

## CAUSES OF FAILURE OF HOUSING PROJECTS

### Case of Unfinished Buildings in Dar es Salaam

by

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#### ABSTRACT

Most third world countries face acute endemic housing problem that over the years has raised both national and international concerns. Habitat and World Bank for example, fund many housing schemes worldwide in addressing the housing issue. Likewise, governmental and non-governmental institutions foster and orchestrate self help campaigns directed at reducing inherent housing deficiency in these poor nations. However, growing number of unfinished buildings in such countries seem to overshadow the efforts and thus pose many questions as to what is behind the failure in providing such a highly needed commodity. One may wonder whether such a failure has anything to do with architecture, attitudes and practices of the people or is it just a thing to be pegged on socio-economic platform of the society! Findings from a case study conducted for over a hundred unfinished building projects in Dar es Salaam point to existence of acute planning and implementation gaps in the entire process of running building projects. Such gaps encompass not only the marginalised roles played by architects, engineers and building managers but also to the legal arena on managerial processes. In most cases, malignancy of Clients to assume roles of their Consultants through making decisions and changes that affect the design and the project cost has undermined the efforts to attain the intended goals. On the other hand, failure of Architects to involve their Clients, right from the beginning, leaves Owners at stake to accepting designs which they never had a complete knowledge about and more often than not, they had been led to sanction changes without knowing the associated financial implications. Apart from abrogation of roles of key players, improper planning and poor implementation strategies have groomed serious problems of abscondment due to frustration emanating from lack of financial transparency and unwarranted design variations during implementation. These attributes have a strong bearing on escalation of project cost and have significantly contributed to growing number of unfinished buildings that appear as architectural pollution to urban settings. This paper, founded on facts from various interviewed actors in the building industry, addresses the cause of unfinished projects in developing nations and also provides alternative approaches for minimising the problem.

[Key words: Unfinished buildings, financial transparency, roles, building materials]

#### 1.0 INTRODUCTION

Presence of many unfinished building in the townscape of the City of Dar es Salaam presents ugly image on the outset of architectural performance. Viewing this from one side only, one would attribute the failure to poverty, but looking at it from a different perspective, one would see that the luxurious and expensive architectural provisions on the unfinished buildings have all to do with the frustration of the projects. Yet on the other side, managerial processes of building projects seem to be taking the blame. Dar es Salaam is facing acute housing shortage, why then do we see so many unfinished buildings? The beauty and security around and within the existing buildings in the city are masqueraded by images of ruins spreading along the urban landscape.

Historical disposition of the city of Dar es Salaam and its inhabitants seem to be painting a misleading image or a background that feature poverty as the main contributor to the display of unfinished buildings. However, a closer look at the problem following a thorough technical survey, interviews and measurements of the scales of building elements on unfinished buildings tend to redirect the judgement to factors other than poverty itself.

Luxurious display of such unfinished buildings negates poverty as the main cause on simple reasons that the invested efforts could have produced completed housing units had different approach been adopted. It appears that far from achieving the goal of attaining a comfortable dwelling unit, other attached interests encompassing the primary purpose of reducing housing problem in towns has consequently produced architecture of architectural fantasies and over provisions of spaces. Such diverse self-interests present a “*counter-offer*” to the primary purpose of reducing housing problem in towns and have consequently produced architecture of unfinished buildings which looks like ruins in the urban landscape.

This paper discloses inherent architectural failures and managerial problems of building projects which in total contribute to frustration of such projects especially those related to housing. It also provides an alternative approach that seemingly will reduce growth trend of such unfinished projects in the urban landscape. It is important to underline that the primary purpose in resolving housing deficiency must come first before excising fantasies that do not tally with funding capabilities of owners. It is imperative that transparency is respected and that design is well thought out and well detailed in a manner that the owner understands and is fully involved from the beginning to the end and that he is made aware of the cost he will have to bear.

## **2.0 RESPONSES FROM INTERVIEWEES ABOUT REASONS FOR UNFINISHED BUILDINGS**

The holy Bible contains a phrase that addresses the issue of failure to complete a building once it is started. It goes on like this; “*For which one of you, intending to build a tower, does not sit down first and count the cost, whether he has enough to finish it - Lest after he has laid the foundation, and is not able to finish it, all those who see it begin to mock him saying this man began to build and was not able to finish. Luke 14:28-29*”. Building as an object is a compound product of various decisions and choices made, from inception stage to commissioning, by the various actors. This is a process and the above phrase delineates the importance of seeing the future and the elements that constitute the targeted product before engaging into implementation of any scheme. The underlying is a discussion with the various actors in the building industry in trying to surface out issues and factors that seem to impede completion of building projects once started:

### **2.1 Chauvinism and Architectural Failure**

*Interviewer:* Mr. B.M., would you tell us about yourself and what happened to your unfinished building? (Additional probe: Did you have enough money to complete the project?)

*Respondent:* “I am the first born in my father’s family who was a polygamist, married to four wives despite the fact that he is a member of Roman Catholic Church which denounces polygamy. My father abandoned this Catholic faith for one reason that he was from a royal clan and was expected to be sworn in as a tribal Chief who traditionally had to have many wives. For the same reasons like those of my father, I took four wives. In 1993 family needs compelled me to build a house for my family at Kimara-Baruti, Dar es Salaam. I engaged an architect and provided him with what I thought was our family spatial requirement which he understood well. I received a set of drawings from him and started construction work henceforth. I engaged local builders who had to work under my engineer but sooner before roofing, my wives raised a serious ownership issue for the house. This was a big family conflict as my four wives spelt out their unwilling to live under one roof. Though I was financially capable of completing the work, I decided to stop and this is why it stands as a ruin today”.

#### **Points of Observation**

- Social needs of the family were not considered in the design. Owner and his expert did not see the need to involve the wives (users) and therefore their needs and views were not heard or considered by the design.
- The Owner was incapable of interpreting drawings. He could not see in advance shortfalls of the design.
- The Owner was made aware of the project cost as he says he had enough money to complete the project.

### **2.2 Desperate Architects and unfinished buildings**

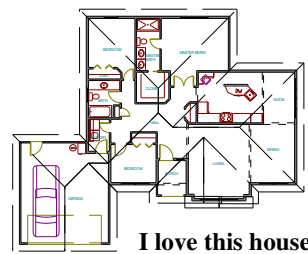
*Interviewer:* Mr S.V., being a long time practicing Architect in Dar es Salaam, what do you have to say about the scaring presence of unfinished buildings. What is the root cause of the problem? Could it be lack of financial transparency by the clients or by being unable to visualise the cost implications for the choices made?

*Respondent:* “It is true that oftentimes clients have serious problems in declaring the amount of money they are willing to spend on a project. They are not aware of the cost implications associated with duration of construction just as they are unwilling to disclose their income and expenditure schedule concerning the realization of the project. Reluctance to engage competent managers in running building projects for purposes of saving cost is the real danger, they end up paying more and in many cases fail to complete their projects.

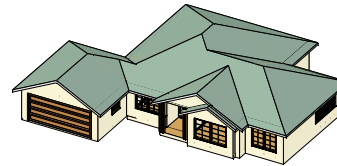
Owners engage an Architect just for getting a set of drawings but they do not go further in requiring a statement on the financial scale of the project. Sometimes they do not even know whether they should go for horizontal or

vertical development. They just express their ideas by pointing to other existing buildings from which they ask the Architect to trim it down by removing the undesired parts of the pinpointed structure. Architects get consulted only when drawings are needed and once the drawings are available for discussion and endorsement they feel contented and discharge the architect after paying him for the drafts work to avoid paying statutory professional fees which are generally higher than what they are willing to pay as they always claim that professional rates are exorbitant. The negotiations concerning professional fees for Architects, Quantity Surveyors (QS) and Engineers take a lot of time and the token amount, oftentimes agreed upon is inadequate. This directly affects extent of the design work, quality and extent of detailing and also overall project cost.

After ‘completing’ the design, the construction commences with a set of problems. Now the client is about to see what he declared to the design team. Sometimes it happens that what he sees coming up on the ground does not match his expectations or intentions and he orders for changes to be made. At this stage the client’s role drifts from an observer to an active designer thus assuming the role of a consultant. Owners are not competent enough to understand communication and graphic language of architects and therefore fail to interpret correctly the message displayed by the drawings. Sometimes owners purport to possess understanding while they do not. In many cases they fail to see a 3D model from a plan as if the two are different buildings. There are so many people who give approval to layout plans but later complain when they see a 3D object coming up. On such occasions they get tempted to order changes to their buildings without proper consultations with their architects. Such changes end up escalating the project cost and later become good reasons for frustration.



**Fig. 1 (a) Floor Plan**



**I hate this house**

**Fig. 1 (b) 3D View**

Generally Owner’s intervention agitates the Architect who then retaliates by leaving the entire project under dominant control of the uninformed Owner. At such a stage the Owner goes forth to implementing his new ideas according to his interest and starts questioning why this is like that and why did the Architect fail to do it this way, forgetting that he had all the time and liberty to speak out his mind from the very beginning of the project. The Architect and Client start arguing over the changes and the process of establishing consensus normally takes long. Invariably, changes are accompanied significantly by cost increase which, in many cases becomes a good source of failure to complete the building project.

Protracted dialogue between Clients and Architects are a mere result of irresponsibility on both parties; the Client not willing to pay professional rates decides to pay anything lower than what the Architect expects, but again on grounds of unemployment, the Architect accepts to take up the offer without paying attention to the accompanying professional responsibility and accountability. It is quite unprofessional for the Client to expect an Architect to produce a design brief as it often result into conflicts when it comes to project actualization. Preparation of design brief is supposed to be carried out by the Client and be used as Terms of Reference on the part of the Architect’s project suitability and viability. On reversing this trend, conflicts can hardly be avoided.

The Quantity Surveyors are engaged at the stage when the design is almost complete. The quantities and estimates are therefore not aiming at reducing or optimizing the project cost but rather at establishing the cost of a finished project. No room is given to the QS to propose alternative materials or methods that would help in lowering the project cost. The component of building economics is in this case marginalised. What is brought to the foreground is merely a simple arithmetic estimate that is dictated by the design in isolation and therefore tends to be higher and unrealistic. Likewise, the Structural Engineers suffer the same way, having been given peanut amount by the Architect; they inadequately devote the needed time on the design and use rules of thumb in deriving sizes and profiles of subsequent structural components. In this case over-design is the outcome since cost reduction is not taken as an issue of significance. Choice of structural layout and materials is haphazardly made without paying heed to the associated cost. The team of consultants works just to complete the design assignment but they are less concerned about the cost of the solution they come up with, after all they are ignorant of financial strength of their Client.

The Quantity Surveyors are generally given extremely short spell of time to prepare cost estimates and they never say no to the offer. In spite of such stringent and stressful time, they rush into it as their means of daily

survival. In this way they produce high estimates in compromise for the unrealistic time frame. The QS is never given enough time to produce optimal cost of the project, and instead he produces a cost figure which is cocooned with a lot of fear. If the Client is affluent enough, the contractor benefits tremendously and if the Client is less affluent the project ends up being shelved or unrealized. Architects in the design process make a lot of assumptions and decisions which may not be supported by building economics ingenuity ending up with unnecessary expenses on the side of the Owner

### **2.3 Limitations Caused by Contract Types**

In cases where proper contractual procedures are used, it has been observed that choice of the type of contract has a significant bearing on the realization of the scheme. The general practice for most professionals is to use types of contract, mostly standard ones, which offer maximum protection to them even if it is at the expense of the project itself. Disrespect of contractual ethics and manipulation of consideration on the consultants' side aggravates the misconduct and perpetuates negative elements that lead to non actualisation of the project. It is unrealistic, however, to argue that if the agreed-upon fee is not adequate and duly paid what is agreed between the two parties is not binding. On the contrary, once the fee has been agreed upon the Consultant is bound to stay by the agreement irrespective of the adequacy and delivery time of the consideration. The Dar es Salaam based National Construction Council offers arbitration procedures that can be used to resolve disputes without affecting the project. Trend shows that professionals have little attachment with the project therefore they avoid going for arbitration and choose to take options that often times lead to abandonment of the construction work.

### **2.4 Project Managers & Unfinished Buildings**

Architects, especially in large projects, are not expected to possess all the knowledge in respect of specialised professional fields or associated areas of specialisation, in such cases, competent project managers and competent contractors are supposed to be engaged in order to foresee weaknesses, snags, mistakes and the necessary professional interventions. Lack of proper foreknowledge or understanding of the entire project before implementation enhances avoidance of financial liabilities and breeds a greater likelihood of frustration. Project managers are supposed to be an able person not only in project management but also one who can read, analyse and interpret the design information appropriately.

### **2.5 Quality control and Assurance & Unfinished buildings**

Quality control and Assurance at all stages of construction work need be taken seriously as decision parameters that safeguard the building from being condemned. Demolition in the complete sense or demolitions in part due to aspects related to poor quality of the elements of the building have significant bearing on the overall cost of the project. Generally Quality Control and Assurance as a prerequisite is practiced in the management of large projects which in most cases are funded by grand financial and is rarely practiced at small scale levels. Quality control and assurance as a process requires money which at a household level, Clients are unwilling to pay. Avoiding engaging such important quality control personnel in small building projects may cost more in the event when extra efforts will be needed in making good or rescuing the building as result of wrong choice of materials or poor workmanship. Quality control and quality assurance techniques are for betterment of a building and a means of avoiding cheating by contractors. When a big chunk of a building is condemned, the building project may end up being shelved on grounds of unnecessary extra cost which could have been avoided. Architects and Engineers compromise too much on such aspects; their failure to compel Clients to pay for quality control measures endangers the project and at time become a good source of abandonment.

### **2.6 Indemnity and Unfinished buildings**

The team of Consultants supposedly has to have professional indemnity to covers them against damage associated with professional errors or mistakes both at design and construction stages. Seen here is that, mistakes made by consultant are shouldered by Client and when the burden gets too heavy, the project is terminated. Always the financial burden bearer is the Client while the Consultant walks free.

### **2.7 Incremental Design**

Commenting on this issue, respondent (Mr Architect S.V.) reiterated that, *"I have never heard of incremental construction in large buildings in terms of having a comprehensive design and implementation schedule. Such strategy is applied in design and construction of secondary schools and large buildings. Family houses are rarely phased. Incremental design requires a good Client-Architect relationship which is only possible when the architect is well remunerated as in the case of large projects.* The validity of this opinion is that 'phased construction', stemming from appropriate design may become an impetus to growth in housing in young countries. This approach has the potential to addressing serious issue of affordability since one does not have to have all the money to complete the project. Partial habitation is possible while construction work is in progress.

*Interviewer/Researcher:* Mr. Quantity Surveyor D.K., what are your views concerning unfinished buildings, residential and non-residential rampantly seen in Dar es Salaam? What went wrong and caused this kind of abandonment of such projects in a large number?

*Respondent:* My opinion is that unfinished buildings are a sign of serious weakness in the entire system of construction ranging from project idea, design to actualization. Most buildings were completed singly because they were rescued and not because the programme was thorough and competitive. Professionally, one is not supposed to rely on luck but rather on practical aspect of a project both at the design arena and financing realities. Unfinished buildings should not be construed as the fallen side of a weighing scale because we also see problem in the finished buildings. There is a labyrinth situation here; we cannot easily unveil the right solution. I can give you an example from actual project, the construction of 'Dar es Salaam Shoppers Plaza'.

The vertical extension of the Shoppers Plaza got into a difficult situation when the contractor used reinforcing steel that was believed to be of lower quality and of different size than that specified by the Engineer. After casting the first floor slab the Architect took samples of steel to the testing laboratory and discovered that the strength was too far below the tolerable limits. More samples were taken for testing and same anomaly was consistently registered and was concluded that the quality of the work was quite poor. The Architect issued stop order as a measure of rescuing the Client from further loss.

On hearing of the stop order, the Client got angered and chose to seek legal opinion from his lawyer on the status quo of the project. At the arbitration room, the Architect blamed the Contractor for using substandard steel and the Contractor threw blames to the Architect for staying too long without intervening. The Contractor did not see that it was his responsibility to guarantee the quality of the work instead he pointed a finger to the Architect complaining as to why he failed to intervene early enough before casting of the floor slab.

The Client sided with the Contractor and blamed the Architect for poor supervision while the Architect blamed the Engineer for not making frequent follow-ups and site visits. The Client sued the Architect for negligence and the Architect threw the suit to the Engineer for his irresponsibility. The owner knew well his financial position and instead of accepting demolition as ordered by the Architect, he chose to change use of the building space, the weaker floor was assigned different functions that structurally did not seem to pose stability threat.

Apart from what happened at Shoppers' Plaza, other cases were observed where a good number of apartment buildings were being put up. The Architect was so much overshadowed by the Client to an extent that site instructions were given by the Client and several variations were made without consent of the Architect. The Architect was powerless to object even when such instructions and changes were not congruent with the original design. Such a situation led to partial demolitions resulting into heavy financial embarrassment and serious delays to completion time. In most cases, Clients introduce changes to a scheme without paying heed to the associated cost implications. This project is still on but anything can happen to it due to escalating project cost.

Thereafter, QS D. (the interviewee) asked some questions, "Do Architects have adequate taste of quality"? Is Architecture a product of procedures? I guess not. I have heard of incremental construction, a synonym term for phased construction and I think it is feasible if proper project planning is undertaken. The theme must be to reduce construction cost by employing efficient planning and managerial techniques.

*Researcher:* Architect S. tell us, what are your personal views concerning the various aspects that seem to contribute to the increasing tendency of having a large number of unfinished building projects in Dar es Salaam?

*Respondent:* Architects are not associated with the unfurnished building and if that is what you think, you are surely mixing up yourself. There are laws and regulations which together direct execution procedures of building projects. Professionals are quite aware of such regulations but if your intention is to write a paper, why then do you muddle up yourself without good reasons, I advise you to think of changing your topic.

Problems related to unfinished building projects are mostly caused by the Clients. There are different types of Clients; those that are rich, but not willing to abide by the development regulations. They avoid engaging a Consultant thinking that they can save money. Just a few find it wise to stick to the professional regulations. The former group believes that the design part is not supposed to cost much and whenever possible they prefer getting sets of drawings at almost no cost or at least at a token amount. For example there is a hotel project at Mikocheni area which is currently under construction. Our company designed and the Client asked for a copy of the drawings just for scrutiny. Thereafter, we believe, he made copies and returned back the borrowed set. He made some modifications just to camouflage the originality of the design. The Client in this case spent just a small amount of money on drawings by fraud. Construction work started and the Client realized that the forced-in changes were not compatible with the main scheme design and therefore he needed an expert to readjust the

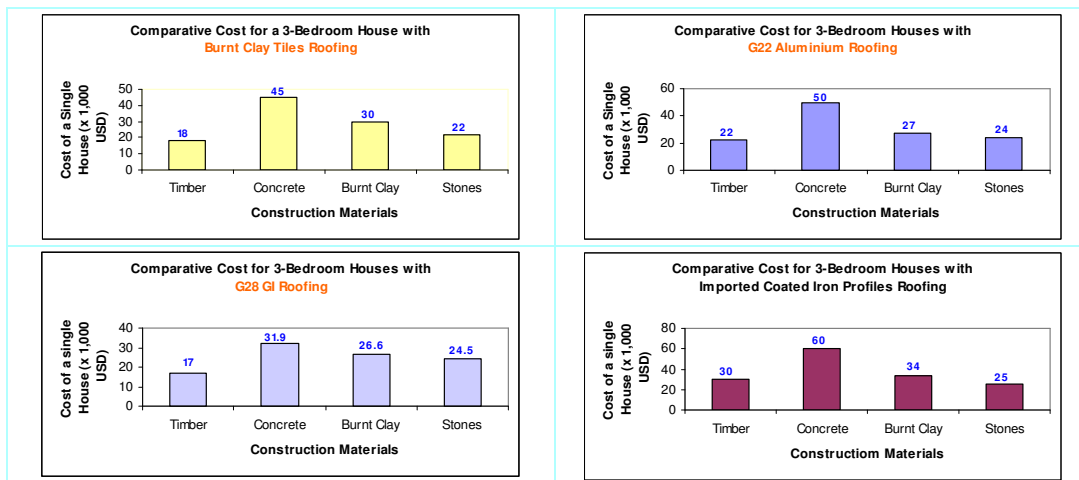
design. His manipulations failed, he went right back to the original design and implemented it wholesome. The Client must have spent a lot of money during such unwise and unsuccessful fraudulent attempts. Some Clients are conversant with the construction regulations and procedures, on such instances they spell out clearly their intentions and financial capabilities. In such cases, both the design work and construction lead to a successful end. For example, during the Kariakoo Postal House project in Dar es Salaam, the Client was desirous of building a ten storey building and was quite well spelt in his brief. However, after analysis of the quality of the building vis-à-vis cost of the project, it became axiomatic that their financial capability could accommodate only seven storeys. From that kind of transparency the building was realized at a reasonable cost and time. Some Clients have limited financial resources and they think if they supervise the work by themselves they can serve significantly. In the end it is all fallacy because the Client lacks professional skills, expertise and experience for the work. The fact is, soon after taking it up upon them, they realise that they cannot control the project cost as it keeps escalating to such a helpless level that the project eventually gets shelved.

**2.8 Choice of Materials and sizing of structural members**

A short discussion with Engineer F.N. of the University of Dar es Salaam was quite illuminating on the side of choice of appropriate materials that owners can afford given their stringent financial conditions. In most cases choice of materials and sizes of members have significant bearing on the projects cost.

*Researcher(s):* Engineer F.N. you are a long term practicing engineer, what can you tell us about contribution of structural engineering practices in unfinished of building projects seen in Dar es Salaam. Can we say that the failure has only to do with Clients’ attitudes alone? What actually lies behind this mess?

*Respondent:* Faculty of Architecture through Building Technology Section conducted several researches concerning affordability of housing units. We made some cost analysis to a three bedroom house of 180m<sup>2</sup> roofed using various materials and built using different construction materials. Findings of the study are as shown in Fig.2 below:



**Fig. 2 Comparative Cost of a 3-Bedroom House**

In conclusion we observed great affinity of the people living in Dar es Salaam to concrete while alternative cheap and locally available materials are despised and rarely used. Clients are so reluctant to accept use of timber or masonry structures; instead they go for very costly concrete structures and exotic materials. It is their poor choice of materials that leads them to failure to complete their projects. Use of structural timber could have reduced the cost by 50 percent in comparison with concrete but timber structures can hardly be seen around in Dar es Salaam.



**Fig. 3 (a) Comparative Percentage Cost of a 3-Bedroom House**

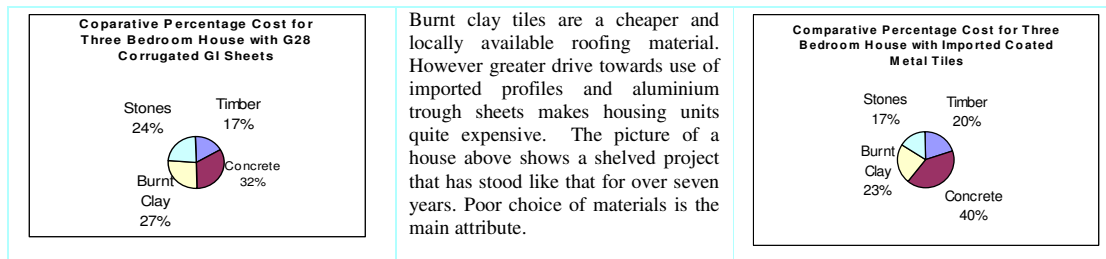


Fig. 3 (b) Comparative Percentage Cost of a 3-Bedroom House

Other contributing factors attributable to structural design is the improper choice of sizes of structural members. A framed structure such as that shown in fig.3 could have been much cheaper had the choice of enclosing walls been anything different from solid concrete blocks. Note that the structural load is being carried by the frame.

## 2.9 Summary

Growing number of unfinished buildings in major cities of young nations seems to be much more linking with the poor Client-Consultant relationship. Attitudes and practices of the parties involved do not create a friendly environment needed for the completion of the building project. Findings from our case study conducted over a hundred unfinished building projects in Dar es Salaam for can be summarised as follows:

- Acute weakness in the planning and implementation of building projects at household level exists.
- Roles played by Architects are marginalised and hijacked by Clients in avoiding professional fees.
- Architects' failure to take aboard their Clients at design stage invites costly design changes or variations.
- Lack of financial transparency by the owners misleads Architects especially at the design stages
- Clients' unwillingness to adopt cheaper building materials is a setback to acquisition of housing units
- Poor selection of structural systems and profiles of structural parts has a severe bearing on project cost
- Design that allows for a phased construction is not preferred by architects and owners, but had it been adopted it could have reduced the number of unfinished and unoccupied building sites in the urban setting which in return could have contributed considerably towards reducing urban housing problems.

## 3. CONCLUSIONS

As generally argued by various actors interviewed in the construction industry in Dar es Salaam, the major causes of frustration to building projects seem to lie greatly on the abuse of the roles of Consultants, Managers and Clients in addressing design and management of construction process. On one hand, induced professional corruption and compromise give too much power and room to poorly informed Clients who in return make decisions which have very serious financial bearing to project cost. On the other hand, Clients' avoidance of their statutory obligation towards their Consultants and Managers breed discomfort to Consultants who in return produce designs that are poorly thought and less refined. The trend to over-design is a safer approach to the lowly paid Consultants but in the end Owners suffer financial blow as they cannot finance the project to the very end. This is a very negative aspect that counteracts positive efforts intended reduce urban housing problem

## References

- [1] **Griffith A. and Watson P.** (2003) - Construction Management: Principles and Practice. McMillan NY
- [2] **American Institute of Architects** (2004) – The Architect's Handbook of Professional Practice John Wiley & Sons Inc NY
- [3] **Halpin D. W.** (1985) - Financial and Cost Concepts for Construction Management. Barnes and Noble, Villanova
- [4] **Donald S. Barrie and Boyd Paulson C.** (1992) - Design-Construct and General Contracting," 3<sup>rd</sup> Edition, McGraw-Hill, Inc NY
- [5] **Barrie D.S. & Boyd P.C.** (1992) - Professional Construction Management, 3<sup>rd</sup> Edition. McGraw-Hill, NY
- [6] **Barrie D. S. and Boyd P. C.** (1998) - Project Management - Construction Estimating. McGraw-Hill, NY
- [7] **Jimmie Hinze** (1998) - Construction Scheduling. Prentice Hall NJ
- [8] **Sweet J.** (1989) - Legal Aspects of Architectural Engineering & Construction Process, 4<sup>th</sup> Edition, Cole Publishing Company, UK
- [9] **Merritt F.S. and Ricketts J.T.** (2000) - Building Design and Construction Handbook, 6<sup>th</sup> Edition McGraw Hill, NY
- [10] **Blundell P., Jones, Till J., & Petrescu D.** (2004) - Architecture and Participation. Spon Press UK
- [11] **Royal Institute of British Architects** (1998) – Architect's Handbook of Practice Management RIBA Publications, UK
- [12] **Wood D.** (1984) – Basic Construction and Surveying Law. Granada Publishing Ltd, London