2.4 Implementation Plan

2.4.1 Implementation Policy

(1) Basic Items of Project Implementation

After related agencies on the Japan side examine the Project based on this report, the Government of Japan shall make a Cabinet approval regarding implementation. The Project shall then be transferred to the implementation stage following conclusion of the Exchange of Notes (E/N) between the Governments of both countries. Project detailed design shall be carried out by a Japanese Consultant, and construction works shall be implemented by a Japanese Contractor. The said Consultant and Contractor shall, in accordance with the Grant Aid Scheme of the Government of Japan, respectively conclude a consultant contract and a construction works contract with the implementing agency on the Malawian side. Both these contracts require verifications by the Government of Japan.

(2) Project Implementation Setup

The responsible organization on the Malawian side concerning the Exchange of Notes (E/N) for Project implementation is the Ministry of Finance (MOF). The implementing agency in Malawi is the Ministry of Education, Science and Technology (MoEST) which will coordinate and act as the overall interface for the Project, while Domasi College of Education (DCE) shall be responsible for everyday operations. The Planning Department/MoEST shall be the parties to the detailed design contract and consultant supervision contract with the consultant and the construction works contract with the consultant. The DCE shall supervise and manage the Demonstration Secondary School, and has responsibility for execution of Malawian side works such as grading of land, renovation of existing water and sewage lines, and erection of perimeter fences, etc. at the Demonstration Secondary School.

1) Consultant

Following signing of the exchange of notes (E/N) between the governments of both countries, the MoEST shall bind contracts of detailed design and consultant supervision with the Japanese consultant. After the Government of Japan verifies the contract, the consultant shall carry out detailed design of facilities and prepare tender documents based on the Basic Design Study Report with discussion of the MoEST. After obtaining approval from MoEST concerning the detailed design and tender documents, the consultant, acting on behalf of MoEST, shall carry out tender work for the building contractor and th equipment supplier based on the consultant supervision contract, and it shall conduct all subsequent consultant supervision work up till completion of the construction works.

2) Contractor and Equipment Supplier

The Project is composed by construction of facilities and supply of equipment and furniture. The building contractor shall be selected in a general competitive tender from Japanese construction companies that comply with certain tender qualifications. The successful tender participant shall basically be the lowest price bidder, and this company shall bind the construction contract with MoEST. The contractor shall execute the works within the scheduled works period designated in the contract and, following completion of the completion inspection, it shall hand the finished facilities and equipment over to MoEST.

(3) Scope and Methods of Activity of Local Consultants and Contractors

Construction of school facilities is currently carried out independently by EDMU and PIU of MoEST and also by other international assistance agencies and donors. Local Consultants do exist in both Lilongwe and Blantyre; however, there are few consultants or operators that have the capability to manage overall projects. Also Contractors based in Lilongwe or Blantyre carry out most major projects. Leading consultants have adequate technical levels and are well versed in local building learned from other ODA projects; therefore, in order to smoothly implement works supervision over the Project, it would be effective to utilize these consultants in the role of supervision assistants.

Concerning building contractors, there are numerous contractors of various scale possessing the necessary technology and experience in both Lilongwe and Blantyre. There are some local construction company in Zomba area, comparing to major construction companies on the national level, since problems are pointed out regarding financial capacity and schedule control capacity, etc. Therefore, it will be necessary to carry out thorough examination based on capital and works performance when selecting contractors. Since the Project site near Blantyre, the proposed contractor shall be Blantyre based middle size or more, knowing local construction situation and materials.

2.4.2 Implementation Conditions

(1) Construction Situation and Local Characteristics

1) Construction Situations

The construction situations in Malawi are generally as described below.

Foreign affiliated local construction companies in Lilongwe or Blantyre carry out many large-scale works. Not many local construction companies are general contractors, but there are many small enterprises that focus on specialized areas of work. These companies only receive small-scale orders for the construction of houses, apartments and so on. Many craftsmen belong to such companies.

There are professional carpenters, plasterers, rebar fixers and stonemasons, however, other job classifications are not established and there are no specialist positions such as interior-decorators works and waterproofing works. Moreover, many laborers are casual workers lacking special techniques. If work efficiency in each work area was averaged out, it is thought that Malawian workers take several times the work time taken by workers in Japan.

Depreciation of the local currency, the price of construction materials and labor are inflating. As a result, contracts and transactions are now frequently based on the US dollar. There is 20% of value added tax in Malawi, but it should be exempted for as Official Development Aid.

2) Construction Materials

Local producing construction materials like cement, sand, aggregate, rebars, bricks and blocks are abundantly available at local market in Blantyre or Lilongwe. However major construction materials like rebars, ironmongery, timber, steel doors and steel furniture are supply enough but almost such items are imported form surrounding countries such as Zambia, Zimbabwe and South Africa. Therefore, maximum consideration shall be given to utilizing items procured in local market, in order to reduce transportation costs and make some contribution to the local economy. Depending on the site, however, there may be cases where judging from cost and supply stability, etc., it may be more advantageous to procure materials from neighboring areas. However, since quality varies according to area, it will be necessary to secure adequate quality by basically using products that conform to standards.

3) Transportation Conditions

Since almost all the national roads are paved, there are no problems regarding transportation of building materials and equipment. Traffic stoppage sometimes happens during heavy rains, but it shall be eased within a few days. International roads leading from South Africa or Zimbabwe routes to the sites are paved transportation is no trouble throughout the year. However, concerning bricks, concrete blocks and other heavy objects, since transportation costs account for a high rate in comparison to distance, it is necessary to carefully examine procurement sources, select products that are produced surrounding of construction area as much as possible, and take other necessary measures.

(2) Important Points to Consider in Execution

Attention shall be given to the following points when constructing the Project facilities.

- Compile a works plan that enables construction works at sites within DCE campus to

be efficiently implemented according to the schedule while at the same time upholding a certain standard of work.

- When implementing works, carry out demonstrations to offer guidance on work manuals, procedures and goals, etc. for each job classification. Also, implement job training and promote the transfer of technology.
- Convene construction meetings attended by members from DCE, District Education Office and PIU/MoEST to make sure that personnel understand and give their cooperation to the construction objectives and to ensure that necessary measures are thoroughly implemented.
- At sites where facilities already exist, examine execution plans that give full consideration to securing school lesson and safety of the students, and only embark on works after holding close consultations with the school operators on each site.
- Local subcontractors shall be selected from local based contractors, and full consideration of past performance, technical capacity and capital, etc shall be taken.
- Concerning the utilization of local materials, conduct proper study of quality and supply capacity and compile plans that secure multiple supply routes, thus ensuring realization of competition and securing stable supply.
- As far as possible utilize local labor in Domasi/Zomba area and raise capacity levels through providing technical guidance and training.

2.4.3 Scope of Works

(1) Works to be Borne by the Government of Japan

1) Construction of Facilities
   - Construction of Demonstration Secondary School (classrooms, laboratories, and administrative rooms)
   - Teacher's Houses
   - Female Hostel
   - Computer Laboratory
   - Gymnasium
2) Supply of equipment
   - Furniture (desks, chairs, blackboards and shelves for students and teachers)
   - Laboratory Equipment
   - Workshop Equipment
   - Office Equipment
   - Gymnasium Equipment

(2) Works to be borne by the Government of Malawi

- Securing of construction sites within a campus of DCE
- Remove all of existing buildings and debris from proposed construction site
- Installation and repair of fences where it need.
- Repair of water supply and sewage system, cleaning of sludge from oxidization pound
- Securing access roads to construction sites where it necessary
- Landscaping and external works, if necessary.
- Extension and connection work for electricity, water (water supply and sewerage) and telephone lines to the project site. Especially necessary measure shall be taken to the Domasi District Water Supply to have water supply

2.4.4 Consultant Supervision

(1) Basic Concept and Important Points of Implementation Design and Supervision

The consultant, which will carry out the detail design of Project facilities and equipment, shall be selected by MoEST from Japanese consultants that have ample experience of designing and planning education facilities and taking part in grant aid projects and have the capacity to execute the Project. Based on the purport of the Basic Design, the Consultant shall hold discussions with the Government of Malawi, carry out detailed design of the Project facilities and equipment, and prepare the necessary tender documentation. In the supervision stage of construction works, Japanese resident supervisors shall be dispatched to supervise the Japanese general-contractor and local subcontractors and liaise with PIU/MoEST, DOE of Zomba, school councils or construction committees, etc. The specific work contents of the Consultant are as follows:

① Detailed design

Design in detail and prepare tender documentation (specifications, detailed design drawings) for the construction works and furniture and equipment.

② Promotion of tender and contract

Carry out decision-making on the construction contract concept, preparation of the draft contract, internal inspection for the itemized breakdown of works, and selection of the nominated contractors (announcement of tender, pre-qualification, tender assessment and witnessing of the contract signing).

③ Inspection and approval of working drawings, etc.

Carry out inspection and check of the working drawings, constriction execution plans, materials, finished samples, and equipment presented by the contractor.

④ Works guidance

Examine the works plans and works schedules and provide guidance to the contractor.

⑤ Report of works progress

Report on the progress of works to the related parties and agencies and manage monthly meetings of representatives of the Malawian Government and the contractors.

⑥ Cooperation with payment approval procedures

Examine the contents and cooperate with procedures of bills for payment of works charges to be paid during and after the works.

⑦ Witnessing of inspections

Carry out inspections of progress and quality during construction from start to end.

(2) Supervision Setup

In order to offer proper guidance and realize sufficient coordination with related agencies when managing the quality, schedules and safety, etc. of works in widely scattered sites, and in order to ensure smooth progress of works and timely completion of the Project facilities based on the design drawings, one Japanese architect and one local engineer shall be

dispatched to act as resident architect and assistant supervisor respectively. Also, at the time of the starting inspection and completion inspection, specialist engineers (project manager, architectural engineer) shall be dispatched from Japan.

(3) Project Promotion Setup

The following diagram shows the relationship between each agency and the works promotion setup during the implementation stage.

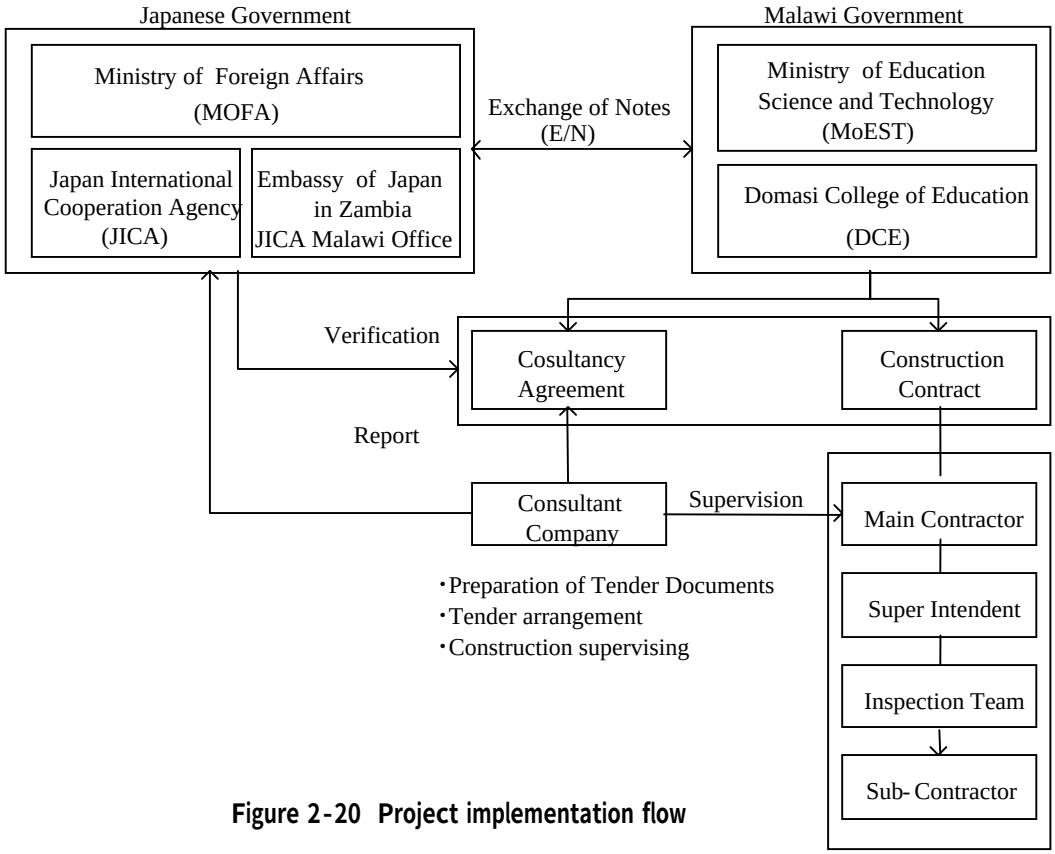


Figure 2-20 Project implementation flow

(4) Works Supervision Setup

The Japanese contractor shall employ several local subcontractors in order to execute the works. In order to ensure uniform execution technology and quality control between the subcontractors, the Japanese contractor will need to make appropriate personnel arrangements and promote works under a proper setup.

2.4.5 Quality Control Plan

(1) Confirmation of Soil Bearing Capacity

During the Basic Design Study, ground conditions on 4 points at 4 sites within a campus of DCE were core sampling on 2 meters depth and confirmed by laboratory analysis also visual inspections. As a result, all sites were deemed to have good ground with some differences in geological conditions. However, before starting work, load-bearing tests or penetration tests shall be carried out on all sites in order to make sure that the ground has enough bearing capacity estimated on design stage.

(2) Confirmation of Site Conditions and Territory

Through comparing with survey drawings, overall confirmation shall be carried out on site perimeters, conditions of existing structures and underground objects, in-site drainage routes, treatment methods of miscellaneous water and sanitary sewage, etc., site gradients, existing trees and vegetation, conditions of power and water supply line installation, and so on. Upon doing this, lines shall be drawn or territory marked using slaked lime powder, and positions of the proposed buildings shall be confirmed and adjusted in the presence of consultant and person in charge from the Malawi side.

- Benchmarking

  Benchmark shows the elevation (height) of existing structures and/or new piles, etc., and shall be enclosed by curing fences to prevent movement to avoid movement.
- Batter boards and setting-out

  Since batter boards and setting-out are important for securing work accuracy, the correct usage of surveying instruments (auto levels, theodolite, etc.) shall be thoroughly ensured and Japanese engineers and supervisors shall carry out final confirmation.

(3) Scaffolding

Care shall be shown when selecting logs and steel scaffolding materials, etc., in order to secure work precision and safety. Any scaffolding materials that are badly damaged, deformed, corroded, or have serious cracks, knots, slanting grain and bending, etc. that affects strength shall not be utilized.

(4) Foundation work

Foundation work shall be carried out on rough concrete slab cast over crushed stone pitching for the purpose of setting-out. Polyethylene film shall be laid underneath the slab for damp proofing.

- Excavation and backfilling

  Excavation shall be carried out over an area 200 mm larger than the foundation width in order to allow work to be carried out easily and accurately formwork. Excavation shall be carried out both mechanically and manually. Concerning flooring, a work manual that assumes deep excavation and rock exposure shall be prepared and concrete measures shall be examined in advance. Backfilling shall basically use the excavated earth, however, earth having a small content of black soil and clay soil shall be used. Compaction shall be carried out every 30 cm when backfilling and additional

piling shall be carried out in consideration of sinkage (depending on the soil quality). Remaining soil shall be evenly spread on sites.

- Banking and cutting

  There is no need to carry out banking and cutting at any of the Project sites, however, clearing and root removal, etc. shall be carried out over a range of 5 m, which is the minimum requirement for facilities construction, around buildings.

(5) Reinforcing Bar Works

For round bars, deformed bars and reinforcing mesh, local products that conform to specifications in advanced countries shall be adopted, and these products shall as a rule be procured from local supplier or from South Africa / Zimbabwe through such supplier. Quality confirmation shall be based on test result sheets from the manufacturers' association, however, if such documents cannot be obtained, tensile/bend testing shall be carried out to confirm materials quality every time a batch of reinforcing materials is carried on to site. Moreover, concerning test methods, storage, processing, tool and joint specifications, set length, hook shape, covering depth and spacers, etc., a work manual shall be prepared and confirmation performed based on this.

(6) Formwork

Plank wood is generally adopted for formwork in Malawi, however, in the Project, this shall be combined with plywood for easier workability on large area sections. Form working, ample care shall be taken not to cause poor hardening of surface concrete, and necessary curing shall be carried out in accordance with the climate. When executing formwork, a work-plan of formwork shall be prepared in advance and quality secured by carrying out ample confirmation.

(7) Concrete Works

Locally produced cement, aggregate and sand shall be procured based on advanced country specifications. When mixing concrete, common buckets shall be established and setups established to ensure that a set quality level is secured irrespective of the skill level of operators. Small mixers shall be used to perform concrete mixing on sites, separate mix plans shall be prepared for each area, and trial mixing shall be carried out first.

Cement shall be stored storage with roof temporarily constructed on each site in order to offer protection against the weather and theft. A work manual covering storage methods, storage periods and aggregate size control, etc. shall be compiled to enable operators to easily understand the work process from mixing and kneading to curing, and work shall be executed upon conducting sufficient examination and confirmation.

Concrete quality control shall be implemented by carrying out slump testing and sampling test pieces. A standard number of three test pieces shall be sampled to confirm the one-week and four-week strength and the designated strength shall be confirmed via compression destruction testing implemented by an authorized agency.

(7) Steel Woks

Steel for structure shall be used good material from certificated workshop in Blantyre area. Quality confirmation shall be based on Mill-sheets from the manufacturers' association, however, if tensile testing shall be carried out to re-confirm materials quality at authorized laboratory such as Ministry of Works or University.

When executing steel work, a work-plan shall be prepared in advance and quality secured by carrying out ample confirmation.

(8) Wooden Structure Work

Wood or laminated wood for structure shall be used good material from certificated workshop in Blantyre area. Quality confirmation shall be based on test-results report from the manufacturers' association and compression / bending test shall be carried out to re-confirm materials strength at authorized laboratory such as Ministry of Works or University. When executing wooden work, a work-plan shall be prepared in advance and quality secured by carrying out ample confirmation.

(9) Masonry

Factory-made fired bricks procured at authorized factories in Blantyre shall be used. Firebricks shall be used for wall and partitioning, and in addition to confirmation of strength based on plant test results reports, destructive tests shall be carried out at laboratories of the Ministry of Works or University. Firebricks for external wall shall be checked for uneven color, infiltration by impurities and cracking, etc. Concerning sand for bonding mortar, priority shall be given to river sand, however, when using mountain sand, it shall first be checked to ensure that mud and organic content is appropriate. Normal Portland cement shall be used and the cement to sand mixing ratio shall be 1: 2.5.

When carrying out masonry work, work procedures for all tasks including reinforcement methods shall be compiled into a work-plan to be fully examined prior to execution.

(10) Plaster work

The proposed facilities shall mostly be finished using mortar. Mortar quality and precision greatly affect the final appearance of buildings. Concerning sand, priority shall be given to river sand, however, when using mountain sand, it shall first be checked to ensure that mud and organic content is appropriate. Concerning particle size of sand, Class A sand shall be used for under-wall and floor plastering, and Class B for wall plastering. Normal Portland cement shall be used and mixed according to the following proportions. Mixer shall basically perform mortar mixing, and work procedures for all tasks shall be compiled into a work manual to be fully examined and confirmed prior to execution.

Table 2-39 Mortar Mixing Table (cement: sand)

	Place	Undercoat（A）	Final coat (B)
Concrete	Floor	—	1 :3.0
	Wall	1 :2.5	1 :3.0
Brick/Concrete Block	Inside Wall	1 :2.5	1 :4.0
	Outside Wall	1 :2.5	1 :4.0

(11) Roof and rainwater drainage works

Roof shall be a sloped galvanized-iron sheet with corrugation. Rain girder shall be installed necessary places such as entrance, leading to rain water ditch through downspout. Place without rain girder, rainwater ditch shall be installed around building, with slope to existing drain trench for discharging to Domasi river.

(12) Doors and Windows

Windows shall be ready-made steel frames, and steel doors shall be case-door with steel frame manufactured in Blantyre.

(13) Painting Works

Outdoor paint possessing good weather ability shall be used on external parts, and ordinary emulsion paint shall be used indoors. When carrying out painting, ample time shall be allowed for base treatment, inspection, and drying and curing after application.

The quality control plan for the main work areas is shown below.

Table 2-40 Quality Control Plan

	Works	Q.C. Item	Method
Structure Work	Concrete	Mixing	Mixing Ratio, Slump, Air Volume, Temperature, Sulphate Contents
		Strength	Compression Test
	Reinforcement	Steel Bars	Tentil Test, Mil-sheets confirmation
		Reinforce	Reinforcement Site Examination (pitch, lenght of lap,thickness of cover)
Finish Work	Roof	Asphalt	Observation, Waters Spray Test
	Stone	Workmanship	Observation, Material/Joint Check
	Tile	Workmanship	Observation, Adhesion & Cruck Check
	Mortar	Workmanship	Observation, Adhesion & Cruck Check
	Door & Windows	Manufacturing	Manufacture Examination
		Fixing	Observation, size, incline, function
	Painting	Workmanship	Color uniformity, adhesion check
Water& Drainage Work	Waters Supply	Leakage	Dropage, waters pressure test
	Drainage	Drain Slope	Slope, Water Test
	Water Tank	Leakage	Fill-up test

2.4.6 Procurement Plan

(1) Procurement Concept

The basic concept for selecting construction materials shall be that procurement of items for maintenance and repair is easy after handing-over of facilities. All major construction materials can be procured in local market but imported from South Africa or Zimbabwe. Having said that, in cases where it is deemed necessary judging from quality, cost and supply capacity, etc., consideration shall also be given to procurement through supplier in Blantyre.

When selecting suppliers, careful consideration shall be given to capacity of supply, quality and durability, and as a rule multiple supply sources shall be secured in order to achieve supply stability. The procurement plan for major equipment and materials is shown below.

Table 2-41 Procurement of material (SA: South Africa)

	Material	Procurement			
		Malawi	SA	Japan	Notes
Framework	Cement	X			Local BS products shall be adopted.
	Rebar		X		SABA products shall be imported from SA.
	Aggregate	X			This can be procured locally.
	Concrete	X			Concrete shall be made using concrete mixers at each site
	Formwork	X	X		Plank wood and/or plywood forms, which are commonly locally, shall be imported from SA.
	Steel		X		SABA products shall be imported from SA.
	Concrete Block	X			Local standardized products shall be procured and strength-test shall be at laboratory.
	Bricks	X			Local standardized product shall be procured.
	Wood	X			Local standardized product shall be procured.
Finishing and fitting works	Faced Bricks	X			Factory-made local standardized products shall be procured.
	Tiles	X			Products available on local markets shall be procured.
	Plaster:	X			Cement mortar with lime shall be mixed on sites.
	Paint:	X	X		Products available on local markets shall be procured and/or import from SA.
	Glass:	X	X		Products available on local markets shall be procured and/or import from SA.
	Steel Doors		X		SABA products shall be imported from SA.
	Hardware		X		SABA products shall be imported from SA.
	Roof Material		X		SABA products shall be imported from SA.
Sanitation equipment	Piping		X		SABA products shall be imported from SA.
	Sanitary ware:		X		SABA products shall be imported from SA.
Electric equipment works	Wiring:		X		SABA products shall be imported from SA.
	Switch Board		X		SABA products shall be imported from SA.
Furniture and fittings	Furniture	X	X		Classroom furniture shall be local, others shall be import from SA

2.4.7 Implementation Schedule

In case that the Project is implemented under the Japanese Official Grant Aid Scheme, following the exchange of notes (E/N), the consultant supervision contract shall be concluded between the Government of Malawi and the consultant, then the implementation design documents and tender documents shall be prepared based on this.

After these stages, preliminary qualification (P/Q) and tender shall be implemented, and the construction company that is selected as a result shall conclude a building contract with MoEST and implement the construction works.

(1) Detailed Design Work

The consultant shall prepare the detailed design and tender documents based on the contents of the basic design. These documents consist of detailed design drawings, specifications and calculation sheets. Close consultations shall be held with related agencies on the Malawian side at the start, during and at the end of the implementation design, and work on the tender shall only start after approval is obtained for the final output.

(2) Tender Work

Following completion of the implementation design work, the consultant, acting on behalf of MoEST of Malawi (implementing agency), shall announce the works tender preliminary qualification (P/Q) in Japan and report the results of this to MoEST for their approval.

After this, those construction companies that passed the preliminary qualification shall take part in a competitive tender in the presence of the related parties. The bidder that presents the lowest price shall be selected providing that the contents of its bid are deemed appropriate, and it shall conclude the building contract with MoEST. The building contract shall become effective upon verification by the Government of Japan.

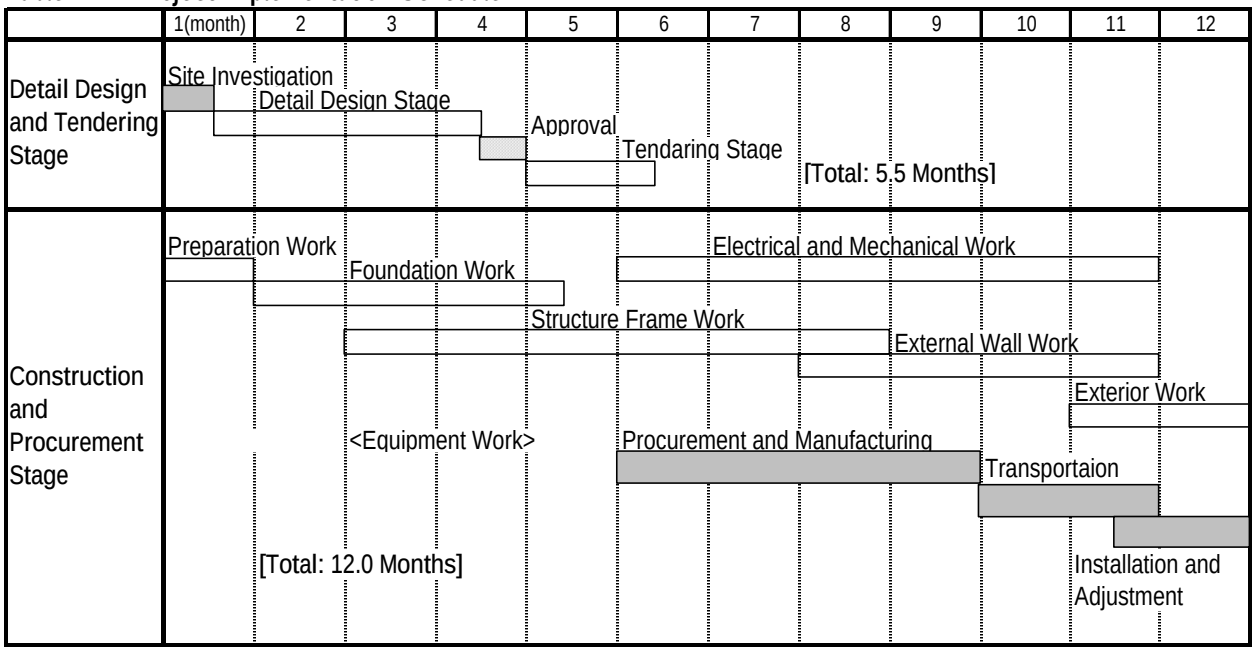
The amount of time required from the consultant contract through the detailed design work, tender and works contract is roughly 5.5 months.

(3) Construction Works

The construction work shall commence following verification of the building contract by the Government of Japan. The estimated construction period is approximately 12 months, judging from the execution capacity of local subcontractors, the number of laborers on hand, and the amount of owned construction machinery; it is appropriate to implement the Project works over single phase.

Project implementation schedule is as per next table.

Table 2-42 Project Implementation Schedule



2.5. Obligations of Recipient Country

For the implementation of the Project under the grant aid scheme of the Government of Japan, the Government of Malawi is responsible for the matters listed below.

(1) Construction Work

1) Acquisition and preparation of the construction site, i.e. land, prior to the commencement of the construction work, removal of existing facilities/buildings and obstacles (part of the fencing) and felling of trees causing an obstruction
2) Construction/improvement of an access road required for the construction work as necessary
3) Acquisition of land for temporary buildings and a warehouse for the storage of equipment and materials
4) Extension and connection work for electricity, water (water supply and sewerage) and telephone lines to the project site
5) Cleaning of sludge from the existing oxidization pond

(2) Equipment Procurement

1) Secured provision of an equipment delivery route at project site
2) Provision of temporary on-site storage space
3) Procurement of reagents and consumables which are easily obtainable in Malawi and which are not supplied by the Japanese side

(3) Operation and Maintenance

1) Provision of the necessary budget and school personnel which are required to adequately as well as efficiently operate and maintain the facilities and equipment provided under Japan's grant aid scheme
2) Arrangement of consumables and spare parts which are required for the maintenance of the facilities and equipment
3) Procurement of common office furniture, fixtures and fittings (bed-clothes and curtains for the female hostels and others)

(4) Procedures

1) Provision of conveniences required by Japanese nationals or Japanese corporations engaged in the Project for their entry to and stay in Malawi in relation to the supply of products and services under verified contracts
2) Exemption of Japanese nationals or Japanese corporations engaged in the Project from domestic taxes, including customs duties and VAT, etc., and other levies imposed in Malawi in relation to the supply of products and services under verified contracts
3) Payment of all expenses which are necessary for the implementation of the Project but which are not covered within the framework of Japan's grant aid scheme
4) Payment of handling fees and commissions arising from banking services for the Project
5) While the supply of products and services relating to the Project are, in principle, exempt from any import tax, surtax and other fiscal levies, any tax which is

collected due to procedural requirements shall be refunded on request. The refund procedure shall be invoked without delay when a request for refund is made.

2.6 Project Operation Plan

2.6.1 Facility Operations and Maintenance Plan

The responsible organization for the Project is the Ministry of Education, Science and Technology (MoEST) while the implementation body is the Domasi College of Education (DCE). Accordingly, the DCE will be responsible for the operation and maintenance of the facilities and equipment provided under the Project.

The DCE is under the jurisdiction of the MoEST and the salary scales for government employees apply to staff members of the DCE. Although Mzuzu University and Chancellor College have discretionary power in terms of the college fee level, staff salary scale and the recruitment/assignment of staff members using their own operation budget which is appropriated by the government, the DCE does not have such privilege.

(1) Implementation System

The section of the MoEST in charge of the Project is the Planning Division. The Secondary Education Division and Higher Education Division of the MoEST are also involved in the implementation of the Project. The Education Management Unit (EDMU), a subordinate section of the Planning Division, is responsible for the technical aspects of the Project in particular. As the implementation body, the DCE has requested the assignment of 20 teachers and six administrative staff members for the new demonstration secondary school based on the decision of the MoEST to allocate such personnel to the school to start with.

No recruitment of new personnel will be required as a result of the implementation of the Project except for new staff members to run the new demonstration secondary school as the existing staff members of the DCE are sufficient. The recruitment of school staff for the new secondary school under construction by the World Bank's SEP has so far been steady. However, special considerations are required in relation to the Project because of the current situation of the DCE described below.

(2) Current Situation of DCE Staff

1) Shortage of Teaching and Administrative Staff

The DCE consists of three departments, i.e. Science, Education and Humanities, the Registration Office and the Accounting Office. As of 2003, it has 43 teaching staff (full capacity: 65) for 492 students (full capacity: 540), indicating a serious shortage of teaching staff. The principal reason for this shortage is the job-hopping of teachers to other colleges or universities to earn a better salary. There is information that six Ph.D students and 24 Master's Degree students who are currently studying under the UPIC

scholarship system of the MIE will be assigned to the DCE. Given the low salary level of the DCE, however, it may be inevitable that they will seek employment elsewhere, making it necessary for the government to improve the situation at the DCE.

2) Staff Required to Maintain Facilities Introduced Under the Project

The operation of the DCE is currently supported by the following staff.

Table 2-43 Support Staff of DCE

Grade	Quota	Existing	Vacant	Grade	Quota	Existing	Vacant
P7	1	1	0	D5	1	0	1
P8	5	0	5	CO/TA	19	8	11
PO/CEO/AO	4	0	4	D8/7/6	4	4	0
D2	1	0	1	DP3/2	3	0	3
SEO/STO	2	0	3	SC.I	2	1	1
EO/TO	13	6	7	SC.II	6	6	0
D3/D4	4	1	3	SC.III	1	1	0
SCO/STA	5	2	3	SC.IV	26	22	4
				Total	98	52	46

Source: DCE

As the new facilities to be constructed under the Project will become part of the DCE, the existing maintenance staff of the DCE will be responsible for their maintenance. While there are many vacancies for supporting staff positions, positions for such maintenance staff as electrical engineers, building service engineers and cleaners are mostly already filled. At present, there are three electrical or building service engineers with the necessary knowledge and skills for regular inspection and maintenance and these engineers will be responsible for overall technical maintenance of the campus, including for the new facilities constructed under the Project.

(3) Operation and Maintenance Budget of DCE

1) Current Budget of DCE

The DCE receives funding for its current budget from the MoEST as one of the training colleges under the jurisdiction of the MoEST. Meanwhile, Malawi University, Mzuzu University and the MIE (Malawi Institute of Education) receive funding from the MoEST as specified budgetary items of the MoEST as they act as semi-autonomous institutions with discretionary power.

The current budget for the DCE is appropriated under Item 10 – Personnel Expenses and Items 21 onwards in regard to ordinary expenses (ORT) among the budgetary items of the MoEST. The current budget each year is shown in the form of the approved budget, which is applied for by individual bodies to the MoEST and approved by the Ministry of Finance following an application by the MoEST, and the revised amount. It is possible to readjust or revise the approved amount between

different bodies within the approved amount and different bodies seek approval of the revised amount after adjusting their budget appropriation by the MoEST.

Table 2-44 Recurrent Cost of DCE (MK)

	1999-00	2000-01		2001-02		2002-03
	Approved	Approved	Revised	Approved	Revised	Approved
10 Personnel Emoluments	4,104,730	4,386,900	7,611,400	7,064,900	12,790,900	6,465,400
21 Internal Travel	1,563,530	3,215,000	3,215,000	2,737,557	3,080,300	3,867,000
23 Public Utilities	1,540,000	2,900,000	3,710,600	3,720,000	3,400,000	3,680,000
24 Public Supplies	858,850	1,484,700	2,000,700	2,710,900	1,802,400	2,097,500
25 Medical Supplies	100,000	55,000	36,000	38,000	10,000	60,000
26 House Rents	0	1,200,000	650,100	0	0	0
27 Education Supplies	5,300,000	12,917,200	12,870,000	18,378,200	14,641,700	22,722,000
28 Training Expense	5,111,820	350,000	85,200	1,401,300	1,010,000	1,348,000
29 Technical Services	0	504,000	500,000	1,000,000	600,000	1,000,000
30 Insurance	13,500	62,000	31,300	62,000	80,000	230,000
33 Other Goods Services	125,170	200,000	138,900	201,000	215,000	243,000
41 Maint. of Capital Assets	4,060,000	890,000	883,400	5,437,700	4,529,500	0
Recurrent Expenditure (21-41)	18,672,870	23,777,900	24,121,200	35,686,657	29,368,900	35,247,500
Grand Total (10-41)	22,777,600	28,164,800	31,732,600	42,751,557	42,159,800	41,712,900
Share of MoEST's recurrent to National Budget (%)			1.06		0.77	0.83

Source: Approved Estimates of Expenditure, various years, MOF and DCE

2) Operation and Maintenance Expenses

The breakdown of lighting and heating expenses in the current expenses is shown in Table 4-3, indicating annual expenses of some US$ 45,000 to cover the electricity (including firewood), telephone and water bills. As staff houses (approximately 43) are individually metered, their expenses are excluded here. Given the fact that only several air-conditioning units are in use, a large proportion of the electricity bill is incurred by lighting. The water bill is based on the use of the "Domasi Area Water Supply".

Table 2-45 Running Cost (Public Utility Cost) of DCE (MK)

	1997-98	*1998-99	*1999-00	2000-01	2001-02	*2002-03
2301 Heating and Lighting	957,459	843,000	900,000	1,329,916	1,179,200	1,800,000
2302 Telephone charge	59,932	225,000	500,000	1,306,693	892,593	800,000
2305 Water and Sanitation	355,814	600,000	500,000	700,279	1,033,223	1,080,000
Total	1,373,205	1,668,000	1,540,000	3,336,889	3,105,017	3,680,000
As US Doller	64,957	38,030	44,000	41,675	46,000	41,348

Note: * shows approved budget and others are revised
Source: Account Office, DCE

The actual payments made by the Accounting Office to cover the electricity, telephone and water bills in 2002 are shown in Table 2-46. Although the accounting year differs from that in Table 2-45, the actual payment figures are slightly higher than the overall budgeted amounts.

Table 2-46 Monthly Utility Cost paid by DCE in 2002 **(MK)**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Means
Electricity	32,299	137,888	167,817	145,204	174,100	129,437	153,326	138,265	255,362	255,801	247,833	269,082	2,106,414	175,535
Telephone	153,089	56,206	150,965	39,050	58,001	91,002	53,214	82,497	41,409	28,890	84,052	76,177	914,552	76,213
Water	106,018	20,150	148,523	120,387	86,157	146,003	66,578	89,626	66,578	35,878	46,393	83,820	1,016,111	84,676
Total	291,406	214,244	467,305	304,641	318,258	366,442	273,118	310,388	363,349	320,569	378,278	429,079	4,037,077	336,423

Source: Account Office, DCE

3) Faculty/Equipment Repair Cost

The facility/equipment repair cost breakdown is shown in Table 2-47. Repair of the university facilities took place in 2001-02 and the repair of staff housing was conducted a year earlier. The total repair cost for 2001-02 was MK 2.37 million (US$ 26,496). In 2002-03, there is no budgetary allocation for repair as the potential amount has been diverted to other purposes, suggesting very tight finance where adequate funds for repair cannot be appropriated every year.

Table 2-47 Maintenance Cost paid by DCE **(Unit:MK)**

	1997-98	*1998-99	*1999-00	2000-01	2001-02	*2002-03
Boreholes	3,000	30,000	20,000	375	0	0
Buildings	236,733	0	650,000	478,126	1,678,838	0
Water Supply	40,000	50,000	600,000	21,600	78,915	0
Purchase of Vehicles	0	0	1,500,000	0	0	0
Purchase of Furniture and Equipment	99,065	0	1,290,000	304920	610,744	0
Repair of House	0	0	0	22,970	0	0
Total	378,798	80,000	4,060,000	827,882	2,368,496	0

Note: * shows approved budget and others are revised
Source: Account Office, DCE

4) Independent Income Sources for DCE

The DCE provides a facility/equipment rental service and the rental fees are shown in Table 2-48. The annual income from this service is as little as some MK 10,000, involving the use of a large hall for weddings and chairs for local ceremonies, etc. At present, there is no statutory requirement to report such income to the MoEST and no book-keeping is conducted in regard to this income which tends to be used for the procurement of items which are in short supply.

The DCE has applied to the MoEST for upgrading to university status with discretionary power and is planning to expand the scope of its independent income by providing such new services as publication, sale of second-hand equipment and seminars in addition to the existing rental business.

Table 2-48 Price List of DCE Service (from September 01, 2002)

Items	Price (MK)	Unit
Accommodation	200	Bed/day
Classroom / Laboratories	100	Per day
Lecture Theatre / Conference Rm / Office	200	Per day
DCE Hall	1,500	Per day
Dining / Kitchen	2,000	Per day
Computer / Video Camera	500	Per day
Video / TV	10	day/person
Hire of TV/VCR set	500	Per day
OHP	50	Per day
Hire of Gowns	250	Per Gown
Beddings (Blanket, Pillow/Case, pair of Bed Sheets)	100	Per day
Hire of Chairs (green/plastic)	10	1 chair/day
Hire of Photo printing	50	Per stencil
Copy, Photocopy	5	Per page
Tender Document	500	Per Documents

Note: Staff will pay 50% of the charges
Source: Notice for circulation, DCE

5) Securing of Budget

The expenses in 2001-02 were some MK 7 million for staff salaries, MK 3.72 million for lighting, heating and water costs, some MK 2.7 million for office supplies, textbooks and equipment maintenance and some MK 5 million for facility maintenance. The budget size for 2002-03 is roughly the same as that for the previous year and the budget allocation for facility repair is expected to be similar to the previous year. Although the facility maintenance budget an be juggled within the overall budget, application of the maintenance budget for the new facilities and equipment must be made to the Planning Division of the MoEST to secure funding to cover the necessary maintenance costs.

6) Budget for Demonstration Secondary School

From an organizational point of view, the MoEST assumes that the relationship between the TTC and demonstration schools will continue. Accordingly, while state secondary schools are under the jurisdiction of a ministerial division, the planned demonstration secondary school will be controlled by the DCE. For example, even though school staff members are essentially assigned by the MoEST, assignment is

based on proposal by the DCE. Similarly, funding for the school in question will be made via the DCE and not via a ministerial division. Meanwhile, funding for the operation of state secondary schools is made monthly via the division. The budget appropriation for conventional state secondary schools in January, 2003 ranges from MK 20,000 to MK 100,000 (excluding the lighting and heating cost for dormitories).

(4) Maintenance Staff

The DCE currently has three maintenance staff as listed in Table 2-49 who conduct the daily maintenance of the facilities and equipment. As the equipment and systems, etc. currently possessed by the DCE are not difficult to maintain, the level of their maintenance is relatively good.

Table 2-49 Maintenance Staff of DCE

	Category	Name	Age	Certificate	Grade	Exp. years
1.	Electrical/Mechanical	Mr. G.D. Milla	24	JCE Electrical Certificate	Pass G3	2
2.	Plumbing/Mechanical	Mr. L. Jombo	41	Primary School Certificate Plumbing Trade Test	1	14
3.	Carpentry	Mr. L.G.Chiwaya	38	MSCE, Carpentry Trade Test	1	10

Note: Exp. shows years of experiences
Source：DCE

The Faculty of Science conducts the maintenance of educational equipment. And laboratory assistants conduct all inspection and maintenance. The new facilities and equipment to be provided under the Project will require electrical and building service engineers and cleaners for their maintenance. As these facilities will become part of the DCE, the existing maintenance staff of the DCE will be responsible for the necessary maintenance of the new facilities. There are three electrical and building service engineers at present who have sufficient knowledge to conduct essential daily inspection and equipment. These engineers will be responsible for technical inspection and maintenance of the facilities and equipment, including that which is new, on the campus.

2.6.2 Maintenance Plan and Costs

(1) Maintenance Plan

1) Facilities Maintenance Costs

The two central points in maintaining education facilities are 1) implementation of everyday cleaning, and 2) repair of damage and deterioration. The encouragement of daily cleaning has a good effect on the students and encourages them to be aware of their own education facility and to look after facilities and equipment. Moreover, cleaning makes it possible to quickly discover damaged or broken areas and to implement preventive maintenance. This will lead to longer service life of plumbing facilities in the case of toilets. Concerning repairs, these will consist of the repair and touching up of interior and exterior finishing (which protects structural bodies), fittings and furniture. Moreover, concerning handling in response to changes in the number of students per classroom and in the number of teachers, rather than using partitions, furniture shall be moved between classrooms.

Detailed items of periodic inspections and repairs, which affect the service life of schools, shall be presented by works contractors in the form of maintenance manuals at the time of handing over, at which time explanations will be provided on inspection methods and periodic cleaning methods. These contents are generally summarized as follows.

Table 2-50 Outlines of Building Periodic Inspections

	Check Points and manor	Check periods
Exterior	・Repair, Repaint of External Wall	Repair /5years, Repainting /15 years
	・Periodical Cleaning of Downspout and Drain	Twice / month
	・Check and Repair for Roofing Materials	Every year, Repair/ 5 year
	・Re-painting of Steel Doors & Windows and Sealant	Once / 1year
	・Periodical Check and Cleaning of Drainage pipe	Every year
	・Cleaning and removal of Sludge	Several times/ year
Interior	・Repair and re-paint of Partition Wall	Once / 10 years
	・Change of Ironmongery for Doors and Windows	Once / 5 years
	・Operation Adjustment for Doors and Windows	Anytime
	・Repair and RE-paint of Furniture and Ironmongery	Anytime, Once / 5 years

2) Building Service Equipment

As for building service equipment such as mechanical and electrical equipment, daily "preventive maintenance " is neccessary before repairing disorders and changing parts. Mechanical equipment life can definitely be elongated by adequate operation, daily

check, supplying oil, adjustment, cleaning and repairing, as well as operating time. These daily checks can prevent disorder and accident and expansion of accidents.

With the periodical check, exchange of consumable and cleaning of filters are executed according to the maintenance manual. In this plan, there are no mechanical equipment which have complicated systems, but it is important to organize maintenance and control systems when employing full-time maintenance and control staff, and it is also important when we make a contract with an outside company to commit a periodical check.

Operating and control manuals are submitted at the time of handing over, and the general definition of life for the main mechanical equipment is as follows:

Table 2-51 Lives of Major Building Service Equipment

	Service Equipment	Year of Lives
Electrical Equipment	Panel boards	20 to 30 years
	Fluorescent lamps	5,000 to 10,000 hours
	Incandescent lamps	1,000 to 1,500 hours
Plumbing Equipment	Pumps, Pipes and valves	15 years
	Tanks	20 years
	Sanitary fixtures	25 to 30 years
Air-conditioning and ventilation	Pipes	15 years
	Exhaust Fans	20 years
	Air conditioners	15 years

3) Equipment

Generally, maintenance and control of equipment contains two items. One is “Daily Check” done by the operator, and the other is “Periodical Check” for both detection and repair done by experts through one or two times checks per year. In order to improve the knowledge of the maintenance such as Copy Machine, service contract with a local agent to work together for the periodical check and repairing. Following table shows the outline of maintenance and control for each of the equipment.

Table 2-52 Outline of Required Equipment Maintenance

	Daily check	Periodical change (Recommended)
Copy Machine	Cleaning of Glass-surface of coping Supply paper and toner, etc.	Dram cleaning
OHP	Cleaning of Glass-surface of projection	Change of Halogen lump, etc
PA System	Cleaning of Microphone and Speakers	N/A

PA: Public Address

(2) Estimation of Operation and Maintenance Cost

The operating expenses of Project facilities and equipment have been calculated in the following manner according to ① electricity charge, ② water supply charge, ③ telephone charge, ④ gas for experiment/practice for generator.

The maintenance expenses of building and mechanical equipment have been calculated in the following manner according to ① Building maintenance cost, ② Mechanical equipment maintenance cost, ③Equipment maintenance cost, ④Equipment consumable cost. The operating expenses and maintenance of Project facilities and equipment estimated as condition of following table.

Table 2-53 Trial Calculation of Operating/Maintenance Expenses (MK / year)

	Items	Annual cost (MK)	Notes
Operating expenses	① Electricity cost	48,000	Refer to Breakdown (￥65,000)
	② Water supply cost	224,000	Refer to Breakdown (￥304,000)
	③ Telephone cost	28,000	Refer to Breakdown (￥38,000)
	④ Gas (LNG)	7,000	Refer to Breakdown (￥9,000)
	Sub-total	307,000	(￥416,000)
Maintenance expenses	① Building maintenance	240,000	Appx. 0.08% of Direct Cost (￥326,000)
	② Mechanical equipment	40,000	Apprx. 0.01% of Equipment Cost (￥54,000)
	③ Equipment maintenance	34,000	Refer to Breakdown (￥46,000)
	④ Consumables	1,700	Refer to Breakdown (￥2,000)
	Sub-total	315,700	(￥428,400)
Total (MK/year)		622,700	(￥844,000)

Exchange rate: 1MK ￥1.358

< Building operation expenses >

① Electric charge:

Table 2-54 Trial Estimation of Electric Charge

	Definitions
Demonstration Secondary School： Conditon：08:30～18:30 (1hour lunch break)	9（hours/day）×5（day/week）×40（week/year）＝1,800（hour/year）
	12KVA×0.3（usage rate）×1,800（hour/year）＝6,480（Kwh/year）
	6,480（Kwh/year）×1.2567（MK/Kwh）＝8,143（MK/hear）
Female Dormitory： Condition：18:30～22:30	4（hour/day）×７（day/week）×48（week/year）＝1,344（hour/year）
	20KVA×0.6（usage rate）×1,344（hour/year）＝16,128（Kwh/year）
	16,128（Kwh/year）×1.2567（MK/Kwh）＝20,268（MK/year）
Computer Laboratory： Condition：08:30～18:30 （1hour lunch break）	9（hour/day）×5（day/week）×40（week/year）＝1,800（hour/year）
	12KVA×0.6（usage rate）×1,800（hour/year）＝12,960（Kwh/year）
	12,960（Kwh/year）×1.2567（MK/Kwh）＝16,286（MK/year）
Gymnasium： condition：36hours/week （appx.6hours×6days）	36（hour/week）×40（week/year）＝1,440（hour/year）
	3KVA×0.6（usage rate）×1,440（hour/year）＝2,592（Kwh/year）
	2,592（Kwh/year）×1.2567（MK/Kwh）＝3,257（MK/year）
TOTAL	47,954 → 48,000 (MK/year)

Notes: 1) There is no change of existing transformer, so meter charge only.
2) Electricity charge for teacher houses is not included because charging for individual house.

② Water charge:

Table 2-55 Water Supply Volume for Planned Facilities

	Items	Calculation	Supply Volume (L/day)	
			Max/day	Min/day
Demonstration Secondary School	Staff	26prsn × 60 L/M・day =	1,560	1,092
	Students	320prsn × 30 L/M・day =	9,600	6,720
	Sub-total		11,160	7,812
Female Hostel (Expansions)	Students	120prsn × 110 L/M・day =	13,200	9,240
Water Supply Volume for Planned Facilities (L/M・day)			24,360	17,052

Note: L/M・day shows Litter / Man・day

Therefore, necessary supply volume for planned facilities are 20 cubic meters / one day (>17 cubic meters). Following shows standard water charge in town area of Malawi, we calculate here using same rates for Domasi District Water Supply.

Basic charge： MK 250.00 /month

Volume charge： 100 m^3 / month and below MK 39.79 / m^3

100 m^3 / month over MK 50.60 / m^3

Table 2-56 Trial Calculation of Water Charge fro Planned Facilities

	Calculation	Consume/year
Demonstration Secondary School	7.8 m^3 /day × 200day / year =	1,560 m^3 / year
Female Hostel (Expansions)	9.2 m^3 /day × 323day / year =	2,970 m^3 / year
Volume of Annual Water Consumption：		4,530 m^3 / year
Water Charge：	(4,530 – 100) × MK50.60/ m^3 =	224,000 MK/year

③ Telephone charge:

Trial estimation has made here as additional one direct line and notional connection only.

Basic charge：

1 line × 80 MK/ line × 12 month = 960 MK / year

Connection charge：

3 min. / connection × 3.75 MK / min. × 10conections/day × 250day/year

= 28,125 → 28,000 MK/year

④ Gas charge:

There shall be used gas burner of LNG: Liquid Natural Gas in Laboratories and Home Economics Workshop. Trial estimation has made here as all 8 classes using 1 unit per every month. Also, calorie of LNG is 50,360 kilo joule / kg (1 joule = 0.239 calorie)

Laboratory:

0.5h/month × 9 month / year × 1,200 kJ/h× 19 tables× 8class

= 820,800 kJ /year

Home Economics Workshop:

0.5h/month × 9month / year × 36,000 kJ/h× 8class

= 1,296,000kJ/year

Total： 2,116,800 kJ/year ÷ 50,360 kJ/kg =42 kg/year < 48kg/year

Therefore, there is necessary one LNG cylinder (48kg) for one year.

7,104 MK/year → 7,000 MK/year

< Facilities and equipment maintenance cost >

① Building maintenance cost

The annual building maintenance cost significantly increases in accordance with the passing of time the period in which major repair is unnecessary is approximately 30 years after building completion. Based on actual past examples of buildings of a similar scale, the average annual repair cost is approximately 0.08% of the direct construction cost. This is translated to approximately 40MK/m^2.

6,000 m^2 × 40MK/㎡ = 240,000MK/year

② Services equipment maintenance cost

The building services equipment maintenance cost is low for the first five years or so after building completion and the replacement of parts and equipment due to secular deterioration will be required thereafter. The average annual repair cost for a span of 10 years is estimated to be approximately 0.1% of the building services installation cost.

40,000,000MK × 0.001 = 40,000MK/year

③ Equipment maintenance cost

Although the maintenance service cost, including the cost of repair parts, depends on the frequency of use. Major equipment of this Project are experiment / practice equipment. From experience of similar case, the maintenance cost of the main equipment fro 10 years is estimated 0.2% of Equipment Cost, cost of consumables are 0.01% of Equipment cost. Office equipment needs maintenance cost separately.

Maintenance cost: 7,000,000MK × 0.002 = 34,000MK/year

Cost of consumables: 17,000,000MK × 0.0001 = 1,700MK/year

2.7 Estimated Project Cost

In the case of the Project's implementation under the grant aid scheme of the Government of Japan, the total project cost is estimated to be approximately ¥628 million (Japanese portion: ¥625 million; Malawi portion: ¥3 million). The required funding by each side in accordance with the scope of work for each side described earlier is shown below based on the estimation conditions given in (3) below.

This cost estimation is provisional and would be further examined by the Government of Japan for the approval of the Grant.

(1) Required Funding by Government of Japan

Exchange rate：1 US$＝￥122.22

Cost Item			Cost (¥ million)		
Facility	Demonstration Secondary School	Administration Block, 8Class Rooms, Laboratories/Workshops, Library, Multi Purpose Room, Common Space, Lavatories, Storages, Preparation Rooms	160.0	518.0	539.0
	Staff House	1 Head Teacher's House, 13Staff Houses	137.0		
	Female Hostel	60 Rooms、Laundry Space, Lavatories・Shower Room, Common Space	124.0		
	Computer Room	Computer Room, Preparation Room, Corridor	10.0		
	Gymnasium	Gymnasium, Change Room, Storage	47.0		
	Furniture / Fixture	Desks/Chairs, Lab. Tables, Lockers, Cabinets, Book Shelves, Beds, etc.	25.0		
	External Works	Water supply/Drainage Line, Electrical Line, etc.	15.0		
Equipment		Glass apparatus, Science/ Biology Lab. Equipment, Home Economics/Craft Workshop Equipment, etc.	21.0		
Design and Supervision			86.0		

(2) Required Funding by Government of Malawi

Exchange rate: 1 US$＝MK90.0

Cost Item	Cost (MK)		Cost (¥ thousand)
	2004	2005	
1) Work-Related Cost			
①Cutting Trees	100,000	-	136.0
②Electrical Power Connection (Teachers' House)	-	125,000	169.0
③Water Supply Connection(Teachers' House)	-	120,000	163.0
④Cleaning of Oxidization Pond	600,000	-	813.0
⑤Planting	-	30,000	41.0
2) BA.AP Fees (0.1% of EN Amount)	461,000	-	625.0
3) Procurement of General Furniture and Fixtures	-	100,000	136.0
4) Procurement of Furniture and Fixtures for Teachers' Houses	-	(1,400,000)	(1.897.0)
Sub Total	1,161,000	375,000	2.083.0
Grand Total	1,536,000		

Note: The cost of furniture for teachers' houses shown in parenthesis is to be paid by the occupants.

(3) Estimation Conditions

1) Date of estimation	:	March, 2003
2) Exchange rate	:	US$1 = ¥122.22 (average between September, 2002 and the end of February, 2003) US$1 = MK90.00 (as of July 2003)
3) Construction period	:	The periods for the detailed design and construction work are shown in the Project Implementation Schedule
4) Miscellaneous	:	It is assumed that the Project will be implemented in accordance with the grant aid scheme of the Government of Japan.