LIBERIAN PRIMARY EDUCATION RECOVERY PROGRAMME

PRIMARY SCHOOL INFRASTRUCTURE EXPANSION & IMPROVEMENT

Education Facilities Construction Specialist's Report
March 2009

LPERP: Primary School Infrastructure Expansion and Improvement
Education Facilities Construction Specialist's Report: March 2009
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SUMMARY OF REPORT

General

This report is intended to be a discussion document that describes the present situation with regard to the provision of primary school facilities, sets out the scale of the problem to be faced in reconstructing Liberia's primary school system, describes various options that could be adopted for the reconstruction programme and makes specific recommendations for this programme. In this regard it is a development of the last report of December 2008.

It should be noted that these recommendations are for the primary school sector only and that the secondary school sector faces similar problems and these also need to be urgently addressed.

Implementation of the 2008/2009 LPERP Primary School Construction Programme

There are now only four to five months before the heavy rains are due to start and construction has still not started. It seems unlikely therefore that many if any of the schools to be reconstructed this year will be completed before the rains. See draft programme below.

Activity	**Duration**	**Dates 2009/2010**
Site visits and preparation of contract documents	3 weeks	March 9 – 27
Bidding period	3 weeks	March 30 – April 17
Bid evaluation and award of contract	2 weeks	April 20 – May 1
Mobilisation	2 weeks	May 4 – May 15
Construction	3 – 6 months	May 18 – August 14/November 13
Defects liability period	6 months	August 15 – February 15, 2010 November 14 – May 17, 2010

Table 1: Draft Programme for Bidding and Construction 2009/2010

The schools to be reconstructed have now been selected although the MOE is still under pressure from politicians to change the locations of at least some of the schools.

The MOE and the partners have agreed that the management and supervision of the reconstruction of the forty primary schools in this year's programme will now be carried out by two agencies, the [redacted] and the [redacted]. A third agency, Peace Winds Japan that was interested in managing the reconstruction of four schools in Lofa County has submitted estimates for management and construction that are very high and they are therefore not being included.

The contractual arrangements are quite complicated and could lead to delays especially of payments to contractors and it is important to remember that these are small contractors who do not have easy access to credit either with banks or building materials suppliers and any delays to their payments will inevitably lead to delays to the completion of the construction work. It is essential therefore that all parties work to ensure that payments are made to all of the contractors as set out in the contract documents and in as short a time as possible.

The revised drawings for the two standard classroom buildings to be constructed at each school, the revised standard VIP latrine building and the well were completed during the mission together with bills of quantities for the revised designs and these documents have been forwarded to both [redacted] and [redacted].

Implementation of the 2009/2010 LPERP Primary School Construction Programme

Preparation work for the 2009/2010 primary school construction programme should start as soon as possible even before the 2008/2009 programme is implemented. It is hoped that this programme will be larger than the 2008/2009 programme but it should be noted that at present there are insufficient funds in the Pooled Fund to pay for any primary school reconstruction after the current programme is completed.

If funding is available, it is proposed to reconstruct 60 schools in 2009/2010, 4 schools in one district in each of the 15 counties. A preliminary list of 8 schools in one district in each county has been prepared using similar criteria as those used for selecting schools in the current programme.

The MOE should start looking for sources of funding from possible donors. The total required will be in the order of US$7 million including fees for management and supervision but not including any furniture or equipment.

These schools should be visited by the DEF survey teams in order to select the 4 schools in each district that meet the selection criteria. It should be stressed that the surveys should take place as soon as possible in order that all the preparation work for all of the schools can be completed before the start of the next dry season so that the bidding process can start immediately after the 2009 rainy season, assuming that more funds for construction are forthcoming.

It is proposed that the 2009/2010 primary school reconstruction programme is managed in a similar way to the current programme if, after review the management of that programme proves to be satisfactory. [redacted] (and possibly [redacted]) will be engaged to manage and supervise the reconstruction of a further 20 schools each and that the other 20 schools will be managed and supervised by a local civil works consultancy firm selected through a local bidding process. It might also be possible, if [redacted] is not used, to use one or more of the NGOs currently engaged in or interested in primary school construction to manage and supervise the reconstruction of some primary schools.

Role of the Division for Educational Facilities in the 2008/2009 and 2009/2010 Construction Programmes

The role of the DEF in the 2008/2009 and 2009/2010 construction programmes should be to monitor the work of both [redacted] and [redacted] and of the contractors that are hired to reconstruct the schools and ensure that the quality of the construction work is in line with the drawings and specifications. However without additional vehicles, a budget for both fuel and expenses and some technical assistance its capacity to do this is doubtful.

USAID has expressed interest in providing such technical assistance for the next 6 months (or until the LCIP programme closes) and terms of reference for an architect to carry out this work were drafted during this mission (see Annex 5). If the Ministry is still interested in this technical assistance then USAID should be contacted as soon as possible and the terms of reference forwarded to them.

Long-Term Strategies for the Reconstruction of Primary School Facilities

Liberia is in a post-conflict situation and many primary school facilities have been badly damaged or destroyed, there has been virtually no primary school construction for over 20 years and the needs in terms of school infrastructure are therefore enormous: anything between 9,000 and 10,000 plus classrooms are needed now and the demand is likely to increase rather than decrease over the coming years in line with the increase in population.

There are only a limited number of strategies that could be adopted for the implementation of a major reconstruction programme of the country's primary schools and these are discussed in the main report.

Recommendations for a Reconstruction Programme for Primary Schools

A recommendation is made for primary school reconstruction programme but the main report also sets out a number of tasks that need to be completed before any such programme starts. These tasks include: reviewing the facilities to be provided at all primary schools; establishing exactly where existing schools should be reconstructed, where new schools are required and what facilities are required at these schools and reviewing the MOE policy on pre-schools.

A proposal is then made for the construction of up to 100, 6-classroom primary schools (or their equivalent) a year for 10 years using a variety of procurement and management and supervision methods and it is suggested that such a programme could incorporate elements of a community-based programme in order to increase local ownership and even use communities to manage the construction of some of the smaller, more remote schools.

The need for a comprehensive school mapping exercise to take place before any construction is started is stressed as is the need for training and capacity building for the contractors.

The importance of the role of DEF in the process is also stressed as is the need for capacity building and technical assistance to the DEF.

NEXT STEPS

The Ministry of Education needs to take a number of steps immediately in order to expedite the 2008/2009 school construction programme and these include:

- Signing contracts with [redacted] and [redacted] to manage the construction of 20 schools by each.
- Agreeing site layouts for all of the 40 schools with [redacted] and [redacted] in order that the contractors can start work as soon as contracts have been signed.

Further steps need to be taken as soon as possible by the MOE to facilitate the construction process for 2009/2010 and these include:

- Identifying the schools to be included in the 2009/2010 reconstruction programme based on the list of eight schools in a selected district in all fifteen

counties (see previous report). Only four schools in each district will be reconstructed and these will be selected after the DEF teams have surveyed all eight schools in each district. A survey instrument designed to provide all relevant information required to select the final four schools is attached as Annex 4 and the survey teams need to visit the schools as soon as possible to carry out the surveys.

- Sourcing funding for the 2009/2010 construction programme. There are at present insufficient funds in the Pooled Fund to construct any more schools.

USAID has expressed interest in providing technical assistance to DEF for the next 6 months in order to improve DEF's capacity to monitor the 2008/2009 and 2009/2010 school construction programmes and if the Ministry is still interested in this technical assistance then USAID should be contacted as soon as possible and the terms of reference for this technical assistance forwarded to them.

MAIN REPORT

Implementation of the 2008/2009 LPERP Primary School Construction Programme

General

There are now only four to five months before the heavy rains are due to start and construction has still not started. It seems unlikely therefore that many if any of the schools to be reconstructed this year will be completed before the rains.

At a meeting at the [redacted] office with 21 contractors who carry out work for [redacted], the contractors stated that they thought it should be possible to finish the construction work by the end of July if the bidding process could be started by the beginning of March 2009. This date has however now been passed and the bidding programme has still not started and the draft programme for the bidding and construction process shown in Table 1 below makes it clear that it is unlikely that construction can be completed before the middle of August at the earliest. This programme assumes that contracts between MOE and [redacted] and [redacted] can be signed by March 6th 2009.

Activity	**Duration**	**Dates 2009/2010**
Site visits and preparation of contract documents	3 weeks	March 9 – 27
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Table 1: Draft Programme for Bidding and Construction 2009/2010

Selection of Schools

The schools to be reconstructed have now been selected (see Annex 1) although the MOE is still under pressure from politicians to change the locations of at least some of the schools. However, because the number of schools to be reconstructed this year is small and the total needs of the country in terms of the numbers of schools required are extremely large, whatever schools are selected for this year's programme there will always be discontent from politicians in the areas where there will be no reconstruction.

The schools to be reconstructed this year have been selected through a process (see last mission report) based on the most 'underserved' districts, the condition of the school facilities and on the current enrolment and the MOE must stand firm therefore and not start changing the school sites which will only delay further the construction of the schools. The MOE should point out to the politicians that this year's construction programme is the start of a process that will eventually see all of the country's primary schools reconstructed assuming that funding can be found.

Management and Supervision of the 2008/2009 Construction Programme

The MOE and the partners have agreed that the management and supervision of the reconstruction of the forty primary schools in this year's programme will now be carried out by two agencies, the [redacted] and the [redacted]. A third agency, Peace Winds Japan that was interested in managing the reconstruction of four schools in Lofa County has submitted estimates for management and construction that are very high and they are therefore not being included.

[redacted], since its establishment by the government in 2005 has amongst other projects, constructed or renovated more than 50 schools. It will be responsible this year for the management and supervision of schools in the following counties: Bong (5), Nimba (4), Lofa (4), Grand Bassa (3), Montserrado (2), Bomi (2), Cape Mount (2) and Margibi (2) a total of 24 primary schools.

[redacted] has been constructing and renovating buildings in Liberia for a number of agencies since the civil war stopped and will be responsible for the management and supervision of schools in the following counties: Grand Gedeh (3), River Gee (2), Maryland (2), Grand Kru (2), Sinoe (2) and Gbarpolu (3) a total of 16 primary schools.

A contract has been drafted and this has to be agreed and signed as soon as possible by MOE, [redacted] and [redacted]. See Annex 2 for details of the [redacted] contract.

[redacted] and [redacted] will both act as management agents or consultants for MOE and will manage the bidding process for their respective schools and their work will include preparing bidding documents, advertising the contracts, responding to any queries that the bidding contractors might have, evaluating the bids when they have been received, preparing bid evaluation reports and making recommendations as to which contractors should be awarded the contracts.

The MOE will act as the client and will sign the contracts with the selected contractors. Payments to the contractors will however be made by the PCMU in the Ministry of Finance after payment certificates have been issued by either [redacted] or [redacted].

This complicated contractual arrangement could lead to delays especially of payments to contractors and it is important to remember that these are small contractors who do not have easy access to credit either with banks or building materials suppliers and any delays to their payments will inevitably lead to delays to the completion of the construction work. It is essential therefore that all parties work to ensure that payments are made to all of the contractors as set out in the contract documents and in as short a time as possible.

It will be very important for MOE and DEF to carry out a review of the management and supervision process for this year's construction programme immediately after or even during its implementation in order that any necessary lessons can be learned that can be applied to the implementation of the following year's construction programme.

Revision of Primary School Designs

The revised drawings for the two standard classroom buildings to be constructed at each school, the revised standard VIP latrine building and the well were completed during the mission together with bills of quantities for the revised designs and these documents have been forwarded to both [redacted] and [redacted].

It has not been possible to obtain site drawings for the sites where the schools are to be reconstructed but two site layouts have been prepared showing possible layouts for typical school sites. See Annex 3 for details. The actual layout for each site will be agreed by the supervising consultants (ie [redacted] or [redacted]), a DEF representative and the contractor before construction starts. This will probably necessitate a visit to each school site by a representative from DEF and from either [redacted] or [redacted] before the bidding process starts (see Table 1 above).

Implementation of the 2009/2010 LPERP Primary School Construction Programme

General

Preparation work for the 2009/2010 primary school construction programme should start as soon as possible even before the 2008/2009 programme is implemented. It is hoped that this programme will be larger than the 2008/2009 programme (i.e. the reconstruction of 60 primary schools) but it should be noted that at present there are insufficient funds in the Pooled Fund to pay for any primary school reconstruction after the current programme of constructing 40 schools is completed.

The MOE should therefore start looking for sources of funding from possible donors for the reconstruction of 60 schools as soon as possible. The total required will be in the order of US$7 million including fees for management and supervision but not including any furniture or equipment.

Selection of Schools

If funding is available, it is proposed to reconstruct 60 schools in 2009/2010, 4 schools in one district in each of the 15 counties. A preliminary list of 8 schools in one district in each county has been prepared using similar criteria as those used for selecting schools in the current programme (see previous report).

After discounting the districts where the current programme will be renovating schools, the next most “underserved” education district in all 15 counties has been selected based on the current enrolment and infrastructure provision for primary school age children 14 years and below and 8 ‘makeshift’ (pole and mud plaster and thatch) or ‘semi-solid’ (mud brick and thatch) schools i.e. those in the worst condition have been selected for possible inclusion in the programme.

These schools should be visited by the DEF survey teams in order to select the 4 schools in each district that meet the selection criteria. The main criterion (after the existing condition of the school buildings and the current enrolment) will be that the school site should be large enough to accommodate the new school buildings.

A simple survey instrument has been designed that will enable the survey teams to gather much more basic information on the schools’ infrastructure (especially on the size and condition of the sites) than was possible in last year’s survey. This survey instrument was discussed with DEF staff during the mission and various issues clarified. For details of the survey instrument see Annex 4.

It should be stressed that the surveys should take place as soon as possible i.e. during this dry season, in order that all the preparation work such as preparation of site plans and bidding documents for all of the schools can be completed before the start of the next dry season so that the bidding process can start immediately after the 2009 rainy season, assuming that more funds for construction are forthcoming.

This will give next year's programme much more chance of being completed before the following rainy season than is the case for the current reconstruction programme. In order to do this however it means that DEF will have to be provided with a budget and vehicles very soon in order that the survey team can get out in the field so that the surveys can be carried out.

Management and Supervision of the 2009/2010 Construction Programme

It is proposed that the 2009/2010 primary school reconstruction programme is managed in a similar way to the current programme if, after review the management of that programme proves to be satisfactory. [redacted] (and possibly [redacted]) will be engaged to manage and supervise the reconstruction of a further 20 schools each probably, for reasons of efficiency on the basis of 4 schools in 5 districts in 5 counties.

It is proposed that the other 20 schools (4 schools in 5 districts in 5 counties) will be managed and supervised by a local civil works consultancy firm selected through a local bidding process. Discussions were held during the mission with one of the local civil works consultancy firms who would be interested in managing and supervising the construction of 20 schools and it seems that their fees would be in the order of 13% of the construction cost i.e. similar to that of [redacted].

It might also be possible, if [redacted] is not used, to use one or more of the NGOs currently engaged in or interested in primary school construction to manage and supervise the reconstruction of some primary schools.

Role of the Division for Educational Facilities in the 2008/2009 and 2009/2010 Construction Programmes

The role of the DEF in the 2008/2009 and 2009/2010 construction programmes should be to monitor the work of both [redacted] and [redacted] and of the contractors that are hired to reconstruct the schools and ensure that the quality of the construction work is in line with the drawings and specifications. However without additional vehicles, a budget for both fuel and expenses and some technical assistance its capacity to do this is doubtful.

USAID has expressed interest in providing such technical assistance for the next 6 months (or until the LCIP programme closes) and terms of reference for an architect to carry out this work were drafted during this mission (see Annex 5). If the Ministry is still interested in this technical assistance then USAID should be contacted as soon as possible and the terms of reference forwarded to them.

The consultant will be required to:

- Assist the DEF in the management and monitoring of the 2008/2009 primary school construction programme specifically in the monitoring of the work of [redacted] and [redacted] who will be managing the actual construction work to ensure that they are constructing schools to the required standards and quality and in the right locations.

- Assist the DEF in the carrying out of surveys of schools to be included in the 2009/2010 primary school construction programme. This work needs to be carried out before the next rainy season in order that the construction programme does not face the same problems as the current programme.

Specifically the consultant will draw up guidelines for DEF staff on what to check at each stage of the construction work during site visits and give practical advice to DEF staff during visits to construction sites. He/she will also draw up guidelines on monitoring the work of the consultants supervising the construction work and on the writing up of site visit reports.

The consultant will also provide training in, and give practical demonstrations of the completion of the survey document to be used when surveying the schools to be included in the 2009/2010 primary school construction programme and assist the DEF in the final selection of the schools.

Long-Term Strategies for the Reconstruction of Primary School Facilities

The Problem

Liberia is in a post-conflict situation and many primary school facilities have been badly damaged or destroyed, there has been virtually no primary school construction for over 20 years and the needs in terms of school infrastructure are therefore enormous: anything between 9,000 and 10,000 plus classrooms are needed now and the demand is likely to increase rather than decrease over the coming years in line with the increase in population.

If a programme was put in place to construct 9,000 classrooms over 5 years this would entail the construction of 1,800 classrooms (or the equivalent of 300 6-classroom schools) a year. If the programme was designed to take place over 10 years then this would entail the construction of 900 classrooms (or the equivalent of 150 6-classroom schools) a year. This is the scale of the problem.

The situation is further complicated in that many of the classrooms that are needed will be located in small, remote rural schools with very difficult access for materials and contractors.

It must also be remembered that the construction industry in Liberia is small and under-developed with few if any large construction companies. The contractors are also greatly in need of training in pricing bidding documents, managing and supervising construction and other capacity building measures. One of the reasons for construction costs being so high is probably the inability of many if not most of the small contractors to accurately price bidding documents and the cost of management and supervision.

The primary school enrolment in 2006 was 597,316 (this probably includes both pre-primary and primary school pupils) and the total number of teachers was 16,207 giving a teacher/pupil ratio of 1:37. However, 76% of the teachers (12,328) did not have the minimum primary school teaching certificate and there is therefore a large deficit of trained teachers. The question has to be asked therefore whether a large-scale, intensive primary school construction programme can be justified if there are not the trained teachers to go into the classrooms. The teacher training institutes are at present producing 600 trained teachers a year and this should go up to 900 next year, but even at this rate it will take well over ten years to train the existing numbers of untrained teachers let alone to start producing new teachers.

Under the present education system in Liberia, there should be two classes of pre-school before children start primary school at the age of six years. As indicated above, there are large numbers of children in what are termed 'pre-school' classrooms on the same sites as primary schools and many of these pupils are over-age. Although the provision of pre-schools is generally undoubtedly a good thing, in Liberia at present there are few if any trained pre-school teachers and no system of training them. The classrooms occupied by pre-school children are the same as primary school classrooms and there is no provision for books, toys or any of the equipment usually associated with pre-schools. There also seems to be a general problem in that pre-school children do not seem to be allowed to progress to primary schools until they have learned to read or write which seems to be one of the causes of there being so many over-age children in both pre-schools and primary schools.

Strategies for Reconstruction of Primary Schools

Various strategies for the implementation of a major reconstruction programme of the country's primary schools were discussed in the last report and of these only three would seem to be viable:

- The use of traditional construction materials and techniques and contractors selected through international or national competitive bidding;
- The use of international competitive bidding to select contractors to construct good quality, long-life roofs and floors for the school buildings and the use of local communities or small contractors managed by local communities to provide the infill walls, windows, etc.;
- A major expansion of the current community-based [redacted] model or a similar community-based model.

These strategies and their implications for cost, efficiency, capacity building and the development of the country are further discussed below.

Primary School Construction Using Traditional Materials and Methods

National Competitive Bidding

In many developing countries, the national construction industry is large enough to take on the challenges of a large school building programme. In Liberia however the construction industry is small and under-developed with few if any large construction companies and these companies are currently working to near capacity on the large number of development projects currently taking place in the country.

It is estimated that there is probably only enough capacity at present within the local construction industry (this includes local contractors and civil works consultants and others to supervise the work) to construct the equivalent of 75/80 6-classroom primary schools (or 450/480 classrooms) per year and therefore, if the target is 9,000 classrooms, it would take 18/20 years to achieve this using only local resources.

Such a programme would have some advantages:

- It would cost much less than using international contractors managed by international consultants
- A degree of capacity building and training for the local contractors could be built into the programme
- Some local ownership of the process could also be built in.

The great disadvantage would be the length of time (18 – 20 years) that it would take to construct or renovate the number of primary school classrooms that are required and this is probably unacceptable.

International Competitive Bidding

If a large primary school building programme was designed to be implemented in a short period of time (say 5 years) using traditional construction methods (ie concrete floors, concrete block walls, steel or timber roof trusses and purlins and corrugated steel roof sheets) it would be necessary to use international contractors, consultants and an international competitive bidding process (ICB) to achieve this. The process would have the advantage of constructing a large number of classrooms in a relatively short time. It would however have a number of disadvantages including:

- Management: the programme would have to be managed by international consultants resulting in high management and supervision costs.
- Centralisation: a very centralised project-based approach would have to be used to implement such a school construction programme which would provide few if any benefits to either DEF or the local construction industry in terms of capacity building.
- Costs: although construction costs might be expected to be lower using ICB for a large programme, this might not necessarily be so due to the difficulties of working in Liberia and the subsequent high overheads for foreign firms which would probably reduce the numbers of firms interested in bidding and raise costs.

This method could therefore be used to implement a short-term, large-scale school building programme in the more accessible, densely populated parts of the country but construction, management and supervision costs would probably be high and the benefits in terms of capacity building, local ownership, etc would be fairly low.

Primary School Construction: Roof and Floors

A more economic and faster alternative to using traditional construction techniques to construct complete schools would be to construct good quality floors and roofs (with integral ceilings) using international contractors and ICB. Temporary walls could then be erected by local communities and permanent walls, windows and doors could be built later by local communities or contractors.

This method would have several advantages over the previous method:

- Useable covered classroom space would be provided more quickly and the process would involve fewer foreign personnel;
- The key elements, the roof and the floor would be of high quality and would have a long useful life;
- There would be an element of flexibility in that the actual classrooms and other spaces could be re-arranged if necessary (classrooms sizes could be increased for instance) as the walls would not be load-bearing;
- There would be a degree of local ownership if local communities and builders were involved in the process of completing the buildings.

The disadvantages however would be that:

- The unit costs of providing the roofs and floors would be fairly high for construction, management and supervision;
- There would be transport problems in importing and transporting the roof structure and roofing around the country;
- The process of constructing the roofs and floors would be fairly centralised;
- It would be difficult to use this method of construction for building the small schools that will be required in remote rural villages with difficult or no road access.

Preliminary designs and costings for a steel-framed structure to provide good quality long life structural elements and roofs for two standard buildings to provide facilities for a 6-classroom primary school are shown in Annex 7. It should be noted that the width of the standard buildings has been increased to allow for 'book corners'.

The Community-Based Model

The final alternative would be to use a community-based approach to reconstruct schools. There are two forms that this approach could take: 1) using contract management agencies to manage the use of communities and small builders to construct schools or 2) delegating the construction of school facilities directly to local communities.

[redacted] and some NGOs operating in the country are existing examples of the first approach. [redacted] is constructing schools (as well as other facilities such as markets and roads) using a bottom-up, demand-driven approach and have opened up the construction industry to some of the smallest local construction enterprises which is especially important in remote, rural communities.

The second community-driven development approach (CDD: see previous report) would be more radical but evidence from other countries in Africa and elsewhere shows that delegation of school construction to communities increases the rate of construction of schools and lowers costs. It also results in improved commitment by local communities to the maintenance of the school facilities after they have been completed.

The community-driven approach would however require oversight and a degree of management by local government or perhaps another agency that is probably not realistic to expect, certainly on a large scale at this stage of the country's redevelopment.

The use of the community-driven approach has many benefits in terms of greater ownership and thus responsibility for looking after and maintaining the buildings when complete, reduction of capital investment (construction) costs and in capacity building and local employment generation.

There are however costs to be borne: the management and supervision costs may be three times the cost of supervising established contractors, the standard of finishes may well be lower than those of contractor-built schools and because of this the cost of maintenance may be higher and the construction time for the buildings may be longer.

Recommendations for a Reconstruction Programme for Primary Schools

Preliminary Work Required Before Reconstruction Starts

General

As stated above, the numbers of primary school classrooms that are required are very large but before embarking on a major primary school reconstruction programme the MOE needs to decide exactly what is going to be constructed and where. In order to do this the MOE needs to:

- Review the facilities to be provided at all primary schools particularly the libraries that have been included in the present design
- Establish exactly where existing schools should be reconstructed, where new schools are required and what facilities are required at these schools through a school mapping exercise
- Review, at least in the long-term the MOE policy on pre-schools

Primary School Facilities

The MOE must produce a definitive list of the type, number and size of facilities to be provided at all primary schools no matter who they are constructed by.

There are at present a number of NGOs in the country building or reconstructing primary schools with no reference to the MOE. These schools are often being constructed to a very low standard in terms of both construction quality and classroom size and this is not a good investment for the future. The MOE should endeavour to control this and ensure that all schools are being constructed to an acceptable standard in terms of both construction quality and space and that all schools are being constructed in locations approved by the MOE based upon school mapping data (see below).

Classroom sizes should be reviewed with the objective of providing ‘book corners’ in each classroom rather than separate libraries that are expensive to provide in terms of space and staffing (to operate properly the libraries would require a librarian) and not as effective in terms of learning outcomes as ‘book corners’ which provide much easier access to books for pupils. The space at present being allocated for libraries could be re-distributed and used instead for increasing classroom sizes at little or no extra cost. See the previous report for details of a proposed classroom with a ‘book corner’.

The type of schools to be provided should also be reviewed with the objective of reducing the number or size of schools to be provided and thus reducing capital costs. Very young children should for instance not have to walk more than 2 or 3 kilometres (half an hour to three quarters of an hour's walk) to school at least in grades 1 to 3 and this will mean that, in remote rural areas with very small populations the provision of 6-classroom, six grade schools will be unnecessary and if built, will be a waste of resources.

The MOE should therefore consider the provision of 1-classroom multi-grade schools for very small communities and 3-classroom, grades 1 to 3 schools that would feed larger schools for less remote communities. Both strategies would reduce the number of facilities that would be required and thus reduce the overall cost of the programme. The provision of multi-grade schools would require the use of larger classrooms and the training of teachers in multi-grade teaching. See previous report for details of a proposed multi-grade classroom.

In densely populated urban areas the use of double shifts should be introduced wherever possible as this again would reduce the number of facilities that would be required and again reduce the overall cost of the programme. In these areas more facilities might be required at large primary schools such as more classrooms, staff facilities, offices, etc and where sites are restricted there might be a case for the construction of two or three-storey primary schools. Again, this will only become clear after the school mapping exercise is complete (see below).

At all sites for primary schools it should be possible to provide recreation space for pupils. This does not seem to be the case in many schools at present and the MOE, during the reconstruction process, should consider if possible moving schools from existing sites with no recreation space to sites where recreation space can be provided. The possibility of providing adequate recreation space should be one of the criteria for the selection of sites in future for the construction of new primary schools.

School Mapping

It is crucial that schools are only reconstructed, constructed or extended in locations where there is a demand for them in terms of the numbers of primary school age children and that the schools that are constructed are of a size appropriate to the potential primary school population. To do otherwise will only waste very expensive and scarce resources.

It is essential therefore that a school mapping exercise is started as soon as possible to locate existing primary schools and provide the data for reconstructing and extending

these schools and where necessary for locating new schools. This need not, indeed should not take the form of an expensive digital mapping exercise. There are existing digital maps of the country which show the positions of most of the existing schools and there is also data from the latest school census on school enrolment, pupils' ages, teachers, etc. These maps and the school data if combined with the general population data could form the basis for the preparation of district school maps which could then be used for planning purposes.

Unfortunately the school districts which are the basis for the MOE school data are not the same as the administrative districts which are the basis for the general population data. These two sets of data need therefore to be combined so that the combined data can form the basis for district school maps.

A great deal of work needs to be done to correlate the existing data and to start the preparation of district school maps and the MOE will require a lot of technical assistance in carrying out these tasks. It is essential however that this work is carried out before any major primary school reconstruction project is started in order that schools are not reconstructed, constructed or extended in the wrong locations and that the sites are large enough for the proposed schools. UNICEF has funding for technical assistance to assist the MOE with the school mapping process and the MOE should request this technical assistance to be provided as soon as possible. Draft terms of reference that have been agreed with UNICEF for this technical assistance are attached as Annex 6.

Once the district school maps exist, these can then be updated annually using data collected from the school census and the maps can become very useful planning tools.

At the same time as the school maps are being prepared, a school facilities register also needs to be prepared that lists the existing facilities at every school and the condition of these facilities. Some of this information will be available from the school census but because the census enumerators are not engineers or architects, a lot of the information will be unreliable. Ideally all schools should be visited by an engineer or an architect and the condition of the facilities assessed. This is obviously an expensive and time consuming process but will have to be undertaken eventually in order to establish exactly what facilities exist at each school and work is required to bring these facilities up to an acceptable standard. Obviously many of the existing schools are in such bad condition that they will require demolition and replacement and detailed technical surveys will not be required. Information on the size and condition of the site and what services are available will however be required.

Eventually the school facilities register should also be used as the basis for a maintenance programme for all educational facilities and should list the date and details

of any maintenance activities that have taken place at each school and when the next maintenance activity is required.

Pre-Schools

At present large numbers of children are occupying valuable space in primary schools while attending 'pre-school' classes. These classes are at present very little different from primary school classes because the accommodation is the same, there are no properly trained pre-school teachers and no relevant books or equipment. However because of the necessity to be able to read and write before children can go on to primary school classes, the pre-school classes are in many cases over-crowded and contain many over-age children and this also means that subsequently many primary school classes also have over-age children.

While it would make sense in a lot of ways for the MOE to suspend the pre-school programme for the present (it would for instance greatly reduce the number of classrooms that have to be built) or at least until there is a training programme in place for pre-school teachers, the curriculum has been reviewed, there is proper provision of books and other equipment and the design of pre-school facilities has also been reviewed, it is politically not possible to do this.

The MOE should not however plan to construct large numbers of pre-school classrooms. For the present pre-schools can use one or two classrooms in primary schools using double-shifts where necessary. In the long-term a pre-school construction programme could be initiated when funding is available. The facilities to be provided for pre-schools, which are quite different to those required for primary schools, should be re-designed and occupy either part of a primary school site (where these are large enough) with separate play areas or completely separate sites.

Proposals for a Primary School Reconstruction Programme

General

When the type, size and number of facilities to be provided at all primary schools have been agreed and the locations of schools to be reconstructed or constructed anew have been decided through a school mapping programme, the MOE has to decide how the schools that are required are going to be reconstructed or extended or how new schools are to be constructed.

Given the fact that as stated above, it is going to take 10 years or more to train or re-train sufficient primary school teachers to staff all of the primary schools, it would seem sensible to match the construction programme more or less to the provision of trained

teachers. If the present pre-school component is omitted from the programme or the number of pre-school classrooms to be constructed is at least much reduced then the total number of classrooms required would also be much reduced. The programme would probably therefore entail the construction of 100/200, 6-classroom primary schools (or the equivalent) per year for up to10 years.

As noted above, it seems unrealistic to expect the local construction industry to be able to cope with this number of schools and classrooms a year at least for the foreseeable future. The solution would therefore seem to be the adoption of a combination of some of the strategies for reconstruction outlined in the previous section. The final number of classrooms to be constructed will depend on the outcome of the school mapping programme and the number to be constructed per year will depend upon the method(s) selected for constructing them; see below.

Primary School Construction Using Traditional Materials and Methods

International Competitive Bidding

The more easily accessible primary schools in the more heavily populated areas of the country such as Greater Monrovia, Nimba and Grand Bassa Counties some of which will need to have multi-storey classroom buildings could be constructed through a traditional construction programme. This programme would have to be carried out by international contractors selected through ICB managed and supervised by international consultants. It could be a completely traditional programme providing complete school buildings or it could be a 'roofs and floors' programme (see below) with the buildings being completed by communities or local artisans. It would need to be an intensive programme to construct as many classrooms in as short a time as possible in order to keep management overheads down.

National Competitive Bidding

The schools in the less populated rural areas could be constructed by small local contractors supervised by local management and supervision consultants. In the current 2008/2009 school construction programme, [redacted] and [redacted] are being employed by the MOE to act as management and supervision consultants in traditional construction contracts where they will each supervise the construction of 20 primary schools that will constructed by small contractors procured through an NCB process. It remains to be seen how successful this process is but if it is successful, then it could be replicated on a larger scale.

As stated above, the maximum number of 6-classroom schools that it would be possible to construct using local contractors would at present be in the region of 75 and therefore this would have to be a long-term programme lasting up to 10 years.

It should be noted here however that the usual fee for supervision and management work of this kind is around 10% of the construction cost and that for this year's construction programme, [redacted] fee is 13% and [redacted] fee is 19%. While an increase over the usual fee of 3% can probably be justified at present because Liberia is in a post-conflict situation and logistical costs are higher than normal, it is felt that [redacted] fee at nearly double the norm is excessive. If they are not prepared to reduce their fees for a larger programme then it will probably be better to make use of some of the local civil works consulting firms for management and supervision. [redacted] after all will be mainly using local engineers to supervise the work.

Another option would be to use one or more of the NGOs that are at present reconstructing existing primary schools and constructing new ones to manage the construction of some of the schools. As stated above, the activities of these organisations must be more strictly controlled by the MOE but they could have a part to play in the reconstruction programme if they were to operate along similar lines to [redacted] i.e. acting as a management agency for the MOE.

Also as stated above, the small local contractors do require training and assistance in pricing, managing and supervising even small contracts and it might be worth the MOE approaching the International Labour Organisation (ILO) for assistance in this as they have a great deal of experience in designing and setting up training programmes for small contractors. In this way, the school construction programme could provide great benefits for the country in leading to greater self-reliance, competence and competition in the local contracting industry which should also result in better buildings and lower prices.

Primary School Construction: Roof and Floors

Some or possibly all of the more easily accessible primary schools in the more heavily populated areas of the country such as Greater Monrovia, Nimba and Grand Bassa Counties (apart from the multi-storey classroom buildings which would have to be constructed through a traditional construction programme) could be constructed through a 'roofs and floors' programme as described in the previous section with the buildings being completed by communities or local artisans. This programme would have to be carried out by international contractors selected through ICB managed and supervised by international consultants.

Again this would need to be an intensive programme to construct as many classrooms in as short a time as possible in order to keep management overheads down.

The Community-Based Model

The location of the schools to be reconstructed or constructed anew will be driven by the school mapping data and therefore there will not be the opportunity for a real community-driven project where all decisions come from the bottom up. However if small local contractors are used for constructing the schools supervised by local consultants, NGOs or other organisations, as in the NCB model described above, it should be possible to incorporate some of the elements of community-based programmes such as involving school or community committees in supervision and management and possibly in the provision of local materials, etc. This will require careful design but should give more local involvement in the process and more local ownership which could lead for instance to more local responsibility for maintaining the buildings when complete. Communities could in fact be asked to sign agreements to maintain the schools as a pre-condition to receiving the new buildings.

In the very remote rural areas where only small schools are required, it should be possible to at least experiment with a version of the community-based model where local communities provide at least some of the materials and labour and where school or village committees manage the construction process using local artisans to carry out the skilled work. As stated above this method has been used successfully in other parts of Africa and the developing world and does have great benefits in terms of ownership. It must be recognised however that such programmes require very careful design, preparation and management, that such programmes cannot be implemented quickly and that the communities have to be provided with a great deal of technical assistance to replace that usually provided by contractors and supervising consultants.

The Role of the Division of Educational Facilities

The role of the DEF in the construction process will be very important no matter which combination of construction methods is used. The activities of the various management agencies will require co-ordination and supervision and the work of the contractors although supervised by the management agencies will also require monitoring.

The future role of the DEF was set out in detail in the last report together with the need for technical assistance to, and for capacity building in the Division. See last report for details. The MOE should also consider the setting up of a separate Planning Division which would encompass the present Division of Educational Facilities and the EMIS Division and which would carry out all planning roles at all levels within the MOE.

ANNEX 1: Schools Selected for 2008/2009 School Renovation Programme

Schools Selected for 2008/2009 School Renovation Programme					
County & District	***School Name***	***MOE Number***	***Sector***	***Type***	***Condition***
BONG	Dankpansus	0612010	Public	Makeshift	Min. Dam.
Sanoyea	Kelepei	0612011	Public	Makeshift	Min. Dam.
	Vesselee Felemi	0612013	Public	Church building	Min. Dam.
	Jarkpa-Ta	0612017	Public	Makeshift	Min. Dam.
	Wonorsue	0612032	Public	Church	Destroyed
NIMBA	Duo Boe Public	3324005	Public	Semi-solid	Min. Dam.
Yarpea-Mah	Gaywee	3324010	Public	Makeshift	Maj. Dam.
	Gbein Yonyee	3324011	Public	Semi-solid	Min. Dam.
	Karwin	3324013	Public	Mud	Min. Dam.
LOFA	Kamboima	2110024	Community	Makeshift	Destroyed
Foya	Yengbimei	2110026	Community	Makeshift	Destroyed
	Njakkah	2110059	Community	Makeshift	Destroyed
	Koloche	2110070	Community	Makeshift	
GRAND GEDEH	Newtown Elementary	1510011	Public	Makeshift	
Putu	John David Elementary	1510004	Public	Makeshift	Maj. Dam.
	Nazarene Mission	1510005	Public	Makeshift	Destroyed
GBAPOLU	Palakwelleh	4512001	Public	Semi-solid	Min. Dam.
Goe Walala	Kpanta	4512017	Public	Semi-solid	Min. Dam
	Zeaya	4512007	Public		Maj. Dam.
GRAND BASSA	Mensah Camp	0906014	Community	Semi-solid	Min. Dam.
Compound No 2	Bexley	0906064	Community	Makeshift	Destroyed
	Glarkon	0906026	Community	Makeshift	Destroyed
RIVER CESS					
Central River	Gbarsaw	3606003	Public	Semi-solid	Min. Dam.

Cess	Public Annex II				
	Kayah Public No 1	3606009	Public	Other	Destroyed
MONTSERRADO					
Careysburg	In Touch Elementary	3002030	Community	Semi-solid	Min. Dam.
	Flahns T/n	3002089	Community	Semi-solid	Min. Dam.
BOMI					
Dewion	Levuman	0306003	Public	Semi-solid	Min. Dam.
	Jenneh	0306007	Public	Makeshift	
CAPE MOUNT					
Garwula	Njagbacca Self-Help	1202034	Community	Semi-solid	Min. Dam.
	Dende Wealague		Public		
GRAND KRU					
Buah	Toe Chea	1802003	Public	Makeshift	Destroyed
	Wropluken	1802007	Public	Makeshift	Destroyed
MARGIBI	Kpoe Town	2404010	Community	Makeshift	Min. Dam.
Gibi					
	Gibi	2404006	Public	Semi-solid	Min. Dam
.					
MARYLAND	Doloken	2714006	Public	Makeshift	Destroyed
Karluway No 2					
	Tugbaken	2714010	Public	Makeshift	Destroyed
RIVER GEE	Torroken	4206008	Public	Makeshift	Maj. Dam.
Chedepo	Jlowreken	4206012	Public	Makeshift	Maj. Dam.
SINOE	Wortuken	3902001	Community	Semi-solid	Min. Dam.
Butaw	Upper Murrayville	3902002	Public	Makeshift	Min. Dam.

ANNEX 2: Draft Contract between MOE & [redacted]

AGREEMENT

Between

[redacted]

And

The Government of the Republic of Liberia by and through the Ministry of Education

Regarding

Management and Supervision Service for the Construction of 20 Schools funded under the Education Pooled Fund

WHEREAS, Ministry of Education of Liberia (hereinafter "the Client") wishes to execute with the [redacted] (hereinafter the "Consultant" or [redacted] the present agreement (hereinafter the "Agreement") in order to perform the services as described in section 1 and Annex A to this Agreement (hereinafter the "Services") and

WHEREAS, the Consultant is willing to perform the Services

NOW THEREFORE THE PARTIES hereby agree as follows:

1. Services

(i) The Consultant shall perform the services specified in Annex A, "Terms of Reference and Scope of Services," which is made an integral part of this Contract ("the Services").

(ii) The Consultant shall provide the personnel listed in Annex B, "Consultant's Personnel," to perform the Services.

(iii) The Consultant shall submit to the Client the reports in the form and within the time periods specified in Annex C, "Consultant's Reporting Obligations."

2. Term

The Consultant shall perform the Services during the period commencing *[insert starting date]* and continuing through *[insert completion date],* or any other period as may be subsequently agreed by the parties in writing.

3. Payment

A. Ceiling

For Services rendered pursuant to Annex A, the Client shall pay the Consultant an amount not to exceed [redacted]. However, the Parties agree that if the scope of the Services and/or schedule of the Services is being modified, the ceiling shall be updated at the Consultant discretion and shall be become an eligible expenditure under the Agreement.

B. Schedule of Payments

The schedule of payments is specified below:

75% of the total fees of [redacted]

[redacted] upon the signature of this Agreement by the Parties;

25% of the total fees of [redacted] upon receipt of the Consultants financial report showing that 70% of the initial instalment has been expended.

[redacted] *in total*

C. Payment Conditions

Payment shall be made in United States Dollars no later than 30 days following submission by the Consultant of invoices in duplicate to the Coordinator designated in paragraph 4.

4. Project Administration

A. Coordinator.

The Client designates [redacted] as Client's Coordinator; the Coordinator will be responsible for the coordination of activities under this Contract, for acceptance and approval of the reports and of other deliverables by the Client and for receiving and certifying invoices for the payment.

B. Reports.

The reports listed in Annex C, "Consultant's Reporting Obligations," shall be submitted in the course of the assignment, and will constitute the basis for the payments to be made under paragraph 3.

5. Performance Standards

The Consultant undertakes to perform the Services with the highest standards of professional and ethical competence and integrity. The Consultant shall promptly replace any employees assigned under this Contract that the Client considers unsatisfactory.

6. Confidentiality

The Consultants shall not, during the term of this Contract and within two years after its expiration, disclose any proprietary or confidential information relating to the Services, this Contract or the Client's business or operations without the prior written consent of the Client.

7.	**Ownership of Material**	Any studies reports or other material, graphic, software or otherwise, prepared by the Consultant for the Client under the Contract shall belong to and remain the property of the Client. The Consultant may retain a copy of such documents and software. All procurement shall be done exclusively under the rules and regulations and procedures of the Consultant.
8.	**Consultant Not to be Engaged in Certain Activities**	The Consultant agrees that, during the term of this Contract and after its termination, the Consultant and any entity affiliated with the Consultant, shall be disqualified from providing goods, works or services (other than the Services and any continuation thereof) for any project resulting from or closely related to the Services.
9.	**Insurance**	The Consultant will be responsible for taking out any appropriate insurance coverage.
10.	**Assignment**	The Consultant shall not assign this Contract or sub-contract any portion of it without the Client's prior written consent.
11.	**Hierarchy**	The Parties agree that the Annexes form an integral part of the Agreement. However, the Parties also agree that this main body of the Agreement shall prevail the Annexes in case of discrepancy between both sections
12.	**Dispute Resolution**	Any dispute arising out of the Contract, which cannot be amicably settled between the parties in accordance with UNCITRAL Rules for that purpose, shall be referred to arbitration in accordance with UNCITRAL Rules for Arbitration.

FOR THE CLIENT	FOR THE CONSULTANT
Signed by _____	Signed by _____
Title: _____	Title: _____

ANNEX A: TERMS OF REFERENCE

THE MANAGEMENT AND SUPERVISION OF CONSTRUCTION OF 20 SCHOOLS

1.0 BACKGROUND

The Client has established a Special Fund to give the Government of Liberia's development Partners the option of funding components of the L-PERP through a pooled mechanism. The Client intends to apply part of the Pooled Fund to payments under a Contract for construction of 20 schools.

2.0 **OBJECTIVES**

The overall objective for the assignment is to provide technical and financial supervision in order to ensure that the construction and completion under the contract for the schools are carried out in accordance with the contract and to the satisfaction of the client. [redacted] shall be appointed "Project Manager" as defined in the contract documents for the works.

3.0 **SCOPE OF SERVICES**

The Consultant shall provide project management services for the construction works from the preparation of bid documents, evaluation of bids stage, through contract negotiation stage to completion of the works and final handover of completed Schools.

The Consultant shall provide construction supervision as described hereinafter including the provision of qualified experienced personnel, management, co-ordination and efficient execution of the works.

The Consultant shall enter into agreement with the other relevant consultants and to co-ordinate the work of these consultants, giving instructions thereto and to ensure sufficient compliance in all respects of the works done by the Contractors.

The Consultant shall establish and manage the Client's requirements, organize and co-ordinate the site/project meetings, undertake regular reporting on the works and monitor and report on all financial matters of the project.

The Consultant is to supervise the works and approve materials and workmanship of the works. This shall be done in co-operation and consultation with the Client, and the Consultant shall have the authority to relieve the contractor of any of his duties or obligations under the contract.

4.0 Duties of the Consultant

4.1 <u>Assistance with Procurement of the Works Contractor</u>

4.1.1 The Consultant shall assist the Client in the bidding process and award of the contract for the construction and completion works. The assistance shall include:

- Prepare and advertise the Tender
- Sale of Tender document
- Responding to bidders' request for clarification;
- Drafting any amendments to the bidding documents;
- Review and evaluation of the technical components of bids
- Drafting the conformed contract document: and
- Any other services required to engage the works contractor

Procurement shall be done exclusively in accordance with the Consultant rules and regulation and procedures.

4.2 Construction Supervision Services

4.2.1 Following award of the Contract(s) for the construction of the works, the Consultant shall act as the Project Manager (as defined in the SBDs) to supervise the execution of the construction works and administer the contract on behalf of the Client.

4.2.2 As the Project Manager, the Consultant's obligations shall include:

- Coordinating the implementation of the project to ensure the works are constructed in accordance with the contract requirements and within the specified time schedule and cost estimates.
- Ensuring sound professional standards are applied to all phases of the work
- implement quality control and assurance procedures including material testing
- administering financial control including certifying payments to the contractor
- Preparation of financial and progress and other reports. The final financial report for expenditures incurred for [redacted] services under this contract shall not be issued before 31 March of the following year after completion of the project and Services under the Agreement
- Liaising with the Client and advising on areas of concerns, potential delays or cost increases
- Maintaining the site diary of events
- Checking that the works are correctly set out
- Inspecting, checking and supervising the works

- Measuring the work performed
- Authorizing and certifying “day works”
- Arranging the testing, commissioning, acceptance and handover of the works on completion
- Ensuring provision and accuracy of “as-built” drawings to be supplied by the contractor
- Handling all matters arising under the construction contract in accordance with the works contract

4.2.3 The Consultant shall provide all resources, including all personnel, office accommodation, transportation, equipment etc. necessary to satisfactorily accomplish the supervision of the construction.

4.3 Defects Liability Period

The Consultant shall:

(i) Provide inspection of the Contractor’s operations after the Defects Liability period before and after the defects are corrected; and the Final Acceptance Certificate (PAC).

(ii) Ensure that the Contractors finalize all outstanding construction matters and complete all the as-built drawings;

(iii) Monitor the Contractor’s operations and be responsible for issuing any required certificates during the remaining 2 months of the Defects Liability period following the completion of the 20 schools.

5.0 Time Frame

The Consultant shall meet the following schedule;

Activity	Duration
Anticipated period for procurement of civil works:	1 month after the Consultant delivers the technical bidding documentation
Anticipated construction period:	4 - 6 months duration following award of the civil works contract
Defect Liability Period	2 months

6. **Consultant Site Personnel and Establishment**

6.1 Composition of the Supervision Team**.**

(i) The Consultant shall provide the following personnel on and off site in accordance with the suggested establishment for the inputs required.

1 Country Manager
1 Infrastructure Project Manager
1 Operations Manager
20 Site Supervisors (100%)
1 Administrative Assistant
1 Office Assistant
1 Driver
Support staff from KEOC office

MOE OBLIGATIONS

a. The Client shall pay to [redacted] (19%) of the total project cost as attached in Annex D to support staffing (engineers and project officers), technical assessment and operational expenses.

b. The Client will take, or cause to be taken, all actions necessary or appropriate to enable [redacted] to perform its obligations under this Agreement, and not take, or permit to be taken, any action which would prevent, or interfere with such performance;

c. Ensure that the concerned Client officials in the counties, departments and agencies collaborate with [redacted], *inter alia,* for purposes of the implementation of the Project and the Sub-projects that fall within their respective sectors; and

Annex B: Consultant's Personnel

Please provide Personnel details for the work

The Country Manager will at a higher level from time to time represent [redacted] in the discussions of activities related to the school construction project at the Ministry of Education and donors and sign off on reports.

The Infrastructure Project Manager is directly involved with the implementation of the school construction project on a daily basis. Monitors the Site Supervisors and contractors. Compiles reports and technically advises for smooth and better implementation to ensure quality control and timely delivery of project. Represents [redacted] at project technical coordination meetings, reports accordingly and makes recommendations for changes in project implementation.

The Operations Manager is partly involved with the school construction project in the preparing of administrative, financial, logistics and security documentations; and advises on these issues at the appropriate times for appropriate implementation.

The Site Supervisors are directly involved with the school construction project. They spend their full time on site during works to monitor the contractors' works, to ensure that works are done in keeping with drawings and specifications provided to the acceptable standards and report on all activities on site weekly or whenever advised.

The Administrative Assistant is partly involved with the school construction project. Assists with the preparation and follow up on administrative and logistics issues that have to do with project staff and activities and report accordingly for the appropriate action.

The Office Assistant is partly involved with the school construction project. Receives and files documents as they relate to the project procedures and produces all printed or duplicated documents for this project among other related activities.

The Driver is partly involved with the school construction project. Prepares logistical needs and drives the project staff to and from each site, ensures the safety of the vehicle and other project related supplies.

Annex C: Consultant's Reporting Obligations

The Consultant shall submit detailed progress reports each month and shall submit a final report within one month of the completion of the services. The progress reports shall contain an update of personnel providing the services, details of progress of both the consultancy services and during the construction phase, that of the works contractor and all foreseen difficulties and proposed resolution of these.

Specific Reports:

- Inception Report during the fourth week after taking on the assignment
- Evaluation Report for the procurement of a contractors
- Monthly Reports
- Final Completion of Works

ANNEX D: Total Project Budget

CATEGORY	UNIT COST	# OF UNIT	# months	TOTAL COST	% exp/total	Party to incur expenditure
1. CONSTRUCTION						
1.1 Schools	84,000	20	1	1,680,000		Client
1.2 Wells & hand pumps	2,500	20	1	50,000		Client
1.3 Pits Latrines	9,900	20	1	198,000		Client
1.4 Site clearance	1,000	20	1	20,000		Client
1.5 Reimbursables	10,000	1	1	32,203		UNOPS
Sub Total				1,980,203		
1.6 Contingency			10%	198,020		Client
Total Construction				2,178,223	82%	
2. SUPERVISION						
2.1 Site supervision (1/county)	1,100	20	5	110,000		UNOPS
2.2 Supervision transport	100	20	5	10,000		UNOPS
2.3 Communication	20	20	5	2,000		UNOPS
2.4 Local supplies	25	20	5	2,500		UNOPS
2.5 Local Travel supervision CO	400	11	6	26,400		UNOPS
Total Supervision				150,900	6%	
3. Management, Monitoring & Evaluation						
3.1 Management/ Technical Support	19,000		6	114,000		UNOPS
3.2 Operation cost	2,000		6	12,000		UNOPS
Total Management, M & E				126,000	5%	
SUB TOTAL				2,455,123		
UNOPS Fee (8%)				196,410	7%	UNOPS
TOTAL				2,651,533	100%	

ANNEX E – Delineation of Responsibilities

This Agreement contemplates a number of services for each of the components of the project, namely: (1) contracting of individual consultants and (2) procurement of works.

1 Individual Consultants (Project Manager, Site Supervisors)

The responsibilities of the Client and [redacted] with respect to engaging individual consultants shall be:

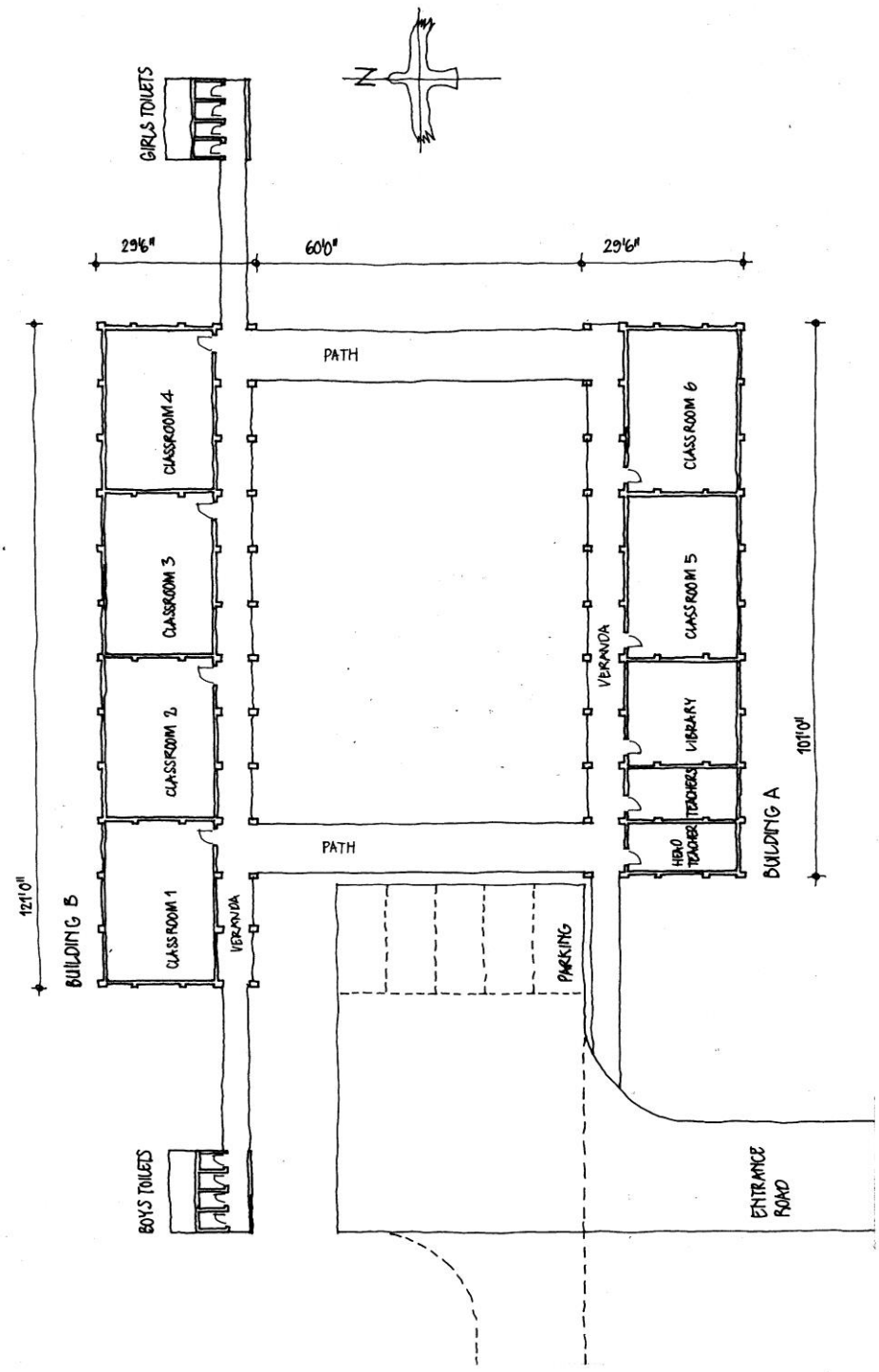
Client	[redacted]	**Activity**
	x	Preparation of draft Terms of Reference
	x	Selection of consultants
	x	Negotiation and signing of contracts
	x	Contract administration, including travel authorization/arrangements
	x	Technical supervision of consultants
(x)	x	Evaluation of work-progress
	x	Payment

2. Procurement of Works

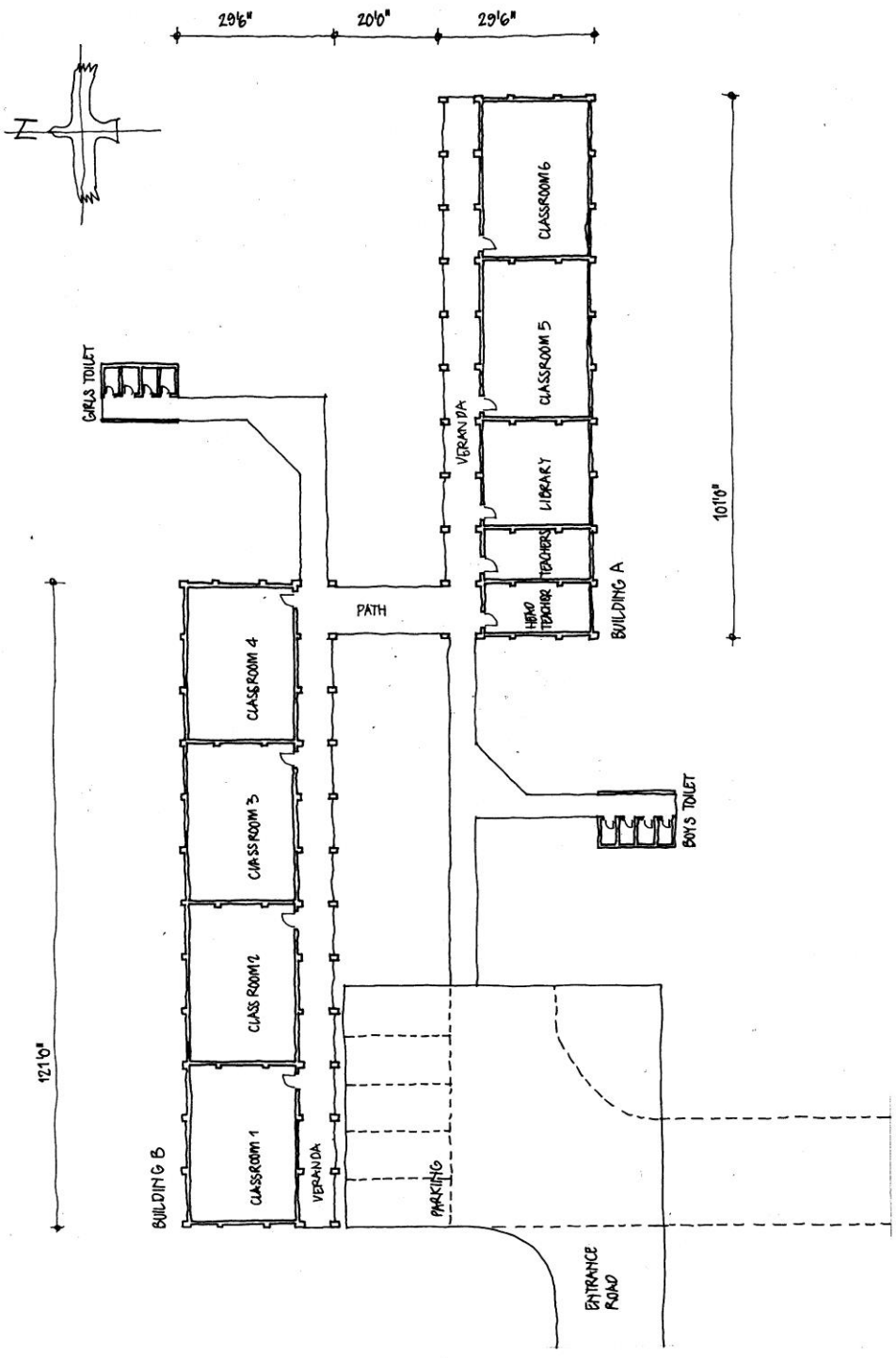
The responsibilities of the Client and [redacted] with respect to procuring works shall be as follows:

Client	[redacted]	**Activity**
(x)	x	Preparation of draft tender documents
	x	Review/revision of tender documents
	x	Advertising (if required)
	x	Prequalification (if required)
	x	Preparation of proposed shortlist
X		Concurrence with shortlist
	x	Issuance of tender
(x)	x	Evaluation of Bids
	x	Recommendation for award of contract
	x	Contract, preparation, negotiation
X		Signature of contract
X	x	
	x	Contract administration
	x	Technical monitoring of Contract and certification of works
	x	Final Certification of Completion of Work
X		Acceptance of handover of completed school

ANNEX 3: Typical Site Layouts



Possible site layout 1



Possible site layout 2

Note: site layouts will depend on the size and shape of the site; every effort should be made however to orient the buildings so that the long window walls face north/south.

ANNEX 4: School Infrastructure Survey Questionnaire

School Infrastructure Survey 2009/2010

Identification Details

County	
District	
Village	
Name of School	
School Code	
Telephone no	
Email address	

Surveyor Identification	
Date of interview	
Surveyor name	
Date checked	
Respondent Identification	
Contact name	
Job title	

Introduction

To the Head Teacher:

The Ministry of Education is conducting a survey of the infrastructure at selected schools and the survey team is at your school to carry out a survey and ask you some questions about your school's infrastructure and facilities.

It should be pointed out that the undertaking of this survey is in itself not an indication that the Ministry of Education will be undertaking a construction programme at your school. Your co-operation will be greatly appreciated.

Notes to Surveyor:

Please note the current enrolment for each programme being taught at the school ie pre-primary, primary and junior secondary (there should not be any senior secondary pupils at the schools selected) as a check on the school census figures (*Section 1*).

Please note the name of the nearest other primary school and the distance from the school being surveyed (*Section 2: 2.1 and 2.2*)

The schools selected for possible inclusion in the 2009/2010 school reconstruction programme all have, according to the latest school census results, semi-solid or makeshift classrooms and other facilities. It is not necessary therefore to carry out detailed surveys of these buildings as they will eventually be replaced.

You should however take note of the outside dimensions of the buildings and also note what rooms they contain i.e. four classrooms or school office, etc. You should also show the position and size of the buildings on the sketch plan of the site so it is possible to see whether new buildings can be constructed on the site before the existing buildings are demolished (*Section 5*).

If the census data is wrong and there are permanent (solid) buildings on the site note the size and condition of these buildings and what rooms they contain and complete the details for each building on the form below (*Section 3: 3.1, 3.2 and 3.3*).

Section 1: Current Enrolment

Pre-school		Primary school		Junior secondary school	
Girls	Boys	Girls	Boys	Girls	Boys
Numbers					

Table 1: Current enrolment for each programme level (*enter numbers in boxes*)

Section 2: School Site and Services

2.1 What is the distance to the nearest other primary school? (*answer in miles)*.....

2.2 What is the name of the nearest primary school?.....

2.3 State ownership of site (*circle number below*)

1. Government Land 2. Community Land 3. Private Land

2.4 Are there any sports field or playgrounds? (*circle answer*) Yes No

If yes, please describe: .....

2.5 What services are available on the site?

Service	Available		Reliable	
	Yes	No	Yes	No
Town Power				
Generator				
Solar Power				
Telephone				

Table 2: Services available on site (*enter answers in boxes*)

2.6 Is a water supply available on the site and if so where from? (*circle number below*)

1. Stream or river 2. Well 3. Piped water supply

2.7 Is there a reliable working pump? (*circle answers*) Yes No

If yes, indicate type: 1. Hand pump 2. Diesel pump 3. Electrical pump

2.8 Is there a reliable water supply all year? (*circle answer*) Yes No

If no, when do shortages occur? (*circle months*)

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec

2.9 What type of toilets does the school have? (*circle number below*)

1. Flush toilets 2. Pit latrines 3. VIP latrines 4. None

2.10 How many toilets are in working order? (*indicate numbers below*)

Number of Toilets	Male	Female
Pupils		
Teachers		

Table 3: Working toilets

2.11 Are girls' toilets located away from boys' toilets? (*circle answer*)Yes No

2.12 Are there functioning washing facilities near toilets ie water tank or piped water? (*insert answers*)

Washing Facilities	Yes	No
For teachers		
For girls		
For boys		

Table 4: Washing facilities

Section 3: School Facilities

3.1 Indicate the number and type of existing buildings (*complete table below*)

Type of Construction	Buildings (*indicate number of buildings of each type)*	Number of classrooms, offices, etc in each building (*indicate number and type of rooms)*
Temporary/Makeshift (*stick and mud and thatched roof*)		
Semi-permanent (*mud blocks and thatched or corrugated steel roof)*		
Permanent (*concrete or stabilised soil blocks and corrugated steel roof*)		

Table 5: Information on existing buildings

3.2 Information on condition of any permanent buildings (*complete table below)*

Condition Category	Building 1	Building 2	Building 3	Building 4, etc
1.Good (*minor repairs*)				
2.Poor (*major repairs)*				
3.Bad (*demolish and re-build)*				

Table 6: Condition of Permanent Buildings

3.3 Information on facilities in any permanent buildings in Categories 1 and 2 above (*complete table below ignoring any Category 3 buildings that require demolition*)

Facilities	Building 1	Building 2	Building 3	Building 4 etc
Classrooms *(state number)*				
Head teacher's office				
Staff office				
Store				
Library				
Other				

Table 7: Facilities in Permanent Buildings

3.4 Does the school need any additional facilities? *(circle answer)* Yes No

If yes, what facilities are required .....

.....

Section 4: Site Information

4.1 Indicate the size of the site in square feet .....

4.2 Is the size of the site adequate for the existing buildings? (*circle answer*)

Yes No

4.3 Is the size of the site adequate for any additional buildings that are required? (*circle answer*)

Yes No

4.4 Describe the site (*circle number below*)

1. Flat 2. Gently sloping 3. Steeply sloping

4.5 Describe the condition of the site. (*circle number below*)

1. Rocky 2. Good load-bearing soil 3. Swampy or soft ground

4.6 Is there any danger of flooding? (*circle answer*) Yes No

4.7 Is there any danger of earth slips, landslides, etc? (*circle answer*)Yes No

4.8 Are there any large or dangerous trees? (*circle answer*) Yes No

4.9 Are there any power cables crossing the site? (*circle answer*) Yes No

Note: If the answer is yes to either 4.8 or 4.9 or please indicate positions on sketch site plan

4.10 Is this site a suitable location for the existing school and any new buildings or should it be abandoned (*circle answer*)

Yes No

Please comment on any other factors affecting the site.....

.....

Section 5: Site Plan

5.1 Draw a sketch plan of the school site showing the dimensions of the perimeter of the site, all existing buildings in their approximate position (with approximate sizes and dimensions to the perimeter and to each other), services, roads, paths, drains, large trees, beaches, rivers or streams, buildings on adjoining sites and any other notable features. Please show at least approximate north point.

ANNEX 5: Terms of Reference for a Consultant Architect to Provide Short-Term Technical Assistance to the Division of Educational Facilities in the Ministry of Education in the Republic of Liberia

BACKGROUND TO THE PROPOSED TECHNICAL ASSISTANCE

Liberia's primary schools experienced massive destruction during the recent civil war and there has been no large-scale primary school construction or renovation project since the early 1980s. The needs of the primary sector in terms of the numbers of classrooms that have to be reconstructed or constructed are therefore very large.

The Ministry of Education (MOE) developed the Liberia Primary Education Recovery Program (L-PERP) in March 2007 to meet the challenge of rebuilding Liberia's education system. The L-PERP represents a collaborative effort on the part of MOE and its partners to mobilize resources and harmonise actions to implement a medium-term development strategy for primary education.

The original LPERP targets in terms of infrastructure were based on assumptions about the capacity of the education system to plan, procure and construct additional classroom spaces and make needed improvements to existing schools and it is now clear that these targets, low though they are when compared to the actual needs, will not be met.

It is now planned to construct only 240 classrooms together with latrines, wells and pumps in 2008/2009 due to limitations in time, capacity and funding and it is planned to construct a further 360 classrooms together with latrines, wells and pumps in 2009/2010.

THE ROLE OF THE MINISTRY OF EDUCATION

The role of the Ministry of Education (MOE) should be to manage the education system not to set itself up as an agency carrying out the construction of educational facilities and it is not considered either necessary or practical therefore to build up the Division of Educational Facilities (DEF) to a level where it can manage the actual construction of schools in major school construction programmes.

One of the tasks of the DEF should be to monitor and oversee school construction programmes but its current staffing level is low and its capacity to do so is doubtful. There is an urgent need therefore to increase the capacity of the

DEF to carry out its proposed role within the MOE and in the development of the country.

OBJECTIVES OF THE CONSULTANCY

An experienced consultant architect is required to work in the DEF to assist with the supervision of the 2008/2009 primary school construction programme and with the surveying and selection of schools for the 2009/2010 primary school construction programme and to provide capacity building and training for DEF staff as necessary to enable them to carry out these tasks.

SCOPE OF SERVICES

The consultant will be required to:

- Assist the DEF in the management and monitoring of the 2008/2009 primary school construction programme specifically in the monitoring of the work of [redacted] and [redacted] who will be managing the actual construction work to ensure that they are constructing schools to the required standards and quality and in the right locations.

- Assist the DEF in the carrying out of surveys of schools to be included in the 2009/2010 primary school construction programme. This work needs to be carried out before the next rainy season in order that the construction programme does not face the same problems as the current programme.

Specifically the consultant will draw up guidelines for DEF staff on what to check at each stage of the construction work during site visits and give practical advice to DEF staff during visits to construction sites. He/she will also draw up guidelines on monitoring the work of the consultants supervising the construction work and on the writing up of site visit reports.

The consultant will also provide training in and give practical demonstrations of the completion of the survey document to be used when surveying the schools to be included in the 2009/2010 primary school construction programme and assist the DEF in the final selection of the schools.

The consultant will work together with the Director of the Division of Education Facilities and his staff.

QUALIFICATIONS & EXPERIENCE

The consultant architect should have internationally recognised qualifications including a master's degree in architecture and a professional qualification recognised in the country where he/she is resident.

He/she should have a minimum of 8 years professional experience with some experience in managing projects in the developing world. He/she should also have experience of the design and construction of educational facilities in tropical developing countries. Preference will be given to candidates with experience of managing projects in post-conflict countries.

The consultant architect should be proficient in CAD programmes and be able to pass on these skills to the staff of the DEF. He/she should also be fluent in written and spoken English.

OUTPUTS

The consultant's outputs will include but not be restricted to:

- Guidelines for the use of DEF staff in monitoring the work of the contractors and supervisors involved in the 2008/2009 school construction programme.
- Training workshops and practical training in the use of the survey documentation to be used in surveying and recording data at the primary schools to be included in the 2009/2010 school construction programme.

CONTRACT CONDITIONS

The contract period will be six months.

The consultant will be based in the offices of the DEF in Monrovia but will be expected to travel around the country to inspect schools, construction sites, etc.

The consultant will report to the Deputy Minister for Planning, Research and Development in the Ministry of Education of the Government of the Republic of Liberia.

The consultant will provide monthly reports to the Deputy Minister on the progress of his assignment including workshops and training programmes held, schools surveyed, visits to school construction sites, etc.

ANNEX 6: Terms of Reference for a Consultant to Implement a School Mapping Programme for the Ministry of Education in the Republic of Liberia

Background

Liberia is in a post-conflict situation and many primary school facilities have been badly damaged or destroyed, there has been virtually no primary school construction for over 20 years and the needs are therefore enormous: anything between 9,000 and 10,000 plus classrooms are needed now and the demand is likely to increase rather than decrease over the coming years in line with the increase in population.

The Ministry of Education (MOE) developed the Liberia Primary Education Recovery Program (L-PERP) in March 2007 to meet the challenge of rebuilding Liberia's primary education system. The L-PERP represents a collaborative effort on the part of MOE and its partners to mobilize resources and harmonise actions to implement a medium-term development strategy for primary education.

It is crucial however that primary schools are only constructed or reconstructed in locations where there is a demand for them and that the schools constructed or reconstructed are of a size appropriate to the potential primary school population. To do otherwise will only waste very expensive and scarce resources.

It is essential therefore that a school mapping exercise is started as soon as possible to locate existing primary schools and provide the data for reconstructing and extending these schools where necessary and for locating any new primary schools that might be required.

Objectives

The objective of this assignment is to assist the MOE in the design and implementation of a school mapping programme based on international experience and best practice that will produce the information required to forecast present and future demand for pre-primary, primary and secondary education.

A secondary objective is to train MOE staff in school mapping techniques and in the need for and methods of updating school mapping data on an annual basis.

Scope of Services

The school mapping programme should not take the form of an expensive digital mapping exercise. There are existing digital maps of the country which show the positions of most of the existing schools and there is also data from the 2008/2009 school census (the next census is due to take place in March 2009) on school enrolment, pupils' ages, teachers, etc. These maps and the school data if combined with the general population data could form the basis for the preparation of district school maps which could then be used for planning purposes. The school data and school maps would however need to be updated on an annual basis if they are to remain an effective tool and training to MOE staff must be provided to ensure that this will happen.

Unfortunately the school districts which are the basis for the MOE school data are not the same as the administrative districts which are the basis for the general population data. These two sets of data need therefore to be combined so that the combined data can form the basis for district school maps.

Once the district school maps exist, these can then be updated annually using data collected from the school census and, using this data DEF and EMIS can start to put in place a school facilities register.

A great deal of work needs to be done to correlate the existing data, to provide any missing data and to start the preparation of district school maps and the MOE requires extensive technical assistance in carrying out these tasks. It is essential that this work is carried out before any major primary school reconstruction project is started in order that schools are not reconstructed, constructed or extended in the wrong locations and that the sites are large enough for the proposed schools.

It should be noted that, while the urgent need is for information on the primary (and pre-primary) school sector, the school mapping programme should also cover the secondary school sector.

For further details see Attachment 1: Guidelines for School Mapping

Qualifications

The consultant should have:

- A strong background in education economics, specializing in school mapping research and implementation;

- The ability to provide technical instruction, advice and support on the design of school mapping techniques and the use of school data and district school maps for educational planning purposes;
- Experience in developing and implementing school mapping programmes in developing countries;
- Experience of statistical analysis and mapping techniques (e.g. SPSS, GIS);
- Experience of providing advice within a development organization together with facilitation and communication skills;
- Experience in survey design and sampling techniques.

Reporting

The consultant will report to the Deputy Minister for Planning, Research and Development in the Ministry of Education.

ATTACHMENT 1: GUIDELINES FOR SCHOOL MAPPING

GENERAL

Before any education sector review is undertaken or education project started, there should if possible be a comprehensive database of all schools, pupils and teachers in the country available to educational planners and other parties involved in the planning process.

If this data is not available, it is essential that it is collected and made available to the educational planners and the way to do this is through the process of school mapping.

School maps are essential tools for educationalists preparing any sort of educational plan and for civil works specialists involved in the construction of new and the renovation of existing schools and should be part of the ongoing planning process. If the locations of schools, pupils and potential pupils are not known, it will not be possible to plan the construction of new, or renovation of existing schools in any logical and economic manner.

The school mapping and data collection programme should therefore establish the following information:

- The total number of existing schools at primary, junior and senior secondary levels in the public and private sectors, their capacity, physical condition and their exact geographical location.
- The present numbers of children of each sex of school-going age (at all levels), their distribution around the country and the actual numbers attending each school.
- The numbers of teachers available and teaching at each school, their qualifications and their distribution around the country.

In most countries some of this information will be already available and will only need collation and putting into a usable form. It is probable however that some of the information will not be available and this should be collected in a systematic manner.

Maps should be prepared to a large enough scale to show the location of schools, settlements, roads, railways, rivers, and other significant geographical features (the scale should probably not be less than 1:50,000). The maps should be of a size that is easily handled and should be based upon districts, sub-districts or the educational regions into which the country is divided. This last point is important because the maps and data should be updated annually by education department staff in each district or region and should be seen as part

of an ongoing process. The maps should if possible be prepared digitally and schools located with a GPS to give the greatest accuracy. In many countries digital maps will already have been prepared for a variety of functions and these should be located and used as base maps if at all possible.

Data should be collected on the current number of pupils and teachers and on the physical condition of the existing buildings, sites and services at each school and this should be cross-referenced to the schools located on the school maps.

THE SCHOOL MAPPING PROCESS

General

The education department or its consultants should collect and collate all available information on all schools in each region, district of sub-district as appropriate under the following headings:

- Location and type of all existing schools
- Present numbers of children (by sex) in each school
- Present numbers of teachers (and their qualifications) in each school
- Size and condition of all existing schools

Location of schools

School maps should be prepared to a scale of at least 1:50,000 for each region, district or sub-district as appropriate showing boundaries; rivers, bridges and roads; the accurate location of all schools of all types (government, private, religious, community schools, etc); and the size and location of all settlements, indicating if possible, the ones that the schools serve.

The size, condition and ownership of the existing site of each school should be established together with means of access i.e. whether by road or track, by vehicle (including buses) or foot, or by ship/canoe and the ease of access.

All schools should be given a serial number that will also be used in the tables setting out the school data. Government, private, religious, community schools, etc should be given different series of numbers such as G1, G2, G3, etc; P1, P2, P3, etc; R1, R2, R3, etc and C1, C2, C3, etc.

For individual schools, the distance from any other existing school of whatever level should also be established.

School children and teachers

The present numbers of children attending each school and the numbers in each class should be established by age and sex.

The present numbers of teachers and their qualifications in all schools should be established.

The number of children of school-going age in each settlement should also be established.

This information should be presented in tables cross-referenced to the school maps.

Size and Condition of schools

The date of construction of all schools should be established together with the numbers and types of all buildings i.e. classrooms, offices, stores, teachers' rooms, and staff housing.

The type of construction of all buildings should be listed together with their size, condition, any repairs that are required and the expected life of the building after repair. Any repairs recently carried out or planned to be carried out under any current school renovation projects, should also be noted.

The type, amount and general condition of any furniture and equipment should be listed. Any furniture or equipment recently supplied or scheduled for delivery in the current year should also be noted.

The existence of services such as piped water and electricity supplies should be noted together with comments on whether and when they operate. The existence of wells and their condition i.e. whether full or empty, covered or open or provided with a pump and storage tank or other water supply should also be noted. Any new water supplies recently provided or planned to be provided in the current year should also be noted.

The type (flush, latrine, pour-flush privy, VIP latrine, etc) and number of toilets on the site, their location and working order should be noted. Any toilets recently upgraded or built or planned to be upgraded or built in the current year should also be noted.

DETAILED INVENTORY FOR EACH SCHOOL

General

The following detailed information about the schools and buildings should be established.

General Data

- Location: district, locality, urban or rural area, address
- Property ownership: national, community, private
- Original purpose: constructed as school or constructed for another purpose and used for or adapted to, school use.
- School operations: number of schools using the buildings in morning, afternoon or night shifts.
- Other operations: community centre, assemblies, recreation, religious activities or hurricane shelter.
- Construction: built by Ministry of Education, Ministry of Works, private, community, religious organisation, other.
- Number and type of buildings:
- Date of construction of each building:
- Physical condition of each building: good, average or bad.

Administrative Data

- Number of school:
- Name of school:
- Code for school (should relate to school mapping codes):
- Tenure: owned, rented or lent: if rented, the monthly rent.
- Status, government or private:
- Enrolment: by school (if more than one uses the premises), level, grade, shift and sex.
- Number, sex and qualifications of teachers:

Site and Building Data

Site:

- Land: total area, building area.
- Possibilities for expansion.
- Basic services: drinking water, water source (piped supply, well, river or stream, rain water collection), drainage (sewer, septic tank), electricity (mains, generator), telephone.
- Sanitation: toilets (flush, pour-flush privies, VIP latrines, etc), boys, girls, staff, wash-basins, showers: indicate whether working or not working.

- A site plan should be prepared for the school showing the size and area of the site and the number and location of buildings.

Construction:

- Structure: concrete, concrete blocks, steel, timber.
- Walls: concrete blocks, brick, timber, stone, bamboo, etc.
- Roofs: concrete, corrugated metal sheets, asbestos sheets, tiles, thatch, etc.
- Floors: concrete, screed, tiles, timber, earth, etc.
- Windows: timber framed glazed, timber shutters, steel glazed, aluminium glazed.
- Finishes: walls (plaster, paint, tiles); ceilings (timber, soft-board, plywood, etc, painted).

Facilities:

- Teaching facilities: classrooms, multipurpose rooms, laboratories, workshops (home economics, business studies), workshops (metalwork, woodwork, etc), library, auditoria, etc. Give number, size, area, condition (good, average or bad) and construction system (see below).
- Administration: offices, stores, meeting rooms, etc. Give number, size, area, condition (good, average or bad) and construction system (see below).
- Sports facilities: gymnasium, playground, sports fields and courts. Give type, number and condition (good, average or bad).
- Other facilities: boarding accommodation (boys and girls), teachers' accommodation, caretaker's accommodation. Give number, size and condition (good, average or bad).
- School gardens or farm, agricultural and livestock facilities. Give area and whether in use.
- Comfort conditions: acoustics (noise), thermal (climate), natural lighting, artificial lighting, natural or mechanical ventilation, solar penetration. Give comfort conditions for each item (good, average or bad).

Equipment:

- Workshops: tools, equipment and materials (number and condition).
- Laboratories: installations, equipment and materials (number and condition).
- Other specialised spaces: furniture, equipment and materials (number and condition).
- Audio and visual equipment (number and condition).

Furniture

- Students' furniture: chairs, desks, tables, benches, combined desks/chairs (number and condition).
- Teachers' furniture: chairs, tables, desks, etc (number and condition).
- General furniture: moveable chalkboards, cupboards, shelf units, bookcases, filing cabinets, tables, etc (number and condition).

Supplementary data

The following supplementary data should be collected if possible:

Students

- Place of residence: in local community, distant community, etc.
- Travel time to school:
- Type of transport: by foot, bus, etc.

Teachers

- Residence: on school site, in local community, etc.
- Type of house: permanent or temporary, owned or rented, or belonging to the school.

School

- Location: within or outside community served.
- Activities other than formal schooling operating in school: PTA, community association, etc.
- Maintenance and repairs: carried out by education department, public works department, PTA, community, school, etc.

Community

- Type of settlement: age, permanent, temporary, etc.
- Population: adults, school age children, etc.
- Main economic activity: farming, fishing, local industry, etc.
- Services available: piped water, electricity, telephone, storm drains, sewers, public transport, etc.
- Potential for natural disasters: cyclones, earthquakes, landslides, floods, etc (type, magnitude and frequency).
- Other facilities available for education: churches, mosques, theatres, community halls, etc.

ANNEX 7: Preliminary Proposals for a 'Roof and Floor' Solution

A preliminary proposal has been developed for budgeting purposes for a 'roof and floor' solution. This solution envisages a programme of primary school classroom construction in the more heavily populated and accessible parts of the country. The programme would run for a number of years (the time-span and the number of classrooms to be constructed to be determined) and would be put out to international competitive bidding to interested steelwork suppliers and international contractors.

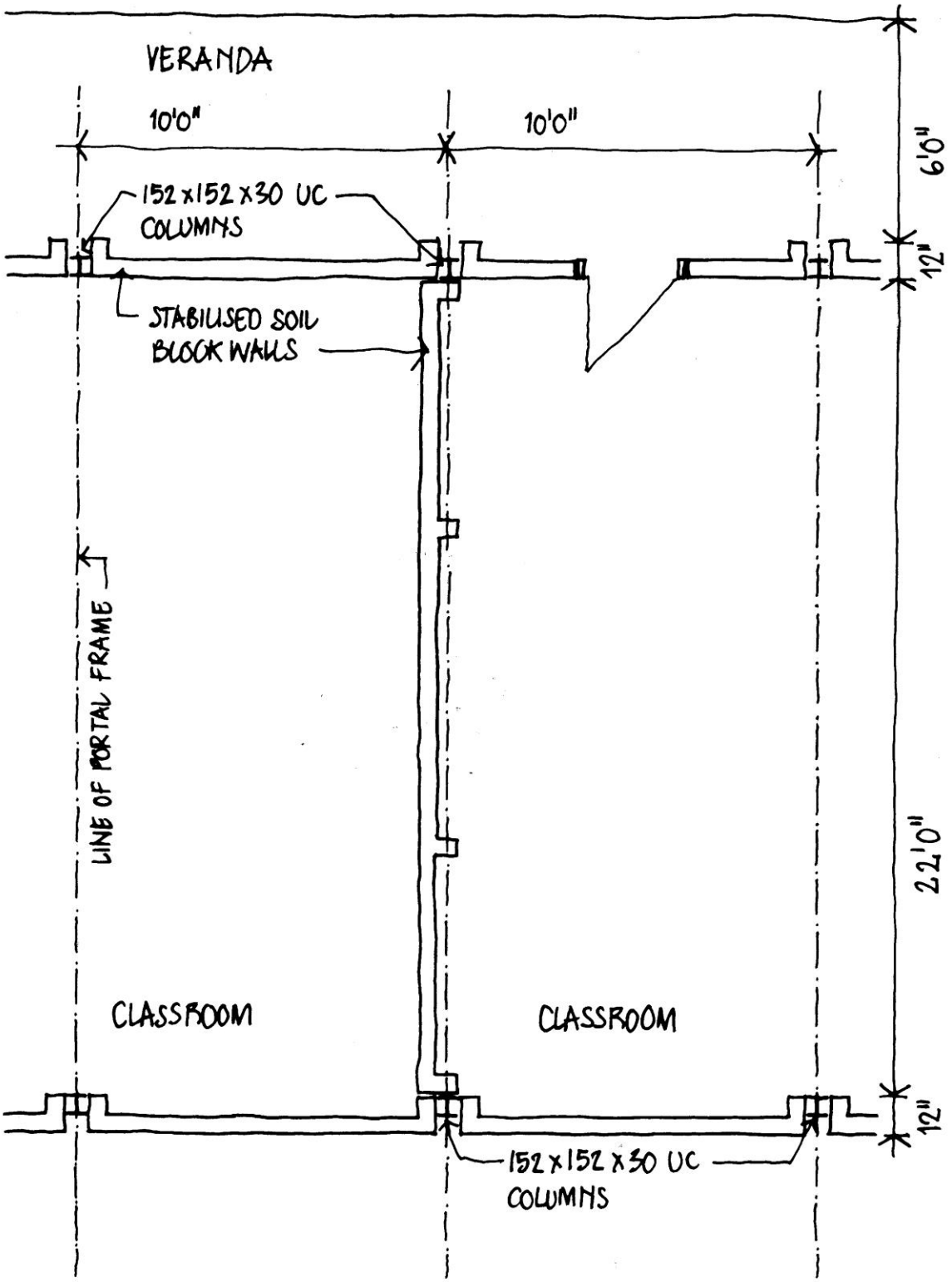
The programme would only construct good quality floors (of concrete) and roofs with integral ceilings for standard classroom buildings at each school site. These buildings would be completed by local communities constructing infill walls with windows and doors out of local materials.

The programme would combine the benefits of the quality, speed and efficiency of an ICB project with the local ownership of a community-based project. An internationally-based contractor procured through an ICB process would construct good quality self-finished concrete floors and procure and erect the necessary steel structures and integral ceilings. These basic structures should have a useful life of at least 30 years.

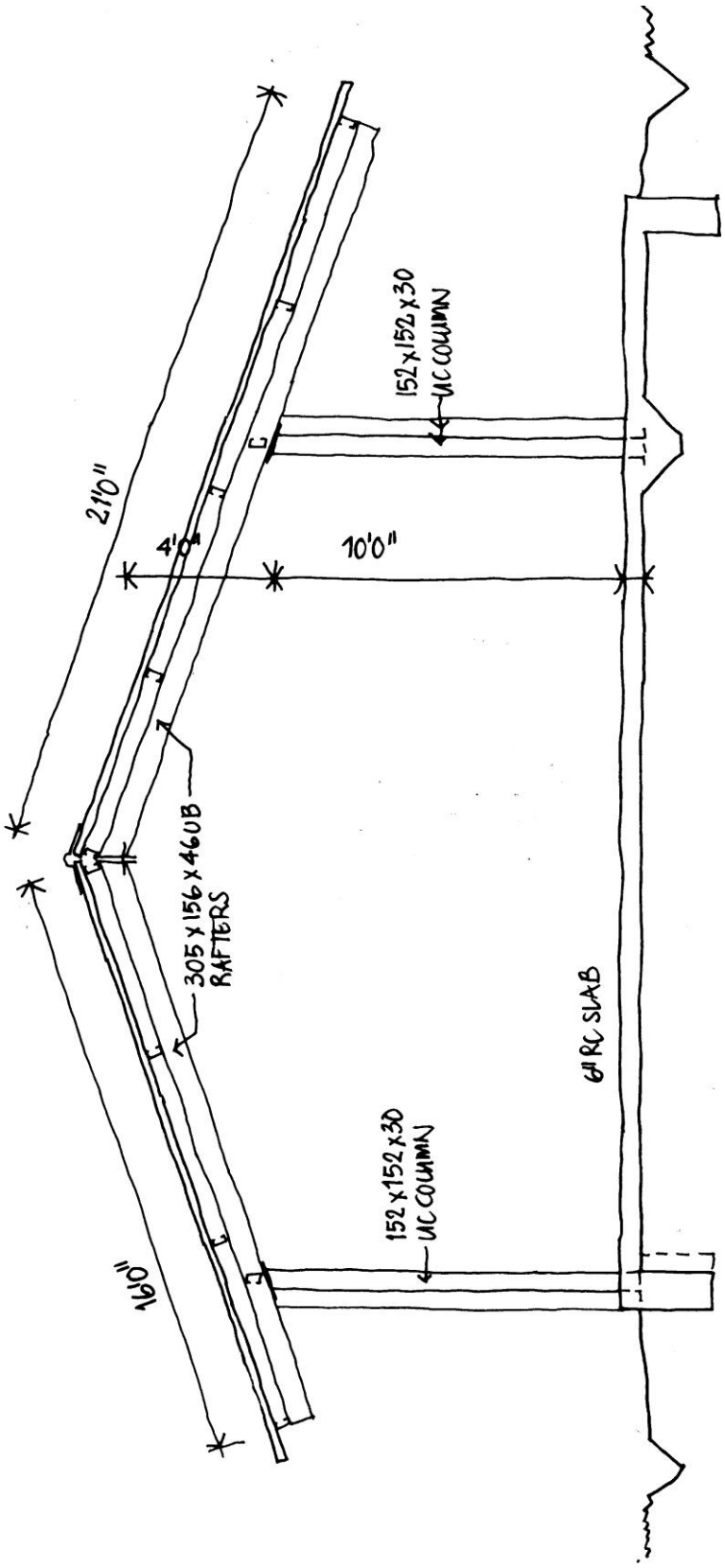
The infill structure comprising walls, doors and windows would be constructed by local artisans managed by local communities with the help of a technical assistance programme. The infill structure would be constructed as far as possible of locally available materials and would not have as long a life as the main structure. It would however be possible for the community to maintain and replace as necessary the infill structure as it would be constructed of local materials. It would also be possible to adapt the buildings and change the internal layouts if this was so required during the life of the main structures.

The cost of the steel structure, roof and ceiling for a standard two building, six-classroom primary school with an office and store for the head teacher and a teachers' room would be in the region of US$73,000. Onto this would have to be added the cost of the floor slab, the erection of the steel structure and the cost of the infill walls, doors and windows and more work needs to be done in Liberia to establish these costs. This would not therefore be a very cheap solution but it would provide high-quality, long-life galvanised structural elements (which would not require painting), roofs, ceilings and floors. It would also only be suitable for easily accessed and relatively flat sites.

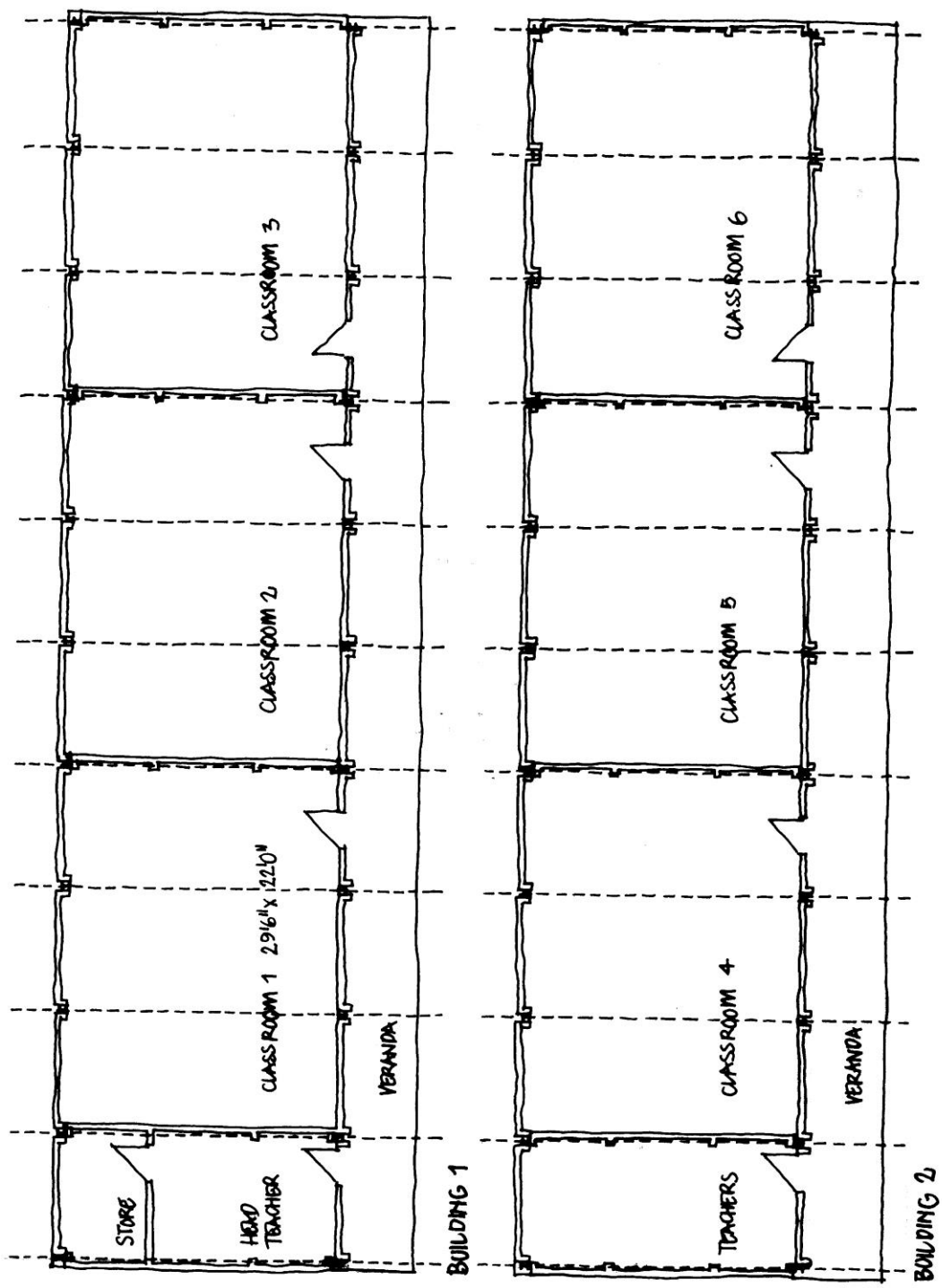
See attached drawings for preliminary structural designs for these buildings.



Drawing 1: Typical structural bay showing steel columns and infill walls



Drawing 2: Typical section showing steel frame and concrete floor



Drawing 3: Structural layouts for the two standard buildings for a 6-classroom primary school