Feasibility study

for a Nursing School

at Nyangao Hospital

Lindi Region

Tanzania

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Final version

Summary

St. Walburg's hospital in Nyangao in Southern Tanzania belongs to the Catholic Diocese of Lindi, has 220 beds and provides comprehensive curative, preventive and rehabilitative services to a large rural population. Discussions on setting up a nursing school have been going on for more than two years. This feasibility study is supposed to provide the rationale for a decision.

There is a substantial lack of qualified staff for the existing health institutions in Tanzania. While the World Health Organization sets the minimum of health staff at 2.3 per 1000 population the current ratio in Tanzania is 0.4 per 1000 The existing training capacities are not even sufficient to avoid a deterioration of the current ratio - given the high attrition rate of staff and the current population growth. Ambitious plans of the Ministry of Health and Social Welfare on the huge expansion of health facilities will create much more – unmet – demand. Lack of training institutions is one of the main reasons for this situation. Therefore nobody in Tanzania has any serious doubts about the necessity of additional schools for nursing.

The lack of qualified staff is more pronounced in rural areas and more in the South of the country. Therefore Lindi region and Nyangao hospital are especially disadvantaged. The hospital feels a responsibility for training but would also profit considerably from a school as would the school from the hospital: the students would find a good set-up for theoretical and practical learning; the hospital – hard pressed for staff – would benefit from the practical work of the students. In addition it could retain students after graduation as staff.
It would be the only private non-profit nursing school in the region. A private school has – as opposed to government schools - the advantage of being able to select more students from its own and adjacent regions thus increasing the probability of them wanting to stay on after graduation. This would not only benefit the hospital but the region as a whole.
For all these reasons the Ministry of Health and Social Welfare from the central level to the Region down to the District are all very much in favour of starting a new school. But they are not able to contribute any substantial support to the setup or running. The diocese is open to the idea, is willing to provide existing buildings for the institution and to take on the administrative responsibility. However it is not able to support a school financially.

Recruiting qualified teaching staff could be a problem – to be overcome by several options. It is a big advantage that buildings exist already. Therefore the school could be started with much less funding than normally necessary. Nevertheless the costs are substantial: a total of about TSh 500 Mio (or € 250 000 or US $ 310 000) are required to start the school.
This sum results from an initial investment for the setup of about TSh 330 Mio (or € 165 000 or US $ 210 000) and a sum of about TSh 165 Mio (or € 85 000 or US $ 100 000)
for of a revolving fund. Only if this revolving fund exists the school can admit students from the region who are unable to pay the real cost of the training – which would be about TSh 1.8 Mio. per student per year. This revolving fund would enable poor students to pay a small annual fee and repay their loan after graduation by bonding and salary deduction – a system running well in other places. It also would enable the school to run completely self-sustainable.

To start the school is in the interest of the country, the region and the hospital and would be a great help. As none of the local stakeholders is in a position to provide the necessary funding for the set-up it is recommended to find donors from outside the country.

If this support cannot be found it will not feasible to start a nurse training school in Nyangao.

1. Introduction - General background

Since its small start in 1947 St. Walburga's hospital has been continuously growing. It has been providing increasingly comprehensive and steadily improving health services to a large catchment area with a big population. Today it has 220 beds with all relevant departments and is - beyond the curative work - active in preventive medicine and community outreach activities. It has been appointed by the Ministry of Health and Social Welfare (MoHSW) in 2009 to function as the official "Council Designated Hospital" for "Lindi rural" district in the Lindi region in Southern Tanzania. Because of its service level and its important role for a large area in 2010 the MoHSW has it declared to be a "regional referral hospital."
While originally a Mission-Hospital by the Benedictine Sisters of Tutzing in Germany it has been handed over many years ago to the Catholic Diocese of Lindi whose Bishop is now the owner of the institution.
In 2010/11 financial year 56 % of the budget came from staff- and bed-grants from the MoHSW, 26 % from donations from abroad (including some small project grants) and only 16 % were generated by patient fees. The financial situation of the hospital already is and increasingly may become more difficult as important longtime donors have announced to withdraw their support as they themselves face problems. For major repairs and replacement of equipment in the past help from outside could be secured. Currently there is no depreciation accounted for and there are no reserves for maintenance and replacements - leave alone for substantial improvements in buildings or machinery. On top an inflation rate of 15 % constitutes a permanent threat.
To fight the daily problems, to keep the standards and to possibly even improve on them requires a lot of effort from the management and all the staff.

To actively reflect about the future perspective of the hospital in general an extensive exercise was carried out in 2011 resulting in a five year "Strategic plan 2011 - 2016" (Nyangao 2011). This plan outlines and discusses a number of desirable potential development perspectives for the hospital. A big project proposal to secure finances for the implementation of some of the measures foreseen in this Strategic Plan has been turned down.
One of the topics discussed in the plan is the setup of a nursing school.

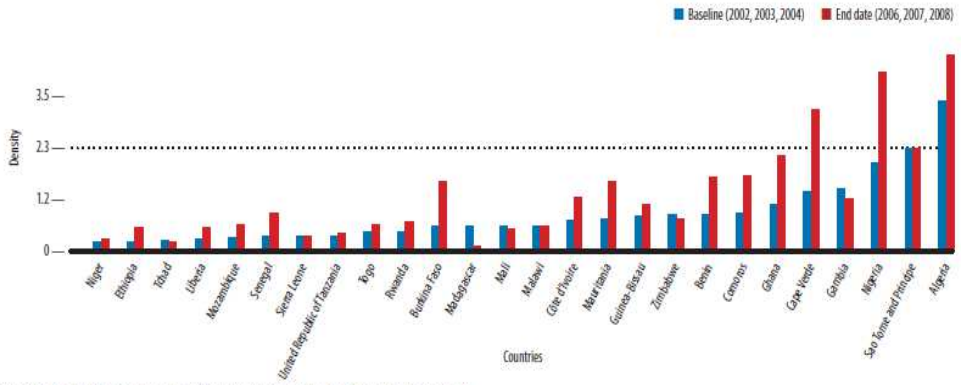
Like many other hospitals Nyangao has been considering training as one of its responsibilities in the past and is still doing so. It had a school for a one-year training of nurse assistants for a number of years. This school was closed after the MoHSW abolished the one-year curriculum.
Ever since the hospital has been thinking of starting training activities again. More specific discussions on setting up a nursing school have been going on fo more than two years.

2. Why start a school? Needs assessment.

A severe shortage of human resources in the health sector has been existing for quite a number of years in most countries of Africa. The absolute shortage is compounded by a maldistribution between urban and rural areas so that the latter one fare even much worse. Chronic underinvestment in health systems strengthening as well as in education in general is the main reason for this situation.

2.3 health workers per 1000 population are considered a minimum for developing countries by WHO. As the figure shows, not only is Tanzania with about 0.4 far below this target; it also does not compare well with many other countries ranking only in place 19 out of 26 countries. (WHO, 2010)

Figure 1. Shortage status of doctors, nurses and midwives in the African Region (2002–2008)



Source: Africa Health Workforce Observatory (http://www.hrh-observatory.afro.who.int/en/home.html).

↑ Tanzania

In 2006 the MoHSW counted a shortage of 90.000 health care professionals for Tanzania for both private and government sectors combined. It is extremely difficult to understand how the MoHSW in such a situation could seriously set up its "Primary Health Services Development Programme (PSHDP)" – "Mpango wa Maendeleo wa Afya ya Msingi (MAMM)" (MoHSW 2007) which aims at establishing a dispensary in every village, a health center in each ward and a hospital in each district.

A comparison of existing vs. planned institutions shows the huge amount of institutions additionally needed as compared to the existing ones: the number of dispensaries would have to be more than doubled, the number of health centres almost multiplied by five! (MoHSW 2008, b)

Table 2: Current and Planned Health Units by Administrative Level

Administrative Level	**Village**	**Ward**	**District**
Administrative Units Present	10342 Villages	2555 Wards	113 Districts
Health Units	Dispensaries	Health Centres	District Hospitals
Present	4679	481	95
Additional Required	5162	2074	8
Total	**9841**	**2535**	**103**

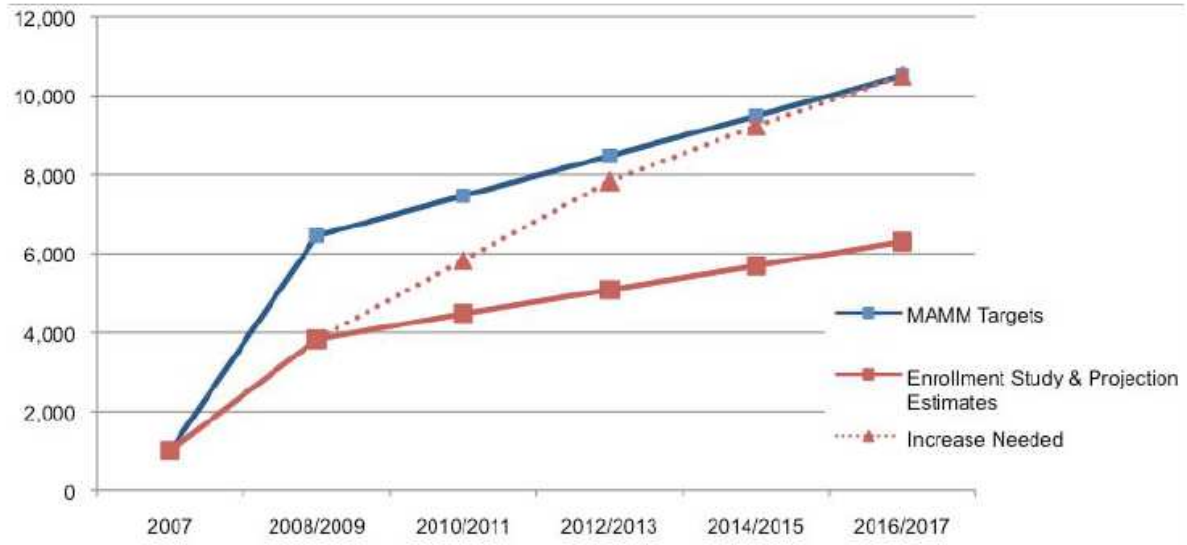
Already now most if not all of the existing health services facilities face a severe shortage of staff. And no remedy is in sight: " ....given the attrition rate of staff on one side .... and the population growth on the other the capacity of the 116 existing health training institutions in Tanzania at the moment is not enough to produce sufficient staff to prevent the current ratio of 0.4 staff per 1000 population falling even further in the near future..." (MoHSW, 2011)
How in such a situation this new PHSDP/MAMM can have been reasonably drawn up remains the mystery of the government and donors.

It is not that this plan has not been followed by some action. However action as usual is slow and the resources available are far from compatible with the goals. To increase the output of nurses the MoHSW has taken several steps. The first was to reduce the duration of training: the length of the Diploma-nurse training has been reduced from 4 to 3 years; the duration for

training certificate enrolled nurses was shortened from 3 to 2 years. The curriculums have been revised too and the opportunity been taken to change from a "knowledge based" to a "competency based" concept. (MoHSW 2008, a) The Ministry also has forced the nursing schools to increase the intake number of students. It is the MoHSW where students have to apply to for joining a government nursing school and as it the MoHSW which – after checking their qualification – decides who is admitted and to which school. Therefore it was easy for the MoHSW to admit many more students to the schools than in previous years. To do this without any additional substantial support for these schools results in a learning environment which hardly justifies this name in many instances.

The big need for additional training capacities is also illustrated in the following graph: the upper line in the figure shows the expected need of enrolments per year if the MAMM figures are to be met compared to the lower line showing the actually likely enrolment estimates – given the current number of schools and their capacity.

Figure 1: MAMM Enrollment Target, 2009 Enrollment Study Findings and Projections *(MOHSW, 2006; MOHSW, 2009)*



(MoHSW 2010, a)

All these figures should leave no doubt as to the necessity of additional training schools in the nursing sector in Tanzania.

Will there be enough applications for training

But even if the need is great this does not necessarily mean that there would be enough applications for such a trainng.
Yet for 2010 the MoHSW reports more then 8000 applications for nurse training of which more than 5800 were qualified while the intake capacity for training was only 2200. (MoHSW, 2010, a) Yet are these high application numbers only the result of the low school fees in government training school?
No, the same holds true for private schools. The FBO-nursing schools contacted during this study all reported a much, much higher number of qualified applications than places they could offer to students.

And there is no doubt that becoming a nurse is socially and economically attractive: nurses enjoy substantial esteem by the population as a profession giving service to their people; their jobs are also financially quite attractive: since the pay rise in 2008 the starting salary of

a certificate nurse is TSh 297.000 per month, a pay comparing very favourably with other jobs.
There is one factor which might however have a bearing on the future situation: the government is intent on raising the entrance requirements for nursing training. While up till now a Form IV leaver with two D passes in Science is qualified for being admitted this might be changed in future: it may become necessary to have C passes instead for qualifying. This is more difficult to achieve – given the poor standards of secondary education in many schools. It remains to be seen whether this change will turn into a problem for recruiting a sufficient number of qualified nursing students.

3. Why should Nyangao have a school?

Besides the reasons given above for having more schools in general there are some specific reasons why it would make sense to have such an institution at Nyangao hospital.
This hospital – as many other FBO institutions - faces difficulties in recruiting sufficient staff. These problems have increased for several reasons during the last years. The financial situation for the hospital has become more difficult as previous donors have started to withdraw. The increase in government salaries has forced the FBO-hospitals in order to avoid staff to leave for "greener pastures" to increase salaries accordingly – without getting additional resources. And the recentralization of paying staff salary grants and seconded staff's salaries directly by the MoHS has not only led to dramatic confusion; those staff are afraid of loosing considerable social security benefits due to this change.

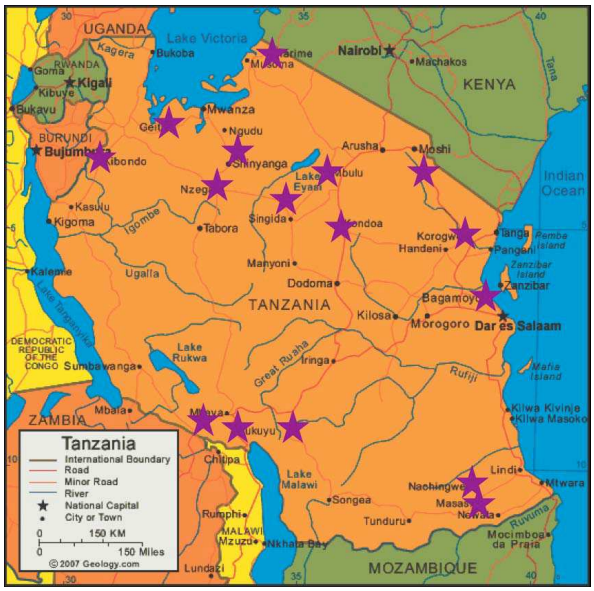
Having a school would have direct **advantages for the hospital**:

- The training of the new students in ward routine and clinical work in the beginning is an additional burden for the hospital staff; after an initial phase however the students turn into a valuable work force which supports the existing staff. This increases the nursing-time per patient which should result in a rise of the quality of patient care.
  Whether this effect is large enough to even save on staff positions in the long run would remain to be seen.
- If the school gets started at all then it should do so with a fellowship scheme. (see below). Such a scheme would enable the hospital to tie some of the students after graduation to the hospital via a bonding system and this in turn would assure the hospital to a continuous supply of nurses (at least for the three bonding years.)

For the school in turn it is of paramount importance to be liaised closely with a hospital where theory is confronted with reality and where students can do their practical training. As the school would be adjacent to the hospital compound it would be very conveniently located to ease the exchange between the two institutions.
The physical closeness to the hospital and the expertise available there in all aspects of prevention, curative and rehabilitative work as well as managerial aspects of health work is a big asset which can be made use of in a number of ways.
To set up a school would help the hospital also to achieve better performance on the Millenium Development Goals (MDG) as set out in the Strategic Plan. MDG 4,5 and 6 are very important for the hospital as childhood mortality, maternal mortality , HIV/AIDS, Malaria and Tuberculosis are dominant problems in the region. Improving on the staff situation and thus on the quality of its care the hospital hopes to make a larger contribution to the achievement of the MDG. And it should be kept in mind that although throughout this paper the term "nursing" is used it should correctly read " nurse-midwife" as the training for "certificate nurse" pertains to midwifery as much as it does to nursing. To improve and increase skilled birth attendance however is one of the major mechanisms for improving on MDG 5 and has large bearing on MDG 4 as well.

This would apply in fact to the whole catchment area, that is the **Lindi region** as well as adjacent ones. The South of Tanzania has always been and still is disadvantaged in many respects compared to other regions of the country. This also applies to the health sector where figures show how much better the performance in many other regions is. (United ... 2011)

This situation is also reflected in the distribution of training institutions for enrolled nurses as this figure demonstrates where each star represents one such school. (MoHSW 2010, a)



In government training institutions the students are assigned their respective school by the MoHSW – which tends to mix students from all over the country and send them to places all over the country. This makes politically good sense - as such a policy helps a young nation to reduce potential tribalism and increase national identity. Usually however graduates look for employment more where they come from than nearby their training place. As however secondary education is much more available in the north and northwest the bulk of students comes from there and tends to go back there. This is one of the reasons why the lack of staff in health facilities is much more pronounced in the South compared to the North.
In a private FBO-school the students apply not to the MoHSW but directly to the school. Even if the bulk may still come from outside the region the school can set its priorities and admit more applicants from the local area than from far away.
As the tendency to stay after graduation in the home area is high this will result in more qualified staff being available for Lindi and its neighbouring regions. As there is – up till now – not a single private/FBO nursing school in Lindi region this aspect is of special relevance.

The potential setup of a school has also economic aspects for the area: as many nursing jobs cannot be filled for lack of sufficient applicants such a school would contribute to more employment of local staff – which in turn will support the improvement of the region.

Being a disadvantaged region also means that training facilities in general are less available than in other areas of the country. Thus a new school to qualify students is an additional asset for the educational sector of the region.

Last but not least such a school has a gender aspect: it would be intended to recruit female and male students as well. Usually however the number of female students admitted is much higher. This contributes to more women being able to get a job and thus contributes hopefully to a slow reduction of women being disadvantaged in this society.

There is only one **negative** aspect in establishing such a school: the currently running **school for domestic science** would have to be closed as its buildings would be needed for the nursing school. This school was established many years ago and is currently running a two years training course for girls from the area. Entrance requirements is standard 7 leaver. At the moment there are two classes of 25 students each. School start is in February of each year and a new batch of 25 has just arrived. Students pay a fee of TSh 80.000 per annum and the school survives mainly on support from abroad and has some income from its Cashewnut farm. Having only 50 students means that the existing buildings are far from being used to their capacity. This has to do with the fact that the idea of closing the school altogether has been around for quite some time. Originally it was hoped that the school would provide a training which would make graduates employable after finishing the school. However there is no staff having the qualifications required for an official registration. Thus the students learn mainly to better run their future households. This is by no means to be belittled. However given the problem with registration and compared to the setup of a nursing school the advantages of rededicating the building to a nursing school weigh more heavily than the disadvantage of discontinuing this school.
When setting up a nursing school this should however be done without creating hardship or undue disruption to the existing students. One could easily imagine that the first year of nurse training and the second year of domestic training are run parallel before the domestic school would be phased out for good.

4. Will graduates find employment?

In recent years nurses have been and still are very much in demand and did not have any problem to find a job in Tanzania.
Given the above figures by the government about the numbers of nurses which can be trained at the moment and in the near future and the projections of trained nurses needed there should be no doubt that all qualified nurses will find employment for a long time to come.
It is true that in the 1990ies the World Bank forced its structural adjustment program on many countries to the effect that government positions in general were reduced heavily; this also applied to Tanzania and to its health sector. As this policy has meanwhile been recognized to have had mainly negative effects on the countries concerned the probability that some such thing will happen again is low.

5. What type of school should be considered to be established?

From the outset of considerations to set up a school it was clear that it should be one from which not only the country in general, the region more specifically but the hospital especially should benefit. As the hospital hopes to benefit from the work of the students during their practical work as well as from employing much needed graduates it quickly became clear that it should be some sort of nursing training - although from government side several times the request has been formulated to open a school for the training of lab assistants. There is no question that this type of cadre needs additional training facilities as well. However this applies to nurses too; and from nursing school the hospital would benefit more than from training lab assistants. Also the existing facilities can be much better made use of for a nurse training school.
One alternative would have been to restart a one year training course for **nurse assistants** - the type of training which the hospital had been running before the curriculum was abolished by the government. It is said that this training will be allowed soon again - but it has not been decided upon yet. So there is some uncertainty as to whether it will be reintroduced at all. The more important reservation however results from the fact that the entrance requirements for this one year training will be the same as the ones for the certificate level: in both cases

Form IV of secondary school needs to have been completed successfully with passes in two science subjects. The salaries of certificate-level nurses are considerably higher than the ones for nurse attendants - and therefore most people believe that everyone who has completed form IV and wants to go into nursing will strive to join (at least) a certificate level training.

Another option is the setup of a three years training course for **Diploma level** nursing. This is a cadre which also is very much needed and therefore it is something which needs to be kept in mind. However after having started a certificate level course and run it successfully for some time to upgrade it to a diploma level course should be an easy thing – if it turns out in due course that there are more reasons to pursue this type of training.

Given however the difficulties in setting up a school at all and taking into account the need of the hospital as well as of the region the best option will be to start with a two years training course for **certificate level.** It has the advantage that the hospital would profit from the practical work of the students during their training and that Nyangao as well as other hospitals in the area could absorb the graduates thus becoming able to recruit sufficient staff for their own institutions. The training of certificate nurses in the context of MAMM has special relevance: all (new) dispensaries are supposed to be staffed by certificate nurses. And finally: to set up a two-years training course is easier than to do so for a three years course – in terms of finances, staff, equipment, housing - all sorts of logistic issues. Assuming that a class size of 40 will have to be aimed at and given the fact that the dormitories as well as class rooms available will hold a maximum of 80-90 students that too is a strong argument for starting a two years course.
For all these reasons the tendency to go for a two year training of nurses providing a "certificate" soon dominated the discussions about the setup of a nursing school.

6. Which stakeholders exist and
- what is their general attitude and
- what is their potential contribution
towards a school?

The most important stakeholder for the setup of a new school is the **hospital** which will be the owner of the place – if it is started. And for the reasons given above, for the advantages resulting from a school for the hospital the Doctor i/c as well as senior staff welcome the setup – although it will constitute an additional and considerable management and administrative burden during the start up phase.
Also the staff in general might be considered a stake holder as it partly will have to carry the burden of teaching the students during the beginning of their practical work while having the advantage of support thereafter. Therefore the hospital management team has repeatedly discussed the issue and is much in favour of getting the school started.
As the owner of the hospital is the catholic **Diocese** of Lindi the Bishop would be the finally responsible person. The bishop, his Vicar General, the treasurer of the diocese and its health secretary all have great sympathy for the idea of setting up such a school. And they are ready to contribute substantially by rededicating the existing domestic school and thus providing the buildings which would house the institution. In addition they are principally ready to shoulder the burden of being responsible for it.
Their reservation is however that the finances for the setup and for assuring sustainability of the school must have been secured before any positive decision will be taken. And they would be able and willing to provide additional land for staff housing and/or for future extensions of the school; but here too the investment would have to be financed from somebody else.

The **government** in the form of the **MoHSW** is the second most important partner. Since the hospital has been appointed Council Designated Hospital (CDH) in 2009 the MoHSW contributes the bigger part of the running cost of the hospital by seconding personnel, by providing staff and bed grants and by providing funds at the Medical Stores Department (MSD) to cover most of the drugs the hospital uses. Since many years the hospital has established and is enjoying good working relations with the District Medical Officer (DMO) and the Regional Medical Officer (RMO) of Lindi. It contributes its annual plans to the annual regional planning exercise and in turn receives funds from the Ministrie's basket fund.
But the Ministry itself is having severe financial difficulties and therefore it is not surprising that on one side all the government officials warmly welcome the idea of the school; they even go a step further and urge the hospital to get the school started as soon as possible. If however asked for financial support the answer is that they do not have any finances to contribute. They would be willing to second one or the other nurse tutor; given the grave lack of this cadre in most government owned schools the chances to receive such a support actually seem to be quite slim. The RMO as well as the DMO have assured to provide supporting letters for all grant applications the hospital might send to potential donors.

The funds from the MoHSW are channelled via the **District** authorities – who are directly involved with the hospital. They are signing the "Service agreement" with the hospital which refunds the hospital for some of its activities. And they are represented on the board of directors of the hospital. The District Development Director (DED) is very much in favour of the school too as he is familiar with the lack of staff in the district and takes his responsibility for "his" Council Designated Hospital seriously. He is ready to make a contribution to the set-up of the school if plans become more concrete; he does not see fit yet however to state what amount this might be.

On the level of the **Lindi Region** the administration – represented by the Regional Administrative Secretary (RAS) – also fullheartedly supports the idea of the school. Asked for support he promises to provide about 10 fellowships for some years for students from the region.

The big **"Tanzanian-German-Program-to-support-health (TGPSH)"** has been going on for many years in Tanzania. Besides advising the MoHSW on a central level it concentrates its work on 4 regions – one of which is Lindi region. The improvement of human resources in the health sector as well as the quality improvement of services are both priority areas of this programme – aspects where a new school should fit in nicely. In addition: given the fact that Nyangao hospital has been started long ago by German Sisters, that it has been run by them for many years and delivered a big job in providing health services to the population of a largely underserved area one wonders whether a certain amount of special responsibility or incline to support the setup of such a school might be encountered there.
First talks on potential support however met a with reservations. Most likely no serious commitments will be made and more discussion will be needed to sound out whether any possibilities exist at all for getting some support.

Other **development** or international **cooperation** institutions who might be willing to provide support have not yet been identified. This will however be tried in due course.

The **local community** should be seen as a favourable stakeholder because "its hospital" will improve services and its children might get a chance for a good training and a subsequently well paid job near home – which in turn the community and the families would reap the benefits of. The community is represented on the hospital board by the chairperson of the District Council.
Although 80 (poor) students do not constitute a big purchasing power it is not nothing either for the **local business** community. During the setup this community will be able to sell

furniture and other locally available equipment and when the school is running some people will make good business by providing the school with food.

7. Which formal prerequisites exist to establish a school and which steps have to be taken to meet them?

The MoHSW has clearly outlined all the requirements to be met for registration of a nursing school. In "The nursing and Midwifery registration act" published and thus officially put into operation in 2010 "The nursing and midwife (training) regulations, 2010" (MoHSW 2010) provide specifications for all aspects of the training. It covers the registration and licensing procedure for a school, outlines the curriculum, describes the human resource prerequisites to be met as well as the requirements for teaching and building facilities - all in great detail.

For the registration directly responsible is the National Council for Technical Education (NACTE) in Dar Es Salaam which works – concerning nurse/midwifery training - hand in hand with the Tanzanian Nurse Midwife Council (TNMC).
During the initial phase NACTE – upon request and payment - is willing to support the planning with its expertise: it is open to send somebody to help with the preparation and can provide a preparatory registration. This is however not obligatory.
To apply for proper registration a 17 page application form has to be filled before a commission is appointed by NACTE to come for a visit. This commission will consist of representatives from NACTE, from the MoHSW, from TNMC and from health personnel from the region. It comes for verifying the given data, for discussing the request with the applicants and for inspection of the site where the school intends to start. This visit has to be paid for by the applicant (and will cost around TSh 3 Mio).
If the most important but not all prerequisites have been met, NACTE may then grant a provisional registration for two years after which a progress report needs to be written up. Upon submission again a commission will come to visit and propose to the NACTE board how to proceed. The result can be either an extension of the provisional registration or a full registration (or the request to stop).
The time lag between sending the application and the decision should not exceed three months – but might turn out to be much longer.
After registration with NACTE – or parallel to it - a similar process needs to be set in motion with TNMC.

The difficulty with this registration process is to judge how seriously all the prerequisites layed down in "The nursing and midwife (training) regulations, 2010" are taken in reality and how much red tape might result from them. (One old and very good private school has been threatened to be closed if its dormitories – which in fact are a world above the dormitories seen in government schools – would not be improved dramatically. Now this school had to find resources to build new dormitories.)
It should however be assumed that the registration body will only make reasonable demands and will honour the interest of the country to have an additional nurse/midwife training school.

Principally speaking the available facilities and buildings in the proposed school and in the hospital are quite good – compared to other private schools and are far beyond government facilities. There would however be some investment needed: the rooms would need some painting and a little repair; furniture, equipment, teaching material etc. to meet the requirements would have to be bought before the place could start taking in students.

One big hurdle to be overcome will be the staffing of a new school with qualified teachers. Nurse tutors are in very short supply in many institutions. While for other trainings the regulations give a minimum number of nurse tutors this is not the case for certificate nursing.

For the first year – with 40 students – 1 principal (who is also doing a full workload as teacher) and 1 nurse tutor should be sufficient. For the second year at least one (preferably two) more nurse tutors need to be recruited to meet a rate of 1 tutor per 26 students (or of 1 per 20 respectively).

8. What are the main problems of existing schools? Which possibilities exist to overcome them?

A recently completed very comprehensive report gives a detailed description of each single of 16 government certificate nursing schools. Both learning and living conditions in most instances are described as "insufficient". (MoHSW 2010, a) When visiting some of the schools it becomes however clear that this report puts its findings in very polite phrases. In fact the situation seems to be extremely deplorable in many institutions: overcrowded dormitories with no chair or cupboard; buckets of students for cleaning themselves and washing their cloths; by far not enough of even the most essential textbooks; rotten classrooms with broken furniture; no library, no place to sit and study, not a single computer for students (although it is now part of the curriculum), dilapidated dining halls, serious difficulties in providing food for the students ..... It is amazing that there is any teaching and learning going on at all in such places and this is only due to the sometimes enormous commitment of teachers and students.

The MoHSW "Rapid assessment..." (MoHSW, 2008,b) too has thoroughly and systematically analyzed the main problems of government nursing schools. lt enumerates a long list of major problems as given by 50 heads of training institutions. Most of these problems could be solved if sufficient finances would be available.
Assuming that the new school would start only if the basic financial requirements have been met some of the listed problems may become relevant for the planned school nevertheless:
"....
j) shortage of teaching staff
k) ordinary hospital staff who could be used as part time teachers lack exposure to teaching methodology;
l) ... insufficient staff houses....
p) low staff morale partly due to lack of scheme of service for teachers in health training institutions;
..... "

The shortage of staff can be overcome by either paying a competitive salary or by providing housing or by both. From the three private schools where some detailed information could be obtained two provide houses for all of their teaching staff while the third one does so for 4 out of 6 tutors. This may be an important factor. It is an advantage therefore that there are currently two staff houses adjacent to the present domestic school which might be used to that end.
As there is always a shortage of houses in the hospital one way of solving this problem - and another one at the same time - would be to send one or two nurses from the hospital for nurse tutor training. They have already housing and therefore when coming back this problem would not arise – and the school would have tutors too.
To recruit retired nurse tutors might be another way of solving this – potential – problem. If need be Voluntary Service Overseas (VSO) would be open to support the school with some nurse tutors and also Interteam Switzerland could be approached to that end.

In a midterm perspective to retain the tutors and/or acquire new ones a scheme for pay increase or other benefits accruing over time should be devised.

In due course it would be helpful to find out about short courses for teaching methodology and didactic methods. Hospital staff interested in part-time teaching then should get an opportunity to attend.

9. Cost estimates for start up and for running

The most difficult questions for the setup of the school are the financial implications. A school costs a considerable amount of money and this has to come from somewhere.
It is worrying that it is almost impossible to get hard data on the real cost, the real expenses of any of the existing teaching institutions.
Although the government set up is completely different from a private-nonprofit setup it would have been interesting to learn how much resources are available there, how much they spend. Each government school prepares an annual budget for recurrent as well as investment needs and sends it to the MoHSW. It turns out, however, that the schools handing them in believe their proposals are hardly worth the paper they are printed on: what they in fact receive has nothing do with what they request.
The study of the MoHSW on "Scaling Up - Nursing Schools" used an extensive questionnaire to collect data on the finances of the schools they analyzed. Yet the financial information they were able to collect is so poor that they cannot draw any quantified conclusions. "... All principals reported that the funds received through cost sharing and the MOHSW are erratic and not sufficient to maintain the institution...." (MoHSW 2010, a) From the government schools seen during this feasibility study the conclusion is that this sentence is a grave understatement which should in fact read: that funds received are absolutely erratic and far from sufficient to maintain the institution! Or what should it be called if the tenderers providing food for the school have not been paid their bills for more than half a year in one instance and for more than one-and-a-half years in another one? In both cases the tenderers stopped providing food for the schools so the students go hungry and have to look where to get anything. The same applies to the extremely poor teaching and living conditions – which all suffer from severe shortage of funding.

So the only lesson to be learned from the government schools is to assure sufficient finances before deciding to open and to run a school.

Several very experienced interview partners from the FBO side actually had grave reservations about starting a new school in Nyangao - for financial reasons. They are aware that in the past many FBO had close ties to Europe and the US where they got continuous and substantial support from. This has changed very much although some still receive some - but often decreasing – support. In this situation a school might soon turn into an additional financial burden for the hospital, thus constituting a danger for the hospital's own long term survival. Therefore they clearly advised against starting a school.
Such warnings need to be taken very seriously.

The conclusion should be that an **absolute prerequisite** for a decision to start a school is

1. **to have reliable assurances on financial resources to manage the start-up phase which requires considerable investments and**
2. **to have agreed on a financial concept to assure a sufficient income for a sustainable running thereafter.**

As FBO-hospitals and -schools have usually been set up in very close cooperation in the past they also have a joint accounting system - which makes it impossible to exactly know the income and expenses of the school. This must be avoided.
Therefore if a decision to start a school is taken, a third prerequisite must be met:

3. **The administration of finances should be handled completely separate from the hospital's accounting system in order to know at any given point in time what the financial situation of the school is.**

Cost estimate for the start-up phase: investments

In appendix 5 a cautious estimate for the necessary investment costs for the start up phase has been put together separately for the first and the second year.
The **assumptions** used for this estimate are:

1. The first intake will admit 40 students and the second year of the domestic school with 25 students will run parallel (before the domestic school is phased out the year thereafter).
2. The second intake (in year two of the school) will again admit 40 students so that
3. the total number of students for the continuous running will be 80 at any given time.
4. The furniture of the current school will continue to be used by the nursing school; this saves a lot of investment; some however need to be replaced and some need to be added.
5. Most of the furniture and equipment – except high tech – will be procured locally.
6. For books it was not possible to get proper figures for an estimate; so this is a very rough guess; attempts should be made to save on the costs for books by asking donations in kind from the MoHSW as well as from international organisations.
7. For Computers it might be possible to get second hand donations.
8. Trying to set up a modest facility no plans have been made to buy a car, to buy washing machines, modern kitchen equipment etc.

The table in app. 5 shows that before the first year investments of TSh 251 Mio will be needed and before the second year another TSh 80 Mio need to be invested. This adds up to a total **investment of TSh 331 Mio (or € 165 000 or US $ 210 000).**

This is quite a sum of money. On the other hand one needs to be aware that this concept here saves enormously on potentially required investments because all the necessary **buildings** are available already and have just to receive some renovations, some refurbishment and many organisational changes.
Appendix 3 gives a rough sketch which should make clear that there is enough room to fulfil all requirements in terms of offices for administration, classrooms, skills lab, library with computer lab, assembly hall, kitchen and dining facilities, dormitories, toilets, showers and washing and drying area and a number of store rooms.
There are eight dormitories, each about 6 x 6 m where it is planned to place 7 doubledecker beds in each; this leaves enough room to add cupboards for all and tables and chairs for some of the students.
The area currently conveys a very clean, well tended, tidy and friendly atmosphere which will provide a very conducive teaching and learning environment.

Cost estimate for the running phase: recurrent costs

As it is difficult to ascertain the real costs from existing schools and if it is assumed that all FBO schools are working on a non-profit base the amount of the fees they charge should be an indicator of their running costs - assuming that they are the only, at least the main, source of income for the school.

Here is an overview of the fees - as far as they could get hold of:

Overview: fees in TSh charged by different Nursing schools per student per year		
Haydom (Dipl.)	**1.700.000**	
Ifakara (Dipl.)	**1.500.000**	
Kibosho NTC (Certif. and Dipl.)	**from 1.200.000**	**up to 1.850.000**
Kiuma (Certif.)	**300.000**	
Ndanda (Dipl.)	**1.100.000**	
St Caspar (Dipl.)	**1.800.000**	
Tosamaganga (Certif.)	**1.200.000**	
Nachingwea gov. (Certif.)	**280.000**	
Newala gov. (Dipl.)	**280.000**	

The school charging TSh 300.000 per year as well as the one charging TSh 1.1 Mio per year are both receiving substantial support from outside to cover the deficit between their school fees and their actual costs.
Only from two private schools could we get some reliable information on the actual costs of running the school (without any investment). In one instance the school has about 100 students and is costing (including overhead costs of the hospital) TSh 170 Mio. per year. The other one accrues costs of roughly TSh 100 Mio per year having about 110 students.
The conclusion from these figures is that a student costs between TSh 900.000 and 1.7 Mio per year.
Although only few hard data are available they are nevertheless sufficient to provide a reliable estimate on the actual costs per student per year. With an amount of between TSh 1.3 Mio and TSh 1.8 Mio per student per year it should be possible to run a decent nursing school. The breakdown of costs given by some of the schools in appendix 2 supports this assumption.

A more detailed breakdown on projected recurrent cost estimates has been given in appendix 5 differentiating again between the first and the second year.
According to this estimate – which is fraught with a number of uncertainties – the recurrent costs of the school would amount to **TSh 144 Mio per year;** this gives a **recurrent cost of TSh 1.8 Mio per student per year** – at the upper end of the figures given above.

10. Revenue perspectives and revolving fund

Theoretically one source of revenue for a FBO school could and should be the government which loudly proclaims the need for additional nurse training institutions. However given the situation in the government's own schools it becomes quickly clear that not much support can be expected.
And this is expressively stated by the **MoHSW**: no funding will be available from the **central level** for such a new school. Perhaps one might secure some support by seconding one ore two nurse tutors - but this option is coming with a big question mark and therefore something one cannot rely on. One FBO-school reported to receive TSh 40.000 per student per year from the MoH. This is an almost negligible amount
On the level of the **periphery** - of the region and of the district - the idea of setting up a school is very much supported. The ability to provide support in the form of finances, staff or in kind however is again extremely limited.

The **Diocese** as the owner of the school theoretically is another potential source of financial support. In fact however the diocese is hard pressed for funding many, many other activities and responsibilities and therefore does not see the possibility to contribute substantially to either the funding for the start-up or for the running of the school.

Given the above cost estimates for the start-up phase and given that no local institution is able to provide this amount of money all the consideration boil down to saying that the start of a proper school will not be possible without funding for the start-up phase from outside.

The investments needed for the start-up phase are one thing. To make sure that the school can be run without continuous support from outside is another thing. However again: if the school does not have a self-sustainable perspective from its beginning it should not be started altogether.
As outlined above the running phase of the school with all recurrent expenses could probably completely be covered by charging fees of about TSh 1.8 Mio per student per year. And in fact it seems possible to charge that amount and get enough students – from far away within or outside the country. There might be also some local businessmen who can afford such a fee for their children. However the majority of people in Lindi District and region are rather poor. If they are supposed to get a chance for their children then – everybody agrees – only something like TSh 500.000 could be charged per annum. Therefore if the school wants to provide a benefit for its surrounding area and hopes to retain some of the students after graduation as Nurses for the hospital this can be only achieved by setting up a loan or fellowship scheme which enables students from the local area - whose families cannot come up with such high fees - to apply to the school. The difference between the fees and the actual costs would then be born initially by a fund. The students who want to take advantage of this fund are bonded to work in Nyangao or other hospitals who agree to deduct about 30 % of the salary of the nurse for about 3 years in order to pay back the fellowship. Thus this fund would become a **"revolving fund"** which could go on for many years.
The snag with this concept is: this fund needs to exist before the school can start to work.

Model calculations (in appendix 6) show the need for such a **revolving fund** ranging from between TSh 138 Mio (= € 70.000 = US $ 85.000) up to TSh 330 Mio. (= € 165 000 = US $ 205 000). A reasonable sum would be **TSh 165 Mio. (= € 80 000 = US $ 100 000).**

The nursing school in Ndanda has a longstanding and good experience with running such a revolving fund. Out of 98 students currently studying there, only 2 have paid the full amount of the total fee of 1.1 Mio. All the other 96 students use the fund. They offer two alternatives: A: student pays a fee of TSh 400.000 per year and repays about 20 % of salary (of a diploma nurse of TSH 472 000) after graduation for about 25 months which will cover the accrued debt. B: student pays a fee of TSh 600.000 per year and repays about 10 % of salary after graduation for about 34 months which will cover the accrued debt.
The school of St. Caspar in Itigi has just started a similar scheme.

Actually it is not always the parents or the family who pay the fees. In some instances it is a "sponsor" who covers them. This may be a FBO-hospital helping suitable but poor students – while investing in its own staff development; it may be a District or any other institution which needs staff or which wants to support students who cannot afford it.

Such a revolving fund where the students pay back the scholarship after having started to work would need to be secured from outside as the means are locally not available.

11. Which school size to aim at?

Several considerations need to be discussed on the size of the school.

There are financial aspects to different sizes. The table (cp. app. 5) shows a **comparison of cost estimates for different versions of a school inTSh:**

	having a total of 80 students	having a total of 50 students	having a total of 25 students
total investment cost for starting the school	331.000.000	273.375.000	213.825.000
investment per student	4.137.500	5.467.500	8.553.000
total running costs per year from 2nd year onwards	144.120.000	111.440.000	59.780.000
costs per student per year would be	1.801.500	2.228.800	2.391.200

This cost comparison demonstrates several things: it is to be expected that the total investment needs to be smaller, if the total student number is smaller. However the investment per student is not proportionate to the number of students but increases as the student number decreases. The explanation is that some investments depend on the number of students (beds, tables, computers) while others do not (office equipment, photocopier, skills lab ....).
It is also interesting to see that costs per student per year increase considerably the smaller the school would be. This is partly due to the staff/student ratio and partly due to other items where the scale of magnitude reduces unit-costs.
From an investment and financial point of view, the biggest version would be the best one. It is the one which is most affordable – and therefore probably most attractive – to students. And it makes best use of the premises.

However there are two aspects which make a bigger school more difficult: if it is assumed that a large majority of students will want to make use of a fellowship scheme this implies not only a lot of work to get the agreements signed – not only by the student but by somebody from his family to guarantee the contract. (This - in this matrilinear society of Lindi area would in most cases have to be the elder brother of the student's mother). But this agreement has to be complemented two years later by an agreement with a potential employer for the newly graduated nurse. The more bonded students graduate the more difficult this might become. As long as there are enough church hospitals who look for nurses this is not too difficult. As soon as however government institutions become future employers things get more complicated. To get a reliable contract with a District Medical Officer who wants to employ such nurses is not so easy – as the experience from Ndanda shows.

To reduce the workload and the risk associated with fellowships and bonding one might opt for a concept where only about half of all the students (per intake) are offered a fellowship while the other half would have to come up with the full fees. This would have the disadvantage of having to admit more students who probably would come from other parts of the country – and would go back there later. However there would be an additional advantage to it: with this model the size of the revolving fund need not be as big as if practically all students would be included – and thus the chances to find a donor to provide the start up resources would be increased.

Different options for how to phase the nursing school in (and the domestic school out) are shown in appendix 4. Which option to choose would depend on financial as well as other considerations.

12. Plan of action

If the board and the Diocese agree to this proposal the most important activity to start next would be to approach potential donors for support.
How long it will take to find donor(s) willing to finance this proposal – if possible at all – cannot be projected. Only minor preparatory activities should be done while fund raising is going on.
The major preparatory phase would start only after funds have been secured. A tentative plan of activities is attached in appendix 1.

Between the point of time when funds have been secured and the opening of the school not more than one year should elapse.

13. Recommendations to the diocese/board

Given all the above discussions and considerations it is recommended to the board of directors of the hospital to make the following suggestions to the bishop:

1. The Catholic Diocese of Lindi should seriously try to set up a nurse/midwife training school for certificate level at Nyangao hospital.

2. The hospital should be authorized to start lobbying for funding in the name of the Diocese for this project immediately. The Doctor in charge should be made responsible for directing and coordinating all efforts.

3. Two **conditions** should however be fulfilled before a final go-ahead by the Diocese is given to start concrete preparatory steps for the school:
3.1. (a) donor(s) must have been found who provide(s) the finances for the start-up-phase of the school
and
3.2. the same or another donor(s) must have been found who provide(s) the finances for the set-up of a revolving fund for fellowships.

4. As this process of securing finances may take a long time and as no delay should be caused by sending nurses for training as tutors – which in itself may be quite time consuming – the hospital should send one or two nurses for nurse tutor training as soon as possible (although this investment may get lost if the school never starts).

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Appendices

app. 1 plan of activities
app. 2 comparison of fee breakdown
app. 3 sketch of existing buildings
app. 4 options to start school
app. 5 cost estimate
app. 6 revolving fund calculations

App. 1 Plan of activities

Only after the hospital board and the Bishop have agreed to attempt the setup of the school the following **plan of activities** should be set in motion:

1. Preparatory phase

1. start immediately with fund-raising efforts
2. send one nurse for upgrading to nurse tutor as soon as possible
3. continue to keep eyes open for other nurse tutors – also (soon) retiring ones

2. Implementation phase
only after funds for start-up phase and for the revolving fund have been secured the concrete planning can start:

2.1. decide on details for

1. fees,
2. fellowship scheme(s), ,
3. agreement form for fellowships,
4. admission requirements;
5. draft mission, vision,
6. rules of conduct
7. organigram/governing structure of the school

2.2. make detailed
- plans including time frame and responsibilities for action and
- budget for the following activities:

1. written plan for **staff** and its recruitment
    i. recruit nurse tutors
    ii. recruit support staff

2. written plan for the use/rededication of existing **buildings**
    i. plan renovation accordingly
    ii. implement renovation

3. written plan to buy **furniture** for offices, classrooms, library/computer lab, skills lab, dormitories.....
    i. order furnitures

4. written plan to buy **equipment** for offices, classrooms, library/computer lab, skills lab
    i. order equipment (including installation)

5. plan to phase out **domestic school**

6. decide on **opening date**/first intake

7. **publicise** about the school and invite student applications

8. start **registration** process by applying to NACTE

App. 2 break down of fees from other schools -comparison

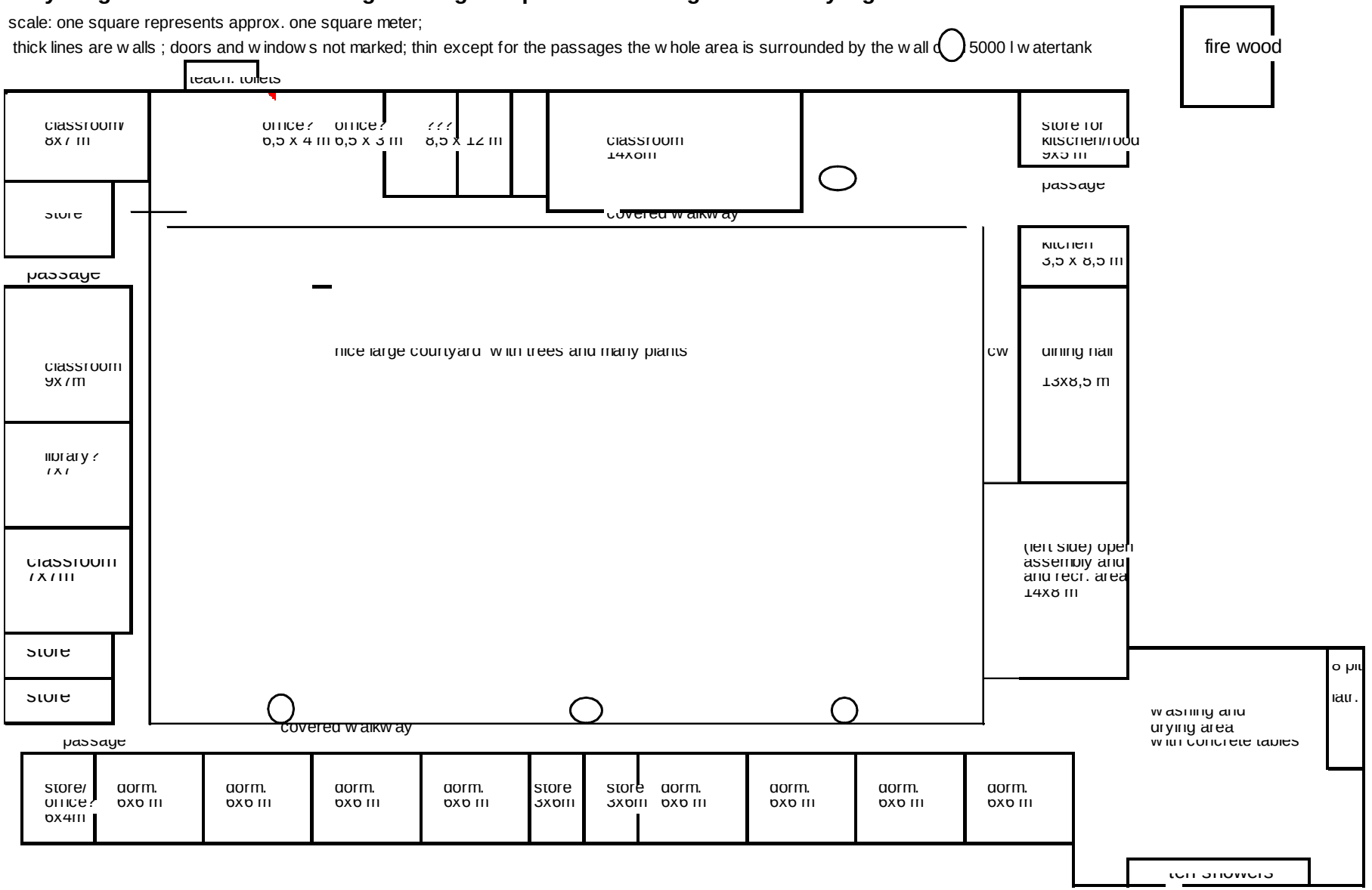
breakdown of fees as given by two private schools

	St. Caspar			**Tosamaganga**
				fees for 2nd yr
tuition	700.000			552.000
accomodation	300.000			60.000
food	400.000			516.000
identity	5.000		id. and registr.	72.000
medical treatment	50.000			
books, procedurs	25.000			
field work	150.000			200.000
caution money	50.000			
exam. fees; station.	100.000			
uniforms 2 pairs	50.000			
total	1.830.000			1.400.000
fee charged	**1.800.000**			**1.400.000**

very rough draft sketch of existing buildings for possible nursing school in Nyangao

scale: one square represents approx. one square meter;

thick lines are walls ; doors and windows not marked; thin except for the passages the whole area is surrounded by the wall c 5000 l watertank



Different options to build up a school

Option 1:

Ideally the start of the nursing school would look like this

		year 1	year 2	year 3	year 4	year 5
nursing	40 students in 2nd yr					
school	40 students in 1st yr					
domestic	25 students in 2nd yr					
school	25 students in 1st yr					

Option 2:

Nursing school is started cautiously with 25 students and the option to continue with both schools in case the nursing school cannot expandfurther for financial or other reasons.

		year 1	year 2	year 3	year 4	year 5
nursing	25 students in 2nd yr					
school	25 students in 1st yr					
domestic	25 students in 2nd yr					
school	25 students in 1st yr					

Option 3:

From option 2 one can switch to a full nursing school whenever it is felt suitable

		year 1	year 2	year 3	year 4	year 5	year 6
	15 stud. 2nd						
nursing	25 students in 2nd yr						
	15 stud. 1st						
school	25 students in 1st yr						
domestic	25 students in 2nd yr						
school	25 students in 1st yr						

appendix 5

Cost estimate for Expected Nursing School At St Walburg's Hospital Nyangao
Version 1 assuming 40 students for the 1st yr plus 40 students for the 2nd yr

	Quantity	Unit Cost	Frequency	Investment costs (educated guess) 1st year	Investment costs (educated guess) 2nd year	Recurrent cost - 1st year	Quantity	Recurrent cost - 2nd year
qualified staff								
Principal cum Matron	1	800.000	12			9.600.000	1	9.600.000
Nurse Tutors	2	600.000	12			14.400.000	3	21.600.000
part time tutors from Hospital:		TSh 5000/2hrs				500.000		1.000.000
support Staff:								
admin./accounts	1	500.000	12			6.000.000		6.000.000
Secr. cum Librarian	1	350.000	12			4.200.000	1	4.200.000
Cleaner	2	160.000	12			3.840.000	4	7.680.000
Cooks	2	160.000	12			3.840.000	4	7.680.000
Office Attendant	1	160.000	12			1.920.000	2	1.920.000
Security Guards	2	160.000	12			3.840.000	2	3.840.000
Subtotal Staffing						48.140.000		63.520.000
Accommodation								
Mosquito Nets	40	10.000		400.000	400.000			
Mattresses	40	75.000		3.000.000				
Beds (double decker)	20	100.000		2.000.000	2.000.000			
Cupboards (1 for 2 st.)	20	120.000		2.400.000	2.400.000			

tables and chairs	40	100.000		4.000.000	4.000.000			
Renovation of buildings								
Dormitories				20.000.000				
Classr., libr., recr., others				60.000.000				
Offices				20.000.000				
Books for libr and stud.	40	1.500.000	1	60.000.000	40.000.000			
Skills lab. equipm.	1			20.000.000				
Projector	1	4.000.000	1	4.000.000	4.000.000			
TV	1	1.500.000	1	1.500.000				

Furniture offices, staff r.,dining hall etc.				20.000.000	6.000.000			
Office equipment								
Desktop Computers	15	1.000.000	1	15.000.000				
voltage stabilizers	15	200.000		3.000.000				
photocopier with printing, scan and fax	1	5.000.000	1	5.000.000				
Desktop printer/scan./copier	1	100.000		100.000				
Safe	1	800.000	1	800.000				
LAN	1	5.000.000	1	5.000.000				
Internet Installation	1	3.000.000	1	3.000.000				

Transp. of furniture & equipm.	1	2.000.000	1	2.000.000	1.000.000			
Office supplies lumpsum						1.000.000		2.000.000
Food f. students	40	500.000				20.000.000	80	40.000.000
Utility (water, electr.)		50.000	12			600.000	80	600.000
Transport for students	40	200.000				8.000.000	80	16.000.000
Transport for staff incl. allow.	3	500.000				1.500.000	4	2.000.000
contingency					20.000.000			
unforeseen/conting.								20.000.000
running costs						69.740.000		144.120.000
investment costs for start up				251.200.000	79.800.000			

total investment cost for starting the school					**331.000.000**			
total running costs per year from 2nd year onwards								**144.120.000**

If there are 80 students the total running costs per student per year would be	**1.801.500**

Cost of a revolving fund for student fellowships for Certificate nurses

conversion rates: 1 US $ = TSh 1600; 1 € = TSh 2000;

A fair fee and repayment scheme for a two years course could look like that:
calculating that 80 students use the fund
assuming costs per student per year being TSh 1.8 Mio.
Assumptions:
- a beginning salary of TSh 290000
- loan must be payed back within bonding period

fee/yr	actual cost/yr	difference cost - fee/yr	total debt per student after 2 yrs		to be repaid by 30 % sal. deduction takes x months	to be repaid by 20 % sal. deduction takes x months	fund volume needed per student = debt per yr x 3 yrs (est.!)	**fund volume needed in TSh** for 80 students(half take A and half take B)	**fund volume needed in €**	**fund volume needed in US $**
500.000	1.800.000	1.300.000	2.600.000		*30*		3.900.000	156.000.000	78.000	
800.000	1.800.000	1.000.000	2.000.000			*34*	3.000.000	120.000.000	60.000	
								276.000.000	**138.000**	**172.500**

If inflation of 10 % per yr is to be covered by student fee + repayment

fee/yr	actual cost/yr	difference cost - fee/yr	total debt per student after 2 yrs	total debt if 10 % per yr are added on the difference	to be repaid by 30 % sal. deduction takes x months	to be repaid by 25 % sal. deduction takes x months	fund volume needed per student = total debt x1.5 (est.!)	**fund volume needed in TSh** for 80 students (half take A and half take B)	**fund volume needed in €**	**fund volume needed in US $**
500.000	1.800.000	1.300.000	2.600.000	3.120.000	*36*		4.680.000	187.200.000	93.600	
800.000	1.800.000	1.000.000	2.000.000	2.400.000		*33*	3.600.000	144.000.000	72.000	
								331.200.000	**165.600**	**207.000**

A fair fee and repayment scheme for a two years course could look like that:
calculating that 40 students use the fund
assuming costs per student per year being TSh 1.8 Mio.
Assumptions:
- a beginning salary of TSh 290000
- loan must be payed back within bonding period

fee/yr	actual cost/yr	difference cost - fee/yr	total debt per student after 2 yrs		to be repaid by 30 % sal. deduction takes x months	to be repaid by 25 % sal. deduction takes x months	fund volume needed per student = debt per yr x 3 yrs (est.!)	**fund volume needed in TSh** for 40 students(half take A and half take B)	**fund volume needed in €**	**fund volume needed in US $**
500.000	1.800.000	1.300.000	2.600.000		*30*		3.900.000	78.000.000	39.000	
800.000	1.800.000	1.000.000	2.000.000			*28*	3.000.000	60.000.000	30.000	
								138.000.000	**69.000**	**86.250**

If inflation of 10 % per yr is to be covered by student fee + repayment

fee/yr	actual cost/yr	difference cost - fee/yr	total debt per student after 2 yrs	total debt if 10 % per yr are added on the difference	to be repaid by 30 % sal. deduction takes x months	to be repaid by 20 % sal. deduction takes x months	fund volume needed per student = total debt x1.5 (est.!)	**fund volume needed in TSh** for 80 students (half take A and half take B)	**fund volume needed in €**	**fund volume needed in US $**
500.000	1.800.000	1.300.000	2.600.000	3.120.000	*36*		4.680.000	93.600.000	46.800	
800.000	1.800.000	1.000.000	2.000.000	2.400.000		*33*	3.600.000	72.000.000	36.000	
								165.600.000	**82.800**	**103.500**

appendix 6