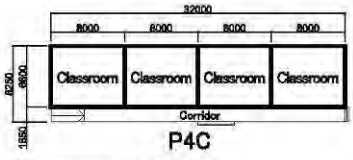


Science Laboratory Building



Administration Building **Toilet**

Primary School



Classroom Building

Figure 2-13 Facility Prototypes

(4) List of planned facility (School by School)

The Table below shows the facility prototypes to be built and the total construction area of each Project school.

Table 2-15 List of Facilities to be Built for All Schools

Type	ID	Construction Site/School Name	Classroom/Library Facility					No. of CRs to be built	Laboratory Facility			Administration Facility		Toilet		Floor Area (sqm)
			4C	2-8C	RL	RS	P4C		LA	LB	LT	AA	AB	T8	T4	
Secondary school	S-1	Kulito		4	1			32	1	1	1	1	1	2	2	3,377.37
	S-2	Berkuncho	4			1		16	2	1		1	1	2	2	2,134.47
	S-3	Jawe	4			1		16	2	1		1	1	2	2	2,134.47
	S-4	Belesto		4	1			32	2	1		1	1	2	2	3,316.32
	S-5	Kuka Tumticha	1	1		1		12	2	1		1	1	2	2	1,926.27
	S-6	Camp Sefer		4	1			32	1	1	1	1	1	2	2	3,377.37
	S-7	Tiya	2			1		8	2	1		1	1	2		1,616.31
	S-8	Gurumo Koyisha	4			1		16	2	1		1	1	2	2	2,134.47
	S-9	Jata	2			1		8	2	1		1	1	2		1,616.31
	S-10	Chamo		4	1			32	1	1	1	1	1	2	2	3,377.37
Primary school	P-1	Tercha					1	4								264.00
	P-2	Duna					1	4								264.00
	P-3	Addis Fana					2	8								528.00
	P-4	Botre					2	8								528.00
	P-5	Koyite Millennium					2	8								528.00
	P-6	Tankaro					1	4								264.00
	P-7	Abosto Tula					2	8								528.00
	P-8	Abeyot Fere					2	8								528.00
	P-9	Bajo					2	8								528.00
	P-10	Hagiye					2	8								528.00
	P-11	Edget Bandnet					1	4								264.00
	Total		17	17	4	6	18	276	17	10	3	10	10	20	16	29,762.73

(5) Section plan

The section plan incorporates the following points.

- The floor of the buildings is higher than 45 cm above the ground so as to avoid flooding during the rainy season.
- The roof is gable type, which is common in Ethiopia.
- Conforming to the local custom, ceilings will be installed inside the rooms and the corridors (top-story only).
- Windows as high as the beams need to be installed to maximize intake of natural draft.
- For the purpose of effective land use, two-storied classrooms will be built at the school sites in urban areas or areas with a small lot. (S-1, S-4, S-5, S-6, S-10)

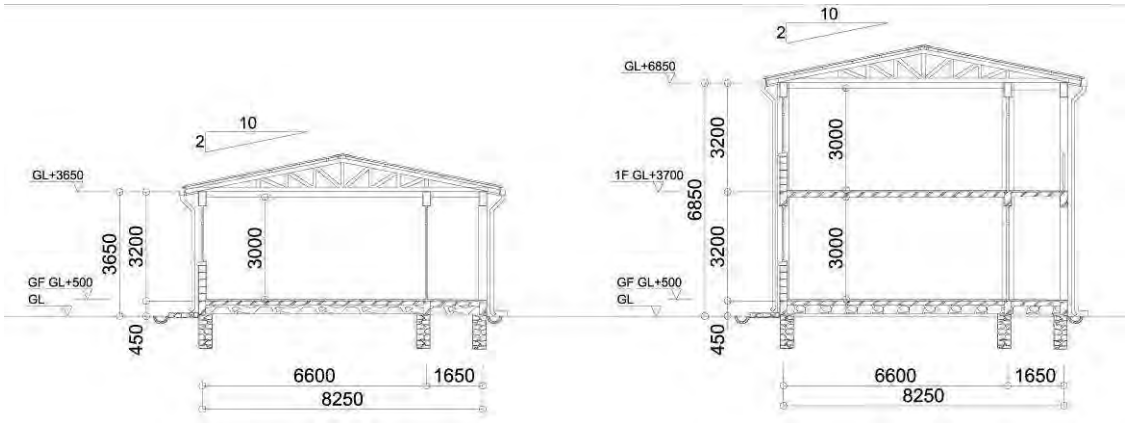


Figure 2-14 Section Plan of Classroom Buildings

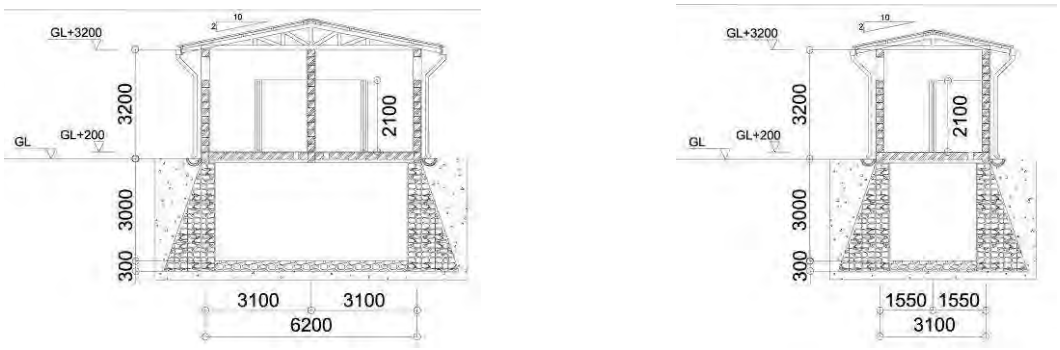


Figure 2-15 Section Plan of Toilet Buildings

(6) Structural plan

① Structural method

The most common basic structures used for school buildings in Ethiopia are : ① continuous footing of masonry with local natural stones, and ② isolated footing of a reinforced concrete structure. The former is used only when construction of one-story buildings on hard subsoil is planned, while the latter method is used when constructing one-story buildings on soft subsoil such as black cotton soil, and/or when two-storied or higher buildings on hard subsoil are planned. The Project will design the structure according to the soil condition and number of stories to be built in each site. If a site has black cotton soil, the soil will be either replaced with good quality soil up to a certain depth or the foundation will be laid in deep ground where there is hard subsoil.

Regarding the upper structure (column, beam and wall), columns and beams will be RC whereas exterior walls and partition walls will be concrete block. The roof will be a truss structure using eucalyptus timber.

② External design forces

As described, Ethiopia is in a seismic zone and according to EBCS, there are five scales to indicate the degree of earthquake danger, from zone 0 to 4. Accordingly, the Project refers to the earthquake-resistant design under EBCS in designing the structure.

Table 2-16 Earthquake zone

Earthquake zone	4	3	2	1	0
Max acceleration (Gal)	100	70	50	30	0
Equivalent to Japan Meteorological Agency Seismic Intensity	5 lower	4 upper	4 middle	4 lower	0

(7) Electrical installation plan

As for secondary schools, all rooms (classrooms, library rooms, 3 laboratories, ICT center, satellite receiver center, technical drawing room, director's office, deputy director's offices, secretary's office, administration and finance office, record room, store room, janitor room, mini-media room, staff room, department head's room, and toilets) will be installed with electrical equipment such as electric distribution board, lighting, outlets, and light electrical appliances, if necessary. However, connecting electricity to the distribution board shall be handled by the Ethiopian side.

On the other hand, electrical equipment will not be installed for all primary schools, because 8 out of 11 schools do not have electricity in their classrooms.

(8) Plan for plumbing installation and sanitary services

For secondary schools, septic tanks will be installed so that sludge can be removed regularly.

(9) Plan for construction materials

Specifications of the planned facilities are listed in the Table 2-17.

Table 2-17 Facility Specifications

Part		Ethiopian Standard Construction Method (in general)	Adopted Method in the Project	Reason for Adoption
Main Structure	Foundation	Isolated footing of RC structure/ Continuous Footing of RC structure	ditto	Follow the Ethiopian standard specifications
	Column/Beam	RC	ditto	Follow the Ethiopian standard specifications
	Wall	Concrete block layer	ditto	Follow the Ethiopian standard specifications
	Roofing	Wood truss (Eucalyptus)	ditto	Follow the Ethiopian standard specifications
Exterior	Exterior Wall	Mortar Tyrolean finish	ditto	Follow the Ethiopian standard specifications
	Outside Corridor, Floor of the Porch	Cement tile on mortar substrate	ditto	Follow the Ethiopian standard specifications
	Moat	Stone veneer using local natural stones	ditto	Follow the Ethiopian standard specifications
	Roof	Corrugated galvanized steel sheet	ditto	Follow the Ethiopian standard specifications
	Eaves plenum	N.A./ Corrugated galvanized steel sheet	Corrugated galvanized steel sheet	To improve durability
	Opening	Steel form, glass	ditto	Follow the Ethiopian standard specifications
	Septic Tank	Masonry using local natural stones	ditto	Follow the Ethiopian standard specifications
Interior	Floor	Cement tile on mortar substrate	ditto	Follow the Ethiopian standard specifications
	Interior wall	Mortar substrate, Painting	ditto	Follow the Ethiopian standard specifications
	Baseboard	Cement tile	ditto	Follow the Ethiopian standard specifications
	Ceiling	Timber ground, Particle board, Painting	ditto	Follow the Ethiopian standard specifications

(10) Exterior Work

The Project will include the exterior works stated below for secondary schools.

- To pave the passages between the buildings.
- To supply two flagpoles for each school.

(11) Furniture Plan

The table below shows furniture and its quantity to be provided room by room. The kind and quantity of the furniture to be provided are limited to the minimum. As for the specification of the furniture, SNNPRSCS and the Amhara Project are refereed to.

① Establishment of new secondary schools

Table 2-18 Furniture to be Provided for Each Room (Secondary School)

Room		Furniture (No in parenthesis = quantity)
Pedagogical Block	Classroom	Tablet chair:(40),Teacher's desk:(1),Teacher's chair:(1),Chalkboard:(1), Notice board:(1)
	Library (Capacity:100)	Library desk:(17),Library chair:(103),Catalogue box:(1), File cabinet:(1), Kneehole desk:(1),Bookshelf:(10),Chalkboard:(1),Notice board:(1)
	Library (Capacity: 200)	Library desk:(34),Library chair:(205),Catalogue box:(1),File cabinet:(1) Kneehole desk:(1),Bookshelf:(20),Chalkboard:(1),Notice board:(1)
	Science Laboratory (Physics)	Stool:(40),Teacher's desk(1),Teacher's chair:(1),Demonstration table:(1),Work bench:(20),Cupboard A:(4),Cupboard B:(1),Chalkboard:(1),Notice board:(2)
	Science Laboratory (Chemistry)	Ditto
	Science Laboratory (Biology)	Ditto
	Technical drawing room	Teacher's desk:(1),Chair:(41),Drawing desk(40),Chalkboard:(1), Notice board:(1)
	ICT Center	Computer desk:(20),Chair:(41),Teacher's desk:(1) , Shelf:(1), Whiteboard:(1), Notice board:(1)
Administration Block	Director's office (incl. Secretary's office)	Office desk:(2),Meeting table:(1),Armrest chair:(2),Office chair:(14),Cupboard A:(2),File cabinet:(2),Notice board:(1)
	Vice director's offices (2 offices)	Office desk:(2),Armrest chair:(2),Office chair:(4),Cupboard A:(2), File cabinet:(2),Notice board:(2)
	Department head's room (for 8 persons)	Office desk:(8),Office chair:(8),Cupboard A:(8)
	Staff room	Office chair:(30),Meeting table:(5),Chalkboard:(1),Locker:(for 32 people)
	Administration and finance office (for 4 persons)	Office desk:(4),Armrest chair:(4),Office chair:(8),Cupboard A:(4), File cabinet:(4)
	Store and record room	Office desk:(1),Office chair:(1),Cupboard A:(5),File cabinet:(1),Bookshelf:(4)

② Extension of primary schools

Table 2-19 Furniture to be Provided For Each Room (Primary School)

Room	Furniture and Quantity
Classroom	Combined desk: (25) ,Teacher's desk: (1) ,Teacher's chair: (1) ,Chalkboard: (1) ,Notice board: (1)

2-2-3 Outline Design Drawing

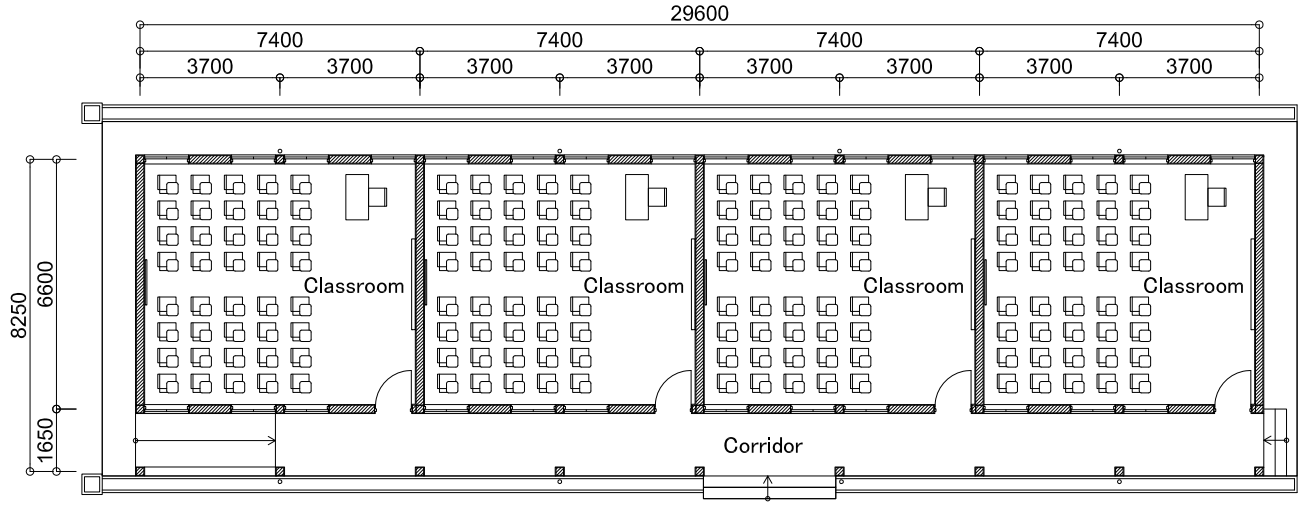
(1) Establishment of new secondary schools

- Classroom Building A (one story) Type 4C
- Classroom Building B (two story) Type 2-8C
- Library Building A (one story) Type RL
- Library Building B (one story) Type RS
- Science Laboratory Building A(one story) Type LA
- Science Laboratory Building B(one story) Type LB
- Science Laboratory Building C(one story) Type LT
- Administration Building A (one story) Type AA
- Administration Building B (one story) Type AB
- Toilet 1(one story) Type T8
- Toilet 2 (one story) Type T4

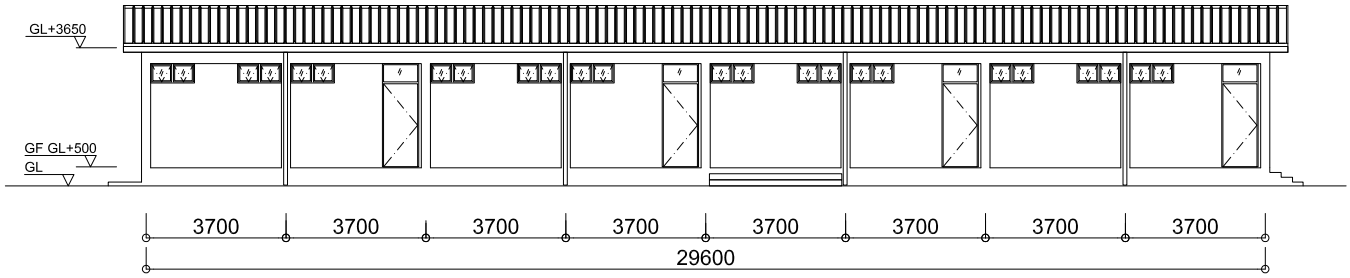
(2) Extension of existing primary school

- Classroom Building (one story) Type P4C

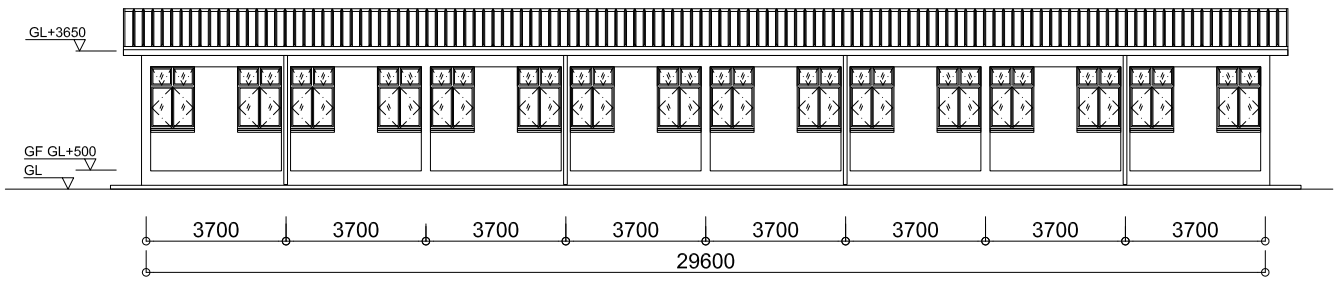
SECONDARY SCHOOL　CLASSROOM BUILDING A　TYPE 4C　—FOUR ROOMS ONE STORY—　S=1/200



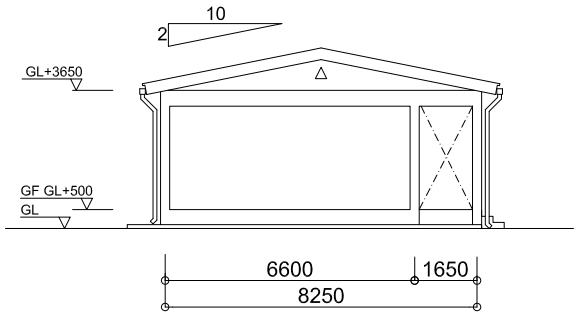
PLAN



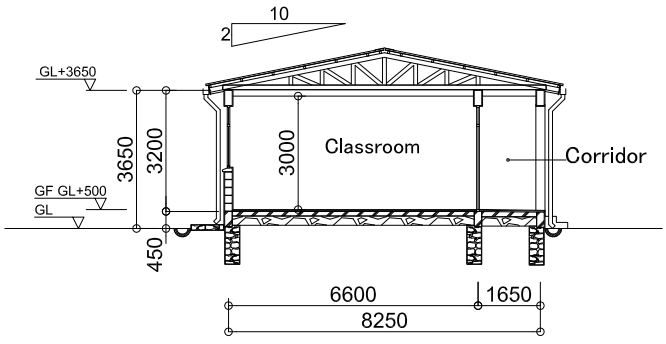
ELEVATION (CORRIDOR SIDE)



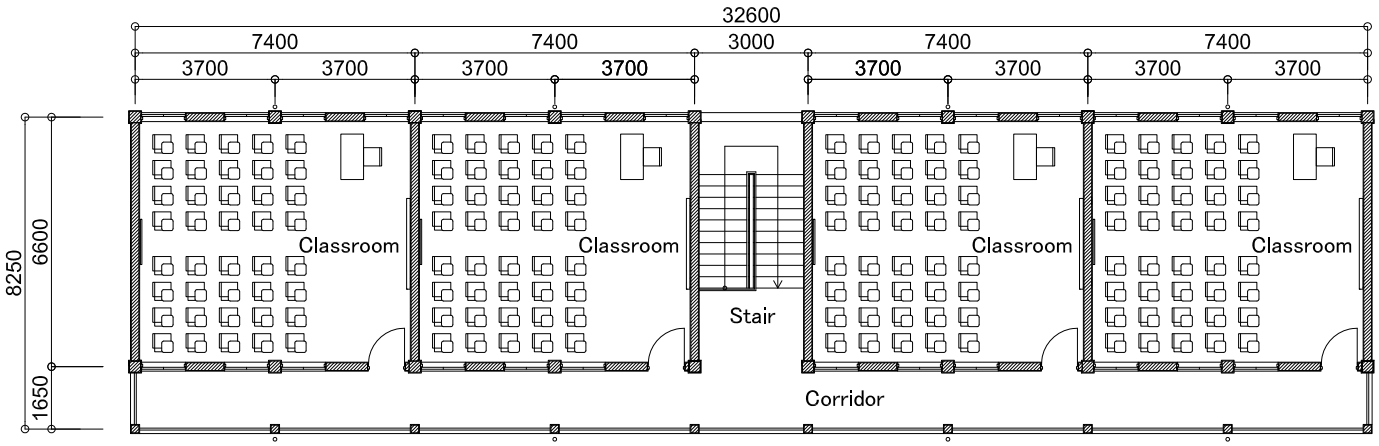
ELEVATION (CLASSROOM SIDE)



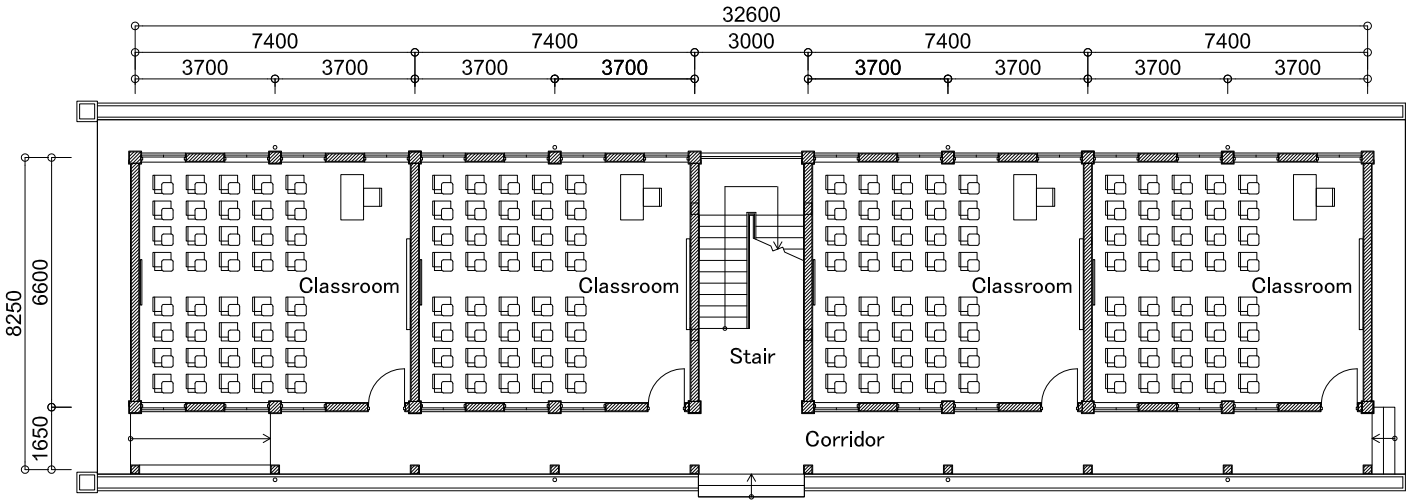
ELEVATION (PERP. GABLE ROOF)



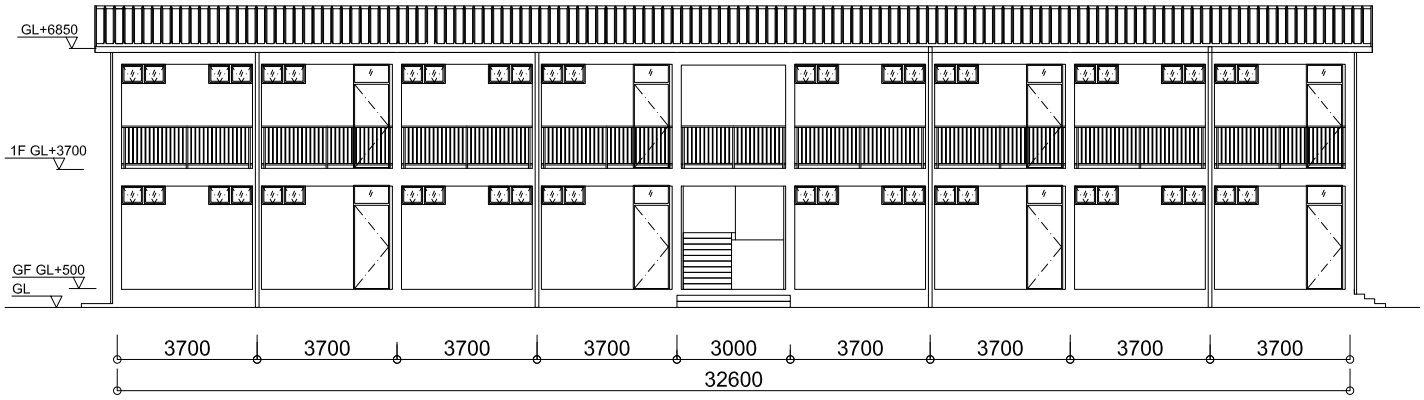
SECTION



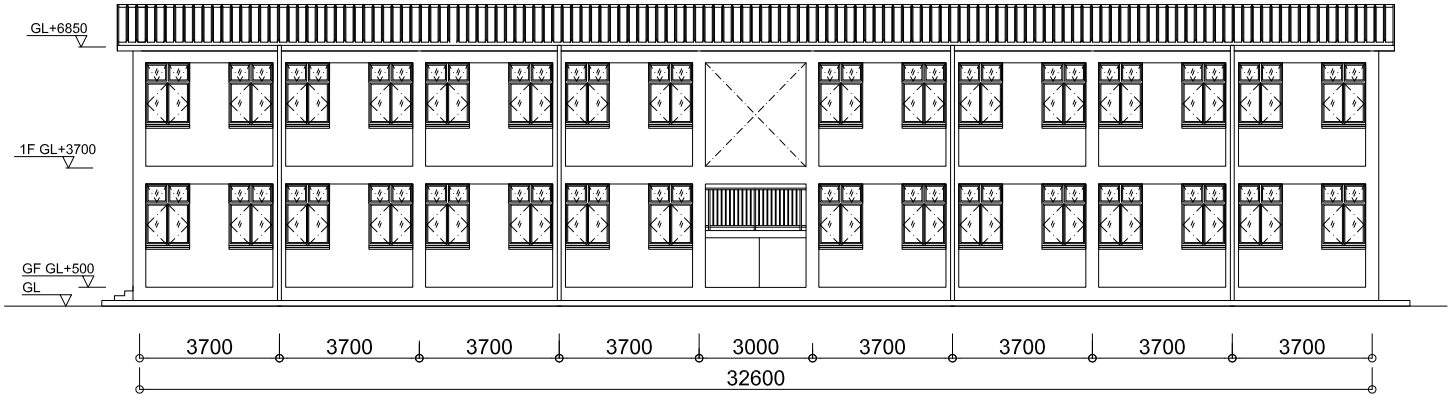
FIRST FLOOR PLAN



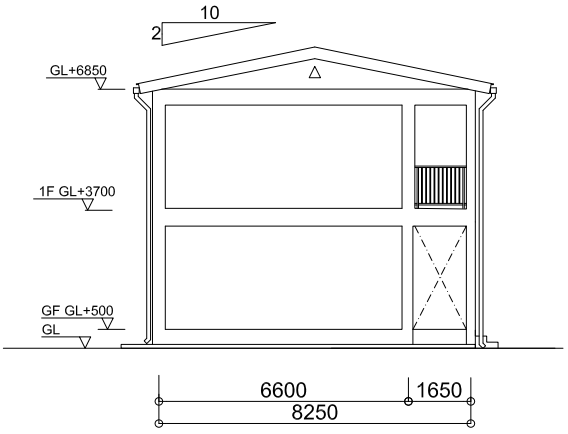
GROUND FLOOR PLAN



ELEVATION (CORRIDOR SIDE)



ELEVATION (CLASSROOM SIDE)



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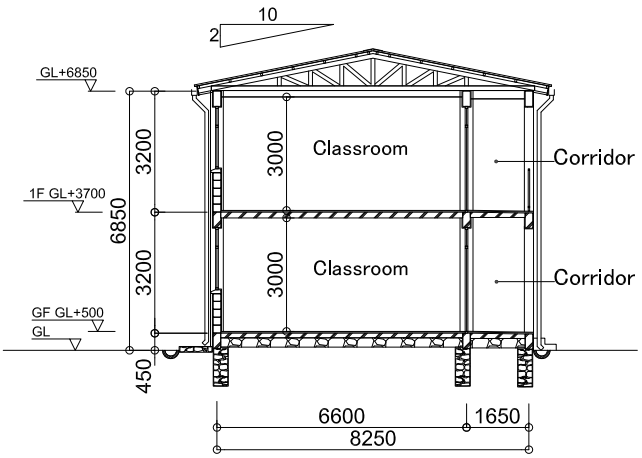

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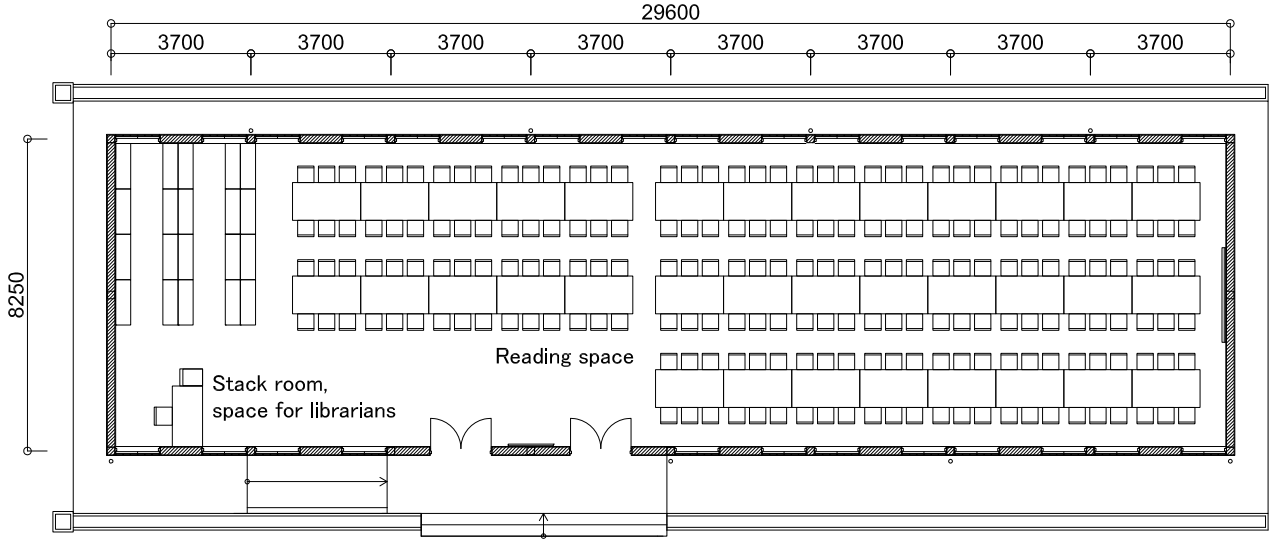

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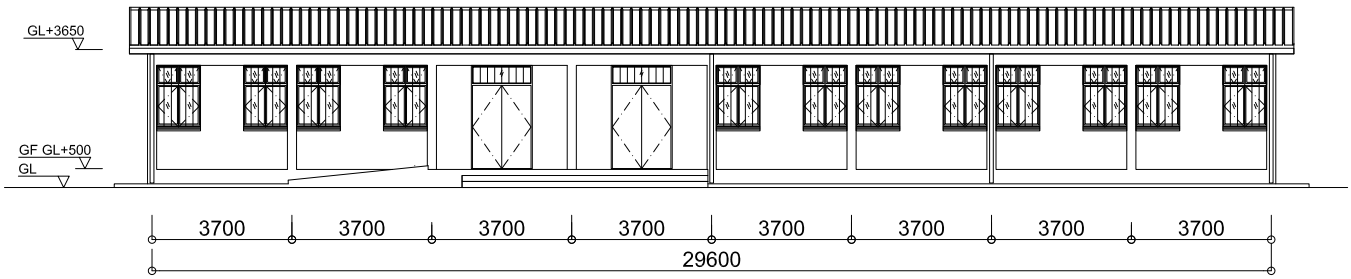
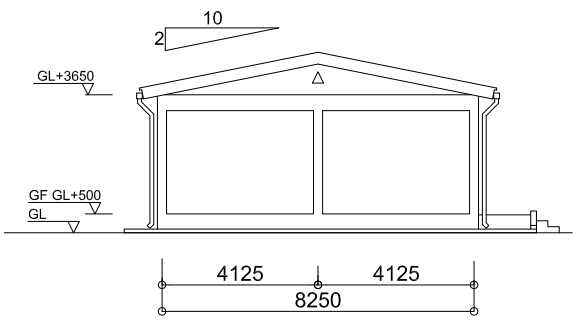


ELEVATION (ENTRANCE SIDE)

ELEVATION



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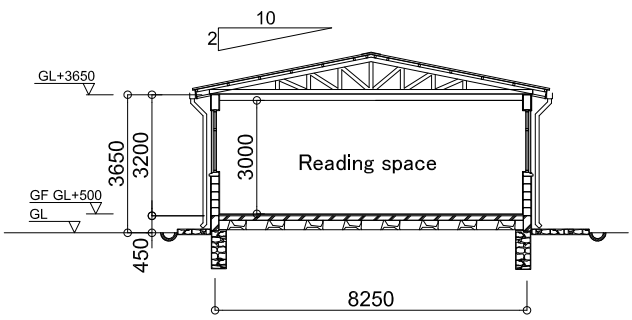

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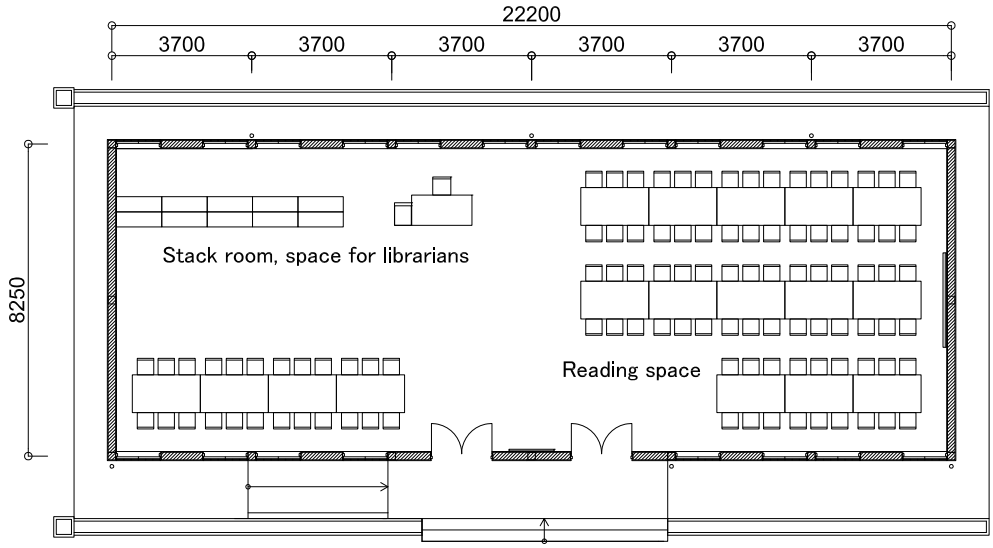

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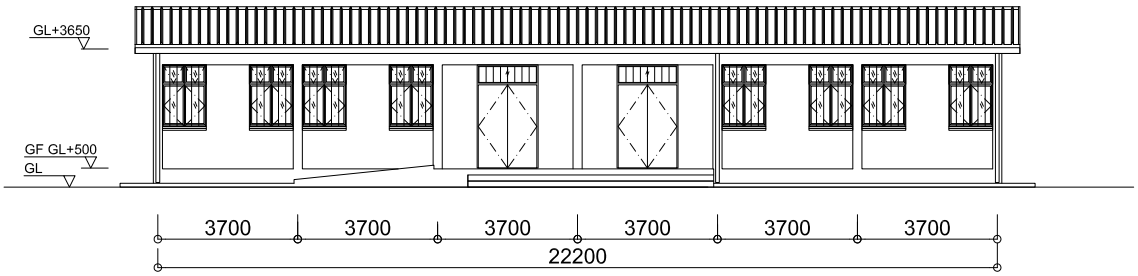

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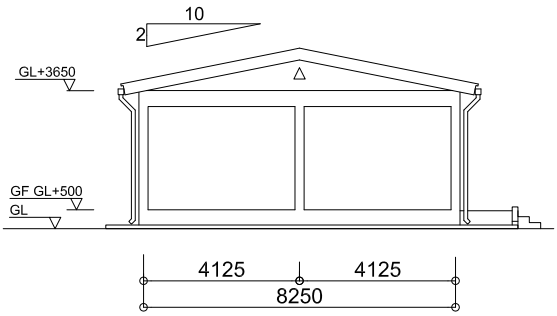

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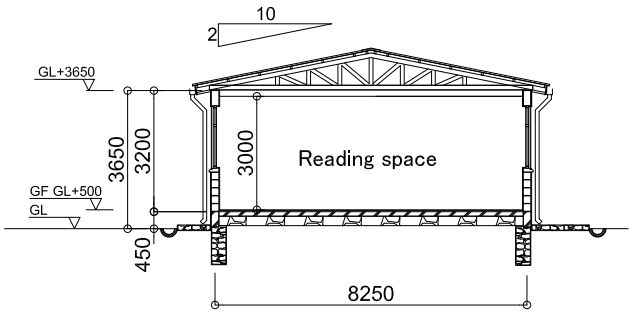

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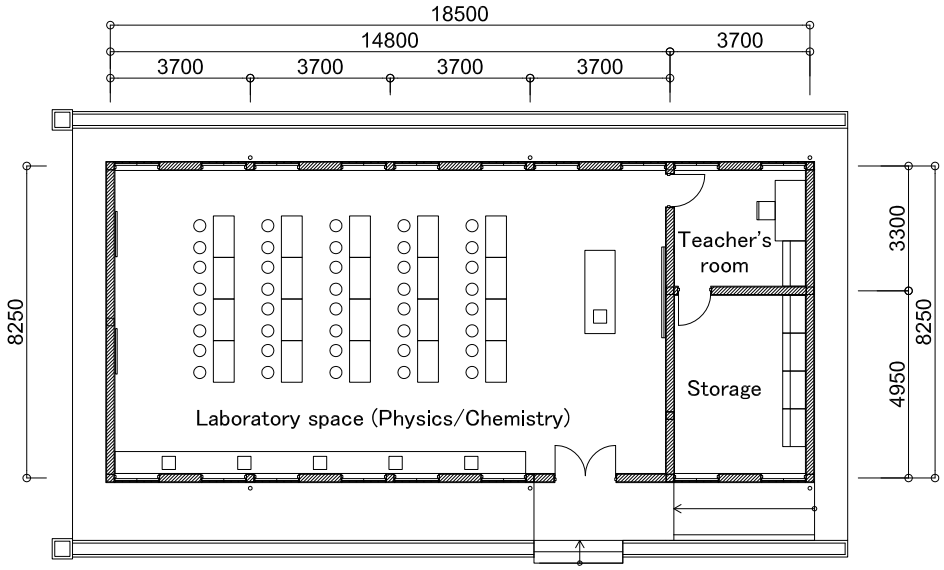
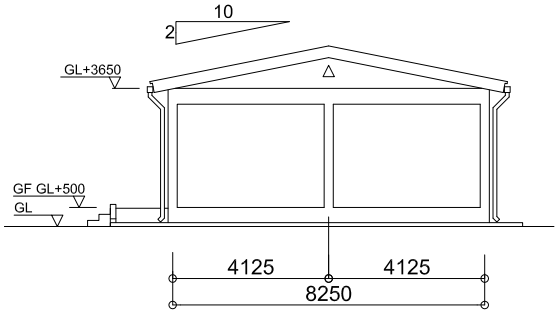


PLAN

ELEVATION (ENTRANCE SIDE)

ELEVATION



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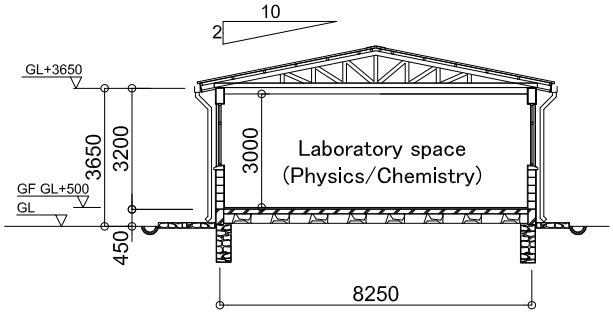

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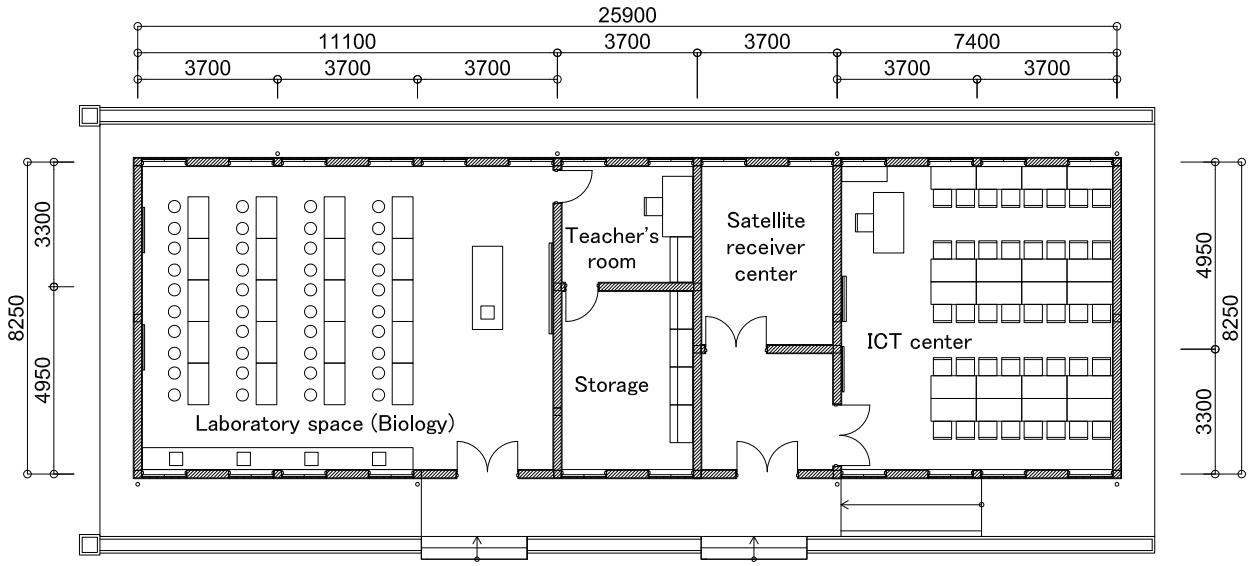
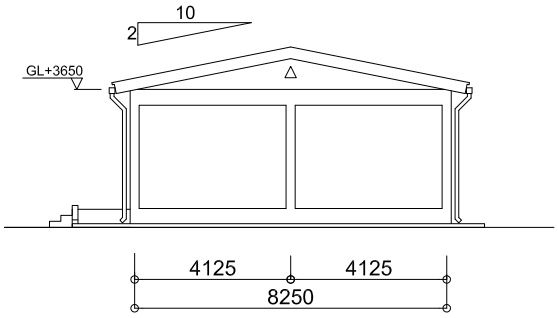


PLAN

ELEVATION (ENTRANCE SIDE)

ELEVATION



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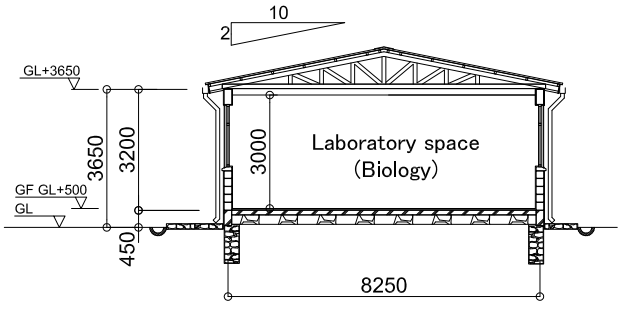

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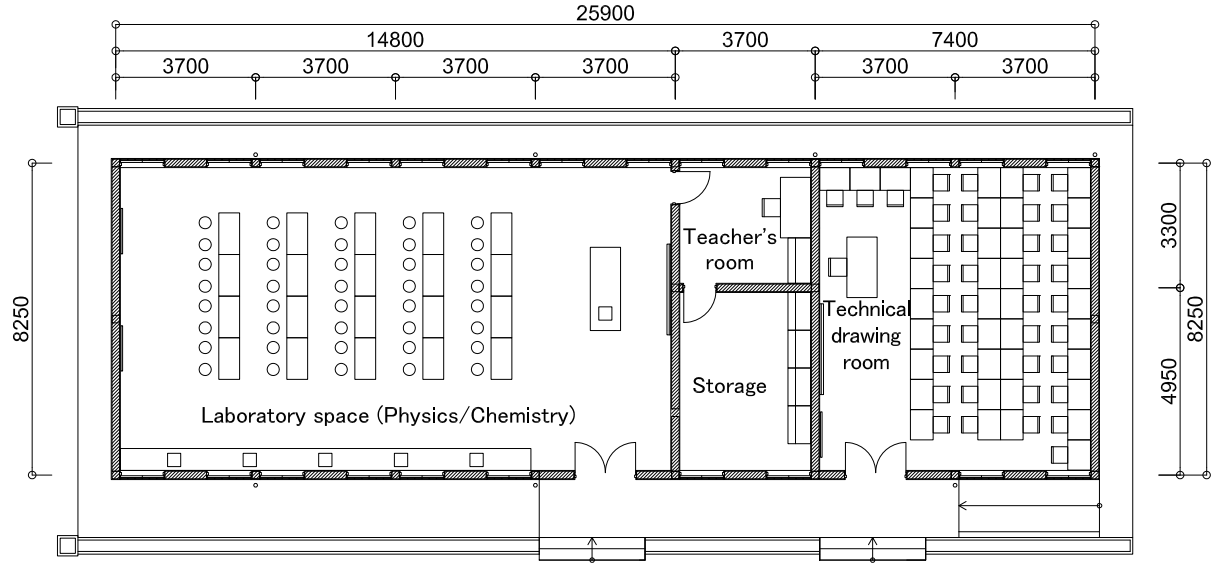
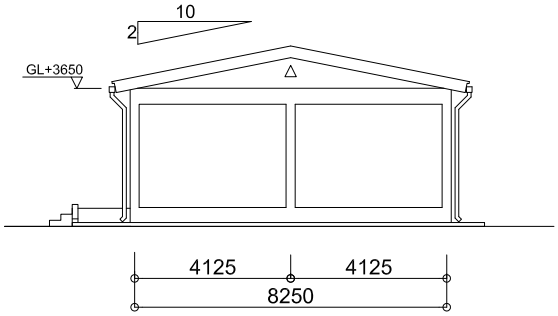


PLAN

ELEVATION (ENTRANCE SIDE)

ELEVATION



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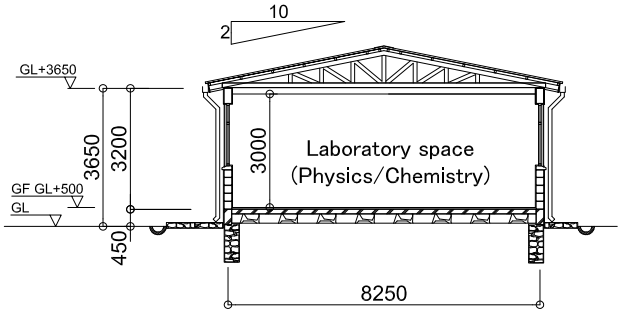

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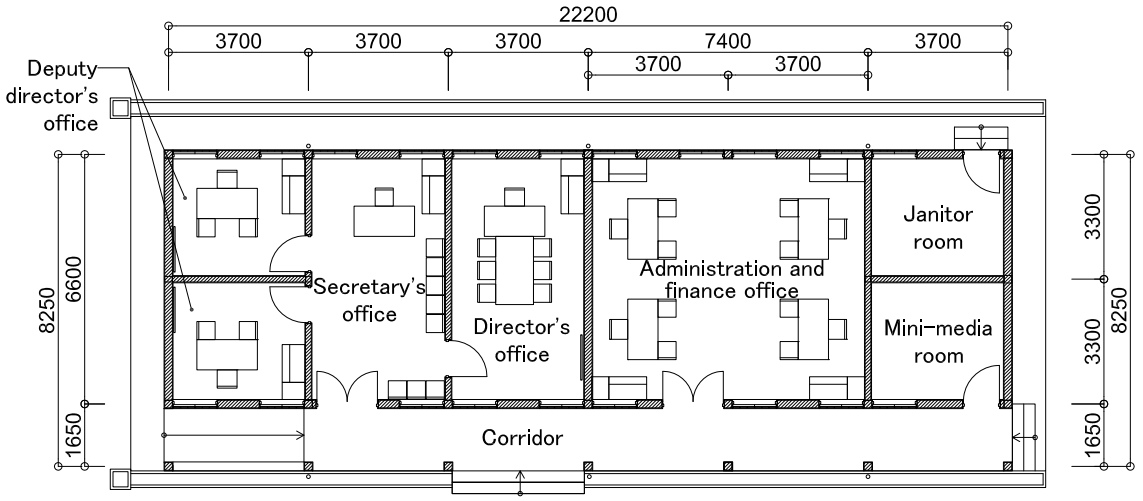
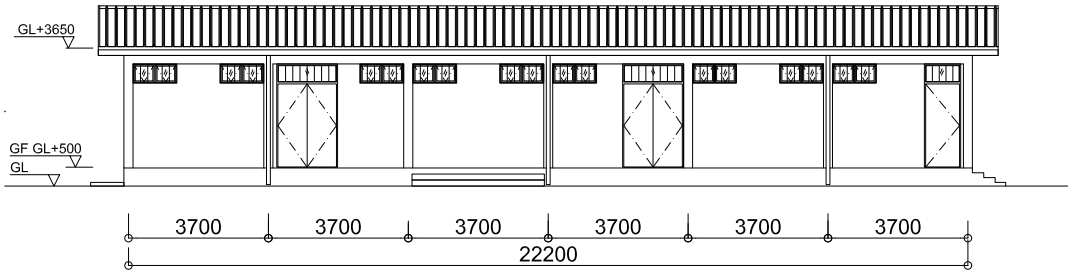


PLAN



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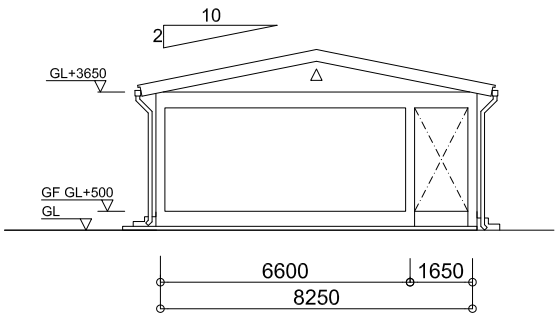
ELEVATION



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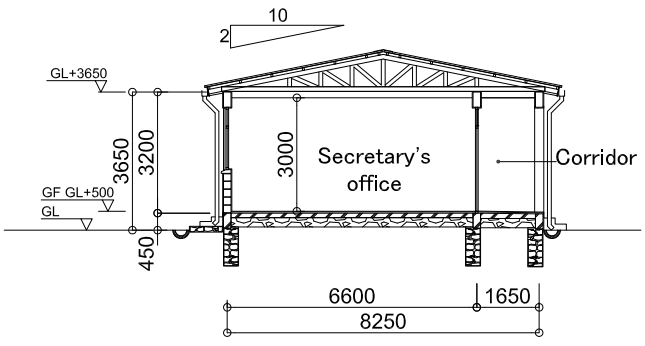

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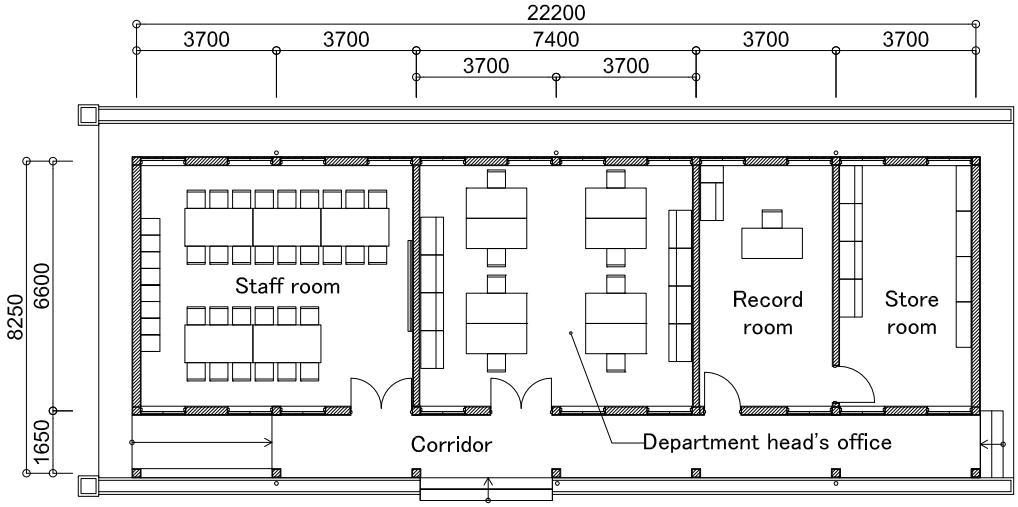

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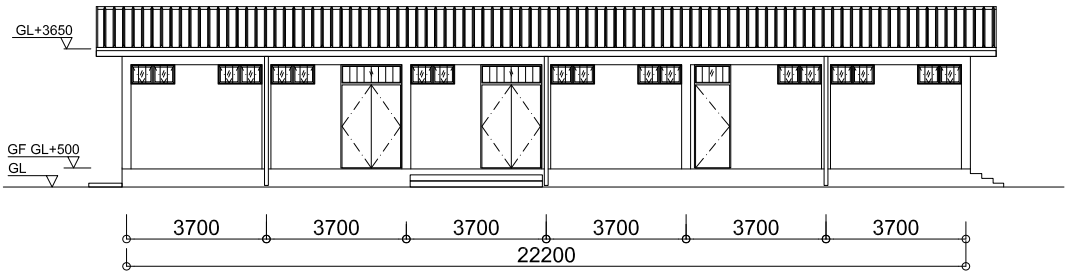

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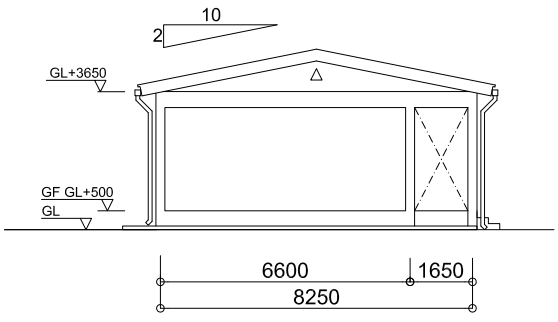
ELEVATION



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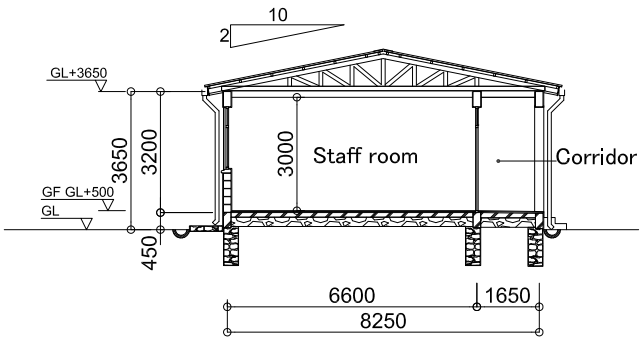

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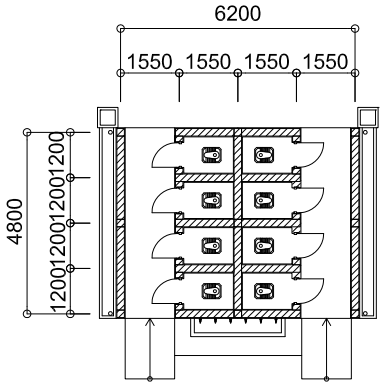

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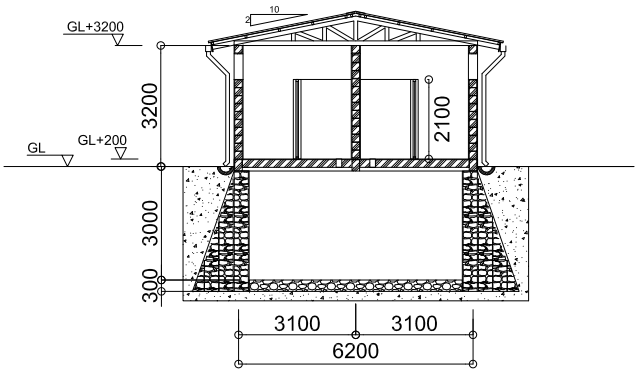

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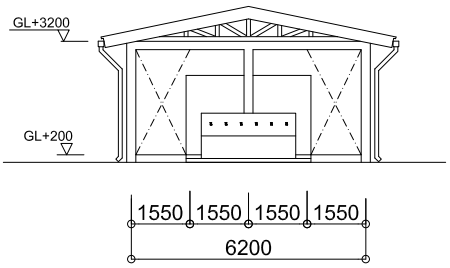
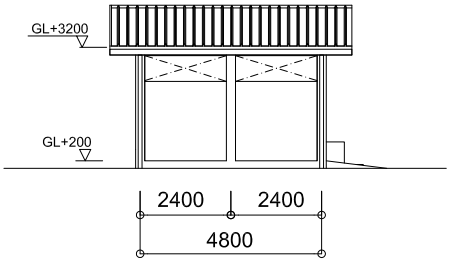
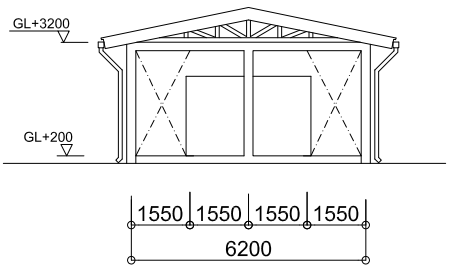


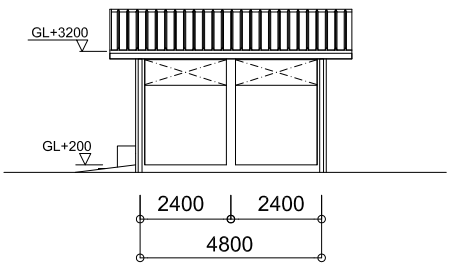
ELEVATION (PERP. GABLE ROOF)



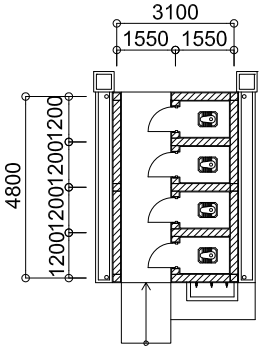
ELEVATION (CORRIDOR SIDE)



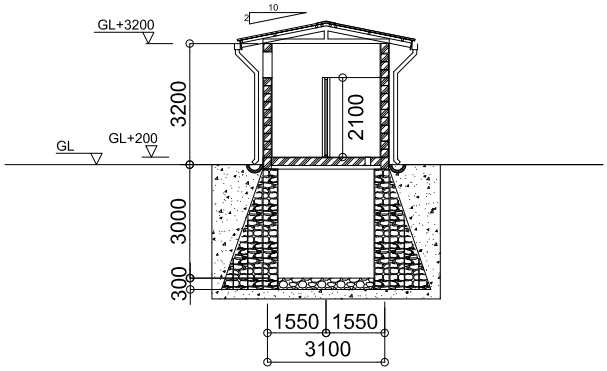
ELEVATION (PERP. GABLE ROOF)



ELEVATION (CORRIDOR SIDE)



PLAN



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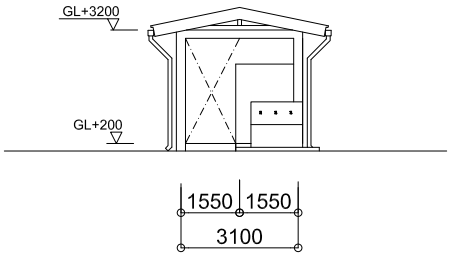

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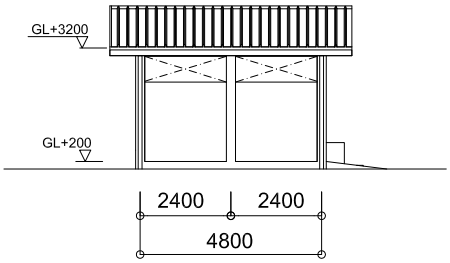
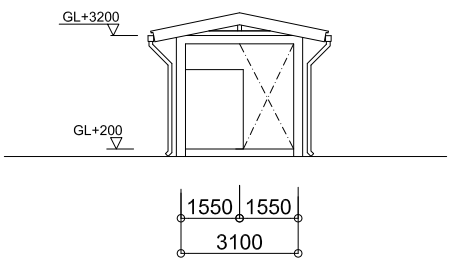
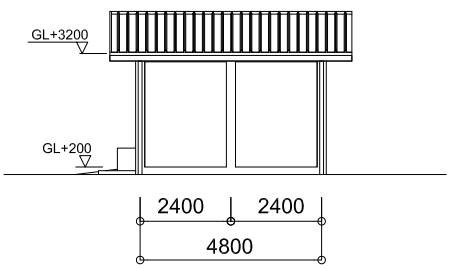


ELEVATION (CORRIDOR SIDE)

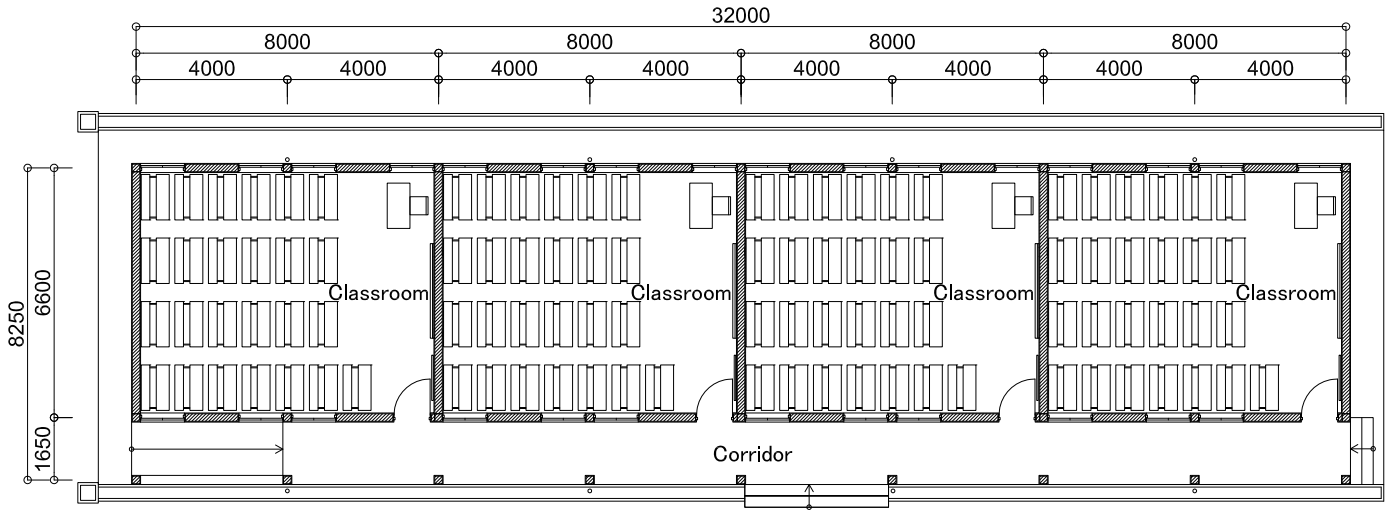


ELEVATION (PERP. GABLE ROOF)



ELEVATION (TOILET SIDE)

PRIMARY SCHOOL CLASSROOM BUILDING TYPE P4C —FOUR ROOMS ONE STORY— S=1/200



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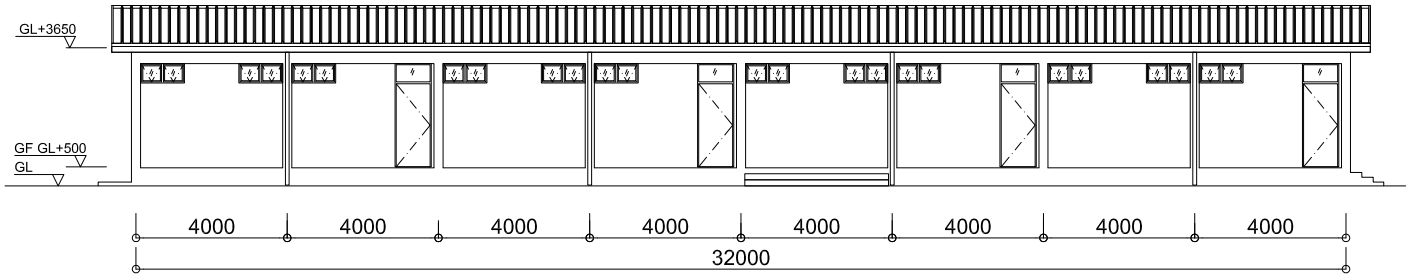

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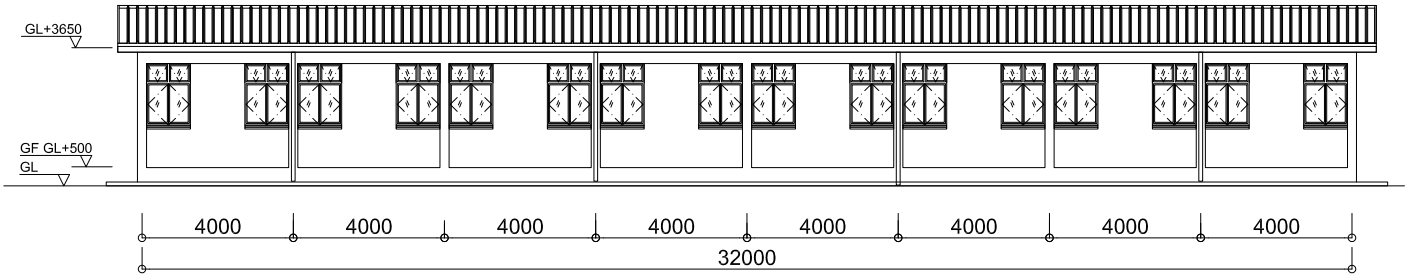
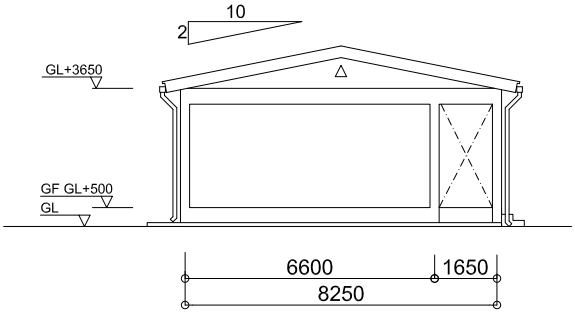


ELEVATION (CLASSROOM SIDE)



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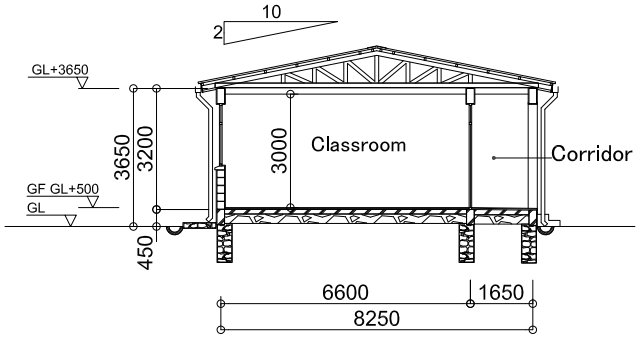


SECTION

2-2-4 Implementation Plan

2-2-4-1Implementation Policy

(1) Project Implementation Organization

The Project will be implemented in accordance with a Procurement Management Method. A Procurement Agent is designated to conduct the procurement services for products and services including fund management, preparing tenders, contracts and others on behalf of SNNPREB. Japan International Cooperation System (JICS), a procurement organization in Japan, will take part in the Project as the Procurement Agent and render services according to the Agent Agreement with the Government of Ethiopia.

An approval by the Cabinet of the Government of Japan is required for the Project implementation. After the approval, both countries will sign the Exchange of Notes (E/N) for the Project. SNNPREB will sign the Agent Agreement with JICS in accordance with the Agreed Minutes on Procedural Details (A/M), which is attached to the E/N.

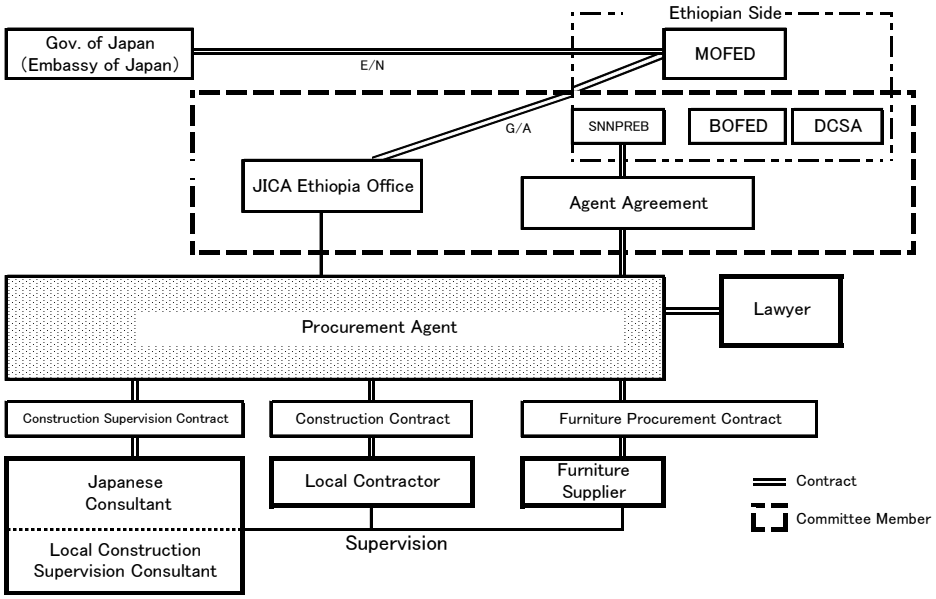


Figure 2-16 Project Implementation Organization

(2) Committee

After the signing of the E/N, a Committee will be organized. The Committee consists of the representatives of both the Governments of Japan and Ethiopia. From the Ethiopian side, SNNPREB, SNNP Regional Bureau of Finance and Economic Development (BoFED) and Design and Construction Supervision Authority (DCSA) will be participating in the meeting

whereas JICA Ethiopia Office will be doing so from the Japanese side. The Embassy of Japan will be joining the Committee as an observer. Various problems that may occur during the implementation of the Project will be discussed and coordinated in the Committee, and the Committee will provide advice to JICS.

(3) Procurement Agent

To implement the Project in accordance with the Agent Agreement, JICS will manage the Project fund, procure the services and products (Lawyer, Construction Supervision Consultant, Contractors and Suppliers) and oversee the implementation. JICS will set up an office in Hawassa, and an Assistant manager will stay in Ethiopia from the tender period till the end of the construction work. The staff allocation and responsibilities of JICS shall be as stated in Table 2-20.

Table 2-20 Staff Allocation of the Procurement Agent (JICS)

Staff		Responsibilities
Japanese Staff	Manager	To carry out overall supervision of the Procurement Agent work. To be dispatched to Ethiopia at the time of the tender and during the final stage of the Project.
	Assistant manager	To supervise the work as a responsible person on site, specifically during the entire period of the tender and the construction work.
	Tender document developer	To prepare tender documents for facility construction and furniture procurement in Japan.
	Administration staff (contract and financial management)	To handle contracts and payments as well as to manage the budget in Japan.
Ethiopian Staff	Office staff 1	To assist the tender process and budget management throughout the entire period of the Project.
	Office assistant	To do office chores.
	Driver	To drive for the Assistant manager.

(4) Construction Supervision Consultant

JICS will enter into a contract with a supervision consulting firm (Japanese consultant), the cost of which will be included within the Project budget. The Japanese consultant assists the tender process and supervises the Project implementation. The Japanese consultant which was responsible for the preparatory survey will be nominated and recommended by JICA for Project implementation. The scope of works of the Japanese consultant is described below:

[Tender Stage]

- To examine the feasibility of the Project implementation by conducting a site survey for all Project schools.

- To develop a set of detailed design drawings, specifications, and bill of quantity.
- To provide technical assistance to the Procurement Agent in order to prepare tender documents.
- To provide technical assistance to the Procurement Agent for smooth implementation of the tender, tender evaluation and contract negotiation.

[Implementation Stage]

- To conduct monitoring and inspection, and to report to the Procurement Agent regularly regarding the situation of quality control, work procedure and safety management as stated in the order specifications.
- To examine and report to the Procurement Agent concerning the construction progress when the contractor requests payment.
- To conduct completion inspection and to report to the Procurement Agent.
- To conduct defect examination and report to the Procurement Agent one year after the completion of the construction work.

The Japanese consultant will utilize a local consultant to implement the Project. The Japanese consultant will set up a construction supervision office for each in Hawassa and in Soddo, and will oversee the construction work of the entire target area.

The organization of the construction supervision consultant and job descriptions of each engineer/staff are shown in Figure 2-17 and Table 2-21 respectively.

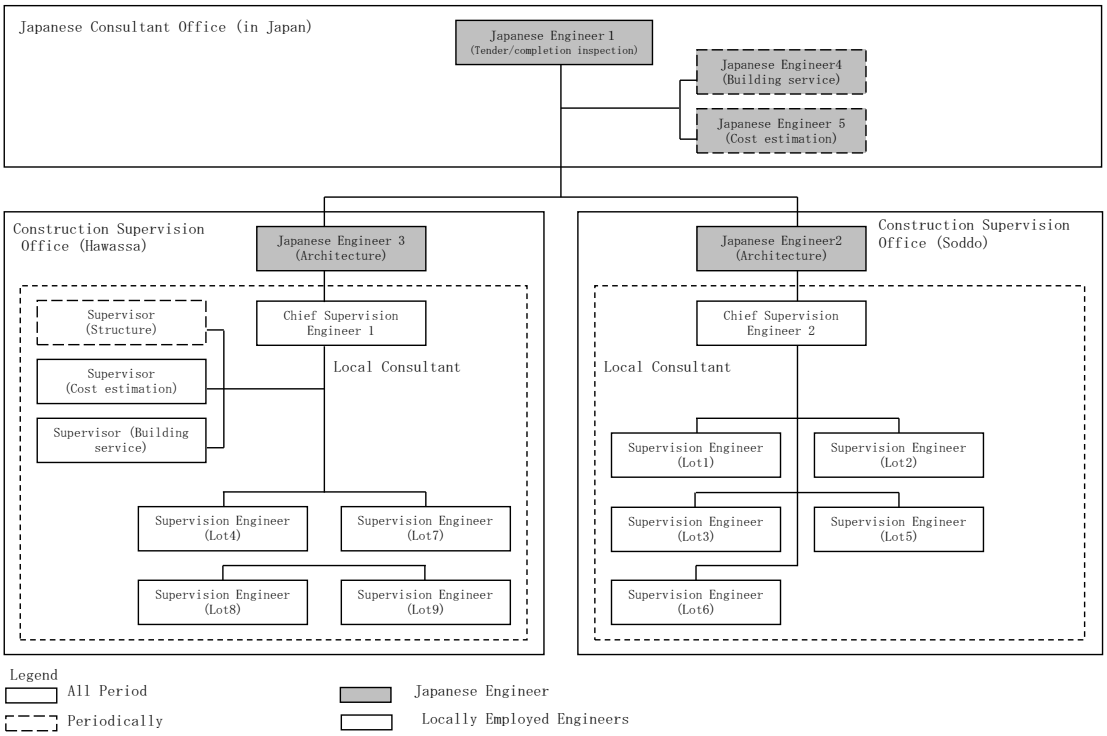


Figure2-17 Organization of the Construction Supervision Consultant

Table 2-21 Allocation of the Construction Supervision Consultant

Staff		Responsibilities
Japanese consultant	Japanese engineer 1 (Tender and completion inspection)	To manage the entire work of the Construction Supervision Consultant as well as to take charge of tenders and completion inspection.
	Japanese engineer 2 (Supervision of architecture)	To be stationed in the Soddo construction supervision office from the commencement to the completion of construction for supervision work. Also to carry out a defect examination one year after the completion.
	Japanese engineer 3 (Supervision of architecture)	To be based in the Hawassa construction supervision office from the commencement of construction of Group1. Also to carry out the construction supervision work from the commencement to the completion of Group2.
	Japanese engineer 4 (Supervision of building service)	To deal with questions and answers as well as conduct tender evaluation in Japan.
	Japanese engineer 5 (Cost estimation)	To assist Japanese engineer 1 in reviewing and finalizing BOQs for the tenders.
Ethiopian local consultant	Chief supervision engineer 1	To assist Japanese engineer 1 during the tender stages. To lead the supervision engineers in carrying out construction supervision; based in the Hawassa construction supervision office. Also, to carry out a defect examination one year after the completion.
	Chief supervision engineer 2	To assist Japanese engineer 2 in leading the supervision engineers; based in the Soddo construction supervision office.
	Supervision engineer 1～9	To carry out construction supervision over the sites they are in-charge of by regular visits; based in the respective construction supervision offices.
	Supervisor (Structure)	To make regular site visits (all sites) to check structure during the structural work
	Supervisor (Utility)	To visit all sites to check utilities; based in the Hawassa construction supervision office
	Supervisor (Cost Estimation)	To assist Japanese engineer 1 in developing tender documents, evaluating the tenders, and negotiating the contracts at the tender stage. Also to check progress of each lot at the construction stage; based in the construction supervision office.
	Office staff 1, 2	To deal with office work during the construction supervision period in the respective construction supervision offices.
	Office assistant 1, 2	To do chores during the construction supervision period in the respective construction supervision offices.

(5) Contractors

Contractors will be selected through open tenders. The contractors will be responsible for the construction work in accordance with the contract documents.

(6) Suppliers (school furniture)

Suppliers will be also selected through open tenders. The suppliers will procure and deliver the furniture to the school sites in accordance with the contract documents.

(7) Lawyer

A Lawyer will be employed to confirm various contracts as well as to settle any disputes or conduct arbitration when needed.

2-2-4-2Issues to be Considered in Implementation

The Project sites are scattered widely, and it is necessary to supervise the construction work efficiently to secure relevant quality. For this purpose, the facility construction will be divided into two groups. Procurement of the Contractors needs the utmost consideration including setting selection criteria (i.e. pre-qualification for tenders) as well as setting the dimension of lots to secure proper contractors to avoid non-performance and delay of construction.

2-2-4-3Scope of Works

To implement the Project smoothly, the tasks that should be undertaken by the Ethiopian side should be done in a proper manner. Prior to the commencement of construction work, the Ethiopian side needs to handle preparing the access roads, and removing the obstructions. Similarly, prior to the completion of the construction, installation of infrastructure to the facilities is also required.

The following work should be undertaken by either the Japanese side or Ethiopian side:

(1) The Japanese side

- Construction work of the planned facilities
- Procurement of the planned school furniture

(2) The Ethiopian side

- Securing the lands
- Land formation
- Construction of the access roads
- Construction of the gates, fences, and guard rooms
- Removing the obstructions (from the surface and underground)
- Provision of the facility for electricity distribution
- Provision of the facility for water supply

- Construction of drinking fountains
- Construction of sports grounds
- Installation of apparatus for distance learning curriculum
- Provision of computers, science laboratory materials, educational equipment and books for libraries, etc.

2-2-4-4Construction Supervision Plan

The Project requires completion of all the construction work at a wide range of sites within the planned schedule. Thus, the construction supervision consultant should communicate well with SNNPREB which is the responsible and implementing organization of the Ethiopian side, and JICS through frequent discussions and regular reporting. Also, the supervision consultant should provide proper instruction and supervision to the contractors.

The Japanese engineer 3, who has experience of supervision of construction work, will stay in Hawassa to control the schedule and the quality of work together with the local chief supervision engineers (refer to 2-2-4-5). They will collect information on the supervision, prepare reports and regularly report to SNNPREB and JICS.

2-2-4-5Quality Control Plan

With regard to quality control, based on the design documents and the consultant supervision plan, the construction work plan, shop drawings, and sample items need to be checked, and several inspections, including on-site ones, need to be conducted. Table2-22 shows the major quality control items for the respective structural work stages.

Table 2-22 Major Quality Control Items for Each Structural Work Stage

Work	Item	Method	Frequency
Excavation	Check the excavated areas	Observation	On completion of the excavation
Re-bar and Forms	Reinforcement materials	Check the mil sheets or tensile test	Every lot, Every size
	Bar arrangement	Inspection of the re-bar arrangement	Before casting concrete
	Forms	Inspection of the forms	Before casting concrete
Concrete Work	Material	Cement: Sorts Aggregates: Particle diameter	On planning the mixture
	Text mixing	Compression test on samples	Every lot, Once every material used
	Striking installation	Compression test on samples	Once every block, Twice for two-storied buildings
Steel Frame	Steel frame materials	Material test	Before steel frame fitting

2-2-4-6Procurement Plan

Major construction materials for the Project can be procured in Ethiopia. Reinforcement bars are available locally both as national products and also imported ones from Turkey and other countries. As for cement, as several factories have opened recently in Ethiopia, the supply of domestically produced cement has become stable. In addition to that, cement produced in China and Pakistan is available in the domestic market. It should be noted that the quality standard of aggregates and sand is important for concrete.

Other than in Addis Ababa, furniture factories exist in Hawassa, and their capacity and quality are sufficient. Arrangement and timing should be properly set for the procurement. Suppliers of the major materials are shown in the table below.

Table 2-23 Suppliers of Materials and Equipment for the Project

Material	Suppliers		
	Local	Japan	Other countries
Cement	○		China, Pakistan, etc.
Aggregates for concrete	○		
Reinforcement	○		Turkey, etc.
Steel frame	○		
Form material	○		Australia, etc.
Plywood	○		
Concrete block	○		
Lumber	○		Australia, etc.
Wooden fitting	○		
Steel fitting	○		
Aluminum fitting	○		
Glasses	○		
Paint material	○		
Roofing metal sheet	○		
Panel board	○		
Electric wire/cable	○		
Conduit pipe	○		
Lighting	○		
Pipe material	○		
Valve, Attachment hardware for piping	○		

2-2-4-7Implementation Schedule

(1) Lot

There are four types of orders in the Project, namely, facility construction, furniture, plaque, and sticker. Facility construction will be divided into 2 groups based upon the construction period and further divided into 9 lots depending on area. As stated, the contractors will be selected through competitive tenders which only invite Ethiopian contractors. As for furniture procurement, the order will be divided into 3 lots depending on the delivery timing and area, and suppliers will be selected accordingly. The order of plaque and stickers will be divided into 2 lots respectively.

Table 2-24 Lot List

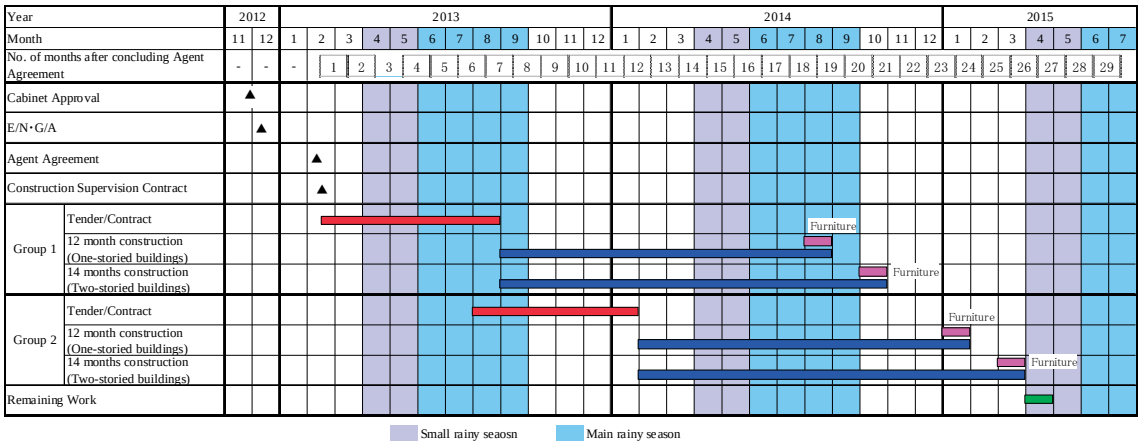
Group	Facility Lot No.	Furniture Lot No.	No. of Schools	No. of CRs to be built	School/Site Name	Floor area (sqm.)
1	1	1	2	40	S-10:Chamo,P-5:Koyite Millennium	3,905.37
	2	1	2	24	S-2:Berkuncho,P-9:Bajo	2,662.47
	3	2	1	32	S-6: Camp Sefer	3,377.37
	4	2	3	44	S-4:Belesto,P-6:Tankaro, P-7:Abosto Tula	4,108.32
	5	1	4	36	S-8:Gurumo Koyisha,P-1:Tercha, P-3:Addis Fana,P-4:Botre	3,454.47
	6	1	2	24	S-3:Jawe,P-10:Hagiye	2,662.47
	7	2	2	20	S-5:Kuka Tumticha, P-8: Abeyot Fere	2,454.27
2	8	3	2	36	S-1:Kulito,P-11:Edget Bandnet	3,641.37
	9	3	3	20	S-7:Tiya,S-9:Jata,P-2:Duna	3,496.62

(2) Implementation schedule

After concluding the Agent Agreement and the construction supervision contract, preparing tender documents to select contractors, conducting tenders and tender evaluation, negotiating the contract, and obtaining approvals from the concerned parties, construction contracts will be concluded. This process is assumed to take about 6.5 months.

It is estimated to take about 12 and 14 months to construct one-storied buildings and two-storied buildings respectively. The entire Project period from the commencement to closing the office, is set at 26.5 months. The table below shows the tentative implementation schedule, assuming that the Cabinet approves the Project in November 2012.

Table 2-25 Implementation Schedule



2-3Obligations of the Recipient Country

Under Japan's Grant Aid for Community Empowerment, the Ethiopian side shall take necessary measures described below:

2-3-1 General

1. To secure lots (the land use right must be secured by SNNPREB) ;

2. To clear level and reclaim the sites when needed;

3. To construct gates, fences and guard rooms in and around the sites;

4. To construct roads outside the sites;

5. To connect electricity, water supply / drainage, gas supply, telephone system, etc to the sites in prior to construction completion. To procure necessary furniture other than one covered by the Japanese side.

6. To bear the commissions to the Japanese bank for banking services based upon B/A;

7. To ensure prompt customs clearance and to assist internal transportation in the recipient country and to assist internal transportation therein of the products;

8. To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in Ethiopia with respect to the purchase of the Components as well as the employment of the Agent be exempted, or be borne by the Ethiopian authority without using the Grant and its accrued interest;

9. To accord Japanese nationals and/ or nationals of their countries, including such nationals employed by the Agent, whose service may be required in connection with the supply of the Components such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work (The term "nationals" wherever used in the G/A means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons in the case of Japanese nationals, and physical or juridical persons of third counties in the case of nationals of third countries.) ;

10. To ensure that the Facilities and the Components be maintained and used properly and effectively for the implementation of the Project;

11. To bear all the expenses, other than those covered by the Grant and its accrued interest, necessary for the implementation of the Project; and

12. To give due environmental and social consideration in implementation of the Project.

2-3-2Undertakings to be Done Site by Site

The table in the next page shows the Ethiopian undertakings to be done site by site. SNNPREB is requested to inform the respective Zones and Woredas to implement the undertakings in a timely manner. If necessary, SNNPREB is required to check the progress from time to time.

Table 2-26 Undertakings to Be Done Site by Site

Type	No.	Zone/ Sp.Woreda	Woreda	Construction Site/ School name	Constructing Access Road	Felling	Connecting Electricity	Connecting Water	Drinking Fountain	Gate, Fence, and Guard Room	Others
Secondary School	S-1	Halaba Sp.	Halaba Town	Kulito	-	Required	200m	200m	1Place	Gate: 1Place Fence: 750 m Guard Room: 1 Place	-
	S-2	Hadiya	Soro	Berkuncho	-	-	50m	-	-	Gate: 1Place Fence: Already exists Guard Room: 1 Place	-
	S-3	Hadiya	Lemo	Jawe	-	-	50m	150m	1Place	Gate: 1Place Fence: 900 m Guard Room: 1 Place	-
	S-4	Sidama	Aleta Wondo	Belesto	Required (when necessary)	Required	Already exists	150m	1Place	Gate: 1Place Fence: 550 m Guard Room: 1 Place	Relocating the electric pole and cables
	S-5	Gedeo	Dilla Zuriya	Kuka Tumticha	Required (when necessary)	Required	50m	250m	1Place	Gate: 1Place Fence: 400 m Guard Room: 1 Place	-
	S-6	Guraghe	Wolkite Town	Camp Sefer	Required (when necessary)	Required	50m	Already exists	1Place	Gate :1Place Fence: 1,100 m Guard Room: 1 Place	-
	S-7	Guraghe	Soddo	Tiya	-	-	200m	450m	1Place	Gate: 1Place Fence: 1,200 m Guard Room: 1 Place	-
	S-8	Wolayita	Bolloso Sorrie	Gurumo Koyisha	-	Required	Already exists	-	-	Gate :1Place Fence: 700 m Guard Room: 1 Place	-
	S-9	Siltie	Sankura	Jata	Required (when necessary)	Required	400m	-	-	Gate: 1Place Fence: 1,200 m Guard Room: 1 Place	-
	S-10	Gamo Gofa	Arba Minch	Chamo	-	Required	50m	50m	1 Place	Gate: 1Place Fence: 350 m Guard Room: 1 Place	Demolishing the existing toilets
Primary School	P-1	Dawuro	Mareka	Tercha Primary School	Required (when necessary)	Required	-	-			-
	P-2	Siltie	Worabe Town	Duna Primary School	Required (when necessary)	-	-	-			-
	P-3	Wolayita	Areka Town	Addis Fana Primary School	-	Required	-	-			-
	P-4	Gamo Gofa	Sawula	Botre Primary School	-	-	-	-			-
	P-5	Gamo Gofa	Mearab Abaya	Koyite Millennium Primary School	-	Required	-	-			-
	P-6	Sidama	Malga	Tankaro Primary School	-	Required	-	-			-
	P-7	Sidama	Dale	Abosto Tula Primary School	-	Required	-	-			-
	P-8	Gedeo	Yirga Chefe	Abeyot Fere Primary School	-	Required	-	-			-
	P-9	Kembata Tembaro	Tembaro	Bajo Primary School	Required (when necessary)	-	-	-			Strengthening the wooden bridge (when necessary)
	P-10	Hadiya	Misha	Hagiye Primary School	-	-	-	-			-
	P-11	Hawassa City	Hawassa	Edget Bandnet Primary School	-	Required	-	-			Demolishing the existing buildings

Legend: Needs to be finished prior to the commencement of construction

Remarks: Construction of the access road is necessary depending on the actual road condition during the rainy seasons, etc.

2-4Project Operation Plan

2-4-1 Increasing the Number of Secondary Teachers and Staff

The Project requires a certain number of teachers and staff to be employed and allocated to all new 10 secondary schools.

(1) New employment of secondary teachers

All 10 new schools need to hire qualified teachers (BA/BS or above) for each subject, considering the planned size. The following tables show the number of teachers required for each school, based upon the number of classrooms to be built, the curriculum and the assumptions below.

- Double shift schooling and all planned classrooms will be used both in morning and afternoon shifts.
- One teacher will be responsible for 24 lessons per week[14].
- As for 3 schools covering both general and preparatory levels (G9-12: 32 classrooms to be constructed each), it is assumed that there will be 26 sections for G9-10 and 6 sections for G11-12 in each shift. This assumption is from the policy that 20% of general secondary graduates promote to preparatory level.
- It is assumed that there will be 4 sections for the science/technology stream and 2 sections for the human science stream at the G11-12 level per shift. This assumption is from the Convergence Plan adopted in 2008/09 that states 70% placement for science and technology and 30% for human science at a new higher education institution.

【G9-10 Schools：S-2, S-3, S-4, S-5, S-7, S-8, S-9】

26 to 86 teachers per secondary school need to be hired, depending on the planned size. However, it should be noted that several teachers are already in place for S-2 school, as it has already started its G9 sections using the primary school facility adjacent to its construction site. If those teachers continue working for the school, S-2 school needs to add the remaining number of teachers to have 48 teachers in total.

[14] From interviews during the Field Survey

Table 2-27　No. of Teachers Needed School by School　(G9-10 Schools)

No.		S-2		S-3		S-4		S-5		S-7		S-8		S-9	
No. of Sections/Shift (=No. of CRs)		**16**		**16**		**32**		**12**		**8**		**16**		**8**	
G9-10 subject	**No.of lessons/wk/section**	No.of Lessons	**No.of teachers**	No.of Lessons /wk	**No.of teachers**	No.of Lessons /wk	**No.of teachers**	No.of Lessons /wk	**No.of teachers**	No.of Lessons /wk	**No.of teachers**	No.of Lessons /wk	**No.of teachers**	No.of Lessons /wk	**No.of teachers**
Amharic	2	32	**2**	32	**2**	64	**3**	24	**1**	16	**1**	32	**2**	16	**1**
English	4	64	**3**	64	**3**	128	**6**	48	**2**	32	**2**	64	**3**	32	**2**
Mathmatics	5	80	**4**	80	**4**	160	**7**	60	**3**	40	**2**	80	**4**	40	**2**
Civics	3	48	**2**	48	**2**	96	**4**	36	**2**	24	**1**	48	**2**	24	**1**
Physical Education	1	16	**1**	16	**1**	32	**2**	12	**1**	8	**1**	16	**1**	8	**1**
IT	2	32	**2**	32	**2**	64	**3**	24	**1**	16	**1**	32	**2**	16	**1**
Geography	2	32	**2**	32	**2**	64	**3**	24	**1**	16	**1**	32	**2**	16	**1**
History	2	32	**2**	32	**2**	64	**3**	24	**1**	16	**1**	32	**2**	16	**1**
Physics	3	48	**2**	48	**2**	96	**4**	36	**2**	24	**1**	48	**2**	24	**1**
Chemistry	3	48	**2**	48	**2**	96	**4**	36	**2**	24	**1**	48	**2**	24	**1**
Biology	3	48	**2**	48	**2**	96	**4**	36	**2**	24	**1**	48	**2**	24	**1**
Necessary No. of Teachers per Shift		24		24		43		18		13		24		13	
Necessary No. of Teachers to be hired (Double the above figure)		**48**		**48**		**86**		**36**		**26**		**48**		**26**	

【G9-12 Schools：　S-1, S-6, S-10】

Table 2-28　No. of Teachers Needed School by School　(G9-12 Schools)

No.				S-1				S-6				S-10			
No. of Sections/Shift (=No. of CRs)				32				32				32			
Subject		No. of lessons/wk/section (G9-10)	No. of lessons/wk/section (G11-12)	G9-10 (26 Sections per shift)		G11-12 (4 Sections: Science/Tech, 2 Sections: Social Science)		G9-10 (26 Sections per shift)		G11-12 (4 Sections: Science/Tech, 2 Sections: Social Science)		G9-10 (26 Sections per shift)		G11-12 (4 Sections: Science/Tech, 2 Sections: Social Science)	
				Lessons/wk	No. of Teachers	Lessons/wk	No. of Teachers	Lessons/wk	No. of Teachers	Lessons/wk	No. of Teachers	Lessons/wk	No. of Teachers	Lessons/wk	No. of Teachers
General	Amharic	2		52	**3**	0	**0**	52	**3**	0	**0**	52	**3**	0	**0**
	English	4	6	104	**5**	36	**2**	104	**5**	36	**2**	104	**5**	36	**2**
	Mathematics	5	5	130	**6**	30	**2**	130	**6**	30	**2**	130	**6**	30	**2**
	Civics	3	3	78	**4**	18	**1**	78	**4**	18	**1**	78	**4**	18	**1**
	Physical Education	1	1	26	**2**	6	**1**	26	**2**	6	**1**	26	**2**	6	**1**
	IT	2	3	52	**3**	18	**1**	52	**3**	18	**1**	52	**3**	18	**1**
	Mother language, Amharic/English		3	0	**0**	18	**1**	0	**0**	18	**1**	0	**0**	18	**1**
Social Science (Electives for G11-12)	Geography	2	4	52	**3**	8	**1**	52	**3**	8	**1**	52	**3**	8	**1**
	History	2	4	52	**3**	8	**1**	52	**3**	8	**1**	52	**3**	8	**1**
	Economics		4	0	**0**	8	**1**	0	**0**	8	**1**	0	**0**	8	**1**
	Business		2	0	**0**	4	**1**	0	**0**	4	**1**	0	**0**	4	**1**
Science/Technology (Electives for G11-12)	Physics	3	4	78	**4**	16	**1**	78	**4**	16	**1**	78	**4**	16	**1**
	Chemistry	3	4	78	**4**	16	**1**	78	**4**	16	**1**	78	**4**	16	**1**
	Biology	3	4	78	**4**	16	**1**	78	**4**	16	**1**	78	**4**	16	**1**
	Tech. Drawing		2	0	**0**	8	**1**	0	**0**	8	**1**	0	**0**	8	**1**
Total No. of Necessary Teachers/ shift				**57**				**57**				**57**			
Total No. of Necessary Teachers (Double the above figure)				**114**				**114**				**114**			

These 3 schools, all of which will have 32 classrooms, need to be staffed with 114 teachers. However, as is the case with S-2, there are already several teachers working at S-10 site, because S-10 school has already been teaching G9-11 level, using the primary school facility adjacent to the site. Accordingly, if those teachers continue working for the school, S-10 school needs to add the remaining number of teachers to have 114 teachers in total.

(2)　Hiring school staff

Likewise, school staff including the director, deputy director, accountant, record officers, etc, must

be hired. The table below shows the necessary staff and the minimum number to be allocated in a secondary school in SNNPR. In reality, one staff does cover two or more job descriptions, and janitors and guards are hired not by the Woreda government but by the PTA. However, the minimum number of staff according to the table must be hired with the Woreda government budget for the Project schools.

As stated, several staff have already been hired for S-2 and S-10, which are now in temporary operation. Should the existing staff continue working for the schools, the remaining number of staff must be added so that all the staff posts are filled.

Table 2-29 Necessary staff to be employed per secondary school

	Staff	Minimum No. of staff
1	Director	1
2	Deputy Director	2
3	Adm & Finance	1
4	Librarian	1
5	Record Officer	1
6	Secretary	1
7	Lab Technician	1
8	IT Technician	1
9	Cashier	1
10	Accountant	1
11	Store Keeper	1
12	Guard	1
13	Messenger	1
14	Janitor	1
	TOTAL	**15**

(3) Total number of teachers and staff to be hired

Based upon (1) and (2) above, the following table summarizes the necessary number of teachers and staff to be hired for each Project school. It needs to be noted that this employment, along with proper formalities, should be completed prior to the opening of the schools.

Table 2-30 No. of Teaches and Staff to be Hired (Secondary Schools)

No.	Zone	Woreda	Construction Site	No. of necessary teachers	No. of necessary staff
S-1	Halaba	Halaba Town	Kulito	114	15
S-2	Hadiya	Soro	Berkuncho	48	15
S-3	Hadiya	Lemo	Jawe	48	15
S-4	Sidama	Aleta Wondo Town	Belesto	86	15
S-5	Gedeo	Dilla Zuriya	Kuka Tumticha	36	15
S-6	Guraghe	Wolkitie Town	Camp Sefer	114	15
S-7	Guraghe	Soddo	Tiya	26	15
S-8	Wolayita	Bolloso Sorrie	Gurumo Koyisha	48	15
S-9	Siltie	Sankura	Jata	26	15
S-10	Gamo Gofa	Arba Minch Town	Chamo	114	15
TOTAL				**660**	**150**

*As for S-2 and S-10, if the existing teachers and staff continue working, the remaining number of teachers and staff will be hired.

2-4-2 Increasing the Number of Primary Teachers

Each primary school needs to hire additional qualified teachers (TTC diploma or above) as the Project will build 4 or 8 classrooms per school. At least one teacher is allocated for one section in SNNPR. Accordingly, additional teachers must be hired with consideration of shift and the number of classrooms to be built. The table below shows the number of additional teachers to be hired school by school.

Table 2-31 No. of Additional Teachers to be Hired (Primary Schools)

No.	Zone	Woreda	School	Shift	No. of planned CRs	No. of Necessary Teachers
P-1	Dawuro	Mareka	Tercha Primary School	2	4	8
P-2	Siltie	Worabe Town	Duna Primary School	1	4	4
P-3	Wolayita	Areka Town	Addis Fana Primary School	2	8	16
P-4	Gamo Gofa	Sawula	Botre Primary School	2	8	16
P-5	Gamo Gofa	Mearab Abaya	Koyite Millennium Primary School	1	8	8
P-6	Sidama	Malga	Tankaro Primary School	2	4	8
P-7	Sidama	Dale	Abosto Tula Primary School	2	8	16
P-8	Gedeo	Yirga Chefe	Abeyot Fere Primary School	2	8	16
P-9	Kembata Tembaro	Tembaro	Bajo Primary School	1	8	8
P-10	Hadiya	Misha	Hagiye Primary School	1	8	8
P-11	Hawassa City	Hawassa	Edget Bandnet Primary School	2	4	8
TOTAL					**72**	**116**

No additional staff is necessary for the primary schools, since all schools are now in operation.

2-4-3 Equipment/Teaching Materials

As stated earlier, equipment and teaching materials other than textbooks are procured by the schools utilizing the Block Grant[15]and School Grant from the General Education Quality Improvement Program Project (GEQIP). Accordingly, the schools are requested to prepare all necessary equipment and materials in a timely manner. The Woreda government is requested to release the Block Grant to each school and have a GEQIP School Grant provided to each school without delay.

2-4-4 Other Operation and Maintenance

Usually the PTA provides schools with labor, material and financial assistance to pay utilities, construct small facilities and do small-scale assistance in SNNPR. This active participation of the community is also expected for the facility maintenance for the Project schools.

[15] Block Grant is provided based on the number of the G9 and G10 students.

2-5Project Cost Estimation

2-5-1 Initial Cost Estimation

(1) Cost to be Shared by the Ethiopian Side

The costs have been estimated by the Japanese side based upon the information obtained during the field survey between February and March 2012.

Table 2-32 Cost to be Shared by the Ethiopian Side

Item	Amount（Birr）	Equivalent to（JPY）
Land formation (Cut, Filling)	0	0
Construction of the access roads	0	0
Construction of the gates, fences and guard rooms	3,323,000	15,186,000
Removing the obstructions (surface and underground)	23,000	105,000
Provision of facility for electricity distribution	625,000	2,856,000
Provision of facility for water supply	431,000	1,970,000
Construction of drinking fountains	63,000	288,000
Installation of apparatus for distance learning curriculum (Satellite Antenna and related apparatus)	13,600,000	62,152,000
Bank charge	287,000	1,312,000
Total	**18,352,000**	**83,869,000**

(2) Condition of the Cost Estimation

①. Estimated at the time of :March 2012

②. Exchange rate applied : 1USD = JPY 78.42, 1 Birr = JPY 4.57

③. Implementation schedule :Refer to Table 2-25

④. Others :The rules of Japan’s Grant Aid Scheme were applied in estimating the cost.

2-5-2 Operation and Maintenance Cost

(1) Personnel Cost

① Salary for Teachers

As explained in Chapter 4 “Project Operation Plan,” the Project requires an additional 660 teachers and 116 teachers be hired for secondary and primary schools respectively. The total annual personnel cost required for the additional teachers will be 14,073,744birr.

Table 2-33 Salary for Teachers for all Project Schools（21 schools）

School Level	Minimum Qualification for Teacher	Minimum Annual Income	No. of Necessary Teachers to be hired	Total Personnel Cost per Year (Birr)
Secondary	BA/BS	18,852	660	12,442,320
Primary	TTC	14,064	116	1,631,424
TOTAL				**14,073,744**

② Salary for Staff

Likewise, each new secondary school must be allocated with staff. The minimum annual income for staff and total annual personnel cost per school is shown below.

Table 2-34 Annual Personnel Cost

Staff	Minimum Annual Income (Birr)	No. of Necessary Staff per school	Total Annual Personnel Cost (Birr)
Director	40,176	1	40,176
Deputy Director	35,208	2	70,416
Adm & Finance	17,988	1	17,988
Librarian	15,540	1	15,540
Record Officer	11,484	1	11,484
Secretary	13,368	1	13,368
Lab Technician	17,988	1	17,988
IT Technician	17,988	1	17,988
Cashier	11,484	1	11,484
Accountant	9,804	1	9,804
Store Keeper	15,540	1	15,540
Guard	5,328	1	5,328
Messenger	5,964	1	5,964
Janitor	5,328	1	5,328
TOTAL			**258,396**

Because the Project will establish 10 new secondary schools, the total additional annual salary for new staff will be 2,583,960 birr

Table 2-35 Total Annual Salary for Staff（10 schools）

Staff Salary /School (Birr)	No. of Schools	TOTAL Annual Salary for Staff (Birr)
258,396	10	**2,583,960**

③ Total Personnel Cost

From the calculations above, in order to run the Project schools, it is required to budget an additional 16,657,704 birr. As this amount is only about 1.3 % of the 2010/11 regional education budget (recurrent budget) of 1.3 billion birr, it is considered feasible for the Ethiopian side to bear this amount.

(2) School budget

① Secondary School Budget

As stated in Chapter 4, each school is responsible for paying the utility cost, doing small-scale facility maintenance, purchasing stationeries, covering exam expenses, school activities, janitors, and guards, within its budget. Resources of the school budget are mainly from the Block Grant (G9-10: 20 birr/student/year), GEQIP School Grant (G9-10: 50 birr/student/year, G11-12: 60 birr/student/year) and community contribution. If the school covers preparatory level (G11-12), it collects some fee from students, the rate of which ranges from 25 to 125 birr/student/year.

The following table was developed to calculate the expected annual school budget for each Project school. The table does not count any contribution from the community, and thus, the actual budget may be higher than the amounts shown in the table

Table 2-36 Expected Secondary School Annual Budget

School		S-1*	S-2	S-3	S-4	S-5	S-6*	S-7	S-8	S-9	S-10*
No. of Planned Schools		32	16	16	32	12	32	8	16	8	32
Source of Budget	Block Grant Per Student (G9-10: 20 Birr per student)	41,600	25,600	25,600	51,200	19,200	41,600	12,800	25,600	12,800	41,600
	GEQIP School Grant Per student (G9-10: 50birr, G11-12:60birr)	132,800	64,000	64,000	128,000	48,000	132,800	32,000	64,000	32,000	132,800
	Average ContributionPer Student (G11-12 : 75birr)	36,000	0	0	0	0	36,000	0	0	0	36,000
TOTAL		**210,400**	**89,600**	**89,600**	**179,200**	**67,200**	**210,400**	**44,800**	**89,600**	**44,800**	**210,400**

(Currency: in Birr)

② Primary School Budget

The actual annual school budget (2011/12) for each Project primary school is as follows. The sources of the budget are from the Block Grant (G1-4: 10 birr/student, G5-8: 15 birr/student), GEQIP School Grant (40 birr/student), contribution from the community and income generation activity such as selling cash-crops. The income generation activity is also a very important source for the school budget at the primary level.

Table 2-37 Actual Primary School Budget (2011/12)

Budget Source	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11
Block Grant per Student G1-4 :10 birr G5-8 :15 birr	3,370	4,065	31,491			3,587	15,768	22,920	2,600	3,375	7,960
GEQIP School Grant per Student 40birr	10,115	10,480	94,255			14,000	23,065	67,038	21,000	13,335	41,200
Community Contribution		2,000	55,494			4,000	4,400	10,000	2,700	5,000	7,200
Income Generation		900	7,200					34,000		6,000	
TOTAL Actual Budget 2012	**13,485**	**17,445**	**188,440**	**188,581**	**12,320**	**21,587**	**43,233**	**133,958**	**26,300**	**27,710**	**56,360**

(Currency: in Birr)

(3) School Operation and Maintenance Cost

The facilities that will be constructed under the Project will not require maintenance for a few years after handing them over to the Ethiopian side. Table 2-38 and 2-39 show the items, frequency, and estimated cost when maintenance comes into necessity for secondary and primary schools respectively. The cost will be 38% of the total estimated annual budget for all 10 secondary school and 11% of the total annual budget of 2011/12 of all 11 primary schools, thus, it is feasible to be covered by each school.

① Secondary School

Table 2-38 Items, Frequency and Annual Cost for Maintenance for All 10 Secondary Schools

Item		Frequency	Annual Cost (Birr)	Remarks
Repainting	Exterior	Every 10 years	80,000	
	Interior	Every 5 years	290,000	
	Chalkboard	Every 5 years	10,000	
	Fittings	Every 5 years	20,000	
	Steel Frame	Every 5 years	10,000	
Sludge removal		Every 3 years	10,000	
Utility Cost		Every month	55,000	
TOTAL			**475,000**	

② Primary School

Table 2-39 Items, Frequency and Annual Cost for Maintenance for All 11 Secondary Schools

Item		Frequency	Annual Cost (Birr)	Remarks
Repainting	Exterior	Every 10 years	11,000	
	Interior	Every 5 years	44,000	
	Chalkboard	Every 5 years	11,000	
	Fittings	Every 5 years	11,000	
TOTAL			**77,000**	

As explained, other than providing labor, the community, led by the PTA, has been supporting financially in terms of small-scale facility maintenance. Thus, the same kind of active support by the community is expected for the facilities constructed by the Project.

CHAPTER 3 PROJECT EVALUATION

Chapter3 Project Evaluation

3-1 Preconditions

Site preparation work, construction of access roads, securing water supplies and connection of electricity, etc. are to be handled by the respective WEOs led by SNNPREB as parts of the obligations of the Ethiopian side. Precisely, it is a precondition that those preparation works should be done without any delay. It should be well noted that most of the Project school sites require the preparation works as described in 2-3-2.

3-2 Necessary Inputs by the Ethiopian Side

(1) To recruit and allocate the necessary number of teachers and staff without delay for the Project schools.
(2) To admit proper number of students corresponding to the size of each school and allocate them in classes.
(3) To allocate a sufficient budget in order for the Project schools to operate and perform the maintenance.
(4) To undertake the operation and maintenance of the Project schools appropriately.

3-3 Important Assumptions

(1) The number of students of the Project schools will not increase beyond this estimation.
(2) There will be no sudden rise in prices which exceed the Project budget, and procurement of necessary materials and equipment can be conducted as planned.

3-4 Project Evaluation

3-4-1 Relevance

The Project proves to be adequate for the Japanese Grant Aid, on account of the justifications mentioned below.

(1) The beneficiaries of the Project are citizens of SNNPR such as school students, totaling more than 35,000.
(2) The Project objective is to improve teaching and learning environments in primary and secondary schools in the target areas by establishing new secondary schools and extending existing primary schools. This corresponds to the purpose of the Japanese Grant Aid, such as “Basic Human Needs” and “Education and Human Resource Development”.

(3) It is normal practices for each school under the Project to perform operation and maintenance tasks in which high skills are not required. These are manageable within the budget and resources of the Ethiopian side.

(4) This Project is expected to contribute to the fulfillment of ESDP in line with improving access to quality education and expanding school facilities.

(5) The Project is presumed to have an economic impact from a long term and large-scale point of view, while it does not involve any immediate financial profitability.

(6) There will be no negative influence on the environmental and social aspects of the sites by the implementation of the Project.

(7) The implementation of the Project is practicable without difficulties, by the Japanese Grant Aid Scheme (Japan's Grant Aid scheme for Community Empowerment).

(8) Furthermore, the Project will be able to utilize lessons learned and feedback from preceding projects under the Japan's Grant Aid scheme for Community Empowerment, i.e. "the Project for Construction of Primary Schools in Oromia Region," and "the Project for Construction of Secondary Schools in Amhara Region." This can be noted as a comparative advantage of the Project in managing the Project efficiently.

3-4-2 Effectiveness

(1) Quantitative results

The effectiveness of the Project will be proven by raising the indicators from the baseline data to the desired value.

Table 3-1 Indicators of the Quantitative Results

Indicators	Baseline data (Year 2012)	Desired value (Year 2018)
① The enrollment capacity at the secondary level in the targeted school catchments in rural areas.	0	6,080[16]
②No. of students who can enjoy quality classrooms in the new Project secondary schools in urban areas.	0	10,240[17]
③No. of students who can enjoy quality classrooms in the Project primary schools.	2,750	8,550

[16] 40 students per classroom (double shift) according to SNNPRSCS and the same number of enrollment per year are assumed.
[17] Ditto

(2) Qualitative results

- The quality of education will be improved, owing to the improvement in the teaching and learning environment in the Project schools.
- The attendance rate and drop out rate will be improved owing to the increase in the number of secondary schools from 5 to 15 in the target areas.
- By upgrading incomplete primary schools to complete ones, the commuting distance of students will be shortened. Thus the attendance and drop out rates will be improved.