# Improved Health Training Education in Malawian Nursing Schools

# Independent Mid-Term Review

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HLSP International Consultancy

Commissioned by the Royal Norwegian Embassy, Lilongwe

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**July 2008**

Report submitted to the Royal Norwegian Embassy in Lilongwe

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## Acronyms

| | |
|---|---|
| CHAM | Christian Health Association of Malawi |
| GOM | Government of Malawi |
| HRD | Human Resource Development |
| HRH | Human Resources for Health |
| HRM | Human Resource Management |
| KCN | Kamuzu College of Nursing |
| MOH | Ministry of Health |
| MTR | Mid-Term Review |
| NANM | National Association of Nurses and Midwives of Malawi |
| NCA | Norwegian Church Aid |
| NMCM | Nurses and Midwives Council of Malawi |
| NOK | Norwegian Kroner |
| PBL | Problem-Based Learning |
| RNE | Royal Norwegian Embassy |
| TA | Technical Assistance |
| TC | Technical Cooperation |
| TOT | Training of Trainers |

# Executive Summary

This Executive Summary integrates the three elements covered during this Mid-Term Review: the development of new infrastructure, the initiatives to improve the quality of training, and the project design and implementation. The main recommendations for the reports are summarised here too. Recommendations will be shown in *italics*.

## Infrastructure component

Over 60 individual construction projects have been initiated at the 9 colleges by NCA since 2005 under this programme. The project budget of 54.5 million NOK has enabled a significant proportion of the facilities, identified in the CHAM led Needs Assessment of 2005, to be realised. In retrospect it is clear that the project design should have been stronger. However, as the budget for construction was fixed at the Assessment Stage, without any data on the realistic market costs for the construction, or fully developed building plans, the programme has already made improvements to the quality of life for both students and staff with the resources available. In a relatively short time, a lot of progress has been made.

The NCA and its architectural and engineering consultants have been fully engaged with CHAM and the management committees and governing boards at each of the colleges. This interactive and participatory approach has manifested itself in the excellent working relationships that are apparent between all the stakeholders and the resulting stock of new buildings.

The quality of the construction has generally been good. The awareness of long term sustainability and future maintenance, have resulted in a stock of buildings that should serve each college well for decades to come. Every attempt has been made by the design team to develop each college campus in a sensitive way with consideration for future expansion. However, before any further expansion is planned comprehensive master planning, which includes analysis of the functionality and management of the colleges, needs to be critically analysed.

At this MTR it appears that the programme is on target to complete all the committed and remaining construction contracts within the project budget and timeframe, though the challenge remains for each college to source further funding to enable all the recommended facilities to be built on each campus and critical items such as furniture and specialist equipment to be provided.

Some technical recommendations are included in Section 2 of this report and then in Annex 3, the technical annex on infrastructure. These are a few key recommendations that are more appropriate to the general management of the colleges and policy makers:

**Master Plan Surveys -** Full topographical site layouts are essential tools to ensure that long term planning can be carried out accurately. Site plans are also invaluable to plot key service routes for water and electricity assisting with campus management and maintenance. While colleges have been reluctant to have surveys carried out, as the survey costs are considered to be too high *it is strongly recommended that each college has a full survey carried out before any future building phases are planned.*

**Evaluation -** This MTR has been timely, as there are technical issues that can be improved and incorporated in the remaining infrastructure contracts. However, *an evaluation of how the buildings are performing a short time after they have been occupied would be valuable. This could be done around the time of the end-of-project evaluation*, and it should not only look at the technical quality of the

infrastructure but also assess the way people are using the buildings and whether or not they are functional.

**Sustainable Technology -** The project should be commended on its application of Stabilised Soil Block technology. *It is recommended that the same approach should be applied to water, sanitation and energy issues*. Given that the technical team includes one of the most prominent architectural firms in the country, the opportunity to promote sustainable technologies in these fields has been missed. *It is recommended that any future investment in the colleges should include more attention to water and energy saving installations.*

**Surtax -** Recovery of the surtax for a number of the contractors has been a problem. Every effort has been made to set up a workable system, right from the beginning of the project. NCA has continued to pursue the issue but it is questionably whether or not it is cost effective. Project budgets for infrastructure should always assume that tax should be included. Efficient recovery is a bonus. Inefficient recovery is a burden to the project.

**Has quality of nursing education improved?**

Numbers of Nurse Midwife Technician students more than doubled between 2004 and 2008, and the main increases in workload have been shared among 4 colleges (out of 10) who have more than trebled student numbers. Numbers of graduates have also increased and will continue to increase and probably surpass targets initially set by the Ministry of Health (MOH). Numbers of tutors and (especially) clinical instructors have not kept pace with the increases in student numbers as discussed in 3.2. This must surely have had a significant impact on the quality of NMT education, but such impact could not be assessed at this MTR in the absence of baseline information.

The project adopted a unique model to strengthen the quality of training that has worked well in terms of providing infrastructure, nurse tutors, training, study visits, nurse networking activities and teaching resources (books, computers, equipment for labs). Whether this approach has already resulted in improvements in training quality is harder to say. For a start the focus on the 6 defined focus areas of staff development, curriculum development, attraction and retention of nurses, teaching materials and methodologies, networking and Monitoring & Evaluation has been weak and largely input driven. Supervision and monitoring in between the delivery of project inputs has been particularly weak and ill defined. An additional problem has been that while each college is at different stages of development and capacity all 10 colleges have received (in terms of quality improvements, not infrastructure) the same generic project approach instead of a more individualised support focused on capabilities and needs.

There are a number of lessons from **project design**. The project was formulated as a pragmatic response to double capacity in nursing colleges within 5 years. While the objectives of the project were clearly defined in the project document it was much less clear how such objectives would be pursued and what specific strategies and activities would be used. Therefore NCA had to swiftly and pragmatically put together the building blocks of the project through needs assessment exercises that could have been more thorough. NCA also had to learn to work within a large number of Malawian and Norwegian institutions with different agendas and competencies. One of the implications of a very open (ambiguous) project design has been continued changes in the project approach, as described in section 4.

**Main report recommendations**

All the issues covered in this report suggest that much has been achieved to date for what we would call a first generation project, where design and planning had to be

largely improvised to cope with the fast expansion in nursing education. The nursing colleges and project have made a tremendous effort. In the opinion of the MTR the main characteristic of the second part of this project and of an eventual "second generation" project should be a renewed, better-planned and monitored focus on the **quality** of nursing education. Such renewed focus can be described by the following features:

a) **From a focus on inputs to a focus on results.** While training, study visits, improvements to skills labs and other inputs may continue, the project focus should shift to defining the results to be achieved in terms of improvements in the quality of nursing education in terms of staff development, curriculum development, skills to be acquired, etc. This will require better and different annual planning by NCA, by CHAM and by the nursing colleges to define measurable improvements to be achieved by end of each year in terms of nursing education. Other stakeholders like the MOH, the MNMA, the NMCM and the nursing college boards should support this effort.

b) **From generic to individual attention to each nursing college.** Each college is at a different stage of development. The generic "tea for all" approach whereby all colleges get essentially the same kind of inputs, support and supervision from the NCA project AS WELL AS from other stakeholders (CHAM, MNMA and NMCM) should give way to a more individualised support based on tailor-made plans developed by each nursing college.

c) **Principals develop individual annual college plans.** Some colleges already develop annual plans, but the plans we are referring to are those focusing on specific improvements that will be made to improve the quality of nursing education. Is it about submitting a revised training curriculum? Is it about space, written guidelines or equipment for the clinical (skills) lab? Is it about more focus on a realistic staff development plan? Is it about filling in vacant positions of nursing tutors or clinical instructors? Is it about defining what subjects will be included by PBL and producing the related case studies and guidelines to students? Is it about incorporating internet and helping students make searches on the internet, or about helping students make more and better use of the college library? These are just examples. What remains critical is that each college has a realistic, tailor-made plan, that the plan defines results, and that such plan becomes the basis for the NCA project individualised support as well as that from other stakeholders.

d) **More joined up work among project stakeholders.** Improving quality of training is a complex endeavour where different stakeholders should each play a role. The role of NCA as implementation agency should be that of a catalyst able to work in closer coordination with CHAM, MNMA and NMCM and to become more effective in helping these institutions better network with one another. These institutions should meet more regularly, and involve at times the MOH, the Principals or the nursing college Boards, but each of them should also look more closely at their own role and at their own performance. On the basis of more joined up, better coordinated work NCA should present to the Norwegian nursing colleges annual plans of work and proposals where Norwegian nurses complement and strengthen a local programme of work.

e) **More supervision, better planned and more supportive.** As colleges develop individual plans, the project and all its stakeholders will need to substantially improve the support and supervision that they provide to colleges. Our view is that the project should help various stakeholders –not

just NCA- improve their support to the colleges through support to supervision running costs. In this way the Norwegian funds should help develop essential institutional capacity in each of the institutions that share a responsibility for nursing education. Support and supervision will need quickly reach the colleges, so logistics and early planning by NCA will be key, or else colleges may lose faith in preparing annual plans that are not promptly supported. Supervision should focus on helping colleges achieve results. It is crucial that supervision and monitoring by NCA and CHAM involve the nursing college Boards much more, and not just the college Principals and tutors.

f) **Improved NCA Project Planning.** There is a need to review project planning cycles to better link with the Colleges own planning cycles, and to allow more time for Norwegian nurses to plan for and prepare their support to the project. NCA itself is likely to need more time to plan in this new scenario than we have presented, since it takes much less time to arrange for a study tour or a training workshop than to identify technical support needs for colleges and to become a real catalyst operating amidst different stakeholders. It is, in fact, almost an entirely new type of role for NCA. In addition NCA should increasingly focus project reporting on results.

g) **Issues for further consideration.** This report has pointed to additional areas for consideration by project stakeholders. These include:

- Adopting external examining procedures in all nursing colleges to oversee quality of training by peers;
- Develop a 4-week induction course for new nurse tutors joining the colleges and for existing tutors who need to improve their skills;
- Assess the possibility of having internet connectivity in all colleges, ensure that students have access to it and receive training in internet searches;
- Review with the MOH the adequacy of current levels of tuition fees, particularly in colleges where students go for clinical training outside the college campus;

# Section One: Introduction

## 1.1 Background

The Norwegian Government is funding a project called Improved Health Training in Malawi, implemented by Norwegian Church Aid in collaboration with the CHAM Secretariat and it was launched in November 2005.

Norwegian Church Aid (NCA) and the Royal Norwegian Embassy (RNE) in Lilongwe, Malawi, entered into a strategic partnership based on a transferred portfolio from Norad following the need, expressed by both the Christian Health Association of Malawi (CHAM) and the Ministry of Health (MOH), for Norwegian NGOs and University Colleges to support their Malawian counterparts. Amongst other projects, NCA established a six year Health Training project in 2005 that has been working for three years now, to counteract the crisis of shortage of qualified personnel in the health sector of Malawi.

The response to the health human resource crisis includes improving and enhancing the physical infrastructure of the church-owned Malawian health (nursing) training institutions, and building capacity of the same. This will increase the number of qualified health personnel, particularly nursing and midwifery technicians (NMT), and improve the quality of health training education in Malawi.

Vestfold University College (VUC), (chosen for its specific networking expertise over and above its other capacity-building capabilities), has established a network between nursing colleges in Norway and the Norwegian Nursing Association in order to support Malawian counterparts. This network was initiated after contact with the Malawian Ministry of Health (MoH) who clearly expressed the need for it. The six Norwegian colleges received a preliminary inquiry grant from the Norwegian Fredskorpset for developing a partnership between Norwegian and Malawian institutions. In June 2004 the Norwegian Fredskorpset funded a Pilot Project where 6 Norwegian university colleges met with 7 nursing training schools in Malawi in order to discuss the possibilities of joining hands in a network.

## 1.2 Purpose of the review

The RNE has been funding NCA since entering into the strategic partnership in 2005. This is now midway through the implementation of this project, but no independent review has been carried out to assess its implementation efficiency, appropriateness, relevance and effectiveness. It is a contractual requirement, under section 7.2, that mid a term review of the project shall be carried out to determine progress to-date and effectiveness of the project.

The Improved Health Training in Malawi project has now been operational for three years. The Royal Norwegian Embassy initiated the review of the project in order to:

- assess the design of the project vis a vis its appropriateness, efficiency, and effectiveness.

- come up with recommendations from it to improve the implementation of the project in the remaining years; since the evaluation is being instituted half way through the project implementation
- assess the relevance and effectiveness in terms of performance of the different stakeholders (CHAM, NCA, RNE, the Norwegian and Malawian nursing colleges).

Full terms of reference (TOR) are included as Annex 1.

### 1.3 Approach to the Mid-Term Review

Three consultants –one national and two international – implemented this Mid-Term Review.

The consultancy approach included:

- A review of available project documents prior to the trip to Malawi (see next `paragraph);
- Three days of document reading, itinerary preparation and interviews with main project stakeholders in Lilongwe, during which a checklist of issues to be addressed during our interviews was prepared, team responsibilities were discussed and individual tasks and approach were agreed;
- Seven days of travel during which all 10 Nursing Colleges in the North, South and Central regions of Malawi that have received support from the project were visited – in each college consultants visited the facilities and assessed progress with infrastructure, met the College Principal, interviewed one or two nursing tutors and informally spoke to a sample of students;
- Three days were spent in Lilongwe report writing and de-briefing – a PowerPoint presentation was made to main project stakeholders that included representatives from the RNE, NCA, CHAM, NMCM and NANM;[1]
- The draft report was put together by the MTR Team Leader, Quality Assured by HLSP Ltd and sent to the RNE in Lilongwe approximately 10 working days after the consultants left Malawi

This was the first external review of this project and, perhaps due to that reason the consultants experienced some difficulty in accessing key project documents on time, which somewhat compromised their ability to review the literature, design appropriate survey methods and present these to the Royal Norwegian Embassy in Malawi prior to the field visit, as the “Main Tasks” in the TOR require the consultants to do. Nevertheless both project stakeholders and consultants overcame this difficulty on arrival in Malawi where relevant documents were made available and reviewed, the list of key people to meet was updated and the itinerary was jointly put together.

From then on the work went on quite smoothly. NCA effectively coordinated the visits to the Nursing Colleges and two of their staff accompanied the consultants to all 10 Nursing Colleges. RNE arranged briefings and de-briefings in Lilongwe. CHAM sent a representative with the consultants during all the site visits and provided introductory letters for them. The presence of a competent National Consultant in the team was found extremely helpful by the international consultants,

[1] We hope that we have not forgotten any institution as the meeting was very well attended. The MOH and Kamuzu College of Nursing could not be presents at the presentation as the Minister of Health was visiting Kamuzu College of Nursing at that very moment, but the consultants ad held individual de-briefings with them all prior to the presentation (see list of people met to know who were de-briefed when.

as not only was she professionally competent in matters relating to the nursing profession and to consultancy work, but she also had an impressive network of contacts that proved very helpful to get certain doors open and to put our interlocutors at ease.

The consultants feel that in conclusion the TOR have been effectively met. The detailed itinerary for the MTR consultants is attached as Annex 2.

### 1.4 Report Structure

This report is in five parts:

- An executive summary of key findings and recommendations opens this report. It is slightly lengthier and more detailed that standard "executive summaries", to enable a grasp on the main findings and recommendations quickly. It substitutes for a standard "conclusions section at the end of the report;
- Section 1 (this section) is the Introduction and covers issues relating to background, approach, methodology and implementation of this Mid-Term Review;
- Section 2 presents the main issues linked to the infrastructure part of the project. A technical annex compiling all infrastructure related matters has been prepared and is attached as Annex 3.
- Section 3 covers the technical and education issues linked to improving the quality of Nursing Education in Malawi;
- Finally, section 4 covers issues linked to project design and implementation and looks at issues to be changed by the end of this project. It also discusses what a "second generation" project to support nursing education might look like.

### 1.5 Suggestions for this MTR and for future evaluations

The participants in the final de-briefing in Lilongwe were very complimentary and agreeable to the findings and recommendations that were presented to them. This report simply expands on those.

In order to make this report more useful to all stakeholders we would like to make the following suggestions:

a) Once the RNE accepts the report we propose that it should go as soon as possible to the following stakeholders: NCA, CHAM, NMCM, MNMA, KCN, the MoH (Divisions of Nursing and Human Resources), NORAD, and the Principals from all 10 Nursing Colleges in Malawi and the representatives from the 6 Nursing Colleges in Norway.

b) The 6 Norwegian Nursing Colleges, NCA Norway, and perhaps NORAD, should receive a formal de-briefing from the Team Leader if this is found appropriate and can be arranged. This could take place after the summer season. One reason for doing this is that it was suggested in the TOR and that the Norwegian Nursing Colleges have played a key role in the project and are expected to continue providing an important role. Also, importantly the Principals from the 10 Nursing Colleges in Malawi will visit Norway in the autumn, and a briefing with the TL might help the Norwegian side of the project better prepare for such study tour.

c) The MTR report, as the consultants have insisted many times, should not focus on an examination of problems but provide direction for the way

forward. In that sense it is suggested that project stakeholders begin to meet as early as September to discuss the main messages of the report and to plan for the way forward.

In terms of suggestions for future reviews and evaluations that emerge from the lessons of this MTR the following issues should be considered:

d) The mix or national and international consultants has worked well, and the skills mix too;

e) Documents for the review should include ALL documents available, including: original project document and budget (including subsequent reviews, if applicable); progress reports, including budget expenditure; minutes from project management meetings and from key meetings with key stakeholders; any discussions or important correspondence relating to changes in the project approach or budget vis a vis the design. If infrastructure is involved all documents, plans and linked documents should be listed, by facility, and those documents available via e-mail should be displayed in the list. The purpose being that the more consultants know about what is available, the better they can prepare the country visit.

f) The consultants should have explained to them early on, who are the local counterparts who will help implement the evaluation, and be put in touch with them very early in the process. In this case the consultants would have benefited from being in touch with NCA Malawi, the implementing agency, much earlier. Much time was lost before the consultants realised that there was a well resourced NCA project office in Malawi, and before the said office understood what their role in the evaluation could be. In some projects the consultants actually ask the implementing agency to self-evaluate before the beginning of the in-country work, using the project objectives and activities. This enables the implementing agency to point to issues and bottlenecks, and the consultants to look at these in greater detail. We suggest that this would be a useful approach for the end of project evaluation, particularly IF there is going to be a continuation of the project or of the work initiated by this project.

### 1.6 Acknowledgements

All the project stakeholders deserve our gratitude: the Norwegian Christian Association, the Christian Association of Malawi, the Royal Norwegian Embassy, the Nursing and Midwifery Council of Malawi, the Malawi Nurses and Midwives Association, the Ministry of Health, the Kamuzu College of Nursing, among others. We will not attempt to list the names, as there would be many bit we are really thankful for their help. In Norway Haldis Kartstag and Marit Wikstrom deserve out thanks for talking to us prior to the visit to Malawi and Marilyn Lauglo from HESO for helping us prepare the visit.

Some evaluations teach more to the consultants that to the potential recipients. In this case the consultants were deeply impressed by the way in which all 10 Nursing Colleges went about their work, with great dedication and effort in spite of difficult geographical conditions and significant resource shortages. Our deepest admiration goes to the staff and students of all the 10 Nursing Colleges we visited: Saint John, Ekwendeni, St Lukes, MCHC Zomba, St Joseph, Malamulo, Holy Family, Mulanje, Holy Trinity and Nkhoma. It was a humbling experience for us, coming from the wealthy west to see how much has been achieved with so little thanks to a lot of effort and good will. This report is dedicated to all of them.

# Section Two: Infrastructure Component

## 2.1 Introduction

**Explanatory note:** This section will often make reference to Annexes by alphabetical characters. These are the Annexes included as part of Annex 3, where project infrastructure issues are discussed in greater detail. In spite of its length it has been kept as part of this report given its relevance for the infrastructure team from NCA and CHAM. Therefore, any annexes containing a letter (alphabetical character) refer to an annex within Annex 3. The annexes from this main report are referred to by a number.

### 2.1.1 MTR Methodology

Over a period of 7 days, the MTR team visited each one of the 9 colleges where infrastructure has been built[2] and reviewed all the individual building contracts that have been awarded by NCA under this programme. There was insufficient time to prepare a formal questionnaire, required as a ToR objective, as most of the background material, given its bulk, was only available once in country. The team relied on its expertise to develop a consistent and uniform approach when visiting each of the colleges, following briefings by NCA, CHAM and the RNE.

At each college, following a short introduction with senior staff, the infrastructure team comprising of the MTR Consultant Architect, the NCA Project Officer and the Physical Assets Manager from CHAM, with a guide from the staff, carried out a tour and inspection of the existing and new facilities of the colleges.

Informal discussions took place with contractors and workers, college tutors and students, maintenance personnel and other support staff. When time permitted a short visit was made to the adjoining hospitals to compare the quality of buildings and services.

Photographs were taken at each facility,[3] and a brief report has been prepared on each college including a list of the people met.[4]

In Lilongwe, meetings specifically related to the infrastructure component were held with CHAM, the NCA technical team and support staff, the professional consultants – MD Initiatives and representatives of the MoH Physical Assets Management Unit (PAM). Access to all project files was made available in the NCA office. Some electronic copies of drawings and designs were provided by the architect. Information and findings of relevance specifically to the technical team has been compiled into a separate annex.[5] A few key recommendations for the management and policy makers have also been prepared.[6]

[2] The Malawi College of Health Sciences (MCHS) at Zomba was also covered in our evaluation even though infrastructure has not been built there by the project. MCHS has also participated though in efforts to improve training and networking. Therefore the MTR visited 10 colleges, only 9 of which had built infrastructure with project support.
[3] ANNEX N – Digital Photographs available on a CD archived with the NCA.
[4] ANNEX C to K – Notes for each college
[5] ANNEX 3 – Technical Report
[6] ANNEX L – Summary Recommendations

A Power Point Presentation was made of significant observations and findings which was presented to the stakeholders in the Norwegian Embassy on the last day of the assignment in country. These points are now elaborated in the remainder of this report.

### 2.1.2 Infrastructure Project Concept

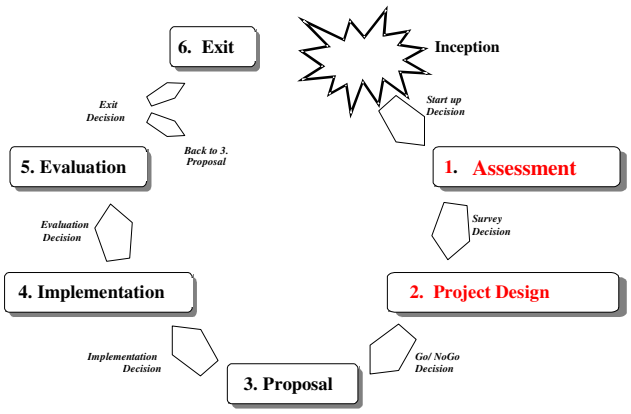
Responding to the key programme objective, to increase the number and quality of nurses trained in Malawi, improvements to the physical facilities at each of the 9 CHAM Training Colleges was a vital element. As the colleges do not generate enough funds to carry out any substantial building work, approx 55% of the overall project budget was allocated to the infrastructure component.

CHAM have a technical team but do not have the full expertise to manage a major construction programme. NCA was recognised as a suitable technical agency to carry out the work. The budget included provision to develop a larger team with 3 technical project officers, and supporting equipment. The role of this team was to act as project managers as client representatives and to provide technical advice.

Local consultants were appointed to carry out full construction services. The consultants selected, included architects, structural engineer, mechanical and services engineer and quantity surveyors. The consultant provided full time clerk of works.

### 2.1.3 Needs Assessment

**The Project Cycle** - It is understood, that at the inception of the project, in 2005, CHAM facilitated a discussion with each college to develop a priority list of physical requirements along with rough cost estimates. This was essentially a wish list of facilities with very little justification or analysis prepared by the colleges.




Simple Project Cycle Diagram

Assessment –
Essentially a wish list

Project Design –
No master-planning, design or accurate cost planning carried out at this stage

Implementation Phase –
Many site planning decisions have been made within the implementation phase

In the infrastructure component, the findings of the Assessment became the Proposal and this can be seen in the way the Project Document was assembled. Much of Stage 2 – Project Design in the above diagram, was actually carried out within the implementation stage.

It is understood, that there were time constraints, which meant that a normal project cycle stages were foreshortened. Stages 1 and 2 were therefore incomplete and pushed into Stage 4.

The consequences and implications are now becoming apparent at this MTR stage. However, without a prolonged period of design and preparation the Needs Assessment proved to be a valuable kick start to the infrastructure work. The Implementation Phase began very quickly after the Assessment.

Despite the lack of accurate building cost data, the initial Assessment was used as the base to develop the project budget and scope of works. It has become the reference point for all the various phases of construction, though there have been a number of modifications and variations.

Accurate and actual costs for the buildings were only established months into the programme when designs had developed sufficiently to be tendered in the first Phase. Except for the hostel buildings, the design of which appears to have developed in a very different way than was first envisaged, the initial cost assessments have actually proved to be relatively close to final contract sums, generally within a range of plus or minus 20%. i.e. some projects were over estimated while some were under estimated.

The allocation of the budget to each college appears not to be very equitable, but represents the way each college prepared its list of requirements. Those who asked for more – got more.

It appeared that some college management teams did not take the programme seriously at the assessment stage. Had they realised that NCA was actually going to deliver on their promises - compared to many other donors, in their experience - they would have requested more at the beginning. This is evident by the request of updated needs and gaps currently listed on the Master Budget Sheets[7].

## 2.2 Design – Fit for Purpose

Some of the issues discussed below will be elaborated in Annex 3, the technical annex

### 2.2.1 Project Approach

Through continuous dialogue between, CHAM, NCA which is often represented by the consultant architects, engaging the college management committees at every stage of the process, the programme has responded effectively to the original wish list of the Needs Assessment. Priorities were set at the beginning and through a number of phases of work, currently at phase 4, the list of buildings has been

[7] Reference Doc – Budget Sheets for the 9 Colleges – Version 17 June 2008

systematically ticked off, most colleges identifying student accommodation as the first critical priority.

As already mentioned, the MTR has identified that the main problem was that a normal project cycle was not followed. In some ways this has been advantageous. Progressing rapidly into the Implementation Stage, colleges started to see results reasonably quickly, and became actively involved in the planning of subsequent phases.

### 2.2.2 Changing Priorities

The Needs Assessment resulted in a shopping list of buildings required. Normally, there is a project design phase which develops and justifies the assessment into a working project with log frames and budget and complete design proposals. This did not happen.

Due to the inadequate cost estimation, inflation and changes in priority a number of the original buildings have been omitted. This is more critical for some colleges than others.

### 2.2.3 Modular Approach

The modular approach to the design layout has been effective. That is, there has been a standard design for the key building types: administrative block, library and computer room, skills lab and classrooms. The hostel buildings are made up of multiple units of a 2 student bedroom. This allows hostels to vary in size depending on individual college needs and land availability.

Essentially, all the colleges now have more and better facilities. As a result the infrastructure contributes significantly to ensure that the colleges have a good environment in which to provide training.

### 2.2.4 Building Design

The design of the buildings has been carried out in a professional manner by local consultants. The decision by the architect to design the roofs in a stepped way is likely to cause future maintenance problems. However, this style seems to be the fashion of the time and aside from the maintenance issues. The visual appearance is subjective and up to personal preference, and generally the buildings are attractive and architecturally interesting.

The layouts of all the buildings are functional and practical giving improved space and circulation standards over and above the existing stock of buildings.

### 2.2.5 Contract Development

Design, pre-tender production of drawings and documents, selection of pre-qualified contractors and development of contract documents has been carried out well. The college management committees, their boards along with CHAM have actively been involved at all stages.

### 2.2.6 Project Management

Once contracts were awarded, contract supervision has been done well. Regular meetings are held to which all relevant parties are invited. NCA files show a logical development of site meeting minutes, issues raised and dealt with.

### 2.2.7 Cost Control

The cost estimate, at the Assessment stage, became the budget in the Project Document. This was not accurate enough to cover all the buildings proposed, once current market rates and full designs were developed. The team has successfully, juggled the various priorities of each college adjusting the work on a continual basis revising programmes and scope of work. Cost tracking and forecasting has been clearly documented. Some difficult decisions have had to be taken to cut out some activities which were part of the Project Document to keep within the overall budget.

The control of expenditure has been carried out well, but the consequences of omitting some of the planned work will have a negative impact on the functionality and viability of some of the colleges.

The most critical omission identified at this time is the furniture component.

Expenditure has increased considerably compared to the original budget in Malawi Kwacha but the Norwegian Krona has remained strong and has offset the affect of inflation. Contributions from Biet and Cordaid towards some of the projects have helped to fill in some important gaps.

### 2.2.8 Project Timetable

For an infrastructure programme of this nature, involving many different individual buildings, spread out across a large geographical area, the committed contracts look as though they will be completed on time and within budget.

There have been a number of delays and disruptions of the project timetable on a number of the building contracts, but given the complexity of the project the work has gone very smoothly.

## 2.3 Implementation

The implementation stage of the building programme is currently in the last of 4 phases.

### 2.3.1 Stabilised Soil Blocks

The early decision to adopt SSB (stabilised soil blocks) technology has been well managed and supervised. The workmanship has been closely followed. NCA have documented well the challenges and put in place good quality control mechanisms. The methodology adopted could well serve as a model for other projects: mechanical problems with equipment were analysed and resolved, testing equipment was designed and fabricated and regular testing has been done ensuring good quality.

SSB technology is cost effective and environmentally friendly. This was a good choice and is supported by the Malawian Government.

### 2.3.2 Continual quality control, evaluation and improvements

Lessons have been learnt and applied from early phases. There have been a number of good technical innovations. Blind spots seem to have been water supply, sanitation and energy. Given the initiative with SSBs it would have been good to have included the same amount of effort to have developed more appropriate and sustainable energy and water solutions.

### 2.3.3 Roles of the different partners in the management process

The management of the construction projects has been professionally carried out. Regular meetings with all partners involved have kept everyone informed. The roles of the consultant architects and NCA as the client organisation have been clearly defined and conflicts have been resolved well. Some delays and challenges on individual contracts which have been dealt with and are clearly documented.

## 2.4 Challenges

### 2.4.1 Furniture

As costs have increased, difficult decisions have been made regarding what to prioritise. Unfortunately, furniture has been excluded, and there does not appear to be any workable solution in the short term. The cost of furniture was estimated at about 41 million MK. It is now planned that the SWAP will fund it, but no proper application has been made at this time for funds. The danger is that buildings such as the libraries and administration may remain unfurnished for some time to come.

### 2.4.2 Equipment

More modern equipment is needed particularly in the computer lab. This has not been budgeted for.

### 2.4.3 Maintenance

The issue of maintenance has been high on the agenda but no formal system is yet in place. A TEVETA (Technical Entrepreneurial, Vocational, Education and Training Authority)[8] programme was supposed to train young people who would then be available to assist with routine maintenance in the future. This is unlikely to happen as their training has not been to a high enough standard and funds to pay them are limited.

Each college has been asked to prepare a maintenance plan. Some are more able than others to do this. It is likely that more technical support is required to develop a workable and sustainable plan.

Instructing house or hostel occupants in basic issues, such as turning off water geysers when the water supply is off would help considerably.

### 2.4.4 Developing a workable campus

The project design in the early stages did not anticipate accurately the amount of space required for the new buildings. When it was found that there was insufficient space close to the established college buildings, a number of colleges had to find alternative sites. This has resulted in split and fragmented colleges, which has an impact on functionality and viability. The main problem is at Ekwendeni where all the new buildings are on a site developed about 2 kms away from the existing college. Nkhoma and Malamulo also have split academic sites.

### 2.4.5 Accommodation during external clinical training

The lack of accommodation for students when they go for clinical training has been identified as a problem but this is outside the main objectives of the programme.

[8] Reference: Agreement between NCA and TEVETA dated 7 Dec 2005

## 2.5 Results

From inception to completion of such a large infrastructure programme in 9 dispersed locations in just 3 years is a considerable achievement.

The results are already there to see, where there is already improved student accommodation at most of the colleges. The number of beds has increased, enabling student numbers to increase and the quality of spaces and buildings has improved significantly.

The project is on the right track and with some minor adjustments in approach the work in the remaining months will assist the whole programme to achieve the project targets.

## 2.6 Recommendations

Some technical recommendations are included in Annex 3, the Technical Annex. These are a few key recommendations that are more appropriate to the general management of the colleges and policy makers:

**Master Plan Surveys -** Full topographical site layouts are invaluable tools to ensure that long term planning can be carried out accurately. Site plans are also invaluable to plot key service routes for water and electricity assisting with campus management and maintenance.

Colleges have been reluctant to have surveys carried out, as the survey costs are considered to be too high. It is recommended though, that each college has a full survey carried out before any future building phases are planned.

**Evaluation -** This MTR has been timely, as there are technical issues that can be improved and incorporated in the remaining infrastructure contracts. However, an evaluation of how the buildings are performing a short time after they have been occupied would be valuable. This could be done around the time of the end-of-project evaluation, and it should not just look at the technical quality of the infrastructure but assess the way people are using the buildings and whether or not they are functional.

**Sustainable Technology -** The project should be commended on its application of Stabilised Soil Block technology. It is recommended that the same approach should be applied to water, sanitation and energy issues. Given that the technical team includes one of the most prominent architectural firms in the country, the opportunity to promote sustainable technologies in these fields has been missed.

It is recommended that any future investment in the colleges should include more attention to water and energy saving installations.

**Surtax -** Recovery of the surtax for a number of the contractors has been a problem. Every effort has been made to set up a workable system, right from the beginning of the project. NCA has continued to pursue the issue but it is questionably whether or not it is cost effective. Project budgets for infrastructure should always assume that tax should be included.

Efficient recovery is a bonus. Inefficient recovery is a burden to the project.

## Section Three: Quality of Training in Nursing Colleges

### 3.1 Introduction

This section of the report deals with quality of nursing and midwifery technician (NMT) education and training in Malawi in CHAM colleges and one para-statal College (Malawi College of Health Sciences – MCHS) at Zomba Campus.. All CHAM nursing colleges have benefited from additional infrastructure, as explained in the Infrastructure section and linked Technical Annex.

Improvements on quality of nursing and midwifery education and training in Malawi seem to have been based on the assumption that:

- Expansion on the existing infrastructure will help increase production of nursing and midwifery technicians (NMT) for the health sector.
- Strengthening collaboration and cooperation between partner institutions (the nurses' network, as called in the Project Document) will improve quality of nursing training and build institutional capacities in the nursing colleges.

Following a needs assessment undertaken at the beginning of the project a number of problems were identified and based on these, the following "Focus Areas" were developed (source: Project Document):

1. Staff development
2. Curriculum development
3. Attract and retain nurses
4. Teaching and learning
5. Networking
6. Monitoring and evaluation
7. Research
8. Cross cultural issues.

Among these focus areas, research has not yet been implemented and cross cultural issues was integrated in network activities. Therefore this section of the report will now review progress in each of the remaining 6 Focus Areas. Before that, we will briefly consider at whether production of NMT has increased, and whether those increases have gone in-hand with increases in the number of nurse tutors and clinical instructors in the nursing colleges.

### 3.2 Has production of Nurse and Midwife Technicians improved?

Table 1 below summarises the numbers of students and trainers between 2004 and 2008 in each of the 10 nursing colleges visited by the MTR team. Data was gathered from the colleges. The main observations that derived from that table are the following:

a) Students numbers have more than doubled, from 532 in 2004 to 1,118 in 2008 (both include NMT and 1-year Midwifery trainees). The number of NMT Graduates has also increased significantly, but to what extent depends on the

sources: from 346 in 2005 to 533 in 2008 according to the Directorate for Human Resources in the MOH, and from 286 to 322 according to the Directorate of Nursing.[9] Our impression is that the real figures are closer to those from the Directorate of HRH, with numbers of graduates expected to increase in the next 2 years to more than double the 2004 figures. There has been a very significant increase in the numbers of *male* students; from less than 5% in 2004 to around 30% in 2008 (this has important implications in terms of college design and recreational facilities needed).

b) Increases in student numbers have not been even across the 10 colleges, as some of them (Malamulo, St Lukes, St Joseph and Mulanje) actually trebled the number of nursing students in a four-year period, whilst in other colleges the growth was important, but less sudden.

c) Tutor numbers, and trainers in general, have not kept pace with the increases in student numbers. Thus, while student numbers increased 119% on average the numbers of tutors increased by 26% on average, from 84 trainers in 2005 to 118 in 2008. The numbers of tutors in 2004 were actually better than in 2005 when many trainers seem to have left the colleges. In sum, the increase in the trainers' workload has been phenomenal. There is a high deficit of Clinical Instructors across the 10 colleges which ought to be analysed as it has implications in terms of quality of clinical training.

It is difficult to generalise regarding how or whether the large increases in student numbers and modest increases in numbers of trainers have affected quality, but this is highly likely, as has been stated in our interviews with college principals and trainers all sites. However, every college we visited took their task of increasing numbers in a very positive and patriotic manner and, interestingly, most students that we interviewed thought that quality of training has improved, although many complained of lack of books, lack of equipment in the skills lab, shortage of computers and limited availability of tutors. Looking at student and tutors ratios, this last observation cannot come as a surprise.

**Table 1 - Students and training staff in the 10 nursing colleges 2004-2008**

| | | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| Nkhoma | Students Y1 | 26 | 39 | 32 | 42 | 43 |
| Nkhoma | Students Y2 | 32 | 26 | 39 | 32 | 41 |
| Nkhoma | Students Y3 | 0 | 0 | 20 | 31 | 31 |
| Nkhoma | Students 1 yr midwifery | | 16 | 0 | 0 | 0 |
| Nkhoma | **TOTAL STUDENTS** | **58** | **81** | **91** | **105** | **115** |
| Nkhoma | Tutors total | 11 | 5 | 5 | 9 | 9 |
| Nkhoma | Clin. Instructors + VSO | 4 | 2 | 2 | 2 | 2 |
| Nkhoma | **TOTAL TRAINERS** | **15** | **7** | **7** | **11** | **11** |
| | | | | | | |
| Malamulo | Students Y1 | | | 35 | 26 | 25 |
| Malamulo | Students Y2 | NA | NA | NA | NA | NA |
| Malamulo | Students Y3 | NA | NA | NA | NA | NA |
| Malamulo | Students 1 yr midwifery | | NA | NA | NA | NA |
| Malamulo | **TOTAL GRADUATES** | **0** | **0** | **9** | **26** | **31** |
| Malamulo | Tutors total | NA | 3 | 8 | 8 | 8 |
| Malamulo | Clin. Instructors + VSO | NA | 0 | 0 | 0 | 2 |
| Malamulo | **TOTAL TRAINERS** | **NA** | **3** | **8** | **8** | **10** |

[9] Source: Ministry of Health, Directorate of Human Resources, and Ministry of Health Directorate of Nursing. The figures from the DHR coincide with those used by the SWAp Secretariat.

| | | | | | | |
|---|---|---|---|---|---|---|
| Ekwendeni | Students Y1 | 28 | 30 | 37 | 43 | 37 |
| Ekwendeni | Students Y2 | 29 | 28 | 30 | 37 | 43 |
| Ekwendeni | Students Y3 | 21 | 29 | 28 | 30 | 33 |
| Ekwendeni | Students 1 yr midwifery | 0 | 15 | 23 | 20 | 20 |
| Ekwendeni | **TOTAL STUDENTS** | **78** | **102** | **118** | **130** | **133** |
| Ekwendeni | Tutors total | 5 | 6 | 7 | 9 | 10 |
| Ekwendeni | Clin. Instructors + VSO | 3 | 3 | 3 | 4 | 4 |
| Ekwendeni | **TOTAL TRAINERS** | **8** | **9** | **10** | **13** | **14** |
| | | | | | | |
| St Lukes | Students Y1 | NA | NA | NA | NA | NA |
| St Lukes | Students Y2 | NA | NA | NA | NA | NA |
| St Lukes | Generic students | 0 | 30 | 45 | 57 | 59 |
| St Lukes | Students 1 yr midwifery | | 0 | 0 | 33 | 34 |
| St Lukes | **TOTAL STUDENTS** | **0** | **30** | **45** | **90** | **93** |
| St Lukes | Tutors total | 11 | 5 | 5 | 9 | 9 |
| St Lukes | Clin. Instructors + VSO | 4 | 2 | 2 | 2 | 2 |
| St Lukes | **TOTAL TRAINERS** | **15** | **7** | **7** | **11** | **11** |
| | | | | | | |
| St Joseph | Students Y1 | 42 | 52 | 56 | 69 | 57 |
| St Joseph | Students Y2 | NA | 20 | E52 | E56 | E69 |
| St Joseph | Students Y3 | NA | NA | E20 | E52 | E53 |
| St Joseph | Students 1 yr midwifery | 20 | 20 | 61 | 58 | 37 |
| St Joseph | **Total Students (Estimate)** | **62** | **92** | **189** | **235** | **216** |
| St Joseph | **TOTAL GRADUATES** | **57** | **64** | **61** | **57** | **NA** |
| St Joseph | Tutors total | 6 | 7 | 12 | 10 | 14 |
| St Joseph | Clin. Instructors + VSO | 2 | 3 | 0 | 2 | 2 |
| St Joseph | **TOTAL TRAINERS** | **8** | **10** | **12** | **12** | **16** |
| | | | | | | |
| MCHS Zomba | Students Y1 | 72 | 72 | 57 | 72 | NA |
| MCHS Zomba | Students Y2 | NA | NA | NA | NA | NA |
| MCHS Zomba | Students Y3 | NA | NA | NA | NA | NA |
| MCHS Zomba | Students 1 yr midwifery | 0 | 0 | 0 | 0 | 0 |
| MCHS Zomba | **TOTAL STUDENTS** | **72** | **72** | **57** | **72** | **NA** |
| MCHS Zomba | Tutors total | 10 | 10 | 10 | 13 | 12 |
| MCHS Zomba | Clin. Instructors + VSO | 2 | 3 | 4 | 5 | 2 |
| MCHS Zomba | **TOTAL TRAINERS** | **12** | **13** | **14** | **18** | **14** |
| | | | | | | |
| St John's | Students Y1 | 40 | 46 | 48 | 54 | 52 |
| St John's | Students Y2 | 38 | 35 | 44 | 37 | 54 |
| St John's | Students Y3 | 0 | 0 | 35 | 44 | 37 |
| St John's | Students 1 yr midwifery | 22 | 20 | 0 | 0 | 0 |
| St John's | **TOTAL STUDENTS** | **100** | **101** | **127** | **135** | **143** |
| St John's | Tutors total | 6 | 8 | 7 | 7 | 6 |
| St John's | Clin. Instructors + VSO | 4 | 5 | 5 | 6 | 7 |
| St John's | **TOTAL TRAINERS** | **10** | **13** | **12** | **13** | **13** |
| | | | | | | |
| Trinity College | Students Y1 | 27 | 35 | 33 | 34 | 40 |
| Trinity College | Students Y2 | 42 | 42 | 18 | 28 | 39 |
| Trinity College | Students Y3 | 0 | 0 | 0 | 18 | 28 |
| Trinity College | Students 1 yr midwifery | 12 | 13 | 0 | 0 | 0 |
| Trinity College | **TOTAL STUDENTS** | **81** | **90** | **51** | **80** | **107** |
| Trinity College | Tutors total | 8 | 8 | 6 | 8 | 9 |
| Trinity College | Clin. Instructors + VSO | 0 | 0 | 0 | 0 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Trinity College | **TOTAL TRAINERS** | **8** | **8** | **6** | **8** | **9** |
| | | | | | | |
| Mulanje | Students Y1 | 30 | 42 | NA | NA | 34 |
| Mulanje | Students Y2 | | 25 | 33 | NA | 41 |
| Mulanje | Students Y3 | 0 | 0 | 23 | 31 | NA |
| Mulanje | Students 1 yr midwifery | | | 41 | 40 | 30 |
| Mulanje | **TOTAL STUDENTS** | **30** | **67** | **97** | **71** | **105** |
| Mulanje | Tutors total | 7 | 8 | 11 | 11 | 11 |
| Mulanje | Clin. Instructors + VSO | NA | NA | NA | NA | NA |
| Mulanje | **TOTAL TRAINERS** | **7** | **8** | **11** | **11** | **11** |
| | | | | | | |
| Holy Family | Students Y1 | 35 | 38 | 42 | 33 | 37 |
| Holy Family | Students Y2 | | 34 | 37 | 38 | 33 |
| Holy Family | Students Y3 | 16 | 21 | 34 | 37 | 33 |
| Holy Family | Students 1 yr midwifery | | | 0 | 0 | 0 |
| Holy Family | **TOTAL STUDENTS** | **51** | **93** | **113** | **108** | **103** |
| Holy Family | Tutors total | 7 | 5 | 5 | 5 | 8 |
| Holy Family | Clin. Instructors + VSO | 1 | 1 | 1 | 1 | 1 |
| Holy Family | **TOTAL TRAINERS** | **8** | **6** | **6** | **6** | **9** |

N.A, = Not Available
E = Estimate

### 3.3 Focus Area 1: Staff development

Staff development was to be achieved through increasing the number of tutors and their quality of teaching. Initially Norwegian tutors were placed to fill in existing gaps in nursing and midwifery colleges in Malawi for four to six weeks during which period they assisted with teaching. This approach was later abandoned in favour of Norwegian nurses assisting with the delivery of short courses and other nurse networking activities. Changes in project approach are discussed in Section Four of this report.

The main activities undertaken in terms of staff development included Study Visits to Norway (in 2006 and 2007) and well as a four-weeks training course on teaching methodology for generalist tutors, followed by two workshops for all the tutors and one Training of Trainers (TOT) on Problem Based Learning (PBL). Immediate follow up was done for the tutors who underwent TOT on PBL.

Observations on staff development are as follows:

a) The process of staff development included the delivery of inputs such as study visits and training courses during which participants were exposed to new ideas and to new ways of training. The technical and professional quality of these activities appears to have been very good judging from the enthusiastic statements that the MTR team gathered from participants. For example, participants returning from study tours to Norway came back deciding to improve their clinical (skills) labs and the quality of clinical training. They also learnt about ways to deal with patients in a humane and ethical way, and tried to apply those principles to their own institutions. Participants from training in Malawi returned to their colleges determined to introduce more self-learning approaches for students including the development of PBL methodologies. In sum, the visits and training course and seminars were of

good quality and made participants wish to improve their own settings and approaches along the lines of what they had seen or been taught.

b) Unfortunately most participants to study visits and training events were expected to undertake the improvements almost on their own, and it was felt that the amount of supervision that took place after the events to help participants adapt what they had seen or been taught was highly insufficient.

c) There was also hardly any documentation of the activities that participants had attended, and in most cases the training had not been translated into procedures and policies for institutionalization. Information was not adequately shared in print in most of the nursing colleges: for instance materials collected from training were hardly ever photocopied for other members of staff or for the library, and therefore materials, procedures and policies that could be used as reference and orientation for new staff members were not available.

d) There was no induction programme for new staff joining the colleges, and given that most new staff do not have qualifications or experience in nursing education this is judged by the MTR team to have a direct effect on quality of teaching and learning.

e) Colleges did not have effective staff development plans. By “effective” we mean plans that were acted upon by the college principals. In general there were no rigorous approaches to defining staff development needs. In two colleges tutors were able to state activities related to staff development, but there was no explicit staff development plans. In one of the colleges the decision to nominate one for training or workshop was jointly made at each time such opportunities arose. Selection was dependent on whether one had gone for any workshop before or not. In general, most Principals were unable to explain how they assessed training needs for their staff or how decisions were made to decide who should go for available training, most of which came from the NCA project. In sum, there was a lack of systematic efforts to develop staff capacities based on their needs and institutional requirements.

### 3.4 Focus area 2: curriculum development

This focus area aims at improving the training curriculum in nursing colleges through strengthening partnerships with other colleges, integration of human rights and gender in nursing education, as well as increasing knowledge and understanding in the implementation of the nursing curriculum.

Observations on curriculum development were as follows:

a) Standardised curriculum is provided by NMCM based on which colleges are expected to develop their own college curriculum. At the time of the MTR two colleges indicated that they had developed their own curriculum and submitted to NMCM (or “the Council”) for approval according to requirement. NMCM however acknowledged that only one institution had submitted the curriculum. The rest of the colleges indicated that they had draft documents, but this did not seem like a very active endeavour in most of them as there were no clear deadlines too which they were working. The NMCM curriculum has been in use for four years and the Council is already planning to review it. Delays by colleges to develop curricula suggest inadequate capacities among tutors to adapt the NMCM curriculum to their own circumstances.

b) While review of the curriculum by the Council is important this does not directly address the main need which is to build capacity of nursing tutors to carry out curriculum development. This should become a priority for the Council and KCN might be in a position to support this initiative in order to further enhance quality teaching and learning. Some tutors interviewed by the MTR team were found to be teaching without course outlines

c) In none of the colleges visited were examinations for NMT graduates moderated by external examiners to validate the quality of training. This is contrary to standard practice in most nursing colleges around the world, including some Malawian colleges like KCN. In the absence of external examiners colleges select their students, train them and graduate them completely on their own, without any external assessment of training quality or skills among exiting graduates.

d) The fact that the pass rate in the licensure examination conducted by NMCM is good for all the colleges and seems to have been steadily improving in recent years (from 78% pass rate in April 2004 to 92% in April 2008)[10] does not necessarily translate into competence of the graduates. It may mean (according to some interviewees) that students are better prepared to sit the exam, which focuses on theory as opposed to their being more competent NMTs. The MTR team learnt that NMCM is planning to administer an Objective Structured Clinical Examination (OSCE) to test level of competence at the completion of the NMT programme. This development is a response to the observed competence gap. It was welcome to note that some colleges are already implementing OSCE.

e) A number of factors may come to play for incompetence which will require concerted effort by all collaborators. Some of the factors attributed to the competence gap among NMT programme graduates are: lack of induction to new tutors; inherent incompetence of the tutors even if they might have gone through an education programme; lack of mentorship programme for tutors; lack of effective follow up and supportive supervision; and inadequate monitoring and evaluation to inform these processes.

### 3.5 Focus area 3: attract and retain nurses

The focus area aimed at contributing to staff satisfaction through strengthening the capacity of Nurses Association of Malawi through staff exchange between Norwegian and Malawian nurses; collaboration of the Norwegian and Malawian Associations at central and local levels. The result of this collaboration is the revitalised Nurses Association in Malawi and two Norwegian institutions have partners with Malawi local institutions in the Southern Region. It is hoped that through these collaborations, issues such as conditions of service can be addressed. At the time of this MTR, it was not possible to evaluate the effectiveness of these collaborations, though there is growing interest in participating in association activities. What was however noted is that participating tutors did not relate the activities to quality of training and education, seeing them rather as being for personal capacity building.

Retention of tutors in all colleges was not reported as a major problem, but attracting tutors remains a challenge, mostly due to: housing; lack of adequate incentives; schooling for children and location of colleges. However tutors reported that their motivation to continue teaching in CHAM colleges is because of job satisfaction from the contribution they are making. Conducive working conditions were one of the

[10] Source: Nurse and Midwife Council of Malawi.

factors mentioned as a reason for retention. Although tutor retention could not necessarily be attributed to the project, new and better houses gave some of the tutors reason to stay on.

### 3.6 Focus area 4: teaching and learning

This focus area was to support the implementation of staff development objectives and curriculum by (a) undertaking training of trainers events and study tours (of good quality but impact limited by poor follow up, as discussed elsewhere) and (b) by improving access to computers, books and equipment for clinical labs, among other inputs, and by infrastructure improvements.

The project provided **computers** to colleges, however most of them were reported not to be working at the time of the MTR visits. In most cases this may be due to poor maintenance (did the colleges agree to provide appropriate space and stabilised sources of electricity prior to installing the computers?), poor use (many students are not computer literate) and also due to problems with the use of software (a lot of which was found to be in Norwegian language!).

**Internet** may have become an essential part of education everywhere in the world but poor countries like Malawi and remote colleges like some we visited may not be able to either afford the set up costs and recurrent bills, or they need technical assistance to get internet access up and running. Two or three colleges have some internet access, and in one of them students also had access to it, but this is clearly insufficient. We recommend that internet connectivity becomes a feature of an eventual next phase of this project, and that it is combined with proper set up and maintenance, adequate servicing and training in internet searches, and word processing for tutors and students alike.

New **books** were distributed to all college libraries by the project, and library personnel were oriented on library management. This is greatly appreciated by both tutors and students. However, there was a general feeling that the books were still insufficient given the increase in number of students. Circulation of books to students is further hampered by restrictive library operation times. It was noted that student numbers have increased more than the level of learning resources in general. There are more students than number of tutors and this continues to affect student clinical supervision. Unfortunately, it was reported that with the shortage of staff in the clinical area, students are often barely supervised and mostly left to do what they can do. This had a negative effect on skill transfer and competence of the graduates.

**Clinical training away from college**. An issue that struck the MTR team as important, and which receives little mention in project reports and nurse meetings, is that the health facilities adjacent to colleges for clinical placements no longer have the capacity to absorb the number of students and provide the learning required. Subsequently, students are sent to far-away hospitals for clinical practice. Additional challenges include finances to support students in terms of accommodation, upkeep and supervision by the tutors. Only one college had a well planned student supervision strategy whereby each group of students would be accompanied by a tutor to a hospital away from base for the entire period of the placement. Among all the colleges, this is the only college that had 100% pass rate in licensure examination in 2007/08 academic year. It would be interesting to follow up on the performance of the graduates in comparison with those from other colleges where such arrangement is not the case. On a practical level this issue may require a review of tuition fees paid to schools that are forced to send students away, and these clearly incur higher training costs.

A number of challenges related to teaching and learning were reported such as: time to provide class-room teaching and at the same time follow-up students in the clinical area; most of the schools indicated lack of dummies for teaching; and lack of recreation facilities for students. This was mostly reported by male students who also stated that lack of recreation made recruitment to colleges unattractive.

### 3.7 Focus area 5: networking

Partnering with major players in training nurses such as CHAM, MoH, Nurses and Midwives Council of Malawi, Nurses Association in Malawi and Kamuzu College of Nursing provided an opportunity for professional interaction and sharing experiences. At college level Nurse Association student chapters have been established through the Nurses Association of Malawi. However there are uncoordinated efforts among partners for example, all the partners except KCN are involved in monitoring and evaluation yet very little monitoring and evaluation is done and even less of it is planned or done jointly.

Exchange visits between Norwegian and Malawian tutors have taken place and, judging from participants statements to the MTR team, they were very well organised and represented an eye-opener for many. Some of the lessons learnt from exchange visits were implemented - or attempted - such as setting up the skills lab. In some institutions practical rooms existed but were not well utilised. The activities of the network have had many benefits that are hard to measure, such as improvements in the working conditions of nurse tutors through allocation of areas were tutors can meet and relax, and in some cases similar initiatives have been undertaken for students.

### 3.8 Focus area 6: Monitoring and evaluation

This area aims to monitor the progress of the nurses network through internal and external evaluation. It was hoped that stakeholders from different institutions would jointly conduct baseline surveys for action research. At the time of MTR, baseline surveys had not taken place, however review meetings jointly conducted by Norwegian and Malawian tutors as well as the Nursing College Network meetings acted as a monitoring means. NCA in collaboration with CHAM visited colleges in the southern region and there is a plan to do the same with northern region colleges. However, the approach focused on inputs and not results, and the MTR team felt this was not adequate. There is need to focus on performance or actual implementation of activities that lead to competent product.

NMCM reported to have been conducting monitoring and evaluation which the institutions did not mention when they were asked to state whether their activities were being monitored and by whom.

It was noticed by the MTR team that there was a confusion between supervision (that requires good planning, time spent at each institution and that should be supportive) and monitoring and evaluation (which should be based on results but is currently focussed almost exclusively on inputs).

In sum, the quality and intensity of monitoring by various stakeholders are inadequate and insufficient, and poorly planned and coordinated. There are no targets for M&E among the main stakeholders (how often? focused on what topics? Done jointly with who? etc).

### 3.9 Conclusions and recommendations

a) The project adopted a unique model that aimed at increasing student numbers and quality by providing infrastructure, nurse trainers and learning resources, and by improving networking and building tutors' capacity. In the circumstances the approach has worked well but whether it has already led to improvements in teaching quality is hard to say. For a start none of the 6 "Focus Areas" seems to have been sufficiently in focus, largely because inputs instead of expected results had been often defined at project level and also among the main stakeholders. As a result staff development plans in the colleges are either not in place or unclear, curricula have not been updated or approved, much new equipment has not yet been made functional and new learning approaches and skills have not yet become an integral part of teaching in most nursing colleges.

b) While quality of education and training is generally perceived to have improved among tutors and students this is mostly stated to be in relation to new infrastructure being available. This is already an important contribution by the project but does not quite meet the expectation that colleges would improve approaches to training and learning such as understanding and using concepts like PBL effectively. Indeed in colleges where interviews were conducted, there were contradictions between tutors and students on how PBL is being implemented. Only in one of the colleges where PBL is effectively being implemented, students demonstrated confidence and enjoyed self directed learning.

c) A situation analysis was done with colleges at which time problems were identified based on which focus areas were established. No thorough problem and stakeholder analysis was conducted, the implication of which has been a poor identification of specific needs to be addressed together with the performance indicators that would indicate progress against the same. College Boards seem to have remained quite marginal to the NCA project efforts to improve quality of learning and training in nursing colleges.

d) Project partners are yet to experience and fully understand project implementation and monitoring as a critical problem requiring concerted effort. Each partner is planning in isolation on monitoring and evaluation with concentration on inputs. Only the Nursing Directorate in the MOH discussed nursing education it terms of requiring a reorientation of the directorate activities for effective monitoring and evaluation.

e) Inadequate supervision and follow up to reinforce lessons from exchange visits, workshops and network meetings has lead to slow translation of lessons to meaningful improvement on quality of training. Creativity and innovation remain low with many tutors trying to copy what they saw rather than understanding the principles of new learning tools –like PBL- and adapting these to their circumstances. Some tutors understood the fallacy of doing PBL when library facilities are insufficient but many continued doing it in spite of that which caused some frustration among students. PBL without support to information search, without a working library and in the absence of internet is of questionable effectiveness in terms of increasing learning outcomes.

f) Successful implementation of the activities is dependent on the creativity, proactivity and innovation of the Principals. Unfortunately, leadership capacity is low in most colleges and these would have benefited from mentorship,

structured supportive supervision and monitoring and evaluation with targeted follow ups.

**Recommendations**

1. The project should reorient its focus by developing logical framework of the project with better stated results to be achieved.
2. The project should consider College tailored staff induction and on-the-job training in addition to generic workshops or trainings.
3. NCA and CHAM should develop a more coordinated approach to monitoring and evaluation emphasizing use of synergies within the organisations.
4. The collaborating partners should delineate lines of responsibilities and increase the focus on their own performance. CHAM, NCA, NMCM and KCN should jointly plan for annual activities in the colleges and include sufficient supervision and technical assistance to ensure that new training inputs are adapted and adopted at each nursing college according to their own circumstances and capabilities.

## Section Four: Project Design and Implementation Issues

This section looks specifically at project design, approach, implementation and monitoring issues as requested in the terms of reference for this assignment

### 4.1 Lessons from Project Design

This project was designed as a pragmatic response to a need expressed by the Ministry of Health to substantially increase, actually double the production of Nurse Midwife Technicians (NMT) in Malawi, and to do it within 5 years. This was part of a larger effort supported by other development partners to increase the production and retention of health workers. To respond to the challenge the Christian Health Association of Malawi –CHAM- and the Norwegian Christian Association –NCA- had to swiftly and pragmatically put together the building blocks of the project back in 2005. That must have been challenging enough as the project document left considerable room for interpretation of how the intended support to NMT training would be made. Naturally, much of the initial attention in those early months went into defining the infrastructure needs in each of the Nursing Colleges, as has been discussed in Section 2.

The approach to the other part of the project –improving the quality of nursing education (discussed in Section 3) was addressed in the original Project Document through the creation of a Norwegian and Malawian "Nursing Network" involving Nursing Colleges and Nursing Councils and Associations in Malawi and Norway. While the objectives of the Nursing Network were clear enough (11 were defined, see Project Document page 12) it was much less clear *how* such objectives should be achieved and how progress would be defined against each of the so called 6 "focus areas" of staff development, curriculum development, attraction and retention of nurses, research, networking and monitoring & evaluation. After stating the project objectives and briefly describing the 6 Focus Areas, the project went straight into defining responsibilities, coordination and project planning issues, leaving the specific strategies, activities and general approach quite open for NCA to interpret.

It is the lack of definition of the specific activities and strategies what became the first challenge for NCA, itself more of a project management endeavour rather than an expert in nursing education. How would staff development be pursued? How far should curriculum development be done? Apart from improving living quarters for training nurses, what additional activities would be undertaken to attract and retain nurses? And, very importantly, how would progress in these and other areas be defined, and measured?

To a large extent these questions remain unanswered even today in terms of project design. This is not necessarily a criticism on those who designed the project or on those who have implemented it, as we recognise that increasing nursing production and quality at the rate attempted in Malawi represented both a challenge and uncharted territory, but such lack of definition has haunted the project implementation model to date, and should be addressed immediately as discussed in the next section on project approach.

### 4.2 How has project approach evolved?

In the absence of clear implementation strategies the project adopted an *ad hoc* approach to improving the quality of nursing consisting on Norwegian nurses "filling

the training gaps" in the Nursing Colleges by paying for 4-6 weeks visits to Malawi. Apparently, the emphasis on "filling in gaps" approach encountered some difficulties, from availability of Norwegian nurses for such prolonged periods of time to cultural issues linked to the obvious differences in working and living conditions between Malawi and Norway. In addition, some Norwegian nurses had little if any exposure to development work.

The initial focus on filling in gaps soon changed to one where Norwegian nurses would help bring innovation  new topics (like intensive care nursing) or new training methods (like student self-learning approaches) through professionally delivered training workshops. In addition to these workshops and to once a year study visits to Norway, there were other activities linked to networking among the Malawian training colleges on the one hand, as well as meetings involving the nursing associations, the nursing council and the colleges. Many of these activities were described to the review consultants as well organised but not always properly followed up.

All the above activities certainly contributed to increasing information flows among nursing Colleges, to raising the profile and visibility of the nursing profession and to generate some momentum within the project. These matters are important and are clearly described in the 2006 and 2007 Annual Progress Reports prepared by NCA. However, all these tended to be a succession of activities with little follow up (monitoring) and supervision taking place in between one activity and the next (see Box 1 below).

Thus a project aimed at delivering quality through improved networking resulted in a succession of project *inputs* (workshops, study tours, meetings, delivery of books and computers, etcetera) that would not reach their full potential mainly because (a) such potential was never clearly defined or turned into measurable milestones and (b) because supervision, support and monitoring (by the project, by CHAM, by the Nurses Council, by the MOH, by the College Boards – see next section on stakeholders) was grossly insufficient.

**Box 1**.

There are numerous examples of issues suggesting insufficient follow up combined with poor definition of milestones to be achieved over time. For instance:

- Following the first study visit to Norway participants decided to improve the clinical or "skills" labs, but those returning to the colleges often did not have either sufficient understanding of how the new methodology was to be taught, or the skills lab was too small or lacked essential equipment, or the Nursing College Board did not consider it necessarily a priority, or all of these together. Not surprisingly few skills labs could be made functional, and those that were did not have clear guidelines on the use of the lab or a list of procedures that could be learnt at that level. Also, none of the 10 Colleges visited had a set of printed procedures so that students might practice them in their own time and as per their need. Equipment for the skills labs was often locked away because of lack of security, or because the room used for skills lab was also used for other purposes. In sum, improving the skills lab was a useful objective resulting from a well organised study visit, but the follow up by the project in terms of this being feasible at each college, in terms of engaging with the College Board or in terms of providing all the necessary equipment were largely insufficient.
- A second example relates to the implementation of Problem Based Learning, an approach that was discussed during one of the Training Workshops implemented in 2007 by nurses from the Norwegian network and by Malawian nurses from Kamuzu College of Nursing. Following on the workshop many trainers decided to adopt PBL (again, a good reflection of a well organised workshop) but many found that implementing PBL could be complicated. For one thing PBL initially took more, rather than less, time for trainers. Also, students were expected to search for topics in poorly equipped libraries, with few books and no access to internet. The evaluators also found that trainers (tutors) were not clear about which subjects could be taught through PBL, and that none has yet incorporated this into exiting teaching outlines that new tutors would be able to use.

Weak supervision added to the problems linked to the input-driven model explained earlier. For instance, one Norwegian and one Malawian nurse visited the Nursing Colleges after one of the workshops and stayed in each college for approximately one week to help incorporate new ideas taught during the workshop. However, this visit did not result in specific milestones to be achieved by each college, and it was not followed up by more visits to verify or assist progress.

NCA project reporting, largely based on project inputs with hardly any discussion of outcomes or reference to the individual progress by individual colleges in each "focus area" is a manifestation of the wider issue referred to in this section.

### 4.3 Project stakeholders and the way they have worked

The problems identified in the previous section all emerged from an insufficient definition of project strategies and approach at the time of project design. Perhaps there was not much experience in Malawi at the time of design in terms of how to increase production and quality of training *simultaneously*, but this is an important lesson to be addressed in what remains of project life, particularly should there be a continuation of this project after the present one is finished.

A second area that should be more thoroughly defined now and in future, relates to "networking" i.e. what should be the main focus of networking, who should improve networking with whom and what specific, measurable outcomes should be the result of such networking. Indeed, the fact that several institutions share a collective responsibility for achieving the project objectives requires a more thorough definition of how these institutions should work together and interact with one another. The following are examples of stakeholder relationships to date and proposed ways for them to relate in the future.

#### 4.3.1 Norwegian Church Association (NCA)

The Malawi NCA office has played a key role in delivering project inputs and infrastructure on time. This has been extremely important for setting the conditions under which the quality of nursing education can be developed and improved. The next challenge is for NCA to combine its focus on inputs with greater efforts and effectiveness in becoming a catalyst among other institutions involved in the project.

There needs to be a better defined longer term plan shared by all the main stakeholders that defines what specific improvements to nursing education will be made, by when and by whom. Higher emphasis on better planned and more frequent supervision and follow up of the Nursing Colleges in terms of each of them achieving their expected outputs and outcomes would be also required.

To be fair, NCA may not have always had access to sufficient project funds to become an effective catalyst, perhaps because much of the project funding has been spent on staff, infrastructure, study tours to Norway, study visits by Norwegian nurses and the costs of running meetings and workshops in Malawi.

#### 4.3.2 Christian Health Association of Malawi –CHAM

As an umbrella organisation under which 9 out of 10 Nursing Colleges producing NMTs operate, CHAM has a responsibility for overseeing the quality of nursing education in those centres. At the moment it attempts to achieve this through almost a single member of staff responsible for health training in CHAM institutions. This is considered insufficient by the MTR team.

CHAM needs to become more engaged in matters relating to quality of education and reach out to other stakeholders like the MOH, the NMCM, the Nursing College Boards or NCA on strategic matters. Immediate matters of attention include the need

to identify additional resources to furnish and equip some of the new buildings developed by the project, and to help Nursing College Boards identify medium and long term realistic plans and needs in relation to nursing education.

### 4.3.3 Nursing College Boards

The MTR team did not have the capacity to do a detailed analysis of Nursing College Boards (the Boards) during their short visits to the 10 Nursing Colleges, as their focus was more on nursing tutors and students. However, it is apparent that the level of engagement of the Boards on areas that are important to this project, like the quality of training delivered in their colleges, was often reported to be insufficient. This may be the result of a rather "rushed" project design that focused mainly on infrastructure needs.

Whatever the reasons, the College Boards and CHAM need to work more closely together to identify short and medium term gaps – technical, physical and institutional - to be addressed. It is suggested that, in future, any additional material inputs by this project such as books, computers or equipment (even more so in the case of infrastructure) should be based on a *quid pro quo* arrangement whereby the Boards guarantee other basic and essential investments such as access to electricity, the internet, or proper servicing and maintenance of equipment, to mention just a few examples. Only one of the 10 Nursing Colleges visited had access to Internet for students, and about half did not have reliable internet access. In some cases what was missing were the basic investments of internet connection or space, without which more computers, books or equipment are unlikely to help.

### 4.3.4 NMT Nursing College Principals

Our interviews with Principals in the 10 nursing colleges suggested that some of them need to strengthen their educational capabilities, as well as their management skills on nursing education. Only 2 or 3 Principals seemed to have a vision for the college and for the quality of education it wishes to impart, as evidenced by a lack of clear staff development plans, failure to submit their training curriculum to the NMCM, and the many other issues discussed earlier in this report.

The planned visit to Norway by college principals would appear to be an excellent opportunity for them to prepare medium-term, achievable institutional objectives for each college, on the basis of which additional inputs from the NCA project might be targeted. The issue of further engaging the College Boards on matters relating to quality of education, adequate space for libraries and computer labs and access to internet for both nursing tutors and students need to be part of that institutional development plan.

### 4.3.5 Nurse and Midwife Council of Malawi (NMCM)

The NMCM has the ultimate delegated responsibility for overseeing the quality of nursing education in Malawi, including that of NMTs. One of its key responsibilities is to ensure all Nursing Colleges update their training curricula, but only one College had sent their curriculum for review by the Council in February and had not yet received a response at the time of our visit.

The Council has always been supportive of what the project is trying to achieve but it is our impression that it should take a much more proactive role in helping project stakeholders improve support and supervision to the Colleges for these to meet their educational standards. It should also ensure that the assessment it performs on all nursing graduates, does help identify areas where nursing skills should be strengthened. Finally, the council could do more to help put in place a system for benchmarking Nursing Colleges by defining their minimum standards.

### 4.3.6 National Association of Nurses and Midwives of Malawi (NANM)

The Association has an important role to play to ensure that the rights and working conditions of nurses in Malawi are respected and improved. The Association has been involved in several project activities and should continue to do so. Its concerns regarding the working conditions of NMTs, now that more of them are being graduated, are well justified and should be looked at in the context of attracting and retaining nurses.

### 4.3.7 The Ministry of Health (MOH)

The MOH is the primary precursor of this project and contributes substantial resources to fund the nursing tutors and the tuition fees for nursing students. It has also (through the SWAp) provided transport (minibuses) to Nursing Colleges. The MTR consultants met with officers from the HRH Division, the Nursing Division and the SWAp Secretariat.

The meeting with the Director of Nursing was particularly useful and proved that the MOH is well informed and aware of the effort that is being made country-wide to train nurses (among many other health cadres) and to improve nursing education. It was also apparent however that with more NMTs being produced new challenges are likely to emerge, and that the Director of Nursing would benefit from more regular briefings and exchanges with project stakeholders like CHAM, NCA or the Council, to mention just a few. Key areas for immediate attention by the MOH in relation to the project would include:

- the need to review tuition fees paid to Colleges, and whether these are enough to cover education costs – we would support the suggestion by the Director of Nursing to conduct a study that reviews tuition fees[11];
- the need to identify sources of funding to cover furniture and equipment costs in some colleges if no project funds or other funds are available;
- the need to better oversee the quality of ward-based training of NMTs that ensures they acquire the essential clinical skills.

### 4.3.8 Kamuzu College of Nursing (KCN)

KCN has provided the nurses who worked along with the Norwegian nurses in delivering training to the NMTs. The College trains Registered Nurses and delivers degrees in Nursing Education and other disciplines for Registered Nurses. In our meeting with the KCN Principal we discussed the need to train tutors at the Nursing Colleges delivering NMTs given that most NMT tutors do not have a formal degree in nursing education.

Our opinion is that KCN should be involved in providing once-a-year induction training for NMTs, of an approximate duration of 4 weeks and targeted at all new NMT tutors joining the Nursing Colleges and also at those tutors already working in Colleges who have not had formal training in Nursing Education and who have already demonstrated a commitment to NMT training in recent years. This could help improve the quality of nursing education, while also acting as an incentive for NMT tutors who work hard in very difficult circumstances. Ideally NMT tutors should have

[11] This issue has become more important as an increasing number of nursing students can no longer practice in the mission hospitals attached to the missions. These no longer have sufficient number of patients, space or nursing staff and cannot therefore cope with more students. So students have to be sent away for training which results in higher costs for lodging and supervision. The issues relating to ensuring proper supervision of these students have been discussed in the section of quality of nursing education.

the formal degree in Nursing Education offered by KCN, but this does appear to be a feasible or realistic scenario in the short to medium term, as most NMT tutors cannot be away from their Colleges for a whole year. Launching an NMT Tutor short induction course is suggested by the review team for consideration by the Norwegian Colleges, CHAM, KCN and NCA.

### 4.3.9 Norwegian Nursing Colleges and Network

In spite of relatively brief stays in Malawi the Norwegian nurses and network have already brought much innovation, momentum and energy to the Malawi NMT Colleges. Their skills and perspective was found to be greatly appreciated in each and every Nursing College that we visited. The role of the Norwegian nurses has changed over time and should now focus on:

- developing stronger institutions and strengthening training for NMTs (some through workshops but hopefully more through helping develop an NMT induction training for NMT tutors, if this idea is accepted);
- ensuring that their work is more linked to medium term results and outcomes as opposed to just delivering a few training inputs.

The MTR team would welcome the opportunity to discuss these ideas with the Norwegian network directly, and to emphasise the importance and opportunity that the next visit of Principals from Malawi nursing colleges to Norway later this year represents.

## 4.4 Project expenditure and budgeting issues

The assessment of budget expenditure relating to infrastructure has been shown in the infrastructure of the report, and the issues pertaining to lack of funds for furniture have been highlighted.

Project expenditure and reporting for the project as a whole was made available to the consultants in separate documents, including: the original project budget (attached to the original project proposal) and the linked NCA appropriation document; the Programme progress reports for January-June 2006 and the annual project report for 2007; the annual infrastructure reports for 2006 and 2007; the budget sheets for the 9 nursing colleges (version June 08) and the linked “updated needs” document; and the “Workplans and Budget for 2008” document.

On the basis of available information the project has spent well against budget, through effective budget control. A summarised sheet showing expenditure by year against original budget for the whole project would have been useful for us to establish expenditure versus budget over time and to identify balance funds remaining. It would have also been useful to have a summarised account of budget changes and their justification for the duration of the project.

A key issue for our consideration has been whether the remaining available budget balance would enable the project to allocate more funds to supervision and technical support for the nursing colleges. We have not been able to assess this in any detail, so we recommend that the RNE and NCA look at the matter over the remaining part of 2008 and, if possible, make the necessary modifications for 2009. As an immediate question: is there an opportunity to shift funds from international TA to national TA in 2009? Our impression from talks with project staff is that there may NOT be enough funds for improved national supervision and support, and for hiring more national technical assistance (from the likes of KCN, for instance) towards that end.

Beyond 2009, should there be a continuation of this project or a new similar project, our recommendation would be for a substantially different project budget with more allocations to areas of technical support (meetings, courses, supervision costs, networking costs) and then, on the basis of those, to budget for any eventual material (infrastructure, equipment) or logistics (national and international travel) support. In essence, the follow up, "second generation" project would be less of a project pivoting on infrastructure and equipment (even if these might still be part of the budget, albeit probably a less significant share of it) while the main emphasis would shift to technical cooperation and include the budget lines of a standard technical cooperation project.

In sum, the following suggestions and observations are made by the MTR team:

- Explore the room for manoeuvre in the remaining life of the project to fund more supervision and technical support.
- Assuming the former is possible, prepare a budget for 2009 that enables the said emphasis on supervision and technical support to colleges.

If Norway is prepared to continue its support to nursing education in Malawi, as RNE has tentatively indicated, it would be important to begin the design of a new phase or a new project during 2009, to avoid gaps in the support provided between this project and the extension/new one.

### 4.5 Conclusions and proposed way forward

All the issues covered in this section suggest that much has been achieved to date for what we would call a first generation project where design and planning had to be largely improvised to cope with the fast expansion in nursing education. Nursing colleges have made a tremendous effort and are producing, on average twice as many NMTs as were produced in 2004 (see 3.2 and Table 1). Such increase in production has been somewhat supported by a few inputs to increase the quality of nursing education, but improvements in quality are to become the main focus for the next phase of the NCA project and for any eventual continued support from Norway.

In the opinion of the MTR the main characteristic of the second part of this project and of an eventual second generation project should be a renewed, better planned and monitored focus on the quality of nursing education. Such renewed focus can be described by the following features:

h) **From a focus on inputs to a focus on results.** This will require better annual planning by NCA, by CHAM and by the nursing colleges to define measurable improvements to be achieved by end of each year in terms of nursing education. Other stakeholders like the MOH, the MNMA, the NMCM and the nursing college boards should support this effort.

i) **From generic to individual attention to each nursing college.** Each college is at a different stage of development, has different access to resources and can be more or less attractive to nurse tutors and students because of its geographical location. In sum, each nursing college is different and should be treated as such by the project. The "tea for all" approach whereby all colleges get essentially the same kind of inputs, support and supervision from the NCA project AS WELL AS from other stakeholders (CHAM, MNMA and NMCM) should give way to a more individualised support based on tailor-made plans developed by each nursing college.

j) **Principals develop individual, annual, college plans.** Some colleges already develop annual plans, but the plans we suggest should focus on specific improvements that will be made to improve the quality of nursing

education. Is it about submitting a revised training curriculum? Is it about space, written guidelines or equipment for the clinical (skills) lab? Is it about more focus on a realistic staff development plan? Is it about filling in vacant positions of nursing tutors or clinical instructors? Is it about defining what subjects will be included by PBL and producing the related case studies and guidelines to students? Is it about incorporating internet and helping students make searches on the internet, or about helping students make more and better use of the college library? These are just examples. What remains critical is that each college has a realistic, tailor-made plan, that the plan defines results rather than just inputs, and that such plan becomes the basis for the NCA project individualised support as well as that from other stakeholders.

k) **More joined up work among project stakeholders.** Improving quality of training is a complex endeavour where different stakeholders should each play a role. The role of NCA as implementation agency should be that of a catalyst able to work in closer coordination with CHAM, MNMA and NMCM and to become more effective in helping these institutions better network with one another. These institutions should meet more regularly, and involve at times the MOH, the Principals or the nursing college Boards, but each of them should also look more closely at their own role and at their own performance. There is ample room for working more closely together to improve monitoring of the nursing colleges and to agree on how each institution will help each college achieve their full potential as effective training institutions. On the basis on more joined up, better coordinated work NCA should present to the Norwegian nursing colleges annual plans of work and proposals where Norwegian nurses complement and strengthen a local programme of work.

l) **More supervision, better planned and more supportive.** As colleges develop individual plans the project and all its stakeholders will need to substantially improve the support and supervision that they provide to colleges. Our view is that the project should help various stakeholders –not just NCA- improve their support to the colleges through support to supervision running costs. In this way the Norwegian funds should help develop essential institutional capacity in each of the institutions that share a responsibility for nursing education. Support and supervision will need to be provided quickly to the colleges, so logistics and early planning by NCA will be key, or else colleges may lose faith in preparing annual plans that are not promptly supported[12]. Supervision should also focus more on helping colleges achieve results. For this the NCA project will also need to help colleges better define REALISTIC and ACHIEVABLE institutional development objectives, and to work closely with them in preparing REALISTIC NEEDS ASSESSMENTS given that project resources are, and will be, limited[13]. It is also crucial that supervision and monitoring by NCA and CHAM involve much more the nursing college Boards, and not just the college Principals and tutors. Could

[12] It is important to emphasise though that the purpose of the collage plans is not to attract Project support but to FIRST define its own objectives and ensure that they are realistic and achievable, and ONLY THEN to make proposal for project support.

[13] The MTR team impression is that some of the needs assessments done by the nursing colleges required the "reality check" of what the project, CHAM or the MOH can realistically provide given available resources. In other words the needs assessments appeared a bit over ambitious and not entirely linked to the college specific capabilities or to their own investments. So may be the project should engage more with the nursing college (principal and Board) to link its support to progress against the annual college plan.

the Norwegian Nurses network suggest ways to increase involvement by college boards?

m) **Improved NCA Project Planning.** There is a need to review project planning cycles that better link with the Colleges own planning cycles and that allow more time to Norwegian nurses to plan for and prepare their support to the project. NCA itself is likely to need more time to plan in this new scenario that we have presented, since it takes much less time to arrange for a study tour or a training workshop than to identify technical support needs for colleges and to become a real catalyst operating amidst different stakeholders. It is in fact almost an entirely new type of role for NCA, from manager of inputs to an effective network organisation focusing everyone's attention to results and delivering tailor made technical assistance. Such technical assistance need not imply bringing in more technical staff to the NCA Malawi office but NCA contracting out such technical support from competent nursing education institutions in Malawi (KCN?) or elsewhere. NCA's experience and excellent relationships with project stakeholders should help it stand to the challenges of the new role, and NCA Norway (through the Expatriate Program Manager) should ensure that the new role is increasingly and effectively adopted. On the basis of greater focus on results annual reports by NCA should also become more focused on results and linked to individual college plans.

-- End of main report --

# Annex 1 – Terms of Reference

**FINAL DRAFT TOR** (7 May 2008)**:**

**MID-TERM REVIEW OF THE HEALTH TRAINING IN MALAWI**

## 1. BACKGROUND INFORMATION

### 1.1 Norwegian Church Aid (NCA) – Malawi

Norwegian Church Aid (NCA) and the Royal Norwegian Embassy (RNE) in Lilongwe, Malawi, entered into a strategic partnership based on a transferred portfolio from Norad (NCA has had a strategic partnership agreement with the Norad and NCA had supported faith based organizations in Malawi, including CHAM following the need, expressed by both CHAM and MoH, for Norwegian NGOs and University Colleges with the requisite competences to support their Malawian counterparts). Among others NCA established a six year Health Training project, in 2005, that has been working, for three years now, towards counteracting the crisis of shortage of qualified personnel the health sector is facing in Malawi. This human resource crisis is due to the large shortage of qualified personnel.

The counteraction to the health human resource crisis is done by improving and enhancing the physical infrastructure of the church-owned Malawian health training institutions and building capacity of the same. This will increase the number of qualified health personnel, particularly nursing midwifery technicians, and improve the quality of the health training education in Malawi. As it stands the needed resources are not available in the right quantities and quality to meet the demand and maintain the required minimum nursing standards. There is also a need to train more registered nurses from where the pool of the nursing lecturers/tutors as well as the nurse managers is drawn. NCA and partners are working predominantly through Christian Health Organization of Malawi (CHAM), which is an umbrella organization for church owned health facilities in Malawi, Kamuzu College Nursing and Malawi College of Nursing.

Vestfold University College (VUC), (chosen for its specific networking expertise over and above its other capacity-building capabilities), has initiated a network between nursing colleges in Norway and the Norwegian Nursing Association in order to support Malawian counterparts. The network between Norwegian and Malawian institutions was initiated after contact with the Malawian Ministry of Health (MoH) who clearly expressed the need for this network. The six Norwegian colleges received a preliminary inquiry grant from the Norwegian Fredskorpset for developing a partnership between Norwegian and Malawian institutions. In June 2004 the Norwegian Fredskorpset funded a Pilot Project where 6 Norwegian university colleges met with 7 nursing training schools in Malawi in order to discuss the possibilities of joining hands in a network.

At the same time one representative from the Norwegian Nurses Association (NNA) met with National Association of Nurses and Midwives of Malawi (NANM) to discuss how the two associations could cooperate. In November 2004, the Malawian counterparts visited Norway including one representative from the student body.

The Norwegian University Colleges are increasingly emphasizing international competence for staff and students alike. In this respect, such a partnership will benefit the Norwegian institutions. The Malawian institutions and local communities, on the other hand, will benefit from a strengthened and enhanced nurse training in Malawi. The Norwegian institutions will transfer knowledge on issues such as gender, human rights, ethics, emergency nursing etc. The Improved Health Training Education Project is one opportunity to meet the immediate and long-term challenges within the health sector in rural and urban areas of Malawi.

Responding to the challenges of shortage of health personnel the Ministry of Health in Malawi is facing, the Norwegian Government is supporting Ministry of Health and

CHAM in its endeavour to retain nurses, increase and improve nursing training. The Norwegian Government is therefore funding a project called Improved Health Training in Malawi, implemented by Norwegian Church Aid in collaboration with the CHAM Secretariat and it was launched in November 2005.

### 1.2 Rationale of the Review

The RNE has been funding NCA since entering into the strategic partnership in 2005 and this is now midway through the implementation of this project but no independent review of the same has been carried out to assess the implementational efficiency, appropriateness, relevance and effectiveness.
It is a contractual requirement, under section 7.2, that mid a term review of the project shall be carried out to determine progress to-date and effectiveness of the project.

## 2.0 Terms of Reference for Review of the NCA Health Training Project

### 2.1 Purpose of the Review

The Improved health training in Malawi project has been operational for three years now. The Royal Norwegian Embassy initiated the review of the project in order to:

- assess the design of the project vis a vis its appropriateness, efficiency, and effectiveness.
- come up with recommendations from it to improve the implementation of the project in the remaining years; since the evaluation is being instituted half way through the project implementation
- assess the relevance and effectiveness in terms of performance of the different stakeholders (CHAM, NCA, RNE, the Norwegian and Malawian nursing colleges).

### 2.2 Scope of the Review

**Time frame**
The review is preferably planned to take place during June to July 2008.

**Geographical Coverage**
The review exercise will cover six colleges situated in Norway and the participating Malawian colleges; in Mzuzu, Zomba, Chiradzulu, Blantyre, Phalombe, Mulanje, Thyolo and Nsanje. Nurses Organisation of Malawi is in Southern region with an office in Blantyre at Queen Elizabeth Central Hospital premises. All the stakeholders are situated in Lilongwe.

**Main Tasks**
The consultants shall:

i. Conduct literature review of relevant documents including the project document
ii. Design appropriate survey methodology (in a manner that is participatory) and sampling for the survey
iii. Present the survey methodology and sample to the Royal Norwegian Embassy in Lilongwe and NCA project management team (inception report) prior to commencement of field visits
iv. Assess the efficiency, appropriateness, relevance and sustainability of the project.
v. Conduct field research in order to establish the extent to which the objectives of the project have been achieved.
vi. Assess whether the project reflects rights-based approach in planning, implementation and monitoring
vii. Assess the external, institutional and administrative risks that may threaten the successful achievement of results and suggest actions needed to manage those risks.
viii. Analyse the data systematically and produce a report on findings

ix. Provide recommendations based on the findings of the review
x. Present the results of the review to the RNE and project management team and stakeholders

## 3.0 Planning and Implementation Arrangements

The workload envisaged in this consultancy includes:

i. A detailed survey schedule with a work-plan and budget.
ii. A review proposal detailing the review design, methodology as well as tools such as a detailed data collection checklist and questionnaires designed for different respondents.
iii. Time frame within which to conduct each component of the review e.g. desk review, field work as well as production of the final draft report and presentation

### 3.1 Review Team Composition

The review team shall be composed of a review expert as team leader, recruited by Norad, a nursing educator and infrastructure expert, who should be a mix of an expatriate and a Malawian. The team shall be responsible for designating other specialist team members according to the specific purpose of the review.

### 3.2 Plan of work (time schedule)

| Activity | Duration (international team) |
|---|---|
| Methodology / approach | 2 man-days |
| Desk Review | 5 man-days |
| Data collection / field visits | 15 man-days (approx.) |
| Data Analysis and Report Writing | 5 man-days |
| Debriefing Meeting | 2 man-day |
| Production of the final report | 2 man-days |
| Total | 35 man-days |

Approx. 60% of time on Team Leader and 40% on intl. Team Member.

### 3.3 Resources and Logistical Support

Stationary and vehicle for field work during data collection period will be covered from the project grant

### 3.4 Reporting (Products of the Review)

The main output of the consultancy will be comprehensive (hard and soft) copies of an approved review report.

#### 3.4.1 Debriefing

A draft review report is expected for presentation to the Embassy and NCA after completion of field work. This shall contain outlined major findings and recommendations.

#### 3.4.2 Final Report

The final report shall be presented to the Embassy within one week of completion of work and based on the following tentative reporting structure:

i) Executive summary
ii) Introduction
iii) Review approach and methodology
iv) Findings
v) Conclusion and recommendations

# Annex 2 – Consultancy Itinerary

**July 2008**

| Date | Overnight | Leave | ETA | Time | Activity |
|---|---|---|---|---|---|
| 6 Sun | Lilongwe | | | | Arrival/ Planning<br>RNE will pick up from Airport |
| 7 Mon | Lilongwe | 10.00 | | | Meeting with NCA+RNE at NCA Offices |
| 8 Tues | | 7.45 | 8.00 | 35 min | NCA |
| | | 8.35 | 8.45 | 1 hr | CHAM |
| | | 9.45 | 10.00 | 3 hr inc lunch | MOH: Directors of Nursing + SWAP |
| | Mzuzu | 13.00 | 18.00 | 5 hrs travel | Travel to Mzuzu, night at Mzuzu hotel |
| 9 Wed | | 7.55 | 8.00 | 2.5 hrs | St John's College of Nursing |
| | | 10.30 | 11.00 | 2.5 hrs inc lunch | Ekwendeni College of Nursing |
| | Lilongwe | 13.30 | 18.30 | 5 hrs travel | Travel to Lilongwe |
| 10 Thurs | | 6.00 | | 3 hrs travel | |
| | | | 9.00 | 2.5 hrs | St Lukes |
| | | 11.30 | 12.00 | 1.5 hrs | MCHS Campus – Zomba (Health Team) |
| | | 13.30 | 15.30 | 2 hrs | St Joseph's |
| | Blantyre | 17.30 | 18.00 | | Blantyre |
| 11 Fri | | 7.00 | | 1hr travel | |
| | | | 8.00 | 2 hrs | Malamulo |
| | | 10.00 | 11.45 | 2.25 hrs | Holy Family |
| | | 14.00 | 15.00 | 2.25 hrs | Mulanje College of Nursing |
| | Blantyre | 17.15 | 19.00 | 1.75 hrs travel | |
| 12 Sat | | 8.00 | 10.30 | 4.00 hrs (flexible) | Trinity |
| | Blantyre | 14.30 | 17.00 | 2.5 hrs travel each way | |
| 13 Sun | Lilongwe | 9.00 | 13.00 | 4 hours (flexible) | Travel to Lilongwe |
| 14 Mon | | 7.30 | 8.30 | 3 hrs | Nkhoma College of Nursing (Infrastructure Team) |
| | | 11.30 | 13.00 | 2 hrs inc lunch | Kamuzu College of Nursing (Health Team) |
| | Lilongwe | 15.00 | 15.30 | 1.5 hrs | Nurses and Midwives Council of Malawi<br>NCA – Review of Files |
| 15 Tues | Lilongwe | | <br>9.00<br>14.00<br>15.30 | | NCA – Review of Files<br>MD Initiatives<br>CHAM<br>MOH PAM |
| 16 Wed | Lilongwe | | | | Consultancy Desk Work |
| 17 Thur | Lilongwe | 13.30 | | | Debriefing at RNE |
| 18 Friday | | 8.00 | | | Departure |

# Annex 3 - Infrastructure Component Technical Assessment

**Note** – this annex will not repeat the sections already included in the main report. Annexes relating to this one will use alphabetical characters, not numbers, and they begin with Annex C.

## Introduction

This technical annex supplements some of the issues briefly mentioned in the main report. This annex is particularly relevant to the technical team responsible for the implementation and reflects some of the discussions that took place during the field visits together and with MD Initiatives and colleagues.

| | People contributing | Position | Institution |
|---|---|---|---|
| 1 | B Sichore | QS | Chiume Consultant |
| 2 | B Mrieryeluka | QS | Chiume |
| 3 | Grant Mzirango | Sen Eng | Elemech Designs |
| 4 | E B Mapando | Architect | MD Initiatives |
| 5 | G K Msyali | Engineer | Romana |
| 6 | Andrew V Marama | Architect | MD Initiatives |
| 7 | Emmanuel Malunga | Proj Coord | NCA |
| 8 | Fergus Khonje | Maintenance | CHAM |
| 9 | Rob Fielding | Architect | HLSP Consultant |
| | | | |
| | People met in the field: refer to individual colleges: Annexes C - K | | |

## Consultancy Services

Once the Needs Assessment had been completed in the fourth quarter of 2005 local consultant architects, engineers and quantity surveyors were appointed.

The original architect involved in work for the NCA was Romanowicz and Associates. However, as the company did not have registration with the Malawi Institute of Architects, a MoU was signed with the multi disciplinary company of MD Initiative in October 2005 after a competitive bid based on financial and experience criteria to select a consultant.

The Fee Scale agreed seems to be reasonable. The basic fee 3.5% for repetitive work and 5.4% for new work for the architect and 2.35% pre contract and 3.05% post contract for QS, Structural and Mechanical and Electrical. Architects Fees included Clerk of Works.

Averaging out, the total fee estimate including disbursements is currently at 6.84%. A sample of the other architects who competed for the work showed a fee quotation of 7.5% not including disbursements

A pioneer in the development of SSB technology (Stabilised Soil Blocks), with one of the partners involved in early SSB projects in 1994 importing block presses from Approtech (now Kick Start from Kenya), MD Initiatives was an appropriate choice of consultant, sympathetic to the approach required by the client.

**Budget and Expenditure**

The budget was fixed by the RNE in the Project Document in September 2005 based on the initial needs and cost estimate. Since then, in collaboration with each college, NCA has balanced the expenditure with the list of priorities. This list of priorities has evolved and some difficult decisions have been taken to ensure that the most important buildings are completed.

The construction work has been divided into a number of phased groups. Currently, Phase 4 started on site in the middle of June 2008. This phased approach has meant that it has been easier to control and adjust the expenditure against the budget. After Phase I, an accurate price could be determined for the main building types: a tutor house, a unit in a hostel building, a classroom etc. With this information future cost forecasting for the remaining phases has been accurately developed. This has meant that college management committees and their boards have reviewed and adjusted their priorities as it became apparent that the project budget would not cover everything that had been listed in the original assessment.

Across all the colleges, a decision was made, at some stage, to omit furniture so that more of the buildings could be built. Furniture was originally included but was omitted causing a problem now as no specific source of funding has been identified, though it is expected that this will be through SWAP. The lead period required by the SWAP process has not been anticipated. Buildings are likely to be finished without new furniture. An estimated 41.7 million MK (1.667 million NOK) will be required, based on the estimate at Project inception stage.

The evolution of the budget and the change in priorities has been well documented by NCA. The latest version is 17 June 2008.

The variation between the initial estimate of 2005 and the contract value up to June 2008 shows a Malawi Kwacha increase of approximately 43% across the 9 facilities.

The budget from the donor has remained the same but some factors have influenced the scope of work and have to be considered when the expenditure against the budget, and the amount of actual construction work which will be completed, compared to the original proposal is analysed:

- The difference between the original assessment and actual contract sums has increased from 825.9 million Kwacha to 1,183.7 million Kwacha which is an increase in 43%. Some items from the original list have been dropped because of this increase in costs
- The exchange rate has changed between NOK and MK over the years from 1:18 used in the project document to an anticipated 1:27 for 2009. This is to the favour of the project and has generally offset the affect of inflation
- General inflation has ranged as follows since 2003.[14]

| 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|
| 9.6 | 11.5 | 15.4 | 13.9 | 8.1 | 7.9 |

[14] Source – National Statistical Office – Malawi www.nso.malawi.net

- Some construction commodities have increased at higher than inflation rates such as cement
- Beit Trust has provided additional contribution at Ekwendendi Hostel of GBP 50,000 and Cordaid has contributed Euro 400,000 to St John's and Mulanje, both managed by NCA. These have helped to offset cost increases to ensure that more of the targets can be met.
- Most of the contractors are paying 17.5% surtax, which currently has an influence on financial planning. Full recovery of this amount appears to be a lengthy process and not guaranteed. Surtax is dealt with more thoroughly later.

The various criteria affecting the budget and expenditure of the infrastructure programme, have been generally well managed by NCA. Most infrastructure programmes experience cost increases through one reason or another: poor estimating at the beginning, unforeseen cost increases and inflation and inadequate cost control during implementation. NCA look on track to complete the committed contracts currently on site, within the budget.

The challenge for the colleges is how to fund the identified shortfall and additional facilities identified since the beginning of the programme. Furniture being the most critical.

**Surtax**

This problem was identified very earlier on by NCA and a solution was initiated by correspondence with the Ministry of Finance starting in July 2003. Steps taken to resolve it are taking a long time.

In summary, even though NCA is exempt from Surtax, the main issue is that the purchases for the construction work are being made by the contractors who are not part of NCA.

There is a mechanism in place but most of the Contractors were not able to follow the prescribed procurement rules which would have allowed them to buy materials without paying tax. It is understood that this would have meant purchasing materials from limited locations and suppliers, mainly from Lilongwe, but this would have increased their logistical and transport costs and is not a practical option.

The recovery of surtax is a common issue for this type of project. Ultimately, a lot of patience is required by NCA to continue following up the bureaucratic process.

At the end of the day, the actual cost and time required by the support team should be analysed to see whether or not the effort required to recover the 17% is actually cost effective.

**Recommendation: For Infrastructure projects the tax exemption issue should be identified and established at the beginning of the project. A decision should be made early to evaluate the procedures involved and whether or not the pursuit of tax recovery is cost effective. Project budgets for infrastructure should therefore be adjusted accordingly.**

## Design and Technical Issues

### Project Cycle
(refer also to the main report)

A project of this nature would benefit by following a normal project cycle process with very clearly defined stages. For a number of reasons the early stages of design and preparation appear to have been rushed through. It is understood that this was because of time and financial requirements.

Normally, the Needs Assessment Stage should have led into a more comprehensive design stage, where, in the case of infrastructure, building designs and site plans would have been developed to a stage where reasonably accurate cost estimates could have been prepared.

This work only happened once the budget had been fixed in the Project Document. This has been a constraint for the work, as the real costs of buildings only became apparent at the tender stage of the first Phase.

There were advantages though, of going quickly from the Assessment to Implementation Stages, for example:

1. Within less than 12 months the first hostel buildings and tutor houses were being finished.
2. Getting to the implementation phase quickly, meant that college management committees saw that the NCA was going to deliver something tangible. There was then greater engagement in the development of further phases of work.

### Master Planning

The need for a physical topographical and land survey of each college was emphasised from the beginning of the project. It was expected that the colleges would organise this themselves. Most have not, because the cost to do this work properly appears to have been considered not cost effective. MD Initiative have collated what information has been made available and transferred the data to electronic format in AUTOCAD.

Due to this lack of information at the beginning, site planning has not been carried out very well. Once the full scope of work became apparent three sites had to be changed and new locations have been developed: Trinity, Ekwendeni and Nkhoma. Malamulo now have more fragmented sites, where the college buildings are more disbursed across the wider campus owed by the church proprietors.

These split sites are particularly difficult where academic buildings are in two different locations or hostels are isolated from kitchen and dining facilities.

St John's College appears not to have been executed very well, and the Master Plan looks haphazard. The evolution of the site can be seen in the project folder as the number of new hostel buildings to be built has increased from 2 to 4. The site plan now looks cramped and this could have been avoided by better long term planning.

Generally Master Planning has not been carried out very efficiently.

**Recommendation: A plan of the campus can identify operational constraints and challenges as well as to prompt possible solutions which may be managerial or logistical and not necessarily requiring further infrastructure. Even though it is costly, a topographical measured survey of each campus is to be recommended.**

**Design Process**

Consultations have taken place at all stages with the individual management teams from the colleges.

No formal approval system appears to have been put in place, but the work has proceeded to the next stage with verbal approval. This does not seem to have been well documented but what happened was acceptable to everyone and any issues seem to have been resolved amicably.

As is common, drawings are not always fully understood by non technical people. Only when work on site has started are the implications fully understood. NCA and the architects have responded flexibility to change things as necessary if there have been no cost implications.

**Design**

**Plan Form** - The plan form of the buildings with short walls and many return corners instead of long straight walls, is influenced by the choice of SSB (stabilised soil blocks) as the material for the walls. The wall thickness is 140mm instead of 230mm required using locally fired bricks. Frequent 90 degree returns and buttress projections gives added structural stability. It also gives a distinctive and attractive character to the elevations.

**Roofs and Ventilation** –

Double mono pitch roofs are also incorporated, mainly for the hostel buildings and tutor housing.

This avoids more expensive roof trusses and gives more volume to hostel rooms which makes the rooms feel more spacious. The sloping ceiling gives a good opportunity to incorporate features to allow cross ventilation. However this has not been exploited as much as it could have been. In some cases colleges requested that vents should be omitted. In these cases, the consultants should have explained more strongly the importance of cross ventilation.

Typical hostel room.

Vents shown in this example which helps with cross ventilation and environment comfort. Larger vents would be more effective.

In some hostels these were omitted.

**Recommendation: Environmental comfort of these buildings to be monitored. It is technically feasible to retro-fit vents and this should be considered in some locations if internal ambient temperatures are uncomfortable in the hot season.**

**Stepped Roofs**

The current roof style fashion seems to involve stepped and staggered roofs. Whilst this is partly an aesthetic choice by the architects, there are practical issues that should be considered. In some cases due to the topography of the sites, stepped roofs are the only practical solution.

However, on flat sites these stepped roofs seem to be unnecessary and it is anticipated will become a maintenance burden in the future.

Stepped roofs like this are unnecessary and create maintenance problems for the future.

This was the personal opinion of the writer and was not shared by the NCA and CHAM representatives.

**SSBs – Stabilised Soil Blocks**

MD Initiatives from the experience of the senior partner, started using SSB technology in 1994. This technology was promoted by DFID in Malawi on a reasonably sized project in 1999 on a large scale classroom construction programme.

Recognition that burnt bricks on a commercial scale is increasingly an environment problem for Malawi.

Technology accepted by the Malawi Building Standards Board (MBS) only in 2007 but NCA encouraged to specify the technology.

NCA have followed this in a professional manner.

- Soil testing
- Strength Tests designing their own testing equipment and having the calibrations checked.
- Analysis of problems caused by locally made block presses.
- Continual monitoring and evaluation and improvements were necessary.

The strength tests have proved that the blocks are far superior to the locally available burnt bricks.

These are cost effective for donor projects but even though they are cheaper than bricks the technology has not readily been adopted for local housing.

The machines are relatively expensive; the start up cost for an individual is high, needing to buy cement.

Some documentation has been carried out on this work but there may be some merit in putting together a promotional publication which could be used in a wider context.

Demonstration of the custom made block testing machine.

Locally fired bricks are the usual choice for people building their own houses.

However, the quality is usually extremely poor, the bricks are more expensive than SSBs and the production of the bricks is environmentally degrading using a lot of wood.

Despite these issues, SSBs have not been accepted as a common building material.

The NCA project however, is a good advertisement to promote SSB technology.

**Floors**

Improvement by preparing monolithic slabs without the need for finishing screeds. This works well as long as the floor is protected during the rest of the building works.

**Roof Sheets**

Observation that fixing techniques were causing problems in some areas where roofing nails were not put in properly.

Improvements made by adding timber packers under the ridges at nail positions as permanent support to the nails.

Generally, NCA have responded well to site observations. There has been a continual process of refinement and improvement although it is clear that the quality is dependent on the quality of workmanship by individual contractors.

Phase I showed that poor nailing of roof sheets sometimes caused localised leaking at nail points.

This was solved by fixing timber packers underneath the ridges to give more support to the nails.

This has been successful in eliminating leaks.

**Mosquito Nets**

Most students use mosquito nets. They usually put them up themselves and sometimes do not do this very well. An idea would be for a permanent fixing to be installed at the time of construction.

**Water Supply and Sanitation Sustainability**

Water supply was constantly referred to as a problem. A sister NCA programme is improving the water supply at a number of the colleges. However, this consultant has observed, in many countries in Africa, that it extremely difficult for institutions to sustain mains water without interruptions. Inevitably, without an extremely well organised maintenance operation, mains water systems will deteriorate or be subject to seasonal variations.

Generally, the standard of supply and the upkeep of sanitary systems seemed higher than the average at the Training Colleges. However, there were areas of concern:

- Plastic Water Cisterns instead of ceramic cisterns. The plastic ones tend to break very easily.
- Broken ball valves and mechanism preventing proper flushing.

- Incorrectly adjust ball valves, which means that water is continually running through the WC.
- Stainless steel pillar taps that have become loose or the washer has failed.

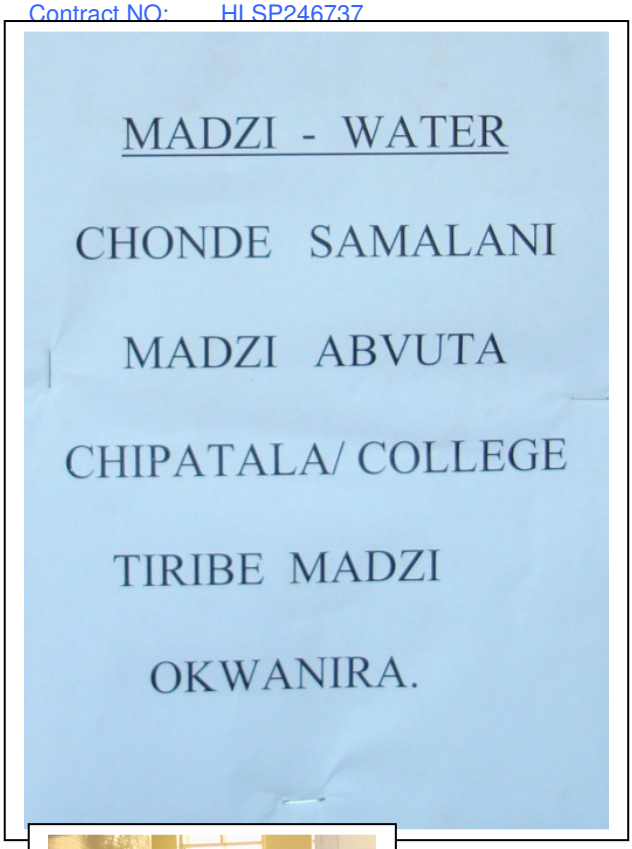
The NCA team were aware of some of these issues and corrective measures, particularly ensuring that the right specification in the contracts was followed.

Considerable discussion took place amongst the technical team on the technical, cultural and maintenance issues related to water and sanitation.

A few points are noted below:

- Water is a scarce commodity and even with newly upgraded water supply systems, failures and interruption are to be expected.
- Water Closets and other plumbing fittings, if not correctly specified will cause an increase on the maintenance burden.
- The problem is much as a result of poor design and specification as to mis-use and inadequate water supply.
- Given the initiative adopted by the project to promote new technology, particularly for wall construction using SSBs, an opportunity is perhaps being lost, where alternative more durable systems could be installed.
- New technology was tempered by the conservative society and the desire of most people to have modern “western” style technologies.
- Training of people to use toilets and taps properly was thought to be a good idea, as many students and staff are not accustomed to WCs.
- Basic DIY maintenance instructions should be provided to staff and students.
- Problems need to be reported immediately and maintenance carried out as soon as possible and not left.

It is not up to this MTR to make strong recommendations as to the way forward on this subject, only to challenge the technical team to be more aware of the issues to reduce the recurrent cost and maintenance burden as much as possible.




A notice at one of the colleges warning about water problems and shortages.

The reality in a number of colleges is that water is still collected and carried from the nearest public water point.

Water Closet technology is a challenge in many locations. Cistern lids get broken and ball valve mechanisms fail.

Sometimes WCs are abandoned and used for other purposes.

Given that these fittings are less than 12 months old, lessons should be learnt and applied in future work.

Where maintenance and user education is good, then problems seem to be reduced.

**Energy**

In a similar manner to water and sanitation, there is an assumed standard which everyone is aiming for. That is to have mains electricity, fluorescent tube lighting and hot water heated by an electric geyser.

It appears that any changes from this will be difficult to implement as there is little political will to promote alternative energy sources. However, a number of observations were made and the technical team was encouraged to analyse more critically what is happening in reality:

**4-foot fluorescent tubes** – in many cases these have been replaced by the occupiers with tungsten bulb fittings as once they have failed then it is difficult to find new tubes. Often the voltage is low and is not capable of energising the starter choke.

Users have made their own design decisions. When fluorescent fittings fail they are replaced by tungsten fittings.

This begs the question: "Were fluorescent fitting the right choice in the first place?"

**Low Energy Fittings** – low wattage bulbs which use the same holders as tungsten bulbs are becoming more available on the market. It was suggested that these should be fitted instead of fluorescent fittings and the project actively promotes this type of technology.

**Solar** and other forms or renewable energy on a small scale are not used.

**Biogas -** Biogas is another alternative fuel source which would be ideal for cooking. It was noted that the modern cooking pots are powered by electricity, which is expensive and subject to frequent power cuts. Biogas could provide a sustainable alternative.

**User Education –** There are a number of issues that need to be considered more carefully at the design stage which affects the performance of buildings:

- Design and material specification
- Workmanship
- **Misuse by the people using the buildings**
- Poor Maintenance

Given that many of the users have never had access to mains water and electricity, there is a need to educate users on how best to look after the buildings.

Poor use of the buildings.

This type of abuse must be discouraged, but at the same time there needs to be understanding of these issues by the design team and the college management committees.

Is it because the occupier cannot afford to buy a plug?

This is a training scheme to encourage young people to get on the job training and experience working alongside the main contractors. Skills in basic masonry, plumbing and electricity would be learnt with the expectation that once the work had finished these people would be available for help with maintenance.

No thorough analysis could be done during the MTR, but it seemed that the scheme, although fine in theory to give basic exposure to construction, did not provide enough skills for them to be attractive in the market place. Many students responded in the final evaluation questionnaire, that they needed more training and that there were no work opportunities available for them.

**Maintenance Plans**

Each college has been invited to submit a maintenance plan to CHAM. These were being submitted at the time of this MTR. Some colleges already had reasonable maintenance systems in place and key points affecting the success are noted as follows:

- Management need to be enthusiastic and committed to maintenance
- A budget must be set each year – some colleges starting at 2% while others who have analysed their situation more carefully have increased their budget from 5 to 10%.
- This budget must not be diverted to other things.
- Access to a plumber, electrician and carpenter are essential at all times. These can either be directly employed or contracted in. Sometimes they are on the staff of the neighbouring hospital.
- A stock of basic items, such as taps, washers, light bulbs and fittings, must always be available to enable quick repair.
- A procurement system needs to be in place to enable critical items to be bought quickly.

The PAM (Physical Assets Management) Unit, within the MOH have produced very good practical guide books on how to manage and carry out maintenance. Whilst these documents are technically sound, they are worthless unless there is commitment from the management.[15]

**Preparation for Reviews**

The NCA was clearly not prepared for this MTR. Requests were made weeks before the assignment started for electronic copies of project documents and drawings. In the case of drawings, these were not provided until the last few days of the visit and many drawings were not available.

Whilst it is understood that some architects are sensitive about releasing original drawing data, if full fees have been paid, then this information should be handed over to the client for future use.

[15] PAM made available the electronic copies of their Maintenance Docs. These were passed on to NCA on a CD.

**It is recommended that for future reviews, the NCA team is fully prepared with realistic travel itineraries and project documentation in electronic copy.**

**Management of Documents**

With modern digital technology, it is much easier to efficiently archive data. Copies should be safeguarded with the RNE, CHAM, NCA and each college.

**It is recommended that the NCA technical team carefully archive documents, drawings and photographs in electronic copy. These are always valuable resources for future projects at the colleges. So often it is very difficult to track original documents, particularly drawings.**

ANNEX C

| | |
|---|---|
| Project | **MTR**<br>**Nurse Training Colleges** |
| Subject | **St John's College – Mzuzu** |
| | |
| From | **Rob Fielding** |
| Date of visit | **09 July 2008** |
| Ref | MAL – ANNEX C |

| | People contributing | Position | Institution |
|---|---|---|---|
| | Raphael Nyinfada | Tutor | St John's |
| | Catherine Kaulo | Tutor | St John's |
| | John Zimba | Plumber | St John's |
| | Emmanuel Malunga | Project Co ord | NCA |
| | Fergus Khonje | Physical Assets Manager | CHAM |

**Introduction**

Old established college 1962.
Hospital on one side of the road and college on the other.
Expansion of facilities on the same site established college site and also renovation of some existing buildings: dining and kitchen and also renovation of an old hostel.

The original site of the college is reasonably compact but there is quite a bit of land for expansion which has been utilised by this project.

The project has been able to build most of the facilities that were requested.

**Technical Observations**

**Master Planning –** Documentation shows that some site layout planning has been done but it does not appear that there was a good master plan prepared at the beginning. It seems as though Phase IV hostel is being squeezed in a tight space.

There is no space left now for recreation or future buildings.

**Maintenance** – The team was taken around by the plumber and we asked what his jobs for the day were. One tap was causing a problem so we discussed the action that he would take. Approval has to be obtained from the principal tutor and a "requisition order", or similar, required from the bursar. It is then necessary to go to town to get a quote, return for approval and then go back to buy the item. This takes half a day for one item of maintenance.

Not sure how much was exaggerated in this example but the problem is highlighted:

- Approval for simple things is required from high level
- Common, frequently used items are not in stock at the college
- The procurement process is lengthy even for a small low-cost item

**Other observations**

- A lot of activity taking place at the moment. Two contractors on site.
- Good technical work.
- One hostel funded by Cordaid. - Is the MoU clear between Cordaid and CHAM or NCA?
- Lessons learnt already on construction techniques from earlier phases.
- Floors bad in the Principals House. Improvements made on the next phase.
- Block making going well.

**Recommendations**

The college site is becoming quite congested. It is recommended that a full topographical survey is carried out which also plots all the services on the site and accurately plots the built structures.

ANNEX D

| | |
|---|---|
| Project | **MTR**<br>**Nurse Training Colleges** |
| Subject | **Ekwendeni College – Mzuzu** |
| | |
| From | **Rob Fielding** |
| Date Visited | **09 July 2008** |
| Ref | MAL – ANNEX D |

| | **People contributing** | **Position** | **Institution** |
|---|---|---|---|
| | Flemmings F,B Nkandwe | Principal Tutor | Ekwendeni |
| | Contractor Representatives | | |
| | Emmanuel Malunga | Project Co ord | NCA |
| | Fergus Khonje | Physical Assets Manager | CHAM |

**Introduction**

Old established college linked directly to the hospital.
Large church owned estate with schools and church as well as the hospital and college
Due to a lack of space around the existing college buildings, a new academic and residential site has been developed about 2 kms to the north.
The principal tutor is strong and has a clear vision for what he wants to achieve in the next 5 years.

**Technical Observations**

**Master Planning – The** decision to relocate to a completely new site appears to have been made after the Project Document was finalised. The consequences of starting a new site from scratch have not been fully appreciated, and not picked up in this NORAD infrastructure project.

The budget contribution to Ekwendeni is the third lowest of the nine, in the Project Document. This reflects a poor cost estimate at the Needs Assessment time and the need to move to a new site had not been anticipated.

Ekwendeni now has the highest budgetary need to create a completely new viable site.

A Master Survey has apparently been carried out by a team from Minnesota but this was not available at any time during this MTR.

**Observations**

- Incomplete new campus.

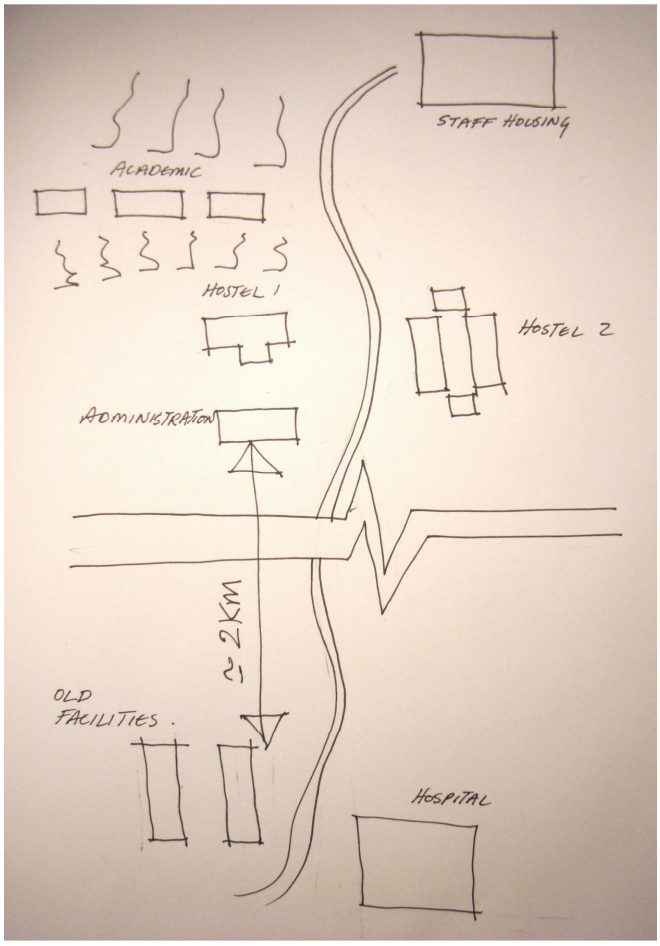
- Dining and kitchen over one kilometre from the new classrooms and new hostels.
- Hostels used to cook in.
- Landscaping and walkways not carried out
- New work funded by other donors goes back to being built from burnt brick.
- Water supply problems perhaps 2 or 3 times a month.
- The water board has refused permission for the church to sink a new bore hole for the college

- 2% of the income allocated to maintenance.

## Recommendations

1. It is important to get all the college facilities in the same place. The current split site is not practical or viable.

2. It is recommended that a Master Plan is developed to show how the college can work, not just in terms of buildings but the whole social and academic procedures and practices that are needed to make this into a proper college.




**Simple Sketch Map**

New facilities remote from the existing hospital and college.

ANNEX E

| | |
|---|---|
| Project | **MTR**<br>**Nurse Training Colleges** |
| Subject | **St Luke's, Zomba** |
| | |
| From | **Rob Fielding** |
| Date Visited | **10 July 2008** |
| Ref | MAL – ANNEX E |

| | People contributing | Position | Institution |
|---|---|---|---|
| | Hankey Makwinja | Electrician | St Luke's |
| | Madalitso Chiuzira | Site Clerk | Contractor |
| | Emmanuel Malunga | Project Co ord | NCA |
| | Fergus Khonje | Physical Assets Manager | CHAM |

**Introduction**

Old established college 1962.
Strong links with overseas churches
Staff in a Board Meeting who were unfortunately unable to meet us.
Students away

Taken around by the maintenance electrician

**Technical Observations**

It was disappointing that there was no one in authority available to take us around all the buildings. The completed hostel building was locked.

**Maintenance Issues -** A visit was made to some of the Tutor houses. These turned out to be some of the poorest maintained structures in all the colleges. The main issues were to do with water, sanitation and electrical installations.

Some issues about the specification of fittings. Need to ensure that high quality items are fitted that were correctly specified.

Fluorescent light fittings don't work in some cases. Not sure whether or not this is because of low voltage to the houses or misuse by the occupiers. Does not seem to be a problem in other buildings.

Generally it was concluded that at St Luke's there is a key issue about misuse by the occupiers: geyser elements burnt out, taps not looked after properly and electrical appliances being used with bare wires and not with plugs.

A visit to the hospital confirmed the suspicion that there are general issues with maintenance not being carried out in a timely way but people do not use the facilities properly. Hospital toilets linked to wards were mostly broken and in poor condition.

**Recommendations**

Master site plan should be developed to ensure that long term planning for the college for the next 10 to 20 years is carried out in a logical and controlled manner. There appears to be a lot of land available at the moment but a good plan would avoid the consequences of wasting land and creating dead spaces for the future.

Maintenance is a key issue here. Generally the buildings look in reasonable condition but water and electricity services are poor, with some of the problems caused by ignorance and misuse by the occupiers. It is recommended therefore, that basic training and instructions are given to all students and staff about the care and maintenance of water and electrical installations. Using appliances without a proper plug should be banned. The maintenance team should set an example.

ANNEX F:

| | |
|---|---|
| Project | **MTR**<br>**Nurse Training Colleges** |
| Subject | **St Joseph's, Zomba** |
| | |
| From | **Rob Fielding** |
| Date visited | **10 July 2008** |
| Ref | MAL – ANNEX F |

| | People contributing | Position | Institution |
|---|---|---|---|
| | | Principal Tutor | St Joseph's |
| | Contractor Representatives | | Contractor |
| | Emmanuel Malunga | Project Co ord | NCA |
| | Fergus Khonje | Physical Assets Manager | CHAM |

**Introduction**

Well managed college
All the facilities are together on the same land so the colleges functions well.
Clear efforts by the college to improve the environment, particularly note worthy are the well landscaped courtyards in the finished hostel blocks.
Taken around by the Principal Tutor
Contractor representatives available
Generally the workmanship is good.

**Technical Observations**

**SSB Technology** - Contrast between SSB technology and burnt bricks
Price higher here as the soil is not good quality and has to be brought in.
Cost of transport getting higher

**College Management** clearly involved in the NCA design process; also involved in the monthly meetings and the principal takes a strong position to make sure the buildings are suitable for their needs.

**Comparison with another Project** - EU project for 20 beds a comparison.
Work not finished properly
Cost more to the college to finish it off
No consultation with the management

**Electrical fittings** – staff choosing to replace fluorescent fittings with bare bulbs. Plugs not being used. Students consulted – electrical fittings shown to be faulty.

**Sanitation** - Cisterns a problem

**Recommendations**

Master site plan should be developed to ensure that long term planning for the college for the next 10 to 20 years is carried out in a logical and controlled manner. There appears to be a lot of land available at the moment but a good plan would avoid the consequences of wasting land and creating dead spaces for the future.

Maintenance is a minor issue here. Generally the buildings look in reasonable but some minor problems are caused by ignorance and misuse by the occupiers. It is recommended therefore, that basic training and instructions are given to all students and staff about the care and maintenance of water and electrical installations. Using appliances without a proper plug should be banned. The maintenance team should set an example.

ANNEX G:

| | |
|---|---|
| Project | **MTR**<br>**Nurse Training Colleges** |
| Subject | **Malamulo** |
| | |
| From | **Rob Fielding** |
| Date visited | **10 July 2008** |
| Ref | MAL – ANNEX G |

| | Persons contributing | Position | Institution |
|---|---|---|---|
| | Patrick Chagwa | Acting Dean | Malamulo |
| | Peterson Katumbi | HR/Maintenance | Malamulo |
| | Francis Danulo | Principal | Malamulo |
| | Annie Kachiwala | Student Affairs Director | Malamulo |
| | Mussa Bande | Registrar | Malamulo |
| | Susan Sundu | Acting Dean | Malamulo |
| | BJ Kwiyah | Foreman | Chibisa |
| | CD Chiuzeni | Site Agent | Chibisa |
| | Emmanuel Malunga | Project Co ord | NCA |
| | Fergus Khonje | Physical Assets Manager | CHAM |

**Introduction**

Distinctive architectural style of the college. Buildings are much more interesting than most of the other colleges.
USAID supported main buildings and renovated hospital
GTZ houses
Split site – not really sure what is in the second campus 2 kilometres away.
Gaps – proposed site for new classrooms near to the main admin
Water OK
Electricity OK

**Technical Observations**

**Master Planning - No** overall plan of the whole campus. Residential buildings away from academic and services.

Usual issues about the way water and electricity is used. Water is being looked at with a NCA sister project.

Contractor engaged and confident with the current phase of buildings.

**Recommendations**

Not all the buildings required can be completed by this project. It is recommended that a detailed site layout is developed and a Master Plan put together which not only looks at the layout of the buildings anticipating

expansion over the next 10 to 20 years but looks a the functionality of the split sites.

ANNEX H:

| | |
|---|---|
| Project | **MTR**<br>**Nurse Training Colleges** |
| Subject | **Malamulo** |
| | |
| From | **Rob Fielding** |
| Date visited | **10 July 2008** |
| Ref | MAL – ANNEX H |

| | People Contributing | Position | Institution |
|---|---|---|---|
| | Berlington Munlkhowdya | Tutor | Holy Family |
| | Mercy Chinkhunda | Nursing Tutor | Holy Family |
| | Jane Lgambo | Nursing Tutor | Holy Family |
| | Fabiano Kalibombe | Nursing Tutor | Holy Family |

**Introduction**

Original buildings date back to 1947
Good collaboration with the NCA and staff
Electricity irregular

**Technical Observations**

Poor Workmanship:
Alignment of blockwork
Tying down of roof trusses
Roof angles.

Pressure on the contractor to do things again right.

Bore holes
Not sure water capacity

Windy location with mountain backdrop
New road running past the site to Zomba

6 new houses
2 houses being finished by this contract under previously funded NCA programme
3 existing houses

Ideally need 15 houses

Plenty of space for expansion

ANNEX I

| | |
|---|---|
| Project | **MTR**<br>**Nurse Training Colleges** |
| Subject | **Mulanje** |
| | |
| From | **Rob Fielding** |
| Date Visited | **11 July 2008** |
| Ref | MAL – ANNEX I |

| | People contributing | Position | Institution |
|---|---|---|---|
| | Stephen Tiziti Kasawala | Clerk of Works | MD Initiative |
| | L E Mkwichi | Foreman | Twope C/U |
| | Enoch | Maintenance | Mulanje Mission |
| | Maureen Juma | Tutor | Mulanje Mission |
| | Grace Tchale | Tutor | Mulanje Mission |
| | Keith Lipati | Acting Principal | Mulanje Mission |
| | Teddie Khacho | Bursar | Mulanje Mission |
| | Jane Mweziwina | Tutor | Mulanje Mission |
| | Emmanuel Malunga | Project Co ord | NCA |
| | Fergus Khonje | Physical Assets Manager | CHAM |

**Introduction**

Large Presbyterian Campus
Scottish and American support
Lot of donors provided new buildings
A lot of work going on at both hospital and college sites
Separate management committees
Same Maintenance team

**Technical Observations**

The site is getting to be quite tight with the new work being carried out. It is not clear how well the site planning has been done to allow for good future expansion.

Met clerk of works from MD Initiative and discussed his role briefly
Maintenance Representative
Contractor
Active Staff

Water supply a big problem. NCA sister project doing something about this but it should be closely monitored to make sure that it will be successful.

Problems with the roofing sheets to the new library. This is being resolved by new sheets.

Concerns about how to do the furniture for the new buildings as the college do not have any resources themselves. This is discussed in the main report.

2 new houses being built – need more

**Future Development -** Given the amount of building work going on, it appeared that this college has good access to donor partners who are prepared to invest in infrastructure.

## Recommendations

With all the new building work going on at both the college and the hospital, it is strongly recommended that a full and detailed topographic survey is carried out which also plots existing service lines for water and electricity.

A 10 to 20 year site plan should be developed.

ANNEX J:

| | |
|---|---|
| Project | **MTR**<br>**Nurse Training Colleges** |
| Subject | **Trinity** |
| | |
| From | **Rob Fielding** |
| Date visited | **12 July 2008** |
| Ref | MAL – ANNEX J |

| | People contributing | Position | Institution |
|---|---|---|---|
| | Memoy Bwarah | Principal | Trinity |
| | Sr Martha Sionango | Bursar | Trinity |
| | Goody Ligola | Foreman | Nangaunozge Contractors |
| | Emmanuel Malunga | Project Co ord | NCA |
| | Fergus Khonje | Physical Assets Manager | CHAM |

**Introduction**

Large Catholic Hospital and College.
Appears to be a remote location although this does not to bother the students and tutors
Currently the main road access is a dirt road with many wadis type crossings on the plains of the Shire River system
Link road to Malamulo is being upgraded
Plenty of land but split into two sites

The work has only just started at Trinity. There is nothing finished.

**Technical Observations**

Water supply and issue but this is being dealt with by a sister NCA programme linked to the Infrastructure Programme

Electricity reasonably available

**Maintenance**

The college appears to have good control of maintenance. 5% of the income is set aside and this may go up to 10% in the future, now that they have a better understanding of what is involved. They were able to do a lot of repair work and redecoration last year.

## Building Orientation

Trinity is located in a hot climatic zone and more attention should have been made by the architects and planners regarding the orientation of the buildings. Buildings should ideally be orientated on an east west axis with the short gable walls facing the sun in the morning and the evenings. This reduces the heat gain caused by direct sun on windows and keeps the buildings cooler.

At Trinity the new hostel buildings are at 90 degrees to the new tutor housing. One of them is wrong. As it was a dull day it was difficult to tell which was north. The response from the contractors where north is, meant that the tutor housing was facing the wrong way.

## Recommendations

It is recommended that a full Master Plan is carried out for the campus, though this is not as critical as other places as there is plenty of land available.

The distance from the new hostel to the kitchen/dining is about 500 metres. This is not too critical, but there are no resources for a kitchen/dining facility on the new site. It is recommended that funding is sourced to do this in the future.

ANNEX K:

| | |
|---|---|
| Project | **MTR**<br>**Nurse Training Colleges** |
| Subject | **Nhkoma Nursing College** |
| | |
| From | **Rob Fielding** |
| Date visited | **14 July 2008** |
| Ref | MAL – ANNEX K |

| | Person Contributing | Position | Institution |
|---|---|---|---|
| | Vennie Arcado | Principal Tutor | Nkoma |
| | Ines Kadangwe | Tutor | Nkoma |
| | Grief Matemba | Tutor | Nkoma |
| | Frank Chinawa | 3rd year student | Nkoma |
| | Vitowe Storrey | 2nd year student | Nkoma |
| | Stanley Chilipula | Foreman | Ruta Construction |
| | Jonathan Isaacs Mangoni | Foreman | Siva Construction |
| | Emmanuel Malunga | Project Co ord | NCA |
| | Fergus Khonje | Physical Assets Manager | CHAM |
| | Emmanuel Malunga | Project Co ord | NCA |
| | Fergus Khonje | Physical Assets Manager | CHAM |

**Introduction**

Large Presbyterian Hospital and College
Only one hour from Lilongwe on a very good surfaced road.
Tarmac road goes all the way to the hospital entrance
The centre was established by Dutch Presbyterians and this is reflected in the early buildings, many of which have Dutch gables and other features.
Brickwork is very typical of Dutch architecture
The existing site is too cramped for more college expansion.
A new site has been identified and agreed by the Synod
The bottom part of the site is steeply sloping
Their campus is located at a higher altitude in an area of rocky outcrops
The hospital wants to take over the old college buildings as they are relocated to the new site. The hospita have agreed in principle to build facilities that are needed

**Technical Observations**

Emmanuel was involved as the contractors Project Manager for the first phase of tutor housing. As a result these have better features and the workmanship is better than many of the other sites.

- Tap located externally.

- Fluorescents omitted and standard roses fitted which are more appropriate in situations of unreliable electricity.

Third phase of infrastructure started on 9 June.

**Recommendation**

Once this last phase of building work is completed, the college will have a problem of functionality with some key facilities still provided at the old site. A clear commitment should be obtained from the owners about how and when old buildings will be replaced. If the timetable is not within the foreseeable future it is recommended that the college seeks further funding to make the new site a workable campus.

It is recommended that a short term and long term Master Plan are developed. How will the college function in 2009 on a split site and what is needed, not just in terms of infrastructure, to make the college workable in the long term.

ANNEX L

# Infrastructure Component

**Summary Recommendations**

Some technical recommendations are included in Annex A – Technical Report. These are a few key recommendations that are more appropriate to the general management of the colleges and policy makers:

1. **Master Plan Surveys**

Full topographical site layouts are invaluable tools to ensure that long term planning can be carried out accurately. Site plans are also invaluable to plot key service routes for water and electricity assisting with campus management and maintenance.

Colleges have been reluctant to have surveys carried out, as the survey costs are considered to be too high.

It is recommended though, that each college has a full survey carried out before any future building phases are planned.

2. **Evaluation**

This MTR has been timely, as there are technical issues that can be improved and incorporated in the remaining infrastructure contracts. However, an evaluation of how the buildings are performing a short time after they have been occupied would be valuable.

This evaluation should not just look at the technical quality of the infrastructure but assess the way people are using the buildings and whether or not they are functional.

3. **Sustainable Technology**

The project should be commended on its application of Stabilised Soil Block technology. It is recommended that the same approach should be applied to water, sanitation and energy issues. Given that the technical team includes one of the most prominent architectural firms in the country, the opportunity to promote sustainable technologies in these fields has been missed.

It is recommended that any future investment in the colleges should include more attention to water and energy saving installations.

4. **Surtax**

Recovery of the surtax for a number of the contractors has been a problem. Every effort has been made to set up a workable system, right from the beginning of the project. NCA has continued to pursue the issue but it is questionably whether or not it is cost effective. Project budgets for infrastructure should always assume that tax should be included.

Efficient recovery is a bonus. Inefficient recovery is a burden to the project.