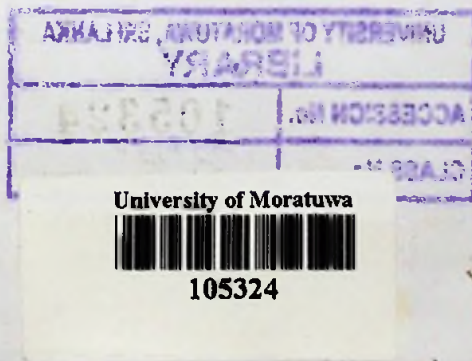


Adaptive Reuse

Understanding effectiveness of Adaptive Reuse as a tool for Urban Regeneration

Dissertation submitted for the degree of Masters of Urban Design
at the Department of Architecture, University of Moratuwa in March 2012



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Preface

What?

The idea of evolution in regards to adaptive reuse can be taken even further than simply applying the idea of a gradual change over time. The goal of this discussion is to study on reuse projects and how the adapted building continuing a story of the structure's history and past functions. We do not live in a static environment; the world around us is in constant evolution. In evaluating the effects of biological versus human aspects of change, and using this to tell the story of the built environment around us, we must analyze the idea of time, buildings, and technology in relationship to evolution.

Why?

However the issue is, in some cases, in this process of adapting and reusing, it seems the origin of the building and the story behind the initial function often gets lost. Adaptive reuse is self-defeating if it fails to protect the building's cultural and heritage values. The evolution of our societies is reflected in our building types and styles. This relationship gives older buildings a character we value and identify with. When a building of historic merit is preserved or restored for adaptive reuse, its cultural energy is also "recycled." History brought back to active duty. Architects/Developers should gain an understanding of why the building has heritage status, and then follow development that is sensitive to the building to give it a new purpose.

How?

Evolution of a building is so interesting because it displays the interaction of humans and creates a direct dialogue between the changing users and their equally active environment. The adaptive reuse of an old building should have least impact on the heritage significance of the building and its setting. The case studies which are selected in this discussion are adaptively reused buildings.

The study will be based on conservation principles and guidelines discussed in and the concept of layering. And a discussion on changes and additions done to make the building compatible with the adapted function (*functional and social aspects*), then will be followed by an analysis based on "how far they communicate the story behind" through the use of evolution, scarring, layering, and display, principles as a way in which to embrace storytelling as a process to communicate what once belonged to the past and explain what has emerged as part of the present function.

Abstract

The practice of architectural and urban design being involved in forming the space in our cities and built environments has certain effects on the social life in society that in its turn conditions the performance of the practice. The continuous changes in cities and societies, however, are just partially caused by the practice of architectural and urban design. In a fluid context of social and spatial transformations, the control and manipulation of the effects of the practice become yet more complicated entailing a deeper understanding of the nature of urban transformations and the dialectic between urban life and its spatial frames in cities. The objective of this thesis is to improve this understanding.

The thesis deals with discourses in the fields of theory of architecture, architectural and urban design practice and sociology. It examines the concepts of society, space and culture and discusses the content and historical context of predominant urban design ideas and concepts in different periods. All of these factors must then be integrated with new construction in order to continue the narrative of the building. "The building already has a story; all you have to do is add the interesting next chapter."

Throughout this paper, discussions will take place on how exactly we add this next chapter. The study will be made to look at the theories in conservation as a tool in which to establish coherence and unity in the presentation of an adaptive reuse project. Through the use of evolution, scarring, layering, and display, principles will emerge as a way in which to embrace storytelling as a process to communicate what once belonged to the past and explain what has emerged as part of the present function.

This article focuses on the protection and development of old buildings cultural characteristics oriented to the concept of recycle culture, so as to provide a theoretical reference for a sustainable urban culture.

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teaching practice, but sometimes, as in other cases, it has been involved in setting and grading its standards, or even more directly than that in the program, goals, and other aspects of the organization itself. In addition to teaching, it also provides for the care of the students.

In addition, the organization is also teaching. They are in practice also involved in setting their standards in a way which does not amount to setting or grading, or even to setting the standards themselves. They are also involved in the setting and grading of standards in their own right, but not in the setting and grading of standards in their own right. They are also involved in the setting and grading of standards in their own right, but not in the setting and grading of standards in their own right. They are also involved in the setting and grading of standards in their own right, but not in the setting and grading of standards in their own right. They are also involved in the setting and grading of standards in their own right, but not in the setting and grading of standards in their own right.

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1.0 Urban Design and the Architectural Culture

Physical planning and architectural and urban design have been involved in forming and structuring our cities. In many cases they have not met the supposed goals, and urban designers, planners and architects are accused of causing adverse conditions for the lives of the inhabitants.

Nevertheless, these professions are still functioning. They are in practice even involved in activities aimed at curing the social depression they are accused of causing, or in revitalizing the values that were demolished because of their planning and design interventions in cities. The risk of making mistakes is not eliminated. To escape confusion in the practice of architectural and urban design in a fluid context of change, and to minimize the risk of generating undesirable results we need knowledge of specific kind. We need to know how spatial structures 'hidden' in the physical construct of our built environments are produced culturally, and how these also produce cultures through their capability of generating functions. We need to know how urban societies and their spatial forms; cities, interplay in the ceaseless courses of transformation. The aim of this thesis is to contribute to this kind of knowledge, and to an awareness of values in our cities and in our urban life that may be threatened, but can also be saved, sustained and developed.

There are two quite distinct architectural concepts for the town or city. In the first concept the town or city is visualized as an open landscape into which buildings have been introduced as three-dimensional objects, pieces of sculpture sitting within a park. The second concept is of a town or city where public space, that is, the streets and squares appear to be carved from an original block of material. In the first concept, buildings are the positive solid elements and space is the general background against which they are seen.

In the second way of looking, the city space itself is the positive element with three-dimensional properties and the buildings are two-dimensional façades framing the space. However, facing the fact of architectural culture disappearing in the urbanization process, it is a serious problem to solve: how to properly deal with the contradiction between the protection and reuse of old buildings and the urbanization, and how to inherit, protect, and renovate urban culture. The old buildings are a kind of material witness and carrier of urban culture continuity, which represent the preservation value of cultural heritage.

Existing old buildings are seen as barriers that need to be designed around or in some cases demolished in order to impose a new design of the time. Sometimes existing historic element may be left untouched simply because it is "historic". The goal of this discussion is to study reuse projects and how the adapted building continuing history and past functions.

How does the integration of new and old not simply replace history, but in fact add to it? How does the story of the building evolve?

This thesis study will concentrate on looking at everyday buildings and focus on evolving the structure to accommodate new uses while still commemorating the history of the building. We must take into account the present condition of the building and alterations that have occurred across time. By applying an aesthetic eye, we must decide if the current state helps or hinders our comprehension of the aesthetic intentions of the original builders. We then must evaluate how these changes and alterations have responded to "earlier interventions by historically significant events or personalities.

The study will be made to look at the idea of narrative as a tool in which to establish coherence and unity in the presentation of an adaptive reuse project. Through the use of evolution, scarring, layering, and display, principles will emerge as a way in which to embrace storytelling as a process to communicate what once belonged to the past and explain what has emerged as part of the present function.

1.1 Evolution; City Vs Human Aspects of Change

When addressing adaptive reuse, we are dealing with the process of change. The idea of change and growth is all around us. People mature, flowers bloom, blank walls often get covered with graffiti, and old clothes get torn and made into beautiful quilts or ripped and used as rags. We do not live in a static environment; the world around us is in constant evolution. In evaluating the effects of biological versus human aspects of change, and using this to tell the story of the built environment around us, we must analyze the idea of time, buildings, and technology in relationship to evolution.

1.1.1. Why Cities are been changed?

It is clear that the time, technology, advancing human needs and the changing context has a role to play in the evolution of cities. Where it can be seen studying the buildings that are been adapted to changing uses over a period of time.

Time has an effect on the way in which we view history, but it also helps develop the world in which we live. From the first drawings to the final demolition, cities are shaped and reshaped by changing cultural currents, changing real-estate values, and changing usage.

The time is a relative measurement; it is relative to the function and the people who use that area. Therefore, there is a relationship between change of a city and the occupants and time. City, Streets and Buildings become symbols of time, from ancient civilizations to the present.

The idea of evolution in regards to adaptive reuse can be taken even further than simply applying the idea of a gradual change over time. In Darwin's theory of evolution, we are faced with the concept of natural selection. Natural selection and the idea of 'survival of the fittest' are the basis behind "adaptation and diversity" similarly in adaptive reuse projects it

is those elements that are most adaptable, highly desirable, or of some value that are saved, that are 'selected' to survive, And this is survival of the fittest.

1.2 Human Nature of Adaptation

Place is described as an entity that is created by and intertwined with human action. It is affected by and has effects on human action. Environment is assumed to exist independently from human behavior but with an influential relation to it.

Human actions are usually indicators of experienced phenomena, but neither actions nor phenomena are always as clear and distinct as e.g. the 'act of fleeing' that may reflect the experience of confronting 'an angry dog'. It becomes much more complicated when our activity in relation to space is at issue, since our knowledge about space is not usually an explicit knowledge as discussed earlier. Acting in a space we may follow many rules just imposed by that space without being fully aware of those rules. Two points are important in studies that try to relate human action to space. Firstly, we must make clear what we exactly mean by an action, secondly we must be able to distinguish the precise impact of space in shaping the action from the impact of other factors present while the action happens. It is the question of making the environment of the experiment as clear and controlled as possible.

The way we, as social beings, can become aware of space is closely associated with the way through which society displays its spatial dimension and space its social content. Human behaviors do not only happen in space. They have their own spatial patterns. Human society, at least to date, has possessed an intrinsic 'spatial logic'. Space, on the other hand, as physical arrangement can generate and restrict the probabilities of movement, of encounter, of co-presence and of avoidance, which are the most generic spatial activities in human society. In this way, space acquires a 'social logic'. This property

of space comes from the fact that it is, in some way or other, made up of recognizable constituents. Being connected in different ways, these constituents produce different configurations in which significance and potentiality for generating functions are based on the way that parts are put together, rather than any of the parts taken in isolation. The concept of configuration presents relational systems in a way that relations are concerned while taking into account other relations.

Even the function of a distinct simple 'individual space', like an unfurnished room in a building or a small open public space in a settlement, is based on its inherent relational property. Common sense may understand the shape and size of a simple space as the generator of functions

This applies to the city as well, A conflict between the preservation of the character of existing historic towns and "change" has formed the central argument for conservation. More recently, heritage has superseded conservation, where marketing of heritage as a product according to the demands of the consumer, mainly tourists, has resulted in the commercialization of heritage over conservation values. Today, the symbiosis of both tourism and heritage places has become a major objective in the management and planning of historic areas. This article examines the current conflicts among the ideas of conservation, heritage, and tourism and argues for a sustainable approach to the management and planning of heritage places based on a community and culture-led agenda.

1.3 Impact of the change on cities

The adaptive reuse of an area should have least impact on the heritage significance of the buildings and its setting. Architects/Developers should gain an understanding of why the building has heritage status, and then follow development that is sensitive to the area to give it a new purpose. Adaptive reuse is self-defeating if it fails to protect the building's cultural and heritage values. However, the commercial mentality does not seem to appreciate the long-term economic value the city nor their cultural spirit. Such devaluation is part of so-called "globalization." However in some cases, in this process of adapting and reusing, it seems the origin of the city and the story behind the initial function often gets lost.

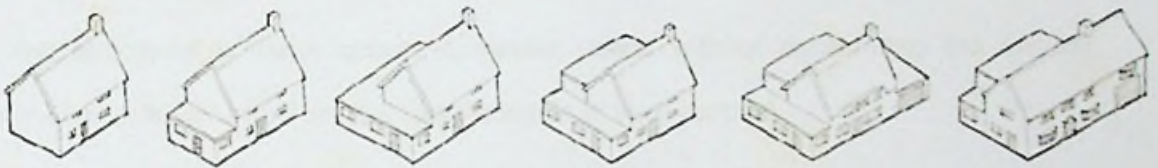


Image i- 2: Death of a Cottage

Although Darwin's theory of natural selection and evolution appear to be seamlessly perfect, questions concerning contemporary intervention arise. Where do the genome project and genetic alterations fit in?

Artist Thomas Grünfeld composed a series of imaginary work called *Misfits*, which represents extremes of engineering and design faults in the evolutionary process. Shown here are three examples from the series:



Thomas Grünfeld - misfit (St.Bernhard / Sheep), 1994 - Tafderrrie 80 x 120 x 70 cm - Private collection - Fotografe: Jörn Behrens und Michael Ine, Bremen © VG-Bildkunst, Bonn

Similar situations can be identified in most of the modifications that are seen as add-ons. The above images indicates an evolution, but, not compatible, not appropriate where the process of change has no relationship with the animal or its needs, leaving the question in indentifying it.

These "*Misfits* may now be considered not merely as 'freaks' in the system, but 'organisms' that reflect other kinds of evolution.

This change, accepted by some, rejected by others, can be applied to the technological advance in building and the effects on modern adaptation projects. Integrating HVAC ("heating, ventilating, and air conditioning") systems in to older buildings and updating existing structures to meet current computer needs without considering the cultural importance of the structure are just two examples of such retrofits.

Using this theory, the addition is an angel of death, brought down from the heavens looming over the street below. Others may view these building more along the lines of an egotistical display of technology, similar to those who alter genetic traits simply because they can. The concept of evolution is embedded with the idea of a future. When considering the future, it is uncertain what will come.

The present trends in façade improvement gives examples to this, the alien material such as Aluminum and glass are been used without a sense in order to "just do something" and make their own statements. City of Colombo is been exposed to this invasion of cladding may be due to the laziness of the designers.

Can progress not be shown by the connection of the past with the new technology of today?

In pursuing a topic concerning adaptive reuse and proposing a transformation of an existing urban region into serving a new public function, many variables arise that require further investigation. Foremost is the need to acquire a basic understanding of the adaptive reuse concept and Conservation process.

2.1.1 *What is the firm's value?*

Value is the present value of the firm's future cash flows. It is the sum of the present values of all the cash flows that the firm is expected to generate over its life. The value of the firm is determined by the expected cash flows and the discount rate. The discount rate is the rate of return that investors require on their investment in the firm. The value of the firm is also affected by the firm's risk. The riskier the firm, the higher the discount rate, and the lower the value of the firm.

The value of the firm is also affected by the firm's growth opportunities. Growth opportunities are investments that the firm can make in the future that are expected to generate cash flows. The value of the firm is also affected by the firm's debt. Debt increases the risk of the firm, which increases the discount rate and decreases the value of the firm.



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2.0 Adaptive reuse: Introduction and Background

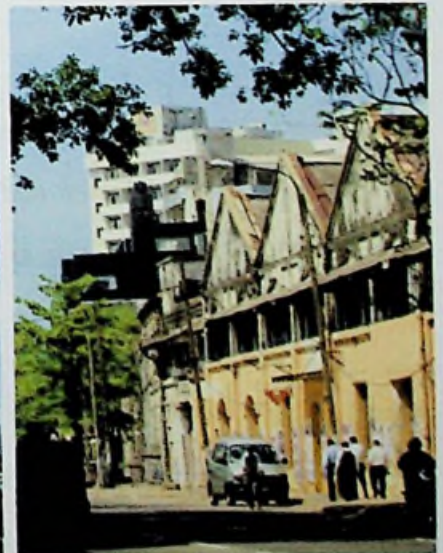
2.1 What is adaptive reuse?

Cultures always adapt to the needs of ever varying users. However, in modern society, development is often seen in a different light. Newer is better; buildings are assumed to have a certain finite lifetime and will eventually be torn down and replaced by larger buildings with finite lifetimes. It seems those that are saved and restored are those that believed to be heritage buildings. Most of the architectural artifacts that were studied and preserved were those of monumental significance. Old buildings often outlive their original purposes. Adaptive reuse, or re-use, is a process that adapts buildings for new uses while retaining their historic features.

Adaptive reuse has been around in one technique or another since the beginning of the built environment. Whether it be a building such as the Parthenon, which has held functions ranging from a mosque, to a harem, to a powder magazine, or an ancient tool that has been used, reused, torn apart and the pieces reassembled, the idea of adapting the existing is part of human evolution.



"Guffoor" building, Colombo
Abandoned and mis-used as a
Car park



The Abandoned Colombo
Commercial Company Building
Before Demolition

It is an organic process of growth and repair must create a gradual sequence of changes. As new construction is important, repair and addition to the existing is valuable. Only then can an environment stay balanced both as a whole and in its parts, at every moment of its history. Although the majority of well-know preservation projects are those with historical significance, it is a part of evolution to reuse the ordinary structures as well.

2.1.1. The Need of reflecting the evolution / Change of a city

“What we need is continuity . . . historic preservation is not sentimentality but a psychological necessity. We must learn to cherish history and to preserve worthy old buildings . . . we must learn how to preserve them, not as pathetic museum pieces, but by giving them new uses.”

Ada Louise Huxtable
Lessons In Healing the City's Scars

A building may be locally recognized and respected, adding to the character of a neighborhood. An additional argument may be that the building is an architectural or engineering feat of its time, worthy of acknowledgement and respect.

The evolution of our societies is reflected in our building types and styles. This relationship gives older buildings a character we value and identify with. When a building of historic merit is preserved or restored for adaptive reuse, its cultural energy is also "recycled." History brought back to active duty.

The reuse of heritage buildings can provide the community with new opportunities. Architects, Town planners and councils have to recognize and promote the benefits of adaptive reuse of heritage buildings, then; will be contributing to the livability and sustainability of their communities.

2.2. Role of the adaptively reused buildings in reflecting the evolution of the city

Old buildings preserve the local culture and identity and create a sense of belonging. In a way, it brings alive the past to be a part of the future, creating important connections through time.

In the context of Urban Designing, heritage has merged with more general environmental and quality-of-life concerns in recent years. Communities increasingly recognize that future generations will benefit from the protection of certain places and areas, including heritage places. Our lifestyle is enhanced not just from the retention of heritage buildings, but from their adaptation into accessible and useable places.

Culture is never entirely static; it is in a constant state of change. The world is getting smaller and there is increasing contact between people. As a result, cultures are changing. What is more, they appear to be changing at an increasing rate. Urban designers are forward looking; we plan and design, not only for the here and now, but also for the future. A backward looking or even static view is, therefore, a highly mischievous occupation.

It is the dynamic of cultural change that must be the urban designer's primary concern. As anthropologists would say, it is the process of acculturation – the way in which new ideas and mores are grafted onto existing cultures – that should be the prime concern of those engaged in designing for the future. It is the agents of change, those actors or processes that drive the engines of change, which have to be discerned and harnessed. The situation is further complicated when the architect, urban designer or planner realizes that he or she is an important agent of change. The designer even when working with people is not a neutered, objective observer, but a significant factor in the process of culture change.

Keeping and reusing old buildings has long-term benefits for the communities that value them. When done well, adaptive reuse can restore and maintain the social significance of a building and help to ensure its survival. Rather than falling into disrepair through neglect or being rendered unrecognizable, heritage buildings that are sensitively recycled can continue to be used and appreciated. Increasingly, communities, governments and developers are looking for ways to reduce the environmental, social and economic costs of continued urban development and expansion. We are realizing that the quality and design of the built environment in our towns and cities are vital to our standard of living and our impact upon natural resources.

2.3. How Adaptive reuse can improve the quality of the City and its Culture

Adaptive reuse of old buildings plays a major role in heritage conservation practice. In line with the changing social and economic conditions and the increasing development pressures in the cities, many of our culturally significant buildings and sites can be successfully adapted for their new functions. As a result, many buildings and sites that were originally accessible by a limited group of people are now able to be enjoyed to the general public in the forms of established residential precincts, commercial buildings and tourism and entertainment venues.

Cultural heritage is the social fabric of a place created by natural and social forces that have endured over time, and arguably should be retained and incorporated into a building's new use. Conveying the histories of rehabilitated buildings requires an important presentation and interpretation component in adaptive reuse. Interpretation, the process of intellectually and emotionally connecting viewers to the meaning of a resource, is an important aspect of preservation work.

Understanding its effectiveness in adaptive reuse is a valuable tool for improving preservation practices. The relationship between preservation and presentation is complex, and the outcomes can emphasize, alter, or impose various meanings. Interpretation techniques are paramount to conceptually analyzing how cultural heritage shapes community identity. How can the significance of historical social fabric be further emphasized to better demonstrate its role and value in revitalization projects and heighten the importance of considering heritage in the adaptive reuse process? Historic preservation, influenced by social insight, is the engine for effectively incorporating cultural heritage into new uses.

Historic buildings help define the character of our communities by providing a tangible link with the past. Today, the historic district in Colombo is experiencing unprecedented revitalization as cities use their cultural monuments as anchors for redevelopment. Sometimes, efforts to preserve and revitalize historic buildings run up against financial obstacles, restrictive zoning and codes, contamination, and structural problems that create challenges in reusing these unique structures.

Culture supports collective remembrance and social identity, and generates a strong sense of place. Additionally a strong presence of culture in social and economic activities can be an indicator of a community's quality of life, the greatest factor of success in sustainability. This fosters a stronger social awareness and builds community based upon the common understandings of how a place is embedded in culture and history.

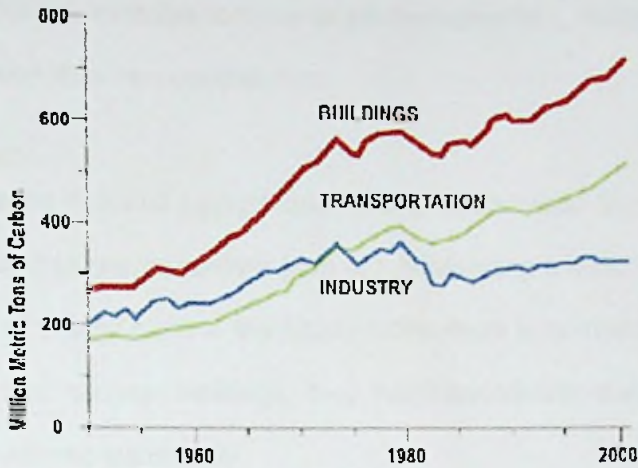
2.4. Benefits for the Developers

2.4.1. Environmental benefits

Adaptive reuse of buildings has a major role to play in the sustainable development of communities. One of the main environmental benefits of reusing buildings is the retention of the original building's "embodied energy". The embodied energy is the energy consumed by all of the processes associated with the production of a building, from the acquisition of natural resources to product delivery, including mining, manufacturing of materials and equipment, transport and administrative functions. By reusing buildings, their embodied energy is retained, making the project much more environmentally sustainable than entirely new construction.

Statistics reveal that building construction consumes 40 percent of the raw materials entering the global economy every year. Interestingly, about 85 percent of the total embodied energy in materials is used in their production and transportation. Even before they reach the construction site, building materials have consumed large quantities of fossil fuels.

New buildings have much higher embodied energy costs than buildings that are adaptively reused. In 2008, new building accounted for about 45 per cent of annual energy and raw materials consumption, 30 per cent of wood harvest, 16 per cent of fresh water supplies, 44 per cent of landfill, and 45 per cent of carbon dioxide production and up to half of the total greenhouse emissions from industrialized countries.



Source: http://www.architecture2030.org/building_sector/index.html

The reuse of building materials usually involves a saving of approximately 95 per cent of embodied energy that would otherwise be wasted. In this context the reuse of old buildings makes good sense.

2.4.2. Economic benefits

Adaptive reuse of existing buildings can provide a tremendous benefit to the overall community as well as to the primary investor. For the community, reusing existing buildings helps to preserve the urban infrastructure and to minimize sprawl. It reduces the overall environmental impact of construction activities and reduces waste. It also helps to preserve a community's historical grounding, particularly if the building is a key community landmark or has high sentimental value. For the developer, adaptive reuse allows the development of buildings in locations that have underlying value such as urban centers, walkable neighborhoods or prime commercial districts. It can preserve and help to capitalize on a building's unique design features such as high quality architectural detailing, large windows or

high ceilings that are attractive to many target demographics. Many times, adaptive reuse can be less expensive than new construction.

There are several financial savings and returns to be made from adaptive reuse of historic buildings. Embodied energy savings from not demolishing a building will only increase with the predicted rise of energy costs in the future. While there is no definitive research on the market appeal of reused heritage buildings, they have anecdotally been popular because of their originality and historic authenticity.

The combination of financial incentives and the commercially oriented nature of the adaptive reuse schemes outweighed any extra costs and project risks". Sensitive adaptive re-use schemes have created commercially viable investment assets for the owners. They required less capital to start, less time to complete, and less dependence on heavy machinery. Older buildings contained unique details and craftsmanship, were often built better, and designed without modern day mechanical systems, utilizing natural light and ventilation. The building process could also be completed in stages, allowing one part of the building to be profitably occupied while another stage was being worked out.

The first part of the book is devoted to the history of the subject and the development of the theory. It begins with a brief survey of the history of the subject, and then proceeds to a detailed account of the development of the theory. The second part of the book is devoted to the application of the theory to the study of the human mind. It begins with a brief survey of the history of the subject, and then proceeds to a detailed account of the application of the theory to the study of the human mind.

The third part of the book is devoted to the application of the theory to the study of the human mind. It begins with a brief survey of the history of the subject, and then proceeds to a detailed account of the application of the theory to the study of the human mind.

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CHAPTER THREE

The fifth part of the book is devoted to the application of the theory to the study of the human mind. It begins with a brief survey of the history of the subject, and then proceeds to a detailed account of the application of the theory to the study of the human mind.

3.1. Compatibility

The discussion in this chapter concentrates on the historical architectural heritage and context. For example, it includes exterior characteristics, narrow street system, and the formation of indoor and outdoor spaces, articulations between the interior and the exterior, and the organization with the rest of the city.

On the philosophic ground of contextualism, there are two things to be taken for consideration:

1. Preserve old historical building
2. Build new one that would resemble or integrate traditional architectural vocabularies

Contextualism related to society and culture seeks to understand the special character of a city, town, village or area and to reinforce rather than dilute that special character. This can be done by in several ways (for example by use of materials and palette, by traditional plot distribution, use, architectural exaggeration etc). All of these are important but none of them alone can provide a successful response to an historic area. It is more than a 'tick box' exercise. This can admirably be left to the 'individual architect to make their mark' (as the other responses suggests) but only if the architect understands and responds to the above. Contrast ('the individuals mark') when inserted into an area which has an important and cohesive architectural character will dilute and undermine that area. When inserted into an area which has poor architecture and a disparate, un-cohesive character, a contrasting building can provide a stimulus for other good new buildings. Both are valid responses but either must be based on careful analysis of the surrounding area!

The funny thing about context as discussed in the previous chapter is that it is never the same. Like people, like our lives, like our thinking so changes our context. Our very understanding of how we live or meanings of words in languages.... contexts are ever changing.

Context is far greater than just historic buildings. Context also deals with the people who built the historic building then and comparing it to the people who live around them now. Context as everything else linked to the living evolves. It must not be subservient to pre dictated past and neither should it deny its roots, but the past should be the platform, the higher base from which we achieve a greater level of architecture by changing uses and their interaction with the city.

3.1.1. Physical Compatibility

Context and local history are two more aspects of adaptive reuse that are most often dealt with hand-in-hand. There are many more roadblocks to consider; the structure may be unsound in parts of the building or unable to carry additional loads, services must be out dated and these issues must be dealt with, and the requirements of the program could call for additions, which present interesting design challenges.

A detailed examination of the building must first be completed. This not only allows oneself to become familiar with building style and physical condition, but factors such as method of construction and material can be noted. Great care must be taken in older buildings when completing field measurements.

The table lists the main physical factors relating to the structural, constructional, spatial, environmental and servicing characteristics that need to be examined for their possible positive or negative effect on 'change of use' viability. It also includes the main financial and operational issues that need to be taken into account.

Characteristic

Factors

Structural	Type and condition of structure, Floor load capacity, Structural grid and section dimensions
Constructional	Type of construction and materials, Cladding system and fenestration Partitioning and finish, Fabric age, condition and maintenance
Spatial	Spatial configuration, Floor plate size and floor depth, Core and riser size and locations, access arrangements, Fire escape provisions
Environmental	Orientation and energy profile, Lighting and ventilation arrangements, Environmental control systems
Servicing	HVAC system and distribution, Duct space capacity, Power load capacity, Plumbing system arrangements, Services age and condition
Financial	Market constraints and opportunities, Property value and land value Exchange value and tradability, Maintenance cost profile
Operational	Locational and site characteristics, Transport, access and parking, Security, health & safety arrangements, Usability, flexibility, manageability

Although there are many arguments for keeping a building and continuing the story of its character through adaptive reuse, there are four additional factors to consider when looking at a building: microclimate responses, structural stability, sanitary levels, and historic and artistic significance. Microclimate is a factor that most old urban areas manipulate.

Structural stability is another key factor when looking at a possible rehabilitation site. If the building is structurally worth saving, alterations or reinforcing to the existing structure can be areas of great potential in narrating the interaction of history and present day adaptations. Sanitation levels are an obvious concern to the well being of the users, whereas historic and artistic value is much more objective. Some of the most deteriorated



sections may well have greatest value and offer the largest tourist potentials for restoration and preservation.

3.1.2. Social Compatibility

When recycling a building, it is important to consider the character of the neighborhood, establish acceptable limits and recognize aesthetic standards of the community. Having an understanding for the common building materials and style of the community are very important. Often, older buildings were constructed with local materials and craftsmanship, containing unique details and connections. Preserving these aspects and calling attention to the details of the building and care of the workers adds to the local tradition and allows citizens to further appreciate the intricacies of the buildings around them.

Think about the structure's size, materials, color and style and how all of this relates to the area. Consider the program and if the building is not only suitable for the adaptation, but is it in a key location for the new function. All of these concerns should allow the project to add positively to the surroundings and not dominate over local interests and aesthetics.

The contextual design practice is assessed in a historical perspective with regard to its intention to carry towards the city its architectural heritage. That is a great challenge to architects and Urban designers when designing the adapted building. Response to challenge varied greatly from time to time, from place to place, from culture to culture. Some urban design guidelines have lead the architects towards great sympathy to historical context in their work by developing design that resembled or reflected historical style and characteristics.

To maintain city's historic architectural character, professionals and academics have largely resorted to contextualism, both as a philosophic concept and as a design means.

1. As a philosophic concept, contextualism, is adopted to provide an effective way to transcend the meanings that are embedded in the context of historical architectural characteristics.

2. As a design means, contextualism is used as a method to bring about sympathetic creations that blend into their surroundings instead of destroying them. How contextualism has been involved in new construction and how it has been, as frequently happens in many historic cities.

Contextualism has been carried out in much more abstract and symbolic way, capturing its essence and creatively adapting the historical vocabulary. As a result, architects and urban designers often took a more liberal, abstracts approach in developing contextual design as a mean of integrating both a sense of history and modernism.

3.2. The principles and guide lines related to Reuse in architecture

A conflict between the preservation of the character of existing historic towns and "change" has formed the central argument for conservation. More recently, heritage has superseded conservation, where marketing of heritage as a product according to the demands of the consumer, mainly tourists, has resulted in the commercialization of heritage over conservation values. Today, the symbiosis of both tourism and heritage places has become a major objective in the management and planning of historic areas.

Once the determination to perform an adaptive reuse has been made, the next step in the process is determining how. As the earlier scales of intervention, rehabilitation has been subdivided into two approaches; the passive approach, called reuse; and the active approach, called conversion. The difference between them lays in the chosen use for the new existence. They combine both activities from earlier and later scales of intervention; remaining what possible, subtracting merely what exceeding and adding simply what required, etc. Well conserved building is not a single mans work; it's an end result of an outstanding team work. Therefore there must be a correct method to follow. Urban conservation methods mainly based on a two facts,

- Government rules and regulations
- International guidelines and charters

In most of the time countries have their own regulations and government acts to protect historically valuable buildings, monuments and cities.

These rules and regulations help to prevent destroying and demolishing those buildings and stop haphazard development.

Local historic preservation ordinances can be passed to protect specific historic buildings of historic districts from unacceptable modification. An ordinance of this type might specify design guidelines and appropriate materials for rehabilitation of historic buildings. Most

historic preservation ordinances require certain types of public review, designated permits before historic resources can be altered, or demolished or new buildings can be constructed in a historic district.

A historic preservation ordinance usually establishes a local designation or certification program to register historic resources. Historic preservation ordinances are similar to zoning in that they attempt to control land use to protect the historic value of the resource. A historic preservation ordinance can be a strong tool as it is tied to the specific historic resource, such as a landmark building or a historic district.

An important method in protecting historic buildings is to achieve an official recognition or certification as historic. This is achieved through a local, state or national program. Depending on the program, certification as a historic building may include protections or restrictions on the use and modification of the building and incentives to preserve its historic value.

3.2.1. International Charters and guidelines on conservation

The principles for Adaptive reuse can be implemented through a study of various important reference of good practice in preservation and the protection of cultural heritage. Considering the world's archaeological and built heritage, UNESCO is significant at a global level, the two organizations of most important to the study are considered to be the Council of Europe and ICOMOS.

ICOMOS has set out the recognized methodology of the management of cultural heritage and replacement disciplines such as archaeological heritage management and building conservation, through charters and resolutions.

Charters adopted by the general assembly of ICOMOS (As of August 2007)

- International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter) - 1964.
- The Florence Charter (Historic Gardens and Landscapes) - 1982.
- Charter on the Conservation of Historic Towns and Urban Areas - 1987.
- Charter for the Protection and Management of the Archaeological Heritage.
- Charter for the Protection and Management of the Underwater Cultural Heritage.
- International Charter on Cultural Tourism.
- Principles for the Preservation of Historic Timber Structures.
- Charter on the Built Vernacular Heritage.

Washington Charter clearly defines the qualities and values of historic urban areas and outlines the important factors to be assessed in their protection and conservation. We can identify three cultural values inherent at the Venice Charter. Those are the historical, archaeological, artistic and ancient values.

ICOMOS Charter for Historic Towns and Urban is a document used in many countries as an outline to prepare guidelines for the conservation of historic towns or urban areas. Washington Charter which would combine The Venice Charter on its contemporary capability, embraced within the classification of historic town and urban areas, worthwhile of conservation, "historic urban areas, large and small, including cities, towns and historic centres or quarters, together with their natural and man-made environments."¹ The Washington Charter, similarly to the Burra and Appleton Charters, also alerted for the speed of losing the validity. With a constant discussion at the urban level, the cultural values have been identified also on the scale of science and the relevant factors addressed to a conservation plan were archaeology, history, architecture, sociology and economics.

International charter for the conservation and restoration of monuments and sites, the Venice charter- 1964

Basic Principles, that can be used for Reuse projects:

Historic monuments as living witnesses of age-old traditions.

- Consciousness of the unity of human values, and regard ancient monuments as a common heritage.
- Recognized the common responsibility to safeguard them.
- Duty to hand them on in the full richness of their authenticity.

It is essential that

- Principles guiding preservation and restoration of ancient buildings are agreed.
- They be laid down on an international basis.
- With each country responsible for applying them within framework of its own culture and traditions.

2nd International Congress of Architects & Technicians of Historic Monuments, (Venice 25th to 31st May 1964, approved the following text:

Definitions

Article 1.

- Historic Monument is not only the single architectural work, but also the urban or rural setting in which found evidence of a particular civilization, a significant development or a historic event.
- Applies not only to great works of art but also to modest works of the past, which have acquired cultural significance with passage of time.

Article 2.

- Conservation and Restoration of monuments must have recourse to all sciences and techniques, which can contribute to study and safeguarding architectural heritage.

Article 3.

- The intention in conserving and restoring monuments is to safeguard them no less as works of art than as historical evidence.

CONSERVATION

Article 4.

- Essential that conserved monuments be maintained on a permanent basis.

Article 5.

- Conserved monuments to be used for socially useful purpose.
- Such use must not change the layout or decoration of the building.
- It is within these limits that modifications demanded by a change of function may be permitted.

Article 6.

- Conservation of monument implies preserving a setting, which is not out of scale.
- Wherever the traditional setting exists, it must be kept.
- No new construction, demolition or modification altering relations of mass and colour must be allowed.

Article 7.

- A monument is inseparable from the history, to which it bears witness, and from the setting in which it occurs.
- The moving of all or part of a monument cannot be allowed except where it is essential to safeguard the monument or unless justified by national or international interest of paramount importance.

Article 8.

- Items of sculpture, painting or decoration which form an integral part of a monument may only be removed from it if this is the sole means of ensuring their preservation.

RESTORATION

Article 9.

Process of restoration is a highly specialized operation.

- Aim is to preserve and reveal aesthetic and historic value and is based on respect for original material and authentic documents.
- It must stop at the point where conjecture begins.
- Any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp.
- Restoration in any case must be preceded and followed by an archaeological and historical study of the monument.

Article 10.

- When traditional techniques prove inadequate, the consolidation can be achieved by modern technique.
- Efficacy of which has been shown by scientific data and proved by experience.

Article 11.

The valid contributions of all periods to a monument must be respected.

- Unity of style is not the aim of a restoration.
- When includes superimposed work of different periods, the revealing of the underlying state can only be justified in exceptional circumstances
- what is removed is of little interest
- material which is brought to light is of great historical, archaeological or aesthetic value
- Its state of preservation good enough to justify the action.

- Evaluation of importance of elements and decision what may be destroyed cannot be taken by the individual in charge of the work.

Article 12.

- Replacements of missing parts must integrate harmoniously, but distinguishable from original, without falsifying artistic or historic evidence.

Article 13.

- Additions cannot be allowed except insofar they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings.

Historic sites

Article 14.

- sites of monuments must be objects of special care
- to safeguard their integrity
- To ensure they are cleared and presented in a seemly manner.
- Work of conservation and restoration carried out in such places should be inspired by principles set forth in the foregoing articles.

Ruins must be maintained

- Necessary measures are taken for permanent conservation and protection of architectural features and of objects discovered.
- Measures to be taken to understanding of monument and to reveal it, without distorting its meaning.

All reconstruction work should be ruled out "a priori".

- Only reassembling of existing but dismembered parts can be permitted.
- Material used for integration should always be recognizable.

- Minimum use of new materials ensuring conservation of a monument and the reinstatement of its form.

There are some policies to manage change, including adaptation, when assessing development of heritage places. Such policies contain standard criteria to help make sure that an adaptive reuse project has minimal impact on a building's heritage values, such as

- Discouraging "façadism"—that is, gutting the building and retaining its façade



Example for "Façadism"

Cape Town, South Africa: Recycling of the facade of an Old theatre as an entrance portico to a contemporary building

- Requiring new work should respect to the original building and should be recognizable as contemporary, rather than a poor imitation of the original historic style of the building



An Example for Architectural integrity reflecting aesthetic principles

Through concern for the urban design dimension, the newcomer is exemplary in the manner in which it has breathed life into its neighbor, the 2000 year old Roman temple, now used as an art gallery.

The building in the background is (Carré d'Art (1987-93)) the addition which was designed when the original building was adapted. Designed by Norman Foster.

- Seeking a new use for the building that is compatible with its original use and its neighborhood.

The international council of Monuments and sites (ICOMOS) adopted the charter for conservation of historic towns and urban areas in 1986, identifying historic urban areas for their role as historical documents and the embodiments of values of traditional urban culture. This charter giving emphasis to the continuity of urban settings, notes five qualities, that are to be protected

- Urban pattern as defined by lots and streets
- Relationship between buildings and green and open spaces
- The formal appearance, interior and exterior of buildings as defined by scale, size, construction, material, color, and decoration
- The relationship between the town or urban area and its surrounding setting, both natural and man made
- The various functions that the town or urban area has acquired over time.

Here urban patterns are limited to physical aspects without discussing the social composition and activity patterns.

4.0 Case Study

In the heart of Colombo, the capital city is an area known to this day as the fort, which originally came within the fortifications built by the Dutch after their capture of Colombo from the Portuguese. The ramparts have since disappeared except for a tiny remnant. The land in the Fort is now the most highly priced real estate in the country and consists of only a few hectares. In this busy area is an old dilapidated and unoccupied building which was the country's leading hospital during the Dutch occupation.

Few of the passers-by were aware of its identity. The narrow lane that skirts the building is known as Hospital street, and perhaps this is the only reminder of its past. It occupies about half a hectare of land, which is a relatively large area in terms of the size of the fort, and it is a credit to the authorities that such prime property is earmarked for restoration.

4.1. The Building



Figure 1. Front view of the Dutch hospital in Colombo. Painting presumably by Johannes Rach, 1771. Koninklijk Instituut voor Taal-, Land- en Volkenkunde, Leiden. A. chief surgeon's residence; B. pharmacy; C. apothecary's residence; D. hospital; E. kitchen; F. cattle shed; G. wall.

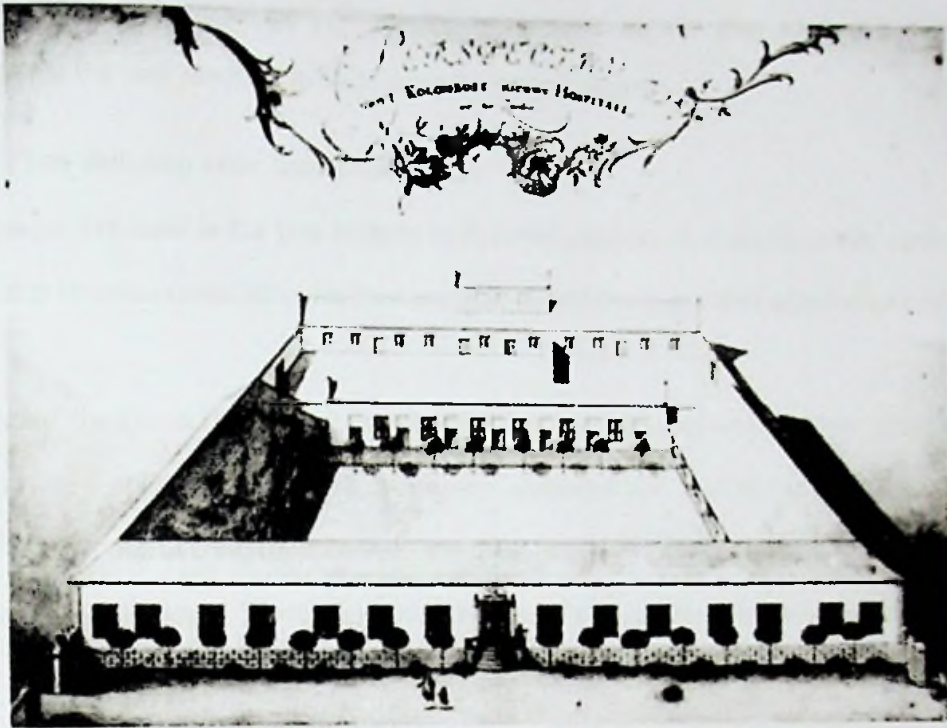


Figure 2. Rear view of the Dutch hospital in Colombo. Painting presumably by Johannes Rach, 1771. Koninklijk Instituut voor Taal-, Land- en Volkenkunde, Leiden.

The building appears hardly to have changed during the past centuries. The design is a simple one, consisting of five wings, four of which are joined to form a square with a courtyard in the centre. The fifth wing constitutes the facade of the building and is situated in front of the square with a second courtyard intervening.

As with other Old Dutch buildings in Sri Lanka, the walls are over 50cm, thick and the teak beams are massive both in girth and length. These features of solid construction have undoubtedly ensured the survival of the building. A long and wide open verandah runs along the length of each wing, and is another characteristic of Old Dutch architecture in the tropics. The high walls, large windows, and spacious verandahs provide a comfortable environment within, in contrast to the humid heat outside. The courtyards which appear bare in the painting were

overgrown with vegetation. While the ornamental shrubs that formed a prominent feature against the rear windows in 1771 were no longer present.

4.2 The Building after Transformation

The project itself is the first toehold to the revitalization of Colombo's city center. Through the Dutch Hospital restoration, it's now possible to amble around and admire the architecture and

Today, the Dutch Hospital has shed its original function and houses a shopping precinct. Wards that were once occupied by the sick and wounded are now colourful shops and restaurants. Characteristic of Dutch architecture are thick, massive walls and large teak beams and wooden doors and windows. These elements have been preserved even today and each restaurant and shop has acknowledged the core Dutch architectural and design influences in their simple but elegant interior decor. The Dutch Hospital currently offers 12 retail spaces to Sri Lankan made/based businesses.

The complex from one side connects with the historic district with narrower streets and old structures and from the other side it links up with the new developments, the high-rises and offices, the complex itself acts as a transition zone among these two different districts in the city, a gap has been created by introducing an open square in between the high-rises which enables the pedestrians movement towards the complex, takes them through restaurants in to courtyards and back to the historic district.



Open Square

Ambience of the edifice, upon entering it, you forget you are in the very heart of Colombo. The World Trade Centre twin-towers are visible only when you look up and because the walls are so thick, there's no sound of traffic in the courtyards or in any of the eating or shopping areas.



a view from the central court yard



The entrance varendah facing the hospital street

As lights are lit for the evening the Dutch Hospital exudes an aura of simplistic beauty. Regal and proud amidst its surroundings, the Dutch Hospital shopping precinct provides a unique space for relaxation. Little did the Dutch know that the hospital they built in Colombo, would stand for three centuries and become a shopping zone with a difference.



The ambience of the space

The Dutch Hospital complex opens out onto a courtyard of cobblestones and chairs. The city rises above you. There are shops and restaurants all around. The transition from one side to the other is via two court yards, these two courtyards are paved with natural stone and provided with outdoor furniture enabling the activities to spill out.



Courtyard 01



Court yard 02

Well-known names from Colombo's retail, entertainment and catering sectors have set up shops. It's quite hot during the day, but in the evening and night, this place becomes a wonderful space to relax and unwind. Since during lunch time the premises are bound to be packed with those from the surrounding offices, the best time to visit would be in the morning, late afternoon, or evening. The colonial architectural character is well preserved, and the introduction of new elements in to the landscape has enabled the user to roam and relax within the space.

CONCLUSION

Conclusion

In the past, many developers avoided historic preservation and adaptive reuse projects for fears of cost overruns, lack of qualified labor, and concern over unexpected problems associated with historic buildings. The growing numbers of examples and heightened concern for smart growth planning and sustainability have made adaptive reuse a more accepted tool – both financially and socially.

A successful adaptive reuse project can bring redevelopment, heritage tourism, and new life into a community. Through a collaborative approach, municipalities, developers, architects and planners can work together to help restore our urban building fabric and to infuse our existing architecture with new function and value to the community while reducing the impact on our environment. Along the way, an important part of our history can be reclaimed.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in

design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

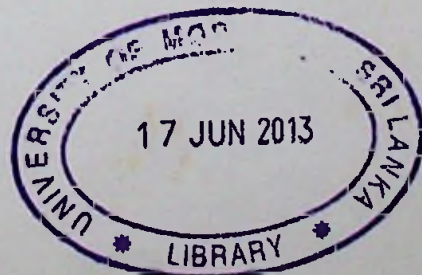
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

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