Construction of Kamwala Health Centre

An analysis of roles different actors played during the project development process

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Introduction

This report was presented during the Architecture and Development 2000 course run by the Housing Development and Management department at Lund University, Sweden. The course focussed on housing, and several concepts were introduced to the participants on the role of strategies, actors and design in the development of a project.

Housing was looked at in a much wider context than is usually conceived by many scholars. It was clear that housing viewed in its proper context goes beyond the provision of a housing unit, but that it should include the provision of other facilities that are necessary for the comprehensive development of the human being. These should include access to education, health, safety and security, and job opportunities to mention but some of them.

This report will look at the provision of the health service with a particular bias towards the delivery of buildings for health care. The report will try to bring out some of the elements provoked during the course and determine how these could be related to the experiences of the author in the project implementation process. It is worth mentioning here that the author was a member of the project implementation team that supervised the construction of the health centres in Lusaka. He was in fact the project architect for Kamwala Health Centre, which shall be used as a case study in this report. Therefore the contents of this paper will entirely be based on the experiences and observations of the author.

General Background

It is generally agreed that housing means much more than just the provision of a roof over a people's head. Housing per se as spelt out in the Habitat Agenda should aim at the provision of shelter for all coupled with provisions for sustainable human settlements development.

It is one aspect of the later part of the Habitat Agenda, which will be the subject of study in this report. There cannot be sustainable human settlements development if there is no provision for the improvement of health conditions of a particular community.

The Habitat agenda commits itself to the objective of "providing adequate and integrated environmental infrastructure facilities in all settlements as soon as possible with a view to improving health by ensuring access for all people to sufficient, continuous and safe freshwater supplies, sanitation, drainage and waste disposal services, with emphasis on providing facilities to segments of the population living in poverty."(Habitat Agenda 1996: 3of8)

It is against this background that this report wishes to look at the provision of health services in Lusaka, Zambia, since this forms part and parcel of the conditions necessary for sustainable human settlements development. The Ministry of Health through the Lusaka Urban District Health Management Board (LUDHMB) decided to deliver health care services to the people within their communities.

They embarked on a plan of action to expand some health centres in eight selected suburbs in Lusaka. The selection criteria, inter alia looked at the population densities of these suburbs and therefore the catchment areas for particular health centres. They also looked at the long distances the inhabitants of Lusaka had to travel to the University Teaching Hospital (UTH) for in-patient treatment. The UTH was about the only public hospital in Lusaka district with facilities for the admission of patients and this consequently led to congestion at the hospital and poor service. It must be mentioned that one of the objectives for the creation of the UTH in Lusaka was to provide consultancy and specialised services as a national hospital and not as a district hospital. Therefore, the administration felt prompted to consider providing facilities for admission in the township health centres to kind of decongest the UTH thereby allowing it the chance to revert back to its original status. Hence, the selection of the health centres listed below. We must hasten to state that this may not necessarily have solved the problem of access to primary health care but that it is an attempt by the policy makers to begin to address the issue. Thus the following health centres were selected as sites for the project:

1. **Chipata Health Centre** located about 6 km north of the city and with a catchment area of population of approximately 150,000.
2. **Matero Health Centre** located about 4 km northwest of the city with a catchment area with over 100,000 inhabitants.
3. **Kanyama Health** C**entre** located about 4 km west of the city centre and with a catchment population of about 80,000 people.
4. **Chawama Health Centre** located about 8 km south of the city with a catchment area of over 150,000 people.
5. **Chilenje Health Centre** located about 6 km southeast of the city and with a catchment population of approximately 80,000inhabitants.
6. **Kalingalinga Health Centre** located 6 km east of the city and with a catchment population of over 100,000 people.
7. **Chelstone Health Centre** located approximately 15 km east of town with a catchment population of over 100,000 people.
8. **Kamwala Health Centre** within 2 km radius of the city centre and with a catchment population of over 100,000 people. The author of this report was the project architect for this health centre and hence its choice for a case study.

Policy Background

The series of events that culminated into strategies leading to the construction of the eight urban health centres in Lusaka were born out of pressure from two fronts. Firstly, there was a lot of pressure from the international community on the Zambian government to come up with a self-sustaining health delivery system. Secondly, there were calls from within for a more efficient and qualitative health care delivery system. The unrelenting international pressure coupled with technical advice from within saw the introduction of the Health Reforms policy initiatives around 1990.One of the principle elements of the Health Reforms was for the public to pay for their health care. The government then introduced what they called the cost-sharing initiative whereby the public would pay certain fees including a monthly health insurance scheme.

The health reforms policy framework also demanded that health services be delivered in a more efficient manner for the benefit of the general public. The Lusaka Urban District Health Management Board (LUDHMB), a result of the health reforms was the vehicle for the implementation of the provisions contained in the reform policies. The LUDHMB then came up with strategies that also included the need to construct health centres with more facilities than just for outpatient's treatment that was the rule rather than the exception at the time.

In order that these policies were implemented, there was need for funds to be made available. The strategy to lobby the international community paid off when the British Department For International Development (DFID, formerly the ODA) came

to their aid. They pledged funding for a wide range of activities such as capacity building, equipment and drug procurement, and the procurement of civil works. However, it was not until 1994 that the programme for the construction of the eight urban health centres in Lusaka would get underway

Therefore, with the funding secured, the Lusaka Urban District Health Management Board (LUDHMB) could then confidently approach the Director of Buildings to assist with the procurement of the clinics. Discussions ensued from then whereby it was agreed Buildings Department would participate in the procurement of the civil works but that there was need for logistical support to the department for them to deliver the clinics in the given time frame. Fortunately, when this scenario was presented to the DFID, the donor; after several consultations, they agreed to support Buildings Department. This support covered the procurement and maintenance of the project vehicle, computers and photocopying equipment and training of staff in computer aided design and other skills. This meant that Buildings Department was well prepared to undertake the project with the first clinic being tendered in 1994. The DFID, LUDHMB and Buildings Department agreed to phase out the construction of the eight clinics between 1994 and 1998 when the last clinic was completed.

It must be stated that each of the three participants at this stage; the DFID, LUDHMB and Buildings Department had their own autonomous strategies focussed towards the achievement of the common goals of the project. Buildings Department, for instance, worked within the following strategy framework:

1. To deliver the health centres within time and budget.
2. To deliver buildings according to specifications and standards.
3. To deliver a quality design to the satisfaction of the client.
4. To deliver the procurement of the works to the satisfaction of the donors within the set economic parameters.
5. To evaluate the functionality of the design.
6. To carry out a post-occupancy evaluation and advise on maintenance of the buildings.

From the above scenario one can see that Buildings Department was not only accountable to the client (LUDHMB) as would have been the case traditionally, but also to the donor, the DFID; as they had direct contact with them from the various consultations. This relationship was a good development, as we shall come to see later in the report. The strategies of the other two players will not be discussed here but suffice it to say that they were executed satisfactorily in so far as the implementation of the project was concerned.

Therefore it may be deduced that sometimes international pressure or advocacy may be necessary in that it tends to compel the national or local organisations to act albeit in a seemingly inadequate or for completely different reasons from those in the international charter. The global influence may usually lead to national policies and strategies. Generally speaking, most of the national strategies for the implementation of global demands usually end up at discussion stages and are rarely implemented or if an attempt is made, it is usually too little too late or for expedience; political or otherwise. There are various reasons for this state of affairs inter alia the lack of understanding of the local conditions by the donor agencies or the wrong priorities of the local political leadership.

Despite the seemingly bleak scenario of the effect of policies in general, it may be said that some form of policies are necessary if any programmes are going to be implemented at all. The policies are often not misplaced in their formulation per se but their implementation is usually the problem.

However, it is clear that policies and strategies whether good or bad act as a stimulus for implementation of certain goals when a combination of will and opportunity present themselves. We can see that with strategies in place, it was possible to implement certain provisions of a policy statement once resources were made available, as was the case of the DFID funded health centres in Lusaka. The strategies of the LUDHMB to implement the construction of the health centres had a multiplier effect as they brought in different players to help them achieve their objectives.

It must be pointed out that the Health Reforms in Zambia had far reaching objectives like human resource development, procurement of drugs and equipment other than just the procurement of buildings being discussed here. Therefore, the

Health Reforms, being a national policy meant the provision of such a service nationwide though this is yet to be realised since the construction of health centres in the other districts is in process. How far the other aspects of the health reforms have been implemented is not the subject of this paper but will be left to the relevant authorities to deal with. Nonetheless, the success of the civil works programme will be based on the health centres built in Lusaka District in general and specifically Kamwala Health Centre.

Kamwala Health Centre, a clinic built in Lusaka in 1997/98 will be used as a case study from which some inferences would be drawn on the impact of the participation of the different actors. It is therefore, the hope of this report that the conclusions thus drawn would be used as a guide in the implementation of future projects.

The method that will be used in the report would be to look at the role of the different actors at each stage of the project implementation, and consequently determine the extent to which their participation influenced the project. The actors under consideration can be divided into the following categories.

- Designers.
- Donors.
- Institutional client.
- User client.
- Contractor.

The Designers

The designers or design team consists of the architects, quantity surveyors and service engineers, all of whom come from the office of Director of Buildings.

This team is seemingly very critical in that it acts as a vehicle through which the activities of the various actors may be coordinated and brought to bear on the direction of the project.

Donors

The second group, that of donors are mainly seen as actors who ensure the availability of funds and the manner of application of these funds.

The Institutional Client

Then comes the institutional client. Why institutional, one may ask? Different ministries depending on their needs and priorities usually initiate the public projects. The institutional client in this case is the Lusaka Urban Health Management Board (LUDHMB), under the ministry of health. These are the people who sourced the funds and are the owners of the project.

The User-client

This group may be divided into two categories namely, the health workers who work in the clinics each day, and the general public seeking the services of the health providers. This group should occupy a very special position in that they spend a great deal of their time in these premises either as workers or as patients or relatives.

The Contractor

The last group is the contractor, the person engaged to carry out the works in accordance with specifications and contract provisions.

The Role of the Different Actors

The chapter is divided into two sections, namely, the pre-contract stage and the post-contract stage. A description of the roles played by the various actors is discussed. The chapter ends with an analysis of lessons learned from the interaction of the different actors. The five actors described at the end of the previous chapter came into the picture at different stages and brought with them to the project implementation process their unique character and contributions.

In the preliminary stages the institutional client (LUDHMB), the donor agency and the designers (the architect in particular) were in close and constant contact for consultations with each other. The client's enthusiasm to see the project

implemented was further complemented by the presence of a knowledgeable and meticulous donor. The donor in fact employed an architect and a quantity surveyor to handle the project for them. The client, the donor representatives and the design team arranged several meetings to prepare for tender documentation.

Pre-contract Stage

The Role of the Design Team (Director of Buildings)

The design team is usually headed by an architect who also acts as a project manager in the implementation of the contract. The project architect by virtue of being team leader arranged meetings with the client and the donor to formulate the actual design brief and the roles each part was going to play. The decision-making process was enhanced by the presence of an architect and a quantity surveyor from the donor agency. This meant that decisions referred to the donor would be addressed quite promptly. The client developed so much confidence in the donor that you could hardly differentiate one from the other, as they seemed to do things together.

Hence the architect together with the other design team members translated the brief into the design with the full knowledge and awareness of the donor and the client. Preparation of working drawings and tender documents went on quite smoothly due to this cooperation and the fact that design team members were all under one roof.

Normally when drawings and tender documents are prepared for public buildings whose estimate exceeds a set threshold, Buildings Department are obliged by law to procure such works through the central tender board, the Zambia National Tender Board (ZNTB). However, in this instance the donor felt so strongly about this that they requested the department to directly float the bids without necessarily going through the central tender board in order to avoid red tape and the delays inherent in the system.

Thus an application to the ZNTB for a waiver of this requirement was lodged and fortunately the response was favourable. Indeed this development sped up the process of tendering and can be attested to by the fact that the contract was entered into within about two weeks of the completion of tender documents by the design team.

The Role played by the Donors

The donor representatives were quite familiar with the set up of the construction industry in Zambia it being somewhat tailored on the British system. Moreover as alluded to earlier on, the architect representing the donor had worked in Zambia before. Therefore, the experiences of the donor representatives were a valuable asset to the project. They were not only involved in the design process but also in capacity building through training of Buildings Department staff. The training focussed on computer skills and contract management to enhance the performance of the staff involved in the project.

The donor also bought a project vehicle, computers and photocopying equipment for the department. The ability of the department to handle the project was effectively increased.

The direct interaction brought a new dimension to the relationship between the donor and the designers (Buildings Department). This was an unusual development in that in the traditional building construction process the design team only interact with the client and not directly with the donor unless there is a serious crisis.

The donor brought good suggestions to the project development process like the proposal for a quicker tendering process other than the usual route through the Zambia National Tender Board. The donor also directly controlled and administered the disbursement of funds.

The Client

The client initiated the whole project and brought with them to the building process the donor to meet with the design team. They defined their requirements in close collaboration with the donor representatives and the design team.

Furthermore, to enhance the consultation and feedback process, the client initiated what came to be known as Project Management Group (PMG) meetings for the sole purpose of planning for the development of the project. This encouraged the

participatory role of each of the three actors. Later during the construction programme the user client (medical staff and technicians from the clinic) were incorporated in the project management group meetings. This was like the first official contact between the designers and the user client at which stage the works were already under construction on site. It may be assumed that before then, the institutional client probably represented their interests at the design stage. The project group management meetings were held independently of and should be differentiated from site meetings conducted entirely for the proper execution of the works by the contractor. These meetings were held about every two weeks. The contractor did not attend the PMG meetings except on particular occasions when there would be matters to be addressed by him before the project management group.

Post-contract Stage

The post contract stage commenced with the placement of the contract with the contractor. Wah Kong Enterprises limited, a Chinese construction firm won the tender to construct Kamwala Health Centre over a period of twenty-five weeks from October 28, 1997 to April 15, 1998. This is the stage of the project implementation process when the contractor takes centre stage with the commencement of the works on site.

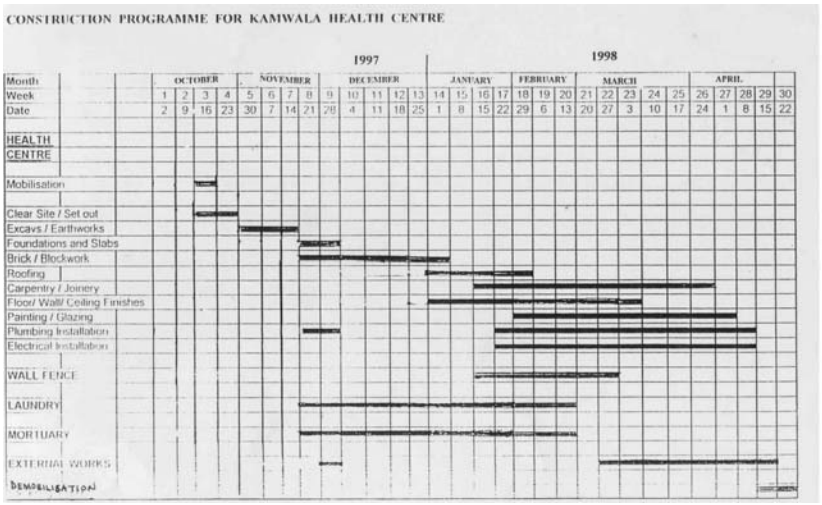

Figure 1: Original programme of works

The contractor organises his workforce, plant and equipment to carry out the works. He is responsible for the coordination of sub-contractors and the supply of materials for the works. He is further responsible for the quality of works. He submits a programme of works to the design team highlighting the milestones of the construction process. The construction of the works in terms of quality went on quite well except that the works could not be completed as anticipated.

The contract period had to be extended on two occasions giving a final completion date of June 24, 1998 as opposed to the original contract completion date of April 15,1998. The extension resulted from delays the main contractor suffered due to delays by the sub-contractor who was engaged to blast rocks on site for foundation works to commence. This matter was not entirely the contractor's problem since the design team did not carry out adequate site investigations of the conditions underlying the site. Trial holes were not sunk to investigate the ground conditions because it was thought that a single storey building did not warranty such a step. May be rightly so because the cost of trial holes would certainly have gone beyond the cost (opportunity cost) which resulted from the delay on a comparative scale. Hence the measurement of sub structural works as provisional only to be determined as measured on site.

The progress of construction was monitored through site meetings and inspections by the design team. The contractor, user client, institutional client, donor representatives and the design team attended the site meetings. Initially the site meetings were held monthly but towards the end of the project the frequency was increased to a meeting every two weeks. It should be mentioned that within the first three months of construction of the works, it became apparent that the contractor

would not be able to complete on time due to the delays alluded to above. The client and donor were accordingly advised by the design team warning them of the impending delay. Thus when the inevitable delay occurred there was no witch hunting since everybody was aware and all were concerned with finding a solution as a team. Therefore the contractor was encouraged to streamline his operations in order to minimise on the effects of the delay. However, extension of time was inevitable but had been anticipated.

The user client being present on site all the time played quite an important role in the general supervision of the works. Matters requiring the immediate attention of the design team could therefore be communicated without delay. The working relationships amongst the various actors were excellent so much so that issues could be communicated and acted upon promptly even prior to written communication which sometimes could lead to delays. It is conventional that instructions and any clarification are communicated in writing.

Kamwala Health Centre Project vis a vis the Typical Project

The construction of Kamwala Health Centre was no different from the typical project in many ways. However, there were a few areas of departure from the typical project process. The major aspect of departure was the manner the participatory factor of the various actors was harnessed and brought into play. Most notable was the active participation by the donor from inception to completion of the project that was rather unprecedented. The donor got an insight into the various facets of the project. For instance the donor eventually saw the need to assist with building the capacity of the design team to comprehensively prepare them for the management of the project.

The institutional client was also quite innovative and assumed quite a pivotal role to ensure participation by everybody involved through the introduction of Project Management Group (PMG) meetings. The design team on this project were not "kings unto themselves" as tends to be the case on the typical project were it is generally felt that design knowledge is the preserve of the select few; the design team. However, on this project much evolved through a team effort by all, from the brief formulation stages through design to implementation. The participation aspect was quite unique.

In the typical project the client identifies a construction project. Then the Director of Buildings would design the buildings and tender out the works on their behalf with a seemingly indifferent attitude. The clients tend to leave most of the decision making to the design team that also seems to enjoy the position of monopoly without seriously considering the need for more client involvement. After the design is "accepted" by the client, the tender documents and tender process would be done. The contract would eventually be awarded to the winning contractor and works would commence on site. The design team would carry on with the management of the project with the client assuming a peripheral role of provider of funds and not as a major player in the whole process. The project is really the client's and as such one would wish to see clients taking a more active role.

Most projects have ended up not being completed in time because planning for the project between the various actors is never taken seriously. Similarly, on the Kamwala clinic project, the user client was ignored at the design stage leading to certain consequences. This is one area, which needs to be pursued on future projects if better design solutions and ultimately good project management are to be attained.

The Design

The design, as discussed earlier in the paper evolved from consultations between the design team, the institutional client and the donor. Sadly the user client was not directly involved at this stage. The three actors agreed that the design would comprise a 20-bed ward (as opposed to a 30-bed ward used on the other sites due to limited space on site), a mortuary, a laundry, an incinerator and a provision for water storage on site. The water supply from the local authorities in Lusaka is very erratic. It had been agreed earlier that since there were eight different sites for the project in its entirety, it would therefore be prudent to standardise the designs. Eventually two typical designs for the 30-bed ward were agreed upon, one linear and the other L-shaped. The rest of the ancillary buildings remained standard for all the eight clinics.

The standard designs somewhat assumed that all sites were the same or of similar conditions. However, on the contrary it turned out that on the ground all sites were naturally different, as would be expected anyway! For instance the Kamwala clinic site was rather tight to accommodate the standard 30-bed ward and so it was scaled it down to a 20-bed ward.

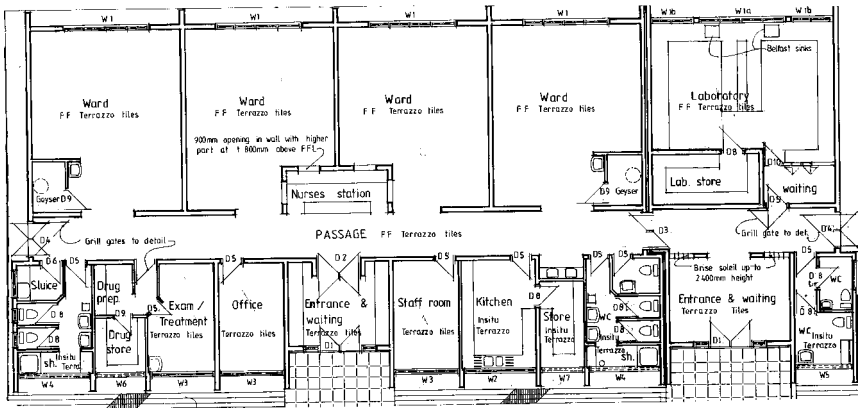

Figure 2: Floor plan of the 20-bed ward

The principles behind the designs were that the materials used in the buildings were those, which require minimal maintenance. This is because the maintenance of public buildings in Zambia is almost non-existent. Hence the choice of face bricks on external wall surfaces, terrazzo floor finishes and hardwood furnishings. The design team also opted for fluorescent light fittings, which have a longer lifespan and give better quality light than incandescent bulbs. The fluorescent lights also emit less heat to the room space compared with incandescent bulbs.

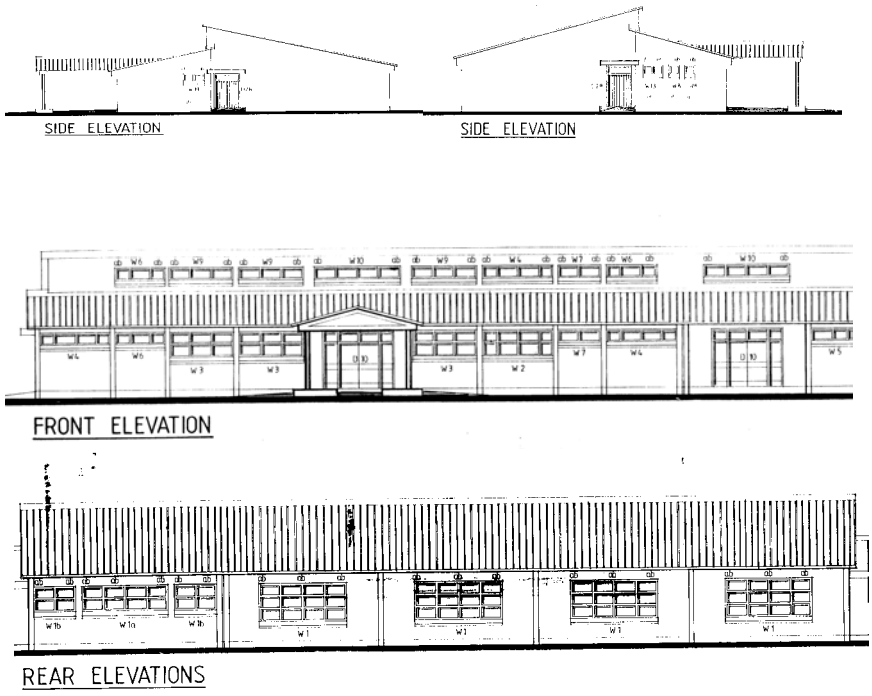

Figure 3: Elevations of the 20-bed ward

A compact but open plan floor layout was adopted to allow for easy flow of traffic and air circulation. The design if well conceived could play quite an important role in influencing the project, as we shall come to see in the analysis.

Photo 1: View of approach to the ward.

Photo 2: View of ambulance Porte cochere (notice the use of face brick).

Photo 3: View towards laundry and mortuary (behind screen wall). To the left of the mortuary is the road (not in picture).

Critique of the Design as used at Kamwala Health Centre

The design team in placing buildings on site thought it was convenient to site the mortuary building near and with its own opening onto the road to enable bereaved families collect their dead without having to come onto the clinic site. However, the nearby Moslem community complained strongly about this siting when they realised the building adjacent to theirs was a mortuary. At this stage it was rather too late to do anything about it in that the building was already standing. This is a result of the lack of involvement of the other component of the user client; the community expected to benefit from the project.

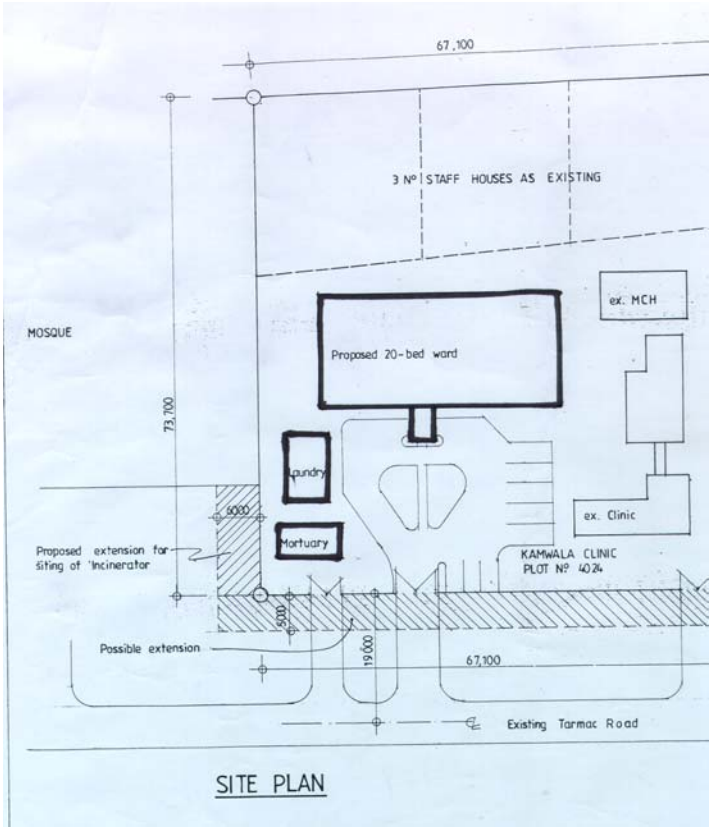

Figure 4: Site plan

The Kamwala site was too small to accommodate the intended 30-bed ward and so a 20-bed ward was built instead. The implication of this reduction was that of reducing on the in-patient facilities the community could access. The tightness of the site coupled with the use of the standard design made it impossible to attain the optimum north-south window orientation ideal for the climatic conditions obtaining in Zambia. The site layout design ended up with an east-west orientation, which allows a lot of sun into the building in the hot season. The laboratory technicians have complained about too much heat in the laboratory due to this poor orientation. The laboratory being in the northwestern quadrant of the building could have benefited by adding windows on the northern face to allow for cross ventilation through. There is no extractor fan provided in the laboratory for fumes. This serious omission is a result of not involving the users at the design addressed.

Some light fittings were placed so high that it is virtually impossible for the nurses to replace the bulbs on their own when these burn out. The bottle traps used on most of the sanitary fittings are not good for public buildings of this nature. Perhaps if the designers had involved the user client (nurses) at the design stage some of these oversights could probably have been avoided.

Photo 4: Common corridor in the ward.

The kitchen is placed right in the middle of the ward for easy access to all sections of the ward. However, since it was not designed with its own external door, this central position which was supposedly an advantage has become a nuisance to patients due to the constant traffic flow to and from the kitchen through the common central corridor onto which the wards open. Moreover, because of its location, heat from the kitchen filters to the nearest ward making the ward uncomfortable in the hot season.

The design team is yet to carry out a post-occupancy evaluation to determine how the buildings are performing vis a vis user satisfaction. This is very important and should be undertaken to facilitate for a more meaningful feedback process whose benefits could be employed on future projects. The design team is at present trying to prepare a maintenance schedule with the institutional and user client. One hopes that funds could be made available for this equally important aspect.

Conclusions and Analysis of the Role of Actors

On the whole it could generally be stated that the Kamwala Health Centre project was quite successful in many aspects compared to the typical project despite some of the shortcomings as highlighted before. The bulk of the success may be attributed to the effects of participation by the various actors (and similarly the failures due to the lack of involvement of users at the design stage).

The knowledgeable donor representatives were useful to the team in decision making as they were well versed with the construction process. The interactive participation of the donors, institutional client and the design team brought out valuable elements like the creation of the Project Management Group meetings. The direct contact between the donor and the design team initiated a process of dialogue, which led to an insight, and understanding of each other's standpoint. The donors though ordinarily not obliged, took it upon themselves to assist in building the capacity of the design team. The donor also came to appreciate the difficulties the design team usually encounters when it comes to government (institutional client)

honouring payment certificates on time. Thus the donor on this project administered the project funds thereby eliminating the possibility of delays arising from late payments. The direct relationship apparently dispelled the suspicions that tend to come up between the donor and the project managers when things go wrong. The earlier apprehension the design team might have had about too much donor involvement soon disappeared when it became clear that the relationship would be built on mutual trust. This should surely be encouraged on future projects. The donor also brought up the initiative for a waiver of central tender board procedures to reduce on red tape but still maintaining the checks and balances contained in such procedures. This was possible because the donor remained in charge of the funds, the design team as project managers and the institutional client at the helm of decision-making, (some kind of mutual division of labour).

In a nutshell the participation by the actors in decision-making helped the project through the creation of a harmonious working relationship built on trust and respect such that all were collectively responsible for the project. For instance the delay to complete the project was amicably resolved without as a matter of necessity putting blame on a particular actor. There were no extra costs to the client or liquidated damages charged onto the contractor due to this delay. Ordinarily when there is a delay it is left to the contractor to find ways of mitigating on the impact of the delay and would most probably be charged liquidated and ascertained damages if he were to blame, or extension of time with costs would be awarded with the costs being borne by the client as the case may be. However under this project there was a spirit of give and take as all the parties were well aware of the development process on site.

In conclusion the author would like to suggest that the design team, architects more especially, should begin to let go some of their assumed powers on matters of design and stop being indifferent to the other actors who may have a lot to contribute to the project development process as discussed in this report. It is not possible to adequately deal with all issues pertaining to the project implementation process in such a short paper. Therefore this report is not exhaustive in its findings as it was written from the architect's point of view. A lot more groundwork and input by the other actors would have to be considered from there points of view for the paper to be more representative and perhaps more conclusive.

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