

CHAPTER 3 IMPLEMENTATION PLAN

Chapter 3 Implementation Plan

3-1 Implementation Plan

3-1-1 Implementation concept

(1) Basic execution procedure

Before execution, details of the project as given in this report must be reviewed by related Japanese government agencies and approval has to be given by a Cabinet meeting. Exchange of Notes (E/N) should then be agreed by the two countries to give the go-ahead for the project. In practice, the procedure for implementing the project is that the Zambian agency in charge, the Japanese consultant, and construction companies will enter into agreements according to the rules of Japan's Grant Aid System. These agreements will need the approval of the Japanese government.

(2) Executing organization

The Zambian agency which will actually execute the Project is the Ministry of Education (MOE). The actual section in charge of implementation and operation of the project is the MOE's Directorate of Planning Unit.

The MOE will sign a design supervision agreement with a consultant and a construction agreement with a construction company. The Construction Section of the MOE's Directorate of Planning Unit will be responsible for providing comprehensive management effort for that part of the work to be done by Zambia and also for coordinating specialists needed to complete the proposed facilities.

(3) Consultant

After the exchange of notes between the two countries, the MOE will sign a design supervision contract with a Japanese consultant for the detailed design and construction supervision of the project. This consultant will be responsible for the tasks listed below on the basis of the above contract.

- | | |
|------------------------------------|--|
| 1) Detailed design stage: | Preparation of working design documents (including specifications and other technical documents concerning construction and materials) |
| 2) Bidding stage: | Selection of successful bidder and cooperation on matters related to the actual construction contract. |
| 3) Construction supervision stage: | Supervision of work including facility construction, equipment delivery, etc. until work is completed |

In addition, the consultant must provide the Japanese agency in charge with reports on progress with the work, payment procedures, delivery, etc.

(4) Construction company

The successful bidder, selected from among those presenting a proposed price in the open bidding, should be a Japanese corporation. It should be the qualified bidder that offers the lowest price bid in the absence of any other disqualifying circumstances. The successful bidder should enter into a construction contract with the MOE. Once the contract has been approved by the Japanese government, the successful bidder will be responsible for completing the contract work within the scheduled term and delivering the completed work, meaning the school buildings and associated equipment, after a completion inspection.

(5) Local consultant and construction company

It is understood that local construction companies will participate in the project as subcontractors to the Japanese general contractor. The project plan envisages the construction of 21 classrooms and 17 ancillary buildings, with an average total floor area of about 2,000 m² at each site. Taking all eight sites as a whole, this is a considerable amount of construction work. Given the amount of work, past experience with local construction companies indicates that the best way to implement the project is to divide it into a suitable number of sectors and allocate subcontractors individually to each sector. However, to ensure that work going on at many sites is completed within the given term, it is necessary to implement an overall work schedule. The optimum and most effective way to do this is to make use of the schedule control methodology used by the Japanese construction company; this will have the desired results if experienced workers with local building firms can be brought in and if appropriate analysis of the efficiency with which they procure of materials is carried out.

In the field of construction supervision for educational facilities like this one, it is fair to say that the MOE's Construction Section is the organization best qualified as regards expertise on both technical and practical matters from the facility planning stage to actual construction. The Japanese consultant should obviously collaborate with the section's staff and incorporate this expertise into plans for design development and construction supervision.

(6) Others

The Japanese consultant and Zambia's agency in charge should both review the execution plan during the design development period. Discussions at this stage should identify the scope of work to be done by each country, the crucial time points, such as the commencement date, the construction methods to be used, and other matters

required to facilitate trouble-free implementation of each country's tasks according to the execution schedule. The work for which Zambia is responsible will have to be scheduled by the Zambian side. Of particular note in this regard is the grading and leveling of the proposed sites prior to commencement of the work.

3-1-2 Implementation condition

(1) Local construction company

Lusaka boasts a large number of construction firms that maintain high levels of workmanship; these mostly date from the days of British rule, and most of the major firms are non-Zambian owned. Construction expertise is of a high level, and mechanization is widespread. Small construction firms and builders are also found in large numbers, and their levels of expertise are also of a relatively good standard.

(2) Influence of rainfall

The rainy season begins in November and ends in March. If earthworks and foundation work are planned for this period, loss of efficiency in some important parts of the work can be expected. To avoid problems with the schedule as a whole, the timing of such work must be carefully considered.

(3) Characteristics of construction

The project involves the construction of new basic schools on newly prepared sites. They are situated at various points in Lusaka and have an average floor area per site of about 2,000 m², though there are minor variations among sites. The official construction period for all sites is about eight to ten months.

All buildings will be single-story and are to be built using a standard local method, so actual construction should pose no particular problems. Due to scattered location of the sites, security, safety, and theft-control is an important consideration during the construction period.

- 1) A construction plan should be developed that ensures efficient, delay-free implementation of work according to fixed specifications at each site.
- 2) Once developed, the construction plan should be reviewed in thorough discussions with the MOE's Construction Section at each site prior to actual commencement of work.

- 3) The project plans call for classroom buildings of relatively small size to be built. Uniform workmanship and quality, extending to the finish and details, must be achieved for all buildings; the model is a building that was completed in advance.
- 4) Construction materials should be procured and delivered in line with the construction schedule based on a properly designed procurement program. Extensive surveys of quality and supply potential are needed to ensure a stable supply of materials.
- 5) The critical path in the schedule at each site, as well as the critical path for the entire project, should be identified and strictly maintained. This will require periodic liaison meetings of all personnel in the construction supervision section concerned; this will help to hold up management standards for quality and completion, while enhancing the sense of belonging to the project among personnel.

(4) Construction method

The construction company to execute the work should be one based in Japan and will be chosen according to the rules of Japan's Grand Aid System. The contract planned will be a turn-key one to cover the entire operation from commencement to completion and an execution plan will developed based on this contract. Subcontractors will be selected from those locally incorporated companies by the general contractor. Results of selection will require the review and approval of the Consultant.

(5) Transporting conditions

No construction equipment or material will be transported from Japan to Zambia for this project. All equipment and materials will be procured locally. Since the target schools are located within the range of 15 km from the center of Lusaka (the MOE) and roads to the sites are in good conditions, nothing seems to stand in the way of transportation.

(6) Procurement of construction equipment and materials

It is possible to procure locally all construction equipment and materials necessary for the project. Almost all of the construction materials, such as steel reinforcement, structural steel and paints, are imported from South Africa and fairly large amounts of items appear on the domestic market. Most of the imported construction equipment is procured from South Africa. Materials produced at home, such as gravel, sand and concrete blocks, are available in Lusaka.

3-1-3 Scope of works

Work on the project will be divided into two parts: that to be done by Japan and that for which Zambia is responsible. This division of work is as follows.

(1) Japan's responsibility

1) Facility

Regular classroom bldgs. (two-classroom bldg.)	24	(48 rooms)
Regular classroom bldgs. (three-classroom bldg.)	39	(117 rooms)
Special-purpose classroom bldgs.	8	(16 rooms)
Administration offices	8	
Caretaker houses	8	
Lavatory bldgs. (seepage type)	16	
Lavatory bldgs. (flush type)	32	
Water supply facility	8 sites	
External work	8 sites	

2) Equipment

i) Desks and chairs for classrooms

Regular classrooms

Desks and chairs for students	20 sets/room
Desks and chairs for teachers	1 set/room

Special-purpose classrooms

Desks and chairs for students	10 sets/room
Desks and chairs for teachers	1 set/room

ii) Furniture for administration office

One set/admin. office

iii) Teaching materials

General equipment	One set/classroom
Special equipment for practice	One set/special classroom

3) Others

- i) Detailed design and construction supervision
- ii) Transport of construction materials and machinery to site

(2) Zambia's responsibility

- 1) Site grading prior to commencement of work
- 2) Provision of power and telephone lines
- 3) Provision of information necessary for implementation

3-1-4 Consultant supervision

After the E/N, the consultant involved in basic design will sign a consultancy agreement with the Government of Zambia and then hold discussions on design development, bidding, work contracting, and any other issues related to construction, ensuring that the coordination among all personnel concerned is adequate.

(1) Construction plan

A project provided by grant aided from Japan must be completed within a single year according to the aims of grant aid and the government grant aid system. To meet this requirement, the project must be implemented while continuing frequent and detailed communications among those involved: the Japanese and Zambian governments and their responsible agencies, the consultants, and the contractors. Prior to work commencement, the consultant and general contractor need to develop a working schedule and a plan for implementing it, taking into account the following factors that may affect implementation:

- Natural conditions
- Working conditions and technical capabilities
- Scope of work to be done by each country
- Planning for the procurement, site delivery, and installation of equipment and materials

At the same time, the Zambian side must be sure to fulfill its obligations on schedule to ensure smooth implementation of the project as a whole.

(2) Supervision plan

1) Policy of supervision

The consultant should develop consistent set of personnel deployment programs when preparing working documents and plans for construction supervision, and must ensure that all parties concerned are in a position to exchange opinions and make themselves mutually understood.

To personally supervise all of the sites would take up too much of the consultant's time. To facilitate this task, the consultant will assign a sufficiently qualified person as assistant supervisor for each site. This supervisor will remain on each site for the purpose of carrying out day-to-day quality control, schedule management, and safety management. The consultant will also, if it is judged necessary, assign a well excavation specialist to each site for the purpose of supervising well excavation. A general supervisor or specialty engineer may also

be stationed at each site, for short periods whenever appropriate depending on progress with the work, to attend inspections and provide professional assistance for well excavation.

The consultant should provide progress reports to the Government of Zambia and related agencies whenever necessary, and also forward the same report to the Japanese agencies involved via head office in Japan.

2) Supervision

The consultant should perform the following tasks on behalf of the owner while continuing to discuss the situation with the owner.

i) Cooperation on construction contract

Selection of general contractor and subcontractors, preparation of contracts, investigation of work breakdown statements, preparations for bidding (preliminary bid inspection, declaration of open bidding, attendance at bid opening and evaluation of bid prices, negotiation of contract and attendance at contract signing)

ii) Inspection and approval of working drawings

Inspection and approval of working drawings, construction plans, materials, finish samples, building materials, and construction equipment provided or proposed by contractors/subcontractors

iii) Instructions

Dispatch of site supervisors, inspection of contracts and schedules, and instructions to contractor/subcontractors

iv) Progress reports

Reports on the work progress to the MOE and the Zambian and Japanese governments

v) Cooperation in approving and making payments

Cooperation in the inspection of invoices to be paid during and after work, and also with the payment process

vi) Supervision

The consultant should inspect all completed work and carry out intermediate and completion inspections beginning with commencement of the work. Completion of the work and fulfillment of contract conditions must be verified, and the consultant must be present at delivery. At this point, upon approval from the owner, the consultant's role is terminated. The consultant should also provide Japan with information on progress, payment procedures, and completion/delivery.

(3) Construction supervision system

A Zambian resident supervisor should be placed in charge of building at each site to ensure proper guidance with regard to construction quality, scheduling, safety, etc. This supervisor will also facilitate communication among all personnel involved, ensure timely completion of the work as per the design documents, and promote the smooth implementation of the project. Other specialists should also be dispatched to the sites as follows according to progress.

- 1) Chief engineer (in charge of building): overall coordination, schedule management, and verification of construction methods, design intent, drawings, material specifications, etc.
- 2) Utility engineer (supervision of utilities work)
- 3) Drilling engineer (supervision of well drilling)

Supervision of construction should take place according to the following structure:

(4) Construction management-related issues

- 1) A Construction Committee headed by the senior official at the executing agency should be set up. This committee should serve as the contact point for all regular and detailed communications. This will help the Zambian side to gain a thorough understanding of the purpose of the project and ensure that all organizations concerned obtain appropriate tax exemptions and budget allocations.
- 2) Prior to work commencement, the working drawings and plans submitted by the contractor must be subject to a review aimed at evaluating the validity of planned schedule, construction methods, tentative design, quality control program, procurement, safety management, and environmental preservation procedure.
- 3) As construction proceeds, regular meetings should be held with participating construction companies to confirm, discuss, and give instruction regarding work progress, quality and output control, and safety management. Minutes of these meetings should be treated as official documents and be circulated to all parties concerned. Design changes should only be made with the approval of JICA.
- 4) Upon completion and delivery of the work, the completed facilities should be checked to ensure that they satisfy the functionality and specifications given in the design drawings. Zambian government staff, construction companies, JICA staff, embassy staff, and other parties concerned should all be in attendance at this inspection. If any corrections are necessary, appropriate instructions should be given.

- 5) Specifications, working drawings, records, as-built drawings, and photographs of the project as well as documents, photographs, and drawings prepared during the implementation of design changes or the solving of problems should be kept for 5 years after completion.

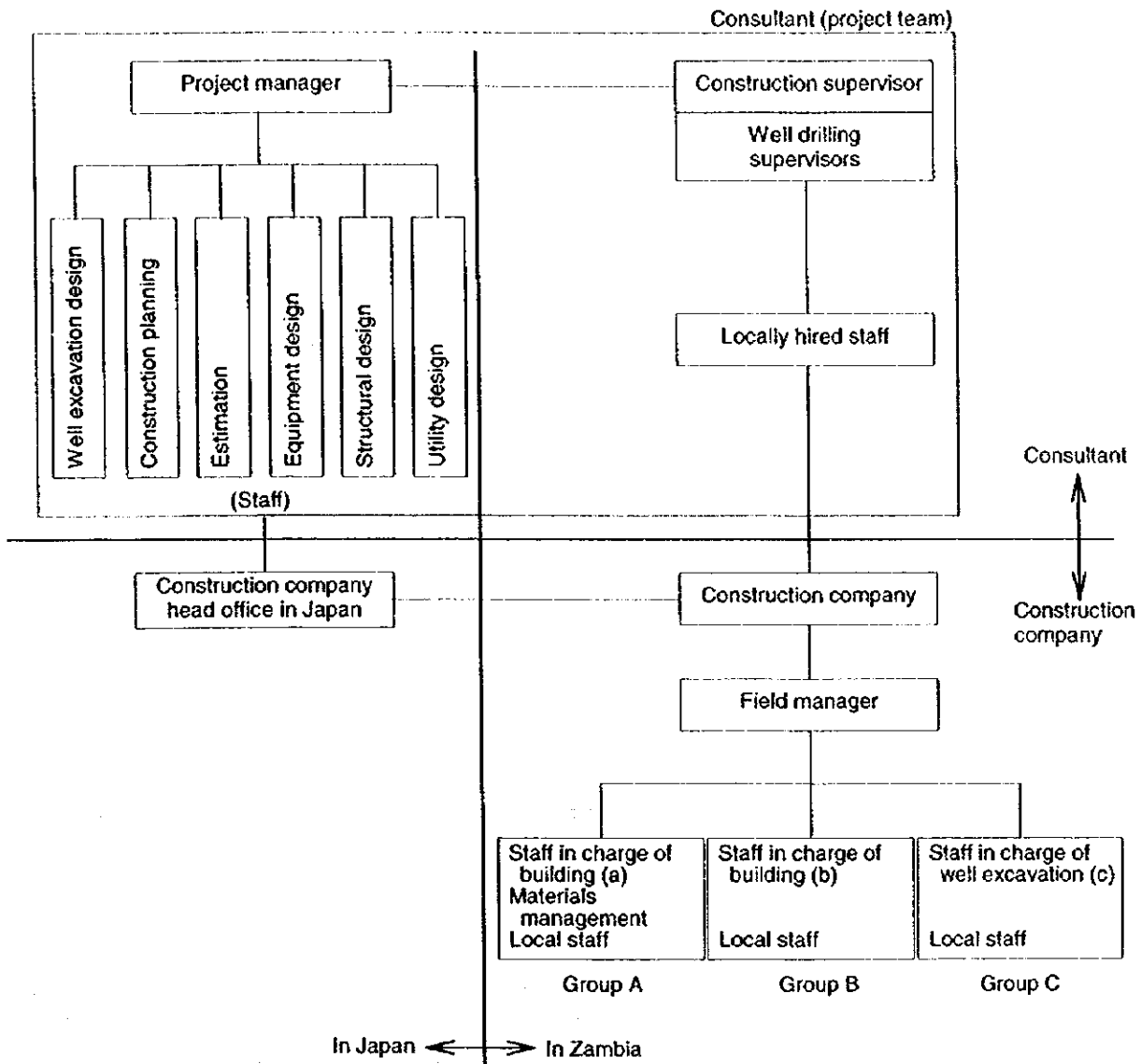


Figure 3-1 System for detail design and supervising system

3-1-5 Procurement plan

Construction materials and methods proposed for use in the project should undergo comprehensive review, and final selection should consider all factors such as site characteristics, climate, available stock, and post-completion maintenance costs. In principle locally produced or procured items should be used.

Since Zambia is land-locked, transportation costs account for a large part of the price of construction materials, and these materials are typically more expensive than elsewhere. However, supply and distribution channels are well developed, so materials are easily brought in from other countries. Educational fixtures provided as part of the project, such as desks and chairs, should be locally manufactured, since this allows for convenient maintenance.

Construction materials and equipment produced in Zambia include cement, sand, gravel, concrete blocks, wood products, cement-related products, and cement products (made from imported raw materials). Other items have to be imported. Utility equipment and materials are mostly imported from South Africa and Zimbabwe. However, whether locally produced or imported from overseas, all materials and equipment should in principle locally procured. If any item fails to satisfy the requirements as regards stock level or quality, it may be procured from a third country.

The construction equipment, materials, and educational fixtures required for the project are categorized by source below.

Table 3-1 Construction materials and equipment to be procured by Zambia and third party

Item	Zambia	Third country	Remarks
[Construction materials]			
Sand	○	—	Local river sand is available. Sufficient in quantity and quality
Gravel	○	—	Locally produced gravel
Cement	○	—	From local cement plant (using imported raw materials)
	○	—	Ordinary Portland cement, either locally produced or imported from South Africa
Reinforcement	○	—	Imported products but locally procured
Steel	○	—	As above
Formwork	○	—	Locally available wood
Concrete blocks	○	—	Locally produced. Assembled on site
Steel doors & windows	○	—	Imported steel, locally fabricated
Wooden doors & windows	○	—	Locally produced products
Hardware	○	—	Imported products, locally procured
Paint	○	—	Locally available products
[Equipment]			
Desks and chairs	○	—	Locally available products
Steel furniture	○	○	Imported products, locally procured
Educational fixtures	—	○	Imported products, locally procured

3-1-6 Implementation schedule

If the project is implemented as grant aid by Japan, it should be carried out according to the stages outlined below.

- 1) Exchanges of notes between the two countries
- 2) Signing of a consultancy contract between the Government of Zambia and the Japanese consultant
- 3) Detailed design

The construction contract will be drawn up according to the basic design. The contract documents include detailed design drawings, specifications, calculation sheets, and budget statement. These documents should be accurate to within 10% of the final design. Meetings with Zambian staff should be held at the site whenever necessary during the design development period in order to obtain approval for the final documents. Once approval is given, the bidding stage will begin. It will take two to three months to prepare the detailed design documents.

- 4) Detailed design and preparation of documents for bidding

Once design development is complete, bidders will be pre-qualified in Japan through advertisements. Based on the results of this pre-qualification process, the executing organization will call for bids and bidding will open in Japan. The construction company which offers the lowest bid price will be offered a construction contract with the Zambia government. This bidding process is expected to take two months.

- 5) Construction

After signing the construction contract, the general contractor (that is, the successful bidder) will commence work as soon as approval is obtained from the Japanese government. The size and details of the project indicate a construction term of 12 months, assuming that all necessary materials and equipment can be procured on time and that the Zambian side fulfills its responsibilities. This includes one month for preparation and a further one month for post-completion administrative procedures. Thus, the net period for actual construction is 10 months.

The project will be implemented in two phases. Work at each site will be carried out in the two phases as follows.

Phase I (4 sites): Bauleni, John Laing, Ng'ombe, and Murnana

Phase II (4 sites): Chainda, Libala, Balastone, and Kabulonga

The time required for this work in the two phase is as follows.

Phase I: about 7 months for detailed design and about 12 months for construction, taking 19 months in total.

Phase II: about 6 months for detailed design and about 12 months for construction, taking 18 months in total.

The construction schedule for this project is shown in Table 3-2.

Table 3-2 Construction Schedule

Phase	Work	Month	1	2	3	4	5	6	7	8	9	10	11	12
Phase I	Detailed design			Field survey										
						Work in Japan								
							Field survey							
	Construction and procurement	Construction												
		Equipment												
Phase II	Detailed design			Field survey										
						Work in Japan								
							Field survey							
	Construction and procurement	Construction												
		Equipment												

3-1-7 Obligations of recipient country

Other than the work items listed above, Zambia is also requested to take responsibility for the additional tasks outlined below.

- 1) Acquiring land for the project with ownership for many years in the future
- 2) Removing debris from the sites and grading the ground prior to work commencement
- 3) Providing access roads to the sites for construction purposes if and where necessary
- 4) Implementing related external work, such as landscaping and installing outdoor lighting, where necessary
- 5) Laying in communications lines and power, water, or sewer pipes to the sites where necessary
- 6) Paying fees for advice, handling, and other services on A/P to the Japanese foreign exchange bank according to agreements with the bank
- 7) Facilitating expeditious customs clearance for project equipment and materials, and arranging for tax exemptions
- 8) Arranging for exemptions from Zambian tariffs, taxes, and other financial obligations for Japanese companies and personnel involved in the project in respect to labor and materials supplied under the approved contract
- 9) Arranging expeditious approval for entry into and residence in Zambia for Japanese company personnel and staff necessary for implementation of the project and to be supplied under the approved contract
- 10) Issuing the permits and licenses necessary for implementation of the project without delay
- 11) For the MOE, making efforts to ensure that children gain maximum opportunity to take advantage of facilities built and equipped by Japan's grant aid
- 12) For the MOE, allocating personnel and budgets so as to effectively and efficiently operate the facilities built and equipped by Japan's grant aid
- 13) For the MOE, carrying out periodic monitoring and providing guidance to ensure that the facilities built and equipped by Japan's grant aid are properly managed and maintained, either directly by the MOE or by PTAs at each newly built school
- 14) For the MOE, establishing personnel and budgetary systems needed to ensure maintenance of the water supply facilities
- 15) Covering all costs related to the project that are not covered by Japan's grant aid

3-2 Project Cost Estimation

3-2-1 Operation and maintenance costs

(1) School management

1) Management of schools

Appointment and assignment of head teachers:

The Provincial and District Education Offices, respectively, generally recommend appropriate candidates to the MOE's Teaching Service Commission (TOS) when head teacher positions become available in middle basic schools and lower basic schools. Actual appointment and assignment is the responsibility of the TOS.

In the case of this project, it is requested that the Education Offices of other districts present candidates for head teacher via the MOE's Directorate of Planning Unit, while the District Education Office recommends candidates for appointment and assignment by TOS according to the usual procedure.

Appointment and assignment of teachers:

The same procedure applies as for head teachers.

Student admissions:

Parents of school-age children submit applications for entry into the first grade at desired schools every October. The school year begins in January. Admissions are considered by the head teacher, PTA, and the community during December. The qualifications, in the case of schools in this project, are that the children should be aged from 7 to 9 and live near the school they wish to attend.

PTA organization:

Every school is obliged by law to organize a PTA, with the head teacher serving as secretary. The main roles of the PTA are to collect funds for school development and to carry out repairs, extensions, and maintenance of school facilities using the funds.

2) Cost of running schools

With the construction of these eight new schools, an additional personnel roster of 310, including head teachers and teachers, will need to be deployed. There will be 38 personnel per school, with one head teacher, one deputy head teacher, 34

teachers, and 2 homemaking teachers. The incremental budget required to provide these personnel is calculated as follows.

Head teacher:	$K163,000/\text{month/person} \times 12 \text{ months} \times 1 \text{ person} =$ $K1,956,000$
Deputy head teacher:	$K151,000/\text{month/person} \times 12 \times 1 \text{ person} = K1,812,000$
Teacher:	$K131,000\text{-}K124,000/\text{month/person} \times 12 \times 34 \text{ persons} =$ $K53,448,000\text{-}K50,592,000$
Homemaking teacher:	$K118,000/\text{month/person} \times 12 \times 2 = K2,832,000$
Total per school:	$K60,048,000/\text{year}$
Total for 8 schools:	$K480,384,000/\text{year}$

This amounts to about 0.5% of the total personnel expenditure of the MOE (based on 1998 records). This can be regarded as almost insignificant compared with overall personnel costs, so this personnel plan can be judged quite feasible. The MOE has promised to provide the teaching personnel required for the new schools. Other personnel required may include caretakers, guards, and janitors.

(2) Maintenance plan

1) Maintenance

On-going daily maintenance work at schools should be carried out by teachers, students, and the PTA. Maintenance of the basic educational infrastructure is the responsibility of the MOE. In reality, however, the maintenance and management of most facilities, fixtures, and equipment in schools is handled by the school's PTA. If repairs are needed, the head teacher should consult with the PTA, raise fund, and carry out the repairs. Common tasks carried out at many schools are the construction of fences around the facilities and the hiring of guards according to the maintenance manual.

A PTA may collect reserve funds, in addition to regular membership fees, if a program being considered requires. In the case of this project, no special maintenance will be necessary other than cleaning and the maintenance of the water supply and sanitation equipment. A voluntary supply of labor from the PTA should be sufficient to fulfill these maintenance requirements.

2) Maintenance costs

1. Cost of maintaining facilities

The facilities provided under this project will require very little maintenance, and hence little maintenance funding, since the buildings have concrete-block walls and heavy-duty steel doors & windows. Providing that the facilities are used in a proper manner, re-finishing of interior and exterior walls once in 10 years should be sufficient, while doors and windows will need to be treated once in 5 years.

Maintenance cost of one school building is listed below.

Item	Interval	Annual maintenance cost (Kwacha)
Repaint interior walls	Once every ten years	220,000
Repaint exterior walls	Once every ten years	570,000
Repaint furniture	Once every five years	500,000
Total		1,290,000

2. Cost of maintaining sanitary services

The facilities to be built under the Project, at least the following cleaning management is required. It will cost about K250,000 per year.

i) Cleaning and management of lavatories (seepage type)

Cleaning and removal of waste (whenever necessary, but usually once a year):

ii) Cleaning and management of septic tanks (separated type)

Periodic inspection and cleaning of tank interior (removal of foreign matter from strainers)

iii) Cleaning and management of water supply facilities (elevated water tanks)

Periodic inspection and cleaning of tank interior (about once a year)

3. Cost of maintaining water supply system (well-related equipment)

The water supply system, including pumps and power distribution panels, should be designed for operation by non-professionals. The everyday operational requirements should be limited to simple switching on and off of the pump and the dissolving of bleaching powder in water for sterilization purposes.

The cost of running and maintaining the water supply systems may be shared, with the MOE paying running costs such as electricity charges and PTAs setting up a reserve fund to cover pump repairs and other expenses. Water supply maintenance is considered part of the responsibility of school management, so costs other than those incurred for technical training and the personnel and

management organization should be allowed for by the local school managers as part of their school management system

Administration and maintenance costs to be borne by the Ministry of Education are as follows.

- | | |
|----------------------------|--|
| 1) Electricity | K200,000/school-month |
| 2) Bleaching powder | K3,000/school-month |
| 3) Reserve for pump repair | K708,000/school-month (to replace pumps once every 8 months) |

Calculating the annual cost per student on the basis of 40-student classroom from Items 1) to 3) listed above results in K2,250. Judging from the fact that PTA fee per student at schools surveyed by the Basic Design Study Team was K90,000 on average, this financial burden may be shared.

CHAPTER 4 PROJECT EVALUATION AND RECOMMENDATION

Chapter 4 Project Evaluation and Recommendation

4-1 Project Effect

(1) Effects of the Project

In the Third National Education Policy, the Government of Zambia is training its sights on a shift from the current 7-year primary school education to 9-year basic school education by the year 2015. The objective of this project is to construct eight basic schools in Lusaka as one of the educational facility improvement plans to attain this goal. One school consists of regular classrooms (7-8 building/18-21 classrooms), special-purpose classrooms (1 building/2 classrooms), administration building (1), caretaker's residence (1) and lavatory buildings (6), having a total floor area of about 2,000 m².

The following effects are expected to be produced by the implementation of this project. The construction of the eight basic schools will allow about 1,880 children and 14,400 school-age children to enter and attend schools. The current number of children able to attend schools in the compounds where the project sites are located is about 13,600. The implementation of this project will nearly double the number to about 28,000, contributing greatly to an increase in the rate of primary school attendance in the compounds where the rate is lower than the average in Lusaka.

The construction of water supply facilities at the project sites will contribute to an improvement in sanitation conditions for not only students at the projected schools but also local residents.

(2) Validation of the Project

The project, if implemented, will have a profound effect on not only the basic schools where new educational facilities are constructed but also on the surrounding communities. It can be judged for the following reasons that the project will be based on the objective of a grant-aid from the Japanese government.

- 1) The project site is in Lusaka having a large population of about 1,200,000. (1995 data)
- 2) The objective of the project is to construct 9-year basic schools in Lusaka, thereby contributing to an improvement in educational environments. This agrees with Japan's grant-aid policies, i.e. education and human resources development.

- 3) The implementation of this project will not lead to a significant increase in school administration costs. The schools can be administered and maintained by people, technologies and funds within the recipient country.
- 4) This project will help attain one of goals in the national development program, i.e. spread of education and cultivation of human resources.
- 5) The project aims at improving basic education, not profit making.
- 6) This project is to construct the basic schools, which will not have ill effects on the environment.
- 7) This project is quite feasible under the Japanese grant-aid system without incurring any special difficulties.

4-2 Recommendation

It can be judged significant to implement this project. Because all the schools will be newly opened, it is necessary for the recipient country to prepare for the opening and establish administration and management systems after the opening as detailed below.

- 1) A school administration committee is to be organized for the new schools under the guidance of the MOE.
- 2) Head teachers and deputy head teachers are to be assigned without delay.
- 3) Before the schools are opened, preparations should be made to distribute textbooks and provide schools with educational equipment.
- 4) After the opening, PTAs are to be organized for appropriate administration and maintenance.

The required number of teaching personnel is about 300 at 8 schools. The number required in a single school is 38, of which the breakdown is: head teacher (1), deputy head teacher (1), teachers (34) and practice class teachers (2). In the country, over 2,000 students graduate annually from teachers' training schools. Since the urban areas tend to have surplus teachers, it is possible to employ annually about 150 teachers. To assign them without delay as planned, it is necessary for the MOE to make a budget for them.

This project will be of some help toward the attainment of the long-range national program, i.e. the perfect spread of basic education by the year 2015. To make the basic education forming the basis of the county truly effective, further improvement, expansion, and planning of basic educational facilities are indispensable. From this standpoint, this project will be positioned as a landmark in Lusaka for the promotion of 9-year basic schools. To do so, improvements in not only facilities but also quality and quantity of teaching staff and contents of education are important. Further, it is important to re-train teaching staff and actively upgrade educational software including further development of curriculum.

For the future improvements in school facilities in Lusaka, it is desired to grasp a school-age population by the use of correct population statistics, formulate facility maintenance plans by establishing a school district system, and lay out school facilities appropriately.

APPENDICES

Appendix 1. Member List of the Survey Team

(1) Members of Basic Design Study Team

Mitsuru HAGINO	Team Leader Development Specialist Japan International Cooperation Agency (JICA)
Kenichi KONYA	Project Coordinator Second Project Study Division Japan International Cooperation Agency (JICA)
Yoshiyasu TAKASE	Chief Consultant, Architectural Design Planner Daiken Sekkei, Inc.
Minako SATO	Education and Environmental Planner Daiken Sekkei, Inc.
Ryotaro MIYUCHI	Water Supply and Maintenance Planner Daiken Sekkei, Inc.
Noriaki MIYABE	Construction and Equipment Planner Daiken Sekkei, Inc.
Minoru KAJIWARA	Construction and Estimate Planner Daiken Sekkei, Inc.

(2) Members of Explanation of Draft Report

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Yoshiyasu TAKASE	Chief Consultant, Architectural Design Planner Daiken Sekkei, Inc.
Ryotaro MIYUCHI	Water Supply and Maintenance Planner Daiken Sekkei, Inc.

Appendix 2. Survey Schedule

(1) Basic Design Study

			Government official	Chief Consultant/Architectural Design Planner	Education and Environment Planner	Construction and Equipment Planner	Construction and Estimate Planner	Water Supply and Maintenance Planner	
Date			14 days	30 days	30 days	30 days	30 days	30 days	
1	Feb. 1	Sun.	Narita to London						
2	2	Mon.	Left London						
3	3	Tue.	Arrived Lusaka						
4	4	Wed.	Made courtesy call on JICA Office and Embassy of Japan						
			Visited Min. of Education (MOE) and ZERP Office						
5	5	Thu.	Surveyed proposed sites and similar facilities						
			Consulted with MOE						
			Surveyed proposed sites						
6	6	Fri.	Consulted with MOE Call on UNICEF		Consulted with MOE Survey of basic schools in Lusaka		Consulted with MOE Water and Sewage Works Bureau		
7	7	Sat.	Internal meeting						
8	8	Sun.	Compiled all data						
9	9	Mon.	Surveyed basic schools						Prepared for site survey
			Consulted with MOE (questionnaire, etc.)						
10	10	Tue.	Discussed (draft) minutes	District Surveyed basic schools		District Consulted with ZEPIU		Site survey (Electromagnetic exploration)	
11	11	Wed.	Signed minutes of meeting			Signed minutes of meeting Consulted with ZEPIU		Signed minutes of meeting Site survey	
12	12	Thu.	Reported to JICA Office and Embassy of Japan Left Lusaka			Site survey		Site survey (Electromagnetic exploration)	
13	13	Fri.	Arrived and Left London	Site survey		Site survey	Distributed questionnaire on cost estimate	Site survey (Electromagnetic exploration)	
14	14	Sat.	Arrived Narita	Internal meeting					
15	15	Sun.	Compiled all data						Site survey (Electromagnetic exploration)
16	16	Mon.		District MOE	Surveyed compounds	Site survey	District Surveyed nearby primary schools	Site survey (Electromagnetic exploration)	
17	17	Tue.		Surveyed nearby primary schools	Surveyed compounds	Site survey	Surveyed nearby primary schools	Site survey (Electromagnetic exploration)	
18	18	Wed.		Surveyed nearby primary schools	Surveyed compounds	Site survey	Surveyed nearby primary schools	Site survey (Electromagnetic exploration)	
19	19	Thu.		Surveyed nearby primary schools	Surveyed compounds	Surveyed similar facilities	Surveyed nearby primary schools	Surveyed similar facilities	
20	20	Fri.		Surveyed nearby primary schools Call on ZERP	Surveyed compounds Call on ZERP	JIMBA Surveyed secondary schools	Meeting with MOE Min. of Public Works		
21	21	Sat.	Site survey (Balastone)						
			Internal meeting (summary, confirmation and compilation of survey results)						
22	22	Sun.	Compiled all data						
23	23	Mon.	Site survey	Compiled all data Visited MPU		Balastone Consulted with MOE	Collected questionnaire on cost estimate	Balastone Consulted with MOE	
24	24	Tue.	Consulted with MOE Min. of Public Works	Consulted with MOE Call on ZERP		Site survey (Balastone)	Consulted with MOE Min. of Public Works	Site survey Collected questionnaire on cost estimate	
25	25	Wed.	Consulted with MOE			Site survey	Consulted with MOE Call on Statistics Bureau	Electric Power Corp.	
26	26	Thu.	Surveyed similar facilities	District City		Surveyed similar facilities	Summary of surveys	Collected questionnaire on cost estimate	
27	27	Fri.	Report of completion of surveys to JICA Office and Embassy of Japan						
28	28	Sat.	Left Lusaka						
29	Mar. 1	Sun.	Arrived and left London						
30	2	Mon.	Arrived Narita						

(2) Explanation of Draft Report

Date			Government Official	Chief Consultant/Architectural Design Planner	Water Supply and Maintenance Planner
1	Jun 2	Tue.		Narita to Singapore	
2	3	Wed.		Singapore to Johannesburg Johannesburg to Lusaka Made courtesy Call on JICA Office and Embassy of Japan	
3	4	Thu.		Visited Min. of Education (MOE)	
4	5	Fri.		visited MOE (Gave overview of basic design)	
5	6	Sat.		Site survey	
6	7	Sun.		Discussed (draft) minutes of meeting	
7	8	Mon.		Signed minutes of meeting	
8	9	Tue.	Left Lusaka	Reported to JICA Office and Embassy of Japan	
9	10	Wed.	/	Additional survey	
10	11	Thu.		Lusaka to Johannesburg	
11	12	Fri.		Left Johannesburg	
12	13	Sat.		Arrived Singapore	
				Singapore to Narita	

Appendix 3. List of Party Concerned in the Recipient Country

(1) Schedule of Basic Design Study

Japanese Embassy in Zambia

Yoshihiro NAKAMURA	Ambassador
Takayuki MIYASHITA	Councilor
Kenji ENDO	First Secretary
Yasuhiro MURAKAMI	Second Secretary

JICA Zambia Office

Mitsuo ISHIKAWA	Resident Representative
Kozo TSUKADA	Deputy Resident Representative
Yoshinori KITAMURA	Assistant Resident Representative

Ministry of Education

Dr. Sichalwe M. Kasanda	Permanent Secretary
Ms. B. Y. Chilangwa	Deputy Permanent Secretary
Ms. M. R. Maiyenkunku	Ass. Director Planning Unit
Mr. Chilufya S. Nkamba	Head, Projects and Financial Planning Section, Planning Unit
Mr. Joseph F. Nthele	Ass. Chief Building Officer, Building Section Planning Unit
Mr. Shadrek Hakalima	Director, Procurement and Supplies Unit
Mr. Nguenda	Director, Teacher's Education Unit
Mr. Zuru	Chief Inspector

Ministry of Finance and Economic Development

Ms. Stella M. Chibanda	Acting Director, Loan and Investment Dep.
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Lusaka Provincial & District Education Office

Mrs. Bernadette M. Ndhlovv	Ass. Provincial Officer
Mr. A. B. Njakayaka	Senior Provincial Education Officer
Mrs. Daphne Chimuka	Education Officer

Lusaka City Council

Mrs. Patricia N. Nawa	Deputy Mayor
Mr. Daniel M. Soka	Public Relation Manager

Central Statistical Office

Mr. D. Dtag Diangiamo Director
Mr. Margaret Tembo Statistician, Population & Demography

Ministry of Works and Supply

Mr. Simon Chilufya Director, Building Department
Mr. Phiri Geoffrey Charles Senior Architect, Building Department
Mr. Maendende Peter Quantity Surveyer

Zambian Education Rehabilitation Project (ZERP)

Mr. Grey R. Mulomba Director
Mr. J. M. Ngenda Deputy Director
Mrs. B. N. Chitambo Financial Controller
Mr. G. C. Phiri Assistant Construction Coordinator

World Bank Social Recovery Project

Mr. George Sibanyama Technical Officer
Mr. M. Nyirenda Contract and Procurement Officer

Project Co-ordination Unit ZEPIU

Mr. Patrick C. Mwansa Acting Director of Projects
Mr. M. C. F. Sakala Project Coordinator
Mr. Ian Mpuku Assistant Project Coordinator
Mr. Andrew Mulata Civil Engineer
Mr. Peter S. Chiuto Architect

UNICEF

Mr. Marshetty Seenappa Programme Officer
Ms. Marthe Santos Programme Officer

FINNIDA (ESSP)

Mr. Jorma Kalliola Building Adviser

Ministry of Energy and Water Development

Mr. Peter Chola Acting Director, Department of Water Affairs

Lusaka Water and Sewerage Company

Mr. T. I. Band Acting Managing Director
Mr. Wilson Shane Manager (Sewage Services)
Mr. Henry E. Mtine Manager (Water Supply)

(2) Explanation of Draft Report

Japanese Embassy in Zambia

Yoshihiro NAKAMURA	Ambassador
Takayuki MIYASHITA	Councilor
Kenji ENDO	First Secretary
Yasuhiro MURAKAMI	Second Secretary
Hiroshi KUROKI	Second Secretary

JICA Zambia Office

Mitsuo ISHIKAWA	Resident Representative
Kozo TSUKADA	Deputy Resident Representative
Osamu TANABE	Assistant Resident Representative

Ministry of Education

Dr. Sichalwe M. Kasanda	Permanent Secretary
Ms. B. Y. Chilangwa	Deputy Permanent Secretary (TC)
Ms. M. R. Maiyenkunku	Deputy Director, Planning Unit
Mr. Chilufya S. Nkamba	Head, Projects and Financial Planning Section Planning Unit
Mr. Joseph F. Nthele	Ass. Chief Building Officer, Building Section Planning Unit

Lusaka Provincial & District Education Office

Mrs. Bernadette M. Ndhlovv	Ass. Provincial Education Officer
Mr. S. S. Zuru	Ass. Senior Provincial Education Officer
Mrs. Daphne Chimuka	Education Officer

Ministry of Finance and Economic Development

Mr. Watson C. Ngomalla	Acting Chief Economist (AID)
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Appendix 4. Minutes of Discussion

(1) Basic Design Study

**Minutes of Discussions
Basic Design Study on the Project for
Construction of Basic Schools
In Lusaka District**

Based on the results of the Preliminary Study, the Japan International Cooperation Agency (JICA) decided to conduct a Basic Design Study on the Project for Construction of Basic Schools in Lusaka District (hereinafter referred to as "the Project").

JICA sent to the Republic of Zambia a study team, which is headed by Mr. Mitsuru HAGINO, Development Specialist, JICA, and is scheduled to stay in the country from February 3 to 12.

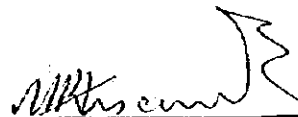
The team held discussions with the representative officials of the Government of Zambia and conducted a field survey of the study area.

As a result 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 a Basic Design Study Report.

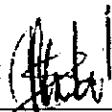
Lusaka, February 11, 1998



Mitsuru HAGINO
Leader,
Basic Design Study Team
JICA



Sicalwe M. KASANDA (Dr.)
Permanent Secretary
Ministry of Education



Witness: Stella M. Chibanda
Director
External Resource Mobilization
Ministry of Finance and Economic Development

ATTACHMENT

1. Objective of the Project

The objective of the Project is to expand access to basic education for school-aged children in Lusaka District.

2. Responsible and Executing Organization

Planning Directorate, Ministry of Education (M.O.E.) , as shown in Annex-1, is the responsible and executing organization of the Project.

3. Items Requested by the Zambian Side

After discussions with the Basic Design Study Team, the following items were requested by the Zambian side:

- a) Construction of 8 basic schools listed in Annex-2;
- b) Procurement of equipment, as shown in Annex-3, for the aforementioned basic schools.

However, the components of the Project will be decided after further studies.

4. Basic Policy for Basic Education

The Zambian side explained the basic policies for basic education listed below to the team:

- a) The Government of the Republic of Zambia (G.R.Z.) has begun the process of changing the educational system, from primary schools (grade1-7) and secondary schools (grade8-12) to basic schools (grade1-9) and high schools (grade10-12). Already some primary schools have grade8-9 classes and some secondary schools have only grade 10-12 classes;
- b) The national vision is to have universal basic education by the year 2015;
- c) The Project will contribute to the achievement of above policy.

5. Criteria for Site Selection, Building and Equipment Design

- a) The project sites will be examined in accordance with the criteria listed in attached Annex-4;
- b) The buildings will be designed in accordance with the criteria listed in attached Annex-5;
- c) The equipment will be selected in accordance with the criteria listed in attached Annex-6.

In all cases, details of the project, notably the number of classrooms to be constructed, will be determined on the basis of the results of detailed analysis of data and information obtained from the study, in a manner which ensures optimal use of the Japanese grant aid.

6. Japan's Grant Aid Scheme

- a) The G.R.Z. has understood the mechanism for Japanese grant aid, as explained by the Team and described in Annex-7;
- b) The G.R.Z. will take the necessary measures, described in Annex-8, for smooth implementation of the Project in the event that grant aid assistance by the Government of Japan is extended to the Project.

7. School Administration, Operation and Maintenance of School Facilities

In the event that the Project is executed, the G.R.Z. takes the responsibility to administer, operate and maintain the schools, including management of facilities and equipment constructed or procured by the Project. The G.R.Z. will make a detailed execution plan and report it to the Japanese side through JICA Zambia Office.

Issues to be covered by the above plan will include the following:

- a) Timely provision of enough number of trained teachers for the schools constructed by the Project, by giving specific numbers of teachers to be redeployed from other schools and/or teachers to be recruited from among graduates of teachers' training colleges;
- b) Promotion of participation of the community and/or PTAs to making signboards etc. at the site to protect the schools against vandalism.
- c) Timely provision of teaching materials to the schools constructed by the Project;
- d) Payment of the operation and maintenance cost, including water and electricity bills when these facilities are constructed.

8. Schedule of the Study

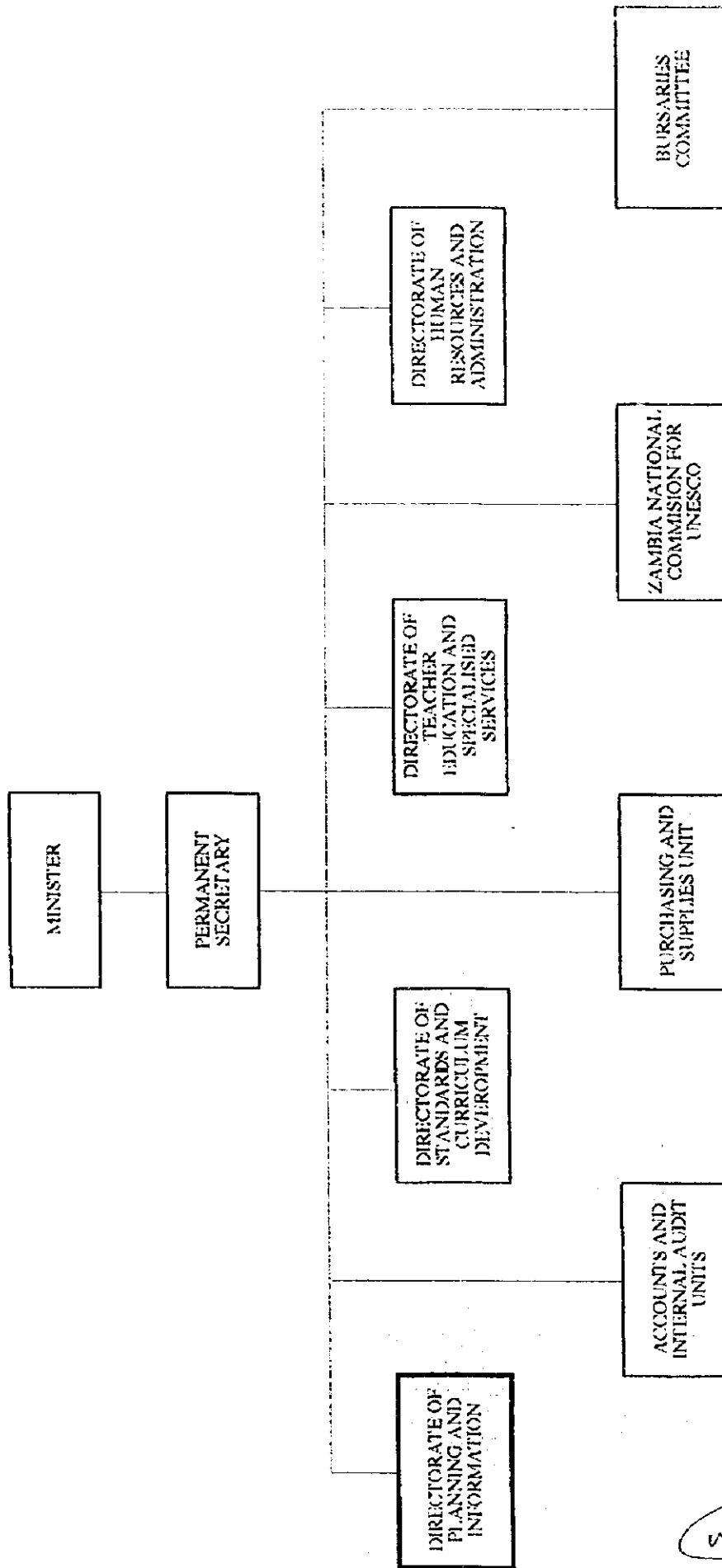
- a) The team will proceed with further studies in Zambia until February 28, 1998;
- b) JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around April, 1998;
- c) In case that the contents of the report are accepted in principle by the Zambian side, JICA will complete the final report and send it to the G.R.Z. by August, 1998.

9. Others

- a) The G.R.Z. will provide the team with all necessary information and data;
- b) Both the Basic Design Team and the G.R.Z. have conceptualized the Project in accordance with the Project Design Matrix attached as in Annex-9;

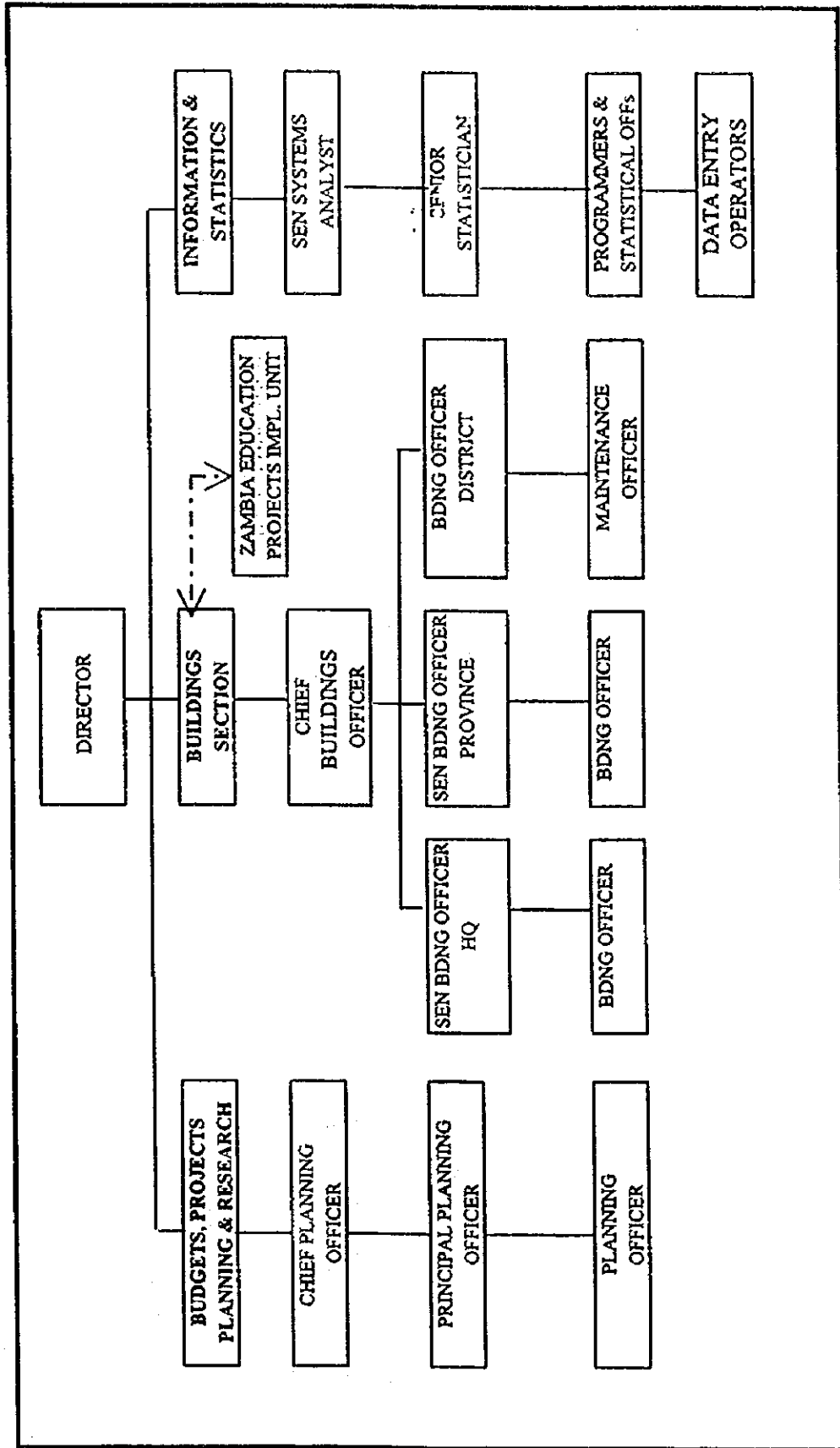
ANNEX-1 ORGANIZATION CHART OF RESPONSIBLE AND EXECUTING ORGANIZATION

1. MINISTRY OF EDUCATION



2. DIRECTORATE OF PLANNING AND INFORMATION

ORGANISATION STRUCTURE FOR THE DIRECTORATE OF PLANNING



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ANNEX-2 BASIC SCHOOLS REQUESTED BY THE ZAMBIAN SIDE

1. BAULENI
2. JOHN LAING
3. NG'OMBE
4. MUMANA
5. CHAINDA
6. LIBALA
7. BALASTONE
8. KABULONGA

Above schools are listed in order of priority of the Zambian side.

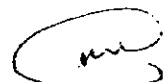
Each of the above listed schools includes the construction of:

- a) Classrooms
- b) Administration Offices
- c) Sanitation facilities (i.e. toilets)
- d) Water facilities
- e) Blackboards
- f) Caretaker/Staff houses

ANNEX-3 EQUIPMENT REQUESTED BY THE ZAMBIAN SIDE

1. Desks and Chairs for Classrooms
2. Furniture for Administration Offices
3. Teaching Materials


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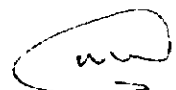
ANNEX-4 CRITERIA FOR SITE SELECTION

1. In principle, no basic or primary school exists in the community concerned or the nearest public school has insufficient capacity to meet the demand for school places or is far from the community.
2. Highest consideration is accorded to communities with a low enrollment ratio.
3. The Project can improve the access to basic school education by creating additional school places thereby alleviating situations such as triple-shift teaching.
4. The land title of the project site(s) should preferably be with the M.O.E. It is, however, acceptable if the local municipalities, including community bodies, hold an official title to the land(s) and the M.O.E. assumes full responsibility for governing the title in favor of the project.
5. For each project, the community should be firmly supportive of the Project through the concept that operations and maintenance of the concerned facilities are primarily a community concern, particularly for anti-vandalism measures. In order to ensure this community participation, the M.O.E. is responsible for guiding, supervising and assisting the concerned community and the inhabitants therein, through the community leaders, Parent-Teachers Associations (PTAs) and/or other representatives.
6. The project site should be such that the children are not exposed to significant risk while commuting to and from the school, such as isolated location, having to travel through tall grass or dense bush or cross high-traffic roadways, etc.
7. The project site should be such that electricity can be supplied to the site by the responsible authorities within a reasonable timeframe and cost.
8. Any other plan for school construction or other such projects, by either the M.O.E. or international/bilateral donors, should not exist for the same project sites or should be fully coordinated by the M.O.E.
9. A project site that is topographically inappropriate for construction (e.g. steep land, swamp, etc.) shall not be considered.
10. Proper access road must exist in order to carry construction materials and equipment into each project site.

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11. The legal rights for using a project site and site clearance must be secured before the commencement of the construction work.
12. On each project site, there shall be no foreseen natural, environmental or social hazards which endangers the workers' safety during the construction period.
13. There must exist enough area to construct schools without removal of local residents.

A handwritten mark or signature, possibly initials, enclosed in a hand-drawn oval shape.

ANNEX-5 CRITERIA FOR BUILDING DESIGN

1. Buildings should satisfy the minimal functions in compliance with the curriculum for basic education at present and future.
2. The number of classrooms and other rooms in a building should accommodate the minimal needs to comply with circumstances at present and near future, such as the educational system and school-age population in Zambia.
3. The specification of buildings shall follow the building standards and city by-laws in Lusaka.
4. Buildings should withstand normal climatic conditions.
5. The major portion of buildings should be built with materials procured in Zambia or imported easily and cost-effectively.
6. Buildings should be built and maintained with locally procurable techniques.
7. Buildings should be maintained locally and cost-effectively under the responsibility of the M.O.E.
8. Buildings should be provided with suitable water supply and sanitation.
9. Signboards etc. will be made by the local community and/or PTA, so that they will have the sense of ownership of the school constructed by the Project.

ANNEX-6 CRITERIA FOR EQUIPMENT SELECTION

1. All equipment should satisfy the minimal requirements outlined in the curriculum for basic education.
2. All equipment should be durable and be able to withstand normal climatic conditions and proper use.
3. In principle, equipment should be procured in Zambia .
4. Equipment should be able to be maintained locally and consumable materials supplied easily, continually and cost-effectively.

ANNEX-7 JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedures

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

- Application
Request made by the recipient country
- Study
Basic Design Study conducted by JICA
- Appraisal & Approval
Appraisal by the Government of Japan and Approval by the 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 (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, 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 smooth 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 purpose of the Basic Design Study (hereafter referred to as "the Study"), conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

- a) Confirmation of the background, objectives, and benefits of the requested 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 point 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
- 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 though 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 the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA select (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design study and writes) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds needed 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.

2) 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.

3) The period of the Grant Aid means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) 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.

4) Under the Grant Aid, 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, constructing 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.)

5) Necessity of "Verification"

The Government of 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 to Japanese taxpayers.

6) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

- a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- c) To secure buildings prior to the procurement in case the installation of the equipment.
- d) To ensure all the expenses and prompt execution for unloading,

customs clearance at the port of disembarkation.

- e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- f) 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.

7) "Proper Use"

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

8) Re-export

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

9) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority shall 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 issued by the Government of the recipient country or its designated authority.



ANNEX-8 NECESSARY MEASURES TO BE TAKEN BY THE ZAMBIAN SIDE

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To clear level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot	●	
5	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the building	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
8	To bear the following commissions to the Japanese foreign exchange banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site		●
10	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●
12	To maintain and use properly and effectively the facilities contracted and equipment provided under the Grant		●
13	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

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ANNEX-9 PROJECT DESIGN MATRIX (PROVISIONAL)

Project Title: The Project for Construction of Basic Schools in Lusaka District; Project Period: from E/N to 1 year after end of the construction;

Executing Organization: Planning Division, M.O.E.; Target Group: School-aged children living in Lusaka District; Target Area: Lusaka District (Urban Area and Peri Urban Area)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall Goal Every child in Zambia will have access to nine years of good quality education.</p> <p>Project Purpose Access to basic education will be expanded for school-aged children in Lusaka District.</p>	<p>Universal basic education by 2015</p> <p>Increased number of pupils who have access to newly constructed schools in Lusaka District</p>	<p>Statistics by M.O.E.</p> <p>Statistics by M.O.E.</p>	<p>Policy for education will not change dramatically. Politics and economics will remain stable.</p> <p>Trained teachers will be supplied. Construction of other basic schools will continue. The number of school-aged children will not increase dramatically. Family budgets will not significantly decrease. Vandalism will not worsen. Government budget for education will not be decreased.</p>
<p>Outputs</p> <ol style="list-style-type: none"> Basic school classrooms will be increased in Lusaka District. Learning environment of basic education in Lusaka District will be improved. Appropriate number of teachers will be allocated according to increased number of classrooms. Curriculum will be improved and textbooks will be provided for the newly established schools. The schools will be properly maintained by both the M.O.E. and communities. 	<ol style="list-style-type: none"> Increased number of classrooms Decreased distance to schools Decreased number of pupils per class Decreased number of multiple shifts Improved lighting and ventilation Required number of teachers allocated Equipment procured and textbooks provided Improved curriculum Existence of a Preventive Maintenance Program and Budget 	<ol style="list-style-type: none"> Basic Design Study Report and School Mapping (M.O.E.) School Returns (M.O.E.) Basic Design Study Report M.O.E. report (Budget allocation and plan of operations) 	<p>The number of school-aged children will not increase dramatically. Family budgets do not decrease significantly. Vandalism will not worsen. Parents' enthusiasm for education will be preserved. Maintenance will be undertaken.</p>
<p>Activities</p> <ol style="list-style-type: none"> To execute a survey To execute analysis and design To execute construction of facilities and procurement of equipment To review and update past school mapping and make school mapping newly in Lusaka. To carry out design in accordance with study results To allocate teachers for the schools constructed To review and improve curriculum To supply teaching materials including textbooks To organize PTAs and their maintenance committees To secure contributions from parents To maintain school facilities 	<p>Inputs</p> <ol style="list-style-type: none"> Japanese side <ol style="list-style-type: none"> Study Team Construction of Schools including classrooms & toilet facilities, etc. Procurement of equipment and materials Zambian side <ol style="list-style-type: none"> Land for school construction Cooperation to the Study Team Maintenance of the schools Supply of teachers Curriculum, teaching materials and textbooks Establishment of PTAs and organization of communities 	<p>Teachers' employment policy will not be affected by the Structural Adjustment Program. Materials for facilities will be procured without difficulty. Imported equipment will be cleared through customs on a timely basis. Pre-conditions Donor coordination will be undertaken for the Project. Local residents' consent to the construction of schools will be secured.</p>	<p>Teachers' employment policy will not be affected by the Structural Adjustment Program. Materials for facilities will be procured without difficulty. Imported equipment will be cleared through customs on a timely basis. Pre-conditions Donor coordination will be undertaken for the Project. Local residents' consent to the construction of schools will be secured.</p>

(2) Explanation of Draft Report

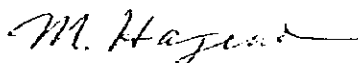
**Minutes of Discussions
on
the Basic Design Study on
the Project for Construction of Basic Schools in Lusaka District
in
the Republic of Zambia
(Consultation on Draft Report)**

In February 1998, the Japan International Cooperation Agency (JICA) dispatched the Basic Design Study Team on the Project for Construction of Basic Schools in Lusaka District (hereinafter referred to as "the Project") to the Republic of Zambia, and through discussions, field survey, and technical examination of the results in Japan, has prepared the draft Basic Design report of the study .

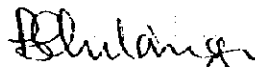
In order to explain and consult the Ministry of Education on the components of the draft report, JICA sent a study team, which is headed by Mr. Mitsuru HAGINO, Development Specialist, JICA , and is scheduled to stay in Zambia from 3rd to 11th June, 1998.

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

Lusaka, June 9, 1998

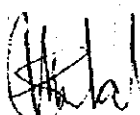


Mr. Mitsuru Hagino
Leader
Basic Design Study Team
Japan International Cooperation Agency



Mrs. Barbara Y. Chilangwa
Deputy Permanent Secretary (TC)
Ministry of Education

Witness



Ms. Stella M. Chibanda
Director, External Resources Mobilization
Ministry of Finance and Economic Development

ATTACHMENT

1. Components of the Draft Basic Design Report

The Ministry of Education (MOE) has agreed and accepted the components of the draft Basic Design report proposed by the Team.

2. Responsible and Executing Organization

Planning Directorate, Ministry of Education (MOE) is the responsible and executing organization of the Project.

3. School Administration, Operation and Maintenance of School Facilities

After the implementation, MOE shall take responsibility to administer, operate and maintain the schools, including management of facilities and equipment granted under the Japan's Grant Aid in collaboration with the Provincial Education Office and District Education Office.

MOE shall provide a detailed execution plan, described in the minutes signed on the 11th February, 1998, to the Japanese side by July, 1998.

MOE shall monitor the execution of measures taken by the Zambian side in accordance with the 'execution plan', and provide a monitoring report to the Japanese side periodically.

4. Contents of the Items of the Project

Both sides have confirmed the eight (8) sites and each item which will be constructed or procured under the Japanese Grant Aid attached as Annex-1.

5. Japan's Grant Aid Programme

The MOE has understood the system and characteristics of Japan's Grant Aid Programme explained in Annex-2 by the Team.

6. Necessary Measures to Be Taken by the MOE

- (1) On condition that the Grant Aid Programme by the Government of Japan is extended to the Project, the MOE will take the necessary measures described in Annex-3 for smooth implementation of the Project. Moreover, the implementing agency will secure the proper and effective operation and maintenance of the buildings as well as the equipment provided under the Project.
- (2) The Zambian side shall execute the following items during the detailed design and construction period.
 - a) Promote community and/or PTAs participation
 - b) Assign headteachers
 - c) Establish a steering committee for school operation and maintenance

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(3) The Zambian side shall execute the following items by the completion of the construction.

- a) Register the school children
- b) Allocate / employ enough number of trained teachers
- c) Provide teaching materials

(4) The Zambian side shall bear the operational and maintenance cost.

7. Further Schedule of the Study

JICA will complete a final report of the Study in accordance with the confirmed items, and send it to Zambia by the end of August, 1998.

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Annex-1 List of Sites and Items to be Provided under the Japanese Grant Aid Project

Sites Bauleni (No of Regular Classrooms: 21)
 John Laing (21)
 Ng'ombe (21)
 Mumana (21)
 Chainda (21)
 Libala (21)
 Balastone (21)
 Kabulonga (18)

Buildings 18 or 21 Regular Classrooms
 2 Special Classrooms
 1 Administration Building
 1 Caretaker's House
 Lavatory

Equipment 1) Desks and Chairs for Classrooms
 2) Furniture for Administration Office
 3) Equipment for Special Classroom

- 2 sets of Equipment for Home Economics Class
- 2 sets of Equipment for Industrial Arts Class

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Annex-2 Japan's Grant Aid System

1. Grant Aid Procedures

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

- Application
Request made by the recipient country
- Study
Basic Design Study conducted by JICA
- Appraisal & Approval
Appraisal by the Government of Japan and Approval by the 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 (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, 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 smooth 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 purpose of the Basic Design Study (hereafter referred to as "the Study"), conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

- a) Confirmation of the background, objectives, and benefits of the requested 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 point 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
- 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

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whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization 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 smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA select (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design study and writes) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds needed 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.

2) 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.

3) The period of the Grant Aid means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) 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.

4) Under the Grant Aid, 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, constructing 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.)

5) Necessity of "Verification"

The Government of 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

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secure accountability to Japanese taxpayers.

6) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

- a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- c) To secure buildings prior to the procurement in case the installation of the equipment.
- d) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation.
- e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- f) 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.

7) "Proper Use"

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

8) Re-export

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

9) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority shall 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 issued by the Government of the recipient country or its designated authority.

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Annex-3 Necessary Measures to be taken by Zambia Side

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To clear level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot	●	
5	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the building	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
8	To bear the following commissions to the Japanese foreign exchange banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site		●
10	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●
12	To maintain and use properly and effectively the facilities contracted and equipment provided under the Grant		●
13	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

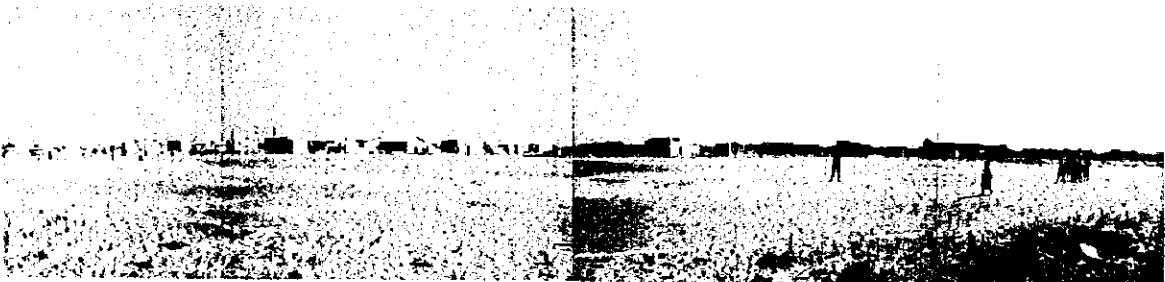
MA

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Appendix 5. Photos Showing Current Project Site Conditions



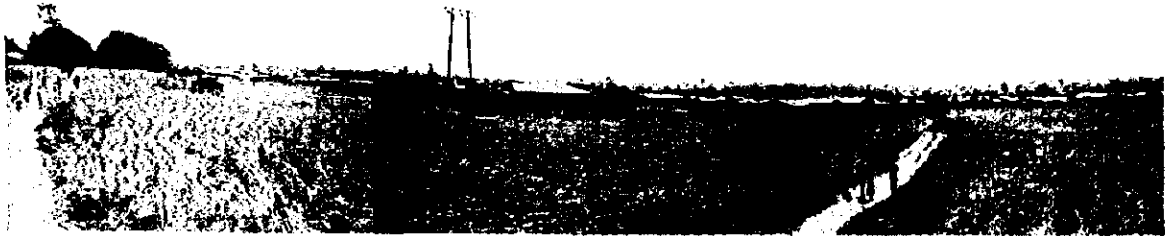
1. Bauleni



2. John laing



3. Ng'ombe



4. Mumana



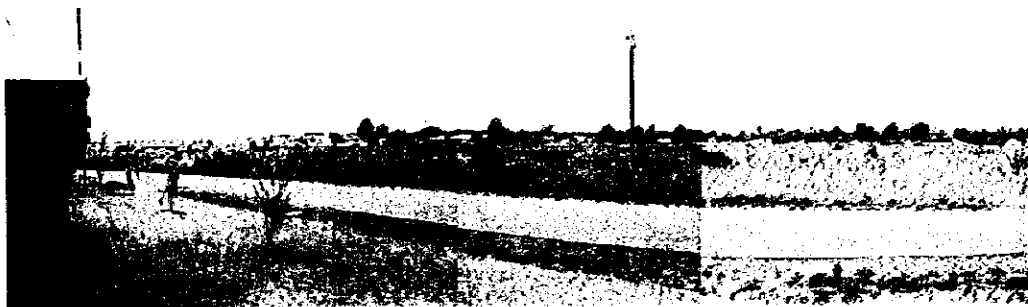
5. Chainda



6. Libala



7. Balastone



8. Kabulonga










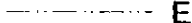





Appendix 6. Site Breakdown

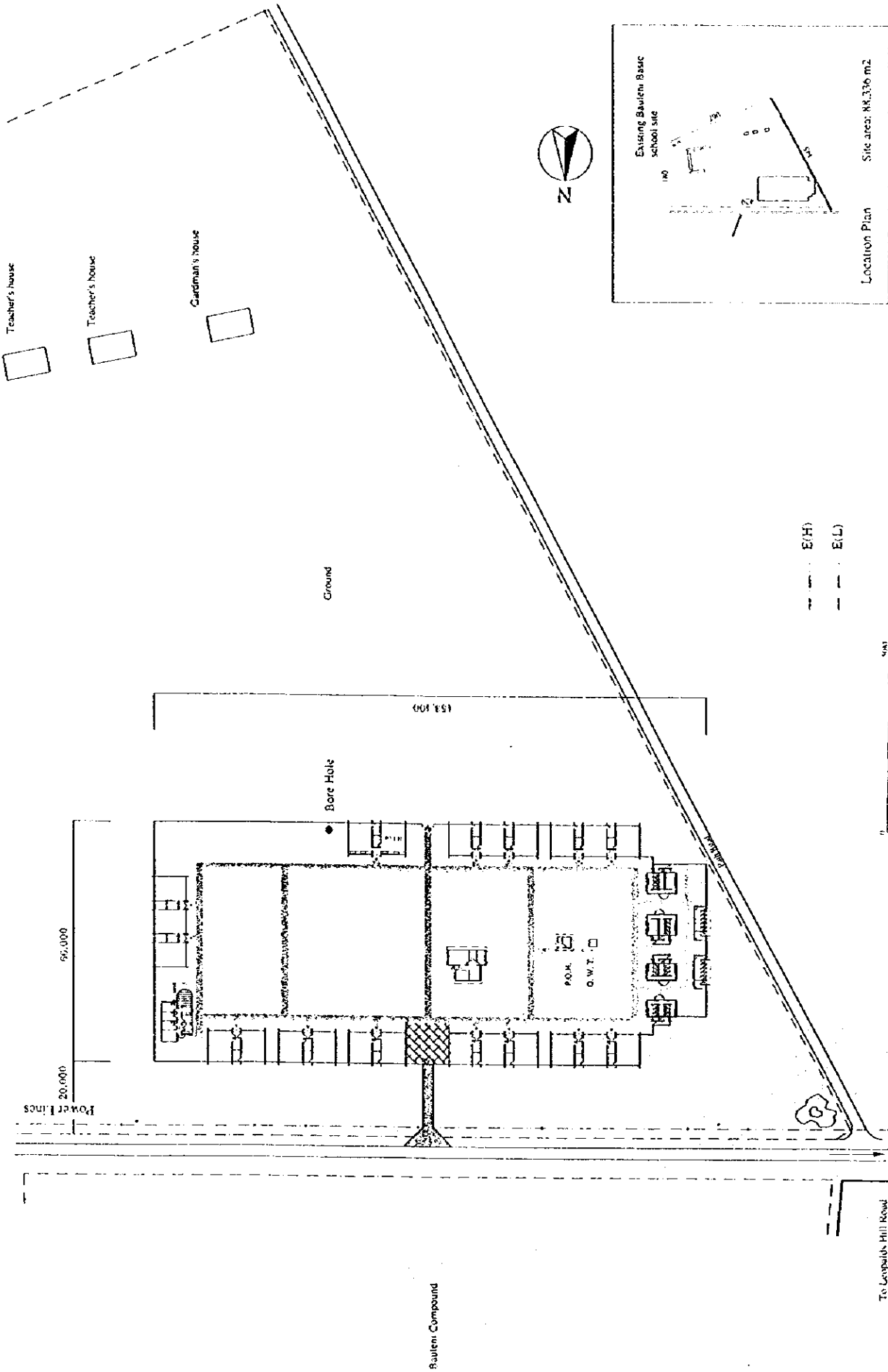
	Site	Regular classroom		Special-purpose classroom	Administration office	Care-taker's house	Pit latrine		Lavatory		Sub-total per site
		2-classroom bldg	3-classroom bldg	2-classroom bldg			(male/ seepage)	(female/ seepage)	(male/ flush)	(female/ flush)	
		137.20 (m ²)	215.92 (m ²)	68.63 (m ²)	135.88 (m ²)	75.39 (m ²)	31.28 (m ²)	31.28 (m ²)	59.40 (m ²)	50.16 (m ²)	
1	BAULENI	3	5	1	1	1	1	1	2	2	
		411.6	1079.6	68.63	135.88	75.39	31.28	31.28	118.8	100.32	2052.78
2	JOHN LAING	3	5	1	1	1	1	1	2	2	
		411.6	1079.6	68.63	135.88	75.39	31.28	31.28	118.8	100.32	2052.78
3	NG'OMBE	3	5	1	1	1	1	1	2	2	
		411.6	1079.6	68.63	135.88	75.39	31.28	31.28	118.8	100.32	2052.78
4	MUMANA	3	5	1	1	1	1	1	2	2	
		411.6	1079.6	68.63	135.88	75.39	31.28	31.28	118.8	100.32	2052.78
5	CHAINDA	3	5	1	1	1	1	1	2	2	
		411.6	1079.6	68.63	135.88	75.39	31.28	31.28	118.8	100.32	2052.78
6	LIBALA	3	5	1	1	1	1	1	2	2	
		411.6	1079.6	68.63	135.88	75.39	31.28	31.28	118.8	100.32	2052.78
7	BALA-STONE	3	5	1	1	1	1	1	2	2	
		411.6	1079.6	68.63	135.88	75.39	31.28	31.28	118.8	100.32	2052.78
8	KABU-LONGA	3	4	1	1	1	1	1	2	2	
		411.6	863.68	68.63	135.88	75.39	31.28	31.28	118.8	100.32	1836.86
	Total	3292.8	8420.88	549.04	1087.04	603.12	250.24	250.24	950.4	802.56	16206.32

Appendix 7. Layout Plan of Projected Schools

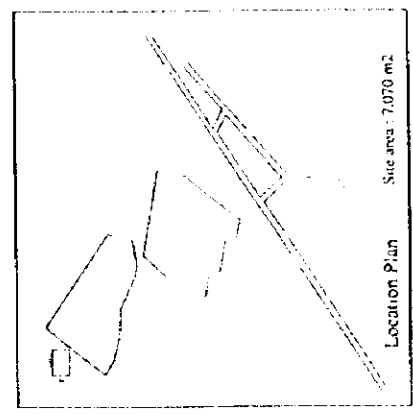
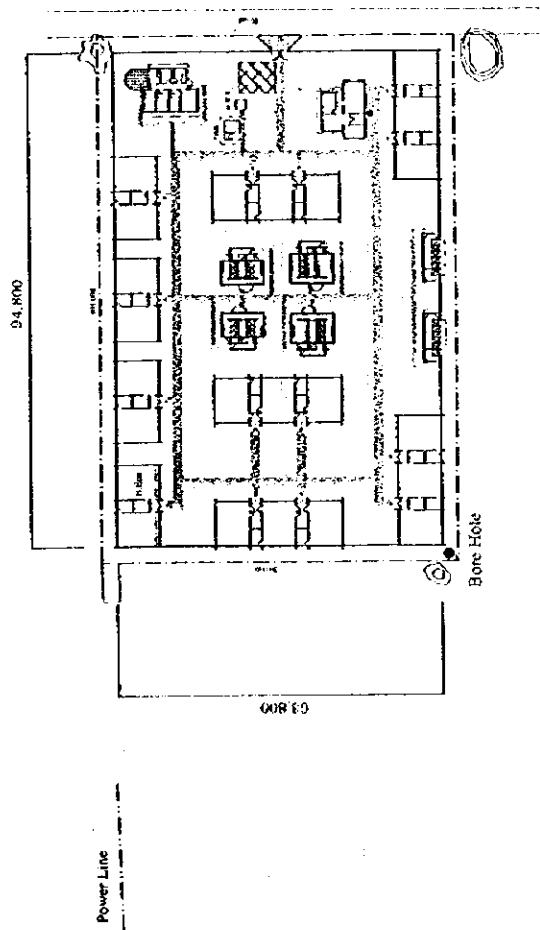
BUILDING PLANS OF THE PROJECT FOR CONSTRUCTION OF BASIC SCHOOLS IN LUSAKA DISTRICT

LEGEND

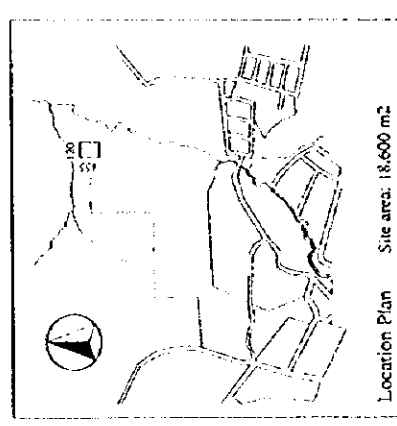
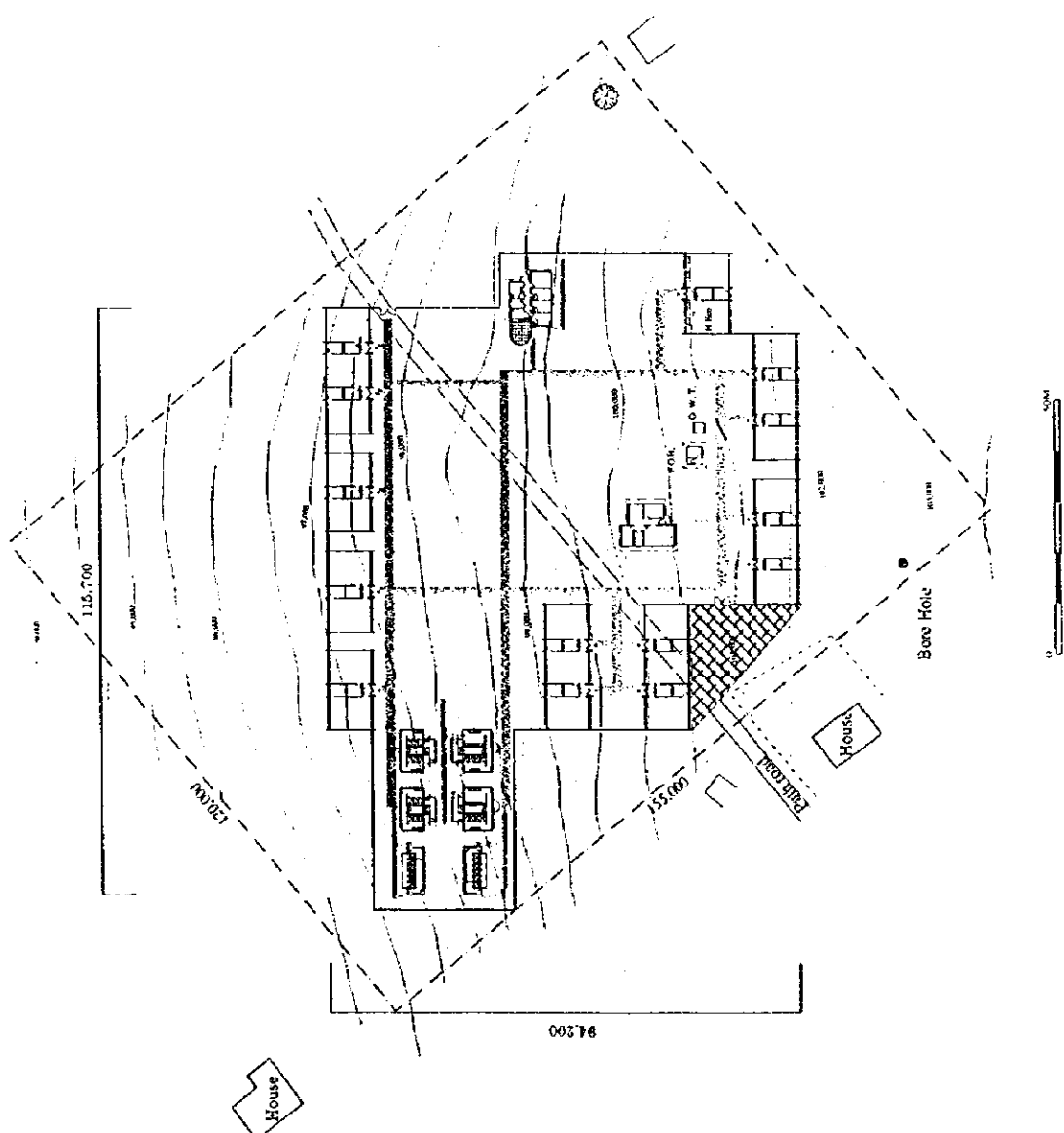
	Triple Classroom Block		Bore Hole
	Double Classroom Block		O.W.T. Overhead Water Tank
	Special Classroom Block (2 classrooms)		P.O.H. Pump Operation House
	Administration office		Path (1,500 width)
	Caretaker's house		E Power line
	Water flush toilette (Boys)		E Electric Pole
	Water flush toilette (Girls)		W Stream
	Pit latrine Boys/Girls		



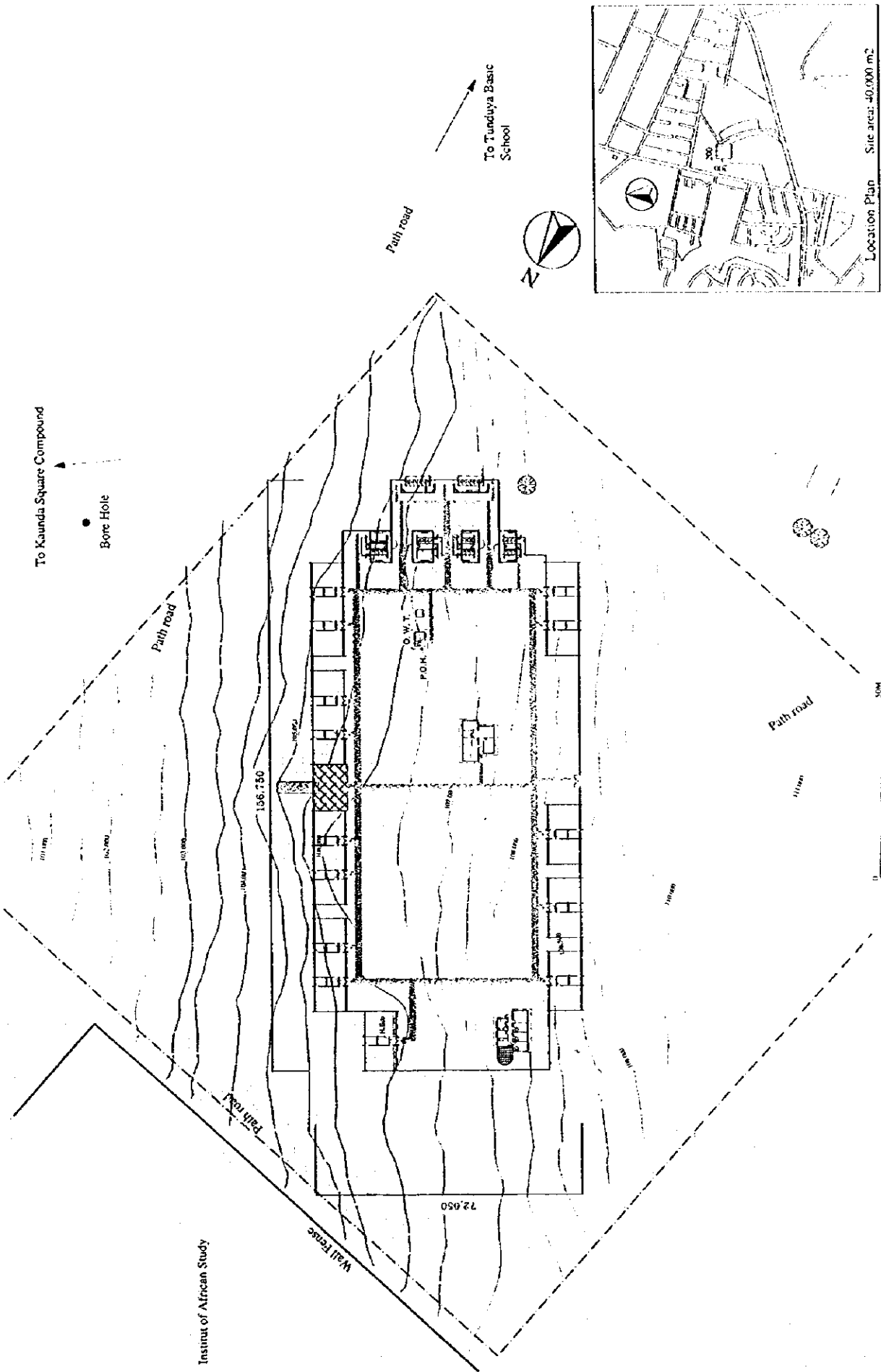
I. BAULENI



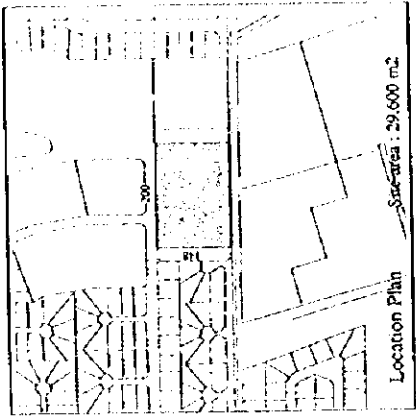
2. JOHN LAING



3. NGOMBE



4. MUMANA



Field

Field

Field

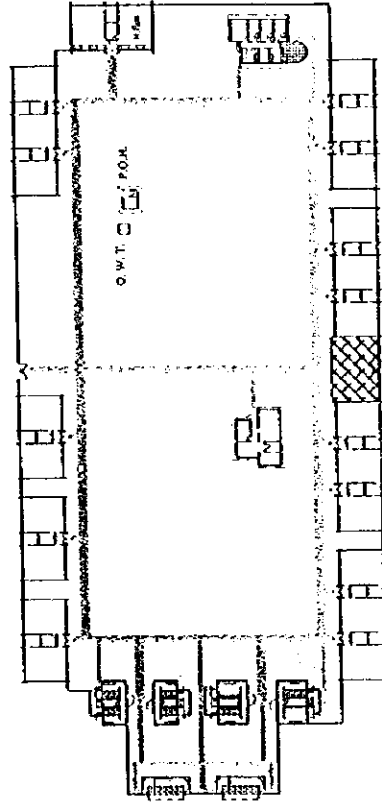
Stream

200,000
road

153,200

Power Line

● Bore Hole

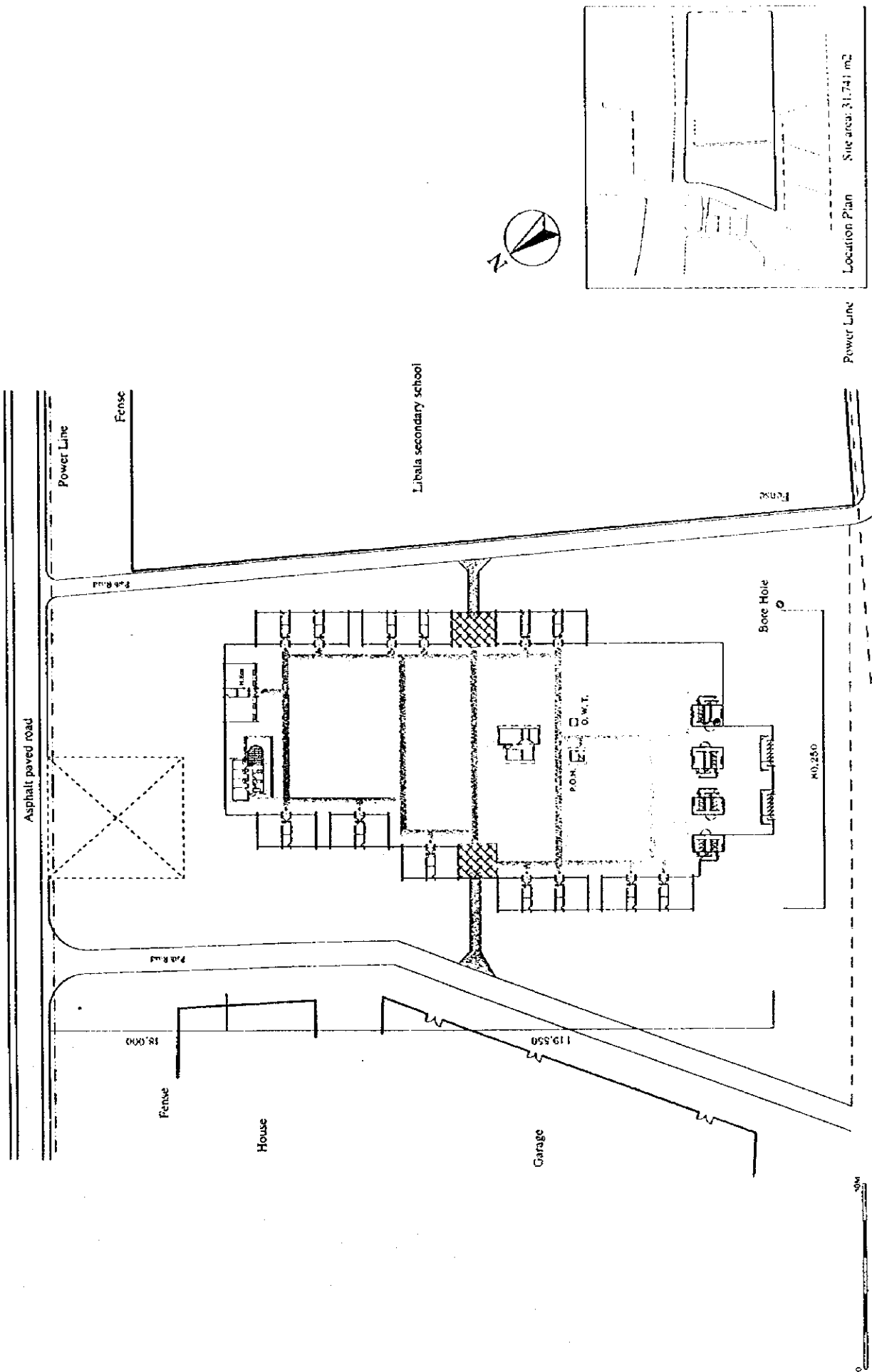


Asphalt paved road

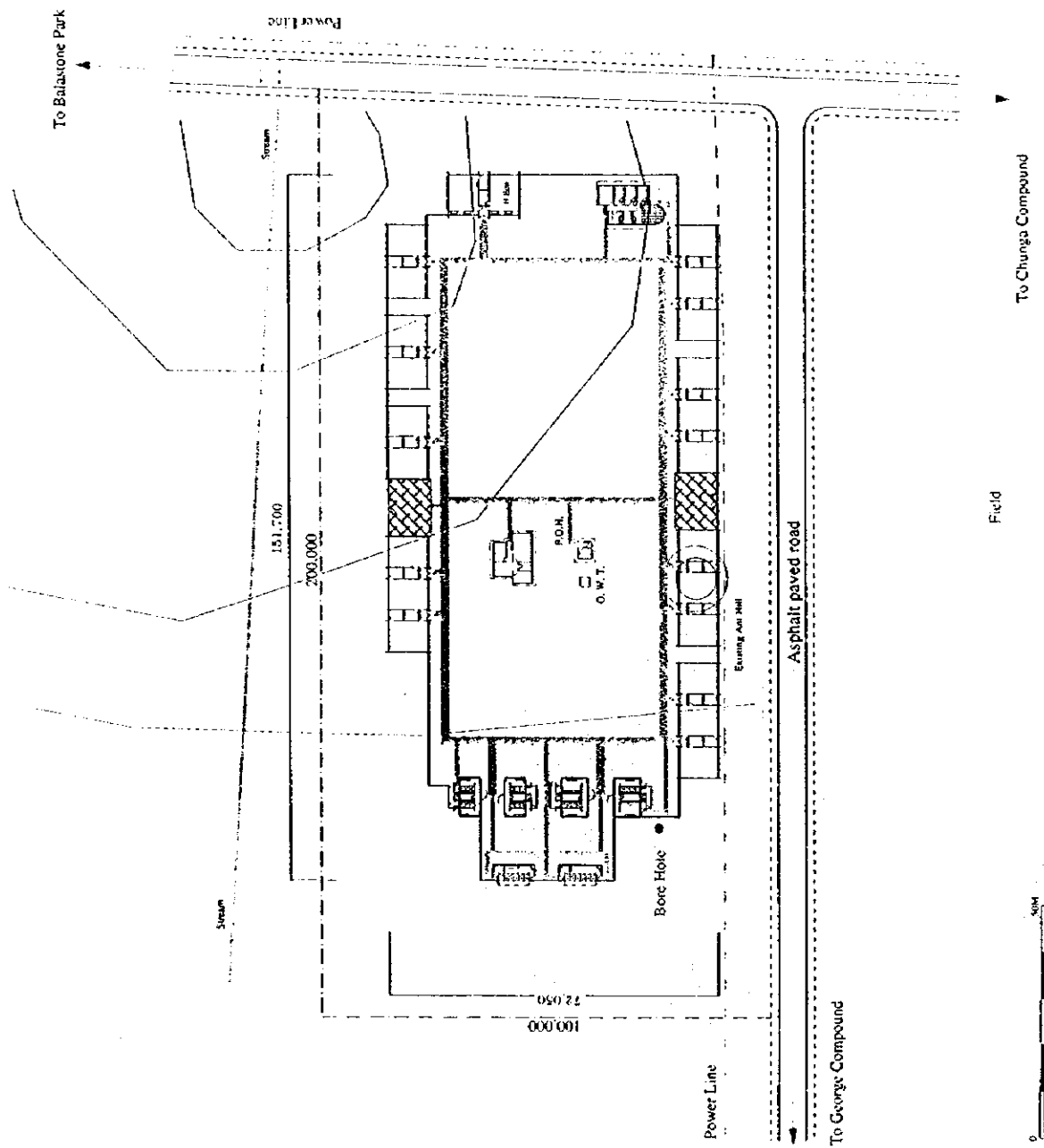
Power Line



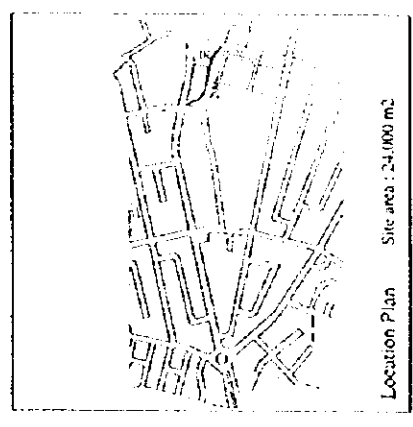
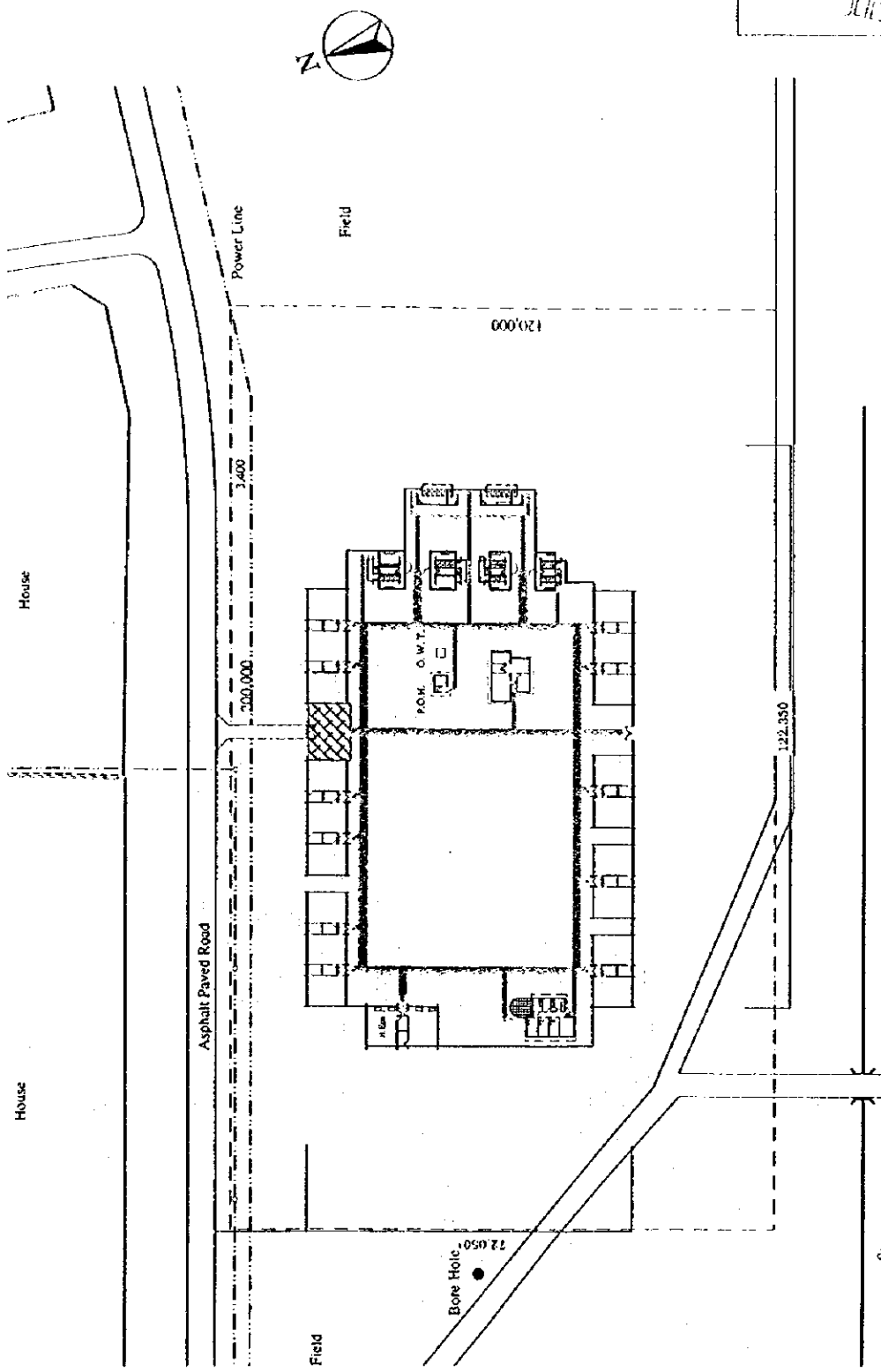
Houses



6. LIBALA

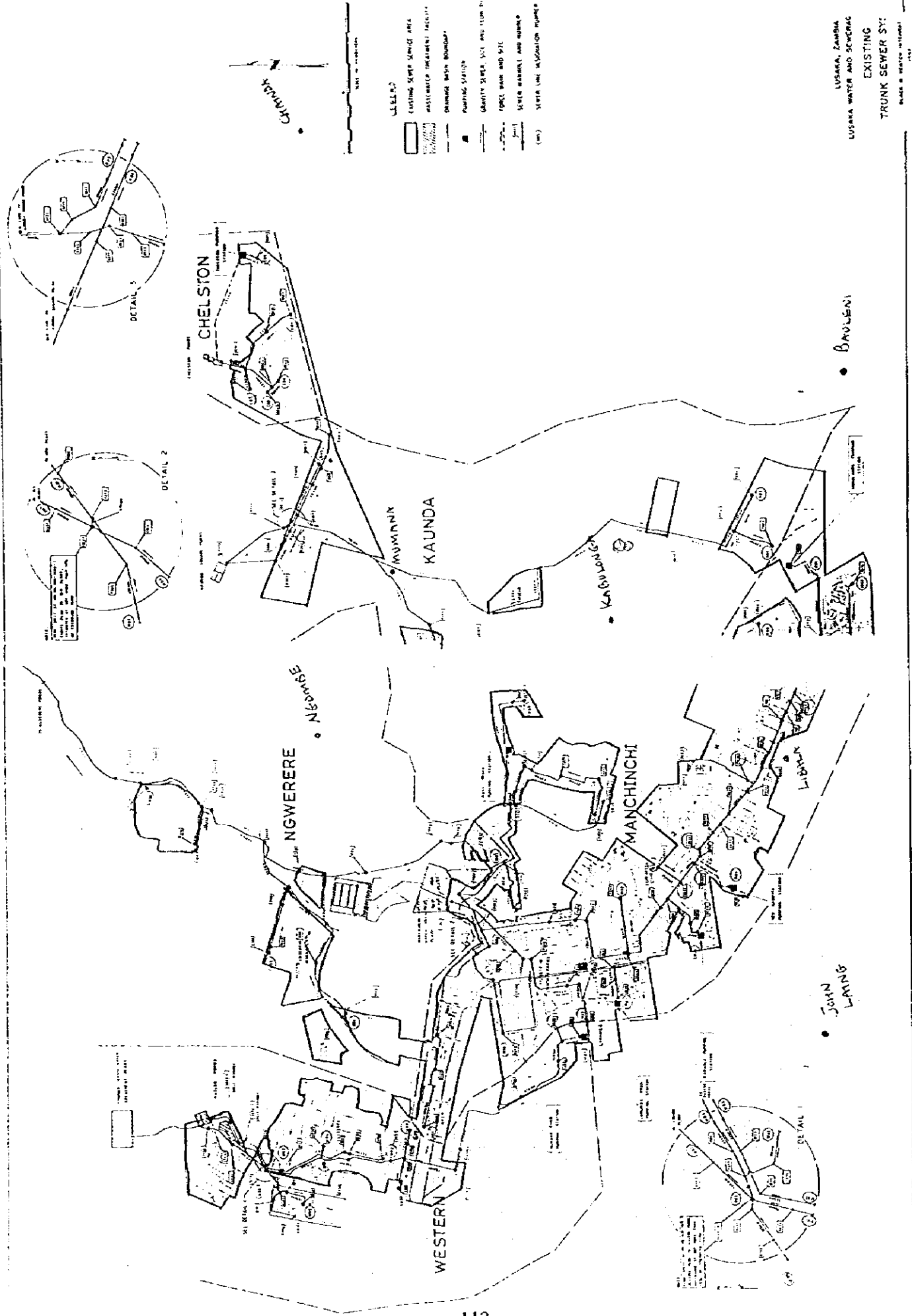


7. BALASTONE



S. KABULONGA

Appendix 8. Sewer Main Flow Diagram in Lusaka



- Appendix 9. Water Main Flow Diagram in Lusaka

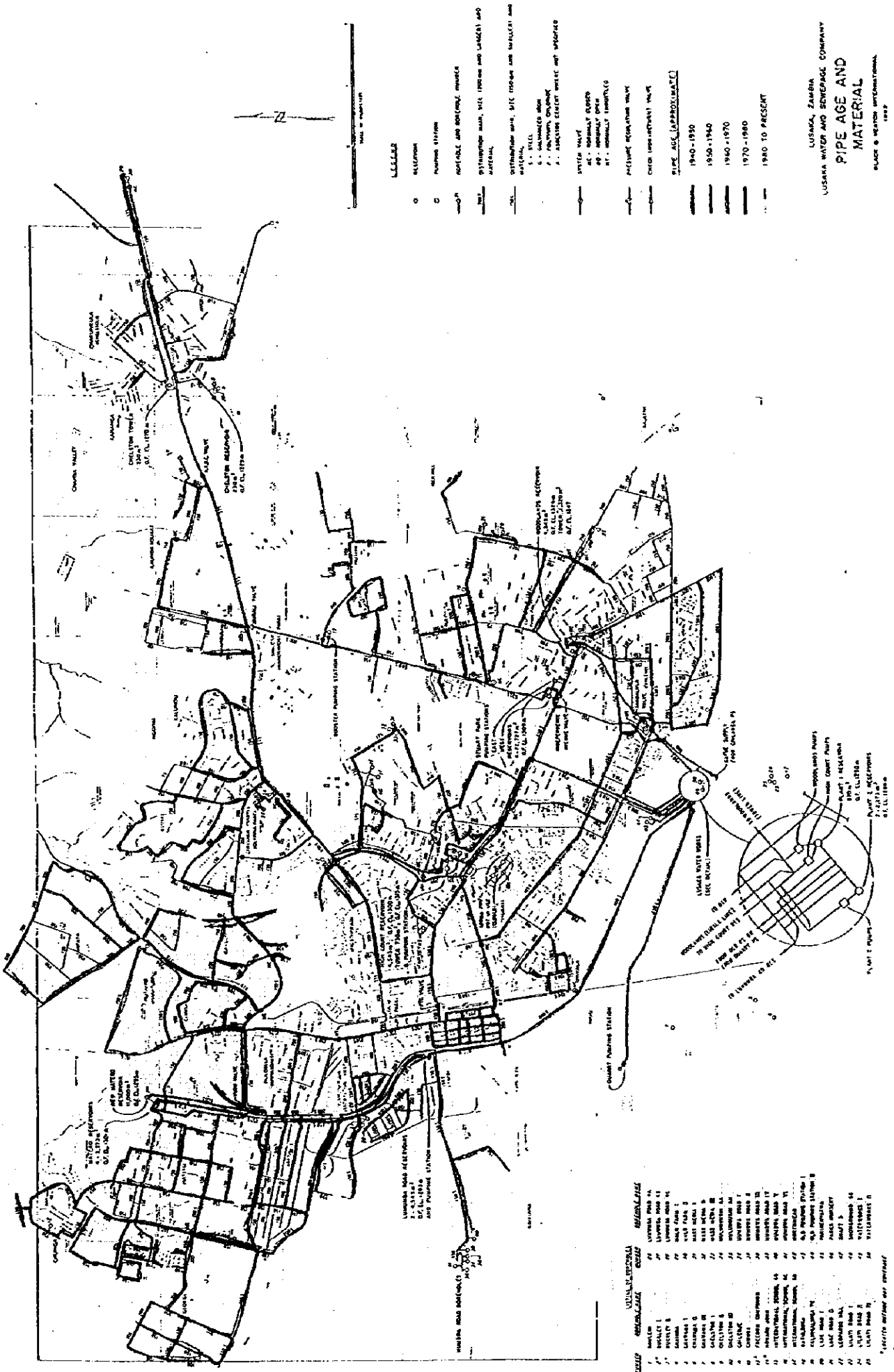


FIGURE 22-4

JICA