



ORIGINAL RESEARCH PAPER

Social Science

CHALLENGES IN ADAPTIVE REUSE PROJECTS IN DAR ES SALAAM, TANZANIA.

KEY WORDS: old buildings, reuse, conversion, adaptation.

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ABSTRACT

Adaptive re-use on heritage buildings is carried out to prolong their existence as well as sending a message to the society on the significance and the integrity of the buildings. Nevertheless, conversions to accommodate new use are carried out without following any specific guidelines. This study was conducted in Dar Es Salaam, Tanzania where selected cases were visited and data was collected via interviews, measurements, photography, sketching and general observations supported by interviews with professionals in the field of architecture and urban design. The study has revealed that the concept of adaptive reuse of buildings in Tanzania is partially known despite the fact that it is practiced. Guidelines will make the practice of adaptive re-use easier to coordinate and monitor and can inform professionals, authorities, developers, users or building owners on aspects such as compatibility of the building in accommodating the new use or future reuse. Additions, subtractions and changes in the interior spaces are some of the architectural aspects that were analyzed. Lastly, the study suggests ways in which buildings can be designed to be more adaptable through building systems such as structure, openings, facade, finishes, and circulation.

1. INTRODUCTION

Russel et al (2001:02), defines adaptability as the capacity of buildings to accommodate substantial change. A more adaptable building will stay in use for a longer time since it can respond to changes at a lower cost.

Almost no building adapts well. Buildings are not designed to adapt; also, budgeted and financed not to, constructed not to, administered not to, maintained not to and even remodelled not to (Brand, 1994). Rossi (1982) adaptive re-use is a process that changes a disused or ineffective item into a new item that can be used for a different purpose. (Australian Governmnet, 2004) For the case of buildings, adaptive re-use is the process of converting an existing, obsolete or underutilized building from one use to another. The inability of a building to accommodate other uses, apart from its original use can result into demolition of that respective building. (Badaru, 2014, p. 37) The planning policy portal of UK poin ts out that consent will not be given for the total or substantial demolition of any listed building without clear and convincing evidence that all reasonable efforts have been made to sustain existing uses or find viable new uses. ([https:// www. planningni. gov. uk/index/policy/planning_statements/pps06/pps06_buildings/pps06_policy_bh10.htm](https://www.planningni.gov.uk/index/policy/planning_statements/pps06/pps06_buildings/pps06_policy_bh10.htm);retrieved 19/11/2016)

1.1 The Adaptive Re-use process

Adaptability is the capacity of a building to absorb minor and major changes (Grammenos et al; 1997). Adaptation is derived from the Latin word ad (to) and aptare (fit) ie. Any work done to a building, over and above maintenance, to change its capacity, function or performance. Ie; any intervention to adjust, reuse or upgrade a building to suit new conditions or requirements will constitute AR. (Douglas:2000) According to Latham: 2000, buildings have a cultural and architectural heritage, and have visual amenity or cultural contribution. Moreover, offering old buildings new uses can contribute to the beauty of the city, the old buildings being a symbol of a place, its identity, and a simpler way to define the respective place. Building reuse also has economic sense and functional value.

1.2 Categories of Adaptation

(Abdullah: 2011) categorized building adaptation as physical and functional. Physical adaptation deals with the physical condition of the building with no regards to its uses. i.e. keeping and maintaining the physical state of a building. Building conservation, restoration, renovation and preservation fall under this category. Functional adaptation involves changing or modifying the use or function of the

building to correspond with solutions of adaptability. Conversion is a form of adaptive reuse in which a building takes on a new function by physically altering it through demolishing parts or adding construction onto it. (Plevoets: 2011)

According to Weeks and Grimmer (1995) rehabilitation is the process of repairing, altering and making any additions to bring the property into a condition that maintains its historical features.

1.3 Physical alterations

Building conversions are done so that the buildings can adapt to changes, or to new uses. As seen from (Nguluma, 2003) two main processes are involved in building conversions. The processes are extensions and interior transformations; the same processes are involved in building use transformations. Extensions can be horizontal; where the development is done laterally, additional facilities being added to supplement the original structure. Extensions can also be vertical where the building is developed upwards.

Interior transformations usually involve extension of walls to attain higher floor to ceiling heights, or demolition of interior walls to increase room sizes. It also involves increasing opening sizes or altering the roof structure. (Nguluma, 2003, p. 97).

2. RESEARCH METHODOLOGY

Case study was adapted as a research strategy in which data was collected through interviews, observations and documentation, measurements, sketching, mapping and photographing.

2.1 Data collection methods and techniques

2.1.1 Literature review

Literature review unveiled other topics and the variables related to the study.

2.1.2 Observation and documentation

Since the research strategy applied was case study, the data was obtained by observing and documenting through photographing, measurements and sketching.

2.1.3 Interviews

Building designers, owners, users, planners, developers, observers and the like were interviewed. Information was obtained based on the peoples' own views; undocumented data was obtained by word of mouth.

2.1.4 Archival analysis

The research involved learning from already existing buildings that have undergone a series of changes. Studying of the original schematic drawings of the buildings was done to obtain more accurate information about the original layout of the buildings.

2.2 Case Studies

The selected cases for the study are the "Old Boma" building (the oldest building in the city center of Dar es Salaam) and the Court of Appeals building also in Dar es Salaam. These buildings are protected under the Antiquities Act of 1964.

2.2.1 Old Boma building

Built in 1866-67 as the beach front house for sultan Majid bin Said, it is still in use to date.

The building has had various ownerships from the Sultan, Germans, British, (United Republic of Tanzania) URT and now serves as an office building for the Dar Es Salaam Center for Architectural heritage (DARCH) and Architects Association of Tanzania (AAT).

2.2.2 The Court of Appeals Building

During the German era, it was used as a hotel club where politicians socialized while gazing at ships and dhows at the harbor. During the British era, it was used as the Dar Es Salaam club. After independence, the British Governor handed the building over to the URT and it was converted into the first tourism training institute and finally used as the court of appeal up to date. (<http://kenankalagho.blogspot.com/2012/07/dar-wiping-out-colonial-history.html> accessed 09/01/2017)

2.3 Building conversion and change of use in a glance.

Conversion has been performed in many buildings in the Dar es Salaam city center. An interview with the CEO of DARCH and her team some of them are Unofficial Casino building- (currently the statistics and mapping building), the high court (used to be a police station), leaders club (was the first airport of Dar Es Salaam) and the Oyster bay shopping center which used to be a hotel. (Interview with DARCH)

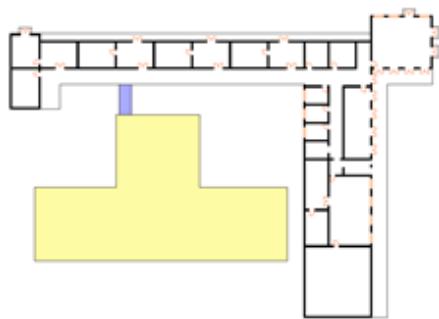


Figure 1; Ground floor plan of the Court of Appeals Building; in yellow is an extension and blue a bridge that links old and new construction. (Source: author, 2017)

The change of use of buildings by the owners' own will can result into the violation of the planning regulations. Guidelines on how conversion should be undertaken are vital.

The application of change of land use by land owners sometimes is the driving force for the urban and rural planning department to redevelop the respective land use plans and specify new uses. In an interview with senior urban planner of the Dar Es Salaam City Council, the following was said;

"We do not deal with the change of use of the buildings specifically, but the change of land use that can be applicable in

the locality. Afterwards we produce a redevelopment plan. The building owners are the ones responsible for changing the use of their buildings."

The chief architect from the Ilala municipal council also said; *"We offer building permits as per the land use that has been put in place by the urban planning department."*

The presence of change of land use regulations, but absence of change of building use regulations calls for guidelines on building conversions and the need for building codes.

3.0 DISCUSSION ON FINDINGS

3.1 Relationship between the original and the current

There is no specific pattern among the buildings that have undergone conversion. There are no guidelines that govern the change of use of buildings apart from the fact that the change should comply with land use plan, for the permit applied for to be offered.



Figure 2 and 3; Covered up openings and arch ways (Source: author 2017)

In some parts of the building, there are covered openings and archways, this may imply that these buildings had a different flow of activities that required a different level of privacy as that which is currently required. By assumption, these places might have been service provision counters such as in a kitchen or drink storage.

The existence of openings indicates a possibility of puncturing new openings into the walls. For the building to allow such changes, it should be structurally allowable. The choice of non-load bearing partition materials should also be given due consideration.

As a hotel, the court of appeal building had large spaces, which were not assigned specific uses so they just served as circulation spaces. To these spaces, partitions were added to create more usable spaces.

During the conversion processes, large and unoccupied spaces can be made useful by partitioning and creating extra room. The ability to partition spaces not only provides room but also allows the building users to create a space of their desire by having the freedom to put in their own touch of materials.

3.2 Placement and/ or the removal of ceiling panels

Before its latest restoration the old Boma building used mechanical ventilation systems. The high floor to ceiling height resulted into high energy consumption. In such a scenario, lowering of the ceiling becomes economic.

Adjustable/ flexible ceiling materials are suitable in creating an adaptable space so that when there is a need of a high or low ceiling it can be created easily.

3.3 Putting rooms in use without any alteration

This has been observed in the Court of Appeal building where there existed a pantry that served the users of the hostel rooms in the first floor. The pantry still exists at the time with the same use but it serves the office users.



Figure 4: Pantry in the court of appeal building (Source; author, 2017)

During a conversion project, multi-purpose spaces, i.e. spaces that can be functional even when the use of the building is changed like the pantry, washrooms, and storages can remain in their same state.

3.4 Making respective rooms usable without alteration but changing the original use.

The offices in the upper floor of the court of appeal were initially hostel rooms. With entrance doors facing the courtyard and balconies facing the road side. As a hostel the balconies were just for leisure purpose, but currently they are a way to enforce security.

Horizontal extensions are applied when there is ample land. That is to say, during a conversion project, if the building is insufficient to cater for all the needs, extra land space can be used.

Horizontal extensions in the Old Boma building, are a good example. Spaces such as water closets and a kitchen were added to the existing construction.

3.5 Building qualities that simplified the conversion process:

3.5.1 Building layout

Both cases used in this study have a rectangular/ square configuration which as stated by (Brand, 1994, p. 192), is the easiest to alter. The only configuration of space that grows well and subdivides well and is really efficient to use is the rectangle. The observation at site is a confirmation of literature.

3.5.2 Location of the building with respect to the site

For the case of the Court of Appeal, the building is located in a corner site. The first building was built just by the road, leaving space for future expansion. As the needs of offices increased, a new three storey building was erected and is connected to the old building by a metallic bridge. If the location of the first building was improperly chosen, the vertical expansion might have been difficult to do.

3.5.3 Building floor to ceiling height

One of characteristics that public buildings possess is a high floor to ceiling heights, this enables a comfortable atmosphere in the building's interior in case the building is occupied by many, this situation causes no harm when the building is inhabited by few.

3.5.4 Large and operable openings

The presence of large windows allows the users to create their own indoor environment i.e.; ventilation and lighting as well by just opting to open or close the windows and/or doors.



Figure 5; Elevation of the old Boma building (Source; author, 2017)



Figure 6 and 7; A window in the Old Boma and Court of Appeals buildings.

Such opening sizes hinder the conversion process as partitioning might leave most spaces either without sufficient light or totally dark.

3.5.5 Building's exterior outlook

Both buildings, the old Boma building and the court of appeal have simple facades, dominated by white paint and without complex decorative elements. This has enabled the buildings to carry various uses because the buildings do not portray any specific message on the building function towards the observers.

3.6 CHANGE OF USE AND FUNCTIONALITY

3.6.1 Ventilation and lighting

The old Boma building was not only a guest house, it also had spaces for holding of prisoners or slaves. The holding space was designed with lower ceilings and smaller windows. Currently as an office space, the rooms are dark and inadequately ventilated. Power cut offs make it hard to work inside.

3.6.2 Staircases

Principally, the width of staircases should allow accessibility by two users moving in opposite directions. In both cases the stairs are not comfortable for multiple users. For the Old Boma building, there are no escape stairs. As a solution, a new staircase or alternative vertical means of access can be introduced.

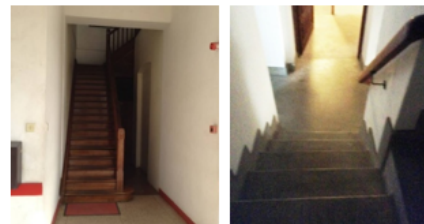


Figure 8 and 9; Stairs of the Court of Appeals and Old Boma buildings (Source; author, 2017)



Figure 10 and 11; Openings that face a major high way and cause Noise inside the building.

3.6.3 Lack of adequate means of vertical movement

The buildings have stairs only for vertical movement. It is difficult for the disabled to access the higher floors including the first floor which serves as a restaurant meant to be open to all.

Addition of more vertical means of access to accommodate all the users should be considered in the conversion of a building. During design, this provision should also be

considered.

Some functions have been put in rooms that are functionally not suitable. E.g. the kitchen has been put in a not only small room but also not well ventilated.

Unless there is a structural barrier, the wall between the two windows could have been punctured to create one large window which could be more efficient for the kitchen space.

4. CONCLUSION

The aim of this research was to study old buildings and formulate guidelines on how buildings can be converted. Stakeholders that were involved are the Department of Antiquities, MLHSD (Ministry of Lands and Human Settlements Development), architects, urban planners and the Dar Es Salaam City Council (DCC) and users. The research results also show that adaptive reuse projects exist but they are a product of the actors' intuition.

It is vital that the Department of Antiquities (The custodian of cultural properties in Tanzania) be involved in the conversion process with the help of other stakeholders such as architects and engineers in order to avoid destruction of buildings thereby endangering the historical value.

More should be done to impart knowledge about re-use of buildings to student architects and practitioners in the building industry.

The Planning Department should formulate criteria for choice of buildings that can fall under the same category. I.e. Uses that are almost similar, or uses that can fit together. Municipal councils, which are the main Government authorities dealing with building permits should have copies (preferably digital) of building drawings to be used as references during conversions.

Guidelines on how a building can be converted in Tanzania are vital but are missing. Guidelines that are in place are mainly based on the safety and security codes as applied in building construction but not the conversion process and specific architectural aspects.

4.1 Vertical movement systems and ventilation:

As the main consumers of space, users have pointed out the need to accommodate disabled people and supplies in vertical movement systems.

Mechanical means of ventilation to be introduced in the basement. This would ensure proper ventilation in the office and also keep the noise from entering since there will not be a need of opening windows.

4.2 Relationship between original building uses and the new uses:

Building permits are always specifically offered. When a permit is given, it states clearly what type of building category or building type is allowed. For this case, to simply the change of use of a building, the land use must be considered. Otherwise, an application of change of land use should first be filed and changes can be done after it is granted.

Changing of buildings in order to accommodate new functions forces changes in the exterior of the building which eventually affects the context within which the building is located. ie; changing the building alone is not enough, change should be coupled with change in the environment.

4.3 Involvement of architects in building conversion projects

The choice of what a building is being converted into is under the authority of the building owner, but, during the conversion process the involvement of architects is crucial. This is

because the architects are the ones that will perform the technical and functional analysis of the buildings and financial viability alongside other professionals, resulting to a proper decision of what is to be done to the building.

4.4 Location of services in the building

All building services should be located at the same point. These could be service cores with service ducts. This will enable ease of access during maintenance processes and will also simplify upgrading procedures when there is a need to do so.

4.5 Construction materials

Durable and sound materials facilitate the reusability of the building because it will be in a good state for a long time. Flexible materials should also be used because they will ease the conversion processes in the future.

4.6 Floor finishing materials

Before any conversion, the building should be analyzed in terms of space and character in order to select a function that is or is close to being a perfect fit in order to determine the extent of change. Walls should be punctured to create new openings whenever there is the need but this should not compromise the integrity of the building.

Where the room allows, only the layout of the room should be changed. Dry wall partitioning materials such as timber, glass and aluminium are more suitable.

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