

ROBUSTNESS IN STREET ARCHITECTURE ;  
A STUDY OF SOME SELECTED  
STREETS IN COLOMBO AND KANDY.

A Dissertation Submitted  
for the Degree of Master of Science ( Architecture )  
at the University of Moratuwa



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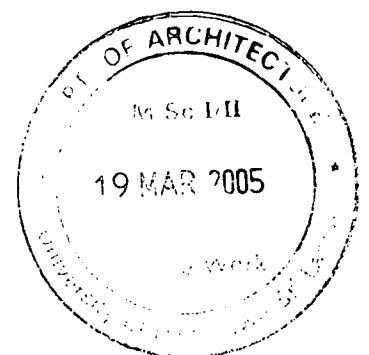
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## DECLARATION

I Declare that this dissertation represents my own work, except where due acknowledgement is made, and that it has not been previously included in thesis, dissertation or report submitted to this university or to any other institution for a degree, diploma or other qualification.

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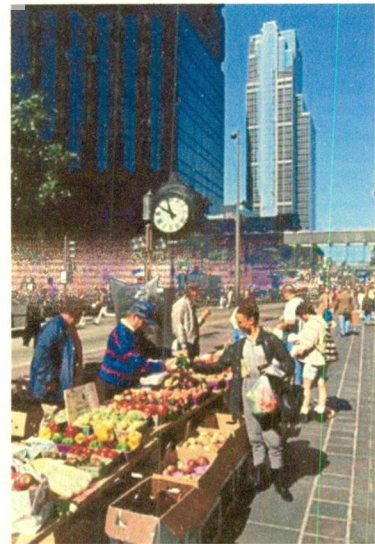
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INTRODUCTION

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## INTRODUCTION

### 0.1 The Study

Man's interest in space has existential roots. It seems from a need to grasp vital relationships in his environment to bring meaning and order in to a world of events and actions.

People use spaces for different activities with their motivations in the light of their perception. His behavior within a space is directed by the orientation, which is expressed by organization of a chain of spaces.

The function of a street as a link given rise to the movement of the people, connecting together the individual spaces for a town creating a sense of urban street. Liveliness of place which offer the components of psycho-sociological needs of the user both in private as well as in public realm. It is much more demanding the street as a public space, which must be able to personalize by each one in that group.

That the urban street should provide its user a psychologically comfortable atmosphere, which makes him be on the Street, which we call "responsiveness". There are some essential attributes through which the degree of responsiveness is affected such as permeability, variety, legibility, robustness, visual appropriateness, personalization and richness. Out of these qualitative attributes, the Robustness will be considered as the area around which the study is being carried out.

*"Places which can be used for many different purposes offer it's user more choice than places whose design limits them to a single fixed use Environments which offer this choice have a quality we call Robustness"*

Ian Bently, Alan Alock, Paul Murrain, Sue Mc Glynn and Graham smith (1985 : 56 )

In accordance with the above description, robustness will create the flexibility of the space, the degree to which the people can use a given place for different functions.

Therefore the study will be focused on robustness, its characteristics, determinant factors and modifying factors through different situations of selected Sri Lankan streets.

Also it is to be discussed the degree to which robustness would be appropriate within different contexts. Ultimately it is realized that robustness will be an important key quality. That creates adaptability of the street, which paves the way to enhance its liveliness.

## 0.2 Need Of The Study

It has been observed that there is a noticeable failure in the evolution of urban streets. Streets devoted to the automobiles have stolen much of the humanized activities in cities. Not only that but, most of the buildings along the street are restricted to a single fixed use within rigid design limits, and seem to be lacking their adaptability to different functions.

This has created a vacuum between the relationship of man and his environment. Street activities have been swept away and established new inflexible individualized social entities which lacks the "Robustness" and urban street has been acquired by new values of mass transportation systems and mobility.

As discussing about this lack of robustness, several reasons of it could be identified. Trends of new development creates street facades with introverted, massive and rigid edged buildings. The result seems to be the loss of public realm of the urban street. Ultimately the street had been neglected as a place for people and means of expression of community.

The need is to fill this huge gap in rectifying this issue of loosing the "liveliness" of urban streetscape. Therefore it is the duty of the architects to realize the vitality of existence of Robustness in the street facades through which the livability of street will be evoked and enhanced. Also to create more urban public spaces along streets, that has multiple uses as the time changes.

This particular study will provide the practitioner with a valuable source of basic information in achieving the above objectives.





### 0.3 Intention of the study

The intention of the study is to demonstrate the way robustness contributes to create liveliness in urban street, and the impact of it on the urban public life. In this response the attempt is to identify the qualitative attributes of the responsive urban street. Then it is to be considered the determinant factors of robustness as a key ingredient of responsive Urban Street.

(Therefore the study is towards a framework for a robust urban street.) Through the selected examples, it intends to realize the importance of existence of robust spaces along the street and then to seek the way to create live urban streets.

### 0.3 Scope and Limitation

Liveliness is an essential quality that sustain an architectural entity. As there are various qualitative attributes that create the responsiveness in an urban street as a public space, such as permeability, legibility, variety, visual appropriateness, Robustness, personalization and richness.) But all these aspects are not being discussed in detail. The study is to be focused on to the robustness in urban street architecture.

Robustness will play a major role in creating the liveliness in the street in different ways. Therefore the study stressed on the various categories of contributory factors of robustness in making the street a better place and the way it affects on the urban street life.

The study will not pass judgments on making the street a better place. Nor will it set guide lines to the design of a street it will however give an insight to the street as an interpretation of robustness in sustaining it's sensitivity.

Furthermore the study will be limited to some of the selected streets performing different categories of activities.

## 0.5 Method Of Work

The contribution of robustness in street architecture is analyzed and Identified through a theoretical approach.

First, The attributes of responsiveness and "what robustness is" ,

Then, The Characteristics, determinant and the modifying factors of Robustness ,

Finally the impact of these identified factors on urban public life is studied with a theoretical framework by selected actual examples.

Those streets, which have identifiable set of determinants, characteristics, modifying factors and the required urban quality, have been selected from Colombo and Kandy.

Examples from other countries also have been used where required to strengthen the argument.

Sources of information would be taken from literature review on the subject, First hand observation and photographic survey.



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## CHAPTER ONE

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Responsiveness of Urban Street

## CHAPTER ONE - RESPONSIVENESS OF URBAN STREET

### 1.1 Street As A Work Of Architecture

Architecture is all about spatial relationships. A work of architecture is comprehensive spatial entity created by a variety of inter-related spaces. Notion of space will matter on the perception of human being. He begins to identify the space in relation to;

- a. Centre
- b. Enclosure
- c. Continuity

In order to understand space it is important to signify the concept of center as the reference point of space. It is a point towards which mans interest is directed. The urban street as a collection of three-dimensional space segments, the center of it carries the notion of the enclosure with it. Streets are composed of enclosure planes and the spaces contained. There are three enclosure planes;

The ground plane (the street itself),

The overhead plane (Canopies or the sky as a perceptual ceiling),

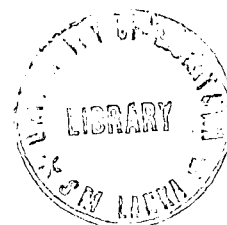
The wall plane (Buildings on either side of the street)

As the word implies it seals space in and makes it possible for man to experience the space. Enclosure can either be a tangible physical entity or an intangible sense of enclosure. In man's spatial experience, enclosure form meaningful spatial entities.

The enclosure divides the space in to two, thereby sense of here and there, inside and outside, this and that are created. Thus the bond within it in the presence of I, the center — continuity bridges the gap of these two spaces.

Continuity denotes the meaning of path. Therefore this path will have a beginning, a direction to move along, spacing of many destinations.

There exists a spatial progression, articulation of spaces in this entity, creating rhythmic spaces. This physical enclosure, form meaningful spatial entities.



## 1.2 Street as a spatial continuum.

An architectural entity can be defined as a space created by man for his living. As Norberg Schulz (1971 : 29) explains, most of mans events consist of spatial relationships as inside, outside, far away, close by, separate and united, continues and discontinues as an aspect of orientation.

Mans behavior within the space is essentially guided by the orientation. It will express different functional as well as symbolic values. The spaces having made relationships with its adjacent or neighboring spaces, form organizations in making the movement.

Such spatial organizations have comprehensive fabric of interconnected spaces having its own rhythm, vigor and autonomy. Out of many ways in which spaces have formed organizations, a linear organization is essentially a group of a chain of spaces. It is dynamic, full of movement and vigor.

In the same manner, as we consider the city as an architectural entity, street will act as a linking or binding element of the space. It suggests a direction, a path, and a destination beyond.

*Streets are integral parts of our movement and communication networks, they are the places where many of our conflicts or revolutions between public and private claims are accessed or actually played out, they are the arenas where the boundaries of conventional and aberrant behavior are frequently redrawn"*

Anderson. S (1978: 1)

Anderson shows that the street therefore is not one component by itself, meant for a particular activity. It's infant is an arena for multidisciplinary activities. In other words it is a series of integrated spaces, spaces that accommodate different activities.

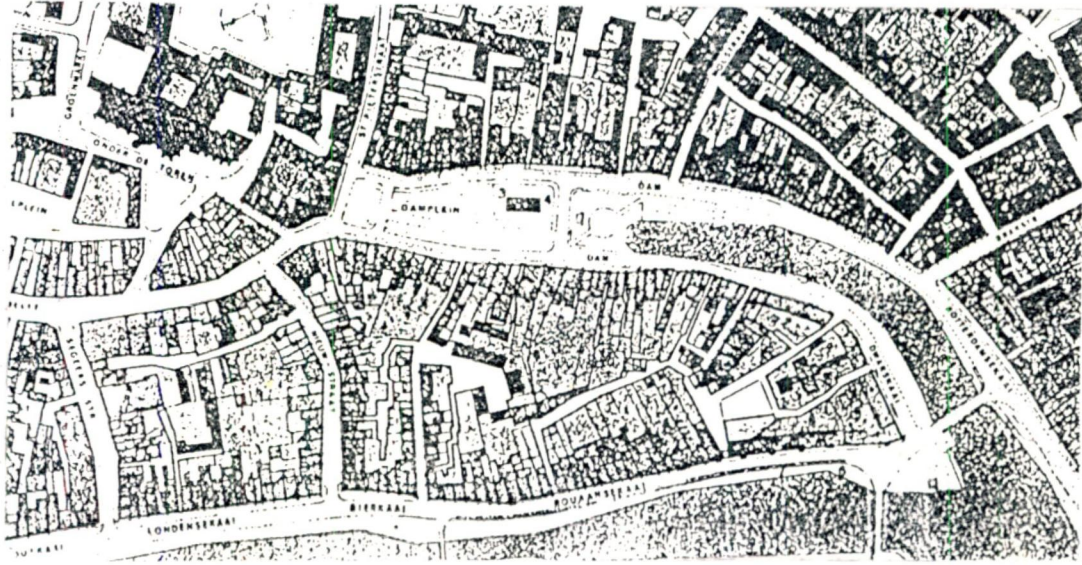


Fig 01 : Character of skeleton of Urban spaces.

The open market, the park or square, the treed sidewalks and arcades etc., such spaces act as the center for public activities. Therefore the linking of these spaces to facilitate the movement of people becomes a necessity. As a result, the urban spaces of a city are interconnected thus giving a city its character, Skeleton of urban spaces. The interconnection of spaces were mainly by means of street while transition spaces are introduce at certain places in the form of steps, ramps, arcades etc. These will facilitate the movement of people along the street.

### 1.2.1 The Social Space.

As the street provides the link between buildings and in the city at large, it facilitates the movement of people as pedestrians within vehicles, and also the movement of goods to sustain the wider market and some particular users within the street. The urban street allows the possibility of containing the active public life of the city where it is being used as a site for casual social interaction including recreation, conversation and entertainment.

As Allan B Jacobs (1980 : 4) describes streets are not just for movement of vehicle and people. They are for exchange of goods or services that exhibits what a society has to offer. The spectators see the way people compare, discuss and bargain and various other series of activities.

Not only that, it could be used for political rallies, cultural possessions as well as some other various cultural and entertainment functions.

Likewise, Street in the urban context generates social cohesion and interaction, supports and sustains the community.

### **1.2.2 The Physical Space.**

In addition to being a social fact in the city, the street is also a physical element. It also has a Three-dimensional form.

As we consider the physical arrangements in an urban street it may possess certain qualitative attributes that help to enhance the liveliness of the street. Such qualitative attributes could be grouped within responsiveness, therefore it will be vital to understand the responsiveness of urban street.

### **1.3 Street As A Responsive Physical Space.**

In this paragraph it will be discussed about the responsive physical space and the generation of it by the amalgamation of the physical and social spaces.

As architectural space should provide its users much more freedom, enriching and maximizing their opportunities of deferent choices available for them, such places can be considered as 'responsive places'. The urban street which possesses such qualities can be regarded as "Livable" streets.

Spatial arrangements determines the choices people can make,

- Permiability - The quality which determines where people can go and cannot
- Variety - the quality which determines the range in which the uses are mixed in the city;
- Legibility - The quality which determines how easily people can understand what opportunities it offers to access
- Robustness - The quality which determines the degree to which people can use a given place for different purposes
- visual appropriateness -The quality which determines where the detailed appearance of the place makes people aware of the choices available
- richness - The quality which determines people's choice of sensory experience
- personalization - The quality which determines the extent to which people to put their own stamp on a place



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### 1.3.1 Permeability.

Permeability can offer a choice to the people for the places, which are accessible to them. The quality of permeability can be considered as the number of alternative ways through an environment, it is therefore central to make responsive places.



Permeability has fundamental layout implications. In below diagrams, the layout in figure 2 offers a greater choice of routes than the layout in figure 3. It is therefore more permeable.

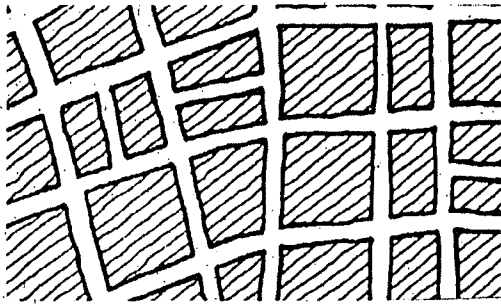


Fig 2

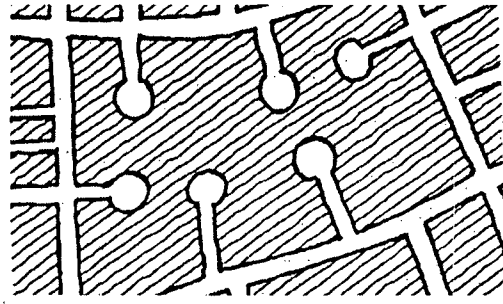


Fig 3

The Permeability of any system of public space depends on the number of alternative routes it offers from one point to another. But these alternatives must be visible; otherwise only people, who know the area, can take advantage of them. So visual permeability is important.

### 1.3.2 Variety.

This is a key quality to maximize the variety of uses. First it should access the levels of demands to different types of uses on the particular streetscape including the related urban space, and establish how wide a mix of uses is economically and functionally feasible to have. Accessible places are only valuable if they offer an experiential choice. Variety in uses therefore the second key quality to be considered after permeability.

### 1.3.3 Legibility.

Legibility is described as, how easily people can understand the layout, of an urban street. In order to understand the layout, the street must have a visual quality through which a person can bear mental image of that town or the particular street. If there is legibility in a street, the public would be able visual grasp as a related pattern of symbols, landmarks or pathways. Those elements are easily identifiable and are easily grouped in an overall rhythm. Therefore in the stage of legibility is involved in making decisions about the volumes of the buildings, which enclose the public space.

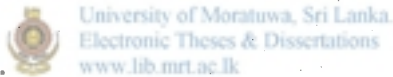
#### 1.3.4 Visual Appropriateness.

The peoples' interpretation about a place can be explained as the visual appropriateness.

It can also be identified as the meaning of the space that is visible. But there may be interpretations of the same place, due to the various kinds social groups. This happens due to reasons such as, their environmental experience differs from that of other groups, and their objectives differ from those of other groups. Anyhow the detailed appearance of a façade may help people to read and understand the pattern of the uses contain.

#### 1.3.5 Richness

When the building façades are detailed and grouped into so many subdivisions it will be more intimate with the human scale. In this stage, it should be decided whereabouts in the scheme to provide richness both visual and non visual, and select appropriate materials and constructional techniques for achieving it.



#### 1.3.6 Personalization.

When personalizing a place, user tries to establish their tastes and values through the building. Public participation having possibilities for users to personalize the place is the way through which the people can put their own desire in the environment. Personalization communicates across the public boundary, affecting the public realm.

#### 1.3.7 Robustness.

Places that have a variety of uses provide more choices than where design limits them to a single fixed use. Such places are called robust spaces. The quality can be regarded as Robustness.

In the context of urban street such spaces will give a very live atmosphere for the whole street and for the whole city.



### 1.4 Robustness As The Key Ingredient In an Urban Street

As there is a multiple usage of a space within an urban street will create lively and cheerful environment and will make people stay in the street.

*"People come there to experience other people. So if public spaces are chopped up in to separate compartments for separate activities, most of its robustness is removed*

Ian Bently, Alan Alock, Paul Murrain, Sue Mc Glynn and Graham smith (1985 : 68 )

Which means if the spaces are demarcated by categorized boundaries the essence of the livable atmosphere will not be exist any more. Instead a collection of dead spaces will be definitely remain among the buildings within the cities.

When considering the basic characteristics, which can be easily experienced by a person, robustness in an urban street can be identified in several situations.

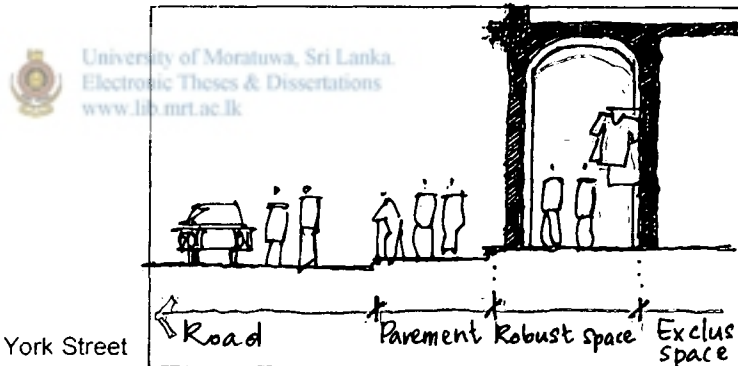


Fig 4 :  
Example of a Robust street - York Street

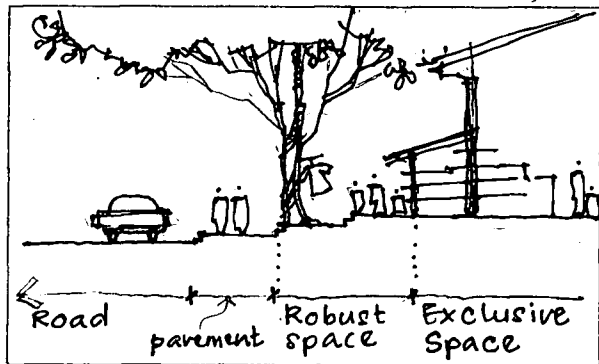


Fig 5:  
Example of a Robust street – Olcotte Mw.

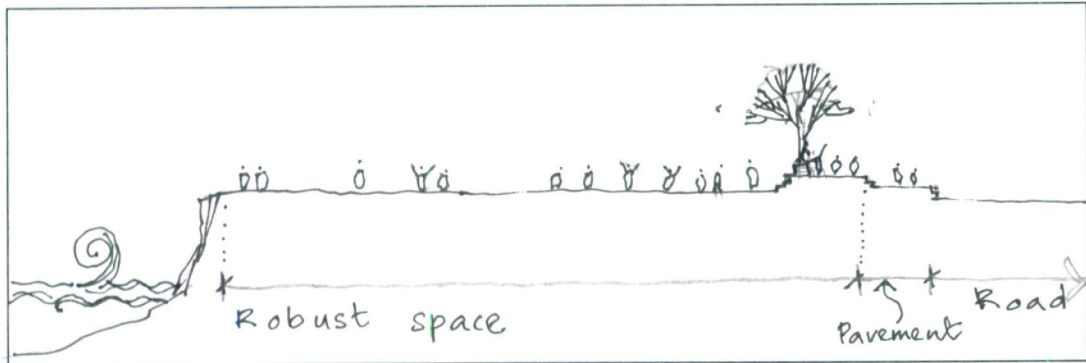


Fig 6 : Example of a Robust street – Galleface Central Road



Fig 7 :  
Example of a Robust street,  
Boulevard St. Michals, Paris.



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Fig 8 :  
Example of a Robust street  
A secondary, Cross street.

Robustness as a key ingredient in livable street it'll be very vital to realize that it is an essential qualitative attribute. There is also a great relationship between robustness and other qualities of responsiveness in an urban street.

a) The Relationship Between Robustness And Permeability In An Urban Street.

Through creating robust spaces, can avoid segregation of the users of the public space into different categories.

If there is robustness, can improve the physical accessibility between public and private spaces in the case of streets. when there is a greater number of alternative ways to a street it enriches public space by increasing the level of activity around its edges.

A Street, which has got robust spaces it, has more smaller plots and will help to create permeability.

The layout pattern of the cross streets at Pettah has got a higher level of Robustness that each and every street in the grid has possessed a maximum permeability.

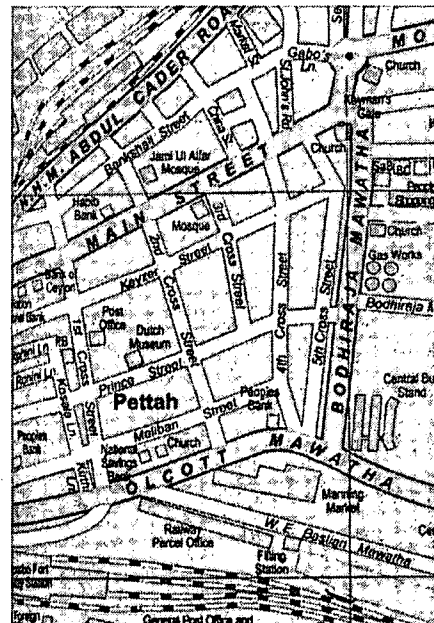


Fig 9 : Cross Streets - Pettah

b) Relationship between variety and robustness in the street.

Where there is robust characteristics in an urban street there will also be a good permeability. But if it does not offer a choice of various experiences, the easy accessibility will not relevant for the place. Due to the fact that robust space does not have permanent, rigid, fixed ends and it will have informal and flexible characters, automatically there will be various kinds of uses.

If there are more buildings along a considered street, there will be a greater diversity of uses and activities. The uses and activities are more important than buildings to the life of streets. degree of liveliness and Robustness will be enhanced by mixing of uses and activities. Where there are greater mixture of uses interaction of these different functions are encouraged. When these happen in a street, the street becomes full of life.

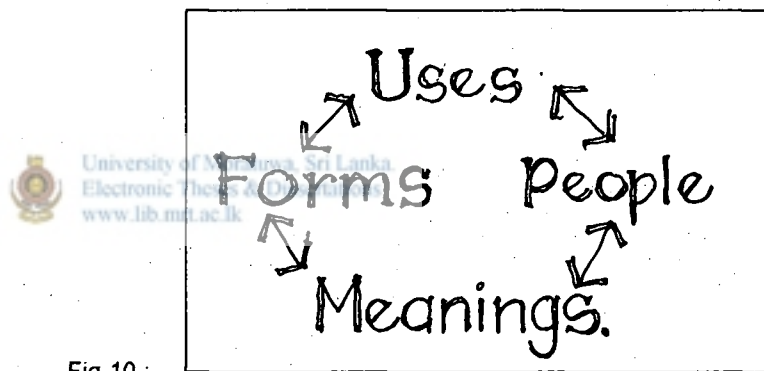


Fig 10 :

C) Relationship between legibility and robustness.

Through a legible street people must be able to form clear, accurate, images of it. Building edges will play a major role in the context of these images. As discussed earlier through a legible street people may be able to understand a pattern of symbols, landmarks or pathways. There fore these can be considered as elements of the imageability of a town.



More over nodes, landmarks and edges could be also considered as the elements that useful to increase the legibility of a street. As explained earlier edge of the buildings and the façade of it will act on creating a robust space in the urban street. Kevin Lynch describes,

*"Edges are the linear elements not used or considered as paths by the observer. They are the boundaries between two faces, linear break in continuity; sea shores, railroad cuts, edges of development walls"*

Lynch. K. (1981: 47)

Sometimes the three dimensional qualities of details, transparent qualities of this walls may offer robust characteristics and that may result in enhancing the imageability of the street.

Esplanade of Galleface Green in Colombo 3, Cargills building at Fort Colombo is some of the examples for strong edges that give legible characters to the street, and the Robustness of these spaces will enhance those qualitative attributes of it.

?

#### D ) Relationship Between Visual Appropriateness And Robustness.



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by supporting Robustness of street or of the building edge, the visual appropriateness of the same street can be created.

The detailed façade with various kinds of building elements that jugs out of the façade may create Robustness. Small gables, canopies that are used for entrances, heavily detailed columns of colonnaded arcades will create a space that can be used for so many ways.

Visual appropriateness is mostly important in many public spaces, in streets and it is particularly relevant to the outside of the buildings, which define the public realm. Which will result in the liveliness of the street.

e ) Relationship Between Robustness And Personalization.

As discussed earlier, personalization paves the way to have the peoples own tastes and opportunities within a place. By having different kinds of facades for separate use of buildings, personalization could be created. That it makes a variety of places' patterns of activities. This is particularly variable in robust environments, accommodating a wide variety of uses changing over time.

Therefore it is obvious that the way "Robustness" effects in making the street a livable space.

Therefore it is obvious that the way Robustness effects in making the street a live space.

F) Relationship Between Robustness And Richness.

When it is provided richness to the building façade along the street as there is a continuity of architectural details that are grouped in accordance with the rhythm. When considering the three dimensional modeling where strong light will sharpen contrast,



Fig 11



That beneath and around such details on the street, that projects out from the façade, people are likely to be walking, hanging around and create intimate enclosures that can be used for many activities along the street.

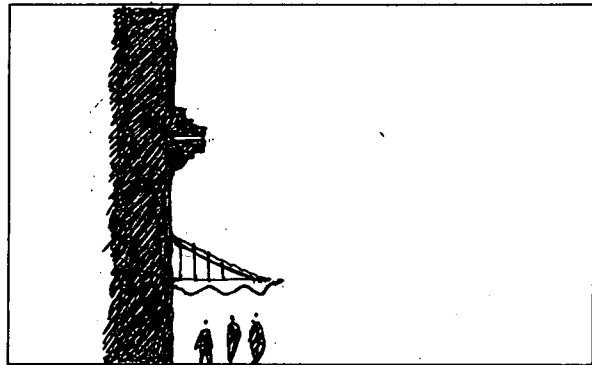


Fig 12

Likewise richness will enhance robustness and robustness will also create richness to the street façade in an urban context.



## 1.5 Concluding Remarks.

Urban Street is a sequence of spaces. As it facilitates the movement of people within the city, they use to move along street. If Responsiveness exists within the urban street, it will make people move along the street. Not only that but it will make them stay and live.

Permeability, Variety, Legibility, Visual appropriateness, Richness, Personalization and Robustness are the qualitative attributes that help to make a place responsive. That in the presence of responsiveness there can be livable spaces along the street. Robustness is identified as the possibility to change the space for multiple usages.

There will be a greater relationship between robustness and other qualitative attributes. Robustness will play major role in enhancing each and every other qualitative attributes of responsiveness in an urban street

Therefore it is important to understand what makes **Robustness** in the urban street. The next chapter will deal with the ways in which the robustness will contribute to make a street live.



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## CHAPTER TWO

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Robust Street Architecture; a Holistic View

## CHAPTER TWO — ROBUST STREET ARCHITECTURE; A HOLISTIC VIEW

In this chapter it is discussed what makes street a robust space. The social and spatial attributes of the edge of the building line and the modifying factors are also being discussed.

### 2.1 Characteristics of a Robust Street

#### 2.1.1 Flexibility of the Space and function

Flexibility could be identified as the manipulatability, or the degree to which use and form of the space could be presently changed. This paragraph will be dealing with the flexibility of the space for different functions and the way it can be used in many different ways.

*“ We have survived by virtue of our ability to respond creatively to change as it occurs. On that account we want an environment that leaves us free to act and whose development will not lead us in to some irreversible dead end”*

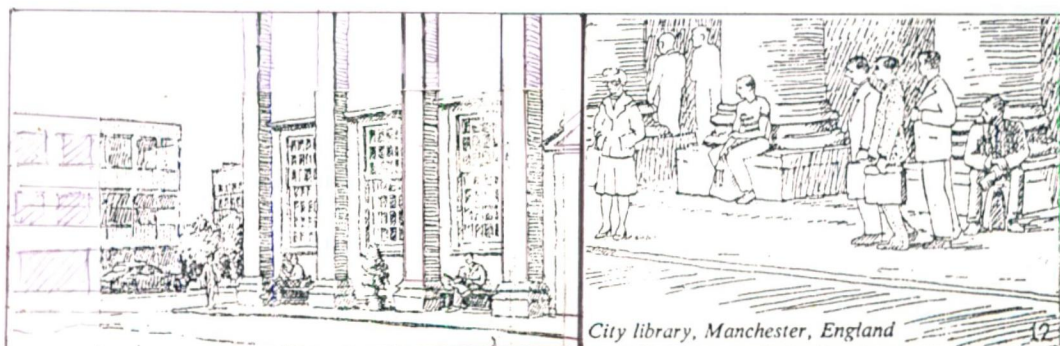
Lynch. K. (1981: 171)

In accordance with the Lynch's explanation, of the flexibility of the street could be experienced in different ways, [www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

When considering the different ways in which the same space in the street is used without limiting in to a single fixed use, building elements such as, stair cases as outdoor seatings, canopies and balconies as Shading devices or entrances of the buildings along the street

- Seats.

Supporting for people watching others can be increased by providing places to sit. These need not always to be single purpose seats.



Nitches & Column bases as seats.

Sometimes a flight of staircase or steps creates new value and meaning for the street in its flexibility. They have of course other uses than just a climb. To this day the amphitheaters of antiquity and the vast stairscape of the old world are ideal gathering places.



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Figure 14 : Dual purpose of Spanish Steps

If we consider the Spanish steps in Rome as an example, these steps create a link between two streets, the low-lying piazza di spagna and lofty piazza della trinita. The slope in between these two streets was too steep for a ramp. Therefore flights of steps were needed. The tall buildings in the surrounding made a sense of enclosure and the place was function as an excellent place as well as a link. It was also used as a place for the performance of ceremonial dance. In this context the staired street offers a double duty for social and mercantile activities due to the flexibility of the space.

Furthermore, plant troughs in streets may also useful for the sitting purposes. It will create relaxation, restful mind to be in the street.



Fig 15 : Plant troughs as seats ;  
Galleface Central Road

- Balconies

when the entrances of the buildings along the street respond directly to the street and not away from the street, the street becomes live.

By providing balconies facing towards the street, as an overt function for the people who are living in the upper floors can be exposed to the street directly. Sometimes these elements will act as a canopy or a shading device to the user of the street, as the covert function. in this context the purpose will be flexible.



Fig 16 : Balconied façade



Fig 17 : Balconied facade



- Canopies

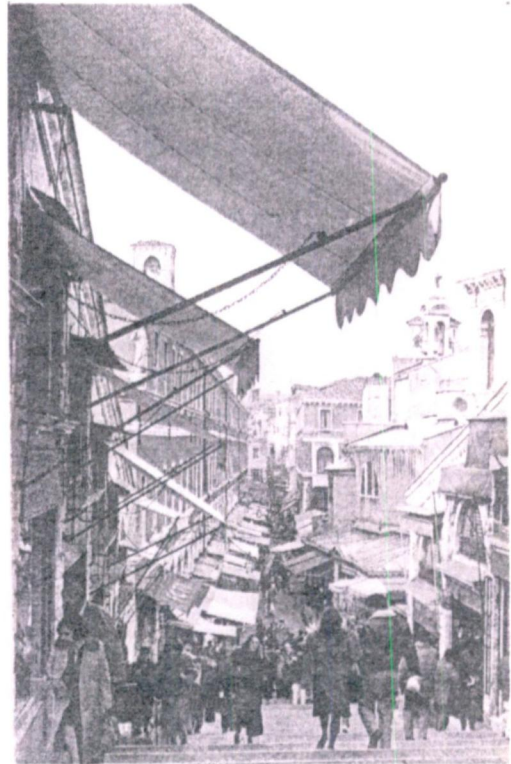


Fig 18 : Canopied Street



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Canopies as shading devices are useful, when the people need to avoid the sun across the space along the street, it is ideal to have such dismountable elements as shown in this example.

At the same time it will make a live entrance to the building which could also benefit from spilling out the inside activity in to the public space.

Sometimes when these shading devices continue along the facades automatically it will create an arcade. Likewise flexibility of the space for various types of usages may express its **adaptability**.

### 2.1.2 Informality Of The Space.

In a robust street informality will be an essential characteristic, which could be easily identified. An informal space will not have the rigid and fixed ends of physical boundaries. Instead lightweight, temporary elements.

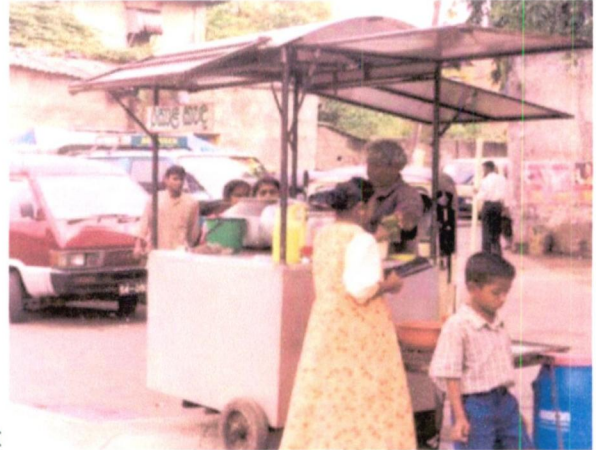


Fig 19 : Mobile Cart



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Fig 20 :Umbrellas as temporary structure

Sometime the space could be just a canopy which is supported by a tree branch or just a stool or a table under an umbrella. This informal nature will create a certain kind of a pattern to the urban fabric that helps to enhance its robustness. The boundaries or edges or enclosure are interdependent elements in formation of the patterns of places. The shops which are directly opened to the sidewalk can have their product halfway on the pavement. Hence the most activated area in the shop can be considered as the area nearest to the sidewalk.





Fig: 21  
Informal Market at Mount Lavinia

As the street space manipulated in different ways, it can be seen easily dismantlable structures. Therefore it reflects an informal, free and open space which gives intimate feeling for the user in front of shops without interfering the entrance. In the case of shop entrances both the shop owner and the vendor might implicitly accept each other in their own places.



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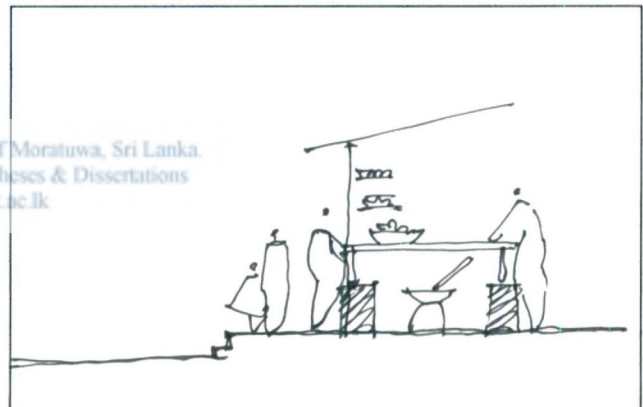


Figure 22 :  
Temporary structures along road

Not only that but as semi fixed spaces in the street it can be experienced as plant troughs, shopping carts, umbrellas makeshift boxes, tables, stools like dismantlable and temporary structures all these may posses distinct positions and orientations creating patterns of places as entities within the street. These patterns might influence the mental perception of the pedestrian of the specific area he experiences between the buildings and the physical setting. This may enable him to experience the place as a livable and psychologically comfortable environment due to its informal nature.

In contrary the shops which are not opened to the road, air conditioned and very exclusive other than their displays may hardly contribute to activate the street environment in creating patterns of place in the street, and lacks robust qualities. Because where the openings of shops may give an inviting quality to the walker. The closeness of the shop might make the user feel rejected by them.

Therefore it suggests that informal, free and open, easily dismantlable, space possesses a character of **adaptability** which leads to create **robustness** in the street.

### 2.1.3 Change In Activity Pattern

where there is a robust space, a changing pattern of activities also could be evidently identified

*“Change is an important dimension of successful urban space. The ability of a place evolve an change over time is an important quality of good environment”*

Lynch K. (1981 :13)

As Kevin Lynch describes the change means the dynamic characteristic in an urban street. It might not be a space that has rigid boundaries, which cannot be removed and must not be restricted to a single purpose. Therefore if a space has got removable, changeable, qualities, the changing nature of activity pattern will enhance the quality of adaptability of a robust street.

Where the activity itself organically determines the formation of individual spaces that has little relevance to the more organized physical structuring or formal planning concepts. Instead it comes in to life through spontaneity of human activity as it did so for over hundred years.

The variation of activities of the street and their changing patterns of activities may bring the social vibrance of the said pattern. Therefore predominantly people may help to generate patterns of events in and around different physical settings and may help these events to happen in pattern of place for a vibrant street. The public may engage in these events not only as individuals but, as groups as well. They may diverse and concentrate in a specific place within patterns of places and patterns of dynamism to the places and events concerned.

Events of periodic changes too become an important part of the town center. In the time of 'Vesak', New year and Christmas specially vendors try to absorb a vast number of people easily along the street.

As some streets allocates for specific functions it can be automatically generate robust characteristics. For an example, in Kandy, Dalada Veediya is specifically used for the traditional possession. At that time the street will posses a unique characteristic with its own flavor. After the function it is used for vehicular and pedestrian movements as usual.



Fig 23 :  
Cultural procession; Dalada Veediya

Symbolic public life develops out of the shared meanings people have for physical setting and the rituals that occur in public. They are spiritual and mystical experience in a society. The celebrations of past events and memorable persons. Letting provision for occasional, cultural, religious and other type of celebrations to happen it will add liveliness to the street through its flexibility.



Fig 24 : Public rally

In certain instances, the whole street may be devoted into a particular function. It can be a ceremony or a night bazaar. At this moment too, the street is not being used by automobile. At the day time the function will change in to day to day activities, including regular vehicular and pedestrian movement as usual.



Fig 25  
Night fair; Boston

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Fig 26  
Street in a Week Day



Figure 27  
Same street in a Holiday

National and religious functions and historical events, all create opportunities for a form of public life that goes beyond the individual household offering a type of communication that transcends language. By observing people and their activities and participating with them in shared tasks, the existence of community can be conformed enabling people to feel that they are a part of a large group in an active manner.

The diversity and the concentration intensify people into the pattern of events occupying specific nucleus of events within that patterns of events. In the vary same place as the time passes this dynamism may change in to a calm and quite nature

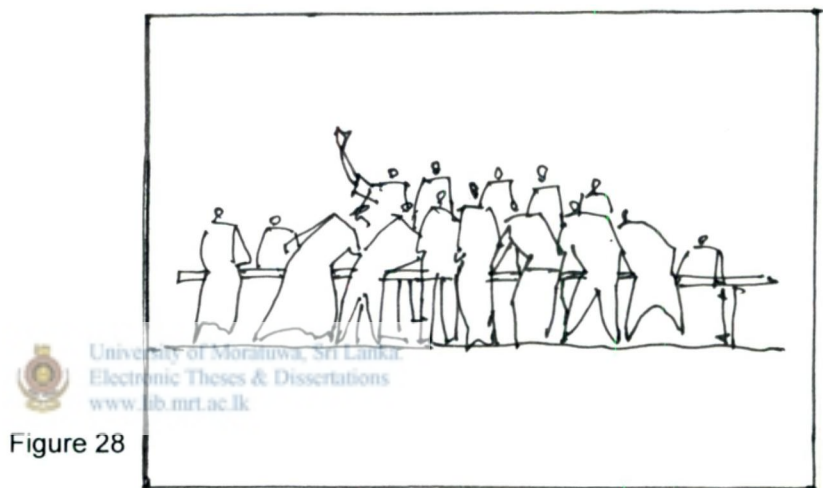


Figure 28

The Galleface central Road, for another example, it will differ from any other streets because of its location. The seaside of the street has got a higher level of robust characteristic due to the aesthetically dominating element of Galleface Green. Therefore the dramatic view of the sea, the cool breeze with the dynamic environmental and social sense, evokes and emotional upliftment.

The Galleface green takes different looks in different times of the day. In the dawn people use to come there for fresh air, exercise, go for jogging in the esplanade, the vast and boundless robust space of the Galleface central road.





Fig :29  
Recreation activities at the dawn;  
Galleface Green.

When the sunsets the place is getting romantic and the sky is getting red, this is the time of the day, various types of people flock there. Lovers, parents with kids, vendors can be seen. Vendors sell various types of sweets and spicy fast food. Ice cream and mobile fast food vehicles are parked along the Galleface Road. These things create a festive type and seem to be changed in a few hours time

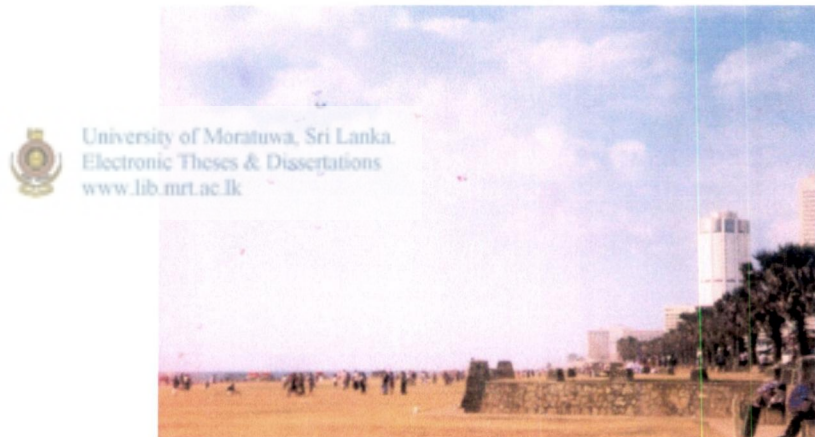


Fig : 30  
Recreational Activities  
in the evening

Therefore the type of the event in the street may also helps to make a place **robust**. And it creates a vibrant street environment.

## 2.2 Determinant Factors of a Robust Street

### 2.2.1 Spatial Transition.

In order to exist robustness, the edge between buildings and public spaces must be able to enable a range of indoor private activities to co-exist in close physical proximity with a range of outdoor public activities.

For example, terraces to pubs and restaurants and display areas for shops.



Fig 31:

Display areas for shops



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Fig 32

Display areas for shops

Fig 33  
Terreses to pubs and  
Restaurants



Though the above two examples, spatial transition from public to private areas are in a way that preserves the privacy of indoor activity, so the users will not feel the need to screen themselves totally from the public space.



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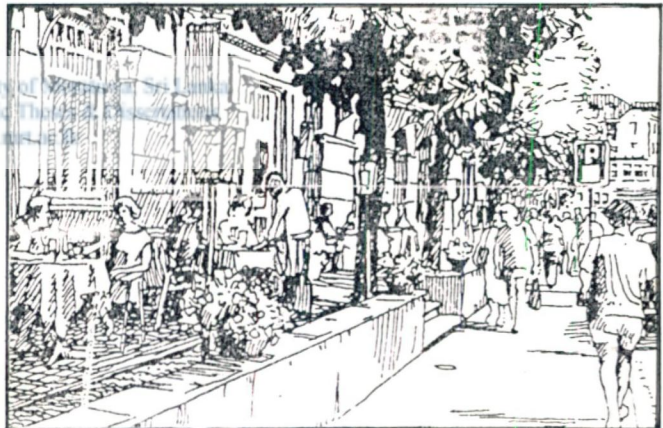


Fig 34 : Level Difference

This quality could be increased by making a level difference as illustrated above.

By the above both situations the spatial qualities express **extroverted** architectural qualities. That leads for the robustness to exist within **transparent** streets spaces as shown in the above sketches.



In this context it will be very important that through the above quality there is an ability to create active building fronts.

By having many entrances as possible, comings and goings will be directly visible from the public space.

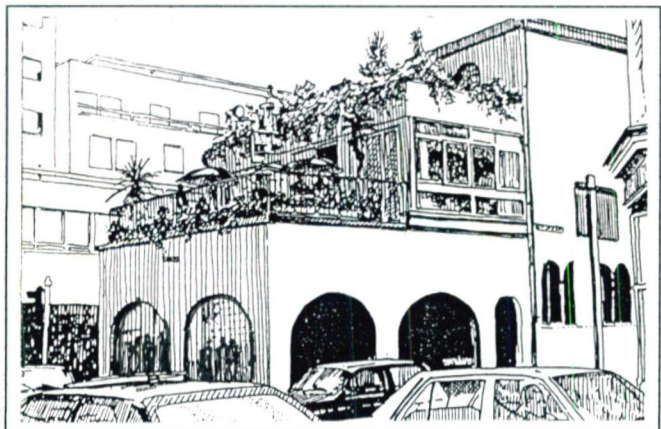


Figure35 : Many Entrances

Not only that but, by spilling out the activity inside the building to the outer public space as well, and if they require more space, can put the surplus on the next floors at the building front.



Fig 36 : Spilling out the activity



Thus the gradual transition from public to private area across the street and across the edge of the building line will also be important determinant factors of Robustness

### 2.2.2 Solid Void ratio

The spatial transition may happen gradually with the harmonious play of solids and voids.

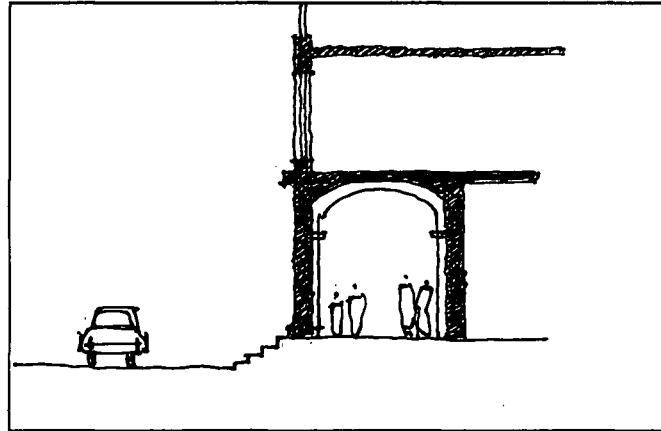


Fig 37

If we consider an arcade as a robust space at the very edge of the street it seems to be very voidy at the steps after the pavement, and it starts to transit the public space with a column and then again void. Then you get the harder space, which is private and exclusive at the end. Through arcades robust spaces could be seen, with a proper ratio of solids and voids, which will be visually pleasing and add a livable environment to the street. Also it adds transparent qualities to the street.

### 2.2.3 Scale And Proportion.

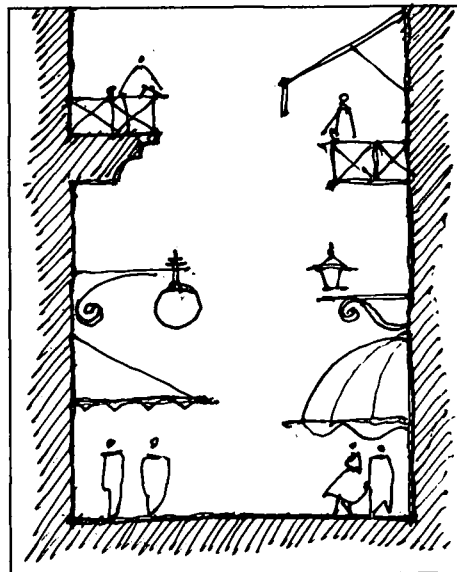


Fig 38

The live streets have responded to the human scale in their heights at the street edge. Fundamentally a comfortable human scale, environment is one, which related to the scale of the pedestrians not for the moving vehicles. Streets with tall buildings at the edge have responded to the human scale using horizontal elements. As they reduce its original height creating spaces for the people to hang around make them feel sense of entering to the building. Or else for some any other purpose which will be changed with time.

Due to the fact that it happens at the edge of the space, which offers a sense of refuge as well as a prospect of what is going on. The feeling of refuge can be increased by creating the above stated scale of building elements.



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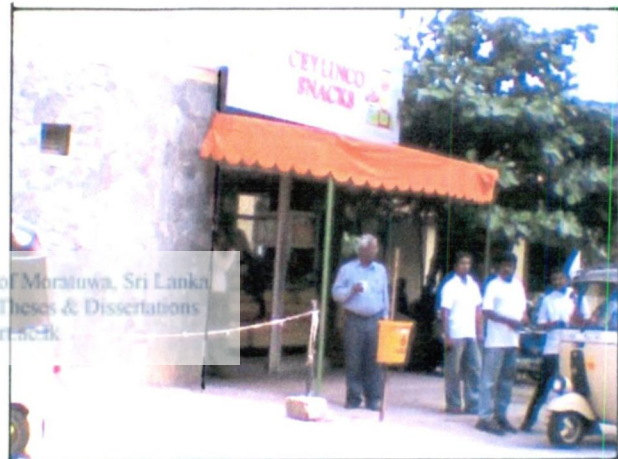


Fig 39 : Canopy of intimate scale

At this stage, when the harder edges of the building is being softer in accordance with the human scale. There will be spaces of intimate scale that will help to create Robustness in street

### 2.2.4 Diversity of buildings.

Diversity, more buildings in given length of street, contributes for it to be a great one than a very few buildings. They give it the much-needed variety. Every vertical line between the two different buildings may work as a visual break point, and will enable us to feel the sense of scale and orientation too. More the number of buildings means, that each building may inevitably take up a change the space over time, introducing further dimension of diversity. Having more diversity will mean creating for the great variety of uses which in turn many help the whole street to happen various types of activities.

Higher the variety on the urban street, greater will be the possibility of the space to adapt for different uses. That the diversity of buildings with varied uses may create different building types of different forms. They attract different people, in different times, for different purposes and meanings. Ultimately variety as a whole may help to increase the number of choices that they can have, but this will be more successful on a close grain of diversity.



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Fig 40

### 2.2.5 Unity and contrast

The buildings around an enclosed space should form a continuous surface and present to the user an architectural entity. A unified street will elevate the spatial volume to a figural position against a background of two-dimensional planes. Walls, floor and sky above.

*“The necessity for unity for a dominance in the composition, will have dilated the relative bulk of the masses under consideration, but these still remain the question of the influence of form on these masses and the effect which may be obtained by contrast of form.”*

Robertson. H. (1924 : 58)

The contrast which has been explained in the paragraph the solids and voids as simplest and the form and mass little bit simple course, the form and mass is difficult to grasp at once. This is same as the other types of contrasts nearly to avoid monotony and to emphasize interest of a composition.



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By reducing the mass of individual buildings can be create continuity. The result will be the repetition of the decorative elements or architectural features of the façades. Evidently, the use of common materials, details and Architectural elements strengthen unity and contrast of the street façades.



Figure 41

At this rate such details like canopies, balconies, arcades will create **adaptable** space and a sense of refuge for the public as the overt function and aesthetically pleasing rhythmic facades and as the covert function.

Moreover due to this kind of architectural characteristics which supports robust street, may create **transparent** qualities and will enliven the street.

### **2.3 Modifying Factors Of Robust Street**

Sometimes robust space would be modified by various environmental conditions. Not only that but, the streets' robustness could be controlled due to historical, socio-political, cultural and religious reasons as well.

#### **2.3.1. Macro Physical context**

This is the district, town, city or any other large setting through which the street runs, the local context can only be properly understood. If it is considered in relation to the wider context.



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There are some physical components that modify the robust characteristics in an urban context. They are,

- topography
- Climate
- Vegetation

##### **2.3.1.1. Topography**

Topography is concerned with the natural and artificial features of a locality and means the geological and geographical surface characteristics of the context. topographical characteristics of wider context like hillside, and sloping townscapes often create an undulating street layout patterns following the natural contours of land and provides a higher visual permeability. It helps to enhance the feel of robustness



Fig 42  
Sloping topography of Dalada  
Veediya

Furthermore due to topographical characteristics in the wider context, there can also be a unique kind of robustness in an urban street.

In Galleface green due to the sea, various kinds of recreational activities could be experienced. Informality, flexibility and changing patterns of events over time could be identified very clearly in this situation.



### 2.3.1.2 Vegetation

Robustness of street architecture could be modified by vegetation of the context especially of the local context. Vegetation enhances the relax, provides shade and intimate quality that gives opportunity to exist robust qualities such as adaptability and it makes a livable environment.



Fig 43  
Treed street ; Echolon Squire

Not only that but, in a treed Street it helps to demarcate the boundaries of a robust space from the pavement or the vehicular Street as well. Treed Streets will maintain a higher quality of transparency of the Street edge. That it gives glimpses of robust space from the edge of the street which marked by the trees to the exclusive end.



Fig 44  
Treed street ; A Public space  
of a street In HongKong

trees from smaller enclosures within the main space like edges, these can provide the combination of refuge and prospect, which encourages people to claim the space, without inhibiting the movement of vehicles and pedestrians.



On shopping Streets there can be a transition zone between the Street edge and the shop entrance, zone of residing show windows and space for outside display in an inviting character. This transition zone may be marked by the vegetation very successfully. Through the row of trees both the transparent quality and the Robustness will be sustained very well.



Fig 45  
Treed street ; Olcotte Mawatha



### 2.3.1.3. Climate

Climate modifies the robust street Architecture. The rainfall, temperature, air movement, quality of light and the seasonal changes in climate of wider context mostly enhance or provide dramatic modifications of the creations of robust spaces in street.



Fig 46 - Canopied Street Morocco


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If we consider the arcade at York Street Colombo it has been created on behalf of providing protection from the sun and rain. But it has become a robust space in which many different activities are happened. Due to space between the shop entrances and the road the whole street has possessed a transparent quality and enhances its liveliness.



Fig 47 – Cargills York Street

### 2.3.2 Macro Social Context.

It is the larger social setting, in which the streets social values are sustained. there will also be a set of modifying factors by which the Robustness is being controlled and sustained. It has been identified three types of social forces that contributes to create and modify a robust street such as,

- history
- culture
- Usage.

#### 2.3.2.1 History

There is an impact of history on robust qualities of a street itself through the historical evolution of the street. There is a great relationship between historical usage of the street and the Architectural styles of the buildings along the street. Many of the historical context has not being designed for Automobiles. Such streets in most of the towns seems to have been evolved and developed due to a strong historic basis, still seem to be sustained the robust characteristics within them.

Kandy as a town which has been evolved around an important religious and social institution, it has got a set of historic building facades that has a unique identity. For example, Dalada Veediya starting from the temple of tooth relic, the street flows down with **extroverted** building façades, which has got the influence of British Architecture. The arcade of the Queen's hotel and the arcaded buildings like Cargills, which continues up to the point of Clock tower. With the historical essence which reflects through so many robust spaces along the street could be experienced in this particular context.



Fig 48 – Queens Hotel ; Dalada Veediya



Fig 49 - Cargills ; Dalada Veediya



Fig 50 - Devon Restaurant, Dalada Veediya

### 2.3.2.2. Culture

This deals with the religious, social and recreational usage of a street. Associations of historic events that have occurred and existence of significant religious or social institutions within the wider or macro context render a character related to those themes to a region. Streets running within such contexts can have immense impact on the character of streetscapes.

When we consider Dalada Veediya as an example, when the cultural possession of temple of tooth relic holds in Dalada Veediya the whole street is dressed in a unique kind of flavor. At night time the whole street is devoted to the function itself. The whole streets spatial arrangement too gets a different flavor within this time period.

Likewise culture as a modifying factors it increases its flexibility for different purposes and its expresses its changing character over time in to a higher position. Therefore it brings a vibrant nature to the whole street and enhances its liveliness.

### 2.3.2.3 Usage

If a social context has been assigned for a particular activity or usage such as commercial, institutional, recreational, executive or cultural usage, the related character of the usage of the wider context can be reflected in the flexibility or robust qualities of the street.

Some streets have unity in character being devoted to one particular activity type and this becomes more distinctive when the whole street has been given to only one specific use of the common activity group. for an example, the character of a commercial street becomes strengthened when it is automatically allocated to a particular commercial use, may be jewellery trade only.

Main Street, Pettah as another example, mainly consists of commercial activities and a higher concentration of pedestrians during business hours and on weekends reinforces the function of the street as an important link as well as a shopping street. Therefore it seems to be the whole street is for a single usage.

A higher variety of informal commercial activities could be experienced, that senses the robust spaces with mobile carts with tea, coffee, short eats, 'Kadala', 'Wade', Fruits etc.,

The temporary structures that provide snaks and gives a pause for the shopper in the street itself.

If we regard the Galleface Central road, it gets a sense of recreational characteristics of robustness. due to its physical setting of the sea and the Galleface green a vast robust space has been created.



Fig 51 :  
Recreational Usage (sea beach)

Due to institutional sense of Greenpath and its flexibility to adapt any activity, which is relevant with the neighborhood, it has been introduced as a cultural street by the government.

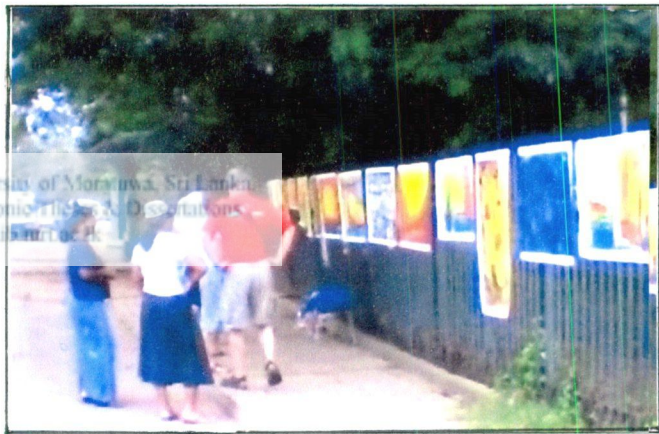


Fig 52  
Institutional usage; Greenpath

When considering the hierarchical usage, each street occupies a certain position in the overall hierarchy of a context. The characters of streetscapes should represent these symbolic themes assigned to them.

Therefore the hierarchical arrangement of streets in a context such as principle, secondary and tertiary streets need to poses the related characteristics expressing their position within the overall hierarchy. Robust Qualities may also poses a different degrees relevant to those scales.



When a street becomes a principle street when it has to play the role of the entrance to a city, district or any other wider context. The term high street and Main Street carry the meaning of the Principal street of a city, thus the hierarchical function of the street, and creates the spatial qualities of grandeur and less robust qualities.

On the contrary, alley and lane always implies a narrow passage, a secondary street in the hierarchy and generally runs through residential or low commercial areas with a lot of pedestrianised activities. That suggests intimate scale, walkable distance through which the flexible and informal characteristics are enhance. The cross streets at Pettah are some good examples for such a situation. Automatically this kinds have got a higher degree of **adaptable** nature within the street.

Street names like avenue, boulevard, grove and place etc., suggests wide streets with one or more lines of trees often possessing spatial qualities of intimacy and quietude. These are the streets in which the diversity of activities, buildings and a greater range of variety will be existed and reflects robust characteristics.

Bridge at Alakolange connecting the Colombo – Kandy highway at Pilimatalawa, is a fully pedestrianized pathway due to its abandoned condition. Therefore it is being used for an informal 'Pola' on Sundays and a fully pedestrianized pathway on other days.



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Fig 53  
Alakolange Bridge, Pilimathalawa

### 2.3.3 Appropriateness Of Robustness In Urban Street Within Different Contexts.

The choice for different uses within the space would be controlled and the degree of choice for multiple uses may be reduced within certain environmental socio – political and religious conditions.

#### Topography of the physical context

Contexts which having natural features such as water bodies, which runs along the sea, and if there is a robust space there may have a degree to which it can be appropriate. The choice will be limited to recreational and few related commercial activities. Therefore the flexibility for so many purposes and choice may have to be appropriate for the surrounding context. For example, Galleface Green as a robust space for the Galleface central road.



Fig 54  
Robustness Relating to Recreational activities.

At the same time other side of the street will not have robust qualities at all. That due to the fact that there is the sea and beach, other high commercial, residential or any other kind of activities could not be happen.

### The context of socio cultural neighborhood

Though there is a robust space, which is flexible for many different purposes, the socio political usage may affect it and limit its possibilities for the robust characteristics to be exists.

For an example, if we consider the street that passes by the high courts in Colombo, the robust qualities may be restricted to a certain degree. Some kind of informal activities, which directly relates with the usage of street may occur.

(Such as temporary structures, small huts that offer food items for the people who come to the courts complex. They will be relevant with the socio political behavior of the neighborhood. apart from that the same robust space will lose its opportunity to use the space for so many choices such as for recreational activities, festivals like carnivals and so on; these kinds of activities are restricted even though it has got **adaptability**.

Moreover, streets that are closely related with a strong, religious background will be limited to its robust characteristics. In Dalada Veediya in front of the temple of tooth relic, all the robust activities may be concentrated around a single category that directly relates with the religious background of the context. Spaces such as tiny huts, in which the vendors sell flowers are some examples for that.





## 2.4 Concluding Remarks

The structure of the basic physical form of the urban street will be enlivened by a set of spatial and social attributes. The first categorization deals with the strategies of spatial qualities of the edge of the building line along the street.

Flexibility of the space and the function, informality, change in activity pattern are the characteristics of a robust street. Through the above characteristics of flexibility, informality, changing activity pattern could be derived “**adaptability**” as a common characteristic that makes a street robust.

Spatial transition, solid – void ratio, scale and proportion, diversity, unity and contrast are some of them. These strategies altogether paves the way to derive the quality of “**transparency**” of the building façade along the urban street.

Robust qualities may exist in the urban street will be modified by various contextual forces. Topography, vegetation and climate are the macro physical contextual conditions. Historical, cultural, religious background and the usage of the street are the macro social contextual conditions. Also in certain instances robustness may not be appropriate in the urban street.

In many Sri Lankan streets, robustness seem to be exist in appropriate manner. Likewise robustness paves the way to create comfortable and intimate environment to the urban street.



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## CHAPTER THREE

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Robustness in Sri Lankan Street; A Study of Selected Examples

## CHAPTER THREE - ROBUSTNESS IN SRI LANKAN STREET; A STUDY OF SELECTED EXAMPLES

### 3.1 Basis for Selection of case studies

In the first chapter, a theoretical review provides the background for the responsiveness of urban street and the identification of what robust street architecture is.

Through the second chapter the contributory factors through which the robustness in the urban street is created and modifying factors are discussed. Thereby the achievement of robustness in the urban street is considered.

The case study would be looked at, as an attempt to identify the existence of these contributory qualitative attributes within the urban context of Sri Lanka. In this particular study all the qualities may not be identified to the same intensity, in any given streetscape. In the case of selecting the examples, the priority has been given to the examples which have the most evident characteristics.

The selected examples would be focused on three levels that derived from the discussed qualities of robustness, to examine, up to what extent robust qualities would exist in the practical situation. Such as Transparency of the street, Adaptability of the street, Context of the street

the examples are selected from Colombo and Kandy. York Street, Second cross street, from Colombo and Dalada Veediya from Kandy.

The examples have been selected from contrastingly different robust situations. Such as,

- |   |                             |  |
|---|-----------------------------|--|
| 1 | York street, Colombo        | – An arcaded street                                  |
| 2 | Second Cross street, Pettah | – Commercialized alley way, a cross street           |
| 3 | Dalada Veediya, Kandy       | – Dual purpose usage due to its cultural background. |

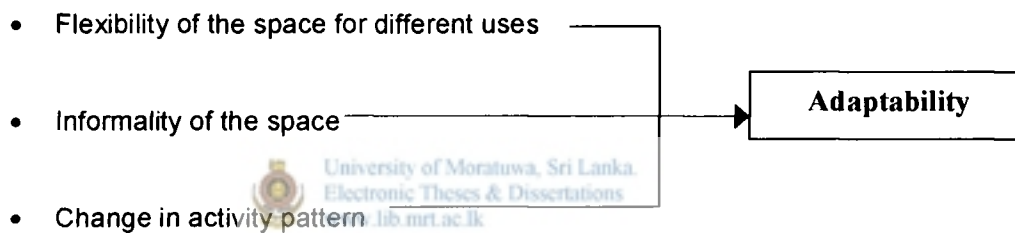
Therefore this will be the basis of selecting the examples for the case studies.

### 3.2 Towards a Frame work for a robust urban street,

This is the framework through which the selected streets are being studied. The characteristics, determinant factors and modifying factors that had been identified in the second chapter would be usefull for these case studies.

#### 3.2.1 Adaptability of the street .

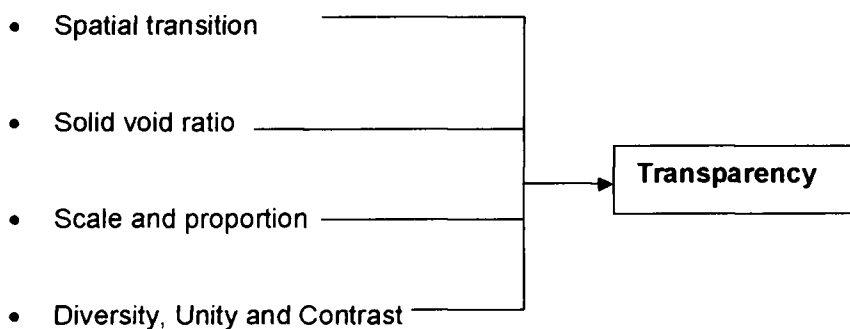
Adaptability is derived as the key quality that commonly reflect from each and every characteristic as shown below



Altogether, the above three characters will express, that the space doesn't have fixed boundaries, therefore it can be used for many purposes. Also due to its informal nature, the space is being used for a temporary purpose which can be easily dismantled and removed. Its changing nature of pattern of events, flexibility and informality of the space and function will be strengthened and gives out an **adaptable quality** to the urban street.

### 3.2.2 Transparency of the street.

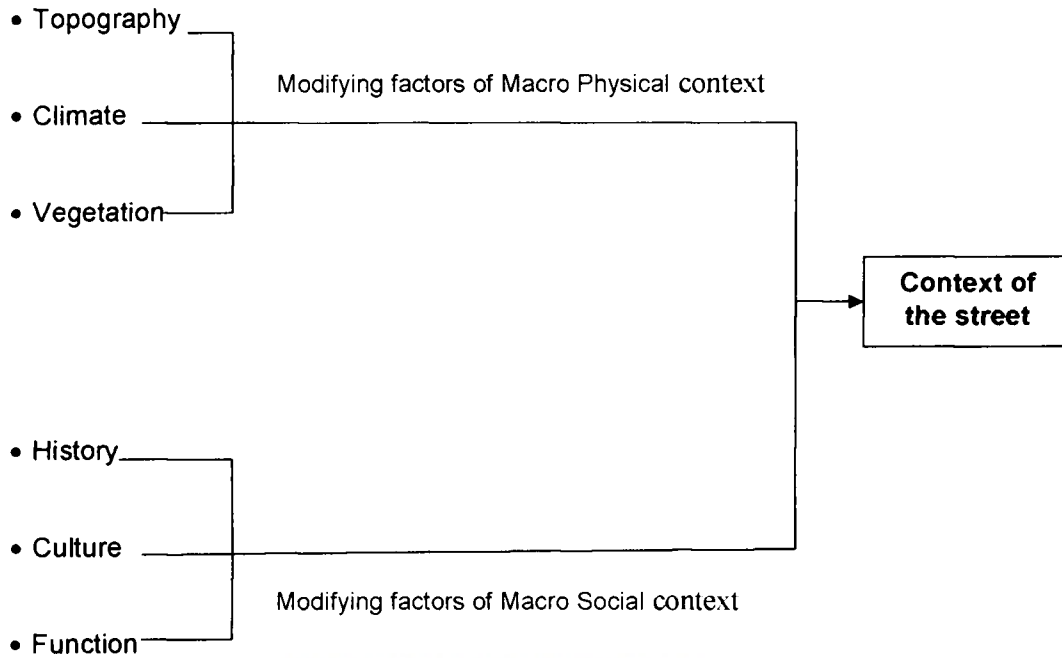
as the next key quality, transparency is derived from several spatial attributes of the street edge.



As shown in the above diagram transparency is a common feature to all of the above spatial qualities. which means transparency of the building edge, where the public, less public and exclusive ends of the buildings meet. Where there are extroverted building fronts that invite the public to view or to know what is behind the street wall.

It is not just a matter of window or glass or door ways. Though there are glass walled facades in streets that sense have never been opened and never will be, and there are just as opaque as thick masonry wall. Therefore the street edge must have visual as well as physical access to the public, as transparent layers. Through the above mentioned determinant factors, the **transparency** is enhanced and will create **robustness** in the robust street.

### 3.2.3 Context of the street



Finally, it is studied the impact of a set of environmental forces and social forces on robust street architecture. It is governed the way it modifies by the above forces in the practical situation. Further, the appropriateness in different contexts too are studies in accordance with the selected examples.

### 3.3 Case Studies

#### 3.3.1 York Street – Colombo Fort.

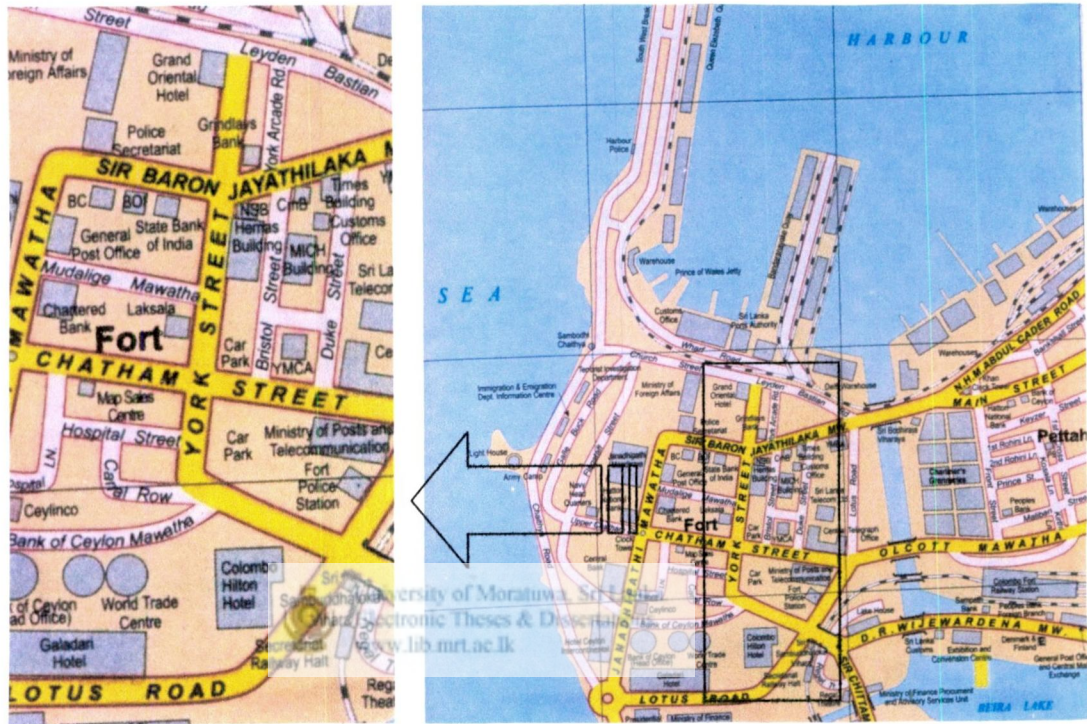


Fig 55 : Map – York Street; Colombo Fort

The York street stretches in North-South Direction, which begins from the Echelon Square, canal row, hospital street, Chatam street, Mudalige Mawatha and Sir Baron Jayathilaka Mawatha Connects with the York street from its beginning. It ends up at the junction and with the church street focusing the ports authority building on northern end. Therefore York Street is a major public way, which open at both ends.

This enriches public spaces by increasing the level of different informal activities along the street, around the junctions through which the public activities are fed.



### Considering the Adaptability of the street.

Flexibility, informality and changing nature of the activity pattern.

As York street is having a arcaded verandah that has many openings towards the street, it has got a higher possibility of accessibility for many purposes within it. Vendors use to sell clothes, cosmetics, lotteries within the arcade. Though the basic function is to use the space as a walkway for the public, the need seem to be some other activities such as commercial activities, meeting each other, relaxing, etc. Therefore the façade of Cargills and Millers buildings that runs along York street will have a maximum flexibility for various purposes. At the same time it creates a robust verandah space to the street and makes it a live street.

In some instances, the Vendors used to display their selling items through informal, temporary structures that jutting out of the colonnaded verandah without inhibiting the pedestrian movement. These spaces will also add vibrant and colorful nature to the whole street.

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Fig 56

Dual Purpose use of Arcade  
at York Street

When considering the activity pattern of the York street, changing nature will be a distinctive character. As York Street is a commercialized streetscape, many offices including banks are situated in the neighborhood, it gets crowded during the day.



Specially at the beginning and end of the office hours, also during the lunch time. During these time period workers or customers and many other people who used to rush to have their meals in small food outlets, cafeterias which could be seen occasionally in the street. Not only to have meals, but to go for shopping in the arcades of Millers building where the informal trading activities take place. These informal, commercial activities also get vibrant and active during the above discussed busy hours. at the end of the day these activities create a colorful and attractive character to the whole street. But after 5.30 PM this dynamic quality gets calm down. That kind of changes may occur within this robust space of this particular street reflecting **adaptability**.

- **Considering the transparency of the street**

In this context the spatial transition of the York Street may be very important. The gradual transition from public to private areas across the street and across the edge of the building line is an important determinant factor of robustness. These spatial qualities could be seen in several that continue along the street. The arcade, the space between exclusive and the public space, road seems to be enable a range of indoor public activities to co exist in close physical proximity with a range of outdoor public activities.



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The spatial transition from public to private areas are in a way that preserves the privacy of indoor activity. So the user will not feel the need to screen themselves totally from the public space. Not only that, in the case of solid-void ratio of the edge of the façade of the York street will reflect a quite a lot of robust characteristics.



Fig 57 :  
Solid – Void ratio of the Arcade;  
Nations Trust Bank, York Street

The spaces have been well composed with the harmonious play of solids and voids. The solid columns at the edge of the road relates with the volume, the void of the arch and directs to the opening and up to the beginning of the exclusive space. The pavements edge is demarcated by the colonnade. The harmonious balance of the solids and voids will enhance robustness in its physical form. This spatial arrangement reflects a **transparency** of the street. That the façade is so extroverted and can experience the inside activities as glimpses through vertical layers.

When considering the unity and contrast of the York Street, the Cargills and the Millers buildings will be most prominent in its unity. A unified street having a repetitions of architectural details along the facades of the street, it may posses a pattern, a rhythm of it. In the York Street, Cargills and Millers buildings have been used common building elements and will give common architectural details to the street. A colonnaded walkway, an arcade may provide a colonnaded veranda at the same time it will create a rhythm, contrast with the harder and deeper spaces, two dimensional panes of it. Likewise this particular facades will reflect its transparent qualities. At the same time, the colonnade provide a shelter from the sun and rain. Not only that but also, it will provide also a transitional point in which the people engage in informal trading activities too.



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Figure 58  
Transparency of the façade ;  
Cargills Building

In the case of contrast of line, the main lines of buildings should produce an effect of sub divisions, elements should be in a similar quality. The main line of elevation of a building is horizontal. It may also produce a sense of continuity. Then it creates a rhythm of continuity and Ultimately movement to the street.

Moreover another important factor is, that this particular robust street in the case of application of contrast will play a role of interpenetration with its solid and void elements. In addition to such contrast, as that of solid and void, there will be the contrast of light and shade. Also, the actual shadow cast by projection on the wall surfaces, creates contrast of light and shade. This factor will also enhance the quality of spaces by providing sunshade for the user making it a comfortable environment.

Contrast also apply to the color. For example, Black and White or Light and Dark. As some have contrasting texture, rough and smooth, weight and light, heavy and so on, the Cargills building will add a strong rhythm to the street in its color and texture. It will make prominent its entrances, openings voids and strengthen its visual permeability, as well as the **transparency**. Thereby encourage various activities to co-exists in front of the buildings.

- **Considering the Macro physical and social contexts of the street.**

Climate is a modifying factor in the robust space in the street within the macro-physical context. The most prominent characteristic in the built fabric of the York street is that it is a colonnaded verandah. This verandah consists of an Arcade as a shady path in the hot climate. This particular architectural characteristic has been influenced by the façade of the street. It may cut direct sunlight getting to the façade and also protect from rain too.

Not only that, it may also provide a space for various kinds of commercial activities as mentioned in many instances.

Therefore some climatic conditions in the wider context may modify the architectural qualities of the local context of a street. Thus it modifies its **adaptability** for so many purposes without having unchangeable design limits.

History modifies the character of a place. Presence of the historical impact in streetscape characters often manifest themselves through the architectural styles of the building along the street.

Cargills and Millers buildings which were developed as departmental stores during the British rule; these are the facades that enhance the streets liveliness, transparency and its uniqueness to the urban fabric. Not only that but, The Commercial bank building, Standard Chartered building has also been adjusted to the context existing context. As an open colonnaded verandah it serves the public to walk in a physically and psychologically comfortable environment. As stated in above paragraph the user is being protected in climatic conditions at the same time provide the possibility to adapt the space for various uses and create attractive and extroverted entrances for inner shops.

This kind of architectural features of the both of these buildings are due to the strong influence of british architecture and its details in the façade. Likewise History modifies the **adaptability** of an urban street.



### 3.3.2 Second Cross Street Pettah

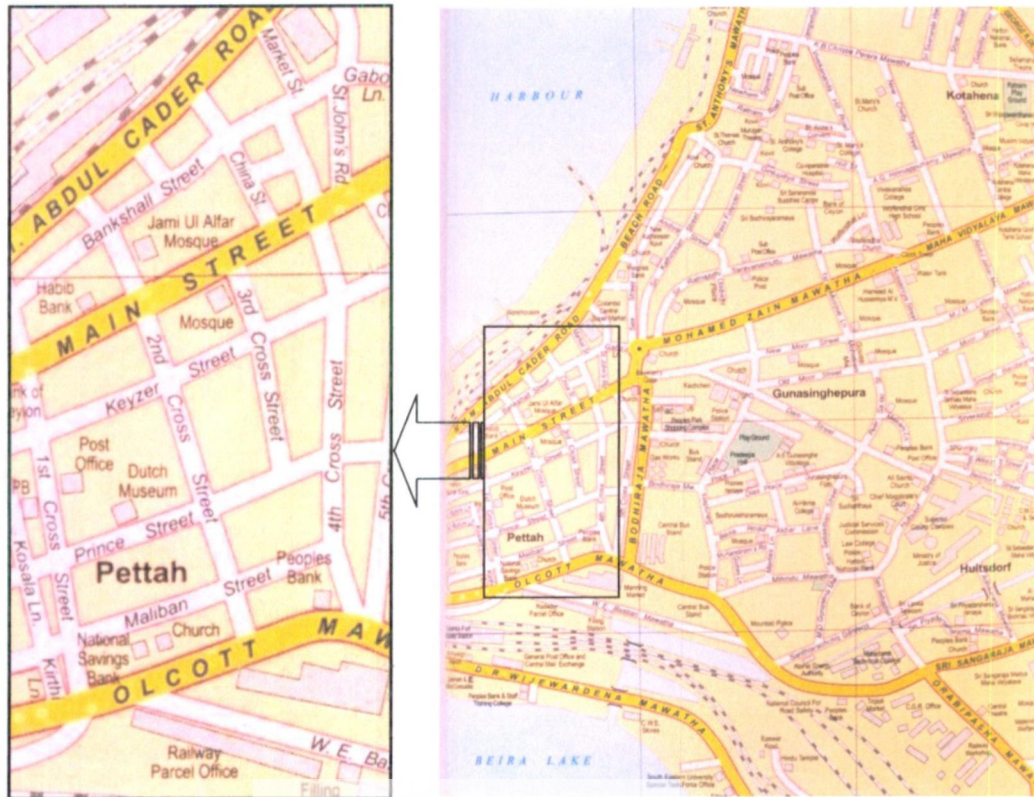


Fig 59 : Map; Second Cross Street  
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This stretch of street presently functions as a centre for various kinds of wholesale and retail commercial trading as well as a link between harbor and the other areas of the central business district of Colombo, for transportation of goods and commodities.

A greater public attraction from the Olcotte Mawatha towards this particular cross road could be seen due to its location. Also large number of pedestrians and vehicles are to be seen entering into the street through the openings at which Maliban street, Prince Street, Keyzer Street, Main Street, Bankshall Street, N H M Abdul Cader Road are intercepted.

Due to this kind of a location, people are able to get in to the street with ease.

- **Considering the adaptability of the street**

The commercial activities of the Pettah area including cross roads, had been grown in to a massive scale. The second cross street has got a greater public attraction towards its commercial events due to its perpendicular location to the Olcotte Street. Due to its easy accessibility and the physical layout of the street, it will make easy for variety of activities to take place.

The whole street is being used for variety of activities based on the commercial needs, loading and unloading of goods in vehicles, higher pedestrian movement for the purpose of purchasing items and so on; therefore the use of the street is not being restricted by any of the fixed boundaries such as a permanent boundary that demarcate the vehicular road and the pedestrian path. Another reason for this flexibility of the street for different uses is the walkable distance.



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Fig 60 : Second Cross Street with non-fixed boundaries

When considering the informality of the space, that enhances the flexible nature, Second cross street is always consists a lots of informal spaces that enliven the robustness of the street. Almost all the vendors that engage in low scale trade used to display their items in an informal manner. Easily removable, semi fixed, lightweight, rack or a table, a mobile cart may have been used to carry on their trading activities.



Fig 61 : Informality of the street



Fig 62 : flexibility of the space



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When considering the activity pattern of the second cross street, there is an identifiable rhythm of events that changes over time. At the dawn, the sounds are generated by packing items, loading and unloading goods for shops along the street. Vendors who come at the midnight, from outstation leave the loaded Lorries.

At about 9.00 AM all the shops seem to be opened, wayside hawkers' starts assembling small structures of stalls, arranging their items. Diverse groups begin to flow towards the street for various activities. Most of them come here are the middle class and low income groups that they come in search of quality goods for low prices than the real market price. At noon, congestion of pedestrians and vehicles are in a higher level

These kinds of changing pattern of events over time, during the day reflects a dynamic character to the street and enliven its vibrant nature, therefore the whole street gets the sense of an informal fair.



Fig 63 : Dynamic way of activities

- **Considering the transparency of the street.**



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Though this is a narrow street, due to its spatial transition across the street, allows many physical layers to exist at the edge of the building that helps to enhance its transparency.

Every shop is allowing their activities to co-exist with a range of outdoor trading activities. Some outdoor activities even may not have a relationship with what is happening inside. They will be contrastingly different each other. Therefore the shop keepers do not need fixed physical boundaries for the shops. Such building entrance may create transparent layers across the street up to the most exclusive ends.





Fig 64 :  
Display areas for shops will add transparency to the street.

That the spatial transition from public to private areas are in a way that preserves the privacy of indoor activity so the users will not feel the need to screen themselves from the public space. This will also helps to create active building fronts.

If we consider the diversity of the second cross street there are more buildings than having a few with masses. Therefore it will create a great variety of uses. Every vertical line between two different buildings may work as a visual break point, and given different meanings and purposes. So the diversity may pave the way to increase the number of choices that the people can have.



Fig 65 :  
Diversity leads to greater range of variety of Choices.

Further, the canopies used as shading devices may add an architectural pattern to the urban fabric. Not only that but, it also encourages the people to hang around due to its sense of refuge and the intimate scale.

- **Considering the Social and Physical context of the street**

The historical background and the usage of the street modify the robustness of the second cross street. Historically the Pettah was developed as the commercial and transportation centre of Colombo. Since the commercial activities of that time, were not as more developed as today, the plots given to the shops and residential units were much narrow and closely packed. Therefore the plot size widths are small and permeability, diversity is to be seen in a higher degree. So the choices that people can make will be also greater and enhances the streets robustness.

Moreover, since very long ago Second Cross Street was used as a centre for collecting goods and commodities. It also connects the Port and the railway station through which the goods were transported from Colombo. Also all the workers residences, warehouses and few shops were developed in narrow and small plots, so that the usage of the street was not for the movement of automobiles.



Though these streets being used for high and low commercial activities, still it maintains the narrow and pedestrian oriented pathway with few automobiles. People are encouraged to engage in various kinds of activities along the street due to its walkable distance.

The street highlights its nature of possibility for many choices for the user. Therefore as an alleyway, the liveliness of the second cross street is modified and enhanced by the historical background and hierarchical usage.

Climate as a modifying factor of robust street, it may affect in modifying unique patterns of architectural characters for the streetscape. In the case of Second Cross Street due to the hot and sunny climate, almost all the shop fronts seem to be having canopies. After 10.00 a.m. vendors, shop owners of the right side of the street use to put up there shading devices. After 2.00 p.m. Vendors and shop keepers of the other side of the street start to put their canopies up.

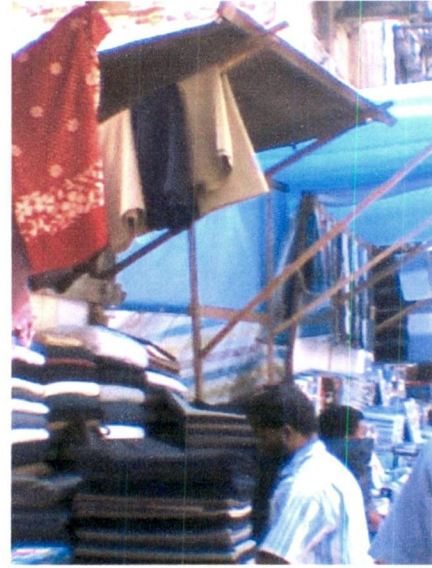


Fig 66 :  
Canopied Second Cross Street

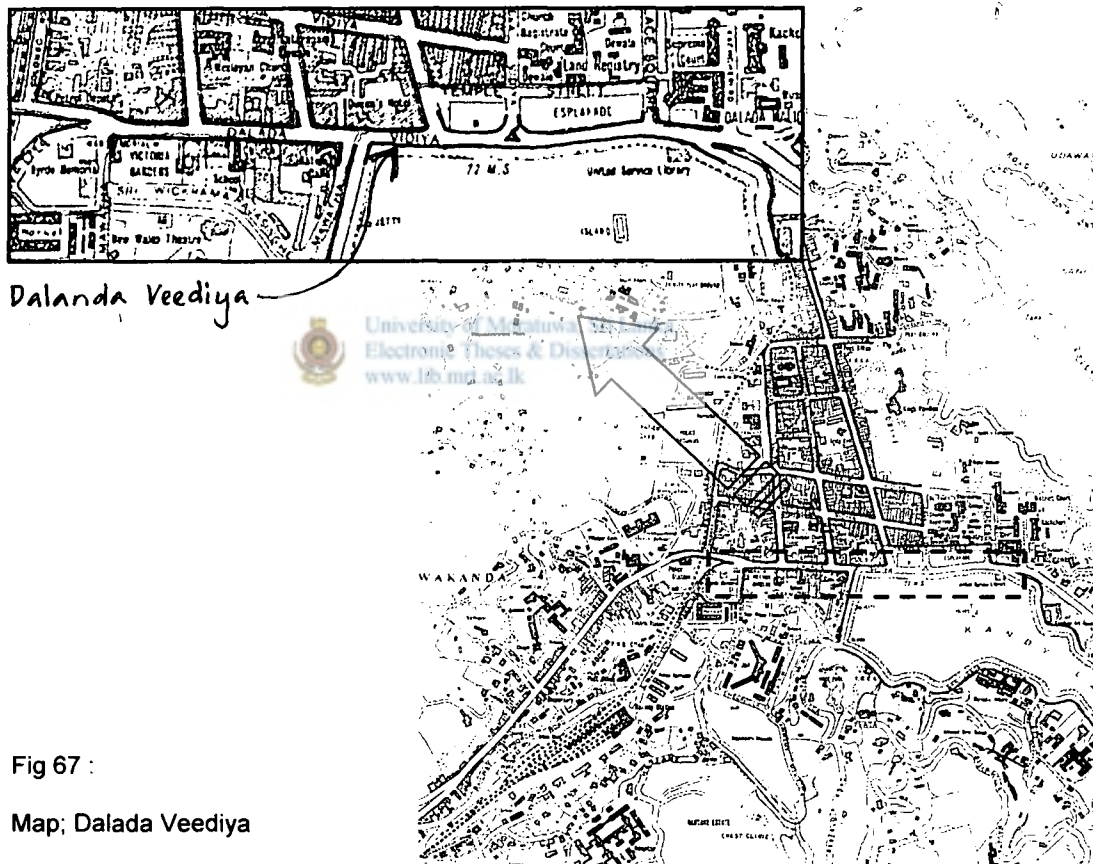
These shading devices will create a rhythm for the whole street, at the same time it may provide a sense of refuge for the buyer and people will be encouraged to hang around the intimate enclosure, for various kinds of uses. At this rate, these qualities will enhance the streets robustness.



### 3.3.3 Dalada Veediya – Kandy

Dalada Veediya begins from the point of which the significant symbolic element of Clock tower and it ends at the junction where the Sangaraja Mawatha and Anagarika Dharmapala Mawatha Meets each other. As it connects with Wadugodapitiya Veediya, Yatinuwara Veediya, Kotugodalla Veediya, D S Senanayaka Veediya, it reflects its permeability.

Thus the street has a set of smaller blocks which having smaller plot size widths, the possibility of occurring various public activities along the street is in a higher level. Therefore the robust characteristics could also be happen in such a situation.



- **Considering the adaptability of the street**

Flexibility, informality, changing nature of activity pattern will give adaptability to the space. In George E De Silva Park, the flexibility of the space for different purposes can be seen. Apart from the commercial activities at the upper level of roof garden, people use to relax under trees, at garden benches and also at plant troughs too.

Not only that another advantage of it is, it serves as a means of access from Dalada Veediya to Torrington Lane. This has become an option as an open space that cater not only for trading activities but as a meeting place as shown below.



Fig 68 :

Dual Purpose Use of the robust space of  
George E de Siva park Dalada Veediya



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Fig 69 :

Dual Purpose Use of the robust space of  
George E de Siva park Dalada Veediya

If we consider the informality of this space, starting from the edge of the pavement their can be seen informal commercial activities along the staircase, on the landing, in the forecourt of the shopping complex. Even without any of the semi fixed shelter for the vendors, they keep their selling items just out in the open to sky ground and beneath the tree shades in an informal way.

In the upper level where the entry point to the roof garden, hawkers used to do their business under temporary easily dismountable canopies and with the aid temporary structures like tables.



Fig 70 :  
A Robust space at Dalada Veediya  
During the New Year Season



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Fig 71 :  
The same place after New Year Season

Not only that due to the fact that Devon café is situated setting back, there is a nooked space which can be adaptable for many robust activities. Meeting, having a snack, engaging in commercial activities are some of them.

There may be instances where patterns of events occur in specific times. During Perahara season, Dalada Veediya in Kandy becomes significant in its cerebral nature.

Even the spatial arrangement too may possess a unique characteristic at that time. That the pavement will be converted into a temporary set of tiers.

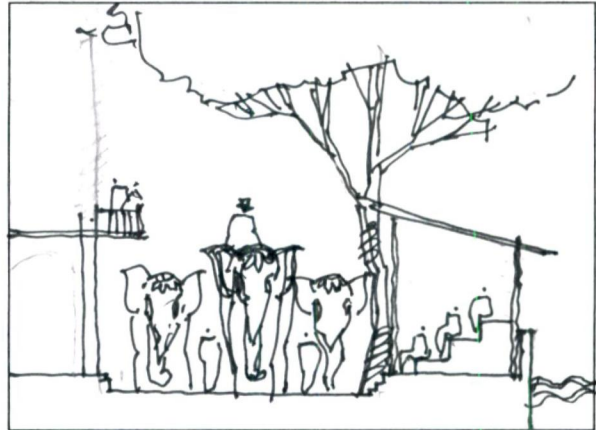


Fig 72 :  
Temporary structures along Dalada Veediya  
During the cultural procession

After the season of cultural procession the pavement is pedestrianised as usual.

At the night time, as the whole street devotes for the procession and at the day time, the very same place is being used for pedestrian and vehicular activities as usual.



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Fig 73 :  
Dalada Veediya - During the procession



Fig 74 :  
Dalada Veediya – after the season of procession

Let's consider the small structures of flower, 'Kadale' sellers and 'Saravita' sellers in front of the entrance of Dalada Maligawa. On Poya day in front of the entrance to the temple, the event of flower selling will probably override the other events within the specific pattern of place.



Fig 75 :

Temporary structures of flower vendors

Therefore the changing nature which is one of the robust characteristic, the patterns of activities paves the way to generate vibrant and lively street environment.

- **Considering the transparency of the street.**

Ass the spatial attributes of physical structure of the street, such as spatial transition across the street and the building edge, solid-void ratio, diversity of buildings, scale and proportion can be considered. Commonly, a quality of transparency is being identified through this study.

In this context the spatial transition from the road across the building line, towards the exclusive area of the building are taken into consideration. The above stated spatial attributes could be easily observed in most instances along this particular street.

Recently designed George E De Silva Park at Dalada Veediya is another robust space. When considering the transition of spaces across the street towards the harder end of the building line, this park itself reflects a characteristic of an urban pocket. The Ten feet level drop of shopping area with two levels of flights of stair cases are used for many informal activities due to its robustness.





Fig 76 :  
Gradual transition of spaces from  
Public to Private edge of the street

The edge between the shops, the road seems to be enabling a range of indoor activities to co-exist in the near front edge which cater for public circulation and a set of informal trading activities. Moreover, the space has got a higher range of accessibility due to its huge openings. This will be a positive quality for the robustness to exist. By having so many openings, accesses, comings and goings will be directly visible from the public space.

In the case of scale and proportion, due to the fact that the communication of meaning depends in relation within human scale and proportion, most of the building edges are in accordance with the human scale. The people feel comfortable when walking along this street, though the street consists with three storied buildings. The edge at each level has been responded to the intimate scale using horizontal elements, that projects out

As they reduce its original height, creating spaces for the people to hang around makes them full sense of entry to the building. The feeling of refuge can also be increased by creating such elements.



Fig 77 :  
Shading devices of Bake house building  
That suits intimate scale.

Eve height of the Bake house building, balconied verandah of the upper floor of the building will attract people in its comfortable and intimate eve heights and proportion of the space.

Not only that but, the balconied verandah of Mlesna tea center which is on the top of the milk bar near the Devon restaurant and the cafeteria posses an aesthetically pleasing scale and proportion. Due to its intimate scale these spaces has got a higher possibility to exist robust qualities within it.

Solid-void ratio contributes to create robustness at the edge of the buildings along the street. As an example, if we consider the colonnaded frontage of the Mallika Hemachandra building and the arcade of the Queens hotel enhances the harmonious play of solids and voids. The solid columns at the edge of the road relates with the volume, the void of the arch and directs to the opening, the entrance of the shops. The people used to walk through this space while observing the attractive show cases of antiques, Jewellery and various kinds cosmetics.



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Fig 78 :  
Queens arcade at Dalada Veediya

Some may enter in to the pastry shops, cafes and the sale house while passing through the walkway very instinctively due to the attractiveness of openings and transparency.



Fig 79 : Transparency of the Queen's Arcade at Dalada Veediya

That the people at the pavement along the lake also could see the activities going on in the building due to its transparency. These voids provide a comfortable environment in which a greater possibility of sustaining robust characteristics.

- **Considering the Context of the Street**



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If we consider the natural feature of location, the Kandy Lake will play a major role in creating robust features to the whole town. Especially in this particular street, People use to hang around along the lake. Sitting on top of the parapet wall, chatting and experiencing the romance of tranquil environment and pleasing views and vistas. In this context, the parapet wall has the flexible and adaptable space, that it provides the seating for the public and function for the structure of the retaining wall of the lake.



Fig 80 :  
Dual Purpose usage of Parapet Wall

Moreover, fortune teller, Vendors that sells 'Saravita', fruits, fancy items seem to communicate and sell their items to pilgrims who are along the lake at Dalada Veediya and so on; various informal activities happen along the street which contributes to evoke robust characteristics.

In the case of Vegetation of Dalada Veediya, as a modifying factor of robustness, the street could be considered as a treed street. As there are rows of trees along the street, it provides shade and relaxed surrounding for the people to hang around. Except trees along the street have formed smaller enclosures that create a sense of refuge and prospect which encourage people to use it for various kinds of activities. As a meeting place, to have a snack, carrying on the trading activities are some of them.

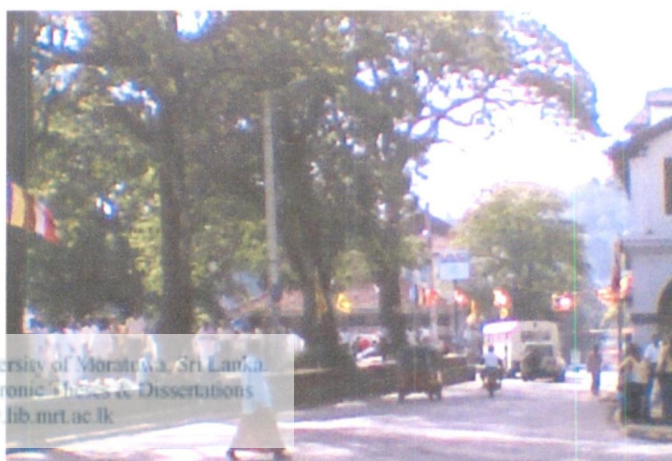


Fig 81 :

Treed Street; Dalada Veediya

Not only that the row of trees may demarcate the streets edge and the space around the trees support a wide range of activities without obstructing the pedestrian movement. Furthermore this treed street will enhance its robustness by making it a façade that reflect transparency and extroverted building qualities.

Historical background of Dalada Veediya runs back to the colonial era in Kandy. Kandy is said to be originated in late 14<sup>th</sup> Century and established by the King Wimaladharmasuriya the 1<sup>st</sup>. Having given the priority to the sacred building area in the city, the layout pattern has formed a grid pattern as a result of dividing it in to many rectangular plots. That each and every street is allocating in to various casts. Therefore almost all the streets posses a higher degree of permeability, possibility to exist so many public activities that changes in time to time in each and every junction at the street. Then it may pave the way to exist robust qualities in the street.

When the European conquests were succeeded in the Kandyan kingdom the urban context began to gradually change. During the Portuguese period the building fabric and character was not influenced very much. But the building elements changed during Dutch era. After British captured Kandy, in 1850 there had been some influences affecting the changes of the urban fabric. Though the British did not suddenly changed the city layout pattern and the street, gradually changed the fabric to suit their commercial and administrative purposes. For example, Cargills, present Queens Hotel and so on at Dalada Veediya. The walkway of Queens Hotel is an evident of its historical background. As a result of the influence of British architecture, the façade has got its extroverted characteristic with an arcade in which the public stay on the street. Though it is a hotel, the shops along the arcade will cater mostly for the public who use the walkways. There could be seen a greater range of various activities going in the shops.

Not only that, the facades along this street such as Cargills, Kodituwakku Building has got a lot of openings as well. There are the voids through which the public and experience the activities happening inside the building. Also, those activities may connect with the front edge of the façade and then with the pavement of the street. That it may create live, attractive building fronts along the street. Likewise historical influence plays a major role in creating vibrant quality that leads to robust characteristics to Dalada Veediya.



Fig 82 :  
Active building front of  
Kodituwakku Building; Dalada Veediya

In the case of usage, and the cultural influences for the existence of robustness in Dalada Veediya, it is said that the streets basic usage is to cater for the cultural procession. Even in the period of Kandyan Kings the same widths of Dalada Veediya was said to be there, to suite this cultural and religious function.

In the present, too, at the season of this ceremony the whole street possesses a unique characteristics, a unique flavor which adds a colorful and vibrant nature to the whole town. As the whole street devotes for the procession at that time, the transportation of automobiles changes their root reflecting its robust characteristics. Even the steps which connects the road and the pavement which stands for the embankment for the lake is in a higher level, it is being used for the space for the tiers for spectators, during the season.

- **Appropriateness of robustness in Dalada Veediya.**

When considering the limitations of implementing certain activities in robust spaces in this street, it may be very vital to understand the degree to which the robustness may be suitable in the neighborhood.

There can be seen a robust space at the junction which connects D S Senanayaka Veediya to Dalada Veediya in front of the entrance gateway to the temple of tooth relic. Because the cultural and religious background is strong around this neighborhood, the priority has been given to the informal trading activities such as flower vendors who keep their things in small huts. These tiny structures may create liveliness to the entrance of temple of tooth due to its free and openness and intimate scale. Also even the small mobile carts of food items like 'Kadala', and snacks could be seen around the premises in an attractive and informal way. Apart from that some vendors who sell straw hats, Kandyan handicrafts for the foreigners could also be appropriate with the religious context.

Yet, the use of this particular space that changes for so many different functions will be limited for the recreational purposes. The Carnivals and musical shows are restricted automatically around the temple. Such activities that reflect the robustness in the street may be restricted in this kind of a social context.

It is important to decide how to apply the robustness in different contexts to suite the place in the best way.



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CONCLUSION

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## CONCLUSION

The study identified the way robustness contributes to create liveliness in an urban street by means of some of the existing examples. It was then illustrated the different categories of contributory factors through which the robust street architectural qualities are achieved. Though it is a limited explanation in this vast subject, it is considered to induce the thoughts of one who is interested.

Around the world cityscapes are affected by the modern movement. Sri Lanka is not an exception for this change. most of the buildings in urban context got the influence of cubism. The result was some dead and introverted masses with alienated urban streets through which the buildings are divorced from the street.

There seem to be the loss of public realm of the urban street. The user has become a prisoner with unfriendly, dead enclosures. The street designers too, have been more consistent with vehicular movement than with the movement of the people and their behavior pattern. Ultimately, the human activities that enliven the street have been swept away and establish new inflexible, rigid edged individualized spaces along the street, which lacks robustness. Therefore, it is important to realize that robustness will contribute a lot to create a live urban street.

When it comes to robust urban street, certain characteristics and determinant factors which would helpful to create a livable street had been identified by the study, as mentioned earlier. Each and every determinant or characteristic may give out some clues about the physical arrangement of the edge of the building line or the space between pavement and the building edge.

Also in certain instances, for secondary or cross roads, robustness will offer a vibrant and live nature due to its social attributes. The flexibility of the space may offer many choices of uses, the many different ways that it can be used. The informal nature of the space will facilitate the user to manipulate or to remove the space in a way it will suit for another purpose. That the temporary nature will not frame out the space for a single fixed purpose. Flexibility and informal nature support the activity to change over time. Therefore the characteristics like flexibility, informal nature and change in activity pattern altogether reflects a characteristic of adaptability.



Furthermore, adaptability of the street as the key character of robustness will pave the way to enhance the street's vibrant dynamic quality due to its intimacy and will make people be on the street. When considering the spatial qualities that determine the structure of robust street edge; the transition of space across the street edge, solid – void ratio of the edge of the building, intimate scale and proportion, diversity of building that will make a variety of uses, unity and contrast of façades were identified and studied.

Each and every determinant factor gives the clue to maintain and enhance its transparency to the façade along the street. Therefore transparency of the edge of the building line as a common feature for all of the above studied determinant spatial attributes could be identified.

Not only that but, macro physical contextual forces such as topography, vegetatio and climate modifies the robust street as well. In the same manner macro social contextual forcers such as historical, religious ,cultural and overt usage also modifies the adaptable nature of the street.

Under certain contextual situations even though there are adaptable qualities, The robustness may not appropriate to the neighbourhood. Therefore it is important to decide, where it will be appropriate and where it will not.

Therefore when designing the buildings in either side of the street, it will be vital to understand that the above discussed factors will result in enhancing the social interaction and cohesion between people in the urban street.

As a summation, following derivations towards a robust street should be encouraged;

1. Create a setback between the public space and the edge of the building line.
2. Provide level changes between the private and public area along the street.
3. Make the building edge, the façade more extroverted, towards the street.
4. Use of more semi fixed building structures in robust spaces. That it is easy to remove.

5. Spilling the activities out of the building edge will also increase the sense of robustness.
6. Mixed uses of activities in the street will be encouraged to create a rich and live environment.
7. Increase accessibility of the buildings by providing so many entrances and openings to the street such as open stairs, out door rooms and balconies facing the street.
8. The street might be cooler shadier by trees along the street and therefore more pleasant and physically comfortable to be in the street.

Hence the understanding of above clues may help us eventually to transform better, live places in urban streets.

Furthermore, it will be important to understand that there are robust spaces in Sri Lankan urban streets too. Therefore it will be vital to realize the importance of sustaining such robust spaces. Even though the modern streets lacks the robust qualities, the best streets need not to be as the same as the old. But as models, the old have much to teach for delightful, purposeful and lively street and a city.

Finally, the attempt will be vital for the architects in handling urban conservation and construction projects in the urban context. This will give them a clue, how to convert the rich urban architectural values in to contemporary design which suites, a alive urban street.


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