

## List of Tables and Figures

|            |  |      |
|------------|--|------|
| Table 2-1  | Schools to be Surveyed .....   | 2-11 |
| Table 2-2  | Schools in Sana'a Governorate whose Numbers of Students were not Submitted .....                             | 2-12 |
| Table 2-3  | Schools with Difficulties in Access .....  | 2-13 |
| Table 2-4  | Schools with Problems in Geographic Features and the Size of the Site.....                                   | 2-14 |
| Table 2-5  | Conditions for the Calculation of the Number of Classrooms in Shortage per Grade in Sana'a Governorate ..... | 2-16 |
| Table 2-6  | Number of Classrooms in Shortage at the Schools in Sana'a Governorate ..                                     | 2-17 |
| Table 2-7  | Number of Classrooms in Shortage of the District which the Schools in Sana'a City Belong to.....             | 2-20 |
| Table 2-8  | Project Schools in Sana'a Governorate .....  | 2-21 |
| Table 2-9  | Project Schools in Sana'a City .....   | 2-21 |
| Table 2-10 | Facility Composition of Project Schools .....  | 2-29 |
| Table 2-11 | Specifications of Building Materials for the Project and Reasons for Selection .....                         | 2-34 |
| Table 2-12 | General Teaching Aids for Each Project School.....   | 2-37 |
| Table 2-13 | Equipment for Science Laboratory for Each Project School in Sana'a City..                                    | 2-38 |
| Table 2-14 | Project Schools and Classrooms in Each Construction Stage.....   | 2-70 |
| Table 2-15 | Major Quality Control Items During Structural Work .....   | 2-73 |
| Table 2-16 | List of Construction Materials and Educational Equipment to be Procured.....                                 | 2-74 |
| Table 2-17 | Number of Newly Required Teachers after the Completion of the Project ...                                    | 2-80 |
| Table 2-18 | Number of School Staff and Teachers for the Project Schools in Sana'a City.....                              | 2-81 |
| Table 2-19 | Cost Estimation Borne by the Japanese Side .....   | 2-83 |
| Table 2-20 | Cost Estimation Borne by the Yemeni Side .....   | 2-84 |
| Table 2-21 | Number of Additional Labour Cost after the Project in Sana'a City.....                                       | 2-85 |
| Table 2-22 | Electrical Capacity and Estimated Amount of Electricity Use.....   | 2-85 |
| Table 2-23 | Estimated Amount of Water Use at Project Schools in Sana'a City.....   | 2-86 |
| Table 2-24 | Number of Additional Annual Maintenance and Operation Expense .....  | 2-87 |
| Figure 2-1 | Organization Chart for Construction Supervision for the Project.....   | 2-72 |
| Figure 2-2 | Construction Schedule.....   | 2-76 |

## Abbreviation

|        |   |
|--------|---|
| BEDS   | Basic Education Development Project   |
| BEEP   | Basic Education Expansion Project   |
| BEIP   | Basic Education Improvement Project   |
| BRIDGE | Broadening Regional Initiatives for Developing Girls' Education Program in Taiz Governorate |
| DEO    | District Education Office   |
| GEO    | Governorate Education Office  |
| GTZ    | Gesellschaft für Technische Zusammenarbeit  |
| NER    | Net Enrolment Ratio   |
| MOE    | Ministry of Education   |
| SW     | Social Worker   |
| YR     | Yemen Rial  |

## Summary

The Republic of Yemen (hereinafter referred to as Yemen) prepared “Basic Education Development Strategy (BEDS)” as Basic Education Sector Plan, and has worked to improve Basic Education especially on the following 8 priority issues: Teacher, Curriculum, School Administration, Education Finance, Decentralization, Girls’ Education, School Facility and Community Participation. However, the Net Enrolment Rate (NER) of Basic Education is still as low as 72% in total in 2003, and the gap between boys and girls is serious, with NER of male students standing at 84% while that of female students at just 59%. The lack and inadequateness of school facilities are one of the reasons for the low enrolment and dropout. Congestion of classrooms forces the schools to limit the number of enrolment, and also there are students who dropout due to the congestion even when schools do not limit the number of students. Furthermore, enrolment ratio of girls decreases radically when it is not possible for schools to avoid having mixed class of boys and girls. In addition, in rural areas especially, the lack of toilets causes low enrolment of girls.

Due to the financial difficulties of the Yemeni Government, most of the improvement of school facilities is implemented with the cooperation of donors, and the Japanese Government also supported “the Project for Construction of Basic Schools in the Republic of Yemen” in 2003 and 2004. However, the lack of classrooms is still serious, and it is a pressing need to construct more school facilities considering the rapid growth of population in Sana’a City and the surrounding area.

Under the circumstance mentioned above, the Yemeni Government made a plan on improvement of school facilities for Basic Education in Sana’a Governorate and Sana’a City, and requested Grant Aid Assistance from the Japanese Government. In response to this request, the Japanese Government entrusted Basic Design Study to Japanese International Cooperation Agency (JICA), and the Basic Design Study Team was dispatched from September 16, 2005 to October 20, 2005. The Team discussed with representatives of Planning and Equipment Sector of the Ministry of Education as a responsible agency on the contents of the Project as well as conducted a site survey at each of the requested schools so as to obtain necessary documents and information. After the Team came back to Japan, the relevance of the Project, school management and maintenance systems, and effects of the Project were analyzed based on the results of the study. Then the Japanese side set the appropriate facility components and the scale of the Project, selected materials, and calculated a rough cost estimate for implementation of the Project. In order to explain those outlines of basic design of the

Project to the Yemeni side, the Draft Report Explanation Team was dispatched from February 24, 2006 to March 3, 2006.

The Project schools are selected among 23 existing schools in Sana'a Governorate and 20 new schools in 4 Districts of Sana'a City to be surveyed for which the Yemeni side requested aid, according to the selection criteria agreed upon and listed in the Minutes on the Discussion taking into account the result of the site study and analysis in Japan.

**[Essential Criteria]**

1. The present and future demand can be quantitatively estimated by a set of data such as the number of school-aged children, the rates of population growth, the enrollment ratio, etc.
2. The necessity of the schools to be constructed can be confirmed by the data such as school mapping etc.
3. Sufficient allocation of teachers and budget and proper operation and maintenance of the facilities by concerned people are secured.
4. No other program or plan for new/undergoing classroom construction by the Ministry of Education, the local government, other donors, NGOs and so forth is underway. Or the shortage of the classrooms is still serious although such kinds of programs were implemented in the past.
5. Access roads for the movement of materials and the construction works are properly constructed.
6. Topographically safe and appropriate-sized land for construction is secured.
7. No natural and environmental or social hazard is foreseen.
8. The number of classrooms in shortage exceeds the number of requested classrooms.
9. The ownership of land for construction is legally secured, and the evidence of land ownership shall be provided to the Japanese side.

**[Criteria to be given higher priority]**

1. Urgently needs the construction of classrooms because of overcrowding.
2. Urgently needs reconstruction because of the danger of over aging and/or damaged existing buildings.
3. The number of girls who can benefit from the school construction is large.

Project schools are those which are deemed to have shortage of classrooms to accommodate all their students under the current single or double-shift system in Sana'a Governorate, and single-shift in Sana'a City at 40 students from Grade 1 to 4, and 48 students from Grade 5 to 9 per classroom. For Sana'a Governorate, 6 schools which are highly prioritized among the requested schools by the Yemeni side and have no obstacles for implementation of this Project are selected as the Project schools. For Sana'a City, in three Districts among the four to which the requested schools belong, one girls' school per each District which is highly prioritized among the requested schools by the Yemeni side and has no serious difficulties for implementation of this Project has been selected as a Project school. In the remaining one District among the four, a co-education school has been selected as the Project school because all the girls' schools in this District have obstacles for implementation of construction.

The facility components for the Project are based on the "minimum necessary" required for school operation: classrooms, administration rooms, a multi-purpose room, storage rooms and toilets for the existing schools in Sana'a Governorate, and classrooms, science laboratories, libraries, activity rooms, multi-purpose rooms, teachers' rooms, principal's rooms, administration offices, social workers' rooms, teaching aids rooms, storage rooms, toilets and so on for the new schools in Sana'a City. Furniture is also provided. In addition, teaching aids are provided as equipment. The facility components of each Project school are shown in Table 1.

Table 1 Facility Composition of Project Schools

| No.                | Name of School               | District             | Facility Type                      | Structure                                    | No. of classroom | Total Area (m <sup>2</sup> ) |
|--------------------|------------------------------|----------------------|------------------------------------|--|------------------|------------------------------|
| Sana'a Governorate |                              |                      |                                    |  |                  |                              |
| G2                 | Al-Husain Bin Ali School     | Arhaab               | 6CR, 4T, 2T                        | Reinforced concrete structure, three-storied | 6                | 491.42                       |
| G4                 | Al-Nahdha Bait Jaber School  | Al-Haiyma Al-Karjiya | 5CR+ADM, 4T, 2T                    | ditto  | 5                | 491.42                       |
| G10                | Al-Mankkab Al-Rub'a School   | Hamdan               | 9CR+ADM+MPR, 6T, 3T                | ditto  | 9                | 1012.97                      |
| G12                | Al-Khaleg Al-Rub'a School    | Hamdan               | 6CR, 5CR+ADM, 8T, 4T               | ditto  | 11               | 968.64                       |
| G13                | Al-Shehid Ali Saleh Al-Hawri | Hamdan               | 6CR x 2, 8T, 4T                    | ditto  | 12               | 968.64                       |
| G16                | Bait Al-Hadhrami             | Snhan                | 6CR, 4T, 2T                        | ditto  | 6                | 491.42                       |
| Sub-Total          | —                            | —                    | —                                  |  | 49               | 3933.09                      |
| Sana'a City        |                              |                      |                                    |  |                  |                              |
| C4                 | Neighboring Unit 666         | M'aeen               | 9CR+TLT(L), ADM+SCR(L)             | Reinforced concrete structure, three-storied | 9                | 1729.78                      |
| C6                 | Neighboring Unit 843         | Shuoub               | 9CR+TLT(L), 9CR+TLT(R), ADM+SCR(R) | ditto  | 18               | 2548.63                      |
| C11                | Bait Hanthal                 | Bani Alharth         | 9CR+TLT(L), ADM+SCR(L)             | ditto  | 9                | 1729.78                      |
| C16                | Neighboring Unit 369         | Alsabeen             | 9CR+TLT(L), 9CR+TLT(R), ADM+SCR(L) | ditto  | 18               | 2548.63                      |
| Sub-Total          | —                            | —                    | —                                  |  | 54               | 8556.82                      |
| Total              | —                            | —                    | —                                  |  | 103              | 12489.91                     |

Furniture to be provided is of “minimum necessary” as shown in Table 2 according to the facility components.

Table 2 Furniture of Project Schools

|                                    | Room                                 | Furniture   |
|------------------------------------|--------------------------------------|---|
| Sana'a Governorate and Sana'a City | Classroom                            | Desk and chair for student (Grade1-4) , Desk and chair for student (Grade 5-9) , Desk for teacher, Chair for teacher, Blackboard      |
| Sana'a Governorate                 | Administration Room                  | Desk for principal, Chair for principal, Work desk, Chair for work desk, Desk for teacher, Chair for teacher, Cabinet, Bulletin board |
|                                    | Multipurpose Room                    | Desk for teacher, Chair for teacher, Blackboard   |
| Sana'a City                        | Science Laboratory                   | Round chair for teacher, Round chair for student, Blackboard  |
|                                    | Preparation Room                     | Desk for teacher, Chair for teacher   |
|                                    | Library                              | Desk for student, Chair for student, Bulletin board, Shelf  |
|                                    | Librarian's Room                     | Desk, Chair, Shelf  |
|                                    | Activity Room                        | Desk for student, Chair for student, Blackboard   |
|                                    | Multipurpose Room                    | Desk for student, Chair for student, Blackboard   |
|                                    | Staff Room                           | Desk, Chair, Cabinet  |
|                                    | Teachers' Room (Male)                | Table for teacher, Chair for teacher, Bulletin board, Cabinet   |
|                                    | Teachers' Room (Female)              | Table for teacher, Chair for teacher, Bulletin board, Cabinet   |
|                                    | Principal's Room                     | Desk for principal, Chair for principal, Cabinet  |
|                                    | Administration Office                | Desk, Chair, Cabinet  |
| Social Worker's Room               | Desk, Chair, Bulletin board, Cabinet |   |

General teaching aids and equipment for science laboratory to be provided are selected from the requested items based on the following conditions: (1) they are used routinely, (2) they are easily maintained, (3) they are not consumable items, (4) they are used at the rooms to be provided in this Project and (5) they are suitable for Basic Education. As the result of selecting necessary items referring to the current textbook, one package of each general teaching aid shown in the table 3 is provided to all the Project schools, and one package of each equipment for science laboratory shown in the table 4 is provided to all the Project schools in Sana'a City.

Table 3 General Teaching Aids for Each Project School

| Teaching Aids               | Subject     |
|-----------------------------|-------------|
| Blackboard Drawing Set      | Mathematics |
| Two Pan Balance             | Physics     |
| Thermometer Wall Red Spirit | Physics     |
| Magnetic Compass            | Physics     |
| Rectangular Magnets         | Physics     |
| Mirrors (Optically Worked)  | Physics     |
| Magnifier with Handle       | Biology     |

Table 4 Equipment for Science Laboratory for each Project School in Sana'a City

| Physics                                   |                                |                              |
|---|--------------------------------|------------------------------|
| Compression Spring Balance                | Spring Balances (0.5~5KG)      | Levers                       |
| Simple Pendulum                           | Springs Set                    | Solid Material Kit           |
| Slotted Weight                            | Geometrical Models             | Barometer Aneroid            |
| Hydrometer                                | Anemometer                     | Ball & Ring Apparatus        |
| Expansion apparatus                       | Expansion of Liquid Apparatus  | Ingen-Hausz's Apparatus      |
| Convection Liquid Apparatus               | Hygrometer                     | Thermometer Max. & Min.      |
| Lenses                                    | Optical Bench                  | Rectangular Glass            |
| Prism glass                               | Newton's Color Disc            | Wave Form apparatus Helix    |
| Set of Tuning Forks                       | Stethoscope                    | Air pump                     |
| Electric Bell in Acrylic Jar              | Timer                          | Electromagnetic              |
| Demonstration Electric Motor              | Demonstration Induction COIL   | Hand Electric Generator      |
| Electric Bell                             | Electrostatic Kit              | Electroscope Pith ball       |
| Friction Rods                             | Friction Rubber                | Proof Sphere, Proof Plane    |
| Continuously Variable L.T. Power Supply   | Digital Multi Meter            | Meters                       |
| Rheostats                                 | Wire Resistance Reel           | Circuit Board Kit            |
| Lead Flexible with Coated Crocodile Clips | Switches                       | Lamp Holder, Lamp Bulbs      |
| Photoelectric Cell                        |                                |                              |
| Biology                                   |                                |                              |
| Hand Microtome                            | Compound Microscope            | Projection microscope        |
| Human Torso with Head Model               | Human Skeleton Model           | Human Heart Model            |
| Human Kidney Model                        | Human Skin Model               | Human Digestive System Model |
| Human Respiratory System Model            | Human Circulatory System Model | Urinary System Model         |
| Animal Cell Division Model                | Plant Cell Model               |                              |
| Chemistry                                 |                                |                              |
| Filter Funnel                             | Gas Collection                 | Gas Generator                |
| Polypropylene Funnel                      | Mortar & Pestle                | Pipettes Filler              |
| Rubber Tubing                             | Deflagrating Spoon & Cap       | Spatula Combustion           |
| Water Bath                                | Test Tube Holders              | Hoffman's Voltmeter          |
| Brushes for Washing                       | Stoppers Borer Set             | Stoppers                     |
| Bunsen Burner                             | Burner                         | Tripod Stand                 |
| Triangles Ironwire Pipe                   | Gauge Ironwire                 | File                         |
| Test Tube Stand                           | Retort Stand with Accessories  | Electronic Balance           |
| Battery Holder                            |                                |                              |

This Project aims at improving the school environment of Sana'a City and Sana'a Governorate through construction of educational facilities in these areas. In order that the constructed educational facilities contribute to the improvement of the education environment, it is necessary that they are properly maintained and utilized. Especially, considering the serious gap of enrolment ratio between boys and girls at the Basic Education level, it is important that the constructed facilities become utilized considering the needs not only of boys but also of girls. Regarding this point, the existing schools in Sana'a Governorate need support in the following three areas: (1) School Administration, (2) Maintenance Activities and (3) Awareness Raising Activities on Girls' Education. The introduction of a software component is proposed to achieve that the facilities constructed in the Project will be maintained appropriately and



continuously, and utilized to achieve the improvement of the school environment with consideration for not only for boys but also for girls.

The estimated Project cost is 1,297 million Japanese Yen (1,296 million Japanese Yen for the Japanese side work and 1 million Japanese Yen for the Yemeni side). The total amount of Project implementation period is estimated at approximately 37 months including the period of Detailed Design work and Tendering process.

The following effects can be expected upon implementation of the Project.

#### **【Direct Effects】**

##### 1) Increase in the number of classrooms

49 classrooms are constructed at 6 Project schools in Sana'a Governorate in this Project. As the result, the total number of usable classrooms of the Project schools increases in Sana'a Governorate from 33 to 82, and the capacity of classrooms<sup>1</sup> can be expanded to accommodate an additional 3,360 students. In Sana'a City, 54 classrooms are constructed at 4 new Project schools. As the result, 2,400 more students can be accommodated and the lack of educational facilities can be alleviated.

##### 2) Increase of the classroom area

The total area of the classrooms at Project schools in Sana'a Governorate is expanded from 882 m<sup>2</sup> to 3,283 m<sup>2</sup>. Consequently, the classroom space per student<sup>2</sup> is improved from 0.18 m<sup>2</sup> to 0.52 m<sup>2</sup> at the completion of the Project in 2009. In Sana'a City, this Project constructs new Project schools with total classroom area of 2,646 m<sup>2</sup>. This contributes to alleviating the congestion of classrooms, which is one of the reasons for non-enrolment and dropping out.

##### 3) Improvement of school facilities paying more attention to increase girls' enrolment

Among the newly constructed 4 schools in Sana'a City, 3 schools are for girls while 1 is for both boys and girls. Therefore, this Project increases the capacity of school facilities especially of girls, and can contribute to reducing the serious gap between boys and girls in the enrolment rate at Basic Education. Furthermore, only two Project schools in Sana'a Governorate have toilet facilities for students before this Project, and the lack of toilet facilities is hindering girls from continuing to study at schools. This

---

<sup>1</sup> Number of students in a classroom is 40 for the classrooms for Grade 1 to 4, and 48 for those for Grade 5 to 9. Classes are supposed to be conducted under the current shift in Sana'a Governorate and single shift in Sana'a City.

<sup>2</sup> "Classroom space per student= Total area of usable classrooms÷Number of students at Basic Education" under the condition that Project schools are operated with the current shift after the construction of new classrooms by this Project.

Project constructs toilets for boys and girls respectively at all the Project schools, so that the school environment for girls to continue studying will be promoted.

#### 4) Improvement of school's capacity on management

Software Component activities strengthen capacity of facility maintenance activities and awareness raising activities on girls' education under the initiative of Fathers' and Mothers' Councils at Project schools in Sana'a Governorate, so that the ability of school management at Project schools in Sana'a Governorate is improved.

#### **【Indirect Effects】**

##### 1) Use of the Project facilities by community people

The Project facilities will be used not only for Basic Education but also for social educational activities such as adult education, as well as for community activities. In this way, the Project facilities will contribute to the surrounding communities.

The Project is highly expected to bring many positive benefits as mentioned as well as to contribute to the improvement of Basic Human Needs of the society; thus, the implementation of the Project through the Japanese grant aid scheme is deemed worthy and meaningful. If the items mentioned below are improved, this Project will be implemented more smoothly, and thus more effectively contribute to improving the general school environment.

##### 2) Supporting for Opening New Schools

After the implementation of the Project, 4 new schools are to be opened in Sana'a City. There are various activities that educational administration offices need to implement to open the schools, such as, securing the necessary amount of budget, naming of the new schools, disseminating news of the opening of the new schools among the community people, allocating teachers, preparing equipment and so forth. The Ministry of Education and the Education Office of Sana'a City are required to execute these activities in a well-planned manner so that the Project facilities are to be used without delay after the completion of the construction, as well as to give support to the Project schools to get the school operation on track.

##### 3) Construction of educational facilities

The number of classrooms to be provided to each Project school is decided with the condition that it does not exceed the number of requested classrooms, and it turned out that the number of classrooms in shortage exceeds the number of requested classrooms

at some schools. In the Project districts in Sana'a City, also, the serious lack of educational facilities cannot be solved even after the execution of this Project. Therefore, it is required that further construction of school facilities be implemented by the effort of the Yemeni Government itself in cooperation with donors.

#### 4) Improvement of school environment

Although the construction of classrooms by this Project improves the learning environment, it improves only a part of the whole school environment. Therefore, it is required that the Yemeni Government keep improving school environment further, such as, improvement of quality and quantity of teachers, textbooks and other educational materials, increase of female teachers in rural areas, realization of two shifts separated for boys and girls and so forth.

# CONTENTS

|  |      |
|--|------|
| Preface  |      |
| Letter of Transmittal  |      |
| Location Map / Perspective   |      |
| List of Tables and Figures   |      |
| Abbreviations  |      |
| Summary  |      |
| <br>   |      |
| Chapter 1 Background of the Project                                      | 1-1  |
| <br>   |      |
| Chapter 2 Contents of the Project  |      |
| 2-1 Basic Concept of the Project   | 2-1  |
| 2-1-1 Overall Goal and Objective of the Project                          | 2-1  |
| 2-1-2 Outline of the Project   | 2-2  |
| 2-2 Basic Design of the Project  | 2-3  |
| 2-2-1 Basic Design Policy  | 2-3  |
| 2-2-1-1 Principles of the Project  | 2-3  |
| 2-2-1-2 Policies Regarding Natural Conditions                            | 2-4  |
| 2-2-1-3 Policies Regarding Social and Economic Conditions                | 2-5  |
| 2-2-1-4 Policies Regarding Construction Conditions                       | 2-6  |
| 2-2-1-5 Policies Regarding the Use of Local Contractors and Materials    | 2-7  |
| 2-2-1-6 Policies Regarding Maintenance Capabilities of the Project       |      |
| Implementing Agency  | 2-8  |
| 2-2-1-7 Policies Regarding the Grade of Facilities and Equipment         | 2-8  |
| 2-2-1-8 Policies Regarding Construction Schedule                         | 2-9  |
| 2-2-2 Basic Plan   | 2-9  |
| 2-2-2-1 Selecting Project Schools, Contents & Size of Project Components | 2-9  |
| 2-2-2-2 Facility Arrangement Plan  | 2-24 |
| 2-2-2-3 Facility Plan  | 2-25 |
| 2-2-2-4 Furniture and Equipment Plan                                     | 2-34 |
| 2-2-3 Basic Design Drawing   | 2-39 |
| 2-2-4 Implementation/Procurement Plan                                    | 2-68 |
| 2-2-4-1 Implementation/Procurement Policy                                | 2-68 |
| 2-2-4-2 Implementation Conditions  | 2-69 |
| 2-2-4-3 Scope of Work  | 2-71 |

|  |      |
|--|------|
| 2-2-4-4 Consultant Supervision .....       | 2-71 |
| 2-2-4-5 Quality Control Plan .....         | 2-72 |
| 2-2-4-6 Procurement Plan .....             | 2-73 |
| 2-2-4-7 Software Component Plan .....      | 2-74 |
| 2-2-4-8 Implementation Schedule .....      | 2-75 |
| 2-3 Obligations of Recipient Country ..... | 2-77 |
| 2-4 Project Operation Plan .....           | 2-80 |
| 2-4-1 Operation Plan .....                 | 2-80 |
| 2-4-2 Maintenance Plan .....               | 2-82 |
| 2-5 Project Cost Estimation .....          | 2-83 |
| 2-5-1 Project Cost .....                   | 2-83 |
| 2-5-2 Operation and Maintenance Cost ..... | 2-84 |

### Chapter 3 Project Evaluation and Recommendations

|                                  |     |
|----------------------------------|-----|
| 3-1 Effects of the Project ..... | 3-1 |
| 3-2 Recommendations .....        | 3-2 |

### Appendices

1. List of Team Members
2. Study Schedule
3. List of Concerned Parties in the Recipient Country
4. Minutes of Discussions
  - 4-1. Minutes of Discussions (M/D) on the Basic Design Study
  - 4-2. Minutes of Discussions (M/D) on the Explanation on Draft Report
5. Reference
6. Plan for Software Component

## Chapter 1 Background of the Project

## Chapter 1 Background of the Project

The Republic of Yemen (hereinafter referred to as Yemen) prepared “Basic Education Development Strategy (BEDS)” as the Basic Education Sector Plan, and has worked to improve Basic Education especially on the following 8 priority issues: Teachers, Curriculum, School Administration, Education Finance, Decentralization, Girls’ Education, School Facilities and Community Participation. However, the Net Enrolment Rate (NER) of Basic Education is still as low as 72% in total in 2003, and the gap between boys and girls is serious, with the NER of male students standing at 84% while that of female students at just 59%. The lack and inadequateness of school facilities are two of the reasons for the low enrolment rate and high dropout rate. Congestion of classrooms forces the schools to limit the number of enrolled students, and also there are students who dropout due to the congestion even when schools do not limit the number of students. Furthermore, the enrolment ratio of girls decreases radically when it is not possible for schools to avoid having mixed class of boys and girls. In addition, especially in rural areas, the lack of toilets causes low enrolment of girls. Due to the financial difficulties of the Yemeni Government, most of the improvement of school facilities is implemented with the cooperation of donors, and the Japanese Government also supported “the Project for Construction of Basic Schools in the Republic of Yemen” in 2003 and 2004. However, the lack of classrooms is still serious, and it is a pressing need to construct more school facilities considering the rapid growth of the population in Sana’a City and the surrounding area.

Under the circumstances mentioned above, the Yemeni Government made a plan on improvement of school facilities for Basic Education in Sana’a Governorate and Sana’a City, and requested Grant Aid Assistance from the Japanese Government. In response to this request, the Japanese Government entrusted Basic Design Study to Japanese International Cooperation Agency (JICA), and the Basic Design Study Team was dispatched from September 16, 2005 to October 20, 2005. The Team discussed with representatives of Planning and Equipment Sector of the Ministry of Education as a responsible agency on the contents of the Project as well as conducted a site survey at each of the requested schools so as to obtain necessary documents and information. After the Team came back to Japan, the relevance of the Project, school management and maintenance systems, and effects of the Project were analyzed based on the results of the study. Then the Japanese side set the appropriate facility components and the scale of the Project, selected materials, and calculated a rough cost estimate for implementation for the Project. In order to explain those outlines of basic design of the

Project to the Yemeni side, the Draft Report Explanation Team was dispatched from February 24, 2006 to March 3, 2006.



## Chapter 2 Contents of the Project

## Chapter 2 Contents of the Project

### 2-1 Basic Concept of the Project

#### 2-1-1 Overall Goal and Objective of the Project

In Yemen, the Net Enrolment Rate (NER) of Basic Education is as low as 72%. In addition, the gender gap is significant, with NER of male students standing at 84% and that of female students at just 59%<sup>1</sup>. One of the main reasons for the low enrolment rate is the shortage and inadequateness of the educational facilities. Schools which are facing the problem of the lack of classrooms limit the number of students to be enrolled; therefore there are children who can not study at schools even though they want to. In addition a significant number of students drop out due to the crowdedness of classrooms. Moreover, the schools are obliged to mix boys and girls in a classroom, and the number of girls decreases drastically because it is not acceptable socially and culturally that men and women occupy the same place after around Grade 5. There are many schools without toilet facilities especially in rural areas, and this is also one of the reasons for the low enrolment rate of girls.

In the Basic Education Development Strategy (BEDS), which is the overall Basic Education Sector Plan, it is planned to increase schools and classrooms. Moreover, it is also planned to prepare classrooms to be used exclusively by girls as well as to provide toilets and fences for all the schools with girls enrolled to increase the enrolment rate of girls.

However, due to the lack of Yemeni finances, the major part of the improvement of school facilities has been achieved through the cooperation of donors. The Japanese Government also implemented the Project for the Construction of Basic Schools in the Governorates of Taiz and Ibb as the Grant Aid cooperation. However, the lack of school facilities is still acute. Considering the high population growth ratio, further improvement in school facilities is an urgent need.

The overall goal of this Project is to improve the education environment of Yemen, and the Project aim is to improve access to education and the education environment of the Project areas.

---

<sup>1</sup> World Bank, World Development Indicators Online 2005, Gender Statistics Database

## **2-1-2 Outline of the Project**

In order to achieve the above-mentioned objectives, in the Project, classrooms, administration rooms, a multipurpose room and toilets are provided for the 6 existing Project schools in Sana'a Governorate, and classrooms, science laboratories, libraries, teachers' rooms, principal's rooms, administration offices, social workers' rooms, storage rooms toilets and so on are provided for the 4 new Project schools in Sana'a City which are selected among the original 43 schools requested by the Yemeni side.

## **2-2 Basic Design of the Project**

### **2-2-1 Basic Design Policy**

#### **2-2-1-1 Principles of the Project**

The Project schools have been selected from 23 schools in Sana'a Governorate and 20 schools in four Districts in Sana'a City for which the Yemeni side requested aid. They are those schools which are deemed to have shortage of classrooms to accommodate all their students under the current single or double-shift system in Sana'a Governorate, and single-shift in Sana'a City at 40 students from Grade 1 to 4, and 48 students from Grade 5 to 9 per classroom. For Sana'a Governorate, 6 schools which are highly prioritized among the requested schools by the Yemeni side and have no obstacles for implementation of this Project are selected as the Project schools. For Sana'a City, in three Districts among the four to which the requested schools belong, one girls' school per each District which is highly prioritized among the requested schools by the Yemeni side and has no serious difficulties for implementation of this Project has been selected as a Project school. In the remaining one District among the four, a co-education school has been selected as the Project school because all the girls' schools in this District have obstacles for implementation of construction. The number of shortage of classrooms is calculated based on the projected number of students in 2009.

The facility components for the Project are based on the "minimum necessary" required for school operation: classrooms, administration rooms, a multi-purpose room, storage rooms and toilets for the existing schools in Sana'a Governorate, and classrooms, science laboratories, libraries, activity rooms, multi-purpose rooms, teachers' rooms, principal's rooms, administration offices, social workers' rooms, teaching aids rooms, storage rooms toilets and so on for the new schools in Sana'a City. The following furniture are also provided: desks, chairs and a blackboard are provided for a classroom, desks, chairs, bookshelves, blackboards and notice boards for a science laboratory, a library and so on, and desks, chairs, cabinets and notice boards for administrative rooms. In addition, educational equipment are provided as equipment.

## **2-2-1-2 Policies Regarding Natural Conditions**

### **(1) Geographic Features**

Yemen is situated at the top of the Arabian Peninsula and the western half of the country is at high altitude with mountains as high as 3,000 m. The Project areas of Sana'a City and Sana'a Governorate are also situated at highland of around 2,300 m above sea level, and it is not easy to secure sufficient flat sites there. Meanwhile, the ground of the Project area is solid enough to expect sufficient bearing capacity as a construction site. Therefore, considering architectural rationality in designing the main 6-classroom type and 9-classroom type in facility planning, the Project buildings are basically three-storied ones not only to locate the classrooms toward the direction of better sunshine condition as much as possible in the limited size of the site but also to use the land effectively saving land for expansion of the buildings in the future.

In Yemen, when constructing new buildings such as houses, it is common to construct a one-storied or two-storied building first, and to add more floors on it after some years when one can afford it. However, in this Project, it is not appropriate to design buildings supposing extension of more floors on them in the future. From this point of view, it can also be said that it is practical to design three-storied buildings from the beginning.

### **(2) Climate Conditions**

The climate varies according to the area in Yemen. The temperature of Sana'a is not as high as that of the coastal area and desert area because Sana'a is situated in a high mountainous area. Even in the daytime in summertime, it is not so hard to bear because the temperature is around 30 degrees Celsius and the air is dry. However, daily and annual range of temperatures is wide because Sana'a is located in an inland highland. The lowest temperature can be approximately zero in wintertime.

Consequently, for the purpose of effective acquisition of heat from daylight during wintertime, the buildings are planned to be constructed facing south as much as possible and the openings are planned to be wide. Securing sufficient natural lighting by wide openings of the buildings as well as appropriate layout, is effective in decreasing the running cost through the reduction of the use of artificial lighting as much as possible. Also, the Project provides aluminum sashes in order to enhance air tightness to prepare for the coldness in wintertime.

Meanwhile, temperatures vary even inside the mountainous area due to, for

example, the differences of wind velocity between the top of the mountain and the place close to the valley. Therefore, the ceiling height is decided according to the temperature condition of each school, and schools in cold climates are planned to have a low ceiling in order to decrease the volume of the room, which can reduce the cost.

Roofs are flat and awnings for windows are not provided because the rainfall is little throughout the year.

### **2-2-1-3 Policies Regarding Social and Economic Conditions**

#### **(1) Traditional Architectural Decorations**

In the mountainous area of Yemen, stones are local natural materials which can be produced abundantly, and the buildings with their exterior walls covered by those stones form the scenery of the towns. These buildings are principally constructed with limestone, and create an atmosphere of beige color, which provides the towns in Sana'a with a unique sense of unity. Most of the buildings have windows of traditional style which is called "Kamaria", with colored glass set in white plaster as a kind of stained-glass window. This impressive half-moon shaped window is typical scenery for the people of Sana'a.

Therefore, as the Yemeni side strongly requested, the exterior of the Project buildings is planned to be covered with limestone and windows are of "Kamaria" style along with aluminium sash in order to keep the harmony of the scenery.

#### **(2) Religious Customs**

Yemen is a devout Islamic country, and men and women basically do not share a space, with the exception being among family members. Therefore, it is desirable to provide separate spaces for boys and girls at educational facilities as well. In this Project, not only the toilets, as a matter of course, but also teachers' rooms are separated for men and women as much as possible.

#### **(3) Security**

Although the security situation of Yemen is not so serious, the aspect of safety must be taken into consideration. Therefore, steel lattices are fixed to the outside of the windows as well as wire nets to avoid damages to the windows caused by mischief of kids such as throwing stones. Basically, the doors are of those made of steel.

#### **(4) Water Shortage**

Yemen faces a serious problem of water shortage due to the natural conditions. Fetching water from a water source is one of the important tasks of women from the olden times up to the present especially in rural areas. In recent years, the service of water tank trucks has improved, and it is less difficult to get water for daily life than it was before in Sana'a City, where households are better off than in rural areas. However, the problem of water shortage is still serious in rural areas, and drinking water cannot be secured, much less water for toilet.

Therefore, in designing the toilets, which is essential for each school facilities, the Project schools in Sana'a City are provided with toilets with septic tanks because they do not have serious problem in securing water, and those in Sana'a Governorate are provided with a newly designed natural-dry toilet which does not require water for operation. Toilets for boys and girls are planned to be located with sufficient distance between them at each school.

#### **(5) Physically Disabled People**

Recently, more consideration than before has come to be given to the physically disabled people than before in Yemen as in other countries. Therefore, the Project schools in Sana'a City are planned to have toilets for them and a slope way on the ground floor to make them accessible for the people in wheelchairs.

### **2-2-1-4 Policies Regarding Construction Conditions**

To maintain quality and cost efficiency, it is preferable to carry and use the necessary amount of construction materials when needed. However, in mountainous area in the west part of Sana'a Governorate, it is a concern that the schedule and construction cost can be greatly affected if the construction materials are transported as mentioned above, because the roads to the sites are not only in sloped areas but are also narrow and rough, and changes of the climate and so on can delay transportation of construction materials by limiting the access of vehicle to transport them.

Therefore, for the Project sites in the mountainous area, the construction schedule is planned considering the conditions of the access roads during the period of concentrated rain in the rainy season. In addition, it is important to prepare places and storages in safe places in order to keep a certain amount of construction materials on hand to avoid not meeting the schedule. The Project schools are located in Sana'a City and various areas scattered in Sana'a Governorate which can be reached through side

roads of main highways stretching in almost all the directions from the Sana'a City. Therefore, when the construction in Sana'a City and Sana'a Governorate are implemented at the same time, it is better to set up the headquarters in Sana'a City and procure and process the materials there to be carried to each construction site for the sake of reducing the cost. Although the Project sites in Sana'a City have enough space surrounded by concrete block walls and do not require any temporary fences, those in Sana'a Governorate are located in a little far place from the existing school buildings. Therefore, in order to reduce the frequency of transportation, it is necessary to set up temporary fences at the border line of the Project sites in Sana'a Governorate to secure space to store materials.

Also, to minimize transportation cost, it is better to transport bulky and fragile materials in raw material form as much as possible. Specifically, it is better to set up a manufacturing machine and produce concrete blocks at each site from the point of cost reduction and quality control.

On the other hand, the Project sites in Sana'a City do not have any problems of road access. Therefore, there is not any problem of transporting construction materials already manufactured.

In this Project, to obtain concrete of good quality, local engineers are allocated to the sites with concrete mixers to check the quality under the supervision of a Japanese contractor. Although Sana'a City has organizations (public and private) which can implement a compression test of cast concrete, Sana'a Governorate does not have them. Therefore, it is necessary to establish adequate quality control system for construction works in Sana'a Governorate such as implementation of a compression test by bringing test pieces to Sana'a City.

It is difficult to utilize cranes in Yemen outside of urban areas. Therefore, simple lifting equipment such as electric winches are used to carry materials inside the sites in remote areas of Sana'a Governorate considering better efficiency of construction, security and observance of the construction schedule.

#### **2-2-1-5 Policies Regarding the Use of Local Contractors and Materials**

The Project sites are concentrated in Sana'a City and its surrounding areas. These areas are highly populated for this country, and the situation of availability and quality of construction industry and associated industries is much better compared to that in rural areas. Therefore, in the implementation of construction of this Project, some contractors are selected among local contractors considering their size, number of



pieces of machinery they have, capacity of laborer supply and so on, and the selected contractors are allocated to each construction site appropriately taking into consideration the differences between the small-scale Project schools in Sana'a Governorate and large-scale Project schools in Sana'a City.

Also, the Project areas and their surrounding areas are located in mountainous areas, and various kinds of stone materials, such as granite, marble, limestone, sandstone and so on, are produced. They have been widely used as construction materials from thousands of years ago and continue to be so. Combined with their relatively affordable prices, they are still used regularly as construction materials. Therefore, taking advantage of this situation, the architectural structure is planned to be reinforced concrete structure and the armoring material is limestone, which is economical among the stones. The floor finish is precast terrazzo utilizing chips of the stones which are produced when stones for finishing are manufactured.

#### **2-2-1-6 Policies Regarding Maintenance Capabilities of the Project Implementing Agency**

Because of the limited amount of budget of the Ministry of Education in Yemen, schools need to cover the cost for maintenance out of the small amount of school fees collected from students, and the amount of the money is not sufficient. In addition, the awareness of people at school and parents on the importance of maintenance is not high enough, and there is little implementation of maintenance with labor provided by them. The existing facilities are not maintained sufficiently, according to the results of the site study.

Consequently, the Project facilities shall, as much as possible, be designed using as many durable finishing materials like stones as possible in order not to put economic burden on the schools. In addition, it is planned to avoid a burden of maintenance activities through the utilization of local materials and equipment.

#### **2-2-1-7 Policies Regarding the Grade of Facilities and Equipment**

The grade and scope of facilities and equipment, having considered the requests and the Educational Bases and Criteria set by the Ministry of Education, are of minimum necessary within the extent that meets the above-mentioned policies regarding natural conditions and social economic conditions. However, it is necessary to pay attention to the fact that the reduction of maintenance cost is not compatible

with the reduction of the initial construction cost in many cases. Generally, low cost finishing requires more frequent maintenance; the maintenance cost tends to be higher. Therefore, the materials are chosen in view of the most appropriate balance of durability and cost. Especially, although using stones for exterior finishing is generally supposed to be of high grade, stone cladding will be positively used considering their durability because stones are available for relatively low prices in Yemen.

### **2-2-1-8 Policies Regarding Construction Schedule**

Considering that construction of several scattered schools needs to be undertaken at the same time and construction of relatively large-scale Project schools in Sana'a City is also included in this Project, the necessary construction period is 12 months under the condition that construction is carried out under the supervision of local engineers with clear understanding of the needs of construction schedule control, under the direction supervision of a Japanese contractor.

Labor efficiency in Yemen is not so high as well as in the case of other Arabic countries. Furthermore, due to the custom of taking a long rest after the lunch, not much can be expected of the workforce in the afternoon. Moreover, during the one month Ramadan period practiced once a year following the Islamic religion, the progress of construction becomes dramatically slow. Considering these special situations, even setting the construction over 12 months can lead to a tight schedule.

Taking into account the above-mentioned particular situations of Yemen and the situation of scattered construction sites, it is necessary to allocate an adequate number of Japanese resident engineers for control and supervision in order to complete the construction in schedule keeping the quality of the buildings.

### **2-2-2 Basic Plan**

#### **2-2-2-1 Selecting Project Schools, Contents & Size of Project Components**

##### **(1) Criteria for Site Selection**

The Project schools are selected among 23 schools in Sana'a Governorate and 20 schools in Sana'a City to be surveyed (Please refer to Table 2-1) for which the Yemeni side requested aid, according to the selection criteria agreed upon and listed in the Minutes on the Discussion taking into account the result of the site study and analysis in Japan.

**[Essential Criteria]**

1. The present and future demand can be quantitatively estimated by a set of data such as the number of school-aged children, the rates of population growth, the enrollment ratio, etc.
2. The necessity of the schools to be constructed can be confirmed by the data such as school mapping etc.
3. Sufficient allocation of teachers and budget and proper operation and maintenance of the facilities by concerned people are secured.
4. No other program or plan for new/undergoing classroom construction by the Ministry of Education, the local government, other donors, NGOs and so forth is underway. Or the shortage of the classrooms is still serious although such kinds of programs were implemented in the past.
5. Access roads for the movement of materials and the construction works are properly constructed.
6. Topographically safe and appropriate-sized land for construction is secured.
7. No natural and environmental or social hazard is foreseen.
8. The number of classrooms in shortage exceeds the number of requested classrooms.
9. The ownership of land for construction is legally secured, and the evidence of land ownership shall be provided to the Japanese side.

**[Criteria to be given higher priority]**

1. Urgently needs the construction of classrooms because of overcrowding.
2. Urgently needs reconstruction because of the danger of over aging and/or damaged existing buildings.
3. The number of girls who can benefit from the school construction is large.

**Table 2-1 Schools to be Surveyed**

| Sana'a Governorate   |     |                              |                             | Sana'a City  |                      |                      |                             |
|----------------------|-----|------------------------------|-----------------------------|--------------|----------------------|----------------------|-----------------------------|
| District             | No. | Name of School               | No. of Requested Classrooms | District     | No.                  | Name of Site/School  | No. of Requested Classrooms |
| Arhaab               | G1  | Beni Haatem                  | 6                           | M'aeen       | C1                   | Neighboring Unit 563 | 11                          |
|                      | G2  | Al-Husain Bin Ali School     | 6                           |              | C2                   | Neighboring Unit 678 | 14                          |
|                      | G3  | Oumerah School               | 6                           |              | C3                   | Neighboring Unit 672 | 10                          |
| Al-Haiyma Al-Karjiya | G4  | Al-Nahdha Bait Jaber School  | 5                           |              | C4                   | Neighboring Unit 666 | 16                          |
|                      | G5  | Al Sedeeq Al-kalaabi School  | 5                           | Shuoub       | C5                   | Neighboring Unit 812 | 23                          |
| Al-Haiyma Al-Dakliya | G6  | Bait Al-Ghaithi              | 6                           |              | C6                   | Neighboring Unit 843 | 30                          |
|                      | G7  | Al-Jaram School              | 6                           |              | C7                   | Neighboring Unit 954 | 20                          |
|                      | G23 | Al-Najah School              | 12                          |              | C8                   | Neighboring Unit 947 | 23                          |
| Bani Martar          | G8  | Bait Dhala School            | 6                           | Bani Alharth | C9                   | Neighboring Unit 733 | 16                          |
|                      | G9  | Hadhran School               | 6                           |              | C10                  | Neighboring Unit 8H8 | 9                           |
| Hamdan               | G10 | Al-Mankkab Al-Rub'a School   | 9                           |              | C11                  | Bait Hanthal         | 10                          |
|                      | G11 | Al-fateh Beljahilya School   | 9                           |              | C12                  | Neighboring Unit 872 | 22                          |
|                      | G12 | Al-Khaleg Al-Rub'a School    | 12                          | Alsabeen     | C13                  | Neighboring Unit 392 | 34                          |
|                      | G13 | Al-Shehid Ali Saleh Al-Hawri | 12                          |              | C14                  | Neighboring Unit 385 | 34                          |
| Bani Hushaish        | G14 | S'awan School                | 12                          |              | C15                  | Neighboring Unit 356 | 32                          |
|                      | G15 | Ghadhran School              | 6                           |              | C16                  | Neighboring Unit 369 | 28                          |
| Snhan                | G16 | Bait Al-Hadhrami             | 9                           |              | C17                  | Neighboring Unit 272 | 34                          |
|                      | G17 | Shaba Bahman                 | 6                           |              | C18                  | Neighboring Unit 245 | 28                          |
| Nahm                 | G18 | Thoma Bait Sayad             | 6                           | C19          | Neighboring Unit 247 | 28                   |                             |
|                      | G19 | W'alan School                | 6                           | C20          | Arteel School        | 14                   |                             |
| Blaad Al-Roos        | G20 | Al-Awasija School            | 6                           |              |                      |                      |                             |
|                      | G21 | Bani Khattab                 | 6                           |              |                      |                      |                             |
| Manakah              | G22 | 12 Class Girls School        | 6                           |              |                      |                      |                             |

**(2) Selection of the Project Schools**

**[Essential Criteria 1]**

The present and future demand can be quantitatively estimated by a set of data such as the number of school-aged children, the rates of population growth, the enrollment ratio, etc.

Although numbers of students for the last five years are necessary to estimate the demand of new classrooms in the future, the Yemeni side did not provide the information of the following surveyed schools. Therefore, these schools are excluded from the Project.

Table 2-2 Schools in Sana'a Governorate whose Numbers of Students were not Submitted

| No. | Reason for Elimination  |
|-----|---|
| G1  | The numbers of students was not submitted apart from the one in 2005. |
| G3  | No Information on the numbers of students was submitted.              |
| G5  | No Information on the numbers of students was submitted.              |
| G11 | The numbers of students was not submitted apart from the one in 2005. |
| G18 | The numbers of students was not submitted apart from the one in 2005. |

[Essential Criteria 2]

The necessity of the schools to be constructed can be confirmed by the data such as school mapping etc.

Needs of construction of new schools are examined for Sana'a City, where the Yemeni side requested new schools. The conclusion is that no school is excluded from the Project considering the situation of Sana'a City that there are schools with dilapidated or provisional classrooms because of the rapid increase of population in Sana'a City and there is a need of the construction of girls' school even when there are schools near the sites if the near-by school is a boys' school.

[Essential Criteria 3]

Sufficient allocation of teachers and budget and proper operation and maintenance of the facilities by concerned people are secured.

Based on the site study, no problems were found in securing a minimum number of teachers and maintenance cost for the operation of schools. Also, although schools in Sana'a Governorate need support to strengthen the management system of maintenance through the Software Component Program, there is no problem of securing the cooperation of the concerned people. Therefore, no school is eliminated for this criteria.

[Essential Criteria 4]

No other program or plan for new/undergoing classroom construction by the Ministry of Education, the local government, other donors, NGOs and so forth is underway. Or the shortage of the classrooms is still serious although the similar kinds of programs were implemented in the past.

During the site study, it turned out that G14 had nearly completed 3 new

classrooms and toilets constructed with financial support by the World Bank. This school does not have a problem of significant lack of classrooms. Therefore, is eliminated from as a Project school in order to avoid duplication of the support with other donors.

**[Essential Criteria 5]**

Access road for the movement of materials and the construction works are properly constructed.

All the sites of 20 surveyed schools in Sana’a City are free of access problems. However, the following schools in Sana’a Governorate are excluded from the Project due to the difficulties in accessing the sites.

**Table 2-3 Schools with Difficulties in Access**

| No. | Reason for Elimination   |
|-----|--|
| G 6 | A part of the road to reach the site after the main road is a mountain road with 3m to 4m width and continuous sharp curves. Moreover, this road is not only steep but also unpaved (gravel road). Therefore, it is difficult for construction vehicles to pass there. |
| G 7 | It is required to go further in the mountains to get to the site after getting to the site of G6. Therefore, as in the case of G6, it is difficult for construction vehicles to reach this site.   |
| G17 | A part of the road to reach the site after the main road runs in a riverbed, thus, it causes some difficulties in the access by construction vehicles. In the rainy season, the road is closed half of the days.   |
| G23 | A part of the road to reach the site is 3m wide steeply sloped, thus, it causes some difficulties in the access by construction vehicles.  |

**[Essential Criteria 6]**

Topographically safe and appropriate-sized land for construction is secured.

The sites of the following surveyed schools have problems from the point of geographic features and the size of the site. Therefore, they are excluded from the Project.

**Table 2-4 Schools with Problems in Geographic Features and the Size of the Site**

| No. | Reason for Elimination   |
|-----|--|
| G19 | The size of the site suitable for construction is only 600 m <sup>2</sup> , and it is difficult to secure sufficient area for construction of classrooms.  |
| G20 | There is no site suitable for construction.  |
| G21 | The size of the site suitable for construction is only 336 m <sup>2</sup> , and it is difficult to secure sufficient area for construction of classrooms.  |
| G22 | There is a 5m-high retaining wall made of stones along the border of the land, which can cause safety issues.  |
| C 2 | In the site, there is an area with land level differences of 4 to 6m. For the construction of a school, it will require large-scale development of land and it is not suitable for school construction from the point of security. |
| C 3 | In the site, there is an area with land level differences of 4 to 6m. For the construction of a school, it will require large-scale development of land and it is not suitable for school construction from the point of security. |

**[Essential Criteria 7]**

No natural and environmental or social hazard is foreseen.

The site study of G15 was disturbed by local people due to the unsolved land problem of the site. Therefore, this school is excluded from the Project from the security point of view.

**[Essential Criteria 8]**

The number of classrooms in shortage exceeds the number of requested classrooms.

Although all the surveyed schools in Sana'a Governorate are existing schools, those of Sana'a City are new schools. Therefore, the formula, precondition, process and result of the calculation of the number of classrooms in shortage are shown below respectively.

«Sana'a Governorate»

(1) Formula

$$\text{Classroom shortage} = \frac{\text{Estimated Number of Students in Target Year} - \text{Capacity of Existing Classrooms}}{\text{Number of Students per Classroom}}$$

(2) Precondition

① Year

The year for calculating the estimated number of students is set as 2009.

② Shift

The current shift system is set to be suitable for the circumstances of each school. For the realistic operation of the school, the continuation of the current shift

system is appropriate. Thus, it is assumed that the schools keep the current shift system after the completion of this Project.

③ Number of students per each classroom to be constructed in this Project

Following the Educational Bases and Criteria issued by the Ministry of Education, the number of students per classroom for Grade 1 to 4 is 40, and that for Grade 5 to 9 is 48.

④ Number of students per classroom and grades which can use the existing classrooms

During the site study, it was found that some schools have small classrooms which are not capable of accommodating 40 students. Therefore, based on the Educational Bases and Criteria issued by the Ministry of Education, the number of students to be accommodated in the existing classrooms is calculated with the precondition that space per each student is 0.9 m<sup>2</sup> in order not to make the existing classrooms overpopulated. The existing classrooms are supposed to be used by students of Upper Secondary Education and Grade 1 to 4 of Basic Education. The new classrooms are supposed to be used by the students of Grade 1 to 4 who cannot be accommodated in the existing classrooms as well as those of Grade 5 to 9.

⑤ Secondary Education

In case that Basic Education and Secondary Education<sup>2</sup> are sharing a school facility, it is supposed that students of Secondary Education keep using the existing classrooms even after the completion of the Project. However, the increase of the students of Secondary Education in the future is not counted.

⑥ Separation of boys and girls

Yemen is working to separate classrooms for boys and girls in order to raise the school enrolment ratio of girls. During the site study, it was heard from the people associated with the schools that separation of boys and girls at higher grades is essential for girls to be able to continue studying at school. Considering the fact that the proportion of girls to the total number of students shows a steep decline at Grade 6 in Sana'a Governorate, this Project sets the precondition that the classes over Grade 6 are separated for boys and girls. However, in the case that estimated number of students of boy and/or girl is below 24 (the half of the capacity of a classroom), it is obliged that the class becomes co-educational. Also, if the total of the estimated number of male and female students of a Grade falls below 24, this Grade is not provided with a classroom.

---

<sup>2</sup> Secondary Education in Yemen is from Grade 10 to 12.



⑦ Calculation of estimated number of students

The estimated number of students for the year 2009 is calculated according to the increase ratio of the students over the 5 years from 2001 to 2005 at each school. However, in Sana'a Governorate, the promotion ratio is estimated to increase due to the situation that, if the separation of class for boys and girl is achieved after the implementation of this Project, most of the parents expressed that they will send their daughters to school even to the higher grades even though they don't send them now because the current class is co-education. Therefore, in case of the female students over Grade 6, the promotion ratio of them is assumed to increase at the same rate as boys. The promotion ratio of boys to be used in the calculation is the national average because that of Sana'a Governorate is not available.

⑧ Lacking grades

Some surveyed schools do not have some grades of Basic Education because of the lack of classrooms. The numbers of students for such grades in 2009 are estimated when possible.

**Table 2-5 Conditions for the Calculation of the Number of Classrooms in Shortage per Grade in Sana'a Governorate**

| Grade | Estimated No. of Students                         | Capacity of Existing School  | No. of Students per Classroom |
|-------|---|--|-------------------------------|
| 1 – 4 | Total of Estimated No. of Students from Grade 1-4 | Capacity of Existing School  | 40                            |
| 5     | Total of Estimated No. of Students of Grade 5     | 0 (If the existing schools can accommodate all the students of Secondary Education and Grade 1-4, and still can accommodate more students, that No. is deducted from the estimated No. of students of G5.) | 48                            |
| 6     | Boys  | Estimated No. of Male Students of Grade 6  | 48                            |
|       | Girls   | Estimated No. of Female Students of Grade 6  | 48                            |
| 7     | Boys  | Estimated No. of Male Students of Grade 7  | 48                            |
|       | Girls   | Estimated No. of Female Students of Grade 7  | 48                            |
| 8     | Boys  | Estimated No. of Male Students of Grade 8  | 48                            |
|       | Girls   | Estimated No. of Female Students of Grade 8  | 48                            |
| 9     | Boys  | Estimated No. of Male Students of Grade 9  | 48                            |
|       | Girls   | Estimated No. of Female Students of Grade 9  | 48                            |

(3) Results of the Calculation

The table below shows the results of the calculation of the numbers of classrooms



## «Sana'a City»

The Basic Schools in Sana'a City start registration in August on a first-come first-served basis. A school zone system does not exist. Basically children study at the schools near their houses. However, some students study at a school far from their homes because it has good facilities or separated classes for boys and girls. In this case, they use public transportation to come to the school or parents take them to and from the school. Another situation to be mentioned is that, although the population of each District from the result of the Census in 2004 is available, the population of the administrative unit below District is not available as of February, 2006. Therefore, it is not possible to estimate the number of students using the population of school age children per administrative unit below District.

Considering the situation above, this Project calculate the number of classrooms in shortage per each District to make sure that the numbers of requested classrooms do not exceed them.

### (1) Formula

$$\text{Classroom shortage in District} = \frac{\text{Estimated Number of Students in District}}{\text{Number of Students per Classroom}} - \text{Number of Existing Classrooms in District}$$

### (2) Precondition

#### ① Year

The year for calculating the estimated number of students is set as 2009 as in the case of Sana'a Governorate.

#### ② Shift

46 % of the schools in Sana'a City adopt a two-shift system. However, to secure sufficient period to study, it is planned to promote a one-shift system in all the schools in Sana'a City, and the school mapping was revised based on the principal of the operation of a school with a one-shift system. Considering this background, the Project schools, all of which are new schools, are assumed to be operated under a one-shift system.

#### ③ Number of students per each classroom to be constructed in this Project

Following the Educational Bases and Criteria issued by the Ministry of Education, the number of students per classroom for Grade 1 to 4 is 40, and the one for Grade 5 to 9 is 48 as in the case of Sana'a Governorate.

#### ④ Number of students and grades to use the existing classroom

In the case of Sana'a City, reliable data on the size of the existing classrooms is not available. Hence, the number of students to be accommodated in the existing

classrooms is calculated supposing that the number of students per classroom is 40 for Grade 1 to 4, and 48 for Grade 5 to 12.

⑤ Secondary Education

As in the case of Sana'a Governorate, the students of Secondary Education are assumed to continue using the existing classrooms in the future, but the increase of the students enrolled in Secondary Education in the future is not counted.

⑥ Estimated number of students

For the calculation of the estimated number of students in 2009, firstly, the estimated number of school-age children is calculated based on the total population of each District by Census in 2004 and the estimated proportion of population by age. Then, the estimated number of students in 2009 is determined by multiplying estimated number of school-age children and target enrolment ratio in 2009. The target enrolment ratio in 2009 is estimated by assuming that the enrolment ratio increases from 67 % in 2000 according to the Human Development Index to 95% in 2015 as targeted by Yemen. Based on this assumption, the target enrolment ratio of 2009 is 83.8%.

⑦ Calculation of the number of existing schools

The number of existing classrooms is figured out by subtracting the number of provisional or rented classrooms from the total number of the existing classrooms, then adding the number of classrooms of those planned to be constructed by the financing of other donors and Sana'a City. Among the donors, only the Social Fund for Development (SFD) is planning to construct classrooms in Sana'a City. However, as SFD decides how many classrooms to be constructed in which District on a request basis, the number of classrooms to be constructed by SFD is estimated supposing that it keeps constructing classrooms at the same number as the last 5 years and the support is distributed equally among all the Districts.

(3) Results of the Calculation

The results of the calculation are shown below. In all the requested Districts, the numbers of classrooms in shortage exceeds the numbers of requested classrooms, thus, it can be said that the need for the construction of new schools is high. Hence, no surveyed school in Sana'a City is excluded from the Project for this Essential Criteria 8.

**Table 2-7 Number of Classrooms in Shortage of the District which the Schools in Sana'a City Belong to**

| District     | Site Study       |  |                                   | Year 2009              |                                   |                          |                              |                                  |                                |  |                                  | Total Number of Requested Classrooms |
|--------------|------------------|--|-----------------------------------|------------------------|-----------------------------------|--------------------------|------------------------------|----------------------------------|--------------------------------|--|----------------------------------|--------------------------------------|
|              | Total Population | Proportion of School Age Children                  | Population of School Age Children | Population Growth Rate | Population of School Age Children | Targeted Enrolment Ratio | Estimated Number of Students | Number of Student per Classrooms | Number of Necessary Classrooms | Existing Classroom (including those to be Constructed) | Number of Classrooms in shortage |                                      |
| Maeen        | 263,334          | (1)Grade1-4<br>12.26%<br><br>(2)Grade5-9<br>12.15% | (1)<br>32,285                     | 5.55<br>%              | (1)<br>42,295                     | 83.3<br>%                | (1)<br>35,443                | (1)<br>40                        | (1)<br>886                     | 269  | 1,349                            | 51                                   |
|              |                  |  | (2)<br>31,995                     |                        | (2)<br>41,915                     |                          | (2)<br>35.125                |                                  |                                |  |                                  |                                      |
| Shuoub       | 214,134          |  | (1)<br>26,253                     |                        | (1)<br>34,393                     |                          | (1)<br>28,821                |                                  |                                |  |                                  |                                      |
|              |                  |  | (2)<br>26,017                     |                        | (2)<br>34,084                     |                          | (2)<br>28,563                |                                  |                                |  |                                  |                                      |
| Bani Alharth | 185,122          |  | (1)<br>22,696                     |                        | (1)<br>29,733                     |                          | (1)<br>24,916                | (2)<br>48                        | (1)<br>623                     | 888  | 249                              | 41                                   |
|              |                  | (2)<br>22,492                                      | (2)<br>29,466                     | (2)<br>24,693          |                                   |                          |                              |                                  |                                |  |                                  |                                      |
| Alsabeen     | 310,343          |  | (1)<br>38,048                     |                        | (1)<br>49,845                     |                          | (1)<br>41,770                |                                  | (1)<br>1,044                   | 493  | 1,413                            | 232                                  |
|              |                  | (2)<br>37,707                                      | (2)<br>49,398                     | (2)<br>41,396          |                                   |                          |                              |                                  |                                |  |                                  |                                      |

**[Essential Criteria 9]**

The ownership of land for construction is legally secured, and the evidence of land ownership shall be provided to the Japanese side.

The sites that the Yemeni Government prepared for this Project are secured either by donation of the land from landowners to the Ministry of Education or purchase of the land by the Ministry of Education. In order to prove that the sites belong to the Ministry of Education, it is necessary to present documents on the donation or purchase of the land. In addition, the documents should have signatures of both a notary public and judge as the proof of their authenticity.

Among 7 surveyed schools in Sana'a Governorate which fulfill all the essential criteria 1 to 8 (G2, G4, G9, G10, G12, G13, G16), no document was handed in for G9, therefore G9 is excluded from the Project. For the 6 other schools, required documents have been submitted, thus it is confirmed that the sites belong to the Ministry of Education. Although the document of G13 does not have the signature of a notary public, there is no problem because it has the signature of the leader of the area, which can be substituted for the signature of notary public, and also has the signature of a judge. In conclusion, the following 6 schools are selected as Project schools in Sana'a Governorate.

**Table 2-8 Project Schools in Sana'a Governorate**

| No. | District             | Name of School               |
|-----|----------------------|------------------------------|
| G 2 | Arhaab               | Al-Husain Bin Ali School     |
| G 4 | Al-Haiyma Al-Karjiya | Al-Nahdha Bait Jaber School  |
| G10 | Hamdan               | Al-Mankkab Al-Rub'a School   |
| G12 | Hamdan               | Al-Khaleg Al-Rub'a School    |
| G13 | Hamdan               | Al-Shehid Ali Saleh Al-Hawri |
| G16 | Snhan                | Bait Al-Hadhrami             |

For Sana'a City, among the 18 surveyed schools except C2 and C3, which do not fulfill the essential criteria 1-8, the following 4 schools are selected as Project schools. One school for each District is selected based on the consideration of the priority by the Yemeni side, balance among the 4 requested Districts, the concept of giving priority to girls, and the budget of the Japanese side. In case there is no pertinent girls' school, co-education school is to be selected as Project school. Required documents for each school were submitted. Regarding C6, although the document does not have the signature of judge, it was ensured that the land is registered as the property of the Ministry of Education.

**Table 2-9 Project Schools in Sana'a City**

| No. | District     | Name of School/Site  | Type of School |
|-----|--------------|----------------------|----------------|
| C4  | M'aeen       | Neighboring Unit 666 | Mixed School   |
| C6  | Shuoub       | Neighboring Unit 843 | Girls' School  |
| C11 | Bani Alharth | Bait Hanthal         | Girls' School  |
| C16 | Alsabeen     | Neighboring Unit 369 | Girls' School  |

### **(3) Facilities, Furniture and Equipment**

#### **1) Facility**

The following facilities are to be provided for the Project schools in Sana'a Governorate and Sana'a City based on the examination on the need of the components requested by Yemen.

«Sana'a Governorate»

#### **① Classrooms**

There is no need to discuss the necessity of classrooms. The number of schools to be constructed is decided considering the number of classrooms in shortage and

architectural rationality, up to the number of requested classrooms.

#### ② Administration Room

This room is divided into spaces for teachers, the principal and storage of teaching aids. Although schools in Sana'a Governorate are small scale, it is necessary for school operation to secure space where principals and teachers can do their work as well as to store educational materials safely. G4, G10 and G12 do not have such rooms in the existing facilities, thus, they need an administrative room at each school.

#### ③ Multipurpose Room

Training of teachers in service is indispensable, and Yemen adopts a cluster system to operate the training efficiently. Among the Project schools, G10 is designated as a core school for the cluster. In order to avoid disturbance of classes, it is necessary that the school have a multipurpose room as the space to hold various kinds of in-service training of teachers including those from the surrounding schools.

#### ④ Toilets

Toilets are essential from the sanitary point of view. In addition, availability of toilets influences the enrolment ratio of girls, thus, provision of toilets is necessary.

### «Sana'a City»

#### ① Classrooms

There is no need to discuss the necessity of the classrooms as in the case of Sana'a Governorate. The number of classrooms to be constructed is decided considering the number of classrooms in shortage and architectural rationality, up to the number of requested classrooms.

#### ② Science Laboratory

The curriculum provides that students from Grade 1 to 3 have two periods of science class per week while those from Grade 4 to 6 have 4 periods. According to the textbooks of each Grade, each chapter contains scientific experiments. They require use of equipment for experiments and chemicals, thus, some experiments can be implemented only in a science laboratory room. Therefore, it can be said that the necessity of the provision of a science laboratory is high. Also, most of the schools, including those constructed by other donors, have science laboratories and they are utilized. There is no significant problem in the allocation of laboratory teachers who is in charge of maintenance of science laboratories nor in the maintenance of equipment. Therefore, it is appropriate to provide a science

laboratory and a preparation room to the Project schools in Sana'a City.

③ Library

Schools in Sana'a City have a library. They are used not only to keep books but also to have classes of several subjects using TVs and DVDs. To attain education of high quality, availability of a library and a librarians' room is critical.

④ Activity Room

The curriculum provides that students from Grade 1 to 6 have two periods of art class per week while those from Grade 7 to 9 have 1 period. Classrooms are too small to work in, so students need an activity room and a staff room. Also, this room is used for the exhibition of the students' work.

⑤ Multipurpose Room

Students learn music in art class. Furthermore, students of Grade 1-6 have two periods of gymnastics class per week and those of Grade 7-9 have 1 period, and they practice indoor exercises such as table tennis. It is necessary to have a multipurpose room and a staff room as a space for such activities. In addition, this room is used for the meeting of students and parents and teacher training.

⑥ Teachers' Room

It is necessary to secure space exclusive for teachers to do preparation for classes and other work. A teachers' room is provided respectively for men and women from the point of religious custom.

⑦ Principal's Room

It is reasonable to provide a separate principal's room for smooth school operation.

⑧ Administration Office

Some administration staff is allocated to schools in Sana'a City following the Educational Bases and Criteria issued by the Ministry of Education. Due to the large number of students, the amount of documents and work is large. Therefore, provision of an administration office is necessary.

⑨ Social workers' room

The Educational Bases and Criteria by the Ministry of Education provide that a social worker needs to be allocated per 500 students. Provision of a social workers' room is meaningful not only to secure space for social workers but also for parents and students to have a space to talk with the social worker privately.

⑩ Toilet

Toilets are essential from the sanitary point of view and also for the promotion of girls' enrolment.



## 2) Furniture and Equipment

### ① Furniture and Fittings

The minimum necessary educational furniture and fittings required for school operation is provided, such as, tables and chairs for students and teachers, blackboards and notice boards, book shelves and cabinets according the facilities to be provided. For the furniture for students, there is large-size furniture for students of upper grades and small-size furniture for lower grades.

### ② Educational Equipment

Educational equipment to be provided are chosen from the requested ones based on the following criteria: 1) used routinely, 2) easy to be maintained, 3) not an article of consumption, 4) to be used in the rooms provided in this Project, 5) suitable for Basic Education and 6) used to study the contents of the textbooks that are used currently.

## 2-2-2-2 Facility Arrangement Plan

As the size and conditions of the site of the Project schools located in Sana'a City can be distinguished from those located in Sana'a Governorate, their facility arrangement plans should be prepared separately based on the following major concepts:

### 《Common Aspects》

- ① Project facilities should be arranged on a flat area as much as possible so that the amount of earth works to be undertaken by the Yemeni side would be a minimum and that the safety of construction work would be ensured.
- ② Project facilities should be arranged on such area that can secure the schoolyard as large as possible and maintain a sufficiently large space not only for outdoor activities but also for the purpose of future facility expansion.
- ③ Classroom buildings should be arranged in order that the classroom entrance and the main windows do not face to the due north in order to secure the sunlight during the winter season.

### 《Sana'a Governorate》

- ① Classroom buildings should be arranged at such locations that are highly functional with existing facilities within the entire school site and should create visually unified feelings.
- ② As the toilets of this Project are the natural dry type, they should be arranged at a

location adequately away from the classrooms and male and female toilets should be arranged with sufficient distance from each other.

- ③ Toilets should be arranged so that the natural drying area faces to south as much as possible in order to get a sufficient amount of sunlight. They should be located at a location sufficiently away from classroom buildings by taking into consideration possible odor emanating from them.

#### «Sana'a City»

- ① As a higher priority is given to classrooms than other rooms in terms of sunlight, classroom buildings and administrative and special classroom buildings are designed separately. Taking advantage of having these small blocks with different function, new Project facilities should be flexibly arranged so that they have the best conformity with existing buildings at each school site.
- ② Project construction sites are already fenced. The Project facilities should be arranged close to the fences as much as possible in order to secure a large schoolyard in the middle of each school, while maintaining a sufficient clearance from the fences to secure easy access for facility maintenance vehicles.
- ③ A gate is already built at each Project school. By taking into account the existing gate, the Project buildings should be arranged at an appropriate location to secure convenient and easy access to the school buildings and a favorable shape of the schoolyard at the same time.

### 2-2-2-3 Facility Plan

#### (1) Floor Plan

The floor plans of the school facilities in Sana'a City and Sana'a Governorate are prepared based on the following concepts:

#### «Sana'a Governorate»

The components of the school facilities in Sana'a Governorate consist of classrooms, an administration room, a multipurpose room and toilets. Three architectural plans of classroom buildings and 5 types of toilets are prepared for the Project. The three types of classroom buildings are as follows:

##### ① 6CR Type

The 6CR Type is a three-storied building that is the standard classroom building for the Project. Two classrooms are arranged on each floor, one classroom on each

side of the stairway thereby making a total of six classrooms in one building. By planning the building in the three-storied type having a stairway in the middle part of the building, corridors that would be inevitable to accommodate 6 classrooms in a two-storied building are not necessary for the 6CR Type. As a result, the construction cost per classroom can be substantially reduced. In Yemen, there was a serious fatal accident caused by certain students who rushed to the entrance of a classroom building when their class was over. By taking into consideration that accident, a wide balcony is designed in front of the classroom entrance thereby making a smooth traffic line to the stairway in order to secure the safety of students. The balcony is designed as a round shape to make the area spacious. The width of the stairway is designed 1,500mm wide to make students' traffic flow smoothly.

As a result of the trial arrangement of students' desks and chairs in a classroom, the dimensions of the classroom have been decided upon as a 6.7m wide and 7.4m long rectangular shape which is different from the 7m square-shaped classrooms used for the Phase 1 Project so that students sitting on both edges of the first row can see the blackboard easier than those in the square shaped classroom. The floor space of one classroom is approximately 49m<sup>2</sup> and is almost the same as that of the classroom in the Phase 1 Project. When 48 students are accommodated in the classrooms the floor space per student becomes approximately 1m<sup>2</sup>. If 40 students are accommodated in the classroom, the floor space per student becomes approximately 1.2 m<sup>2</sup>. These figures per student are within the range of the figures 0.9 to 1.3 m<sup>2</sup> that are specified in the Educational Bases and Criteria.

The location of the blackboard in a classroom is usually decided upon so as the main windows come to the left side when students look towards the blackboard in order to utilize natural lighting sufficiently and also so that the shadows of students' right hands do not fall on their desks. In the case of this building type, as the stairway hall is located to the window side, it is not necessary to mind the eyes of other students in the corridor in front of the classroom. It is possible to utilize natural lighting coming through the large windows on both sides of the classroom. For this reason and by taking into consideration the convenient moving line for a teacher, the blackboard and teachers' desk are arranged at a location close to the classroom entrance on each building floor.

## ② 5CR + ADM Type

The composition of this building type is the same as that of 6CR Type. The building consists of 6 room units. Five of the six units are designed as classrooms and the one unit as an administration room on the ground floor. The administration

room is divided into three sections by arranging cabinets. The largest section is to be used as a teachers' area and the other two spaces are to be used as a principal's area and a teaching aids storage.

③ 9CR + ADM + MPR Type

This is an L-shaped building having the three-storied part of 9 classrooms and the two-storied part of an administration room, a multipurpose room and storage. The three-storied part has three classrooms on each floor. As the number of students on each floor exceeds 100, a stairway is arranged at both sides of the building and is connected with a corridor in view of the safety of students. As the entire building is L-shaped, no corridors are needed to connect the multipurpose room on the first floor. The multipurpose room can be directly accessed from the stairway hall. The size of the classrooms is the same as that of the other two building types. The floor plan of the administration room is the same as that of the 5CR + ADM Type.

It is difficult to secure water supply in Sana'a Governorate. Thus, the type of male and female toilets to be built by the Project should be the newly designed natural-dry type that does not require water. The basic design concept of these toilets is described in the following "Sectional Plan." Squat type toilet bowls are installed in both male and female toilet booths based on the custom of Yemen. The number of toilet booths is the same as the number of classrooms in accordance with the Educational Bases and Criteria in Yemen. The ratio of the number of male to female toilet booths is 1 to 2 by taking into consideration that the number of toilets influences the efforts to raise the female school attendance rate. In view of this, the necessary number of toilets for each school is planned into the five types having 2 to 8 toilet booths, i.e., 2T, 3T, 4T, 6T and 8T Types. Toilets booths are to be arranged parallel with each other and an access stairway is to be built at one side of the toilets and a natural dry area at the opposite side of the stairway.

«Sana'a City»

The school facility components in the Sana'a City are varied such as classrooms, a science laboratory, a library, teachers' rooms, a principal's room, toilets and so on. The arrangement plan of these facilities is prepared not for each school site but for the standardized types so that they can be rationally applied to each school site having a different shape. As for the architectural plan, one type of 9 classroom building is planned by taking into account of the number of classrooms needed by

each Project school and architectural rationality. In addition, a common type of administrative and special classroom building is planned. The overall arrangement plan for each Project school is prepared combining the administrative and special classroom building and the necessary number of classrooms buildings by taking into account the shape of each school site and the number of classrooms. The types of classroom buildings and administrative and special classroom building are as follows:

① 9CR Type+TLT Type

This is the standard three-storied building type for the Project. Three classrooms on each floor are connected with a corridor. A stairway is arranged at one end of the nine-classroom building. Toilets are arranged on each floor at the other end of the building. By taking into account odor from the toilets, they are located away from classrooms. Three toilet booths that are the same number as that of the classrooms, are planned on each floor based on the Educational Bases and Criteria. The size of the classrooms and the width of the stairway are the same as those of the classroom buildings in Sana'a Governorate.

The type with toilets situated to the left seen from the corridor is 9CR+TLT(L) Type, and the one with toilets situated to the right is 9CR+TLT(R) Type. The overall floor plan of facilities is prepared in view of safe evacuation during an emergency occasion so as the toilets are situated at the edge of classroom building close to the administrative and special class building while the stairway is situated at the edge of the classroom building away from the administrative and special class building.

② ADM+SCR Type

The administrative and special classroom building is also a three-storied building. Administrative rooms and special classrooms are planned on each side of the stairway located in the central part of the building at each floor.

A principal's room, which receives visitors frequently, an administration office, and toilets are planned at the one side of the ground floor. At the other side of the same floor against the stairway hall, a science laboratory, a preparation room, and toilets for physically disabled people, all of which use water, are planned.

On the first floor, two teachers' rooms with toilets are arranged just above the principal's room on the ground floor. A special consideration for religious customs in Yemen is given to the arrangement plan so that male and female teachers do not need to use the same room. The ratio of the number of female teachers to that of male teachers varies from school to school as well as from school year to school year. Thus, these two rooms are planned having different sizes so that they can be

assigned to either male or female teachers to suit to their numbers. A social workers' room to receive consultation from students and their parents is planned between the teachers' rooms where it is a quiet and convenient location for both male and female teachers. At the opposite side of the stairway hall, a library, a librarian's room and storage of teaching aids are planned.

On the top floor, the second floor, an activity room that may create noise, a multipurpose room and its annex are arranged on both sides of the stairway hall. The type with the science laboratory to the left seen from the corridor is ADM+SCR(L) Type, while the one with the science laboratory to the right is ADM+SCR(R) Type. The type is selected for each Project school so that the principal's room is situated closer to the gate and the science laboratories further down the corridor.

The following shows the composition of facilities of the Project schools consisted of the types above.

**Table 2-10 Facility Composition of Project Schools**

| No.                       | Name of School               | District                | Facility Type                          | No. of classroom | Total Floor Area (m <sup>2</sup> ) |
|---------------------------|------------------------------|-------------------------|--|------------------|------------------------------------|
| <b>Sana'a Governorate</b> |                              |                         |  |                  |                                    |
| G2                        | Al-Husain Bin Ali School     | Arhaab                  | 6CR, 4T, 2T                            | 6                | 491.42                             |
| G4                        | Al-Nahdha Bait Jaber School  | Al-Haiyma<br>Al-Karjiya | 5CR+ADM, 4T, 2T                        | 5                | 491.42                             |
| G10                       | Al-Mankkab Al-Rub'a School   | Hamdan                  | 9CR+ADM+MPR,<br>6T, 3T                 | 9                | 1012.97                            |
| G12                       | Al-Khaleg Al-Rub'a School    | Hamdan                  | 6CR, 5CR+ADM,<br>8T, 4T                | 11               | 968.64                             |
| G13                       | Al-Shehid Ali Saleh Al-Hawri | Hamdan                  | 6CR x 2, 8T, 4T                        | 12               | 968.64                             |
| G16                       | Bait Al-Hadhrami             | Snhan                   | 6CR, 4T, 2T                            | 6                | 491.42                             |
| Sub-Total                 | —                            | —                       | —                                      | 49               | 3933.09                            |
| <b>Sana'a City</b>        |                              |                         |  |                  |                                    |
| C4                        | Neighboring Unit 666         | M'aeen                  | 9CR+TLT(L)<br>ADM+SCR(L)               | 9                | 1729.78                            |
| C6                        | Neighboring Unit 843         | Shuoub                  | 9CR+TLT(L)<br>9CR+TLT(R)<br>ADM+SCR(R) | 18               | 2548.63                            |
| C11                       | Bait Hanthal                 | Bani<br>Alharth         | 9CR+TLT(L)<br>ADM+SCR(L)               | 9                | 1729.78                            |
| C16                       | Neighboring Unit 369         | Alsabeen                | 9CR+TLT(L)<br>9CR+TLT(R)<br>ADM+SCR(L) | 18               | 2548.63                            |
| Sub-Total                 | —                            | —                       | —                                      | 54               | 8556.82                            |
| Total                     | —                            | —                       | —                                      | 103              | 12489.91                           |

## **(2) Sectional Plan**

### **1) Story Height and Ceiling Height**

The Ministry of Education decides the story height of a classroom building among 3.2m, 3.4m and 3.6m based on the differences of temperature in wintertime considering the balance between the air volume and educational environment. As for the Project's classroom buildings, the story height of the buildings in Sana'a Governorate, where the winter temperature is quite low, is planned to be 3.2m. In Sana'a City, which has relatively mild winter temperatures, the story height of classroom buildings is planned to be 3.4m. The ceiling height of classrooms may be approximately 3m and, as a result, a good educational environment would be attained. Although rainfall is very light in Yemen, the ground floor level should be 450mm higher than the ground level to prepare for rainwater during the rainy season.

### **2) Walls and Openings**

The walls of the Project school buildings are to be built with concrete blocks arranged between the reinforced concrete frames consisting of columns and beams in both Sana'a City and Sana'a Governorate.

In Yemen, it is a custom to install traditional Kamaria in the openings of a building. As described above, an adequate number of Kamaria in view of architectural design is planned to be installed in the major windows of the Project school buildings that face to the outside of the school sites. Windows other than Kamaria are of the aluminum sliding sashes that have good air tightness and durability. Windows on the ground floor are to be protected with steel grills and expanded-metal lattices for security reasons. Major windows are arranged directly under beams. In order to secure a large open area to utilize natural lighting as much as possible, the spandrel walls are planned as low as possible. However, those spandrel walls facing corridors or toilets are to be of high spandrel walls so that students can take lessons calmly and the privacy in toilets can be achieved. Classroom doors are made of steel made for security reason.

### **3) Floors and Roofs**

Floors, roofs and stairways are to be made of reinforced concrete slabs. They are of terrazzo finish that is the most common finishing method in Yemen.

Yemen is not located in a rainy zone, thus all roofs are planned to be flat roofs. As the ultraviolet rays in the region are extremely strong, concrete tiles are to be installed on top of the waterproofing asphalt layer on classroom buildings and administrative and special classroom buildings in order to prevent the asphalt layer

deteriorating.

#### 4) Toilets

The natural dry type toilets, that are designed for the Project schools in Sana'a Governorate, are built with a floor approximately 1.5m above ground and stairs to go up to the floor. Excrement from the booths on the floor level falls on the tiled slope then into the pit with natural gravitation. The excrement collected in the natural dry pit dries up soon because of extremely dry air and strong ultraviolet rays in the region at the high altitude. If periodical maintenance is conducted, this system of toilets functions well without using water.

Basically no roofs are provided to toilets for cost reduction and natural ventilation purposes. However, for the purpose of maintaining privacy and preparing for rainfall, roofs are planned only on the booths. Roofs on the toilet booths are of simple mortar waterproofing as the need of protection against rainfall for the roofs is low and to reduce the cost. To secure natural ventilation, the height of the booths shall be about 2,300mm. Although rainfall frequency is low, for the effective use of rain water for cleaning, water from the roof is drained to the natural dry pit passing the tiled slope where excrement slides down.

Particularly taking into consideration female students' privacy, female toilets are provided with sufficiently high walls. The natural dry pit is also surrounded with approximately 2m high fences for environmental and security reasons and steel louvers are put at the top for the prevention of entry from the top.

### (3) Structural Plan

#### 1) Design Policies

In the Project, the structure type of the educational facilities composed of classroom buildings, administrative and special classroom buildings, toilets is a reinforced concrete frame structure with the exterior walls of reinforced concrete blocks. Except for toilet buildings, all other Project buildings are planned to be three-storied buildings. The columns of the frame-type structures are planned to become flush with the exterior walls and corridor wall for the simplicity of finish work and to allow people to move easily in the corridor. In addition, by taking into consideration the effective layout of furniture units, the columns are designed to become a relatively compressed rectangular shape. The ground in the Project area is very strong and it is expected to obtain the design bearing capacity of 150kN/m<sup>2</sup> (15tons/m<sup>2</sup>). Thus, independent foundation type is adopted as the building foundation.



No standards have been established for the structural design in Yemen. Thus, each designer uses the design standards of other countries including British design standards. School construction projects of the Ministry of Education are no exception. For this reason, the Japanese architectural design standards and other structural standards of the Architectural Institute of Japan are applied to the Project.

## 2) External Forces for Structural Design

### ① Live Load

- Classroom building, administrative offices and special classroom building: 2,300N/m<sup>2</sup>
- Roof: 900 N/m<sup>2</sup>
- Corridor and stairway: 3,500 N/m<sup>2</sup>

### ② Earthquake Load

In accordance with the National Seismological Network (2001) in Yemen, earthquakes having the maximum magnitude of 3 to 4 are recorded in the Project area. Those earthquakes are equivalent to the level III of the seismic intensity standard established by the Japanese Weather Bureau. The acceleration of the level III earthquake is approximately 20gal (cm/s<sup>2</sup>). This figure is quite small compared with the Japanese standards. Thus, the standard earthquake shear coefficient 0.1 is applied to the structural design, as in the case with the Phase 1 Project.

### ③ Wind Load

As the Project school buildings are to be the reinforced concrete structure type, live load and earthquake load are far greater than wind load. Thus, the effect of wind load is not taken into account for the structural design.

## 3) Structural Material

The strengths of the structural materials to be used for the Project are as follows:

- ① Concrete: Fc20N/mm<sup>2</sup>
- ② Reinforcing Bar D10 to D16: 275N/mm<sup>2</sup> (ASTM Grade 40)
- D20 to D25: 345N/mm<sup>2</sup> (ASTM Grade 60)

## (4) Facility Services Plan

### 1) Water Supply and Drainage System

Educational facilities, including toilets, in Sana'a Governorate are planned as not to use any water. Thus, no water supply facilities are provided to the Project schools in Sana'a Governorate.

As for the Project facilities in Sana'a City, the science laboratory and toilets are planned to use water there. In order to meet this plan, it is designed to install a 9-ton water holding tank using the foundation part of the administrative and special classroom building. In addition, in the classroom building, a 3-ton elevated water tank is installed on the roof immediately above the flush toilets for students, which are located at the same place on each floor. As no piped water supply systems are installed in the Project area, water is supplied to these holding tanks by water supply vehicles, which is the common way of water supply in Yemen. As for the drainage system of toilets, a simple septic tank is installed. Sewage is to be treated by the natural infiltration method through an infiltration pit.

## 2) Sanitary Facilities

In accordance with the customs in Sana'a City and Sana'a Governorate, squat-type toilet bowls are installed for both male and female students as well as for teachers because of their simple maintenance. The number of toilet bowls to be installed for students is basically the same as the number of classrooms. In case of co-educational schools, the ratio of the number of toilet bowls for males to that for females is 1 to 2 in order to give priority to the convenience of female students. For students, a faucet is to be installed to the washstand that is built in the building construction work. A faucet and a washbasin are to be installed in the teachers' toilets. A western-type toilet bowl and a washbasin are to be installed in the toilets of physically disabled people for easier use.

A faucet is installed at each experimental counter in the science laboratory and preparation room.

## 3) Electrical System

Electric facilities, such as lighting fixtures and outlets, are installed to those four Project schools in Sana'a Governorate to which power supply lines are installed under work to be undertaken by the Yemeni side. In addition, for the four Project schools in Sana'a City, lighting fixtures, outlets, pumps and broadcasting speakers are installed. A power supply is not presently provided to G2 and G4 in Sana'a Governorate. However, empty cable conduits are installed for future power cable installation in order to avoid possible bare cable or conduit installation when power supply lines are connected to these schools. Main power lines are to be connected to the first pole installed close to the boundary of each school site and 3-phase 4-wire 380/220V 50Hz power is supplied to each school building.

It is planned to install empty conduits for telephone wire installation to libraries and so on. Telephone lines are to be installed by the Yemeni side in the

future, as necessary.

#### (6) Building Material Plan

Specifications of building materials for the Project and reasons for selection are listed in Table 2-11.

**Table 2-11 Specifications of Building Materials for the Project and Reasons for Selection**

| Location              | Typical Local Specifications         | Specifications for the Project                  | Reason for Selection   |
|-----------------------|--------------------------------------|---|--|
| <b>Main Structure</b> |                                      |   |  |
| Foundation            | Reinforced Concrete                  | Reinforced Concrete                             | Same as local specifications   |
| Column and Beam       | Reinforced Concrete                  | Reinforced Concrete                             | Same as local specifications   |
| Roof and Floor        | Reinforced Concrete                  | Reinforced Concrete                             | Same as local specifications   |
| Wall                  | Stone Masonry                        | Concrete Blocks                                 | To achieve cost reduction by using suitable materials.                   |
| <b>Exterior</b>       |                                      |   |  |
| Exterior Wall         | Stone Masonry                        | Stone Veneers                                   | To achieve cost reduction by reducing structural weight.                 |
| Roof                  | Exposed Asphalt Waterproofing Sheets | Asphalt Waterproofing Sheets and Concrete Tiles | To increase durability by protecting waterproofing materials.            |
| Window                | Wooden Sash                          | Aluminum Sash                                   | Better airtightness, sound insulation, durability and easy maintenance.  |
| <b>Interior</b>       |                                      |   |  |
| General Floor         | Terrazzo Tile                        | Terrazzo Tile                                   | Same as local specifications   |
| Toilet Floor          | Terrazzo Tile                        | Terrazzo Tile                                   | Same as local specifications   |
| Skirting              | Terrazzo Tile                        | Terrazzo Tile                                   | Same as local specifications   |
| Interior Wall         | Paint Finish on Mortar Base          | Paint Finish on Thin Mortar Base                | Same as local specifications   |
| Ceiling               | Paint Finish on Mortar Base          | Paint Finish on Thin Mortar Base                | To prevent the falling of finishing material and achieve cost reduction. |
| Classroom Door        | Wooden Door                          | Steel Door                                      | Greater durability and better security.                                  |

#### 2-2-2-4 Furniture and Equipment Plan

##### (1) Furniture and Fittings

Furniture and fittings provided by the Project should be in accordance with the following principles:

## «Common Aspects»

### ① For Classrooms

The number of desks and chairs to be provided is 20 two-seat desks and 20 two-seat chairs in one classroom for Grade 1 to 4, 24 two-seat desks and 24 two-seat chairs in one classroom for Grade 5 to 9 by taking into consideration the number of students to be accommodated in one classroom. The size of the classroom furniture is of two kinds, the smaller size is for Grade 1 to 4 and the larger size for Grade 5 to 9.

In addition to the desks and chairs, one blackboard, one set of a desk and chair for a teacher are provided in each classroom.

## «Sana'a Governorate»

### ① Administration Room

Those schools that do not have any administration rooms are provided with a new administration room. A principal's area, teachers' area, and teaching aids storage area are arranged in one room divided by nine cabinets.

A desk, a chair, a work desk, and a chair for the work desk are installed in the principal's area. The teachers' area is provided with six desks, twelve chairs and two bulletin boards.

### ② Multipurpose Room

A multipurpose room built at G-10 Al Mankkab Al-Rub'a School, a core school, is mainly used for teacher training. For this purpose, 24 desks, 48 chairs for teachers and one blackboard are provided.

## «Sana'a City»

### ① Science Laboratory

Science classes are taught by making six groups of students. There are 8 students in each group. Thus, the science laboratory will be furnished with six experiment tables (each having 8 seats) and a total of 48 round chairs for students, a teacher's chair, a demonstration table with a round chair and one blackboard.

### ② Preparation Room

Science teachers use this room to prepare for science classes. One preparation table, and two desks and two chairs for teachers are provided in the room.

### ③ Library

The number of desks and chairs to be provided in the library is decided based on the largest number of students in a class, which is of Grade 5 to 9 (48 students per class). Thus, 24 2-seat desks, 48 chairs, eight shelves and one bulletin board are furnished in the library.

④ Librarian's Room

One desk and one chair for the librarian and two shelves for restricted books are furnished in the room.

⑤ Activity Room

Based on the largest number of students in a class, which is of Grade 5 to 9 (48 students per class), 24 2-seat tables, 48 chairs and one blackboard are furnished in the activity room.

⑥ Multipurpose Room

To suit the largest number of students in a class, which is of Grade 5 to 9 (48 students per class), 24 2-seat desks, 48 chairs and one blackboard are provided for the multipurpose room.

⑦ Staff Room

One office desk and one chair, and two cabinet units are provided to each staff room annexed to the activity room and the multipurpose room.

⑧ Teachers' Room

For those Project schools having nine classrooms, three common-use desks, six chairs, three cabinet units and one bulletin board are provided to each of the male teacher's room and female teachers' room.

For those project schools having 18 classrooms, common-use six desks, twelve chairs, three cabinet units and one bulletin board are provided to each of the male teacher's room and female teacher's room.

⑨ Principal's Room

One desk, one chair and two cabinets are furnished in the principal's room.

⑩ Administration Office

Two desks, two chairs, and two cabinets are provided for the staff members in the administration office.

⑪ Social Workers' Room

Two desks, four chairs, three cabinets and one bulletin board are installed in the social workers' room.

**(2) Educational Equipment**

Educational equipment to be provided by the Project are selected based on the following policies:

① General Teaching Aids

General teaching aids to be provided by the Project are selected based on the same specifications for all Project schools in Sana'a Governorate and Sana'a City.

In this Project, one or one set of general teaching aids shown in the Table 2-12 is be provided to each Project school.

**Table 2-12 General Teaching Aids for Each Project School**

| Teaching Aids               | Subject     |
|-----------------------------|-------------|
| Blackboard Drawing Set      | Mathematics |
| Two Pan Balance             | Physics     |
| Thermometer Wall Red Spirit | Physics     |
| Magnetic Compass            | Physics     |
| Rectangular Magnets         | Physics     |
| Mirrors (Optically Worked)  | Physics     |
| Magnifier with Handle       | Biology     |

② Equipment for Science Laboratory

Equipment for science laboratory is provided only to those Project schools that are planned to have a science laboratory in Sana'a City. The selection of educational equipment and materials to be provided by the Project is made based on the following conditions: They should conform to the current curriculum; teachers must be able to use the equipment and materials; their spare parts are available from local markets; they are easily maintained; they are not consumable items; and, they are strong and durable. One package or one set of each equipment shown in Table 2-13 will be provided to each Project school in Sana'a City.

Table 2-13 Equipment for Science Laboratory for Each Project School in Sana'a City

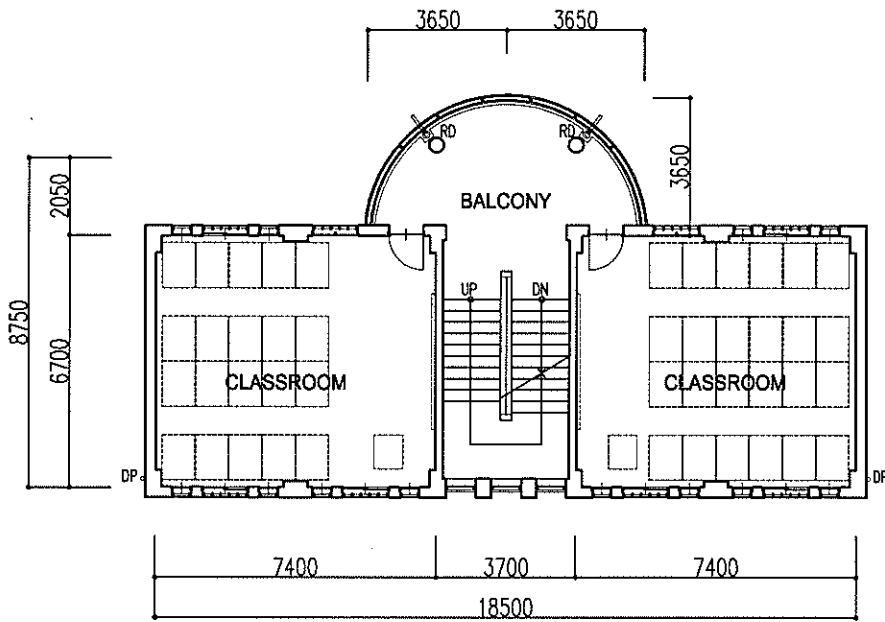
| Physics                                   |                                |                              |
|---|--------------------------------|------------------------------|
| Compression Spring Balance                | Spring Balances (0.5~5KG)      | Levers                       |
| Simple Pendulum                           | Springs Set                    | Solid Material Kit           |
| Slotted Weight                            | Geometrical Models             | Barometer Aneroid            |
| Hydrometer                                | Anemometer                     | Ball & Ring Apparatus        |
| Expansion apparatus                       | Expansion of Liquid Apparatus  | Ingen-Hausz's Apparatus      |
| Convection Liquid Apparatus               | Hygrometer                     | Thermometer Max. & Min.      |
| Lenses                                    | Optical Bench                  | Rectangular Glass            |
| Prism glass                               | Newton's Color Disc            | Wave Form apparatus Helix    |
| Set of Tuning Forks                       | Stethoscope                    | Air pump                     |
| Electric Bell in Acrylic Jar              | Timer                          | Electromagnetic              |
| Demonstration Electric Motor              | Demonstration Induction COIL   | Hand Electric Generator      |
| Electric Bell                             | Electrostatic Kit              | Electroscope Pith ball       |
| Friction Rods                             | Friction Rubber                | Proof Sphere, Proof Plane    |
| Continuously Variable L.T. Power Supply   | Digital Multi Meter            | Meters                       |
| Rheostats                                 | Wire Resistance Reel           | Circuit Board Kit            |
| Lead Flexible with Coated Crocodile Clips | Switches                       | Lamp Holder, Lamp Bulbs      |
| Photoelectric Cell                        |                                |                              |
| Biology                                   |                                |                              |
| Hand Microtome                            | Compound Microscope            | Projection microscope        |
| Human Torso with Head Model               | Human Skeleton Model           | Human Heart Model            |
| Human Kidney Model                        | Human Skin Model               | Human Digestive System Model |
| Human Respiratory System Model            | Human Circulatory System Model | Urinary System Model         |
| Animal Cell Division Model                | Plant Cell Model               |                              |
| Chemistry                                 |                                |                              |
| Filter Funnel                             | Gas Collection                 | Gas Generator                |
| Polypropylene Funnel                      | Mortar & Pestle                | Pipettes Filler              |
| Rubber Tubing                             | Deflagrating Spoon & Cap       | Spatula Combustion           |
| Water Bath                                | Test Tube Holders              | Hoffman's Voltmeter          |
| Brushes for Washing                       | Stoppers Borer Set             | Stoppers                     |
| Bunsen Burner                             | Burner                         | Tripod Stand                 |
| Triangles Ironwire Pipe                   | Gauge Ironwire                 | File                         |
| Test Tube Stand                           | Retort Stand with Accessories  | Electronic Balance           |
| Battery Holder                            |                                |                              |

## 2-2-3 Basic Design Drawing

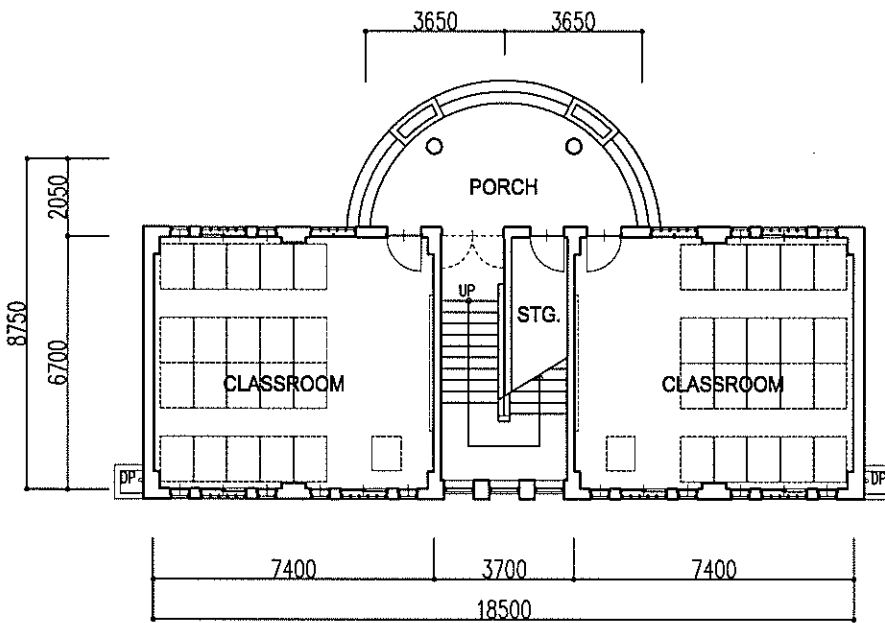
The floor plans, elevations, sections and site plans prepared for the Project are as attached hereafter.

- ① Classroom Building
  - 6CR Type, 5CR+ADM Type
    - Floor plans, Elevations, Sections
  - 9CR+ADM+MPR Type
    - Floor plans, Elevations, Sections
  - 9CR+TLT(L) Type
    - Floor plans, Elevations, Sections
  
- ② Administrative and Special Classrooms Building
  - ADM+SCR(L) Type
    - Floor plans, Elevations, Sections
  
- ③ Toilets
  - 2T, 3T, 4T, 6T, 8T Type
    - Floor plans, Elevations, Sections
  
- ④ Site Plans for Sana'a Governorate
  - G2 Al-Husain Bin Ali School
  - G4 Al-Nahdha Bait Jaber School
  - G10 Al Mankkab Al-Rub'a School
  - G12 Al-Khaleg Al-Rub'a School
  - G13 Al-Shehid Ali Sleh Al-Hawri School
  - G16 Bait Al-Hadhrami School
  
- ⑤ Site and Floor Plans for Sana'a City
  - C4 Neighboring Unit 666
  - C6 Neighboring Unit 843
  - C11 Bait Hanthal
  - C16 Neighboring Unit 369

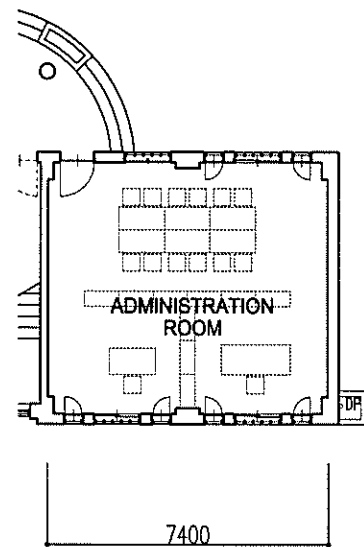




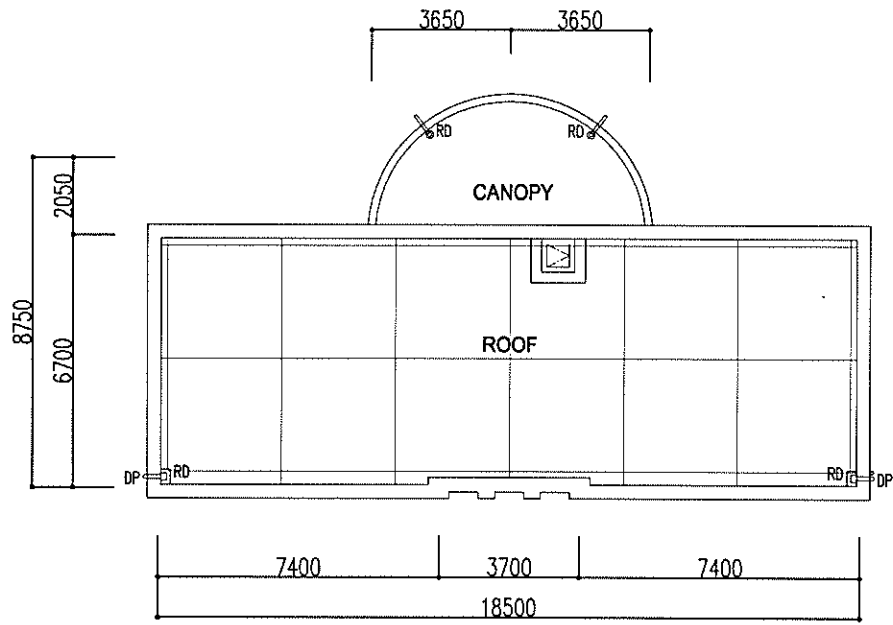
FIRST FLOOR PLAN



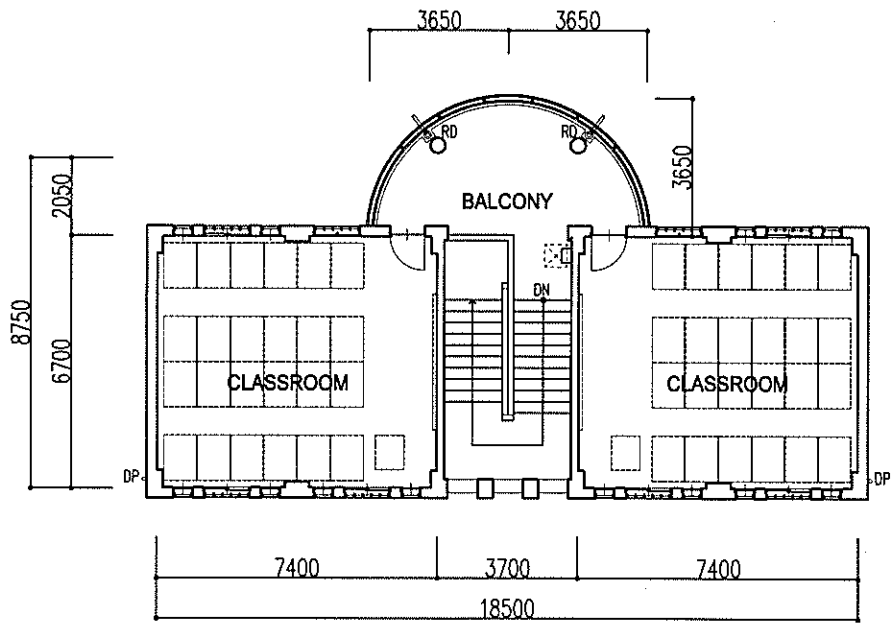
GROUND FLOOR PLAN  
(6CR TYPE)



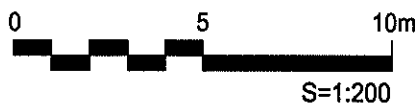
GROUND FLOOR PLAN  
(5CR+ADM TYPE)



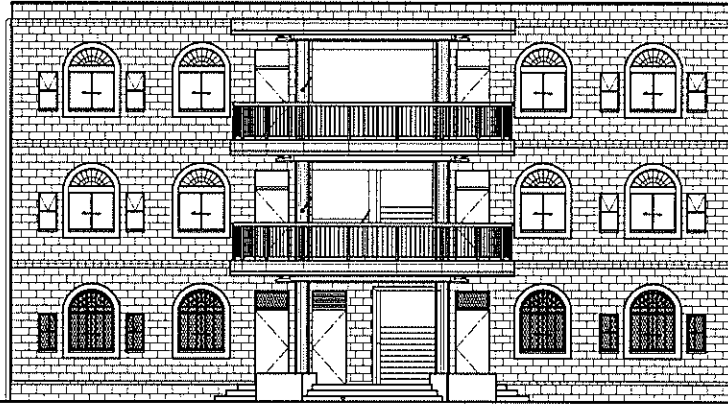
ROOF PLAN



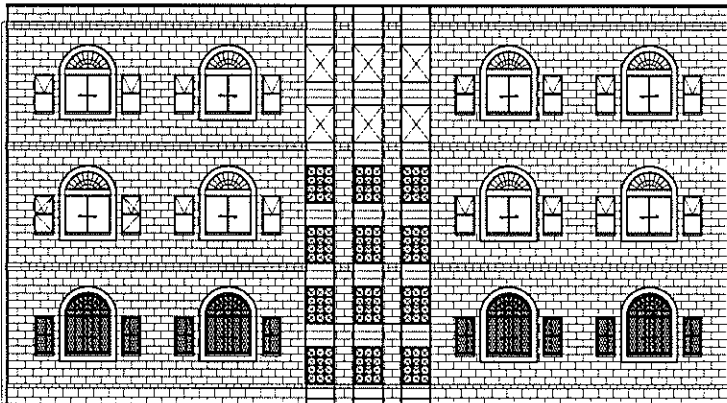
SECOND FLOOR PLAN



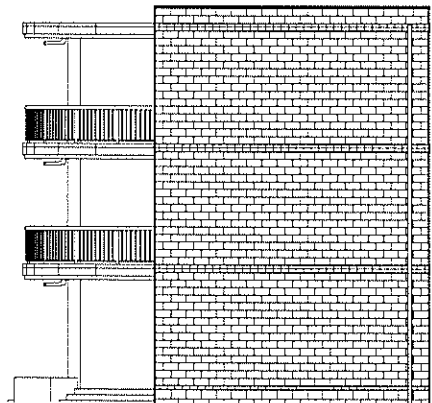
6CR TYPE, 5CR+ADM TYPE  
PLANS



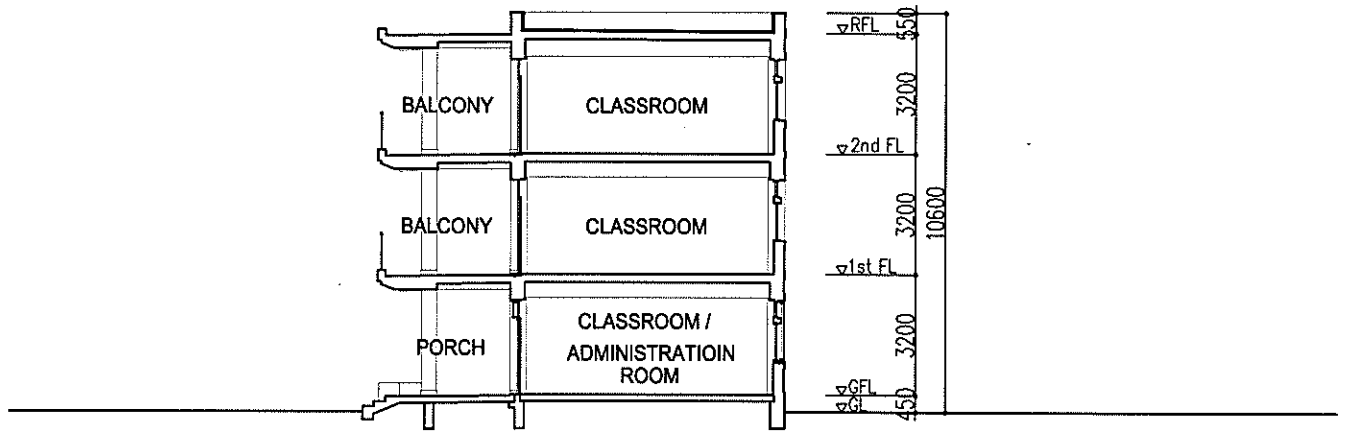
FRONT ELEVATION



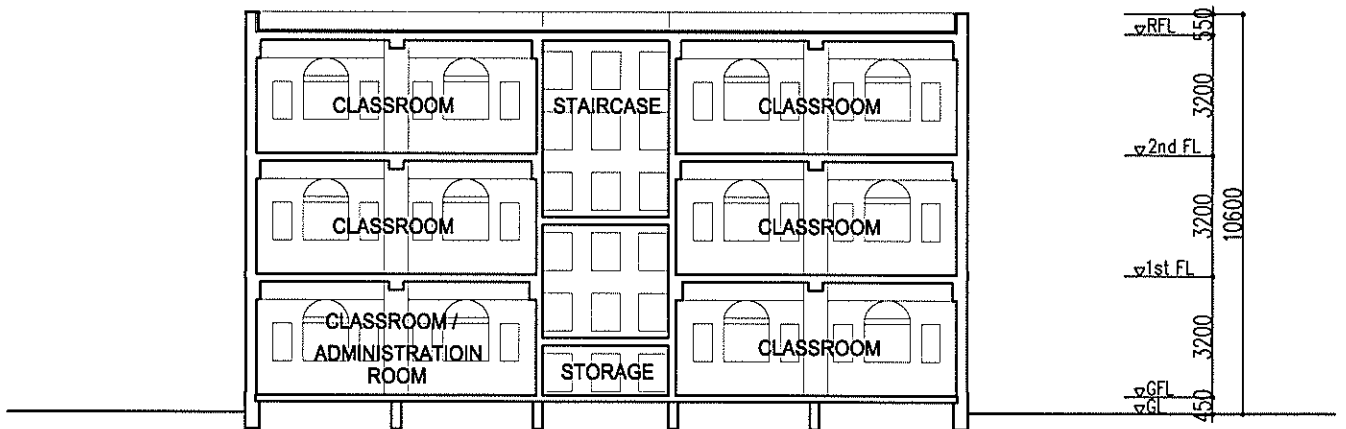
REAR ELEVATION



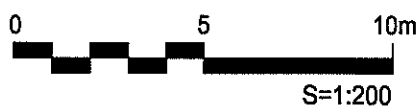
SIDE ELEVATION



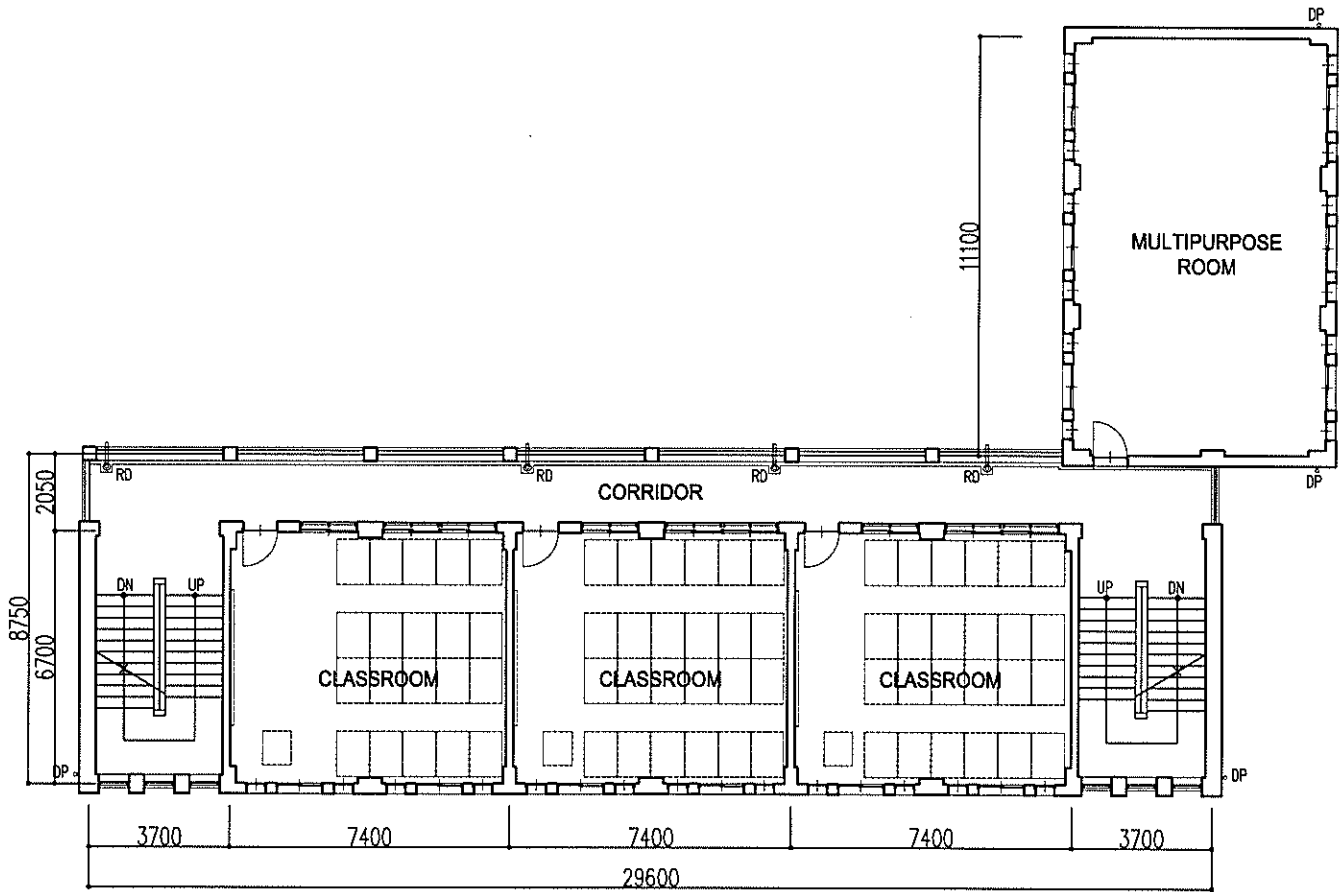
CROSS SECTION



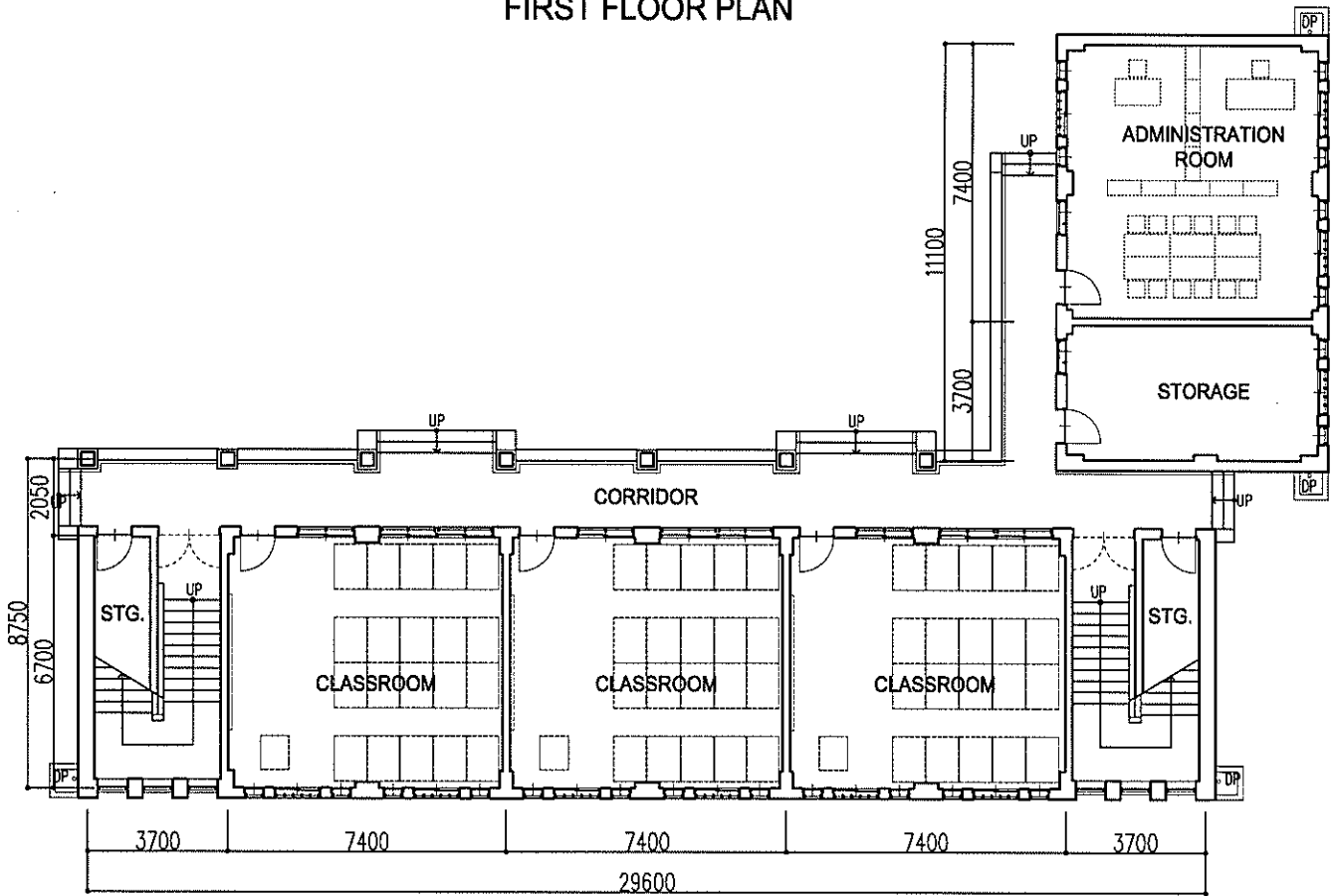
LONGITUDINAL SECTION



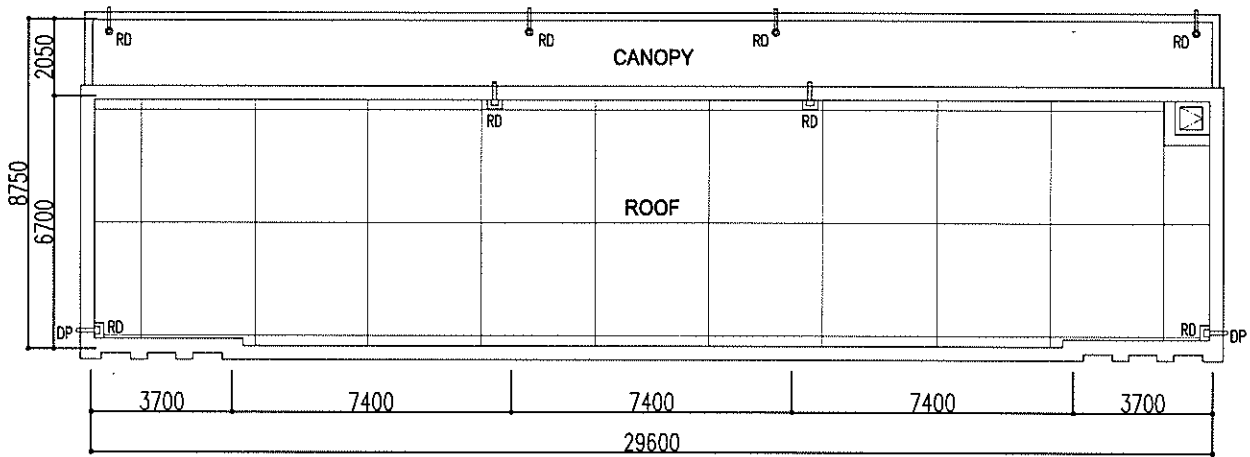
6CR TYPE, 5CR+ADM TYPE  
ELEVATIONS, SECTIONS



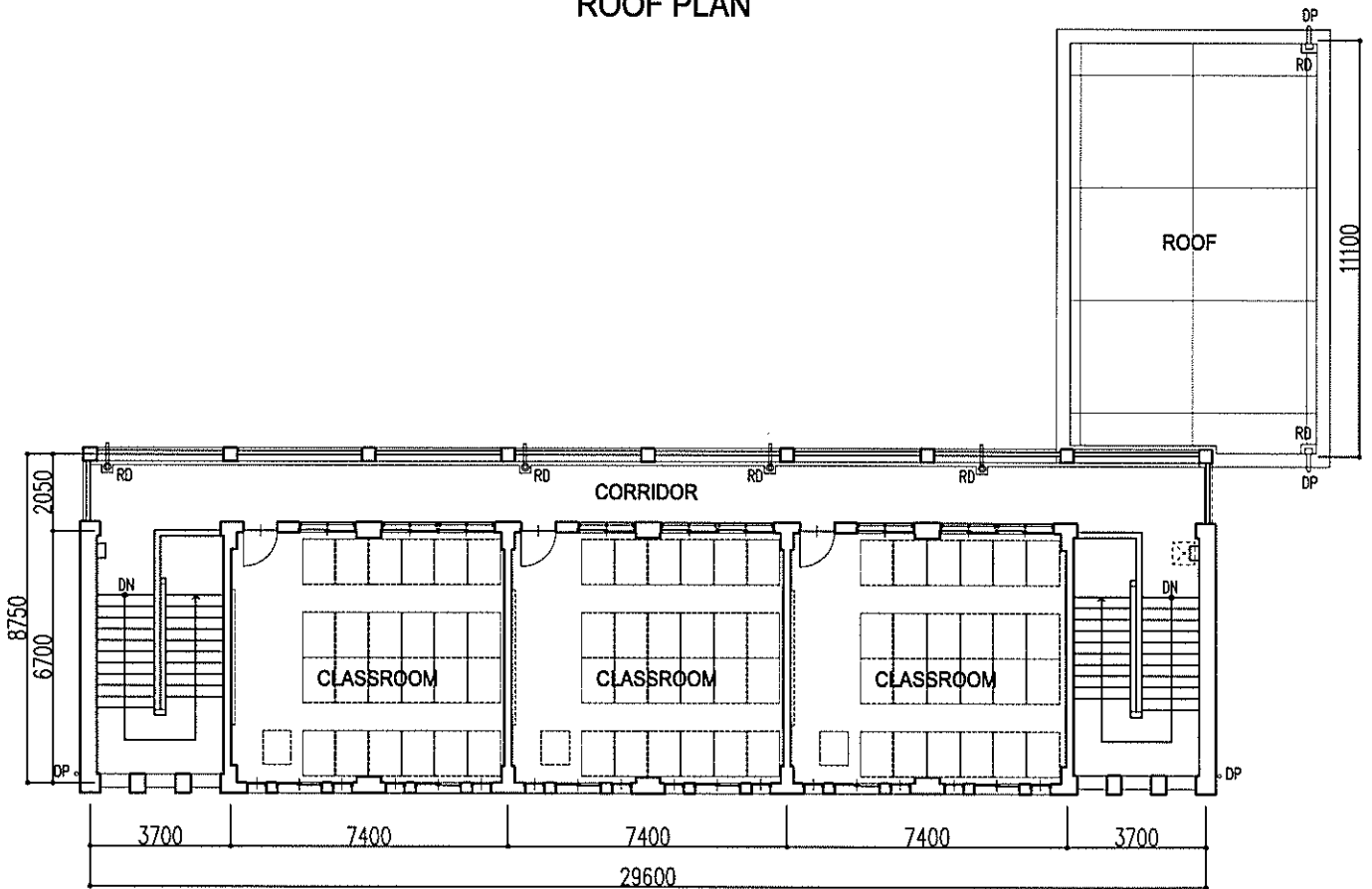
FIRST FLOOR PLAN



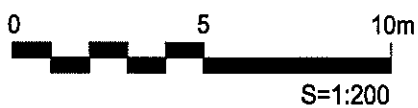
GROUND FLOOR PLAN



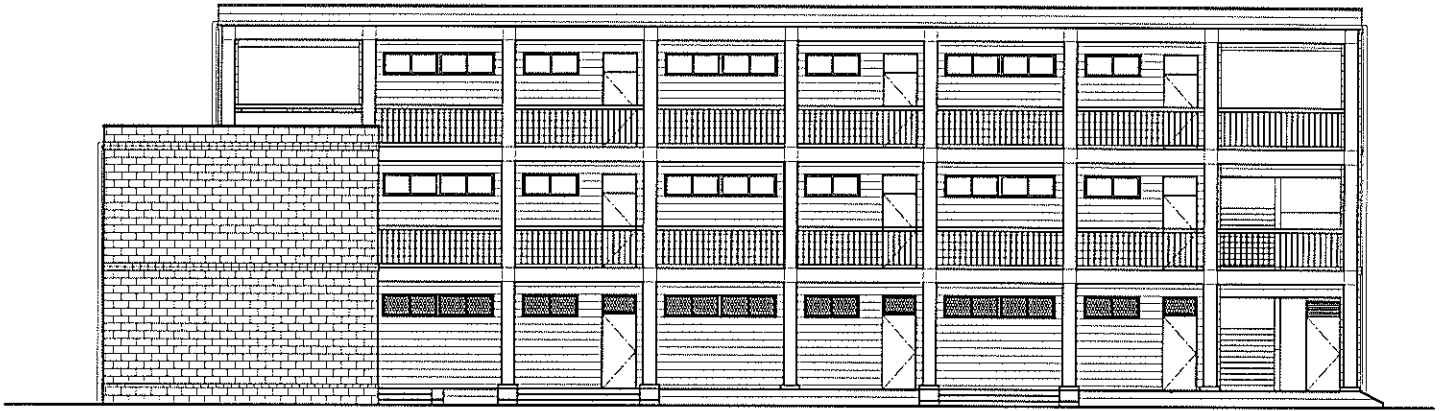
ROOF PLAN



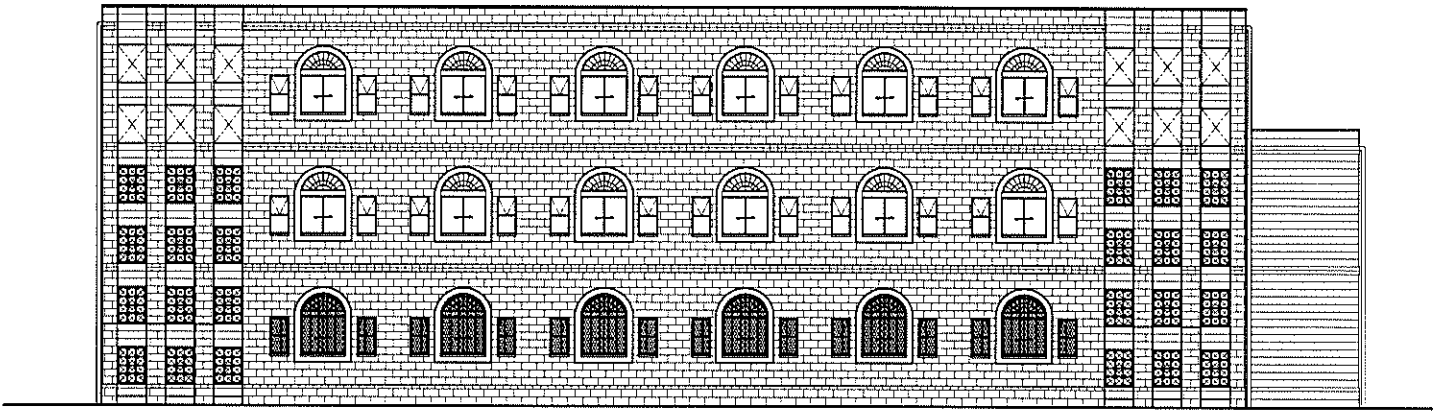
SECOND FLOOR PLAN



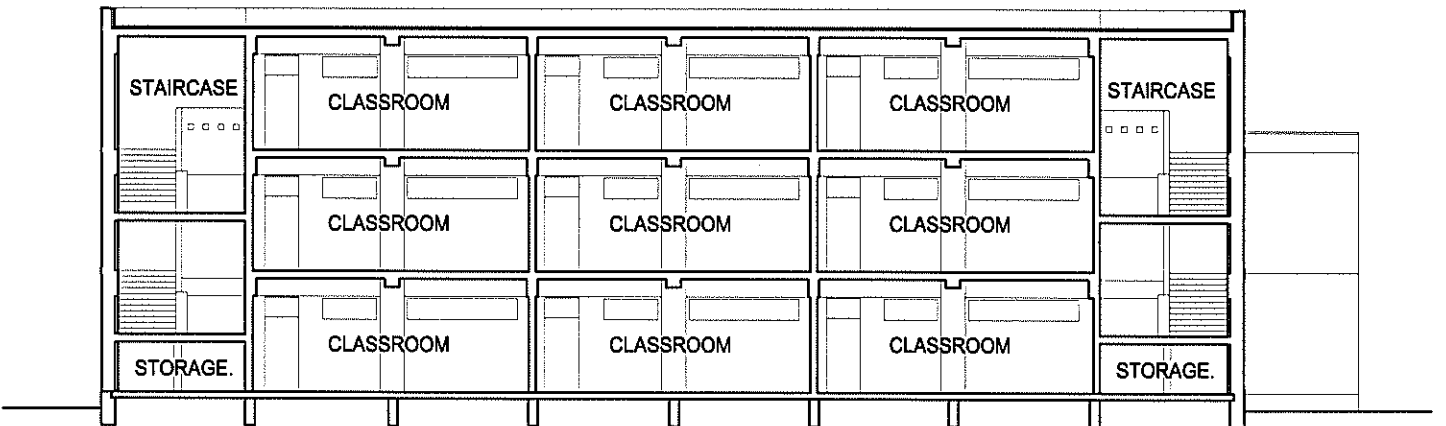
9CR+ADM+MPR TYPE  
PLANS



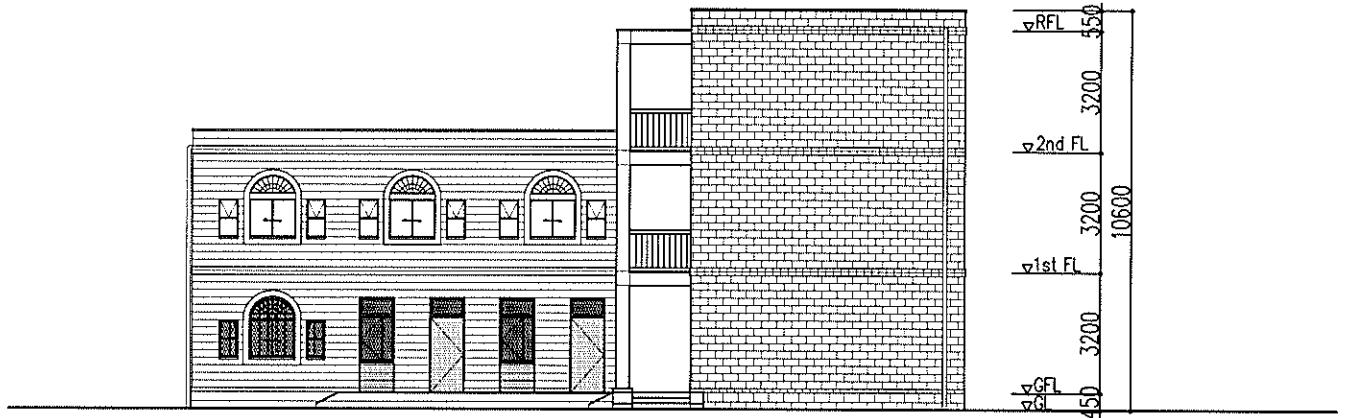
FRONT ELEVATION



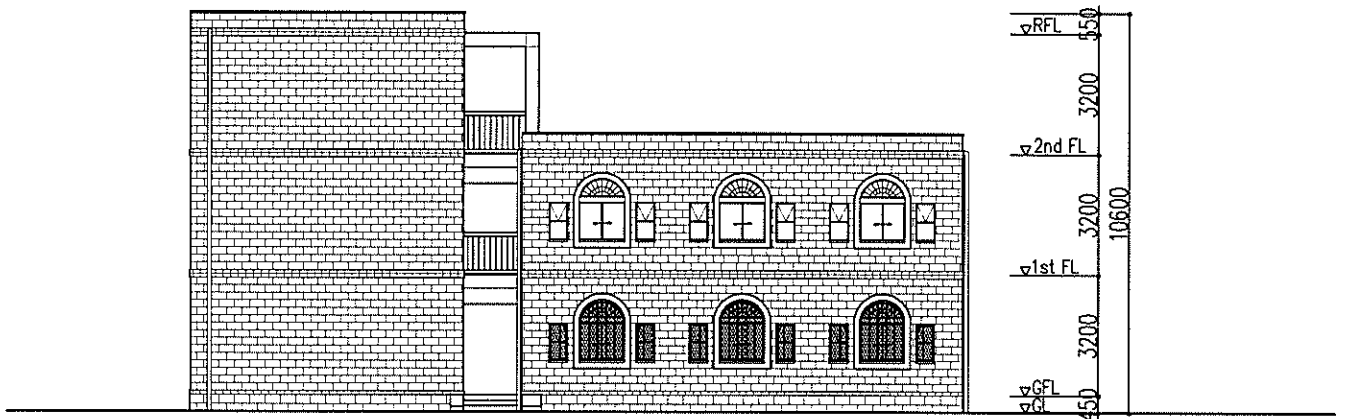
REAR ELEVATION



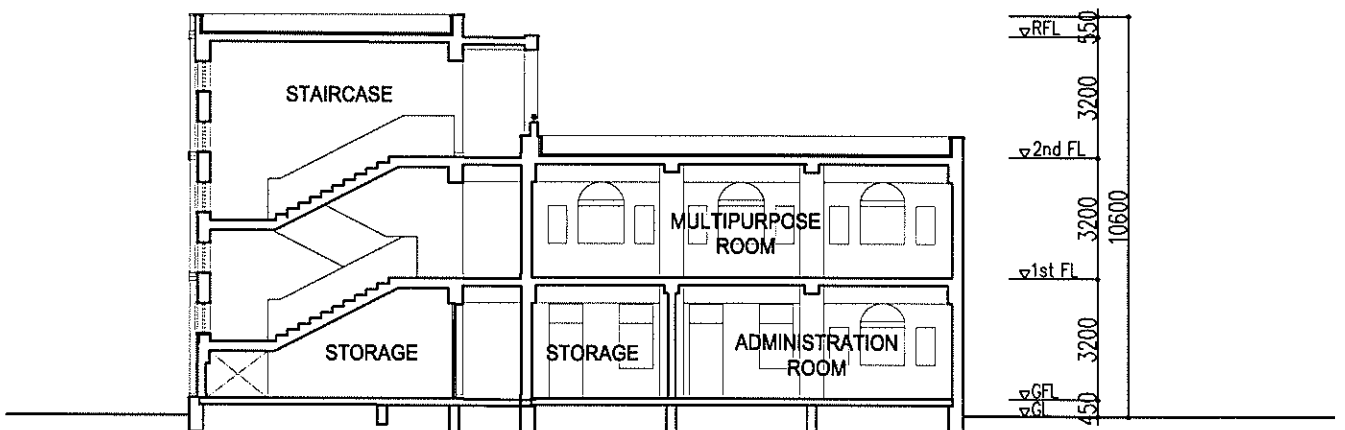
LONGITUDINAL SECTION



SIDE ELEVATION



SIDE ELEVATION

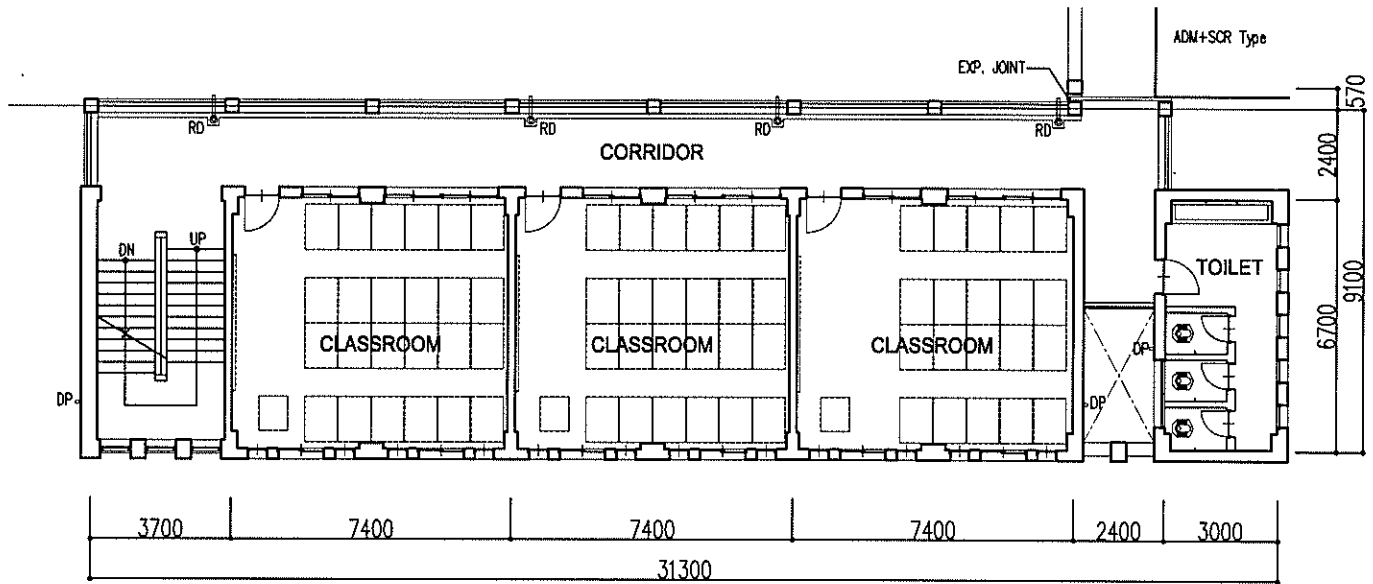


CROSS SECTION

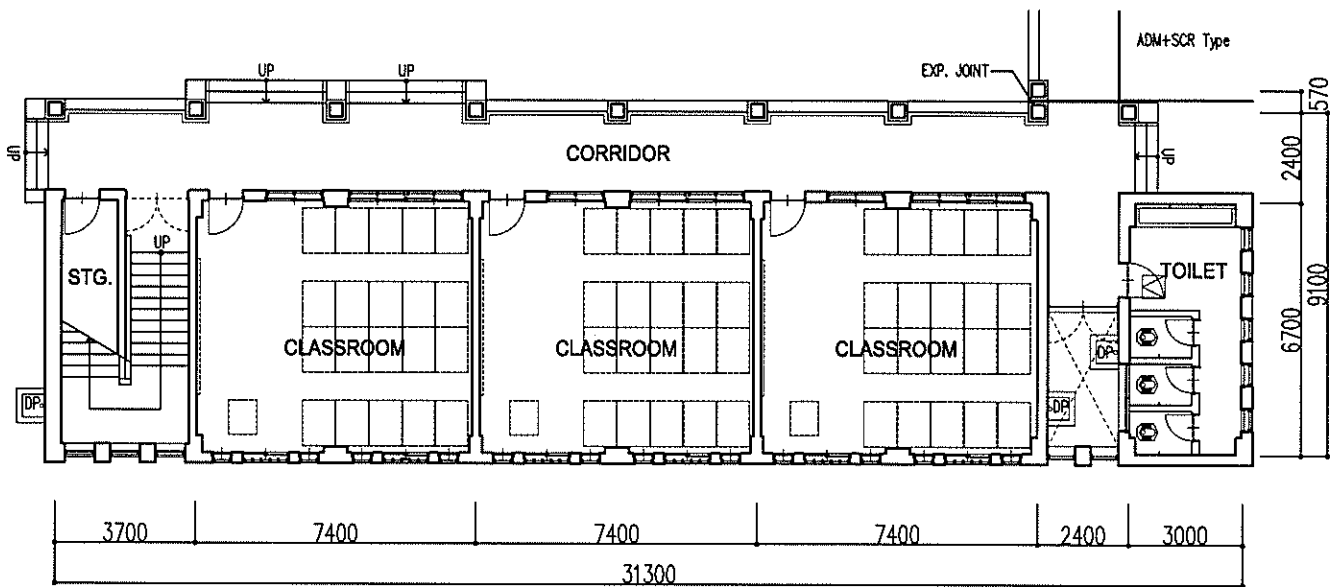


9CR+ADM+MPR TYPE  
ELEVATIONS, SECTIONS

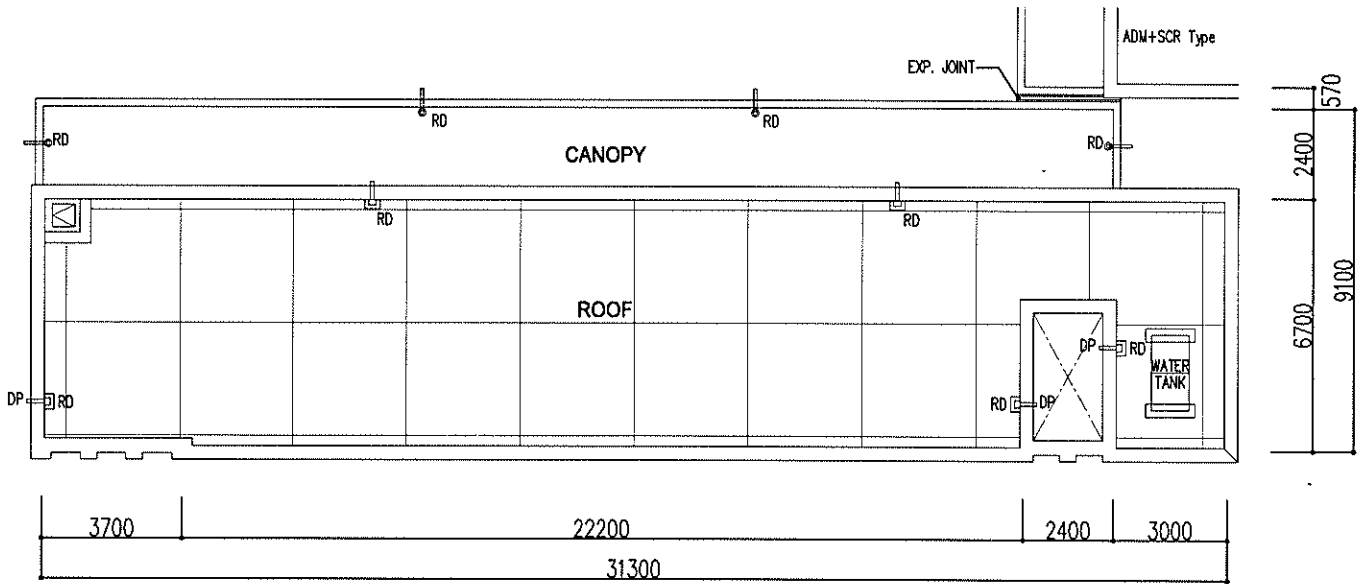




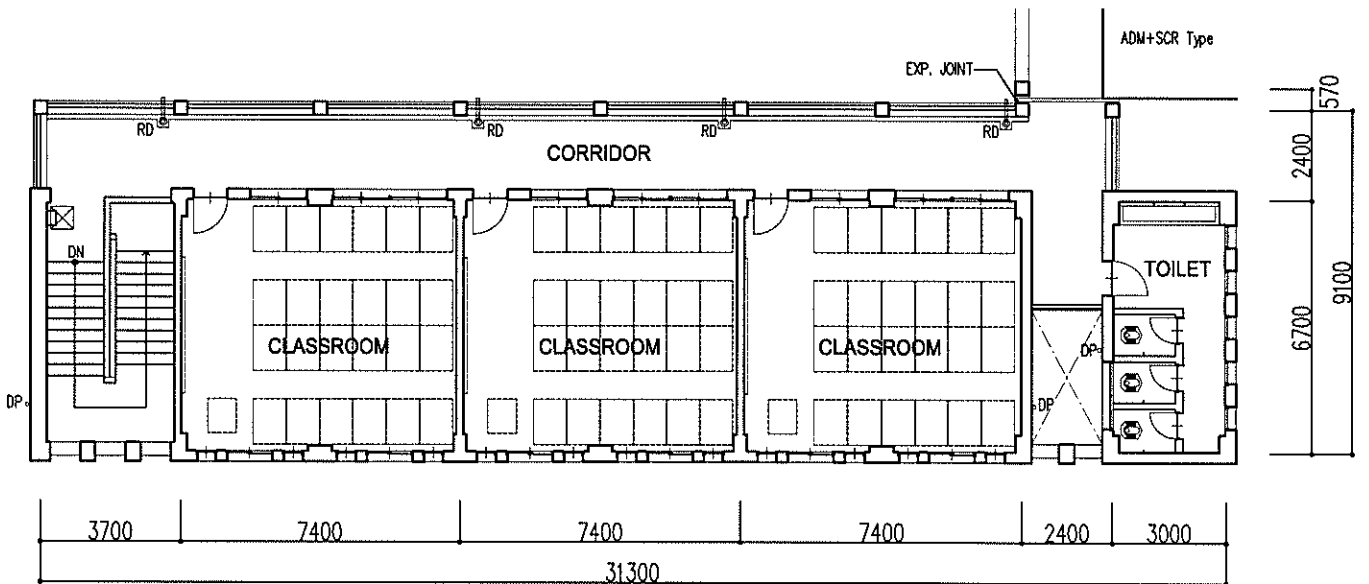
FIRST FLOOR PLAN



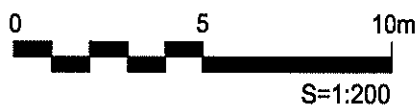
GROUND FLOOR PLAN



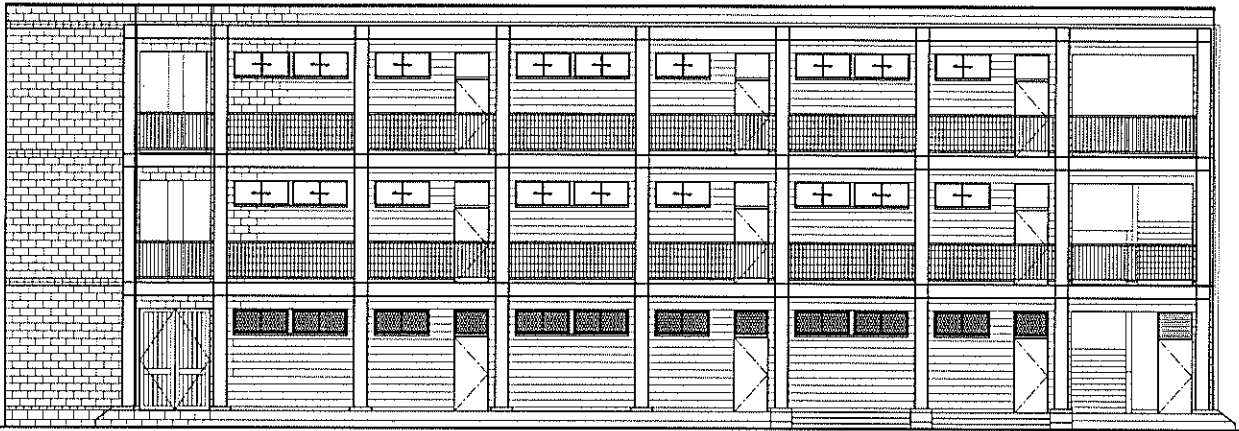
ROOF PLAN



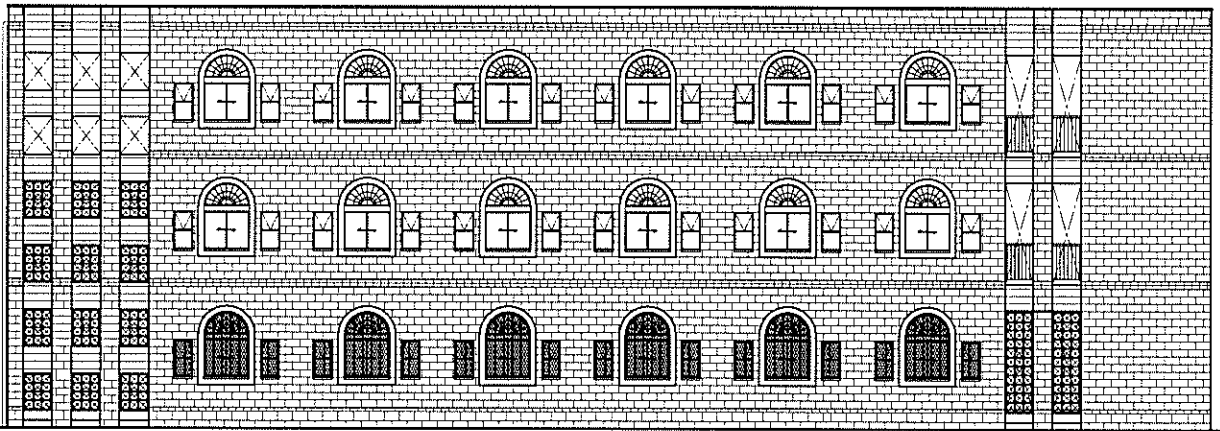
SECOND FLOOR PLAN



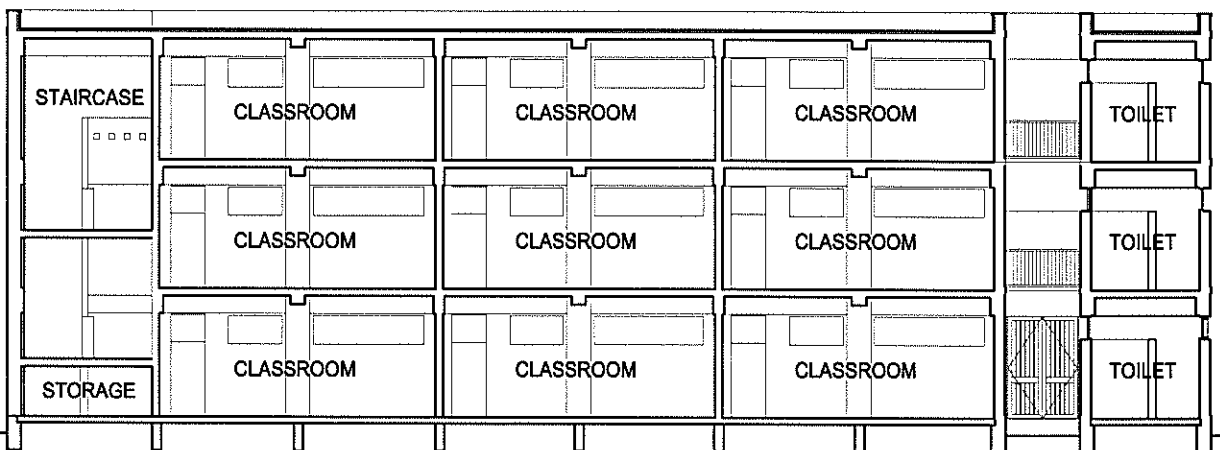
9CR + TLT (L) TYPE PLANS



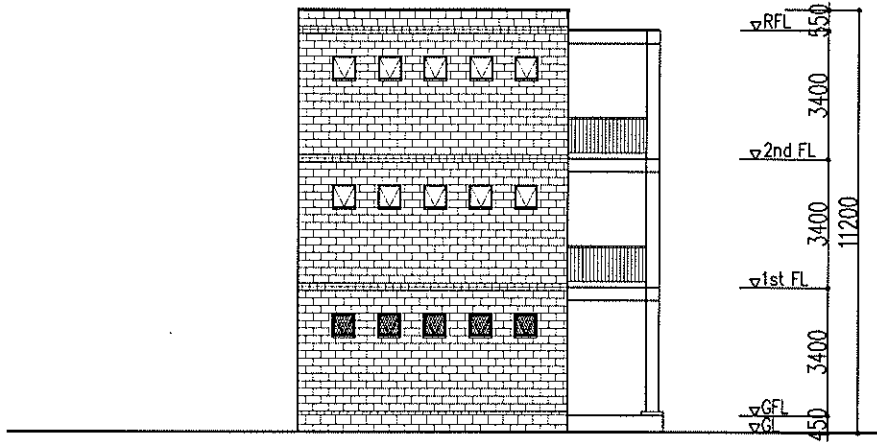
FRONT ELEVATION



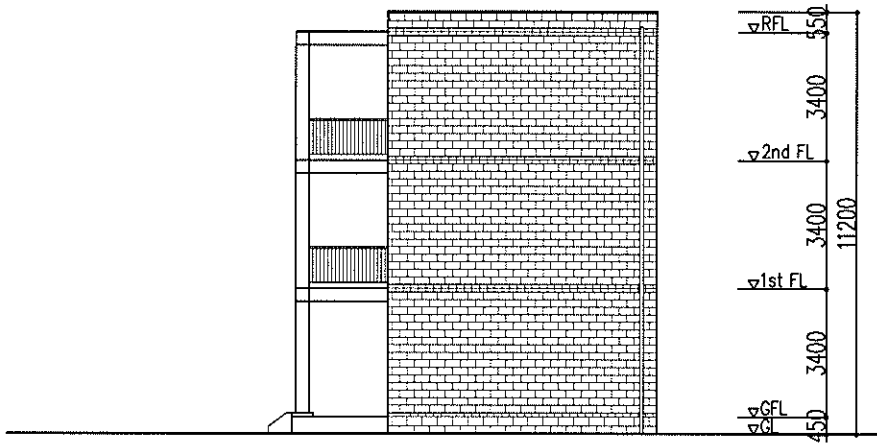
REAR ELEVATION



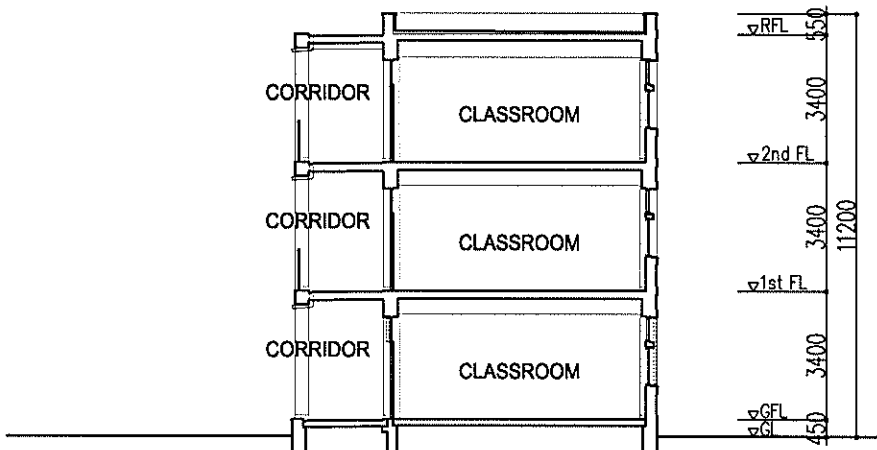
LONGITUDINAL SECTION



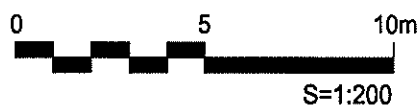
SIDE ELEVATION



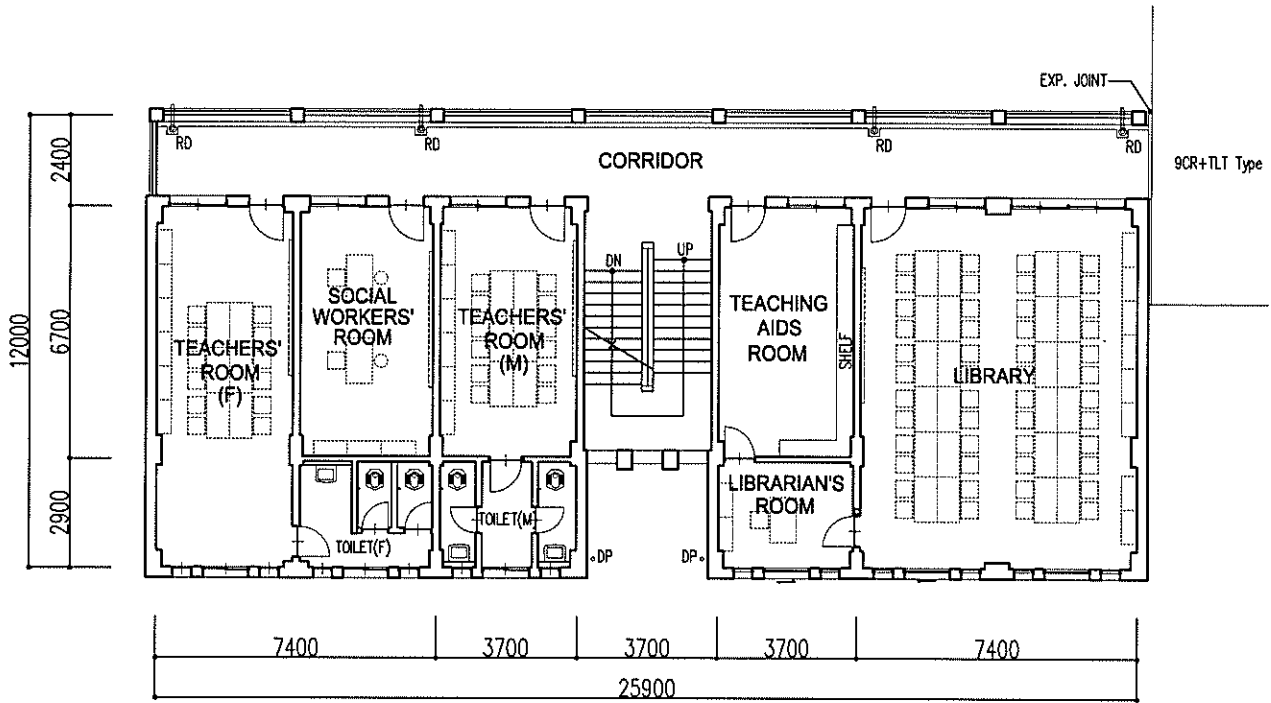
SIDE ELEVATION



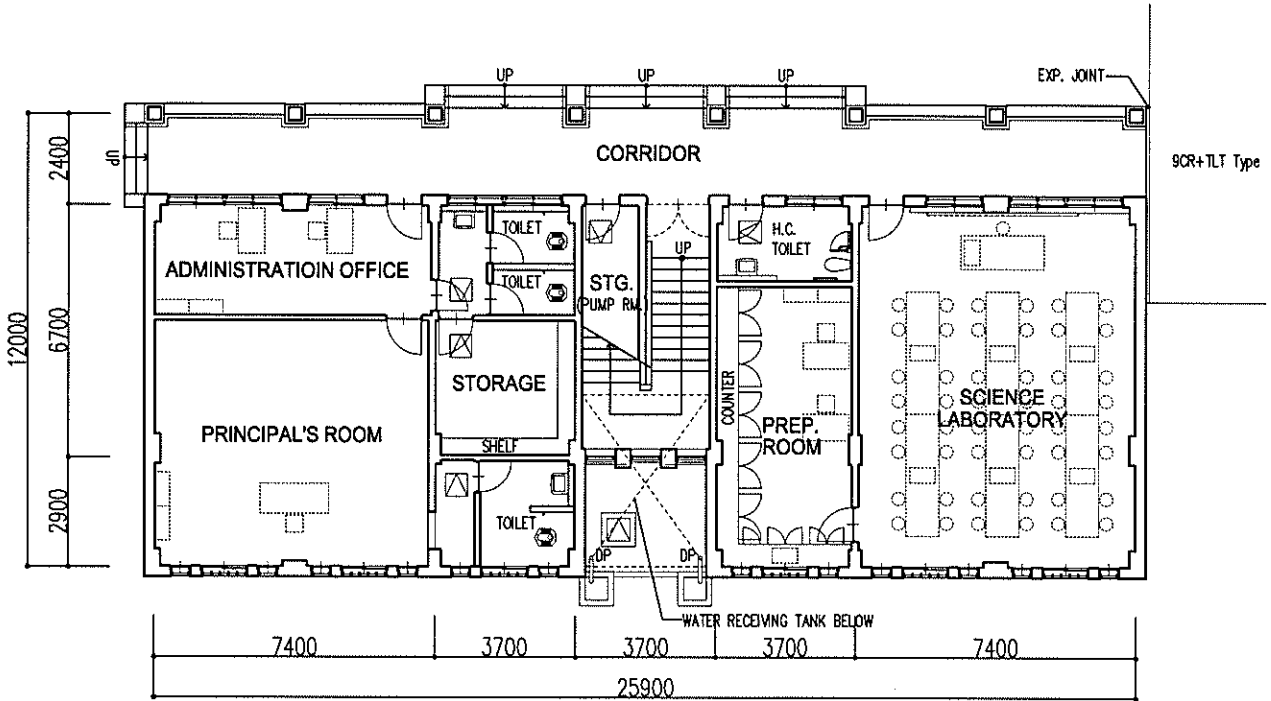
CROSS SECTION



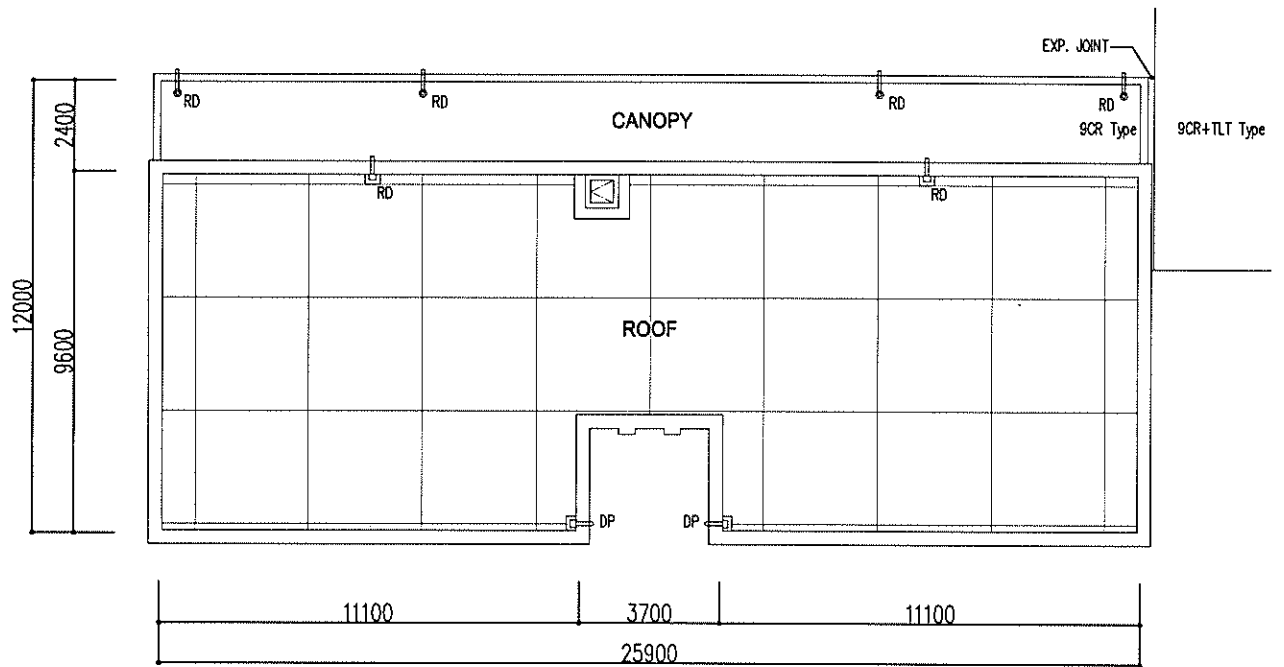
9CR + TLT (L) TYPE  
ELEVATIONS, SECTIONS



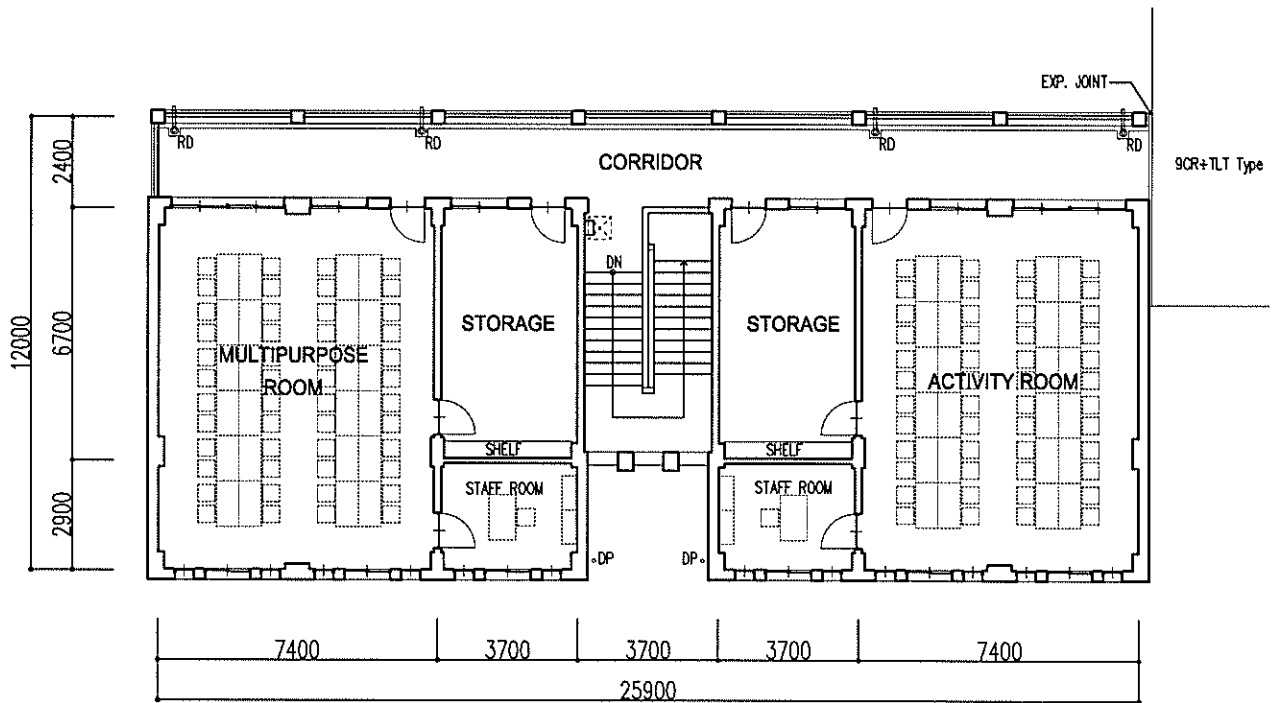
FIRST FLOOR PLAN



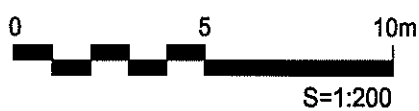
GROUND FLOOR PLAN



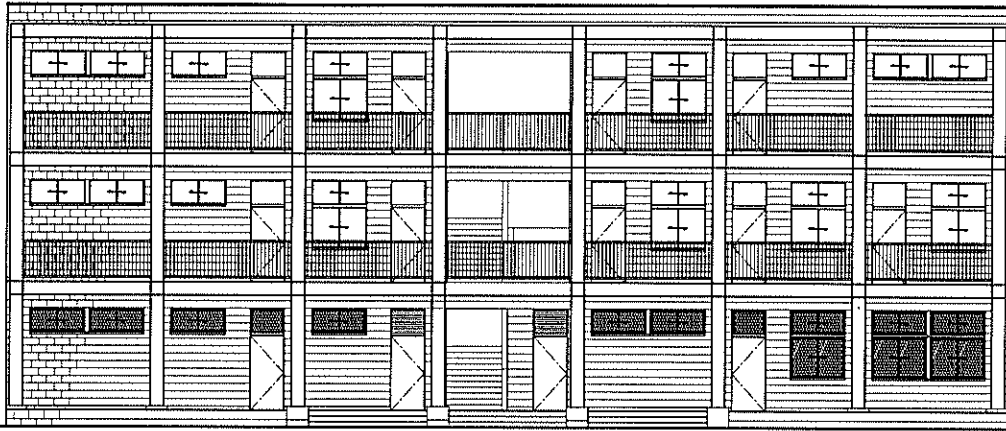
ROOF PLAN



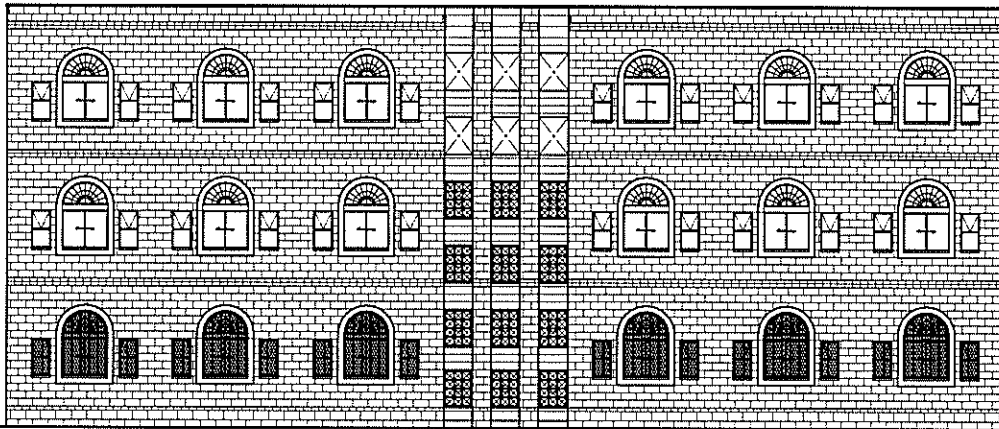
SECOND FLOOR PLAN



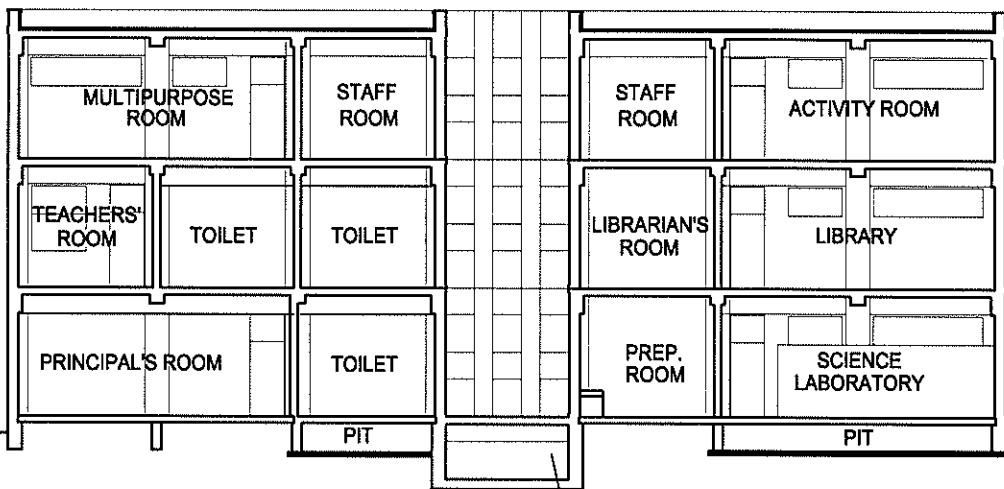
ADM+SCR (L) TYPE  
PLANS



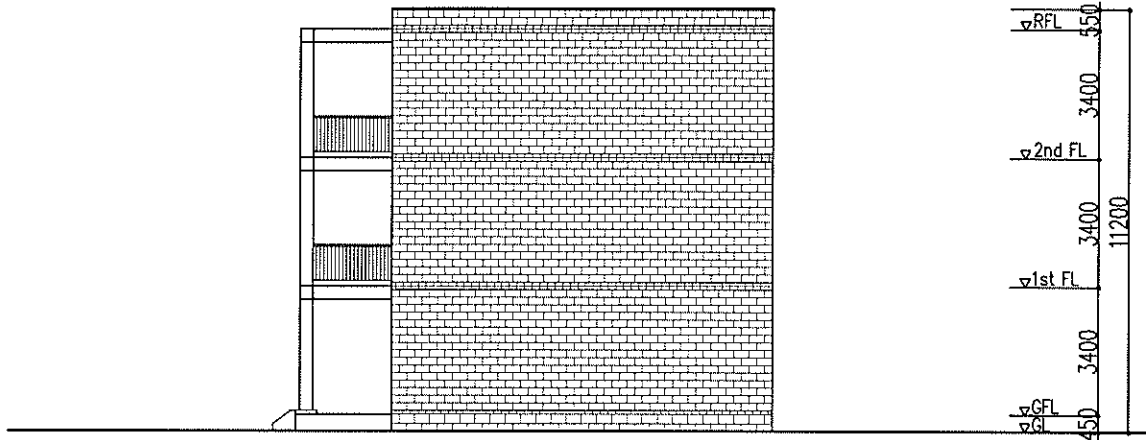
FRONT ELEVATION



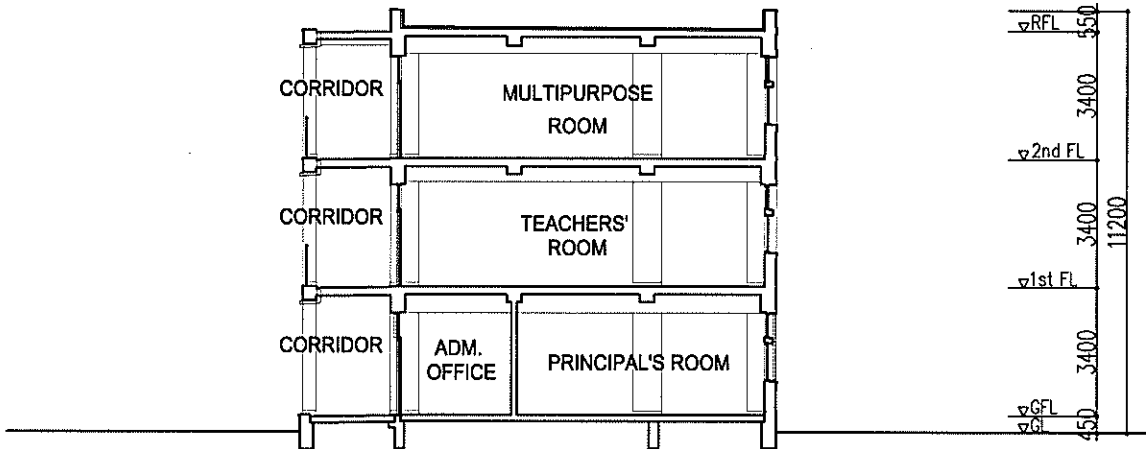
REAR ELEVATION



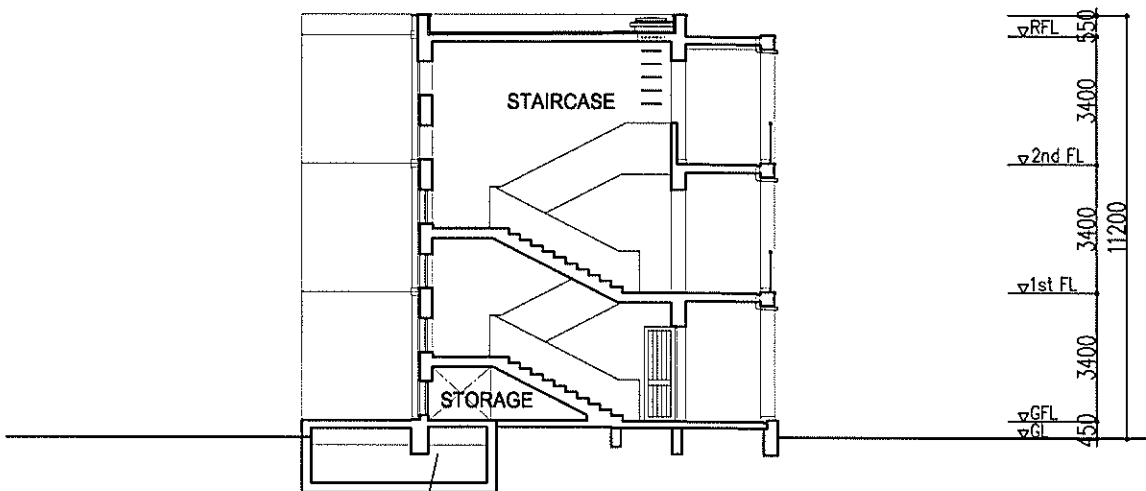
LONGITUDINAL SECTION



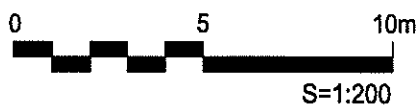
SIDE ELEVATION



CROSS SECTION

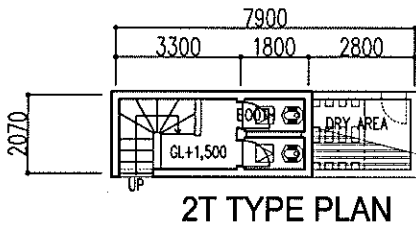


CROSS SECTION

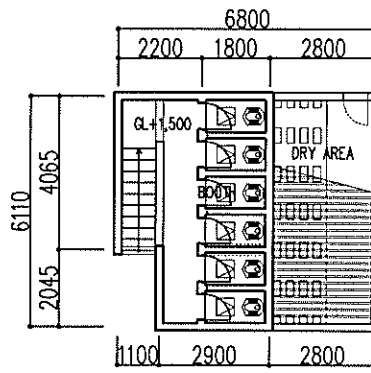


ADM+SCR (L) TYPE  
ELEVATIONS, SECTIONS

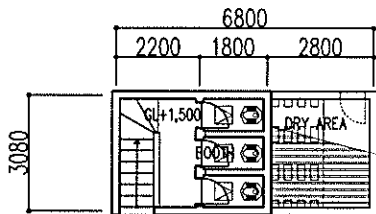




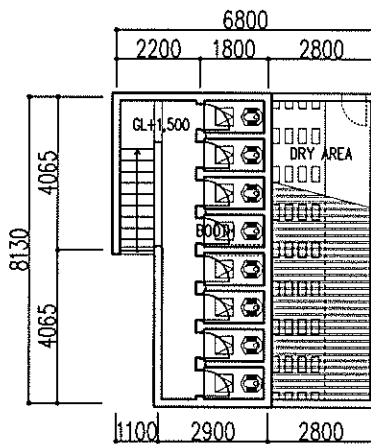
2T TYPE PLAN



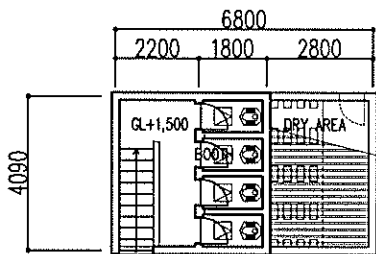
6T TYPE PLAN



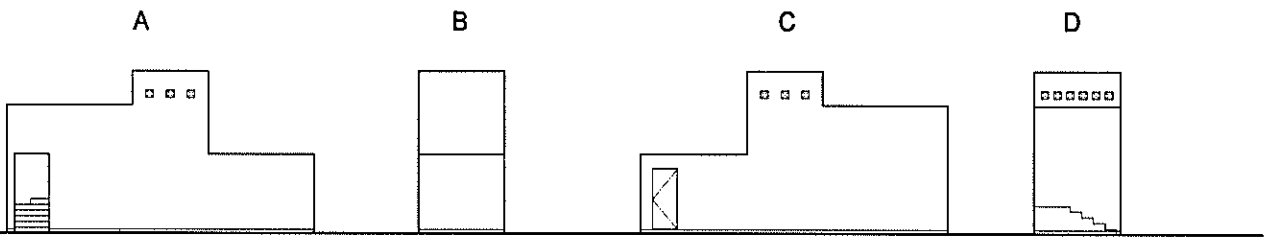
3T TYPE PLAN



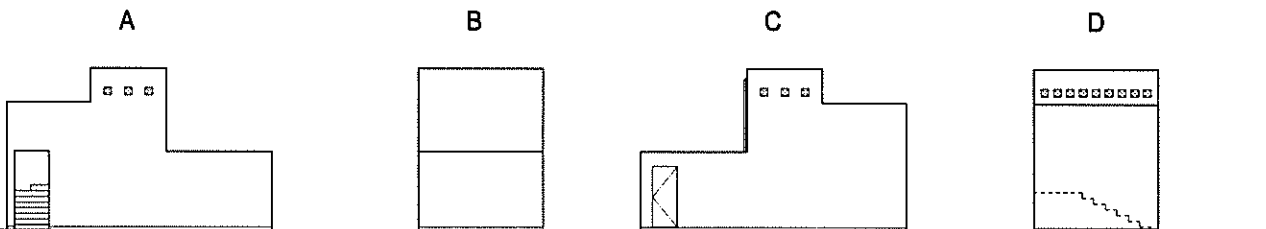
8T TYPE PLAN



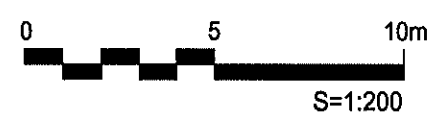
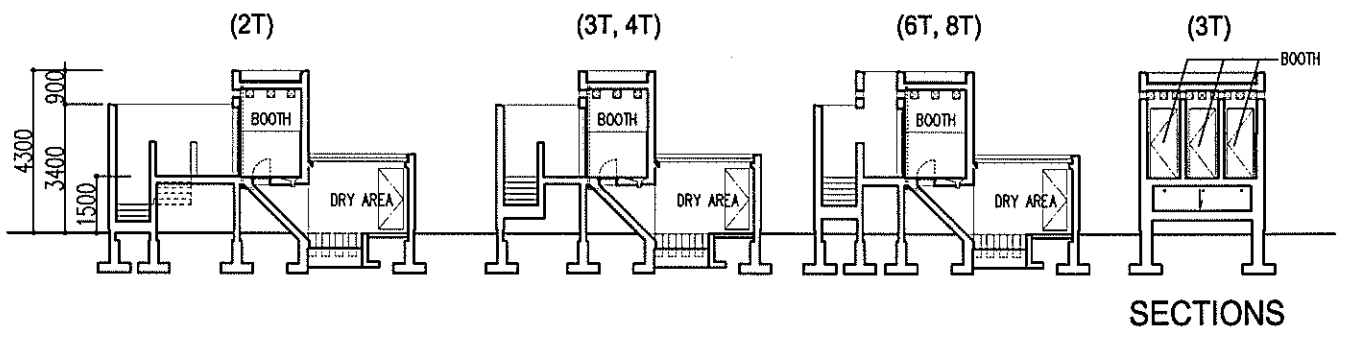
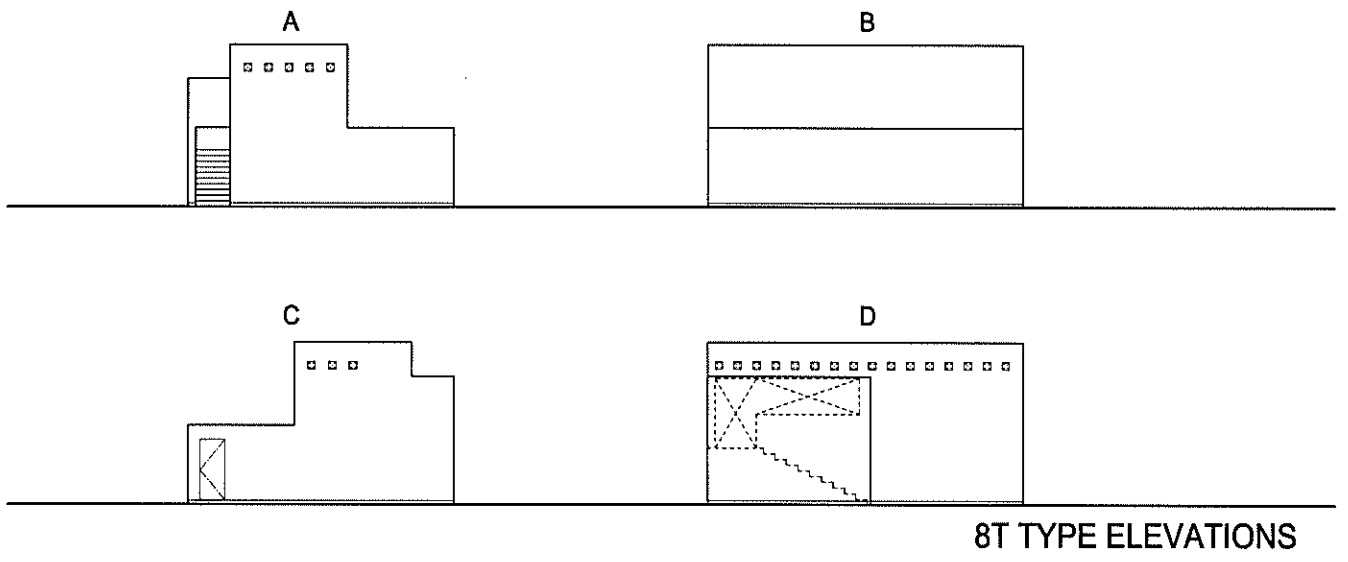
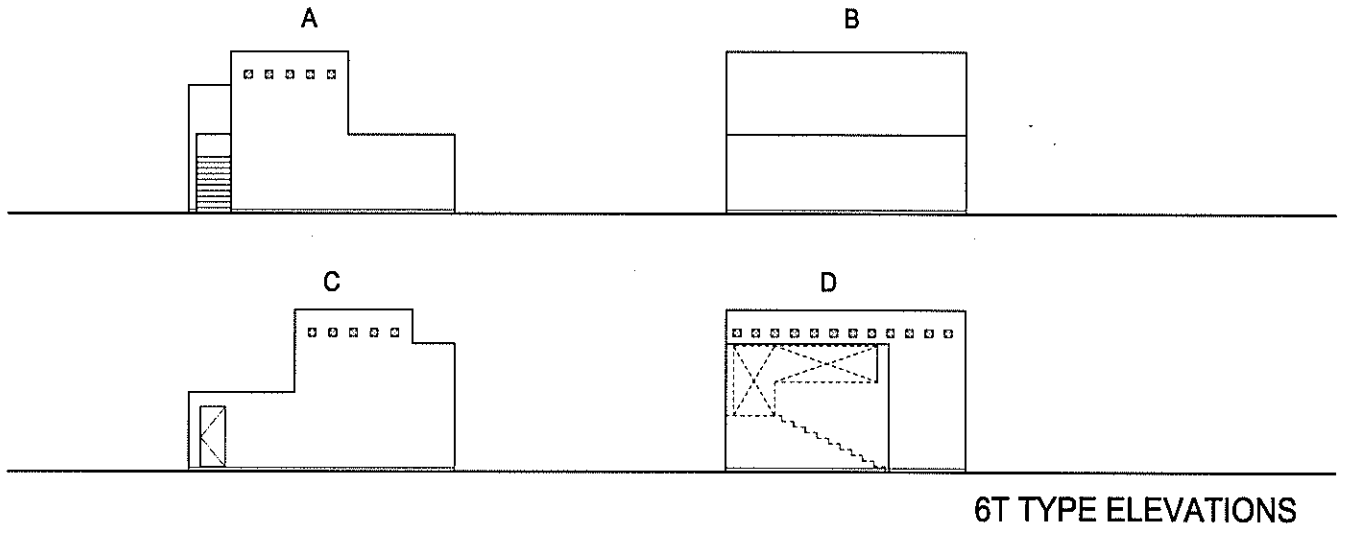
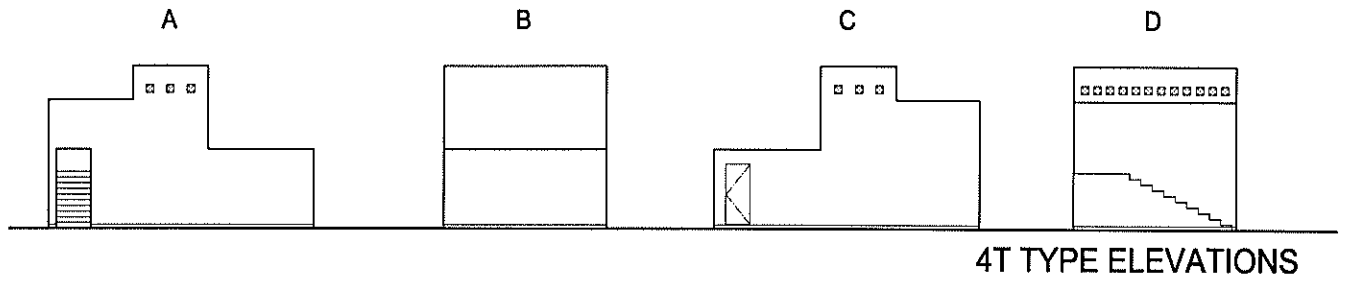
4T TYPE PLAN



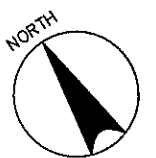
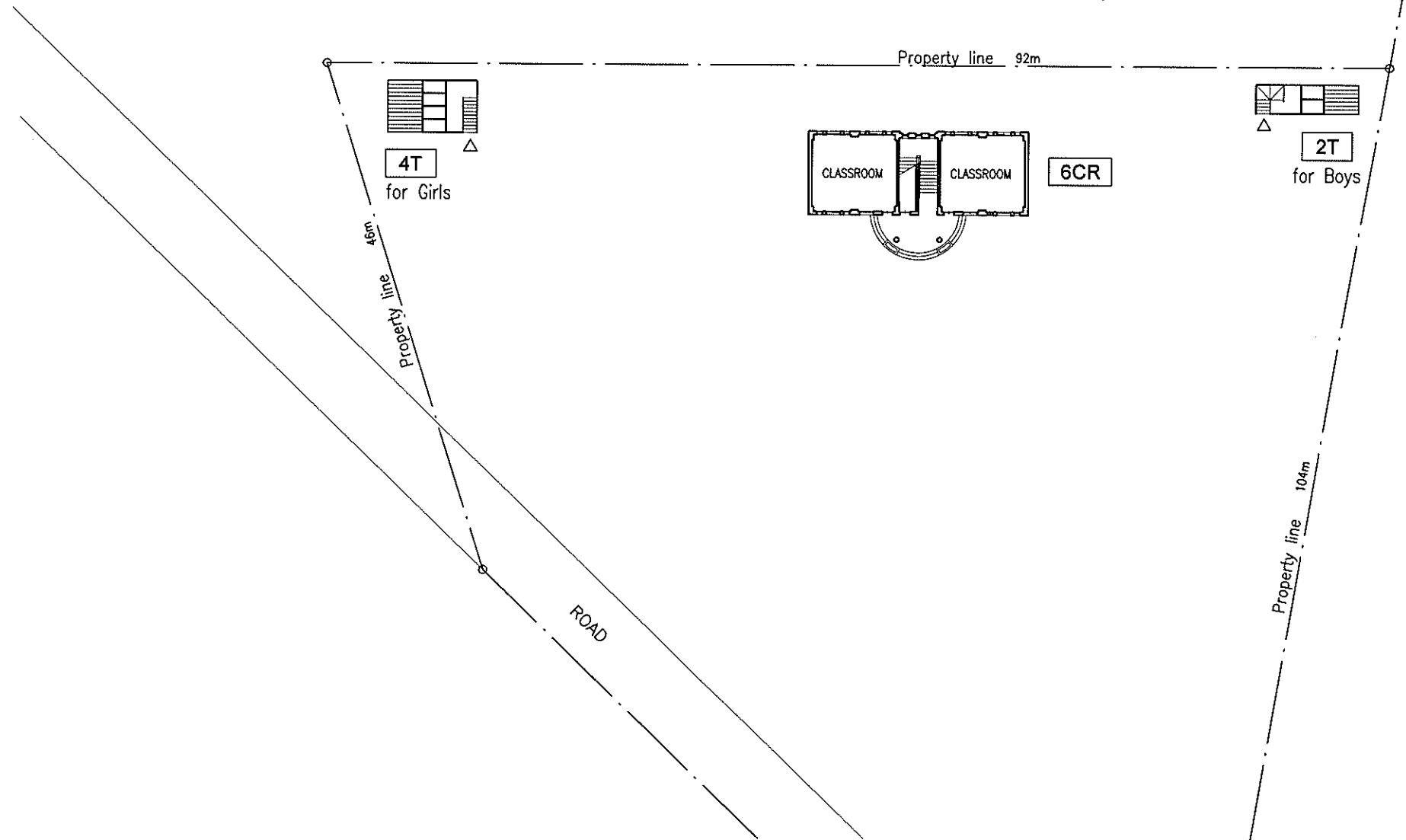
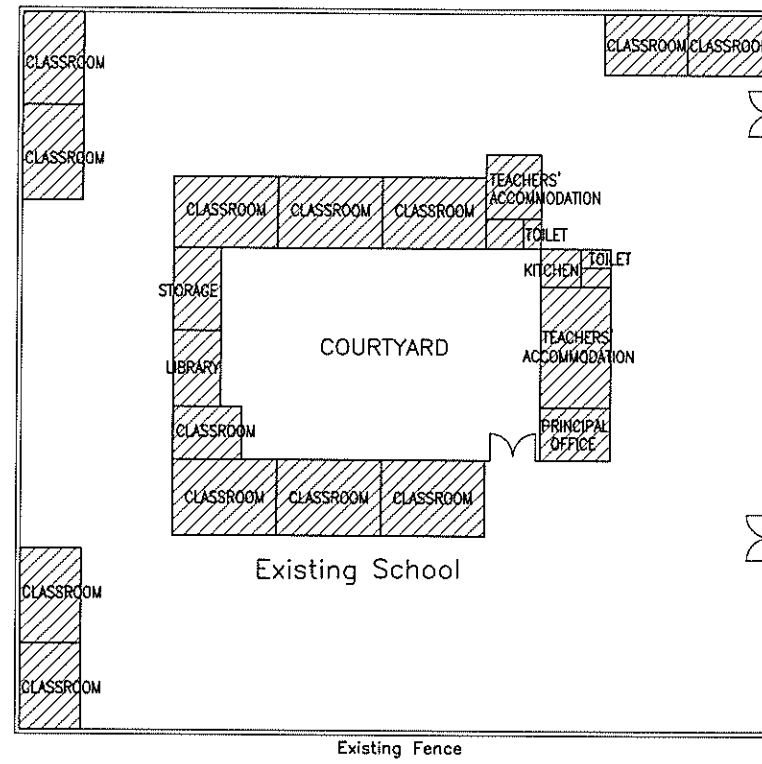
2T TYPE ELEVATIONS



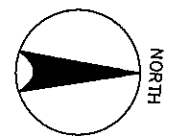
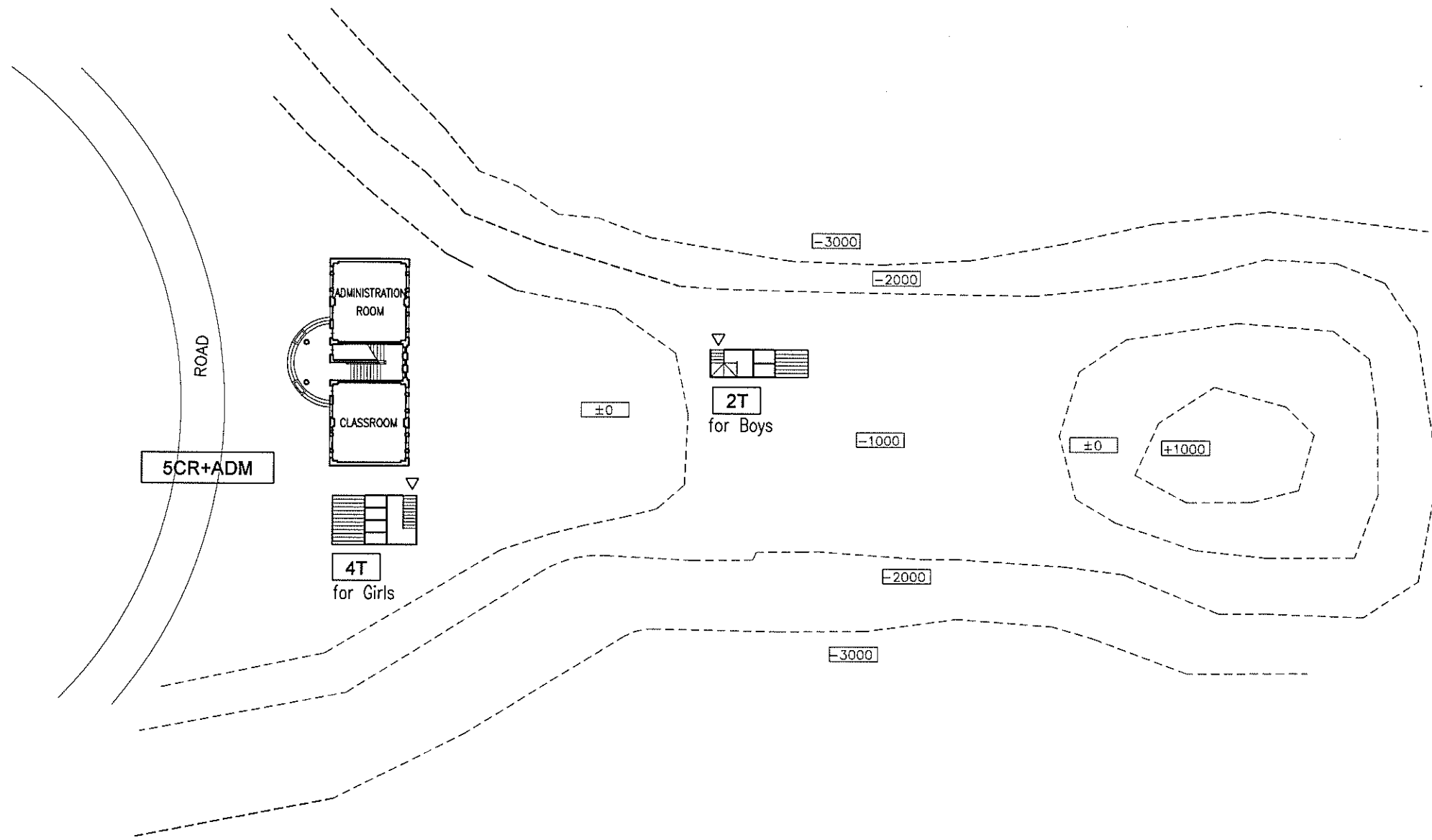
3T TYPE ELEVATIONS



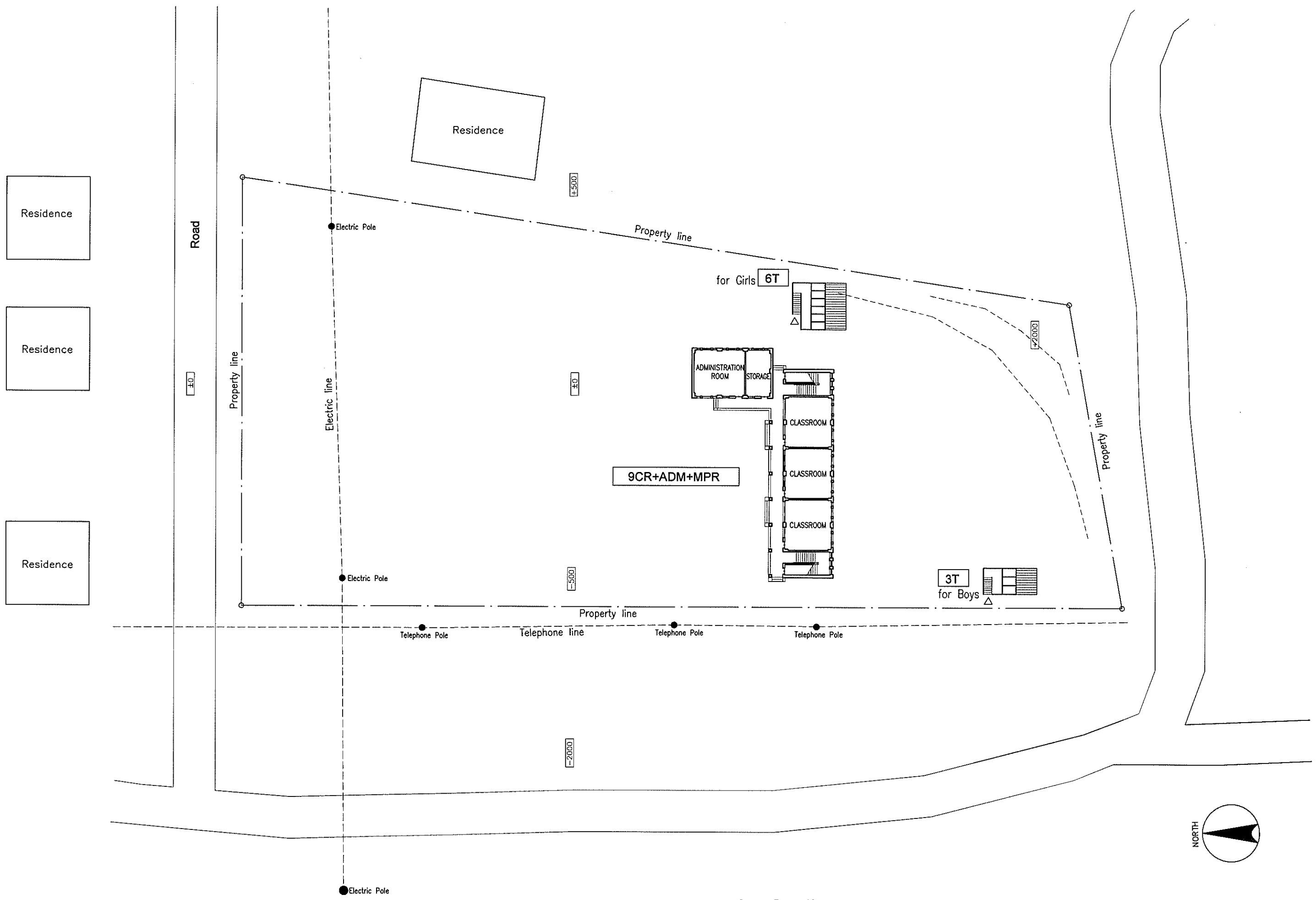
**TOILETS**  
PLANS, ELEVATIONS, SECTIONS



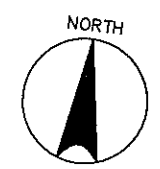
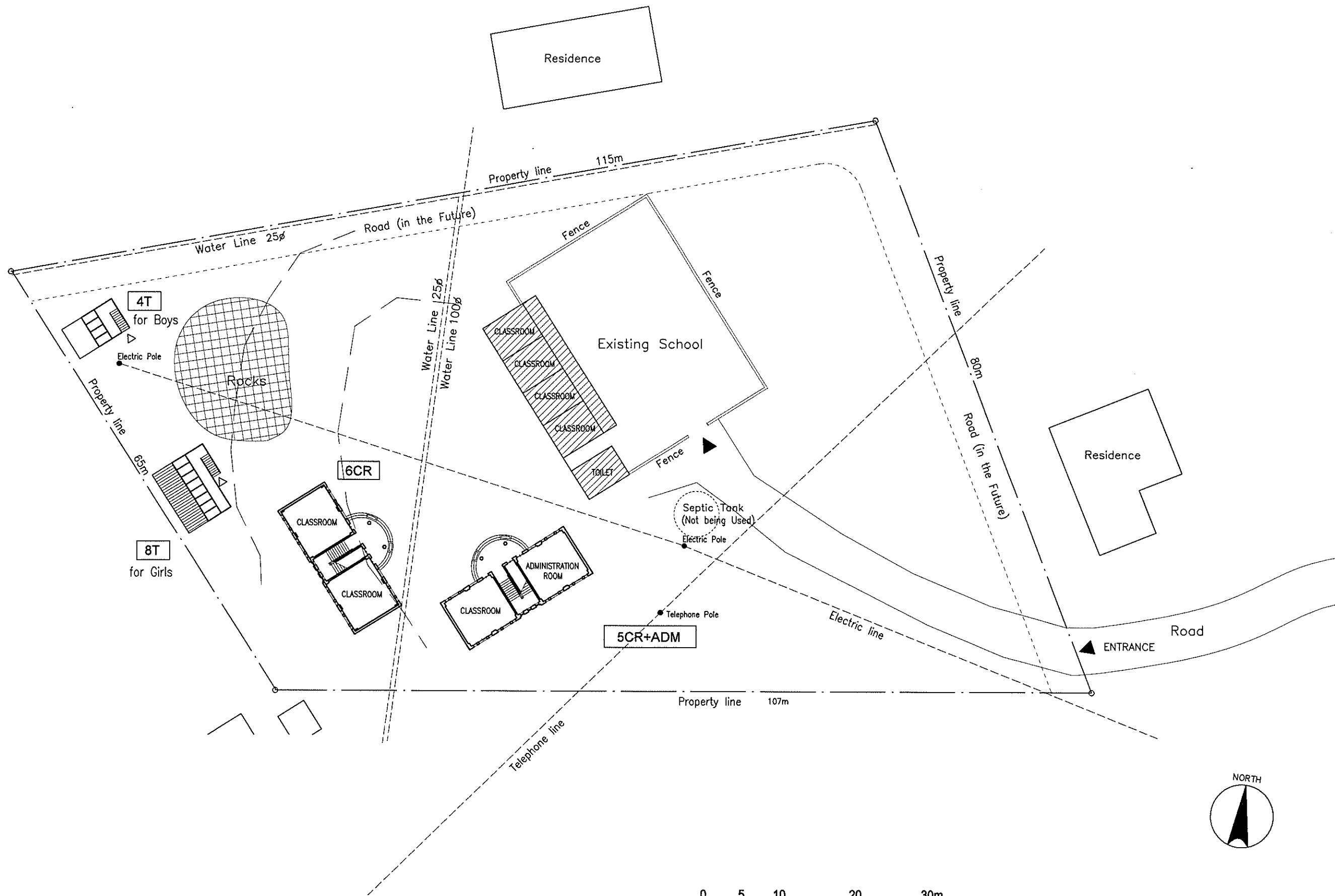
G-2 Al-Husain Bin Ali School  
SITE PLAN



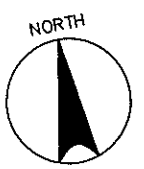
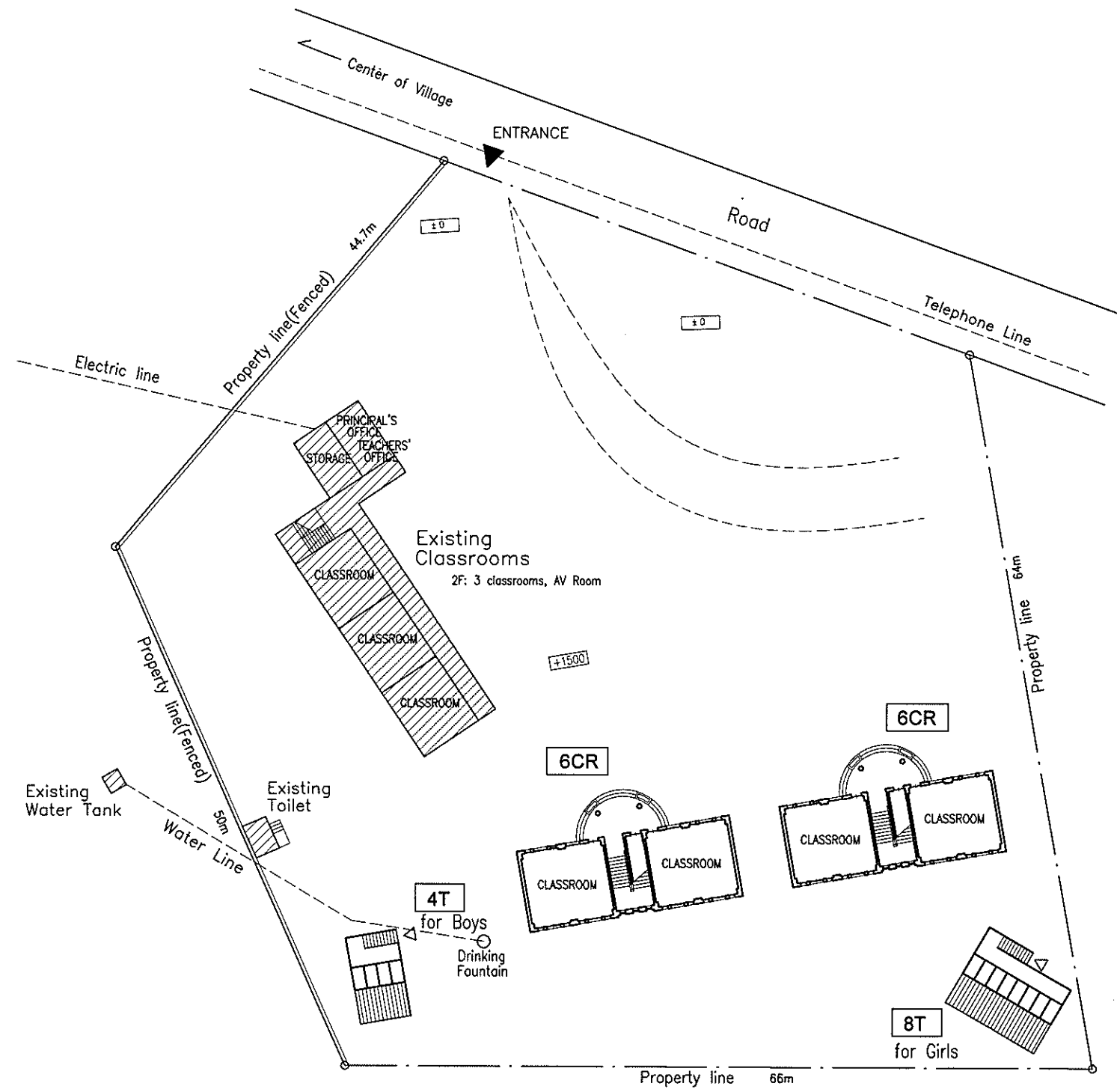
**G-4 Al-Nahdha Bait Jaber School  
SITE PLAN**



G-10 Al Mankkab Al-Rub'a School  
SITE PLAN

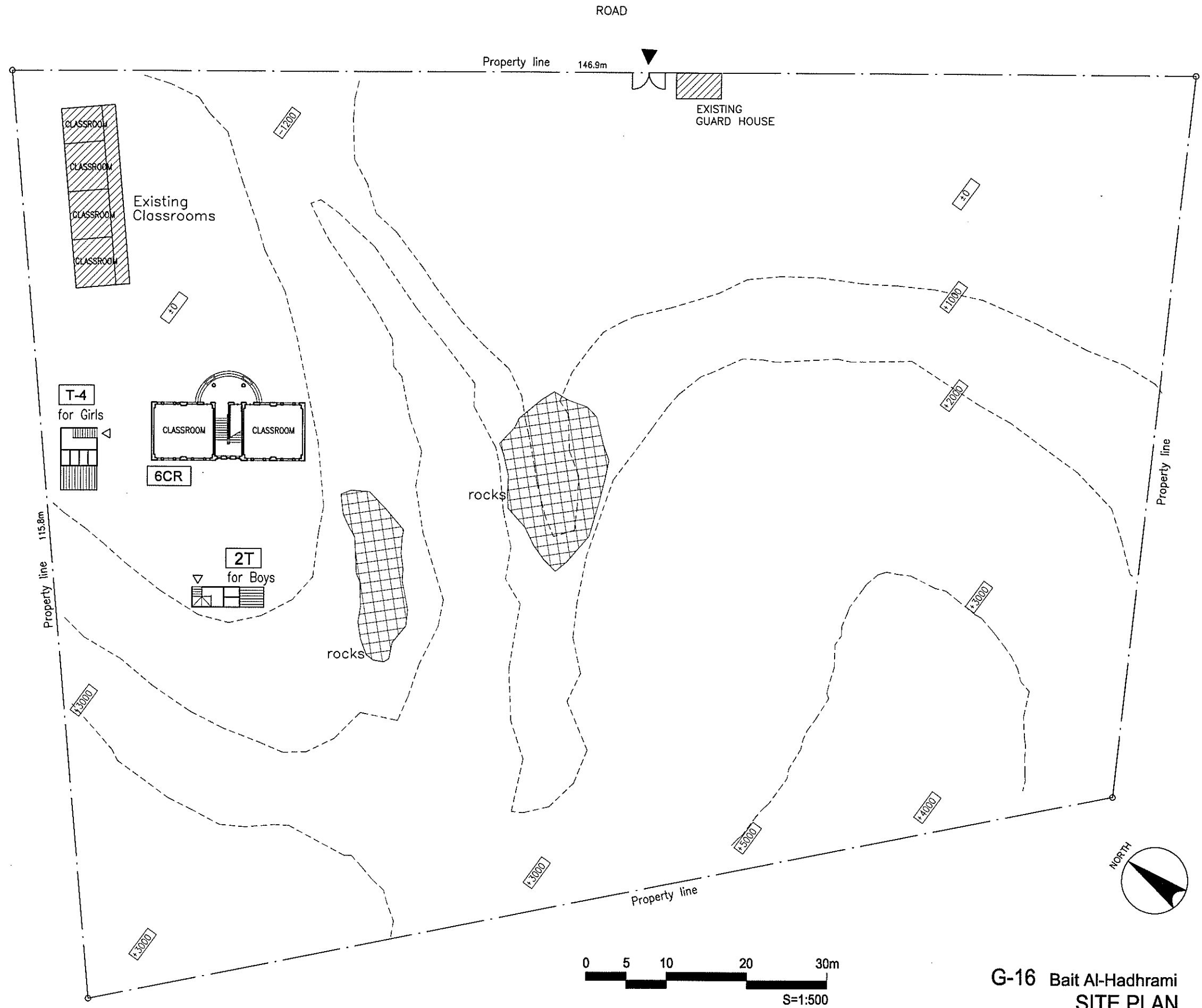


G-12 Al-Khaleg Al-Rub'a School  
SITE PLAN



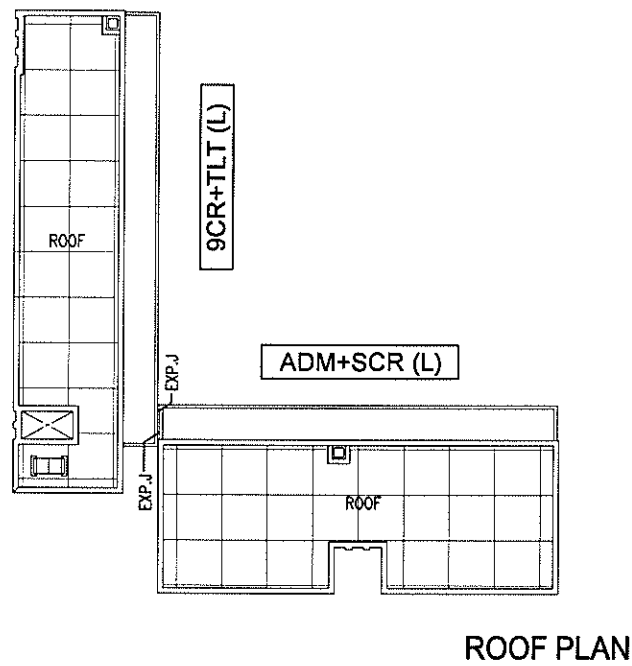
**G-13 Al-Shehid Ali Saleh Al-Hawri  
SITE PLAN**

Water Line (Not working)

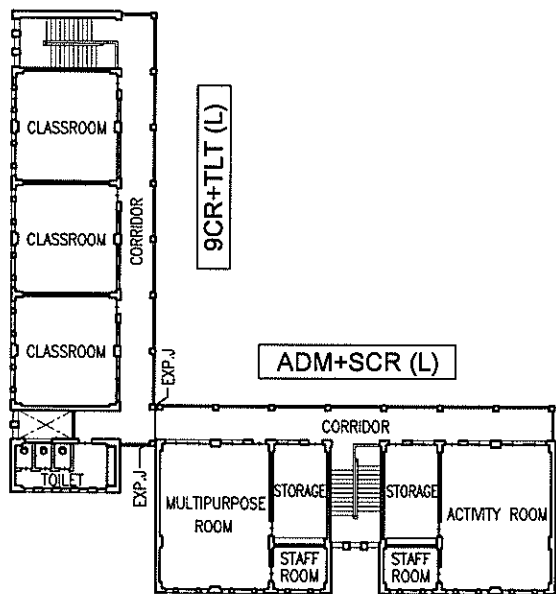


G-16 Bait Al-Hadhrami  
SITE PLAN

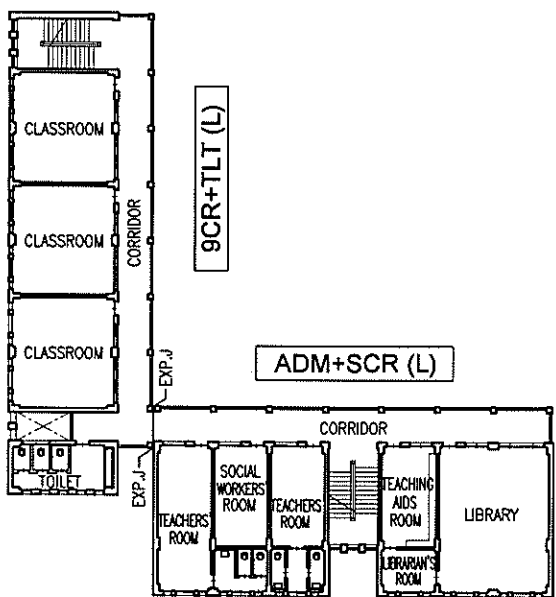




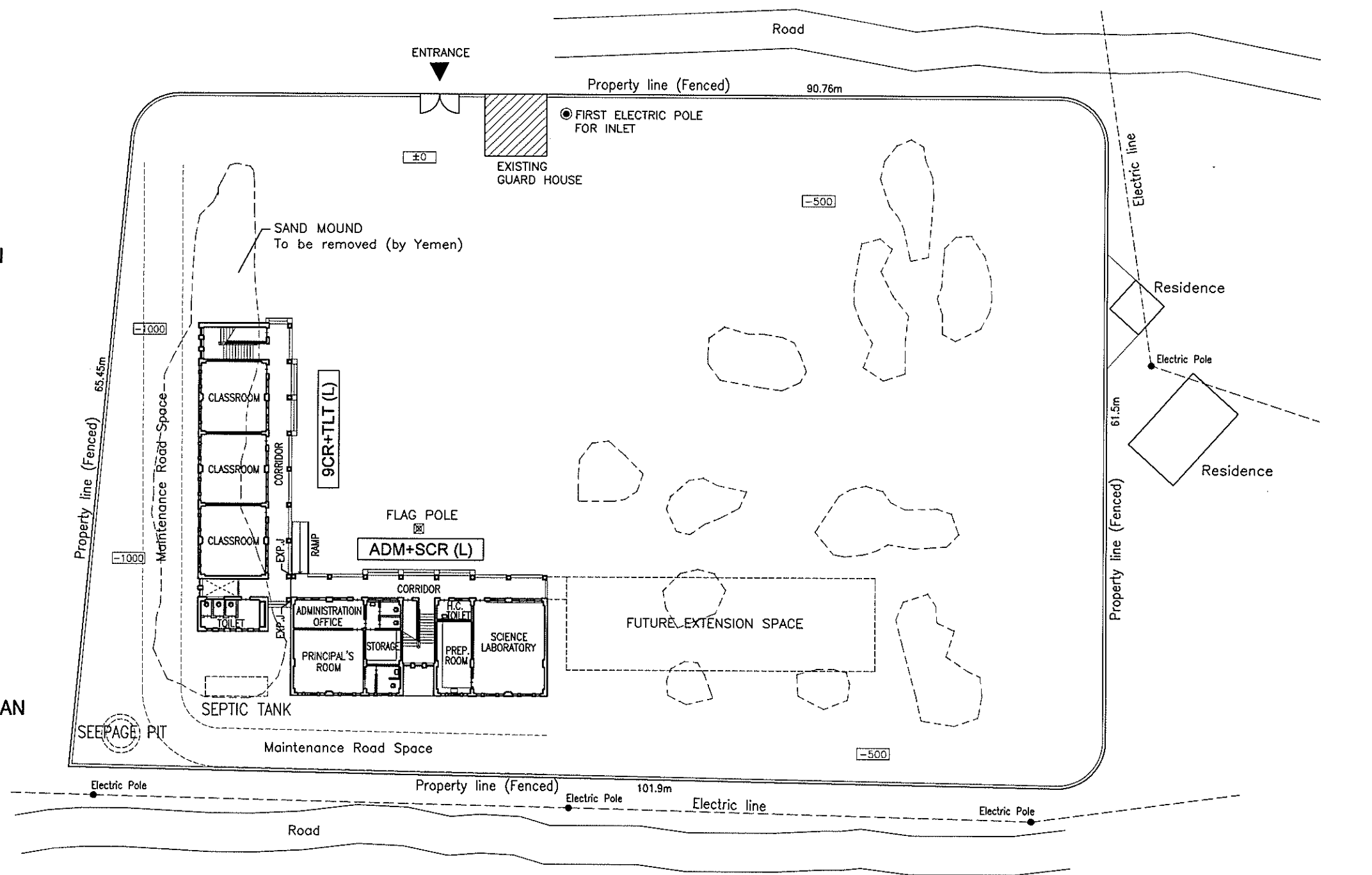
ROOF PLAN



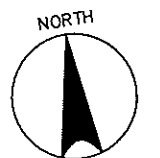
SECOND FLOOR PLAN



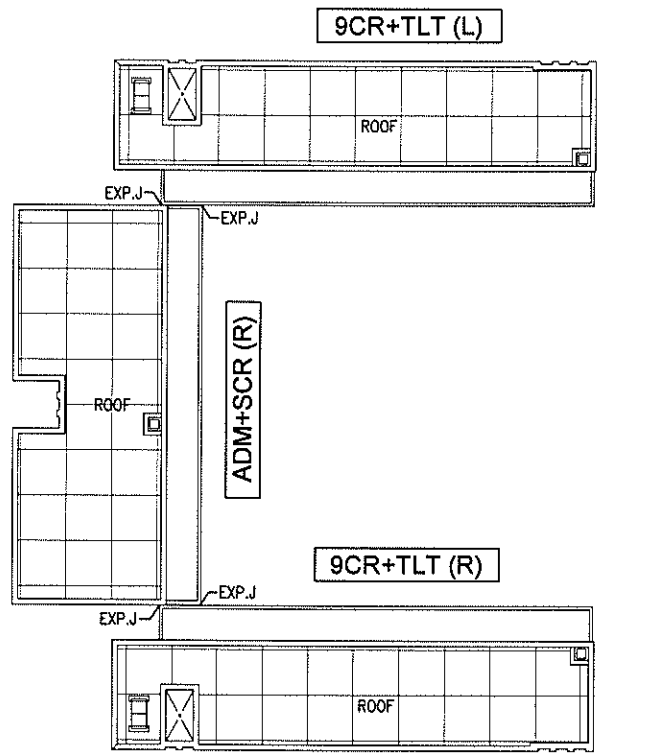
FIRST FLOOR PLAN



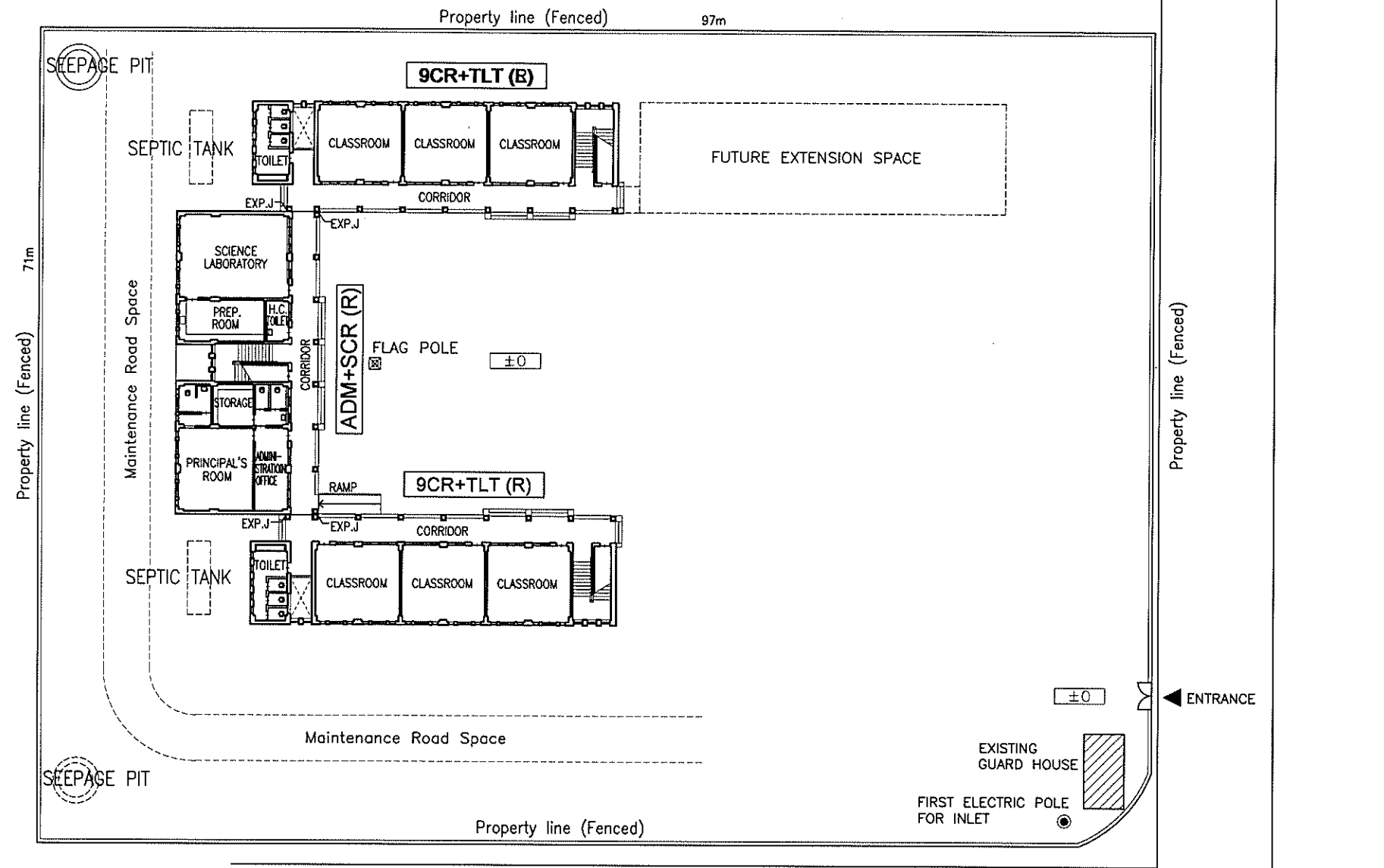
SITE PLAN & GROUND FLOOR PLAN



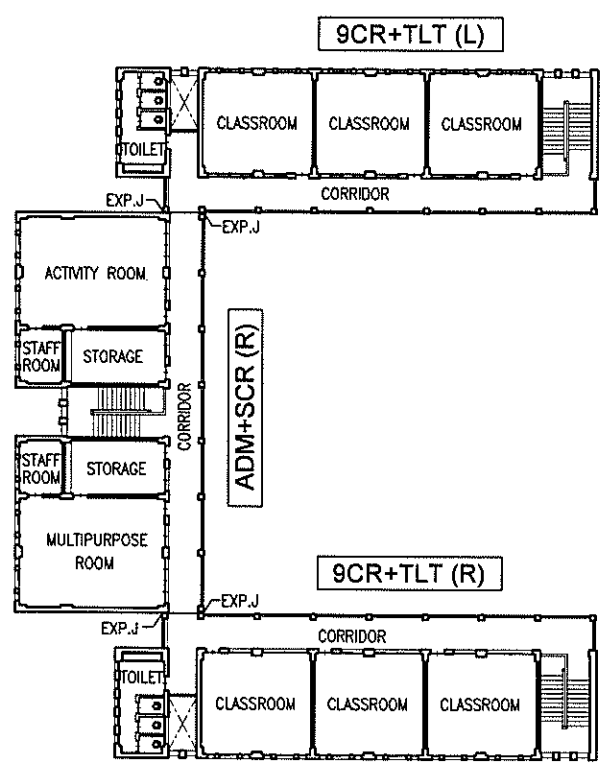
C-4 Neighboring Unit 666  
SITE PLAN, FLOOR PLANS



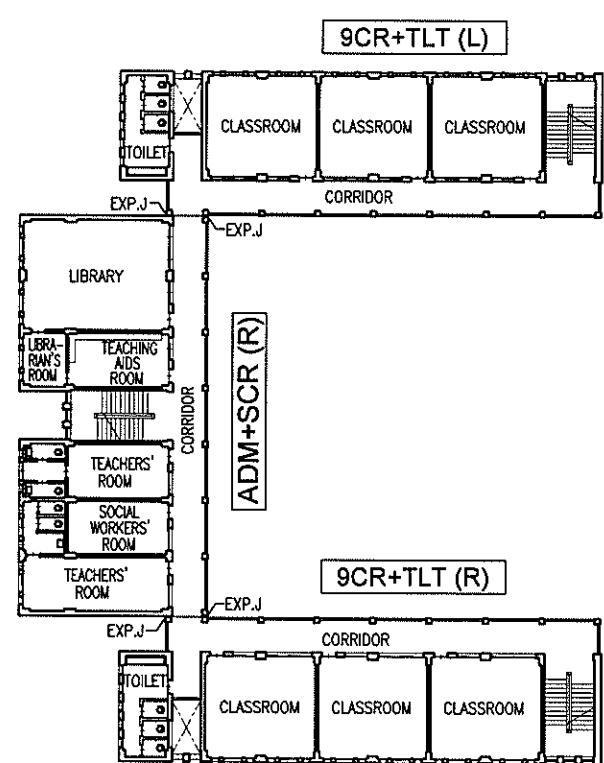
ROOF PLAN



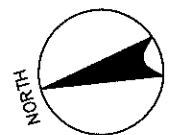
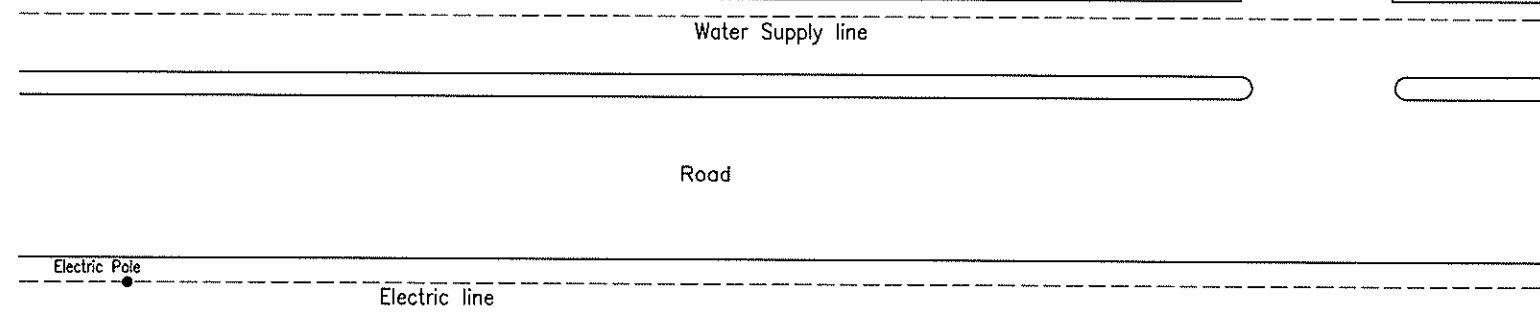
SITE PLAN & GROUND FLOOR PLAN



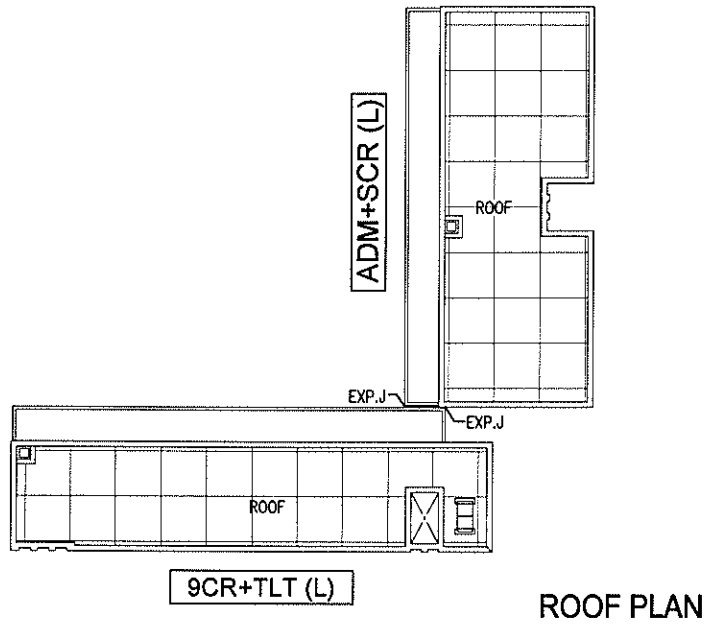
SECOND FLOOR PLAN



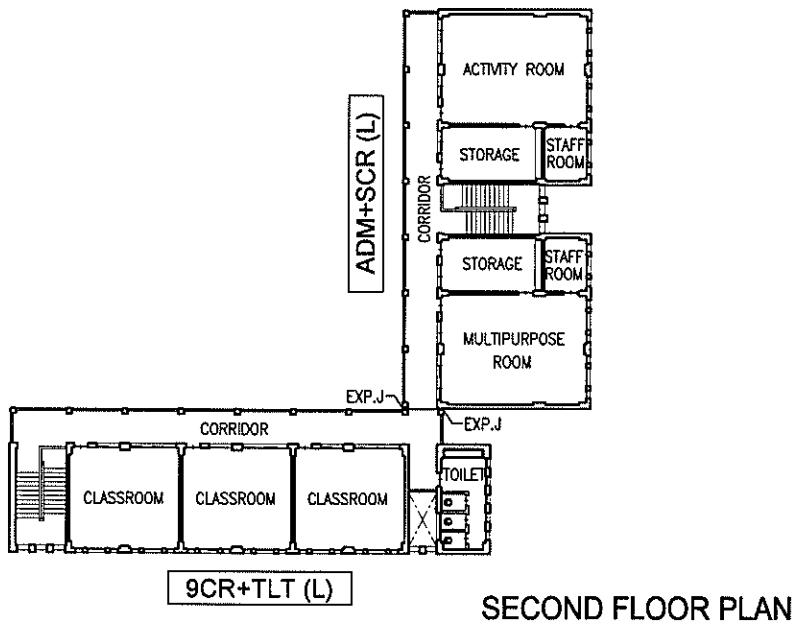
FIRST FLOOR PLAN



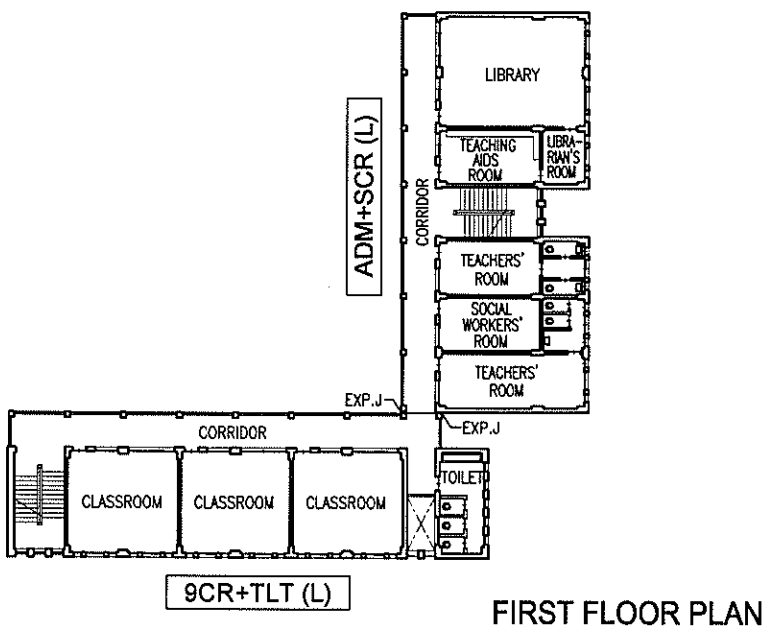
C-6 Neighboring Unit 843  
SITE PLAN, FLOOR PLANS



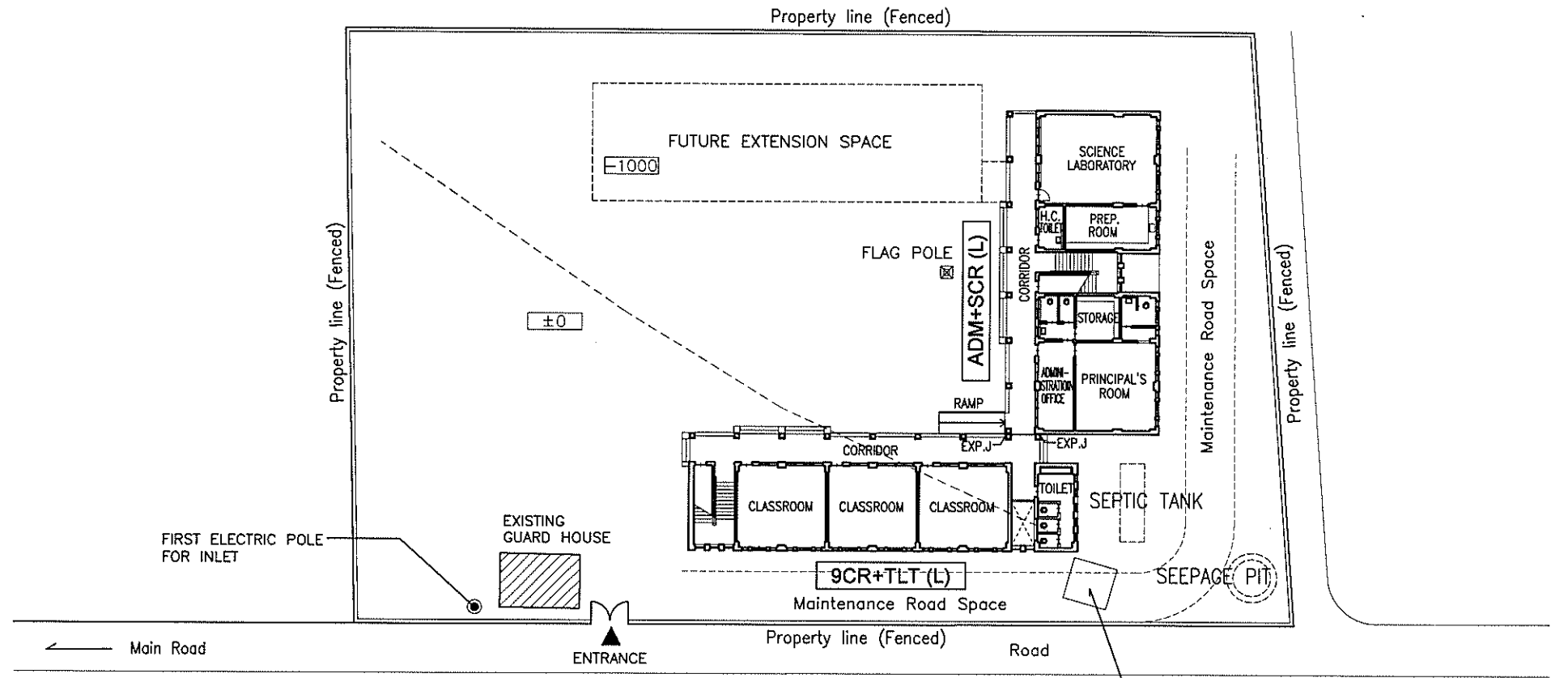
ROOF PLAN



SECOND FLOOR PLAN



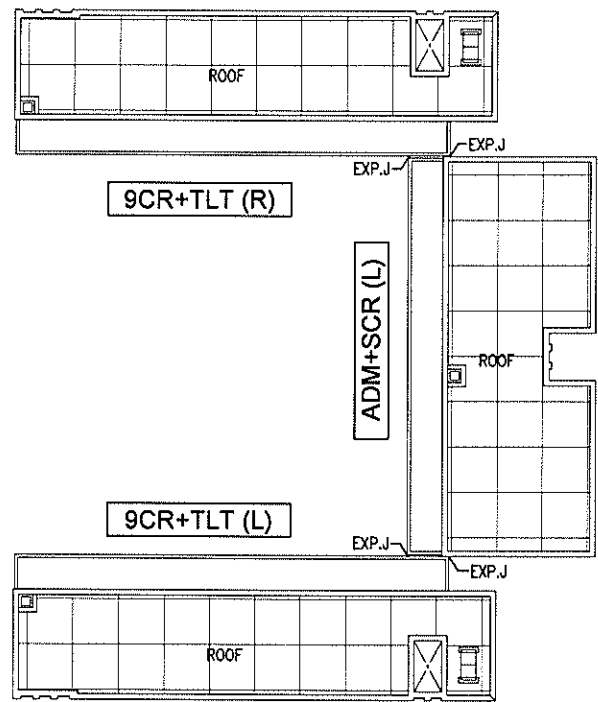
FIRST FLOOR PLAN



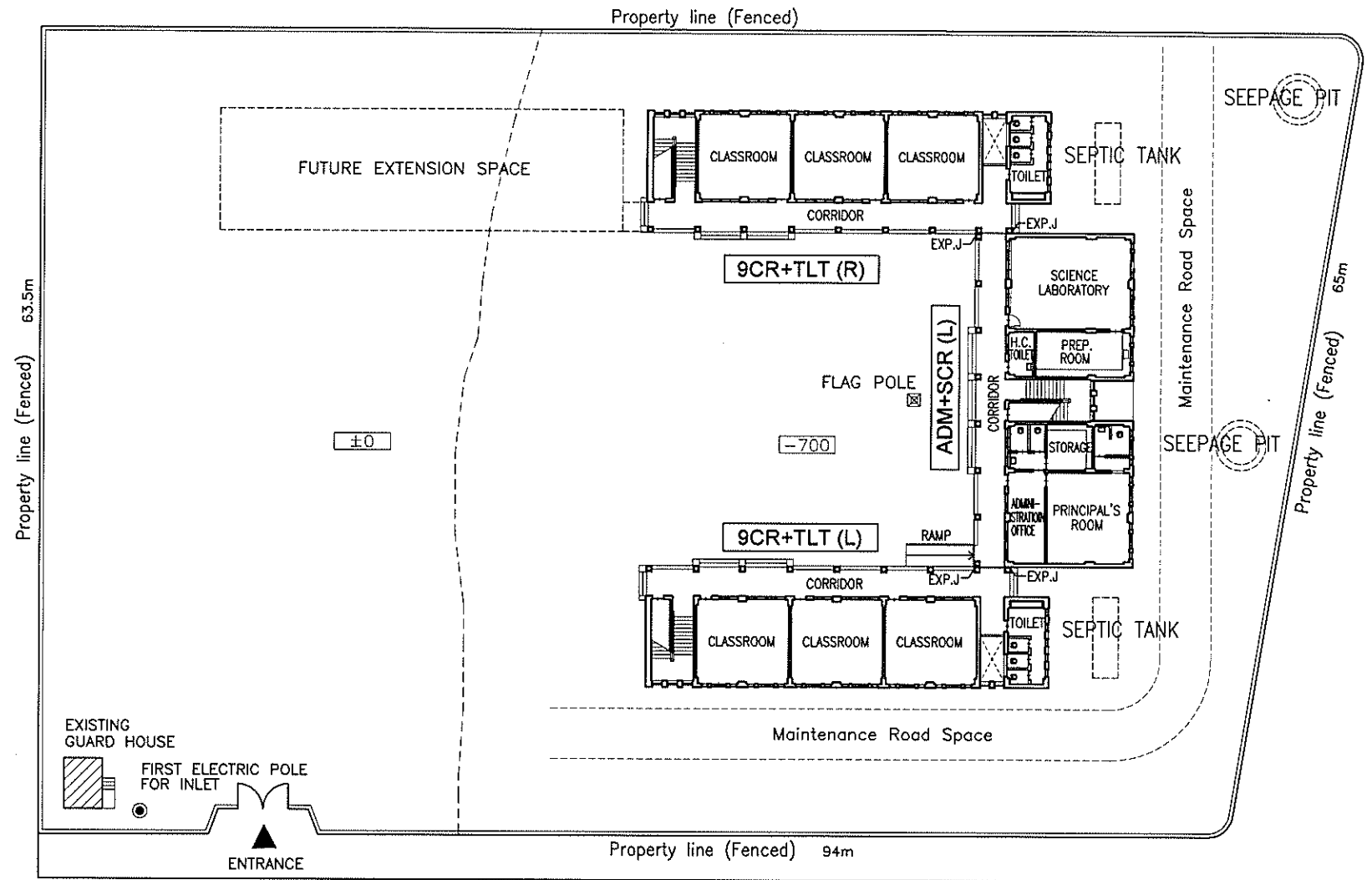
SITE PLAN & GROUND FLOOR PLAN



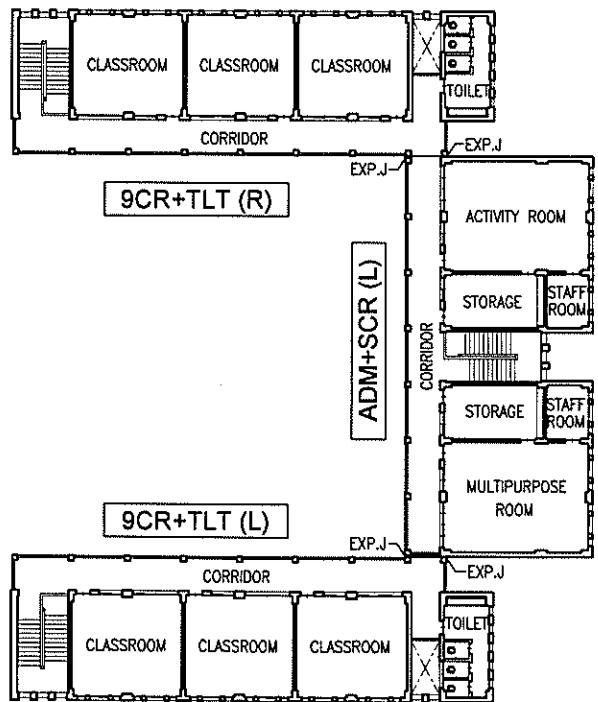
C-11 Bait Hanthal  
SITE PLAN, FLOOR PLANS



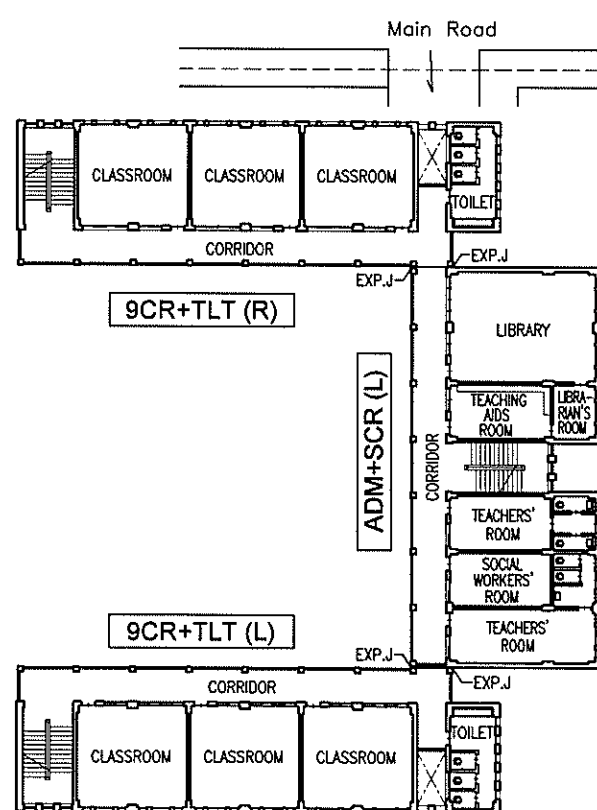
ROOF PLAN



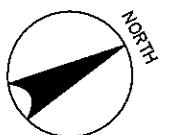
SITE PLAN & GROUND FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN



C-16 Neighboring Unit 369  
SITE PLAN, FLOOR PLANS

## **2-2-4 Implementation / Procurement Plan**

### **2-2-4-1 Implementation / Procurement Policy**

The aim of this Project is to construct the facilities for 10 schools and provide furniture within a specified period while utilizing local contractors and locally available materials as much as possible. It is necessary to prepare construction plans fully, taking into account the construction capabilities of the Yemeni side, local construction and material procurement.

#### **(1) Basic Matters for Project Implementation**

The Project is carried out in accordance with the Basic Design. After the review of the Basic Design by Japanese agencies related to the Project, an approval by the Cabinet of the Government of Japan is required for the Project implementation. After the approval, both countries sign the Exchange of Notes for the Project. Then the Project begins in accordance with the following principles:

- ① The Project shall use the funds financed by the taxes of the Japanese people and be implemented under the budgetary system of Japan.
- ② The Government of Yemen signs a contract agreement with a Japanese national consulting firm and entrusts the firm with preparing the detailed design of the Project based on this Basic Design, assisting the Yemeni side in selecting contractors for the Project construction and conducting construction supervision for the Project construction.
- ③ The Government of Yemen shall select a Japanese national prime contractor through competitive bidding with a pre-qualification evaluation process under the assistance of the above-mentioned Japanese consulting firm and sign a contract agreement with the contractor.

#### **(2) Basic Policies for Construction**

- ① To efficiently conduct construction within a limited time period and to employ local consultants and contractors who are familiar with local construction and material procurement as much as possible.
- ② To efficiently conduct construction under strict safety standards and quality control, as well as adhere to strict management of the construction schedules. Also, to transfer to the Yemeni side the knowledge and practice of the Japanese constructor in regards to relevant management and other standards and procedures.

- ③ To use, as much as possible, construction materials, equipment and furniture, which are locally manufactured or imported but easily available in the local market, for the purpose of simple and economical maintenance of completed facilities provided in the Project.

### **(3) Structure for the Project Implementation**

The Ministry of Education takes overall responsibility for the Project and the Project and Equipment Sector manages the Project. In particular, they are in charge of the following items:

- ① The signing of and paying of fees for the Project's bank account
- ② The opening of and paying into the Project's bank account
- ③ The issuing of the Authorization to Pay (A/P)
- ④ The approval of all necessary designs and documents
- ⑤ The supervision of the Department of Project Planning, which is in charge of the implementation of the Project
- ⑥ The acquisition of budget and the allocation of funds to the Yemeni side for work done
- ⑦ The issuing of the Certificates, such as the Certificate of Completion

Under the supervision of the Project and Equipment Sector, the Department of Project Planning is in charge of the following items:

- ① The acquisition of building permits
- ② The reconfirmation of the right to use the land and the decision of the property line
- ③ The implementation of construction work covered by the Yemeni side

## **2-2-4-2 Implementation Conditions**

10 Project schools are in Sana'a City and Sana'a Governorate, and it is necessary to prepare adequate construction plans to suit the area conditions. The following are policies regarding preparation of the construction plans.

### **(1) Division of Construction Periods**

The construction plans, which include approximately 12,981 m<sup>2</sup> of total floor area, are divided into 2 stages over two fiscal years. The scale of the construction work per Project school is small in Sana'a Governorate while that of Sana'a City is large. Therefore, In order to equalize the size of construction work between two stages, each

stage covers the half of the 6 Project schools in Sana'a Governorate and half of the 4 Project schools in Sana'a City. Table 2-14 shows the Project schools in each construction stage.

**Table 2-14 Project Schools and Classrooms in Each Construction Stage**

|  | 1 <sup>st</sup> stage  | 2 <sup>nd</sup> stage   | Total |
|--|--|---|-------|
| Name of the Project School<br>(No. of classrooms to construct) | G2 Al-Husain Bin Ali School (6)*<br>G4 Al-Nahdha Bait Jaber School (5)<br>G10 Al-Mankab Al-Rub'a School (9)<br>C11 Bait Hanthal (9)<br>C16 Neighboring Unit 369 (18) | G12 Al-Khaleg Al-Rub'a School (11)<br>G13 Al-Shehid Ali Saleh Al-Hawri (12)<br>G16 Bait Al-Hadhrami School (6)<br>C4 Neighboring Unit 666 (9)<br>C6 Neighboring Unit 843 (18) |       |
| No. of Schools   | 5  | 5   | 10    |
| No. of Classrooms to be constructed                            | 47   | 56  | 103   |

\* The number in ( ) shows the number of classrooms

## (2) Schedule Planning

Construction work includes that of architecture, equipment and furniture, and it is necessary to implement procurement of necessary materials and labor according to the construction schedule. Since various construction works are implemented in parallel, oversight and control of all the works may be quite complicated.

## (3) Preparation Work by the Yemeni side Prior to Construction

Some Project school sites require cutting, filling and grading of the lands by the Yemeni side prior to the Project construction. The above-mentioned works shall be conducted without delay so that the Project construction is not affected.

## (4) Prevention of Accidents to Students and School Staff

Although the sites of Sana'a City are new schools and surrounded by fences, in case of amplification at existing schools in Sana'a Governorate, strict safety measures should be initiated to prevent students and school staff from possible injury.

## (5) Procurement Plan

The construction and finishing materials, furniture and equipment, etc, are divided into two categories: a) items produced in Yemen, and b) items not produced in Yemen but easily procured in the market. Procurement schedules, including enough space to store supplies and materials, must be prepared with utmost care and detail.

### **2-2-4-3 Scope of Work**

#### **(1) Scope of the Japanese side**

The following works are undertaken by the Japanese side:

- ① Construction of school facilities (classrooms, multi-purpose rooms, science laboratories, libraries, activity rooms, teachers' rooms, principal's rooms, administration offices, administration rooms, social workers' rooms, teaching aids rooms, storage rooms, toilets)
- ② Provision of furniture and fittings
- ③ Provision of teaching aids

#### **(2) Scope of the Yemeni side**

- ① Securing land for the Project
- ② Grading and cutting and filling of the land
- ③ Removal of obstructions on the surface and under the ground of the Project site
- ④ Improvement of access roads to each Project site
- ⑤ Securing space for storage of construction materials
- ⑥ Application and construction of provisional electrical service
- ⑦ Securing and connecting of power lines to each Project site
- ⑧ Installation of gates and fences, planting of trees, and landscaping works, etc.
- ⑨ Provision of furniture and household utensils

### **2-2-4-4 Consultant Supervision**

In order to complete several construction works in this Project in parallel within the limited time period, it is absolutely necessary that construction supervision is done carefully and thoroughly, including the frequent reporting to, and close communication with, the implementing agency, as well as the provision of appropriate directions and guidance to contractors.

In order to implement the supervision work cooperatively between the offices in Yemen and Japan, General Supervision is done in tandem with the Supervision by the Resident Architect as follows:

#### **(1) General Supervision in Japan**

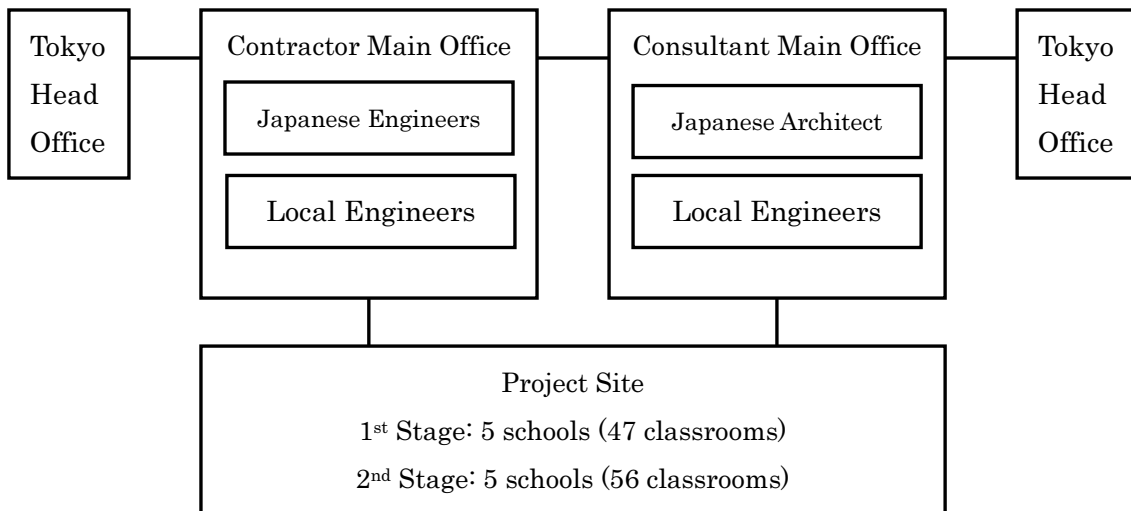
Control of overall Project schedules, including all works to be accomplished in the Project, overall technical evaluation, advice and assistance on all items outside the



resident architect's expertise need to be carried out appropriately in order to complete the construction within the period of construction. The architects and engineers who have been involved in the Project since the Detailed Design Study stage support the general supervisor.

**(2) Supervision by Resident Architect**

An architect involved in the development of the detailed designs is assigned as a resident architect for the Project construction in Yemen. The resident architect undertakes, with the assistance of local engineers, various duties including consulting of daily work schedules, evaluation and advice on the shop drawings and instruction of work procedure, approval of materials, technical guidance and direction to contractors, intermediate and completion inspections, collection of information and data related to the Project, preparation of construction supervision reports, and necessary and periodic reporting to the Ministry of Education and the Department of Project Planning. The consultant's main office is established in Sana'a City throughout the two stages. The organization structure for the Project construction supervisions is as shown in Figure 2-1.



**Figure 2-1 Organization Chart for Construction Supervision for the Project**

**2-2-4-5 Quality Control Plan**

The quality of the Project is achieved with the utmost attention to performance and the confirming of procedures and details, including the various tests and

inspections as described in the construction plans, shop drawings and material samples, as well as by closely following the items stipulated in the contract documents and the construction supervision plans. Table 2-15 shows the major items which need very careful quality control during the structural working stage.

**Table 2-15 Major Quality Control Items During Structural Work**

| Work                  | QC Items   | Method of Examination   | Frequency of Examination                      |
|-----------------------|--|---|---|
| Earth Works           | Confirmation of soil condition of finished grade | Observation   | Once per site at the completion of excavation |
| Re-bar and Form Works | Re-bar material                                  | Checking Mill sheets<br>Tension Test  | Every lot<br>Every size                       |
|                       | Re-bar arrangement                               | Inspection for re-bar arrangement   | Before concrete casting                       |
|                       | Form Work  | Inspection for form work  | Before concrete casting                       |
| Concrete Works        | Materials  | Cement: quality test results<br>Aggregate: sieve analysis test<br>Water: quality test results | At design of mix proportion                   |
|                       | Trial Mixing                                     | Slump test, concrete temperature measurement, air content test, chloride test                 | Every type of concrete                        |
|                       | Casting  | Slump test, concrete temperature measurement, air content test, chloride test                 | Upon concrete casting                         |
|                       | Concrete strength                                | Compression test for test pieces  | Upon concrete casting                         |

There are no concrete plants near the Project schools in Sana'a Governorate; therefore, concrete is mixed at the sites. In this case, the quality of the concrete tends to vary widely and it is necessary to pay careful attention in mixing and casting the concrete.

#### **2-2-4-6 Procurement Plan**

Regarding the construction materials, cement is produced in Yemen or imported from Saudi Arabia and UAE. In case of reinforcing bars and steel frames, those made in Turkey are available in the market, while aggregates can be produced in Yemen. For finishing, although stones can be produced locally, most of the materials available in the market are imported from neighboring Arabic countries, Italy, Greece, India, China etc. Based on the site study, the materials shown in Table 2-16 are procured for the Project.

**Table 2-16 List of Construction Materials and Educational Equipment to be Procured**

| Materials & Equipment                                      | Procurement      | Product Origin                          | Remarks   |
|--|------------------|---|---|
| <b>(Materials for Building Construction)</b>               |                  |   |   |
| Cement   | Sana'a City      | Yemen, Saudi Arabia, UAE                | Easily available. No quality or quantity problem. |
| Concrete aggregates  | Near Sana'a City | Yemen                                   |   |
| Reinforcing bars and steel frames                          | Sana'a City      | Turkey                                  |   |
| Forms for concrete work                                    | Sana'a City      | Yemen                                   |   |
| Concrete Block   | Sana'a City      | Yemen                                   |   |
| Ceramic Tile   | Sana'a City      | China                                   |   |
| Lumber and flooring  | Sana'a City      | Produced Yemen using imported materials |   |
| Aluminum fittings  | Sana'a City      | Saudi Arabia, UAE                       |   |
| Metal fittings   | Sana'a City      | Italy, Greece                           |   |
| Painting materials   | Sana'a City      | Yemen, Saudi Arabia                     |   |
| Stone  | Near Sana'a City | Yemen                                   |   |
| <b>(Materials for Electrical Work)</b>                     |                  |   |   |
| Distribution board   | Sana'a City      | Malaysia                                | Easily available. No quality or quantity problem. |
| Cables & wires   | Sana'a City      | Saudi Arabia                            |   |
| Pipes  | Sana'a City      | Saudi Arabia                            |   |
| Lighting fixtures  | Sana'a City      | Holland, Portugal                       |   |
| <b>(Materials &amp; Equipment for Water and Sewerage)</b>  |                  |   |   |
| PVC Pipes  | Sana'a City      | Saudi Arabia                            | Easily available. No quality or quantity problem. |
| Valves & pipe fittings                                     | Sana'a City      | Saudi Arabia                            |   |
| Sanitary ware  | Sana'a City      | India, Iran, China                      |   |
| <b>(Furniture and Fitting Work)</b>                        |                  |   |   |
| Furniture  | Sana'a City      | Yemen                                   | Easily available. No quality or quantity problem. |
| <b>(Educational Equipment)</b>                             |                  |   |   |
| General Teaching Aids and Equipment for Science Laboratory | Sana'a City      | India                                   | Easily available. No quality or quantity problem. |

### 2-2-4-7 Software Component Plan

This Project aims at improving the school environment of Sana'a City and Sana'a Governorate through construction of educational facilities in these areas. In order that the constructed educational facilities contribute to the improvement of the education environment, it is necessary that they are properly maintained and utilized. Especially, considering the serious gap of enrolment ratio between boys and girls at the Basic Education level, it is important that the constructed facilities become utilized considering the needs not only of boys but also of girls. Regarding this point, the existing schools in Sana'a Governorate need support in the following three areas: (1) School Administration, (2) Maintenance Activities and (3) Awareness Raising Activities on Girls' Education. The introduction of a software component is proposed to achieve that the facilities constructed in the Project will be maintained appropriately

and continuously, and utilized to achieve the improvement of the school environment with consideration for not only for boys but also for girls. More details of the activities in the component are given in the “Plan for Software Component Program” in the Appendix 6.

#### **2-2-4-8 Implementation Schedule**

For smooth implementation of the Project, all the works and procedures undertaken by the Yemeni and Japanese sides shall be done without any delay. After the Exchange of Notes for the Project is signed by the Governments of Yemen and Japan, implementation of the Project proceeds with the Detailed Design stage, the tendering and signing of contract stage, and finally the building construction and equipment stage.

##### **(1) Detailed Design Stage**

Based on the Basic Design of the Project, the tender documents are prepared. The tender documents include Detailed Design drawings, specifications and a bill of quantities. During the Detailed Design preparation stage, the consultants hold discussions with the responsible agencies of the Government of Yemen. After documents are authorized by the Government of Yemen, the tender of construction is conducted. It may take approximately 4.5 months for these procedures to take place and be completed.

##### **(2) Tendering and Signing of Contracts**

After the Detailed Design stage, evaluation of the candidate contractors is conducted in Japan (called P/Q, or pre-qualification). Based on those pre-qualifications, the Project implementation agency of Yemen calls for the tendering of the Project witnessed by official personnel related to the Project. The lowest bidder is further evaluated if the tendering contents are appropriate. After successful evaluation, a bidder is selected as the contractor and signs the Project construction contract(s) with the Government of Yemen, which means the Ministry of Education. It takes approximately 2 months for these procedures to take place and be completed.

##### **(3) Building Construction and Equipment Installation Stages**

After the signing of the contract and verification by the Government of Japan, the contractor starts construction work. Based on the total amount of work and

components involved in the facilities, and supposing that the material and equipment procurement by the Yemeni side is smoothly conducted, construction is estimated to take 12 months per construction stage. The schedule is shown in Figure 2-2.

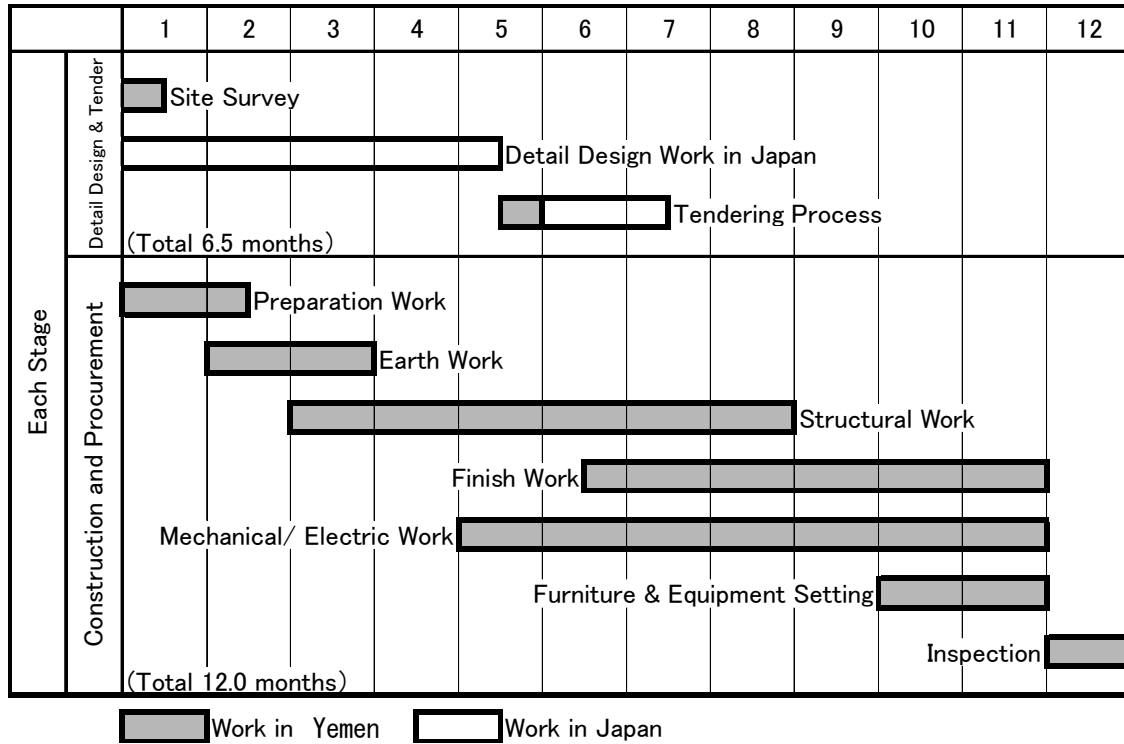


Figure 2-2 Construction Schedule

## 2-3 Obligations of Recipient Country

As a basic principle, the Government of Japan requests the recipient country (Yemen) to share the following obligations of the Project:

- 1) To provide the Japanese side, as soon as possible, with the necessary information and materials required for the Project
- 2) To secure the lands for the Project and their building rights. (To present documents on land ownership.)
- 3) To remove and move all the existing obstacles at the sites of Project schools, cut or fill the lands as necessary prior to the start of the construction works
  - ① G-2 Al-Husain Bin Ali School  
Grading of the proposed site
  - ② G-4 Al-Nadah Bait Jaber School  
Cutting and filling of the land at the proposed site
  - ③ G-10 Al-Mankkab Al-Rub'a School  
Grading of the proposed site
  - ④ G-12 Al-Khaleg Al-Rub'a School  
Grading of the proposed site, Relocation of two water supply pipes and installation of overhead electrical wire
  - ⑤ G-13 Al-Shehid Ali Saleh Al-Hawri  
Grading of the proposed site, Relocation of water supply pipe
  - ⑥ G-16 Bait Al-Hadhrami  
Grading of the proposed site, Installation of lead-in for 100 m
  - ⑦ C-4 Neighboring Unit 666  
Disposal of surplus soil left at the proposed site
  - ⑧ C-6 Neighboring Unit 843  
Grading of the proposed site
  - ⑨ C-11 Bait Hanthal  
Development of the land due to the bump of around 1m on the proposed site  
Securing and connecting of power lines (200m)
  - ⑩ C-16 Neighboring Unit 369  
Grading of the proposed site
- 4) To secure and improve access roads to each site for the construction vehicles. Access roads to the buildings to be constructed in this Project must be in good enough condition so that construction vehicles for pumping and mixing will be able

to reach the sites safely.

- 5) To bear commissions, handling charges and other necessary fees related to the Bank Arrangement (B/A) and the Authorization to Pay (A/P) to a bank in Japan.
- 6) To acquire the environmental impact assessment, permits, approvals, and any other authorizations required for the work that is undertaken during the implementation process of this Project.
- 7) To ensure prompt unloading of and customs clearance at ports of disembarkation in the country and internal transportation therein of products, machinery, equipment, and materials purchased under Japan's grant aid.
- 8) To exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts.
- 9) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such facilities as may be necessary for their entry into Yemen and stay there in for the performance of their work.
- 10) To extend all infrastructures to the construction sites according to the Japanese side's request, which is based on the work schedules.

a) Electricity

Among the Project schools in Sana'a Governorate, for the site where the service of electricity is available within the site (G10, G12, G13) and where the electricity line is installed to 100 m from the site (G16), the Yemeni side shall install the electricity line to the electric pole in the site.

Among the Project schools in Sana'a City, for the site where the service of electricity is available near the site (C4, C6, C16) and where it is available to 200 m from the site (C11), the Yemeni side shall install the electricity line to the electric pole in the site.

b) Telephone

The Japanese side is in charge of the installation of the empty cable conduits, and the Yemeni side shall install telephone line.

- 11) To conduct additional work such as landscaping, gates, fences and others if necessary after the completion of the construction.
- 12) To use, manage, and maintain properly and effectively the facilities and equipment provided under this Project using Japan's grant aid.
- 13) To ensure all expenses required for the implementation of this Project outside the coverage of the grant aid.

14) To coordinate and settle various potential problems that may be posed by neighboring residents in relation to the implementation of the Project.



## 2-4 Project Operation Plan

### 2-4-1 Operation Plan

#### (1) Sana'a Governorate

All the Project schools in Sana'a Governorate are existing schools and there is no need to increase school administration staff, such as principals. However, it is necessary to allocate 101 more teachers due to the increase in the number of classrooms at each school as shown in the Table 2-17. According to the Educational Bases and Criteria, it is supposed to assign one teacher per classroom is supposed to be assigned for Grade 1 to 3, and 1.5 teachers per classroom are supposed to be assigned for Grade 4 to 9. The number of newly required teachers after the completion of the Project is calculated supposing that one of the classrooms with small-size furniture for Grade 1 to 4 is used by Grade 4. In addition, the School Regulation of Yemen provides that a teacher can not work for two consecutive shifts.

**Table 2-17 Number of Newly Required Teachers after the Completion of the Project**

| No.   | School Name                 | Shift | Number of Classrooms to be Constructed |                  | Number of Newly Required Teachers |
|-------|-----------------------------|-------|--|------------------|-----------------------------------|
|       |                             |       | For Grade 1 to 4                       | For Grade 5 to 9 |                                   |
| G 2   | Al-Husain Bin Ali School    | 2     | 3                                      | 3                | 16                                |
| G 4   | Al-Nahdha Bait Jaber School | 1     | 2                                      | 3                | 7                                 |
| G10   | Al-Mankab Al-Rub'a School   | 2     | 4                                      | 5                | 24                                |
| G12   | Al-Khaleg Al-Rub'a School   | 1     | 5                                      | 6                | 15                                |
| G13   | Al-Shehid Ali Sleh Al-Hawri | 2     | 6                                      | 6                | 31                                |
| G16   | Bait Al-Hadhrami            | 1     | 3                                      | 3                | 8                                 |
| Total |                             |       |  |                  | 101                               |

In addition to the shortage of the budget for education, Sana'a Governorate is facing a problem that there are teachers who receive a salary but do not actually work at school. However, Sana'a Governorate is taking measures to increase the number of teachers by planning to secure adequate enough budget for the employment of the required number of teachers based on the estimation of students from 2006 to 2010, and the Ministry of Education is also reforming the appointment of personnel by checking up on teachers who do not work and replacing them. Thus, it can be said that there are not a serious problem in securing more teachers for the Project schools. However, it is necessary to pay close attention to the timely teacher recruitment and deployment so that teachers are allocated to the Project schools smoothly.

## (2) Sana'a City

As the Project schools of Sana'a City are new schools, there is a need to assign school staff as well as teachers. The table below shows the number of teachers and school staff required for each Project school on the condition that they are operated with a one-shift system.

**Table 2-18 Number of School Staff and Teachers for the Project Schools in Sana'a City**

|                            | Criteria of Allocation  | C 4                  | C6                   | C11                  | C16                  | Total |
|----------------------------|---|----------------------|----------------------|----------------------|----------------------|-------|
|                            |   | No. of Students: 400 | No. of Students: 800 | No. of Students: 400 | No. of Students: 800 |       |
| Principal                  | One for each school with more than 300 students                             | 1                    | 1                    | 1                    | 1                    | 4     |
| Vice Principal             | If the number of students in a shift is more than 500, one for 500 students | 0                    | 1                    | 0                    | 1                    | 2     |
| Teacher                    | One per class for Grade 1 to 3, 1.5 per class for Grade 4 to 9              | 12                   | 24                   | 12                   | 24                   | 72    |
| Counselor                  | One for 500 students  | 1                    | 2                    | 1                    | 2                    | 6     |
| Science Laboratory Teacher | One for each science laboratory   | 1                    | 1                    | 1                    | 1                    | 4     |
| Secretary                  | One secretary for each school, and an assistant each 300 students           | 3                    | 4                    | 3                    | 4                    | 14    |
| Storage Keeper             | One per school  | 1                    | 1                    | 1                    | 1                    | 4     |
| Guard                      | Two per school  | 2                    | 2                    | 2                    | 2                    | 8     |
| Librarian                  | One per school  | 1                    | 1                    | 1                    | 1                    | 4     |
| Cleaner                    | Two per school  | 2                    | 2                    | 2                    | 2                    | 8     |

Sana'a City provides a better working environment for women, and there are no problems in the procurement of teachers and school staff. However, as in the case with Sana'a Governorate, it is necessary to pay close attention to the timely teacher recruitment and deployment so that they are allocated to the Project schools smoothly.

## 2-4-2 Maintenance Plan

In Yemen, the Education Offices of each Governorate or Sana'a City are in charge of large-scale major maintenance, while each school is in charge of minor repairs and maintenance. Schools cover the cost for maintenance out of the school fees collected from their students: 150 YR per student of Basic Education (Grade 1 to 9) and 200 YR per student of Secondary Education (Grade 10 to 12). The use of the school fee is regulated such 9 % goes to the Governorate of Education Office in the case of the Governorates or Sana'a City Education Office, 6% goes to the District Education Office, while the rest remains at the schools. The regulation of the Sana'a Governorate Education Office further provides that 15 % of the amount which remains at school shall be used for cleaning and 20% for maintenance such as minor repairs. In the case of Sana'a City, 20% of the amount which remains at school is to be used for cleaning and maintenance. Existing schools in Sana'a City do not have serious problems in the implementation of maintenance because cleaners are allocated by the Ministry of Education, and, if there is a shortage of cleaning staff, schools are able to afford hiring some additional cleaning staff.

On the contrary, it is rare that cleaning staff are assigned to the schools in Sana'a Governorate. Moreover, schools do not have enough financial resources for school operation because there are students who cannot pay the school fees. Meanwhile, although the cooperation by people in the community and parents are indispensable for the implementation of maintenance activities, such a system is not well established. Therefore, in order to carry out effective maintenance activities making the best use of human and material resources within a limited budget of each school, the "software component program" which aims to reinforce the maintenance system is introduced.

## 2-5 Project Cost Estimation

### 2-5-1 Project Cost

The total amount of the project cost needed for implementing the Grant Aid project is approximately 1,297 million Japanese Yen. According to the conditions of the cost estimate shown below in section (3), the previously mentioned details of expenses based on the respective shares borne by Japan and Yemen are calculated as shown below. This cost estimate is provisional and would be further examined by the Government of Japan for the approval of the Grant.

#### (1) Cost estimation borne by the Japanese side

**Table 2-19 Cost Estimation Borne by the Japanese Side (Total Floor Area 12,981.33 m<sup>2</sup>)**

Estimated Project Cost (Total) 1,296.00 Million Japanese Yen

##### 【Sana'a Governorate】

6 schools, 49 classrooms, 12 toilets (Total Floor Area: 4,424.51m<sup>2</sup>)

| Items  |           | Estimated Cost<br>(Million Japanese Yen) |        |        |
|--|-----------|--|--------|--------|
| Facility   | Classroom | 340.19                                   | 380.30 | 380.32 |
|  | Toilets   | 31.57                                    |        |        |
|  | Furniture | 8.54                                     |        |        |
| Equipment  |           | 0.02                                     |        |        |
| Detailed Design, Supervision, Software Component |           | 59.72                                    |        |        |

Estimated Project Cost (Sub-Total) 440.04 Million Japanese Yen

##### 【Sana'a City】

4 schools, 54 classrooms, 12 toilets (Total Floor Area: 8,556.82m<sup>2</sup>)

| Items  |           | Estimated Cost<br>(Million Japanese Yen) |        |        |
|--|-----------|--|--------|--------|
| Facility   | Classroom | 719.45                                   | 737.60 | 739.38 |
|  | Toilets   | —  |        |        |
|  | Furniture | 18.06                                    |        |        |
| Equipment  |           | 1.78                                     |        |        |
| Detailed Design, Supervision, Software Component |           | 116.58                                   |        |        |

Estimated Project Cost (Sub-Total) 855.96 Million Japanese Yen

First Stage      Sana'a Governorate: 3 schools, 20 classrooms,  
                          Sana'a City: 2 schools, 27 classrooms  
                          (Total Floor Area: 6,274.22m<sup>2</sup>)  
                          639.60 Million Japanese Yen

Second Stage Sana'a Governorate: 3 schools, 29 classrooms,  
 Sana'a City: 2 schools, 27 classrooms  
 (Total Floor Area: 6,707.11m<sup>2</sup>)  
 656.40 Million Japanese Yen

(2) Cost estimation borne by the Yemeni side

Table 2-20 Cost Estimation Borne by the Yemeni Side (mil YR)

| Items   | First Stage | Second Stage | Total   |
|---|-------------|--------------|---------|
| Grading, Cutting or Development of the Land,<br>Disposal of Surplus Soil Left at the Site | 414.9       | 535.1        | 950.1   |
| Relocation or Installation of Infrastructure  | 969.6       | -            | 969.9   |
| Total   | 1,384.6     | 535.1        | 1,919.8 |
| Total (Million Japanese Yen)  | 0.8         | 0.3          | 1.1     |

(3) Conditions of Cost Estimate

- a) Period of cost estimate: October, 2005
- b) Currency Exchange Rate: 1.00 US\$ = 110.52 Japanese Yen  
 1YR = 0.57 Japanese Yen
- c) Period of Execution: from March, 2007 to February, 2009
- d) Others: This Project shall be carried out under the system of the Grant Aid of the Japanese Government

2-5-2 Operation and Maintenance Cost

The required cost after the provision of school facilities, furniture and equipment by the Project can be divided into the cost for operation and maintenance. Each cost is calculated in the following way.

(1) Cost for Operation

Annual cost for operation is calculated under the following conditions.

① Labour Cost

After the completion of the Project, it is necessary to allocate 99 teachers in Sana'a Governorate and 74 teachers and 54 school staff (principal, vice principal, school counselor, science laboratory teacher, secretary, storage keeper, guard, librarian and cleaner) additionally as shown in the table 2-21. The average income of the school staff required to employ after the completion of the Project is shown below.

**Table 2-21 Number of Additional Labour Cost after the Project in Sana'a City (YR)**

|                            | Average income per year |
|----------------------------|-------------------------|
| Principal                  | 400,000                 |
| Vice Principal             | 349,000                 |
| Teacher                    | 393,000                 |
| Social Worker              | 326,000                 |
| Science Laboratory Teacher | 353,000                 |
| Secretary                  | 182,000                 |
| Storage Keeper             | 136,000                 |
| Guard                      | 136,000                 |
| Librarian                  | 302,000                 |
| Cleaner                    | 145,000                 |

② Electricity Expense

Electrical facilities are not provided for G2 and G4 in Sana'a Governorate. Among the Project schools in Sana'a Governorate, the electricity expenses of G10, G12, G13 and G16 are estimated based on the electricity capacity of each school facility.

All the Project schools in Sana'a City shall have electrical facilities, and the electricity expenses of them are estimated based on the electricity capacity of each school facility. Electricity expense per year is calculated assuming that the school facility is used for 9 months a year apart from the 3 months of vacation.

**Table 2-22 Electrical Capacity and Estimated Amount of Electricity Use**

| No. | Name of the School/Site     | Electrical Capacity (KVA) | Estimated Amount of Electricity use (KWH/Month) |
|-----|-----------------------------|---------------------------|---|
| G10 | Al-Mankkab Al-Rub'a School  | 11                        | 275   |
| G12 | Al-Khaleg Al-Rub'a School   | 10                        | 250   |
| G13 | Al-Shehid Ali Sleh Al-Hawri | 9                         | 225   |
| G16 | Bait Al-Hadhrami            | 5                         | 125   |
| C 4 | Neighboring Unit 666        | 42                        | 1,050   |
| C 6 | Neighboring Unit 843        | 58                        | 1,450   |
| C11 | Bait Hanthal                | 42                        | 1,050   |
| C16 | Neighboring Unit 369        | 59                        | 1,475   |

### ③ Water Expense

The Project schools in Sana'a Governorate shall not have water expense because they shall not use water. The Project schools in Sana'a City shall buy water for 800YR/3 m<sup>2</sup> from the water supply car. The amount of water to be used at each Project school is calculated with the condition that each student and teacher uses 5 liter of water each day. Water expense per year is calculated assuming that the school facility is used for 9 months a year apart from the 3 months of vacation.

Table 2-23 Estimated Amount of Water Use at Project Schools in Sana'a City

| No. | Name of School/Site  | Estimated amount of water use (m <sup>3</sup> /month) |
|-----|----------------------|---|
| C 4 | Neighboring Unit 666 | 52  |
| C6  | Neighboring Unit 843 | 104   |
| C11 | Bait Hanthal         | 52  |
| C16 | Neighboring Unit 369 | 104   |

### (2) Maintenance Cost

For the maintenance of facilities and equipment provided in the Project, the following maintenance expenses are expected in the long terms.

#### ① Maintenance of the building

- Stains on walls (Repainting of inside walls)
- Faded colours on the ceilings (Repainting of inside walls and ceilings)
- Deterioration of fixtures (Repainting of fixtures)
- Faded colour on blackboards (Repainting of blackboard)
- Damages on lighting fixtures (Replacing of bulbs)
- Damages of glass (Replacing of the glass)

#### ② Maintenance of the furniture

- Desks and Chairs (Repairing)

In this Project, however, very careful consideration is paid at the time of designing so that troubles of facilities and furniture can be minimized. Hence, it is considered that no maintenance cost will be required for the time being.

### (3) Total of Operation and Maintenance Cost

The increase in annual maintenance and operation expenses for the Project schools in Sana'a Governorate is 39.9 million YR as shown in Table 2-24, and this is equivalent to 0.8% of the total running cost of 4,809.2 million YR in Sana'a Governorate in 2004. For Sana'a City, the increase is 42.2 million YR and this is

equivalent to 0.7% of the total running cost of 5,728.5 million YR in Sana'a City in 2004. Therefore, they have enough capacity to afford the additional cost.

Furthermore, 515 teachers in Sana'a Governorate and 404 teachers in Sana'a City are newly employed in 2005 and there is a sufficient supply of teachers. In the education department of Sana'a University alone there are 2,598 teachers per grade. In conclusion, there is no problem in supply of teachers.

**Table 2-24 Number of Additional Annual Maintenance and Operation Expense(mil YR)  
Sana'a Governorate**

| No.   | Name of School/Site         | Labour Cost | Electricity Expense | Water Expense | Total    |
|-------|-----------------------------|-------------|---------------------|---------------|----------|
| G 2   | Al-Husain Bin Ali School    | 6,288.0     |                     |               | 6,288.0  |
| G 4   | Al-Nahdha Bait Jaber School | 2,751.0     |                     |               | 2,751.0  |
| G10   | Al-Mankkab Al-Rub'a School  | 9,432.0     | 55.8                |               | 9,487.8  |
| G12   | Al-Khaleg Al-Rub'a School   | 5,895.0     | 51.3                |               | 5,946.3  |
| G13   | Al-Shehid Ali Sleh Al-Hawri | 12,183.0    | 46.8                |               | 12,229.8 |
| G16   | Bait Al-Hadhrami            | 3,144.0     | 29.7                |               | 3,173.7  |
| Total |                             |             |                     |               | 39,876.6 |

**Sana'a City**

| No.   | Name of School/Site  | Labour Cost | Electricity Expense | Water Expense | Total    |
|-------|----------------------|-------------|---------------------|---------------|----------|
| C 4   | Neighboring Unit 666 | 7,341.0     | 193.5               | 125.1         | 7,659.6  |
| C 6   | Neighboring Unit 843 | 12,914.0    | 270.0               | 249.3         | 13,460.3 |
| C11   | Bait Hanthal         | 7,341.0     | 193.5               | 125.1         | 7,659.6  |
| C16   | Neighboring Unit 369 | 12,914.0    | 270.0               | 249.3         | 13,433.3 |
| Total |                      |             |                     |               | 42,212.8 |



## Chapter 3 Project Evaluation and Recommendations

## Chapter 3 Project Evaluation and Recommendations

### 3-1 Effects of the Project

#### (1) Direct Effects

##### 1) Increase in the number of classrooms

49 classrooms are constructed at 6 Project schools in Sana'a Governorate in this Project. As the result, the total number of usable classrooms of the Project schools increases in Sana'a Governorate from 33 to 82, and the capacity of classrooms<sup>1</sup> can be expanded to accommodate an additional 3,360 students. In Sana'a City, 54 classrooms are constructed at 4 new Project schools. As the result, 2,400 more students can be accommodated and the lack of educational facilities can be alleviated.

##### 2) Increase of the classroom area

The total area of the classrooms at Project schools in Sana'a Governorate is expanded from 882 m<sup>2</sup> to 3,283 m<sup>2</sup>. Consequently, the classroom space per student<sup>2</sup> is improved from 0.18 m<sup>2</sup> to 0.52 m<sup>2</sup> at the completion of the Project in 2009. In Sana'a City, this Project constructs new Project schools with total classroom area of 2,646 m<sup>2</sup>. This contributes to alleviating the congestion of classrooms, which is one of the reasons for non-enrolment and dropping out.

##### 3) Improvement of school facilities paying more attention to increase girls' enrolment

Among the newly constructed 4 schools in Sana'a City, 3 schools are for girls while 1 is for both boys and girls. Therefore, this Project increases the capacity of school facilities especially of girls, and can contribute to reducing the serious gap between boys and girls in the enrolment rate at Basic Education. Furthermore, only two Project schools in Sana'a Governorate have toilet facilities for students before this Project, and the lack of toilet facilities is hindering girls from continuing to study at schools. This Project constructs toilets for boys and girls respectively at all the Project schools, so that the school environment for girls to continue studying will be promoted.

##### 4) Improvement of school's capacity on management

Software Component activities strengthen capacity of facility maintenance

---

<sup>1</sup> Number of students in a classroom is 40 for the classrooms for Grade 1 to 4, and 48 for those for Grade 5 to 9. Classes are supposed to be conducted under the current shift in Sana'a Governorate and single shift in Sana'a City.

<sup>2</sup> "Classroom space per student= Total area of usable classrooms÷Number of students at Basic Education" under the condition that Project schools are operated with the current shift after the construction of new classrooms by this Project.

activities and awareness raising activities on girls' education under the initiative of Fathers' and Mothers' Councils at Project schools in Sana'a Governorate, so that the ability of school management at Project schools in Sana'a Governorate is improved.

## **(2) Indirect Effects**

### **1) Use of the Project facilities by community people**

The Project facilities will be used not only for Basic Education but also for social educational activities such as adult education, as well as for community activities. In this way, the Project facilities will contribute to the surrounding communities.

## **3-2 Recommendations**

In conclusion, the Project is highly expected to bring many positive benefits as mentioned as well as to contribute to the improvement of Basic Human Needs of the society; thus, the implementation of the Project through the Japanese grant aid scheme is deemed worthy and meaningful. If the items mentioned below are improved, this Project will be implemented more smoothly, and thus more effectively contribute to improving the general educational environment.

### **1) Supporting for Opening New Schools**

After the implementation of the Project, 4 new schools are to be opened in Sana'a City. There are various activities that educational administration offices need to implement to open the schools, such as, securing the necessary amount of budget, naming of the new schools, disseminating news of the opening of the new schools among the community people, allocating teachers, preparing equipment and so forth. The Ministry of Education and the Education Office of Sana'a City are required to execute these activities in a well-planned manner so that the Project facilities are to be used without delay after the completion of the construction, as well as to give support to the Project schools to get the school operation on track.

### **2) Construction of educational facilities**

The number of classrooms to be provided to each Project school is decided with the condition that it does not exceed the number of requested classrooms, and it turned out that the number of classrooms in shortage exceeds the number of requested classrooms at some schools. In the Project districts in Sana'a City, also, the serious lack of

educational facilities cannot be solved even after the execution of this Project. Therefore, it is required that further construction of school facilities be implemented by the effort of the Yemeni Government itself in cooperation with donors.

### 3) Improvement of school environment

Although the construction of classrooms by this Project improves the learning environment, it improves only a part of the whole school environment. Therefore, it is required that the Yemeni Government keep improving school environment further, such as, improvement of quality and quantity of teachers, textbooks and other educational materials, increase of female teachers in rural areas, realization of two shifts separated for boys and girls and so forth.

# Appendices

## 1. List of Team Members

### (1) Basic Design Study Team (September 15,2005~October 13,2005)

| Name                                     | Job Title   | Organization   |
|--|---|--|
| Mr. Norihiro IKEDA                       | Leader  | Team Director,<br>Education and Vocational Training<br>Team, Project Management Group 2,<br>Grant Aid Management Dept., JICA |
| Mr. Mitsutaka HOSHI                      | Planning Management   | Staff, JICA Egypt Office   |
| Ms. Keiko MIZUNO                         | Technical Assistance  | Senior Advisor, Institute for<br>International Cooperation, JICA   |
| Mr. Akira YOKOYAMA                       | Chief Consultant/<br>Architectural Design                                     | Mohri, Architect & Associates, Inc.  |
| Ms. Reiko HIDAKI                         | Education Planning/<br>Social Environment                                     | Mohri, Architect & Associates, Inc.  |
| Mr. Kazuna KOIZUMI                       | Architectural Design  | Mohri, Architect & Associates, Inc.  |
| Mr. Hiroyuki YOSHIZAWA                   | Architectural Design<br>(Substitution for Mr.Koizumi<br>from Sep15 to Sep 23) | Mohri, Architect & Associates, Inc.  |
| Mr. Shinji KUMEKAWA                      | Architectural Design 2  | Mohri, Architect & Associates, Inc.  |
| Mr. Yoshiaki ICHIBAGASE                  | Construction and<br>Procurement Planner/<br>Cost Estimate                     | Mohri, Architect & Associates, Inc.  |
| Mr. Takeo MASHIMO                        | Coordinator   | Mohri, Architect & Associates, Inc.  |
| Mr. Katsumi HAYASHI                      | Architectural Design 3  | Mohri, Architect & Associates, Inc.  |
| Ms. Yuko HIROSE<br>(Birth Name:SUGIYAMA) | Education Planning/<br>Social Environment 2                                   | Mohri, Architect & Associates, Inc.  |

### (2) Draft Report Explanation Team (February 23, 2006~March 4,2006)

| Name                    | Job Title   | Organization   |
|-------------------------|---|--|
| Mr. Norihiro IKEDA      | Leader  | Team Director,<br>Education and Vocational Training<br>Team, Project Management Group 2,<br>Grant Aid Management Dept., JICA |
| Mr. Akira YOKOYAMA      | Chief Consultant/<br>Architectural Design                 | Mohri, Architect & Associates, Inc.  |
| Ms. Reiko HIDAKI        | Education Planning/<br>Social Environment                 | Mohri, Architect & Associates, Inc.  |
| Mr. Kazuna KOIZUMI      | Architectural Design                                      | Mohri, Architect & Associates, Inc.  |
| Mr. Yoshiaki ICHIBAGASE | Construction and<br>Procurement Planner/<br>Cost Estimate | Mohri, Architect & Associates, Inc.  |

## 2. Study Schedule

### (1) Basic Design Study

| Date      | Leader    | Planning Management  | Technical Assistance                 | Chief Consultant/<br>Architectural Planning                          | Education Planning/<br>Social Consideration                         | Architectural Design/Facility and Equipment Planning | Architectural Design II                                      | Construction, Procurement Planning/Cost Estimate                 | Project Coordinator                      | Education Planning/Social Consideration II | Architectural Design III  |  |
|-----------|-----------|--|--------------------------------------|--|---|--|--|--|--|--|---|--|
|           | Mr. IKEDA | Mr. HOSHI  | Dr. MIZUNO                           | Mr. YOKOYAMA   | Ms. HIDAKI  | Mr. KOIZUMI/<br>Mr. YOSHIZAWA*                       | Mr. KUMEKAWA   | Mr. ICHIBAGASE   | Mr. MASHIMO                              | Ms. HIROSE                                 | Mr. HAYASHI   |  |
|           | 13 days   | 5 days   | 13 days                              | 37 days  | 37 days   | 37 days  | 17 days  | 30 days  | 31 days                                  | 21 days                                    | 14 days   |  |
| 1 15-Sep  | Thu       | Lv. Haneda(20:40)→   |                                      | Lv. Haneda(20:40)→   |   |  |  | Lv. Haneda(20:40)→   |  |  |   |  |
| 2 16-Sep  | Fri       | →Arr. Dubai (5:10)<br>Lv. Dubai (6:45)<br>→Arr. Sanaa (8:35)         |                                      | →Arr. Dubai (5:10) Lv. Dubai (6:45)→Arr. Sanaa (8:35)                |   |  |  | →Arr. Dubai (5:10) Lv. Dubai (6:45)→Arr. Sanaa (8:35)            |  |  |   |  |
| 3 17-Sep  | Sat       | Courtesy Call to Japanese Embassy, Ministry of Education(MoE)        | Lv. Cairo→Arr. Sana'a                | Courtesy Call to Japanese Embassy, Ministry of Education(MoE)        |   |  |  | Courtesy Call to Japanese Embassy, Ministry of Education(MoE)    |  |  |   |  |
| 4 18-Sep  | Sun       | Courtesy Call to Sana'a City and Sana'a Governorate                  |                                      |  |   |  |  | Cost Estimate Survey   |  |  |   |  |
| 5 19-Sep  | Mon       | Courtesy Call to Ministry of Planning and International Cooperation  | Inspection of BRIDGE project in Taiz |  | Courtesy Call to Ministry of Planning and International Cooperation |  |  | Ditto  |  |  |   |  |
| 6 20-Sep  | Tue       | Inspection of the schools constructed in the first stage project     |                                      |  | Inspection of the schools constructed in the first stage project    |  |  | Inspection of the schools constructed in the first stage project |  |  |   |  |
| 7 21-Sep  | Wed       | Courtesy Call and Discussion with Kfw, UNICEF, GTZ, SFD              | Lv. Sana'a<br>→Arr. Cairo            | Courtesy Call and Discussion with Kfw, UNICEF, GTZ, SFD              |   | Preparation for the site survey                      |  | Preparation for Site survey                                      |  |  |   |  |
| 8 22-Sep  | Thu       | Inspection of Request Sites  |                                      | Inspection of Request Sites  |   |  | Lv. Haneda(20:40)→   | Ditto  | Ditto                                    |  |   |  |
| 9 23-Sep  | Fri       |  |                                      |  |   |  | →Arr. Dubai (5:10)<br>Lv. Dubai (6:45)<br>→Arr. Sanaa (8:35) |  |  |  |   |  |
| 10 24-Sep | Sat       | Discussion with MoE about draft of Minutes of Discussions            |                                      | Discussion with MoE about draft of Minutes of Discussions            |   | Site Survey (G1,G3)                                  |  | Site Survey(G1,G2)   |  |  |   |  |
| 11 25-Sep | Sun       | Signing on Minutes of Discussions, Report to organizations concerned |                                      | Signing on Minutes of Discussions, Report to organizations concerned |   | Site Survey (G6,G7)                                  |  | Site Survey(G5,G4)   |  |  | Lv. Haneda(20:40)→  |  |
| 12 26-Sep | Mon       | Lv. Sana'a (10:05)<br>→Arr. Dubai(13:50)                             |                                      | Lv. Sana'a (10:05)<br>→Arr. Dubai(13:50)                             | Data Analysis   |  |  |  |  |  | →Arr. Dubai (5:10)<br>Lv. Dubai (6:45)<br>→Arr. Sanaa (8:35)                    |  |
| 13 27-Sep | Tue       | Lv. Dubai(2:50)<br>→Arr. Haneda(19:45)                               |                                      | Lv. Dubai(2:50)<br>→Arr. Haneda(19:45)                               | Site Survey (G12,G10)   | Preparation for stakeholder meeting                  | Site Survey (G12,G10)  | Site Survey (G10,G11)  | Site Survey(G8,G9)                       |  | Site Survey (G10,G11)   |  |
| 14 28-Sep | Wed       |  |                                      |  | Site Survey (G16,G19)   | Stakeholder meeting                                  | Site Survey (G16,G19)  | Site Survey (G17,G18)  | Site Survey(G14,G15)                     |  | Site Survey (G17,G18)   |  |
| 15 29-Sep | Thu       |  |                                      |  | Site Survey (C1,C2,C3,C4)   | Stakeholder meeting(G19)                             | Site Survey (C1,C2,C3,C4)                                    | Site Survey (G21,G22)  | Site Survey(G20,G23)                     |  | Site Survey (G21,G22)   |  |
| 16 30-Sep | Fri       |  |                                      |  | Data Analysis   |  |  |  |  |  | Data Analysis   |  |
| 17 1-Oct  | Sat       |  |                                      |  | Architectural Survey  | Stakeholdre meeting(G4,G9)                           | Architectural Survey   | Site Survey (C17,C18,C19,C20)                                    | Site Survey(C5,C6,C7,C8)                 |  | Site Survey (C17,C18,C19,C20)   |  |
| 18 2-Oct  | Sun       |  |                                      |  | Ditto   | Educational Survey                                   | Ditto  | Site Survey(C9,C10,C11)  | Site Survey(C13,C14,C15,C16)             |  | Lv. Haneda(20:40)→<br>Site Survey (C9,C10,C11)                                  |  |
| 19 3-Oct  | Mon       |  |                                      |  | Stakeholdre meeting(G11,G18)  |  | Ditto  | Site Survey(G7)  | Cost Estimate Survey                     | Architectural Survey                       | →Arr. Dubai (5:10)<br>Lv. Dubai (6:45)<br>→Arr. Sanaa (8:35)<br>Site Survey(G7) |  |
| 20 4-Oct  | Tue       |  |                                      |  | Architectural Survey  | Educational Survey                                   | Architectural Survey   | Architectural Survey   | Ditto                                    | Ditto                                      | Educational Survey  | Architectural Survey                     |
| 21 5-Oct  | Wed       |  |                                      |  | Ditto   | Ditto  | Ditto  | Ditto  | Ditto                                    | Ditto                                      | Ditto   | Ditto                                    |
| 22 6-Oct  | Thu       |  |                                      |  | Ditto   | Ditto  | Ditto  | Ditto  | Ditto                                    | Ditto                                      | Ditto   | Ditto                                    |
| 23 7-Oct  | Fri       |  |                                      |  | Data Analysis   |  |  | Lv. Sanaa(10:05)<br>→Arr. Dubai(13:50)                           | Data Analysis                            |  | Lv. Sanaa(10:05)<br>→Arr. Dubai(13:50)  |  |
| 24 8-Oct  | Sat       |  |                                      |  | Architectural Survey  | Educational Survey                                   | Architectural Survey   | Lv. Dubai (2:50)<br>→Arr. Haneda (19:45)                         | Cost Estimate Survey                     | Architectural Survey                       | Educational Survey  | Lv. Dubai (2:50)<br>→Arr. Haneda (19:45) |
| 25 9-Oct  | Sun       |  |                                      |  | Ditto   | Ditto  | Ditto  |  | Ditto                                    | Ditto                                      | Ditto   |  |
| 26 10-Oct | Mon       |  |                                      |  | Ditto   | Ditto  | Ditto  |  | Ditto                                    | Ditto                                      | Ditto   |  |
| 27 11-Oct | Tue       |  |                                      |  | Ditto   | Ditto  | Ditto  |  | Ditto                                    | Ditto                                      | Ditto   |  |
| 28 12-Oct | Wed       |  |                                      |  | Ditto   | Ditto  | Ditto  |  | Ditto                                    | Ditto                                      | Ditto   |  |
| 29 13-Oct | Thu       |  |                                      |  | Ditto   | Stakeholdre meeting(G17)                             | Ditto  |  | Lv. Sana'a (10:05)<br>→Arr. Dubai(13:50) | Ditto                                      | Stakeholdre meeting(G17)  |  |
| 30 14-Oct | Fri       |  |                                      |  | Data Analysis   |  |  | Lv. Dubai(2:50)<br>→Arr. Haneda(19:45)                           | Lv. Sana'a (10:05)<br>→Arr. Dubai(13:50) | Data Analysis                              |   |  |
| 31 15-Oct | Sat       |  |                                      |  | Architectural Survey  | Educational Survey                                   | Architectural Survey   |  | Lv. Dubai(2:50)<br>→Arr. Haneda(19:45)   | Educational Survey                         |   |  |
| 32 16-Oct | Sun       |  |                                      |  | Discussion with Ministry of Education                               |  |  |  |  | Ditto                                      |   |  |
| 33 17-Oct | Mon       |  |                                      |  | Architectural Survey  | Educational Survey                                   | Architectural Survey   |  |  | Ditto                                      |   |  |
| 34 18-Oct | Tue       |  |                                      |  | Ditto   | Ditto  | Ditto  |  |  | Ditto                                      |   |  |
| 35 19-Oct | Wed       |  |                                      |  | Report to Japanese Embassy  |  |  |  |  | Ditto                                      |   |  |
| 36 20-Oct | Thu       |  |                                      |  | Lv. Sanaa(10:05)→Arr. Dubai(13:50)                                  |  |  |  |  | Lv. Sanaa(10:05)<br>→Arr. Dubai(13:50)     |   |  |
| 37 21-Oct | Fri       |  |                                      |  | Lv. Dubai(2:50)→Arr. Haneda(19:45)                                  |  |  |  |  | Lv. Dubai(2:50)<br>→Arr. Haneda(19:45)     |   |  |

Notice: 26 Sep is a Revolution Day

\*Mr. Hiroyuki YOSHIZAWA conducted the consulting services on behalf of Mr. Kazuna KOIZUMI from 15th to 23rd of September.

(2) Draft Report Explanation

| Date |        |     | Leader  | Chief Consultant/<br>Architectural<br>Planning                   | Architectural<br>Design/Facility and<br>Equipment Planning | Education<br>Planning/<br>Social<br>Consideration | Construction,<br>Procurement<br>Planning/Cost<br>Estimate |
|------|--------|-----|---|--|--|---|---|
|      |        |     | Mr. IKEDA   | Mr. YOKOYAMA   | Mr. KOIZUMI  | Ms. HIDAKI  | Mr. ICHIBAGASE  |
|      |        |     | 10 days   | 10 days  | 10 days  | 10 days   | 10 days   |
| 1    | 23-Feb | Thu |   | Lv. Haneda (20:40)→  |  |   |   |
| 2    | 24-Feb | Fri | →Arr. Sanaa (17:00)   |  |  |   |   |
| 3    | 25-Feb | Sat | Lv. Haneda(20:40)→  | Courtesy Call to Japanese Embassy,<br>Ministry of Education(MoE) |  |   |   |
| 4    | 26-Feb | Sun | →Arr. Sanaa (19:35)   | Discussion with Ministry of Education                            |  | Cost Estimate<br>Survey                           |   |
| 5    | 27-Feb | Mon | Discussion with Japanese Embassy and Yemeni Side, Discussion with Ministry of<br>Planning and International Cooperation |  |  | Ditto   |   |
| 6    | 28-Feb | Tue | Discussion with MoE about Minutes   |  |  | Ditto   |   |
| 7    | 1-Mar  | Wed | Signing of Minutes  |  |  | Ditto   |   |
| 8    | 2-Mar  | Thu | Lv. Sanaa(10:25)→   | Supplementary Survey   |  | Ditto   |   |
| 9    | 3-Mar  | Fri | Arr.Haneda (19:45)  | Lv. Sanaa (10:25)→   |  |   |   |
| 10   | 4-Mar  | Sat | Arr.Haneda(19:45)   |  |  |   |   |



### 3. List of Concerned Parties in the Recipient Country

#### Ministry of Education

|                                  |  |
|----------------------------------|--|
| Dr. Abdul Salam Al-Jofi          | Minister                                       |
| Dr. Abdullkarierm Al-Jendari     | Deputy Minister of Project and Equipment       |
| Mr. Hassan. S. Ba-Own            | Deputy Minister of Education                   |
| Ms. Fausia Armed Mohamed No'aman | Deputy Minister of Girl's Education            |
| Dr. Mohamed Hussain Saad         | Director General of Projects Planning          |
| Mr. Mohammed Hassan Alsharafi    | Director General of Design and Implementation  |
| Mr. Abdulrahman Algamewi         | Director General of School Mapping             |
| Mr. Ali H. Al-Hami               | Director General of Technical Education & Aids |
| Mr. Abdelmajid Al-Ghaba          | Director General of Community Participation    |
| Mr. Al-Harithy                   | General Manager of School Equipment            |
| Mr. Saleh Mohamed Afif           | Head of Educational Media production center    |
| Mr. Salah Al-Gobani              | Director of Statistics                         |
| Dr. Eng. Abdullatif Almaneeffi   | Director of Basic Education Expansion Project  |
| Mr. Hamoud Abdul Rab Al-Dalie    | Assistant of Projects Planning                 |
| Mr. Mohammed Atiah               | Engineer of Projects and Procurement Sector    |

#### Sana'a City

|                               |   |
|-------------------------------|---|
| Mr. Ahmed M. Al-Kohiani       | Minister of State, Capital Mayor        |
| Eng. Mohammed Hassen Al-Sabri | Chief of Project & Equipment Department |

#### Education Office of Sana'a City

|                                 |   |
|---------------------------------|---|
| Mr. Mohamed Abdulla Al-Fadli    | Education Office Manager in Secretarial Capital |
| Mr. Zaid Yahyn M. Al-Shahari    | General Manager of Project Department           |
| Mr. Aref Yahya Masoud           | General Manager of Supervisors                  |
| Mr. Tarek Abdullgabar Alasbahee | Manager of Design and Planning Projects         |
| Mr. Mohammed Al-Amrani          | Manager of Design                               |
| Ms. Lula Al-Shalali             | Engineer of Designing Department                |

#### Sana'a Governorate

|                            |                                       |
|----------------------------|---------------------------------------|
| Mr. Abdulwahed Al-Bukhaity | Governor                              |
| Mr. Ahmed Ali Shaiban      | Secretary General                     |
| Mr. Abdulwahed Al-Sayaghi  | Deputy Governor of Western Area       |
| Mr. Abdulmalik Al-Querbi   | Deputy Governor of Southern East Area |
| Mr. Mohammed Ali Jamil     | Deputy Governor for Financial Affairs |
| Mr. Ali Mohammed Sharim    | Deputy Governor                       |

#### Education Office of Sana'a Governorate

|                               |                                     |
|-------------------------------|-------------------------------------|
| Mr. Hussein Ali Hazeb         | Director of Education Office        |
| Mr. Mohammed Saleh Al Mataree | Director of the Head Office         |
| Mr. Murtatha Abdul Azeez      | Director of School Mapping          |
| Mr. Abd Allateef Al-Hassani   | Director of Projects                |
| Mr. Mohammed Al-Dhalee        | Director of Maintenance             |
| Mr. Fahad Al-Mutary           | Director of Community Participation |
| Mr. Aref Alsabri              | Project Staff                       |

#### Education Office of Taiz Governorate

|                      |                              |
|----------------------|------------------------------|
| Ms. Balkis Al Kadusi | Director of Girl's Education |
|----------------------|------------------------------|

Mr. Abdalkawi Al Soafeani Director of Project

**Broadening Regional Initiatives for Developing Girls' Education (BRIDGE) Program**

Mr. Hashem Senior Project Officer

Mr. Shinichiro Tanaka Vice manager

**Ministry of Planning and International Corporation**

Mr. Hisham Sharaf Abdalla Deputy Minister for International Cooperation

Mr. Omar A. Abdulghani General Director of Bilateral Cooperation with the states of Asia & Australia

Mr. Najib Al-Absi General Director of Financial Department

Mr. Ali Ali Abdullag Dhhaq Economic Researcher, Poverty Reduction Strategy Follow & Monitoring Unit

**Central Statistical Organization**

Mr. Anwar Ahmed Farhan Assistant Deputy Chairman for Automation and Studies

**Department of Building & Construction**

Eng./ Abdullah H. Qais General Manager of Department of Building & Construction

**Ministry of Water & Environment, Sana'a Water and Sanitation local Corp.**

Mr. Ali Zabarah IT Manager

**National Seismological Observatory Center**

Mr. Jamal M. Sholan General Director

**Geological Survey and Mineral Resources Board**

Dr. Ismail Naser Al-Ganad General Manager

**University of Sana'a**

Dr. Yaseen Ahmed M Own Associate Prof. Of Geotechnical Engg.  
Consultant in Civil Engg. Acting Dean of The Faculty

**Civil Aviation & Meteorology Authority**

Mr. Abulkren Director

**Engineering Consultancy Center**

Abdul Jabbar S. Salem. General Manager

Eng. A.H.A. Thabet Civil Eng. Health Facility Planner

**Griffin Ltd-Construction Division**

Eduardo R. Dungo General Manager

**KfW**

Mr. Gerhard Redcker Director of KfW in Sana'a Office

**UNICEF**

Ms. Bilkis Al-Dabbi  
Mr. Adnan M. Abdulhattah

Project Officer- Education  
Officer of Area Based Programme

**Social Fund for Development**

Ms. Jalila Shugaaldean  
Ms. Najla Alshami  
Mr. Taher S. Al-Gomay

Head of Education Unit  
Project Officer of Education Unit  
Engineer of Community Development Unit

**GTZ**

Dr. Herbert Bergman  
  
Mr. Ali Noaman  
Dr. Dagmar Awad-Gladewitz  
Mrs. Ilse Voss-Lengnik

Advisor, Education Planning and Institutional  
Development  
Secretary of Donor Coordination  
GTZ Advisor  
Advisor Teacher Education

**World Bank**

Mr. Abdulla Atef

Deputy Director of Education Sector

**Embassy of Japan in Yemen**

Mr. Yuichi ISHII  
Mr. Hisatsugu SHIMIZU  
Mr. Yoji HATTORI  
Mr. Yosuke MIYAMOTO

Ambassador  
Counselor  
First Secretary  
Second Secretary

## Appendix 4

### Minutes of Discussions (M/D)

**Appendix 4-1**

**Minutes of Discussions (M/D)  
on the Basic Design Study**

MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
ON THE PROJECT FOR CONSTRUCTION OF SCHOOL FACILITIES  
OF BASIC EDUCATION IN THE REPUBLIC OF YEMEN (PHASE 2)

In response to a request from the Government of the Republic of Yemen ( hereinafter referred to as "Yemen"), the Government of Japan decided to conduct a Basic Design Study on the Project for Construction of School Facilities of Basic Education ( hereinafter referred to as "the Project" ) and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA") .

JICA sent to Yemen the Basic Design Study Team(hereinafter referred to as "the Team" ), which is headed by Mr.Norihiro Ikeda, Team Director of Education and Vocational Training Team, Project Management Group II, Grant Aid Management Department, JICA and is scheduled to stay in the country from September 16<sup>th</sup> to 26<sup>th</sup> .

The Team held discussions with the officials concerned of the Government of Yemen and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Sana'a, September 25<sup>th</sup>,2005

池田 則宏

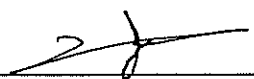


---

Norihiro Ikeda  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency

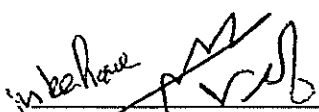
---

Abdulkarim M.Al-Jendari  
Deputy Minister  
Ministry of Education  
The Republic of Yemen



---

Mohammed Husain Saad  
Director General for Project Planning  
Ministry of Education  
The Republic of Yemen



---

Hisham Sharaf Abdalla  
Deputy Minister  
Ministry of Planning and Development  
The Republic of Yemen

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to improve the physical environment of basic education through construction of school buildings and provision of necessary equipment in Sana'a city and Sana'a Governorate.

### 2. Project sites

The sites of the Project are in Sana'a city and Sana'a Governorate.

### 3. Responsible and Implementing Agency

3-1. The Responsible Agency is the Project and Equipment Sector, Ministry of Education (MOE).

3-2. The Implementing Agencies are Education Offices in Sana'a city and Sana'a Governorate

The organization chart is shown in Annex-1.

### 4. Items requested by the Government of Yemen

After discussions with the Team, the items described in Annex-2 and 3 were finally requested by Yemen. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

### 5. Japan's Grant Aid Scheme

5-1. Yemen understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex-4.

5-2. Yemen will take the necessary measures, as described in Annex-5, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

### 6. Schedule of the Study

6-1. The consultants will proceed to further studies in Yemen until October 20<sup>th</sup>, 2005.

6-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents in February 2006.

6-3. In case that the contents of the report is accepted in principle by the Government of Yemen, JICA will complete the final report and send it to the Government of Yemen by April 2006.

*me*

*[Handwritten signature]*

## **7. Other relevant issues**

### **7-1 Number of schools and classrooms**

The Japanese side explained that it is quite difficult to cover all the schools requested by Yemen although Team tries to reduce the cost of each school. However, Yemenis side assured that they desire to support all the requested schools. Yemen agreed to prioritize requesting schools based upon the result of field survey and inform the embassy of Japan in Yemen of the order of priority of the 43 schools without dividing Sana'a City and Sana'a Governorate by November 15<sup>th</sup>, 2005

### **7-2 Selection criteria of the Project site**

The Japanese side explained that schools surveyed by the Team should be examined in accordance with the criteria attached as Annex-6 in order to assess the appropriateness of schools to be finally selected for the Project.

### **7-3 Proper operation and maintenance**

Sana'a City, Sana'a Governorate and communities shall be responsible for proper operation and maintenance of schools' facilities.

### **7-4 Allocation of teaching and administration staff**

Sana'a City and Sana'a Governorate shall allocate enough teaching and administration staff to functionally operates schools under the supervision of MOE.

### **7-5 Land acquisition**

Yemen shall prepare a legal security document on each site in order to use its land for construction. All documents shall be submitted to the embassy of Japan in Yemen by the end of October, 2005.

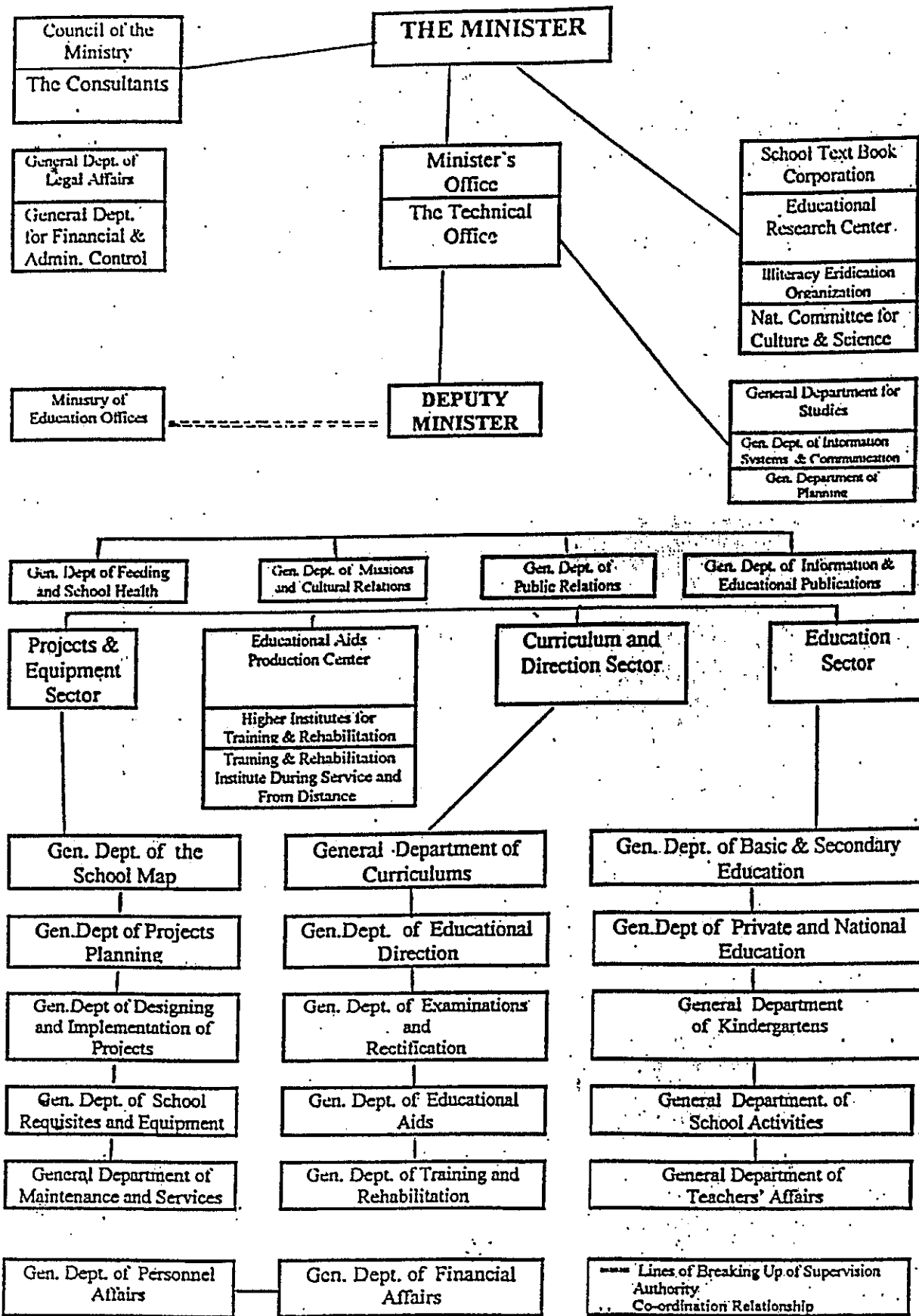
### **7-6 Technical Assistance (Soft Component)**

The Team explained that Technical Assistance (Soft Component) for both maintenance of facilities and equipment and encouragement of girl's education would be effective for the implementation of the Project and Yemen agreed with it.

Handwritten signatures and initials at the bottom of the page, including a large signature on the left, the word 'web' in the center, and another signature on the right.



ANNEX 1: Organization Chart



*Handwritten signatures and initials at the bottom right of the page.*

ANNEX 2: List of Schools to be Surveyed for the Project  
Sana'a City

| District     | No. | Name of the site or school |
|--------------|-----|----------------------------|
| M'aeen       | 1   | Neighboring Unit 653       |
|              | 2   | Neighboring Unit 678       |
|              | 3   | Neighboring Unit 672       |
|              | 4   | Neighboring Unit 666       |
| Shuoub       | 5   | Neighboring Unit 812       |
|              | 6   | Neighboring Unit 843       |
|              | 7   | Neighboring Unit 954       |
|              | 8   | Neighboring Unit 947       |
| Althwra      | 9   | Neighboring Unit 728       |
| Bani Alharth | 10  | Neighboring Unit 8H8       |
|              | 11  | Bail Hanthal               |
|              | 12  | Neighboring Unit 872       |
| Alsabeen     | 13  | Neighboring Unit 392B      |
|              | 14  | Neighboring Unit 385       |
|              | 15  | Neighboring Unit 356       |
|              | 16  | Neighboring Unit 369       |
|              | 17  | Neighboring Unit 272       |
|              | 18  | Neighboring Unit 245       |
|              | 19  | Neighboring Unit 247       |
|              | 20  | Arteel School              |

Sana'a Governorate

| District                | No. | Name of the site or school   |
|-------------------------|-----|------------------------------|
| Arhaab                  | 1   | Beni Haatem                  |
|                         | 2   | Al-Husain Bin Ali School     |
|                         | 3   | Oumerah School               |
| Al-Haiyma<br>Al-Karjiya | 4   | Al-Nahdha Bait Jaber School  |
|                         | 5   | Al Sedeeg Al-kalaabi School  |
| Al-Haiyma<br>Al-Dakliya | 6   | Bait Al-Ghaithi              |
|                         | 7   | Al-Jaram School              |
|                         | 23  | Al-Najah School              |
| Bani Martar             | 8   | Bait Dhala School            |
|                         | 9   | Hadhran School               |
| Hamdan                  | 10  | Al-Mankkab Al-Rub'a School   |
|                         | 11  | Al-fateh Beljahilya School   |
|                         | 12  | Al-Khaleg Al-Rub'a School    |
|                         | 13  | Al-Shehid Ali Saleh Al-Hawri |
| Bani<br>Hushaish        | 14  | S'awan School                |
|                         | 15  | Ghadhran School              |
| Snhan                   | 16  | Bait Al-Hadhrami             |
| Nahm                    | 17  | Shaba Bahman                 |
|                         | 18  | Thoma Bait Sayad             |
| Blaad<br>Al-Roos        | 19  | W'alan School                |
|                         | 20  | Al-Awasija School            |
| Manakah                 | 21  | Bani Khattab                 |
|                         | 22  | 12 Class Girls School        |

*Handwritten signatures and initials at the bottom right of the page.*

## ANNEX 3 : Facilities and Equipment Requested by the Yemeni Side

### 1. Facilities

#### (1) Sana'a City

Classroom, Teacher's room, Principal's room, Administration office, Multipurpose room, Library, Science laboratory, Teaching aids room, Storage, Toilet

#### (2) Sana'a Governorate

Classroom, Administration Room (Teacher's area, Principal's area, Storage), Toilet, Multipurpose room

### 2. Equipment

#### (1) Furniture

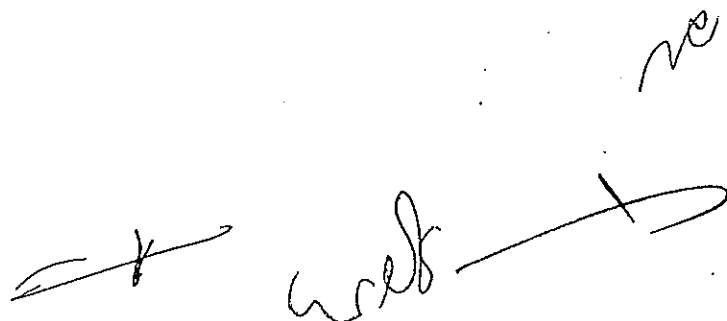
Desks (for students and teachers)  
Chairs (for students and teachers)  
Cabinets  
Blackboard

#### (2) Teaching Aids for Each Classroom

Geographical Map of Yemen  
Political Map of Yemen  
Chart of Arabic Numbers  
Chart of Arabic Letters  
Charts showing basic words  
Balance scale & set of weighs  
Plastic measures to teach volume etc.  
Set Squares, wooden – 45 & 60 deg.  
Protractors for chalk  
Globe of World Political  
Globe of World Geographical  
Yemeni Musical Instruments  
Magnetic wallboard  
Magnetic shapes  
Basic wind speed kit  
Magnifying glass  
Sets of Arabic letters on plastic  
Sets of Arabic numbers on plastic




#### (3) Laboratory Equipment

Chair for typing  
Desk for computer  
Chair for computer  
Typewriter  
Voltage regulator



Handwritten signatures and initials at the bottom of the page, including a large signature on the right and several smaller ones below it.

Calculator  
Desk for typing  
Desk for Printer  
White board  
Microscope  
Magnifying glass  
Burner  
Tripod  
Mortar  
Beaker  
Frask  
Graduated Cylinder  
Pipette  
Sliding glass  
Covering glass  
Ring for universal support  
Double unit  
Tray  
Precision balance  
Atomic model  
Thermometer for laboratory  
Test tube stand  
Metallic rule  
Level  
Tester  
Funnel  
Universal support  
Extension pincers  
Pincers for crucible  
Barometer  
Chronometer  
Ammeter

  
C. S. S.   


## ANNEX 4 : JAPAN'S GRANT AID SCHEME

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

### 1. Grant Aid Procedure

#### 1) Japan's Grant Aid Program is executed through the following procedures.

Application (Request made by a recipient country)

Study (Basic Design Study conducted by JICA)

Appraisal & Approval (Appraisal by the Government of Japan and Approval by Cabinet)

Determination of Implementation (The Notes exchanged between the Governments of Japan and the recipient country)

- 2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Team to the recipient country to confirm the contents of the request.

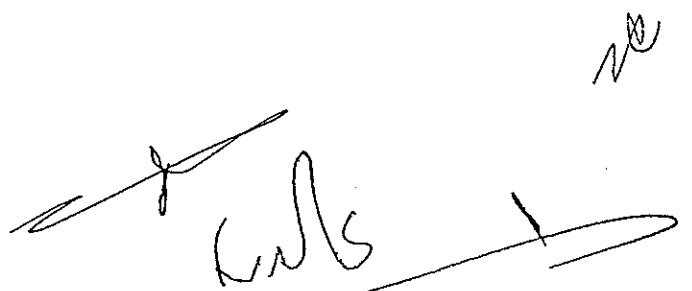
Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Programme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

### 2. Basic Design Study



1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
- b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
- c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
- d) preparation of a basic design of the Project; and
- e) estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even through they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates the Study and prepares a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Design and Construction Supervision of the Project, JICA recommends the same consulting firm which participated in the Study to the recipient country, in order to maintain the technical consistency between the Basic Design and Detailed Design as well



as to avoid any undue delay caused by the selection of a new consulting firm.

3. Japan's Grant Aid Scheme

1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

2) "The period of the Grant" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

3) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

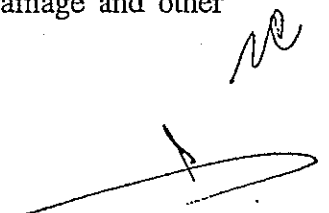
However, the prime contractors, namely consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

4) Necessity of "Verification"

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

5) Undertakings required to the Government of the recipient country

- a) to secure a lot of land necessary for the construction of the Project and to clear the site;
- b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the site;



- c) to ensure prompt unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;
- d) to exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;
- e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;
- f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project; and
- g) to bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

6) "Proper Use"

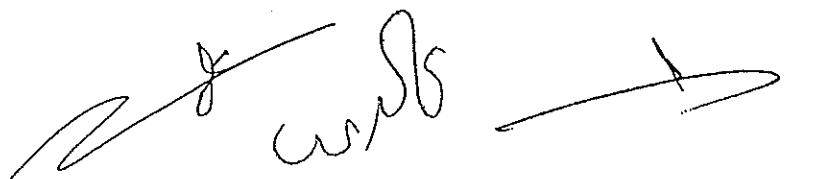
The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

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

8) Banking Arrangement (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.
- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.



Handwritten signatures and initials at the bottom of the page, including a large signature on the left, the initials 'W/S' in the center, and another signature on the right.



9) Authorization to Pay (A/P)

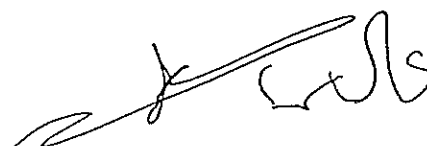
The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commission to the Bank.

~~St~~ *Wants* *me*

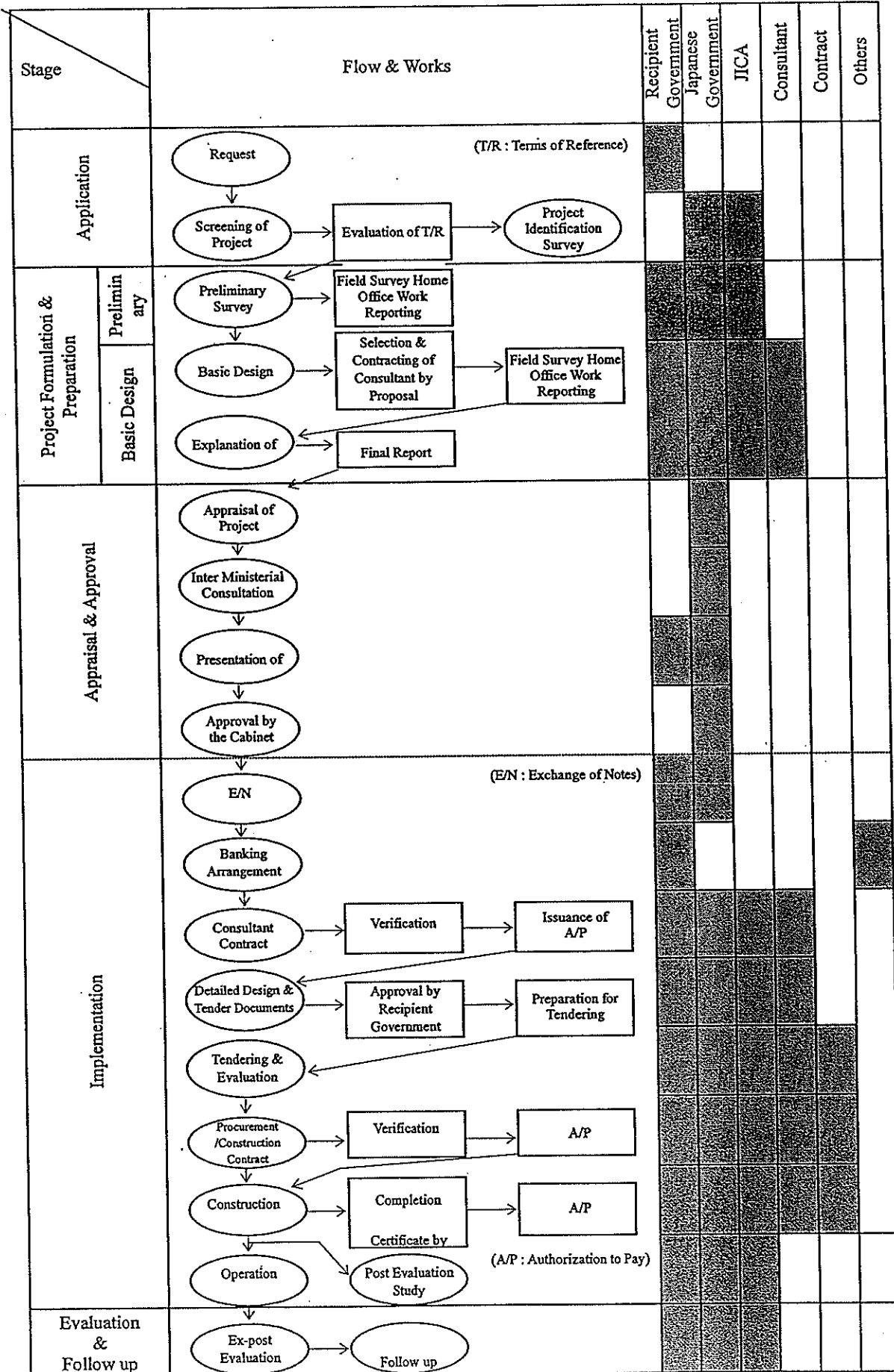
ANNEX 5: UNDERTAKINGS BY THE GOVERNMENT OF THE  
COUNTRY

RECIPIENT

1. To secure a lot of land necessary for the Project;
2. To clear and level the site for the Project prior to the commencement of the construction;
3. To provide a proper access road to the Project site;
4. To provide facilities for distribution of electricity, water supply, telephone trunk line and drainage and other incidental facilities outside the site;
5. To undertake incidental outdoor works, such as gardening, fencing, exterior lighting, and other incidental facilities in and around the Project site, if necessary;
6. To ensure prompt unloading and customs clearance of the products purchased under the Japan's Grant Aid at ports of disembarkation in the Recipient Country;
7. To exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in THE RECIPIENT COUNTRY with respect to the supply of the products and services under the verified contracts;
8. To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such facilities as may be necessary for their entry into THE RECIPIENT COUNTRY and stay therein for the performance of their work;
9. To bear commissions, namely advising commissions of an Authorization to Pay (A/P) and payment commissions, to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement (B/A);
10. To provide necessary permissions, licenses, and other authorization for implementing the Project, if necessary;
11. To ensure that the facilities constructed and equipment purchased under the Japan's Grant Aid be maintained and used properly and effectively for the Project; and
12. To bear all the expenses, other than those covered by the Japan's Grant Aid, necessary for the Project.



## FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



*Handwritten signature and scribbles*

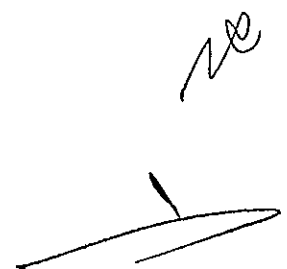
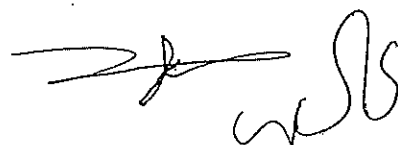
## ANNEX 6: Criteria for Project School Selection

### Schools / sites to be selected must fulfill the following criteria:

1. The present and future demand can be quantitatively estimated by a set of data such as the number of school-aged children, the rates of population growth, the enrollment ratio, etc.
2. The necessity of the schools to be constructed can be confirmed by the data such as school mapping etc.
3. Sufficient allocation of teachers and budget and proper operation and maintenance of the facilities by concerned people are secured.
4. No other program or plan for new/undergoing classroom construction by the Ministry of Education, the local government, other donors, NGOs and so forth. Or the shortage of the classrooms is still serious although the similar kinds of programs were implemented in the past.
5. The ownership of land for construction is legally secured, and the evidence of land ownership shall be provided to the Japanese side.
6. Access road for the movement of materials and the construction works are properly constructed.
7. Topographically safe and appropriate-sized land for construction is secured.
8. No natural and environmental or social hazard is foreseen.
9. The number of necessary classrooms exceeds the number of classrooms to be constructed.

### Schools / sites satisfying the following criteria will be given higher priority

10. Urgently needs the construction of classrooms because of overcrowding.
11. Urgently needs reconstruction because of the danger of over aging and/or damaged existing buildings.
12. The number of girls who can be benefited from the school construction is large.



## Appendix 4-2

### Minutes of Discussions (M/D) on the Explanation on Draft Report

MINUTES OF DISCUSSIONS  
ON BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION  
OF SCHOOL FACILITIES OF BASIC EDUCATION  
IN THE REPUBLIC OF YEMEN (PHASE 2)  
(EXPLANATION ON DRAFT REPORT)

In September 2005, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Construction of School Facilities of Basic Education (hereinafter referred to as "the Project") to the Republic of Yemen (hereinafter referred to as "Yemen"), and through discussions, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult the Yemeni side on the components of the draft report, JICA sent to Yemen the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Norihiro Ikeda, Team Director of Education and Vocational Training Team, Project Management Group II, Grant Aid Management Department, JICA from February 24<sup>th</sup> to March 3<sup>rd</sup>.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

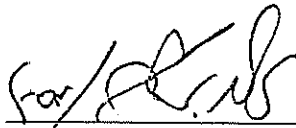
池田 則宏

Norihiro Ikeda  
Leader  
Draft Report Explanation Team  
Japan International Cooperation Agency



Sana' a, March 1<sup>st</sup>, 2006

Abdulkarim M. Al-Jendari  
Deputy Minister  
Ministry of Education  
The Republic of Yemen

  
Hisham Sharaf Abdalla  
Deputy Minister  
Ministry of Planning and Development  
The Republic of Yemen

## ATTACHMENT

### 1. Components of the Draft Report

The Government of Yemen agreed and accepted in principle the components of the draft report explained by the Team.

### 2. Japan's Grant Aid scheme

Yemen understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Yemen as explained by the Team and described in Annex-4 and Annex-5 of the Minutes of Discussions signed by both parties on September 25<sup>th</sup>, 2005.

### 3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Yemen by May 2006.

### 4. Other relevant issues

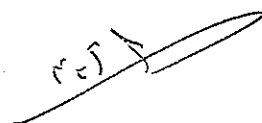
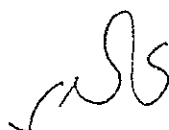
4-1 Both sides agreed on schools, facilities and equipment covered by the Project as shown in Annex-1, Annex-2 and Annex-3.

4-2 The Yemeni side explained that in order to achieve "Education for All (EFA)" quantitative aspect is also important when considering the project plan, although the Yemeni side highly appreciate the quality of school buildings granted by the government of Japan.

4-3 The Japanese side explained that Project consisted of two stages , considering construction efficiency as shown in Annex-1.

4-4 The Yemeni side, especially Sana' a City and Sana' a Governorate, assured to allocate necessary budget and personnel (teaching & administrative staff) for operating school facilities and equipment under the supervision of Ministry of Education.

4-5 Both side agreed that electrical facilities, such as lighting fixtures, are planned only at schools where electricity is already supplied. Yemeni side agreed that necessary construction works for electrical facilities, such as laying electric wires will be completed by the commencement of construction works. The completion of the works shall be reported to the Embassy of Japan in Yemen.



4-6 Technical Assistance ( Soft Component )

In order to facilitate proper use and maintenance of the school facilities covered by the Project as well as creating the school environment favorable to girls, the Yemeni side agreed on the implementation of the Soft Component which was explained and proposed by the Japanese side.

4-7 The Yemeni side explained the importance of teachers training in Sana' a Governorate, especially, training in a science laboratory. The Japanese side recognized the importance of training in a science laboratory and explained that equipment and facilities will be considered by the Team. However, the Japanese side also explained that the final decision will be made in JICA HQs in consultation with the Ministry of Foreign Affairs in Japan.

4-8 Both side recognized the shortage of class rooms in Sana' a City even though the Project would be completed. The Yemeni side insisted on continuing the provision of facilities and equipment in Sana' a City is to be taken into consideration by the government of Japan.

*ms*

*10/11*

*10*



ANNEX-1

Project Schools

First stage

Sana'a Governorate

| No. | District             | Name of School              |
|-----|----------------------|-----------------------------|
| G 2 | Arhaab               | Al-Husain Bin Ali School    |
| G 4 | Al-Haiyma Al-Karjiya | Al-Nahdha Bait Jaber School |
| G10 | Hamdan               | Al-Mankkab Al-Rub'a School  |

Sana'a City

|     |              |                      |
|-----|--------------|----------------------|
| C11 | Bani Alharth | Bail Hanthal         |
| C16 | Alsabeen     | Neighboring Unit 369 |

Second stage

Sana'a Governorate

| No. | District | Name of School              |
|-----|----------|-----------------------------|
| G12 | Hamdan   | Al-Khaleg Al-Rub'a School   |
| G13 | Hamdan   | Al-Shehid Ali Sleh Al-Hawri |
| G16 | Snhan    | Bait Al-Hadhrami            |

Sana'a City

|    |        |                      |
|----|--------|----------------------|
| C4 | M'aeen | Neighboring Unit 666 |
| C6 | Shuoub | Neighboring Unit 843 |

## ANNEX-2

### Facilities, Furniture and Equipment to be provided to each Project school

#### G2, G13 and G16

- Facility : Classrooms and toilets
- Furniture : Desks, chairs, blackboards and a cabinet
- Equipment : General teaching aids

#### G4 and G12

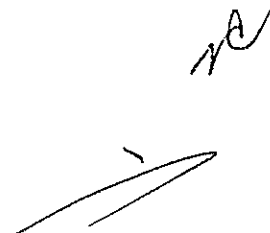
- Facility : Classrooms, an administration room and toilets
- Furniture : Desks, chairs, blackboards, notice boards and cabinets
- Equipment : General teaching aids

#### G10

- Facility : Classrooms, an administration room, a multi-purpose room, a storage and toilets
- Furniture : Desks, chairs, blackboards, notice boards and cabinets
- Equipment : General teaching aids
- \*Provision of a science laboratory and science equipment to be studied

#### C4, C6, C11 and C16

- Facility : Classrooms, a science laboratory, a library, librarian's room, an activity room, a multi-purpose room, teacher's rooms, a principal's room, an administration office, a social workers' room, a teaching aids room, storage rooms, staff rooms, toilets and handicapped toilet
- Furniture : Desks, chairs, blackboards, bookshelves, notice boards and cabinets
- Equipment : General teaching aids and science equipment



ANNEX-3

General Teaching Aids for Each Project School is subject to the approval of the Government of Japan

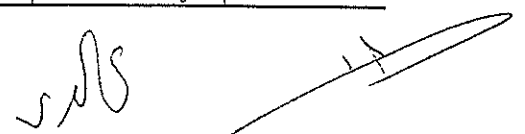
| No. | Teaching Aids               | Subject | Quantity  |
|-----|-----------------------------|---------|-----------|
| 1   | Blackboard Drawing Set      | Math    | 1 Set     |
| 2   | Two Pan Balance             | Physics | 1 Set     |
| 3   | Thermometer Wall Red Spirit | Physics | 1 Set     |
| 4   | Magnetic Compass            | Physics | 1 Package |
| 5   | Rectangular Magnets         | Physics | 1 Set     |
| 6   | Mirrors (Optically Worked)  | Physics | 1 Set     |
| 7   | Magnifier with Handle       | Biology | 1 Set     |

Equipment for Science Laboratory for Each Project School in Sana'a City is subject to the approval of the Government of Japan

| No. | Teaching Aids                     | Subject | Quantity  |
|-----|-----------------------------------|---------|-----------|
| 1   | Compression Spring Balance:(10KG) | Physics | 1 Package |
| 2   | Spring Balances (0.5~5KG)         | Physics | 1 Set     |
| 3   | Levers                            | Physics | 1 Set     |
| 4   | Simple Pendulum                   | Physics | 1 Set     |
| 5   | Springs Set                       | Physics | 1 Set     |
| 6   | Solid Material Kit                | Physics | 1 Set     |
| 7   | Slotted Weight                    | Physics | 1 Set     |
| 8   | Caliper Gauge                     | Physics | 1 Package |
| 9   | Geometrical Models                | Physics | 1 Set     |
| 10  | Equal Pressure Pump               | Physics | 1 Set     |
| 11  | Barometer Aneroid                 | Physics | 1 Set     |
| 12  | Hydrometer                        | Physics | 1 Set     |
| 13  | Anemometer                        | Physics | 1 Package |
| 14  | Ball & Ring Apparatus             | Physics | 1 Set     |
| 15  | Expansion apparatus               | Physics | 1 Set     |
| 16  | Expansion of Liquid Apparatus     | Physics | 1 Set     |
| 17  | Ingen-Hausz's Apparatus           | Physics | 1 Set     |
| 18  | Convection Liquid Apparatus       | Physics | 1 Set     |
| 19  | Hygrometer                        | Physics | 1 Set     |
| 20  | Thermometer Max. & Min.           | Physics | 1 Set     |
| 21  | Lenses                            | Physics | 1 Set     |
| 22  | Optical Bench                     | Physics | 1 Set     |
| 23  | Rectangular Glass                 | Physics | 1 Set     |
| 24  | Prism glass                       | Physics | 1 Set     |
| 25  | Newton's Color Disc               | Physics | 1 Set     |
| 26  | Wave Form apparatus Helix         | Physics | 1 Set     |
| 27  | Set of Tuning Forks               | Physics | 1 Set     |
| 28  | Stethoscope                       | Physics | 1 Set     |
| 29  | Air pump                          | Physics | 1 Package |
| 30  | Electric Bell in Acrylic Jar      | Physics | 1 Package |
| 31  | Timer                             | Physics | 1 Set     |
| 32  | Electromagnetic                   | Physics | 1 Set     |
| 33  | Demonstration Electric Motor      | Physics | 1 Set     |
| 34  | Demonstration Induction COIL      | Physics | 1 Set     |
| 35  | Hand Electric Generator           | Physics | 1 Package |
| 36  | Electric Bell                     | Physics | 1 Set     |
| 37  | Electrostatic Kit                 | Physics | 1 Set     |
| 38  | Electroscope Pith ball            | Physics | 1 Set     |
| 39  | Friction Rods                     | Physics | 1 Set     |
| 40  | Friction Rubber                   | Physics | 1 Set     |

*Handwritten signatures and marks at the bottom of the page.*

|    |  |           |         |
|----|--|-----------|---------|
| 41 | Proof Sphere, Proof Plane                                | Physics   | 1 Set   |
| 42 | Continuously Variable L.T. Power Supply                  | Physics   | 1 Set   |
| 43 | Digital Multi Meter                                      | Physics   | 1 Set   |
| 44 | Meters   | Physics   | 1 Set   |
| 45 | Rheostats  | Physics   | 1 Set   |
| 46 | Wire Resistance Reel                                     | Physics   | 1 Set   |
| 47 | Circuit Board Kit  | Physics   | 1 Set   |
| 48 | Lead Flexible with Coated Crocodile Clips at Each Ends   | Physics   | 1 Set   |
| 49 | Switches   | Physics   | 1 Set   |
| 50 | Lamp Holder, Lamp Bulbs                                  | Physics   | 1 Set   |
| 51 | Photoelectric Cell Mounted on Base with Socket Terminals | Physics   | 1 Set   |
| 52 | Dissecting Kit Set                                       | Biology   | 1 Set   |
| 53 | Dissecting Board   | Biology   | 1 Set   |
| 54 | Specimen Tubes   | Biology   | 1 Set   |
| 55 | Hand Microtome   | Biology   | 1 Set   |
| 56 | Compound Microscope                                      | Biology   | 1 Set   |
| 57 | Projection microscope                                    | Biology   | 1 Set   |
| 58 | Human Torso with Head Model                              | Biology   | 1 Model |
| 59 | Human Skeleton Model                                     | Biology   | 1 Model |
| 60 | Human Brain Model  | Biology   | 1 Model |
| 61 | Human Eye Model  | Biology   | 1 Model |
| 62 | Human Ear Model  | Biology   | 1 Model |
| 63 | Human Heart Model  | Biology   | 1 Model |
| 64 | Human Kidney Model                                       | Biology   | 1 Model |
| 65 | Human Skin Model   | Biology   | 1 Model |
| 66 | Human Digestive System Model                             | Biology   | 1 Model |
| 67 | Human Respiratory System Model                           | Biology   | 1 Model |
| 68 | Human Circulatory System Model                           | Biology   | 1 Model |
| 69 | Urinary System Model                                     | Biology   | 1 Model |
| 70 | Animal Cell Model  | Biology   | 1 Model |
| 71 | Animal Cell Division Model                               | Biology   | 1 Model |
| 72 | Plant Cell Model   | Biology   | 1 Model |
| 73 | Filter Funnel  | Chemistry | 1 Set   |
| 74 | Gas Collection   | Chemistry | 1 Set   |
| 75 | Gas Generator  | Chemistry | 1 Set   |
| 76 | Polypropylene Funnel                                     | Chemistry | 1 Set   |
| 77 | Mortar & Pestle  | Chemistry | 1 Set   |
| 78 | Pipettes Filler  | Chemistry | 1 Set   |
| 79 | Rubber Tubing  | Chemistry | 1 Set   |
| 80 | Deflagrating Spoon & Cap                                 | Chemistry | 1 Set   |
| 81 | Spatula Combustion                                       | Chemistry | 1 Set   |
| 82 | Water Bath   | Chemistry | 1 Set   |
| 83 | Test Tube Holders  | Chemistry | 1 Set   |
| 84 | Hoffman's Voltmeter                                      | Chemistry | 1 Set   |
| 85 | Brushes for Washing                                      | Chemistry | 1 Set   |
| 86 | Stoppers Borer Set                                       | Chemistry | 1 Set   |
| 87 | Stoppers   | Chemistry | 1 Set   |
| 88 | Bunsen Burner  | Chemistry | 1 Set   |
| 89 | Burner   | Chemistry | 1 Set   |
| 90 | Tripod Stand   | Chemistry | 1 Set   |
| 91 | Triangles Ironwire Pipe                                  | Chemistry | 1 Set   |
| 92 | Gauge Ironwire   | Chemistry | 1 Set   |
| 93 | File   | Chemistry | 1 Set   |
| 94 | Test Tube Stand  | Chemistry | 1 Set   |
| 95 | Retort Stand with Accessories                            | Chemistry | 1 Set   |
| 96 | Electronic Balance                                       | Chemistry | 1 Set   |
| 97 | Battery Holder   | Chemistry | 1 Set   |



## 5. Reference

| No | Title   | Publisher  | Year            |
|----|---|--|-----------------|
| 1  | Basic Education Development Strategy  | Ministry of Education                              | 2003            |
| 2  | Poverty Reduction Strategy Paper 2003-2005  | Ministry of Planning and International Cooperation | 2003            |
| 3  | Poverty Reduction Strategy Progress Report For 2003&2004  | Ministry of Planning and International Cooperation | 2005            |
| 4  | Educational Bases & Criteria  | Ministry of Education                              | 2004            |
| 5  | Ministerial Decree No.950 on School Regulation Execution  | Ministry of Education                              | 1997            |
| 6  | Statistical Yearbook 2000-2003  | Ministry of Planning and International Cooperation | 2001~2003       |
| 7  | Education Census 1999-2004  | Ministry of Education                              | 2000~2004       |
| 8  | Education Survey 2004   | Social Fund for Development                        | 2005            |
| 9  | Government Finance Statistics   | Ministry of Finance                                | 2005            |
| 10 | Decree of the Governorate of Sana'a Concerning the By-Law Organizing the Process of Collecting and Expending School Resources | Local Government of Sana'a Governorate             | 2005            |
| 11 | Regulation on school fee, local share and schools shops   | Education office of Sana'a City                    | 2005            |
| 12 | Ministerial Decree No 103 of the year 2002 regarding the implementation of the regulation for Fathers –Mothers Councils       | Ministry of Education                              | 2002            |
| 13 | Guideline on Father's and Mother's Council  | Ministry of Education                              | 2003            |
| 14 | Mid-term review, Child Development Project  | UNICEF   | 2003            |
| 15 | Social Fund for Development Annual Report 2004  | Social Fund for Development                        | 2005            |
| 16 | BEEP, FTI, BDP Progress Report, June 2005   | World Bank   | 2005            |
| 17 | National Seismological Network  | National Seismological Observatory Center          | 2000~2005, 1996 |

## **Appendix 6**

### **Plan for Software Component**

# Software Component Plan

## 1. Background

This Project aims at improving the school environment of Sana'a City and Sana'a Governorate through construction of educational facilities in these areas. In order that the constructed educational facilities contribute to the improvement of the education environment, it is necessary that they are properly maintained and utilized. Especially, considering the serious gap in the enrolment ratio between boys and girls at the basic education level, it is important that the constructed facilities become utilized considering the needs not only of boys but also of girls. Regarding this point, the existing schools in Sana'a Governorate are facing some problems mentioned below, which can be obstacles in improving the school environment through construction of educational facilities.

### (1) Regarding School Management System

#### 1) Lack of opportunity for women, such as mothers, female teachers and girl students, to take part in the decision-making process in school management.

In Yemen, schools have discretion in school management, and the School Regulation issued in 1997 and the Regulation on Fathers' and Mothers' Councils issued in 2002 provide that each school needs to establish Fathers' and Mothers' Councils. However, according to the results of the site survey, most of the schools do not have Mothers' Councils, thus, women rarely have opportunities to give their opinion or make decisions in school management.

#### 2) Men of influence dominate decision making.

Even though some schools have Fathers' Councils, only some men among the members have influence, and they dominate the decision-making process, thus, many parents do not participate in school management due to the lack of interest in school activities.

#### 3) Schools do not have sufficient financial resources for school management.

Schools need to cover the school management costs out of the school fees collected from their students. However, many students cannot afford it and schools do not have enough financial resources to spend for school management.

#### 4) Government support is lacking.

In order to improve the school management in each school, government support is essential. However, in Yemen, schools cannot receive enough support from the government due to the lack of governmental administrative capacity and resources.

As ways to alleviate the problems mentioned above, it is required to organize and activate the Fathers' and Mothers' Councils in order to establish a school management system which involves as many school staff, students, parents and community members as possible making use of their wisdom and offer of labor and materials. In addition, it is necessary to improve the government's capacity to support the establishment of the system mentioned above.

## (2) Regarding Maintenance Activities

### 1) The level of interest and awareness regarding maintenance activities is low at school.

At school, there is not sufficient awareness that daily maintenance activities at the school level such as cleaning and periodical inspection are important in the long run, thus, people's interest in maintenance activities is low. Even when they are aware of the importance of such maintenance in a way, it is not easy to come up with the financial resources to employ cleaners and repair the facilities out of the limited amount of school fees. Therefore, in many existing schools, it was observed that there is a tendency to give up even the implementation of maintenance activities even though these do not require much expense.

### 2) Method of periodical and continuous implementation of maintenance activities is not very well established.

It is often observed that only after problems of facilities are found, some men start to discuss how to deal with them. However, what is important is to carry out maintenance activities to prevent damage or disrepair of the facilities. Schools do not have enough awareness on the importance of this and no system for the implementation of such activities has been established.

As ways to alleviate the problems mentioned above, it is necessary to raise awareness on the importance of preventive maintenance and to improve the methods of its implementation. BEEP (Basic Education Expansion Project) funded by the World Bank is also supporting schools in Sana'a Governorate in school facility maintenance, putting emphasis on technical aspects, such as acquisition of techniques of repairing the damaged or broken parts of the facilities and provision of tools for maintenance activities. Therefore, to avoid duplication of the support, this Software Component Program will focus on management aspects, such as awareness raising on the importance of maintenance activities and the establishment of a maintenance implementation system which will enable periodical and continuous implementation of maintenance activities with initiatives of the Fathers' and Mothers' Councils. The technical support by this Software Component



Program will be limited to the acquisition of maintenance techniques of the newly developed toilet for this Project.

**(3) Regarding improvement in the school environment considering the needs of female students**

**1) People at school have low awareness on the importance of girls' education.**

In Yemen, the proportion of girls to total students decreases in higher grades of Basic Education, and one of the reasons for this phenomenon is the school environment. For example, if a school is co-educational, parents do not send their daughters to the school because of the cultural, social and religious custom of separating girls and boys. In addition, lack of toilet facilities can be an obstacle preventing girls from going to school. Possible measures to solve these problems, from the point of view of the facilities, can be securing classrooms and toilets only for girls. However, it was observed in some schools that toilets are available exclusively to teachers and girls cannot use them. Also, there are cases in which facilities constructed for girls are diverted for the use of boys because of the rapid increase in the number of male students. A possible reason for the lack of consideration toward girls is the low awareness of people at school regarding the importance of girls' education, in addition to the problems regarding exclusion of women from school management as mentioned above.

As measures to deal with the problems mentioned above, it is necessary to raise awareness of people associated with the schools as well as that of the community regarding the importance of girls' education.

Based on the problems analyzed above, in order to achieve the Project goal, "the improvement of the school environment", this Software Component Program supports schools in raising awareness of the importance of girls' education and strengthening the maintenance system under the school management with initiative of the Fathers' and Mothers' Council. The Ministry of Education has compiled the program for improving community participation in school matters through organizing Fathers' and Mothers' Councils by Social Workers<sup>1</sup>. Based on this program, the Ministry of Education is now implementing the workshops in the Governorates of Ibb, Abian, Maareb and Hajjah. The workshop for project schools in Sana'a Governorate will be conducted following this Ministry's program.

---

<sup>1</sup> One Social Worker is employed for every 500 students at each school. One of the Social Worker's roles is to strengthen the relationship between the school and parents. In schools where no Social Worker is employed, teachers play Social Workers' roles.

## 2. Objective of the Software Component Program

The objective of this Software Component Program is that the facilities constructed in the Project will be maintained appropriately and continuously, and utilized to achieve the improvement of the school environment with consideration for not only boys but also girls.

## 3. Outputs of the Software Component Program and Means for Verification of Achievement of Outputs

To realize the above-mentioned objective, this Software Component Program aims to achieve the following outputs at each project school. In addition, it is expected to raise the awareness of the people concerned on the importance of school maintenance and girls' education through a series of these activities.

| Outputs  | Indicators  |
|--|---|
| Output 1:<br>School management system with initiative of the Fathers' and Mothers' Councils is established.                            | (1) Each school has 2 school staff members who have received the Social Worker training workshop.<br>(2) Fathers' and Mothers' Councils consisting of head teacher, teachers, other school staff, parents and community people is established.<br>(3) Annual Activity Plan of the Fathers' and Mothers' Councils is formulated.<br>(4) Meetings of the Fathers' and Mothers' Councils are held more than 6 times a year.          |
| Output 2:<br>The system of implementing maintenance activities at project schools is strengthened.                                     | (1) Understanding of the Social Workers and members of Fathers' and Mothers' Councils about the appropriate management method of maintenance is enhanced. (The tests to check the understanding will be implemented before and after this Software Component Program)<br>(2) School Maintenance Plan is formulated.<br>(3) More than 80% of the planned activities are implemented.   |
| Output 3:<br>The awareness-raising activities on the importance of girls' education by the people associated with school are improved. | (1) Number of awareness-raising activities on the importance of girls' education increases.<br>(2) Number of people who participated in the awareness-raising activities on the importance of girls' education increases.<br>(3) Awareness of the people associated with school on the importance of the girls' education is enhanced. (The attitude survey will be implemented before and after this Software Component Program) |

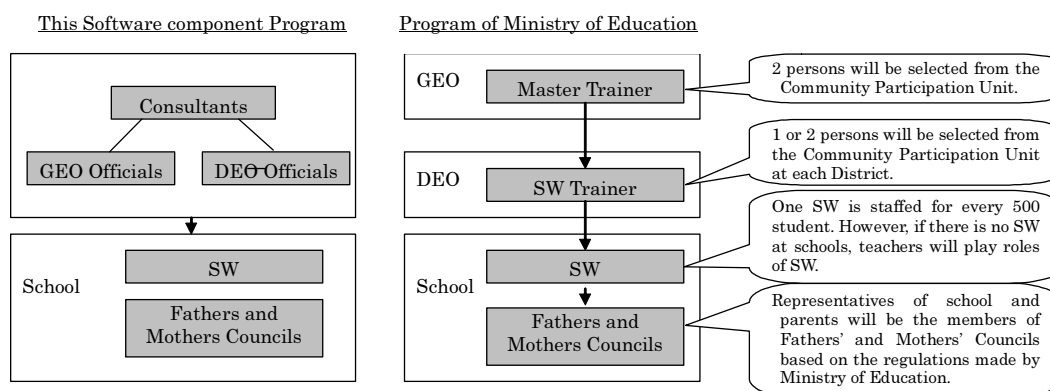
#### **4. Activities of Software Component Program**

##### **(1) Implementation Structure**

A Japanese consultant supervises all activities of this program. A local consultant who has worked on similar projects supports the Japanese consultant, implements Social Worker Training and monitors the activities of project schools. The Department of Projects Planning, Projects & Equipment Sector, Ministry of Education, as the counterpart in this Project, supervises the Governorate Education Office (GEO) as well as carries out necessary administrative procedures and coordination with other sectors in the Ministry of Education and other organizations for the implementation of the Software Component activities. In addition, the Girls' Education Sector of the Ministry of Education gives technical assistance in implementing the workshop formulated by the Ministry of Education which is part of the training program for improving community participation in school matters as well as supervises the quality of the activities of the local consultant.

##### **(2) Implementing System**

According to the training program for improving community participation formulated by the Ministry of Education, workshops and monitoring are implemented by a cascade method: Master Trainer at Governorate level → Social Worker Trainer at District level → Social Worker at each school (or teacher) → Fathers' and Mothers' Councils. Therefore, in this Project, consultants will give direct support to Social Workers and Fathers' and Mothers' Councils who play important roles in implementing continuous maintenance activities and awareness-raising activities on the importance of girls' education at Project schools (see the chart below). Workshops for Master Trainers and Social Worker Trainers will be implemented by the Yemeni side if necessary. Staff of the Governorate Education Office and District Education Office (DEO) (staff in charge of project planning, maintenance, community participation and girls' education) will implement the workshops for Project schools in cooperation with consultants. Through this, it is expected that the capacity of the government officials will be enhanced.



### (3) Target of the Activities

This Software Component Program targets those associated with the 6 Project schools in Sana'a Governorate.

### (4) Points of Concern in the Implementation

#### 1) Cooperation with other projects

Cooperation with the following projects is considered in the activities related to facility maintenance and education of girls.

#### a) JICA; Broadening Regional Initiative for Developing Girls' Education (BRIDGE)

The Project "Broadening Regional Initiative for Developing Girls' Education (BRIDGE)" started as Technical Cooperation Project of JICA in Taiz Governorate from June, 2005. In BRIDGE, activities to improve girls' access to education with initiatives of people in the community and the school are implemented. This Software Component Program will actively seek cooperation with BRIDGE by, for example, requesting the Education Office of Taiz Governorate to give lectures at the workshops for officials in this Software Component Program. It should also be considered to utilize lessons and outputs (manuals, materials for awareness raising and so on) from BRIDGE. Once lessons and outputs regarding girl-friendly school environments are achieved in this Software Component Program, these can be shared with BRIDGE.

#### b) GTZ: Basic Education Improvement Project (BEIP)

BEIP is promoting the education of girls and the participation of the community through organizing and activating the Fathers' and Mothers' Councils by social workers at the school level and local officials in charge of community participation in the Governorates of Ibb, Abyan, Hajja, and Maareb along with the construction of facilities. As in the case with BRIDGE, this Software Component Program will actively consider cooperation and sharing of lessons and outputs with GTZ.

c) World Bank: Basic Education Expansion Project (BEEP)

As mentioned above, BEEP, funded by the World Bank is carrying out training on maintenance with emphasis on technical aspects. A manual on technical skills for maintenance was under preparation at the time of survey. There is a possibility that this manual can be utilized in this Software Component Program. Also, BEEP organized the Community Participation Unit in 2002 in its Project areas including Sana'a Governorate to organize Fathers' and Mothers' Councils at some schools, and the staff of this Unit at Governorate and District level participated in various kinds of training for the promotion of community participation. This Unit was integrated into the Ministry of Education in 2004. At present, the Education Office of Sana'a Governorate has 2 male and 2 female officials and District Education Offices have 1 male and 1 female official in charge of community participation. Half of them have experience in participation in the training mentioned above. Therefore, this Software Component will make use of this human resource in organizing and activating the Fathers' and Mothers' Councils.

2) Participation of Women

In Yemen, it is difficult for women to participate in school activities because of cultural and social customs. In this Software Component, experiences of other projects in this issue will be referred to, and careful consideration will be given to facilitate participation of women according to the situation of each school. In particular, considering that it is important that the male leaders of the community allow the women's participation in Yemen, understanding of the religious leaders and male leaders of the community about the women's participation need to be acquired at the beginning of the activities.

(5) Contents of the activity

The Program shall be implemented as follows:

1) Grasp of the current situation and analysis of the problems

Workshops will be held at the government and school level in order to understand the current situation and analyze the problems of implementing situation, management system and governmental support regarding the activities of organizing Fathers' and Mothers' Councils, school maintenance activities and awareness-raising activities on girls' education.

Plan of contents of Workshop for Officials ①

- Induction Course (Purpose of the activities of the Software Component Program, Responsibilities of the government)
- Grasp of the situation and analysis of the problems regarding the activities of Fathers' and Mothers' Councils
- Grasp of the implementing situation and analysis of the problems regarding school maintenance activities
- Grasp of the implementing situation and analysis of the problems regarding awareness-raising activities on girls' education
- Grasp of the situation and analysis of the problems regarding the government's support on school management

Plan of contents of Workshop for School ①

- Induction Course (Purpose of the activities of the Software Component Program, Understanding the importance of women's participation and responsibilities of the government)
- Grasp of the situation and analysis of the problems regarding the activities of Fathers' and Mothers' Councils
- Grasp of the implementing situation and analysis of the problems regarding school maintenance activities
- Grasp of the implementing situation and analysis of the problems regarding awareness-raising activities on girls' education
- Attitude Survey on girls' education

2) Acquisition of knowledge by people associated with school management at Project schools

After selecting Social Workers and organizing Fathers' and Mothers' Councils at each Project school, 12 days' Training for Social Workers based on the Ministry's training program and 2 days' training for the members of Fathers' and Mothers' Councils are implemented, and people associated with school management will acquire necessary knowledge for implementing activities of Fathers' and Mothers' Councils, school maintenance activities and awareness-raising activities on girls' education.

Plan of general outline of the training for Social Worker

(Contents will be determined based on the results of the analysis of the problems)

- Importance of the community participation in school matters
- Roles and contents of the activities of Social Worker
- Fathers' and Mothers' Councils (Contents of the organization, means to organize the Councils, means to improve activities of the Councils, roles of the Fathers' and Mothers' Councils to improve girls' education and school maintenance activities)
- Importance of the school maintenance activities and means to plan and manage the activities
- Importance of girls' education, means to plan and manage the awareness-raising activities on girls' education and introduction of the awareness-raising educational materials (materials developed by the BRIDGE)
- Techniques of communication
- Techniques of problem-solving

Plan of contents of the training for members of Fathers' and Mothers' Councils

(Contents will be determined based on the results of the analysis of the problems)

- Roles and importance of Fathers' and Mothers' Councils, means to organize the Councils and means to manage the Councils)
- Understanding test of school maintenance methods
- Importance of school maintenance and means to plan and manage the activities
- Importance of girls' education, means to plan and manage awareness-raising activities and introduction of the awareness-raising educational materials (materials developed by the BRIDGE)

3) Implementation of the activities at Project schools

Based on the knowledge acquired at the training, each Project school will implement the school maintenance activities and awareness-raising activities on girls' education. Members of Fathers' and Mothers' Councils play a central role in these activities.

- ① Formulation of Annual Activity Plan of school maintenance activities and awareness-raising activities on girls' education.
- ② Implementation of the activities in line with the Annual Activity Plan

- ③ Monitoring of the implementing situation of the activities
  - ④ Evaluation of the activities at the end of the term
- 4) Monitoring of the Project schools by Ministry and consultants

Consultants monitor the implementing situation of the activities at each Project school with GEO and DEO and give support accordingly. In addition to the monitoring of the activity reports which each Project school submits every month, the local consultant visits each Project school three times a year with GEO and DEO and has Follow-Up Meetings with Social Workers and members of Fathers' and Mothers' Councils in order to grasp problems that each Project school is facing in planning and implementing activities and gives necessary support.

Plan of contents of the Follow-Up Meeting

- First meeting (One month after the training for Fathers' and Mothers' Councils)
  - Confirmation and reformation of the contents of activity plan
  - Support for the Monitoring
- Second Meeting (when the preceding term finishes)
  - Feedback from consultants about the activity reports
  - Support for the Evaluation
- Third Meeting (In the middle of the later term)
  - Grasp of the problems of whole activities and guidance for improvements

- 5) Evaluation of the activities

Workshops at the government and school level will be held in order to evaluate all of the activities. At the school level, an Activity Plan for the next year will be made based on the results of the evaluation.

Plan of the contents of Workshop for School ②

- Evaluation of school maintenance activities
- Evaluation of awareness-raising activities on girls' education
- Evaluation of the activities of Fathers' and Mothers' Councils
- Formulation of the Activity Plan for the next year
- Understanding test of methods of school maintenance
- Attitude survey on girls' education



Plan of the contents of Workshop for Officials ②

- Evaluation of school maintenance activities
- Evaluation of awareness-raising activities on girls' education
- Evaluation of the activities of Fathers' and Mothers' Councils
- Evaluation of the Monitoring by the Ministry

Please refer to the detailed activity plan on the next page for more detail.

## Detailed Activity Plan (common plan for first and second phase)

| Activity  | Implementing method   | Implementing place | Implementer                               | Target  | Days for Activity  |
|---|---|--------------------|---|---|--|
| (1) Grasp of the current situation and analysis of the problems                             | Workshop for Officials ①  | Sana'a Governorate | Japanese Consultant and Local Consultant  | MOE, GEO and DEO of Sana'a City and Sana'a Governorate<br>Project schools | 2 days (1 day for preparation, 1 day for workshop)   |
|   | Workshop for school ①   | Project schools    |   |   | 4 days (1 day for preparation, 3 days for workshop : 1day/school × 3 schools)  |
| (2) Acquisition of knowledge by people associated with school management at Project schools | Training for Social Workers   | Sana'a Governorate | Japanese Consultants and Local Consultant | Social Workers  | Japanese Consultant: 2 days (Monitoring)<br>Local Consultant: 16 days (2 days for preparation, 12 days for workshop, 2days for making reports                |
|   | Training for members of Fathers' and Mothers' Councils  | Project schools    |   | Members of Fathers' and Mothers' Councils<br>—                            | 8 days (2 days for preparation, 6days for workshop : 2days/school × 3 schools)<br>(7months)  |
| (3) Implementation of the activities at Project schools                                     | Formulation of Annual Activity Plan of school maintenance activities and awareness-raising activities on girls' education | Project schools    | Project schools                           |   |  |
|   | Implementation of the activities in line with the Annual Activity Plan  |                    |   |   |  |
|   | Monitoring of the implementing situation of the activities  |                    |   |   |  |
|   | Evaluation of the activities at the end of the term   |                    |   |   |  |
| (4) Monitoring of the Project schools by Ministry and consultants                           | Monitoring of the activity reports  | —                  | Japanese Consultant and Local Consultant  | —   | Local Consultant : 7days(1day/time×7 times)<br>Japanese Consultant: 9 days (2days for considering the contents and 1day for monitoring × 3times)             |
|   | Follow-Up Meeting (3 times)   | Project schools    |   | Social Workers, members of Fathers' and Mothers' Councils                 | Local Consultants: 18 days (3 days for preparation, 9 days for the meeting : 1day/time × 3 schools × 3times, 6days for making reports : 2days/time × 3times) |
| (5) Evaluation of the activities  | Workshop for School ②   | Project schools    | Japanese Consultants and Local Consultant | Project schools   | 4 days (1 day for preparation, 3 days for workshop : 1day/school × 3 schools)  |
|   | Workshop for Officials ②  | Sana'a Governorate |   | MOE, GEO and DEO of Sana'a City and Sana'a Governorate                    | 2 days (1day for preparation, 1 day for workshop)  |

### Required Days for Activity

|                        | Content of Activity                                   | In Yemen |  | In Japan |  | Sub-total |
|------------------------|---|----------|--|----------|--|-----------|
|                        |   | Days     | Remarks                                      | Days     | Remarks  |           |
| Activity in Yemen<br>① | Travel (Japan to Yemen)                               | 2        |  |          |  | 15        |
|                        | Courtesy call to related organizations and ministries | 1        |  |          |  |           |
|                        | Workshop for Officials ①                              | 2        | 1day for preparation, 1 day for workshop     |          |  |           |
|                        | Workshop for School ①                                 | 4        | 1day for preparation, 1day/school×3 schools  |          |  |           |
|                        | Training for Social Workers                           | 2        |  |          |  |           |
|                        | Meeting with Local Consultant                         | 1        |  |          |  |           |
|                        | Report to related organizations and ministries        | 1        |  |          |  |           |
|                        | Travel (Yemen to Japan)                               | 2        |  |          |  |           |
|                        | Subtotal  | 15       |  |          |  |           |
| Activity in Yemen<br>② | Travel (Japan to Yemen)                               | 2        |  |          |  | 15        |
|                        | Courtesy call to related organizations and ministries | 1        |  |          |  |           |
|                        | Training for Fathers' and Mothers' Councils           | 8        | 2days for preparation, 2days/school×3schools |          |  |           |
|                        | Meeting with Local Consultant                         | 1        |  |          |  |           |
|                        | Report to related organizations and ministries        | 1        |  |          |  |           |
|                        | Travel (Yemen to Japan)                               | 2        |  |          |  |           |
| Subtotal               | 15  |          |  |          |  |           |
| Activity in Japan      | Monitoring of the activities                          |          |  | 9        | 3days/time (2days for planning the contents of the follow-up, 1day for Monitoring)×3 times | 9         |
|                        | Subtotal  |          |  | 9        |  |           |
| Activity in Yemen<br>③ | Travel (Japan to Yemen)                               | 2        |  |          |  | 13        |
|                        | Courtesy call to related organizations and ministries | 1        |  |          |  |           |
|                        | Workshop for School ②                                 | 4        | 1day for preparation, 1day/school×3schools   |          |  |           |
|                        | Workshop for Officials ②                              | 2        | 1 day for preparation, 1day for workshop     |          |  |           |
|                        | Meeting with Local Consultant                         | 1        |  |          |  |           |
|                        | Report to related organizations and ministries        | 1        |  |          |  |           |
|                        | Travel (Yemen to Japan)                               | 2        |  |          |  |           |
|                        | Subtotal  | 13       |  |          |  |           |
| Total                  | Days  | 43       |  | 9        |  | 52        |
|                        | MM(Man/Month)   | 1.43     |  | 0.3      |  | 1.73      |

## **5. Procurement of Local Resources for the Implementation of Software Component**

One local consultant is to be contracted for this Software Component Program. He/She is required to have sufficient experience of working on similar projects implemented by other donors.

## **6. Implementation Schedule of the Software Component Program**

The following is the implementation schedule.

# Implementation schedule

|   | 2006   |   |   | 2007 |    |    | 2008 |   |   | 2009 |   |   |   |   |   |   |    |    |    |   |   |
|---|--|---|---|------|----|----|------|---|---|------|---|---|---|---|---|---|----|----|----|---|---|
|   | 6  | 7 | 8 | 9    | 10 | 11 | 12   | 1 | 2 | 3    | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
|   | ▲ E/N (1st stage)<br>▲ Consultant Contract (1st stage)<br>Detailed design (1st stage)<br>Construction Period (1st stage: 12 months)<br>▲ E/N (2nd stage)<br>▲ Consultant Contract (2nd stage)<br>Detailed design (2nd stage)<br>Construction Period (2nd stage: 12 months) |   |   |      |    |    |      |   |   |      |   |   |   |   |   |   |    |    |    |   |   |
| (1) Grasp of the current situation and Analysis of the problems<br>(2) Acquisition of knowledge by people associated with school management at project schools (Training for Social Worker) |  |   |   |      |    |    |      |   |   |      |   |   |   |   |   |   |    |    |    |   |   |
| (2) Acquisition of knowledge by people associated with school management at project schools (Fathers' and Mothers' Councils)  |  |   |   |      |    |    |      |   |   |      |   |   |   |   |   |   |    |    |    |   |   |
| (3) Implementation of the activities at project schools<br>(4) Monitoring of the project schools by Ministry and consultants  |  |   |   |      |    |    |      |   |   |      |   |   |   |   |   |   |    |    |    |   |   |
| (5) Evaluation of the activities  |  |   |   |      |    |    |      |   |   |      |   |   |   |   |   |   |    |    |    |   |   |
| Report of the Progress and results of the activities  |  |   |   |      |    |    |      |   |   |      |   |   |   |   |   |   |    |    |    |   |   |

|  | 1st stage - MM |       |       | 2nd stage - MM |       |       | 2006 |   |   | 2007 |    |    | 2008 |   |   | 2009 |   |   |   |   |   |   |    |    |    |   |   |
|--|----------------|-------|-------|----------------|-------|-------|------|---|---|------|----|----|------|---|---|------|---|---|---|---|---|---|----|----|----|---|---|
|  | Yemen          | Japan | Total | Yemen          | Japan | Total | 6    | 7 | 8 | 9    | 10 | 11 | 12   | 1 | 2 | 3    | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 |
| Local Consultant/NGO                   | 2.00           | 2.00  | 2.00  | 2.00           | 2.00  | 2.00  |      |   |   |      |    |    |      |   |   |      |   |   |   |   |   |   |    |    |    |   |   |
| Japanese Consultant/Social Development | 1.43           | 0.30  | 1.73  | 1.43           | 0.30  | 1.73  |      |   |   |      |    |    |      |   |   |      |   |   |   |   |   |   |    |    |    |   |   |

1st stage in Yemen  
 1st stage in Japan  
 2nd stage in Yemen  
 2nd stage in Japan

## **7. Items of Documents as the part of Outputs**

The following are documents required as outputs through the implementation of this Software Component Program.

- (1) Annual Activity Plan of each Project school
- (2) Activity Reports of each Project school
- (3) Progress Report of the Software Component Activities
- (4) Final Report of the Software Component Activities

## **8. Cost Estimation of the Software Component Program**

Total: Approximately 13,280 thousand Japanese Yen

## **9. Tasks to be Undertaken by Yemen**

### **(1) Ministry of Education**

- a) To conduct necessary administrative procedures for the implementation of the Software Component Activities
- b) To conduct necessary practice for the coordination with other sections of the Ministry of Education and other donors
- c) To make an arrangement and give direction regarding the implementation of this Program to Sana'a Governorate
- d) To supervise and support the Education Office of Sana'a Governorate in the implementation of this Program
- e) To participate in the Workshop for Officials
- f) To give technical support in implementing the training program for community participation made by the Ministry of Education

### **(2) GEO and DEO of Sana'a Governorate**

- a) To make an arrangement of the Workshop for Officials (such as preparing the venue and making contacts to the people concerned) and to participate in the workshops
- b) To make arrangements for the Workshops for School at each Project school and Follow-Up Meetings (such as making contact with Project schools and making arrangements for participants from GEO or DEO)
- c) To accompany and assist the Workshops for School at each Project school and Follow-Up Meetings.

d) To collect the activity reports from each Project school and submit them to the MOE and Consultants

**(3) GEO and DEO of Sana'a City**

a) To make arrangements for the Workshop for Officials (such as making contact with the people concerned) and participate in the workshops.

**(4) Those associated with Project schools in Sana'a Governorate**

a) To make arrangements for the Workshop for School and Follow-Up Meetings (such as preparing the venue and making contact with the people concerned)

b) To participate in the Workshop for School and Follow-Up Meetings

c) To organize the Fathers' and Mothers' Councils

d) To make an Annual Activity Plan (regarding the Fathers' and Mothers' Councils, School Maintenance and Awareness Raising on girls' education)

e) To implement the activities in line with the Annual Plan

f) To submit the Activity Reports