LIVING ON THE EDGE
A STUDY ON THE SOCIO-PHYSICAL FORMATION OF URBAN EDGES AS AN IMAGE-DEFINING ELEMENT OF CITY FORM: WITH SPECIAL REFERENCE TO COLOMBO DOWNTOWN

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Abstract

Cities are one of the most comprehensive representations of a society and its culture. Most urban built environments in the past have spontaneously responded to ever evolving socio-cultural values as well as political and functional needs of its population.

A city is a combination of identified elements that play a crucial role in liveability. In a way, the individuals that come into contact with the city as the hometown or the destination of work or passers-by have attachments with those elements that shape the city character emerging the "image of the city". With numerous examples from all corners of the globe, it is a general acceptance that the city's liveability is directly related to its own city image.

Colombo, the commercial capital of Sri Lanka has seen many changes throughout the last few decades as a common fact in all Asian and South East Asian countries face. With the introduction of the Post-Colonial Administrative structures on the one hand, and the open economy based financial cultures on the other hand, the city of Colombo is increasingly fragmented into socially, culturally and economically diverse sub-cities or functional districts. Under this notion this study looks at the subsequent formation of urban edges and the possible role of these edges could play in defining the city image to make the city liveable having the ultimate target of sustainable urbanization.

The study is mainly bases on the Kevin Lynch's study on the city image and its examines the Downtown of Colombo.

Keywords: Urban Edges / Liveability / City Image / Functional Districts / Colombo.

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Introduction

Over the centuries, with its many socio-cultural, functional, political and technological aspects, the city has evolved into one of the greatest of human creation. Each city has its own identity or image according to its location, built fabric, culture and demographics.

The city form is the collective creation of built fabric and organized space following the physical attributes identified by Lynch (1962) as paths, nodes, edges, landmarks and districts. These physical elements represent the urban space where the greatest amount of human interactions takes place. They are the places where people build up meaningful relationship with the city and with each other. **The city edge;** One of the prominent elements of an urban form, it not only defines the boundaries of the city but acts as a prominent outdoor space in an urban context. Therefore, city edges play a crucial role in a livable urban environment.

Social and physical factors play a crucial role in the evolution of an urban context as they form edges as well as the ultimate image of the city. Therefore, the way in which a city's outer and inner edges are treated will ultimately determine its image.

The image of Colombo as a city has weakened with time. The city itself as well as its urban peripheries or edges seem to be bounded with meaningless elements, resulting in dead spaces in and around the city. According to Lynch (1962)paths, nodes, edges, landmarks and districts play an important role in the image of a city. Therefore, a question arises whether the weakened image of Colombo is a related to the five elements above.

This study aims to research socio economic factors evident in the edges of the city in order to draw a conclusion whether Colombo city's edges too, as an important component of the image of the city, has contributed to the weakened image of Colombo.

Out of the five elements that build an image of a city as described by Lynch, the study is mainly focused on to the edge. In doing so, the study will first interrogate the idea of 'urban edge' as a broader academic concept, and then use some selected case studies to test the validity of the developed theoretical hypothesis. As a point of reference, the study informs from Lynch's seminal work on 'city image' and subsequent elements of urban imageability. However, a crucial part of the examination here is to go beyond the current definitions of the term 'urban edge', and construct an expansive framework that can be applicable to the conditions of a developing world city.

As its field of research, the study is limited to the Colombo downtown area which has a unique identity as well as a historical significance in the identity of Colombo. The following edges are selected as case studies.

Case 01 - Colombo Harbour

Case 02 – Colombo Railway Station

Case 03 – BodhirajaMawatha

Case 04 – West Beira; Canal between Fort and Pettah

Case 05 – East Beira; Canal near the Old Parliament

1. Background Studies

1.1 City, City Form and City Image

The city is the representation of human society and its cultures; it is a combination of different components that together build the identity of society and culture,
According to Krupat people have different views towards cities "…the political scientist sees the city as a unique administrative unit with a giving internal power structure and a set of relationships to other political entities. The sociologist sees the city as a particular set of institutions and social organizations; and the anthropologist sees it as a place with certain cultural features and dominant values. Social and environmental psychologists, as I said before, are likely to visualize cities in terms of a set of social behaviour patterns and interpersonal orientations…"(Krupat, 1987, p. 14)

Cities are not revolutionary. It is an evolutionary process throughout the history that is still continuing. "The city is the ultimate creation of the human mind. It is an aggregation of people and activities unparalleled in the history of civilization." (Krupat, 1987, p. 3). It is a process always been associated with civilization from generation to generation, gradually shaping their intention and aspirations. Therefore, more than its physical appearance, cities does express a deeper meaning (Kostof, 1992).

"…A city is said to be an assembly of people a congregation drawn together to the end they may there by the better live at their ease in wealth and plenty, and the greatness of the city is said to be, not the largeness of the site or the circuit of the walls but the multitude and number of inhabitant and their power now men are drawn together upon sundry causes and occasions there in to them moving; some by authority; some by force; some by pleasure; and some by profit and proceed it…" (Botero, 1956, p. 7) quoted by (Kostof, 1992, p. 2)therefore the city is in itself the powerful symbol of a complex of society; in a good city form there could be components such as physical, social, functional, cultural, historical and organization. Therefore, city has become the comprehensive representation of culture. Though city is a combination of all the above attributes, a city can be identified by its physical form or the elements, which differentiates one city from another.

Thus, the physical form of a city can be considered as an important aspect that determines how individuals perceive and navigate the urban landscape. The American urban planner and author Kevin Lynch has provided seminal contributions on the relationship between human perception of the physical form of cities and the subsequent formation of good urban design. In his book *The Image of the City*, Lynch documents how users perceive and organize spatial information as they navigate through cities. Defining his position on the idea of 'City Image', Lynch suggests that users understood their surroundings in consistent and predictable ways, forming mental maps which lead to personalized imageries about the city form (Lynch, The Image of the City, 1962).

1.2 Elements of City Image: Re-reading Lynch

In order to formulate a theoretical background for the idea of 'urban edges', this study turns to Lynch's seminal work on 'City image'. However, it must be said here that the subsequent re-reading of Lynch's work is only a point of departure for the larger discussion on 'urban edges'. As will be explored, debated and documented in the forthcoming chapters, this study will expand beyond the limitations Lynch's definitions, and develop the idea of 'urban edges' into a much

broader investigation, especially in terms of how such concept could be applicable to the conditions of a developing world city.

According to Lynch, every city should have its own character, which can be identifiable: "…there seems to be a public image of any given city which is the overlap of many individual images…"(Lynch, The Image of the City, 1962, p. 46). He further notes that the city image is made out of physical forms which can conveniently be classified in to five types of elements: paths, edges, districts, nodes and landmarks (Lynch, The Image of the City, 1962, p. 46).

1.3 Cities within Cities: The formation of functional districts

Edges can be identified in many ways in a city. It can be the city periphery or the boundary. It can also be an edge formed by a district within the city. Sub-cities are not neighbourhoods. Sub-cities are groups of neighbourhoods which have geographic interdependence and which, over a long period, have demonstrated that they recognize that interdependence (Griffin, 1981). The overall image of a city is created by these interdependent sub cities. Each sub city cannot be an entity of its own but a component co-existing with and enriching other sub zones, thus creating a livable city.

From a political point of view, the formation of these functional districts – or sub-cities for that matter - follows the typology of an administrative division, which in some countries are managed by a local government. Form a cultural point of view, on the other hand, both formal and informal districts can be established due to various reasons such as diversity in the city's socio-economic structures and class definitions, the creation of exclusive business and industrial zones, the spawning of migrant neighbourhoods, emergence of function-specific recreational and shopping areas and so on.

In the cities of the developing world, for example, rapid urbanization and rural-to-urban migration have led to the formation of run-down urban areas characterized by substantial housing of impoverished constructions and lacking tenure security. Called as 'urban slums', 'shanty towns', or 'shadow cities', these settlements often do not have proper sanitation, electricity or medical services, and are often subjected to high rates of crime, suicide and drug use. The largest of these 'shanty towns' – such as the Orangi in Karachchi, Khayelitsha in Cape Town and Kibera in Kenya – accommodate a population of more than 2 million informal settlers, thus carving out huge, culturally-segregated spatial areas from cities. There can also be planned 'cultural districts' in cities, which are well-recognized, labelled, mixed-used spatial areas with a high concentration of cultural facilities serving as the anchor of attraction.

1.4 Centre and Periphery: The formation urban edges of

Many urban edges are formed by sub-cities or districts within a city. In-fact, there can be different types of physical and cultural edges in cities. One type is the edges formed around the afore-mentioned sub-cities (districts) of a larger city. If these districts were demarcated by political authorities, then they often carry regulated, defined, formal boundaries; these boundaries can be made of either physical (tangible) elements of the city (thus, forming well-defined edges) or intangible outlines drawn on map by the authorities. If, on the other hand, these districts are formed informally – such as the 'shanty towns' – the subsequent edges are loose and can be subjected to constant change and shifting.

Another type of an 'urban edge' is the one formed between the city and its suburban agglomerations. These suburban agglomerations are called by many names such as suburban business districts, major diversified centres, suburban cores, mini cities, suburban activity centres, perimeter cities, suburban downtowns, cities of realms, superburbia, etc, but the name, which is most commonly used for such places is 'edge cities'. These edge cities are spawned as a result of the increasing urbanization, population increase, and the subsequent sprawl of urban areas towards the suburbs; often these areas may not have been anything like as a 'city' 20 years ago. Due to space and time limitations, this study will not refer to the edges formed between the city and its suburbs, despite how intriguing such analysis would be; instead, this research has restrained itself to the analysis of urban edges that are formed between the small functional districts (sub-cities) within the city limits.

As the following chapter will explore in length, the conditions that result in the formation of these edges may vary and consist of many diverse factors such as man-made components, specific functions or natural elements. However, the key argument here is that they do play a major role in defining one's idea of city image. Since the definition of a sub city contributes to the ultimate image of a city, the edges too, play a vital role in its image. Furthermore, the character of a sub-city or district may be identified with the character of its edges. Subsequently, the behaviour of these edges may come forward as major determinants of a city's livability.

2. Barrier versus filter: Urban edges as a defining element of City Form

2.1 Defining 'Urban Edge'

"A boundary is not that at which something stops, but as the Greek recognized, the boundary is that, form which something begins its presenting" (Heidegger, 1974)

Urban edges are very significant in people's perception of the city; they shape how people move within the city. "Edges are often paths as well. Where this was so and where the ordinary observer neither was nor shut off from moving on the path. Then the circulation image seemed to be the dominant one. The element was usually pictured as a path, reinforced by boundary characteristics."(Lynch, The Image of the City, 1962, p. 65). Edges can disrupt the urban fabric or unit it; they define neighbourhoods and establish spatial hierarchies. "...when two strongly contrasting edges are set in close juxtaposition, and their meeting edges is land open to view, than visual attention is easily concentrated."(Lynch, The Image of the City, 1962, p. 100)

The strong visual transition is a pleasing experience of the edge, which often associated; when the edge is formed due to natural features. The impenetrability is not a necessary character at the edge, when lateral visibility, visual transition and continuity are strong enough to define the edge. As dominate architectural element of the city, it defines the spatial boundaries and the city form. Positive edge is a sensible dimension of the city image, in relation with the city form and its social and physical aspects. Therefore, a particular attention to explore its potential makes the city a more memorable place to live.

2.2 Key physical and spatial determinants of urban edges

The urban edge is a linear element, as previously discussed it acts as a boundary in between to lateral phases. Depending on these lateral phases formation of the edge can be divided as,
      Geographical location
      Topographical setting
      Man-made built form

District boundary

The edges formed due to above four factors are deviated from each other and their manifestation to the city is also different. According to the city of Colombo the above attributes can be expand as follows.

2.2.1 Geographical location

According to oxford dictionary geography is "the study of the physical features of the earth and its atmosphere, and of human activity as it affects and is affected by these, including the distribution of populations and resources and political and economic activities."(Oxford dictionaries, n.d.). Therefore, geographical location defines the distribution of population, resources and activities in the city.

Geographical location is the utmost important factor of formation of cities. The word 'City' derived from the human civilization fundamentally relates with the correct responsiveness of a particular geographical setting. The Indus Valley Civilization one of the first greatest urban civilizations in the world which flourished based on a vast river. The sense of geographical setting adds a unique feature to great cities, physically, socially and spatially. The city edge therefore defined by its geographical location; often becomes grandest extraordinary image defining element of the city.

Therefore, the water, hilltop, hilltop and sloping cliff are prominent geographical locations of cities in formation of edges.

2.2.2 Topographical setting

How the topographic demarcation of the edge is different from edge, is defined by the geographic location of the city. Geographic features are almost natural, which affected for the vast area of the city while the topographic features mean configurations of immediate surface including its relief and position of its natural and man-made feature, which define the edge of the city.

The edge defining topography features are comparatively small and too often act as a self-closed edge, where beginning and end is visible to each other. Hence these edges can act as the unique and highly integrative social entities.

The symbolic content contributes to the city image by the grand edge desisted at these small edges defined by the topographic features, which act as physically and socially rich places of the city. But in the case, where unique topographic features spread all over the city, edges formed along them manifesting a certain character common to the whole city. New Amsterdam with river arteries is a rarely seen example of such above situation.

2.2.3 Man-made built form

Man-made features of defining the edges are prominently seen in cities since throughout the history. The enclosure is physically reinforced at man-made edges than edges created by natural forces. Naturally defined edges are too often function as public gathering place while the public gathering at the man-made edges focus on a particular activity as commercial oriented, military oriented, transport, residential etc. The contemporary urban situation is that the built edges are often dynamic places which associate with commercial oriented activities.

2.2.4 District boundaries

Due to functional aspects, edges are sometimes created in between various zones. Some edges may be walls (Colombo harbour edge) or sometimes it may be the built fabric and functions that define an edge. As an example, the edge between Fort, the administrative zone of Colombo downtown with its colonial characteristics and Pettah, the commercial zone with its indigenous characteristics is clearly marked. Thus, the canal running between these functional zones has morphed into a distinctive edge.

2.3 Types of urban edges

In considering the manifestation of an edge according to Lynch, edges can be categorized into three. Namely, the Open edge, the Self closed edge and the Continuous edge. In addition to this categorization an additional two types of edges can be observed, depending on a collection of factors such as built forms along the edge, functional variations as well as restrictions on accessibility implemented by governing bodies etc.

Open edge: "When two strongly contrasting regions are set in close juxtaposition, and their meeting edge is laid open to view, Then visual attention is easily concentrated..."(Lynch, The Image of the City, 1962, p. 100)

Self -closed edge: "When the edge is not continuous and self-closing, then it is important that its ends have definite termini, recognizable anchors which complete and locate the line" (Lynch, The Image of the City, 1962, p. 100) The definite termination points act as the external references for the orientation of the edge and the beginning and end of the edge maintain a particular relationship and responsiveness to each other along the line. Breaking points for visibility beginning and end, cross views use of angles, monuments etc can be utilized for the making of responsiveness in between beginning and end. If it is not, it becomes fuzzy element to the whole city (Lynch, The Image of the City, 1962, p. 60)

Continuous edge:"...Or the edge may be shaped to give orientation along its length, by a gradient, by identifiable points at intervals, or by individualizing one end with respect to the other" (Lynch, The Image of the City, 1962, p. 100). The Gall Face Green is the best example for the continuous edge.

Strong edge: A strong edge is when the demarcation of a zone or area is recognizable easily and this recognition adds to the imageability of a city. A strong edge can consist of various components from all three of the above. "An edge may be more than simply a dominant barrier if some visual or motion penetration is allowed through it-if it is, as it were, structured to some depth with the regions on either side. It then becomes a seam rather than a barrier, a line of exchange along which two areas are sewn together. If an important edge is provided with many visual and circulation connections to the rest of the city structure, then it becomes a feature to which everything else is aligned" (Lynch, The Image of the City, 1962, p. 100)

Fragmented edge: A fragmented edge is when the function of an edge has been restricted due to various factors such as restriction on accessibility due to security reasons etc. It can also be due to certain built structures along the line being underutilized or dilapidated as well. An edge can also be fragmented when there are too many penetrations along it, negatively affecting its continuity.

2.4 The potentials of urban edges

As stated in chapter two, urban edges have immense potential in creating an imageable city. They have the ability to make the city experience an enriching and fulfilling one for its dwellers and visitors alike. Factors such as Legibility, Identity, Imageabilty, sense of arrival, Sense of pause and Functional diversity can all be used positively to create well-functioning edges with a strong presence and ultimately a city with strong and positive image.

Legibility: Legibility is a successful and legible development of a place that has a clear image and is easy to understand. It is a quality how people can understand what opportunities if offers or in other words; legibility is a quality, which make a place understandable.

"Yet even the sea has the sun and stars, the winds, currents, birds, and sea-colours without which unaided navigation would be impossible." (Lynch, The Image of the City, 1962, p. 5)
In cities like Rome significant buildings as landmark place, open spaces and paths, which link them is clearly identifiable. Continuous built mass contrasts to the open spaces and makes the legible cityscape

According to (Lynch, The Image of the City, 1962, p. 3) "...a legible City would be one whose districts or landmarks or pathways are easily identifiable and are easily grouped into an over-all pattern."
Identity: Every city should, and any successful city does, have its own identity. Edges have much potential to build an identity that is unique to a city based on how those edges have been treated and the image that have created in their mind.

Imageability: "...Consider the cases of men who, through brain injury, have lost the ability to organize their surroundings. They may be able to speak and think rationally, even to recognize objects without difficulty, but they cannot structure their images into any connected system. These men cannot find their own rooms again after leaving them, and must wonder helplessly until conducted home, or until be chance they stumble upon some familiar detail... the whole situation parallels, in a curious fashion, the way in which we proceed in an unfamiliar city." (Lynch, The Image of the City, 1962, p. 125)

"...There are as many different images as there are people. Each is unique, some are directly contrasting, and all serve as guides to people's thoughts about, and behaviour within, the cities they encounter..." (Krupat, 1987, p. 67)
Sense of arrival: If an edge defines an area and demarcates a boundary which when approached, expresses an identity of the area to be entered, it will be a successful edge. A sense of arrival helps in mental mapping and in creating a cohesive image in a person's mind.

Sense of pause: An edge can be viewed as an intermediate domain. Therefore, it has the possibility of allowing a person to pause and prepare for the change he/she is about to encounter. A successful edge will allow for such preparation and create a sense of pause. Such a sense of pause will enrich the city experience for visitors and dwellers as well.

Functional diversity: An edge is where two zones meet. Therefore, it has potential for a variety of activity. Its character can afford to facilitate and enhance a diverse range of activities. A successful edge will always be an enriching and diverse experience for the commuter or city dweller

## 3. Setting up the case studies: the districts of Colombo

3.1 Colombo downtown: The place and its edges

The colonial background makes the city as a unique entity among other urban settings of Sri Lanka. Fort and Pettah: the main components that intervene for the discovery of multiple scenarios. The city itself can be identified as the center of a semi radial organization where several linear elements (Galle road, *D. R. Wijewardana Mw*, *Sir Chittampalam A. Gardiner Mw*, OlcottMw,Sea Beach Road) create a concentrative space at the city centre.Three major unities of form can be identified in the downtown area

- Relatively large scale and built fabric of Fort

- Compact and low profiled Pettah

- Co-existence of the built fabric and the natural habitat of Beira
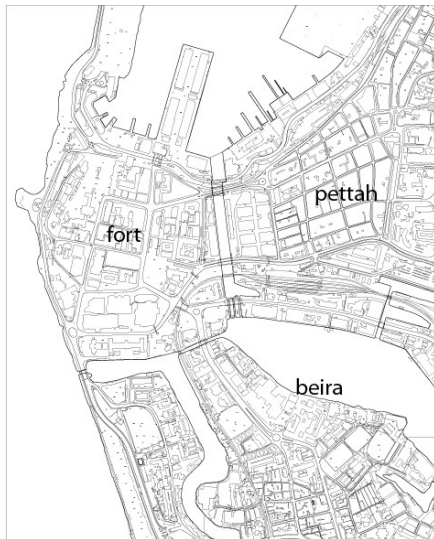
Map 1: Colombo downtown [source-by author]
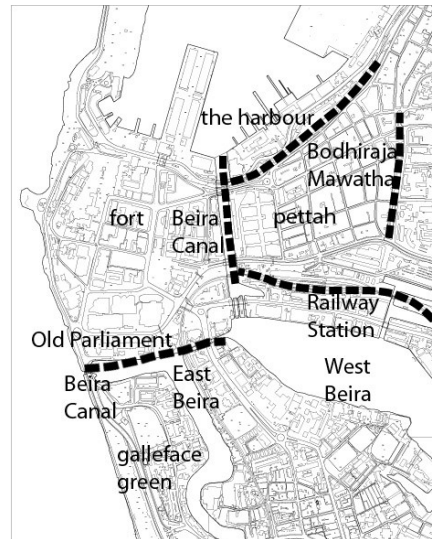
Map 2: Selected edges [source -by author]

The study focuses on the Downtown Fort, Pettah and its surroundings. Colombo Fort; edged by the old parliament building from south, and **the harbour** from the north. The east and west bounded by '**WestBeira; Canal between Fort and Pettah'**, and Marine Drive. West Beira Canal, a prominent boundary since colonial era; in Pettah the southern boundary is defined by the **Colombo Railway Station**. The west and east are edged by the West Beira Canal and **BodhirajaMawatha**, the end of retail district. The other selected edge is the **East Beira; Canal near Old Parliament**, one of the major entry points to the city from Galle Road. The selected edges are the boundaries of the city centre where the variety activities happen in the downtown area.

All the below case studies were done first doing a legibility study of the selected area based on the discussions had with the people around the edge; because it helps to create an overall pattern of the area which contributes to the city image. The questions to the discussion were based on the key theories that have identified on chapter three. The quantitative and qualitative analyses are done on site by doing observations and studying historic maps. The guidelines to

the analysis were formed by referring several theories published by urban designers and planners. Qualitative analysis was done by doing a photography survey to study the visual linkages and activities.

### 3.2 Case study 01: Colombo Harbour Edge *(N. H. M. Abdul Cader Road)*
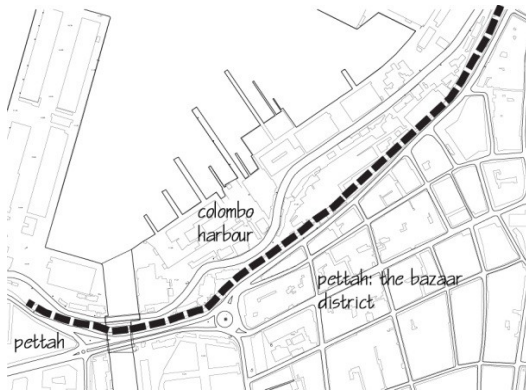
Map 3: Colombo harbour edge [source-by author]

Map 4: Figure ground map [source-by author]

N. H. M. Abdul Cader road stretch towards the Sea Beach road along the land side edge of the harbour. The area reveals multicultural setting and at the same time it is defined as the north edge of the city bazaar district of pettah.
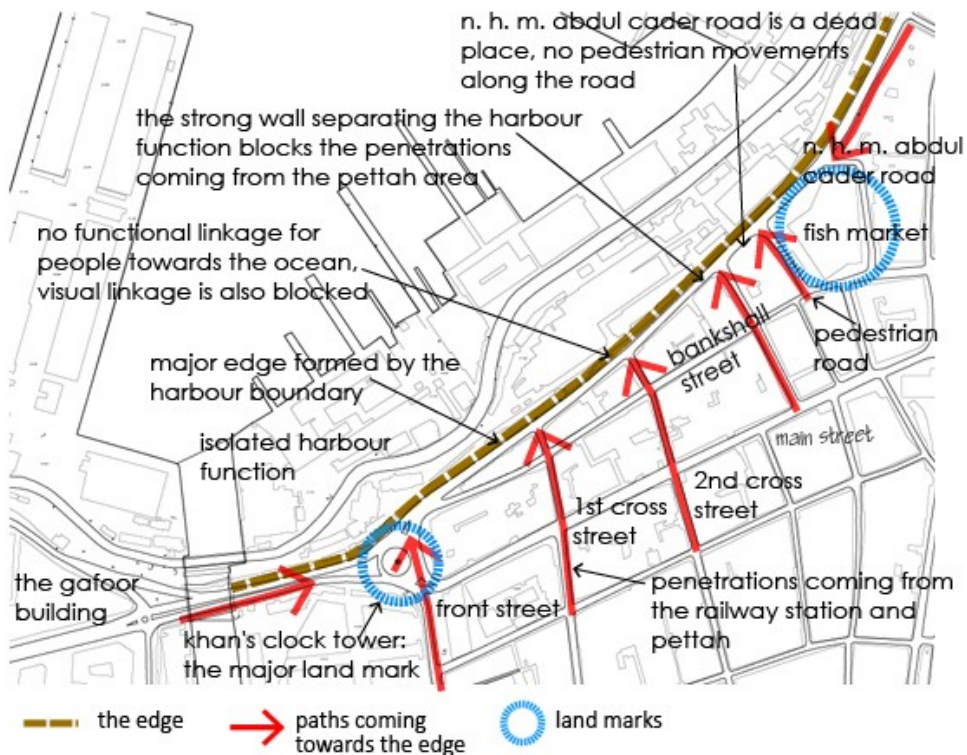
Map 5: Legibility analysis [source-by author]

Multicultural background and intimate residential alleys, commercial functions and religious activities of the area reveal enamours potential of the edge. The contrasting characters: More informal, intimate scale of bazaar district and the bounded harbour are the two main parameters that define the edge.

The selected edge has a clear define image to it. The pathways coming towards the edge is terminated by the boundary wall of the harbour and *N. H. M. Abdul Cader Road* is located near the highly secured area making it almost a dead street where as other streets going parallel to *Abdul Carder Road* are more functioning and has more human interaction than *Abdul Carder road*. The main entry points to the edge are from the Gafoor building side and the fish market side. The five pathways coming from the bazaar district towards the *Abdul Cader Road* has more public interaction than the harbour edge. According to the people around the edge there are no functional linkages between this two districts and the visual linkage is also minimum because of the built forms of the harbour(figure 1, 2, 3 and 4-page 26) causing a **visual discontinuity**. The two districts are acts as individuals as they are separated by a wall and leaving no penetrations between them causing a **functional isolation**.

Fig1: Visual discontinuity [source-by author]

Fig 2: Harbour edge [source-by author]

Fig 3: Built forms at the harbour edge [source-by author]

Fig 4: Built forms at the harbour edge [source-by author]

When considering the public activity, there is a clear gradient of activity can be identified around the edge; the density of activity is fades towards the edge creating possibilities to a dead place (figure 5-1, 2, and 3-page 27). When it comes to human interaction the harbour edge is a socially weak edge, but physically it's a strong edge because of the boundary wall.
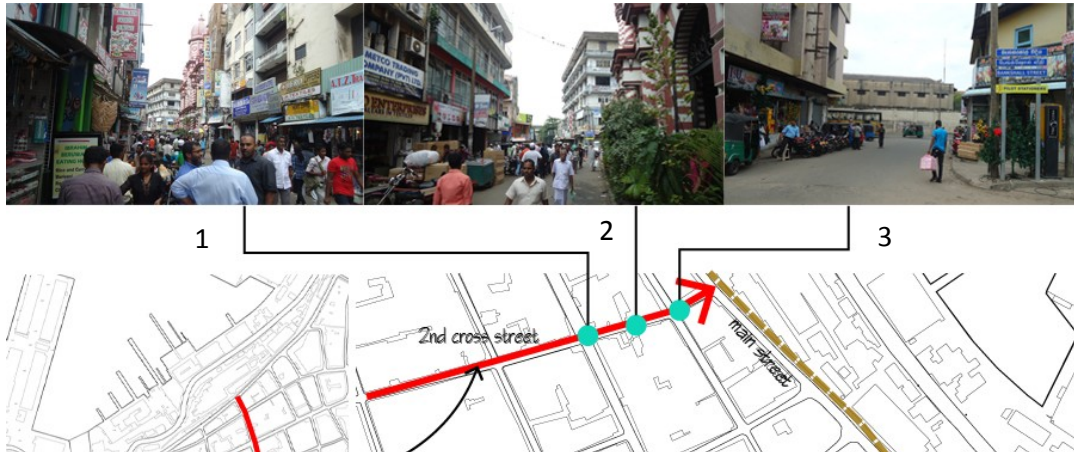

Fig 5: Activity gradient at 2nd Cro

As per the discussions that had with the people none of them recognized the harbour edge as a land mark or a prominent edge in the city (refer table 1-pag 27). Although it was recognized as a port city for about 400 years; because of the way the edge has been treated people no more recognized it as a port city.
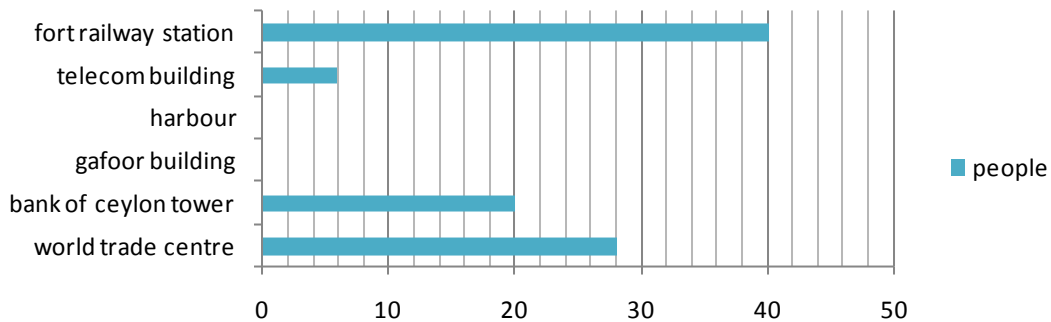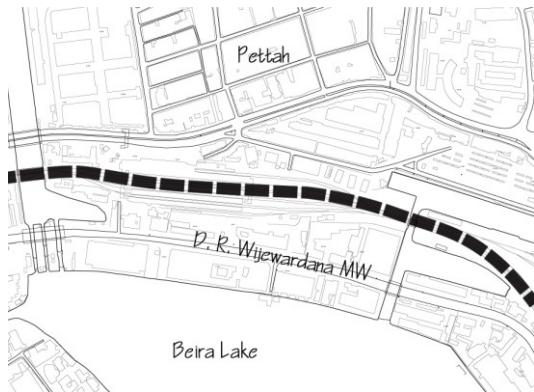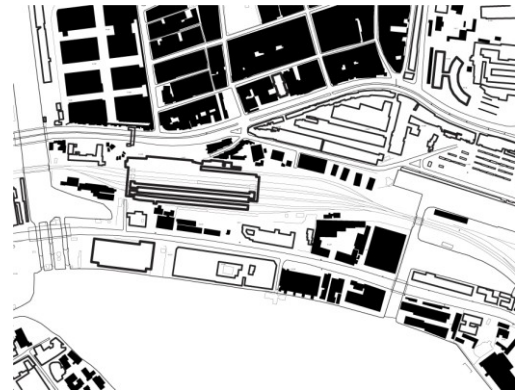

Table 1: Imageable places in Colombo [source-ChathuraPathirana 2012]

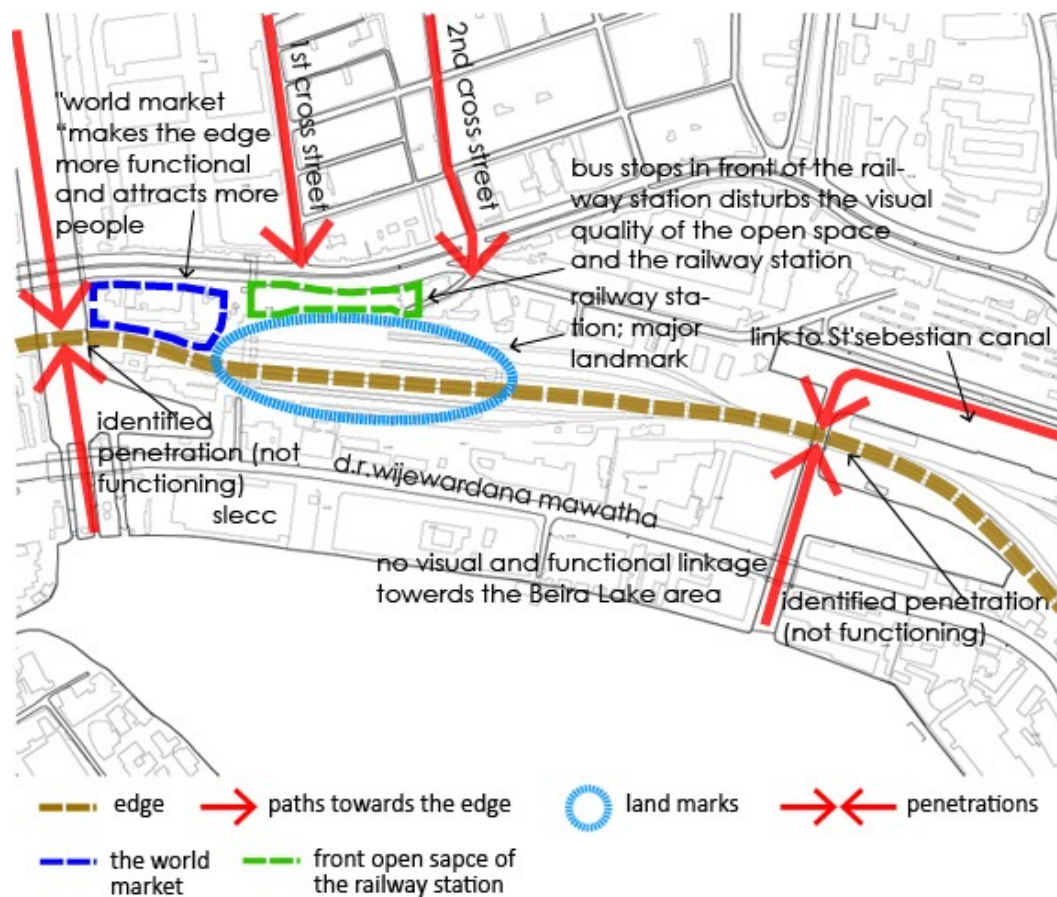### 3.3 Case study 02: Colombo Railway Station Edge

Map 6: Colombo railway edge [source-by author]

Map 7: Figure ground map [source-by author]

Colombo railway station is one of the major buildings in Colombo, was built and put into operation in 1908 and now it's caters 0.2 million people per day (Sri Lanka railways-07 October 2011).

Map 8: Legibility analysis [source-by author]

The major transportation node surrounded with multifunctional activities makes the edge more prominent to the city and its user. Rail way station separates the functions which happening

either side of the edge, Pettah the indigenous commercial zone and the Beira Lake the recreational zone. When comparing to the harbour it has more contribution to the city by being a major transitional node and a land mark, 40 out of 120 visitors, Colombo Railway Station is a land mark that has an imageability of Colombo (refer table 1 page 27).

The selected edge has a many potential to contribute to the city image. There are two penetrations in this edge connecting the water bodies of the city which currently not functioning. These two penetrations have grater potentials as a water front city because the penetration at the east side connects to the 'St. Sebastian' canal.

The 'World Market' at the west side is also a major attraction; the open space in front of the world market has a potential to create a god public space (figure: 6 page 29). The path straight coming towards the railway station (1st Cross Street) connects the large open space with an overhead bridge. Even though the bus stops in front of the railway station block the prominence of the front open space most of the people who come to Colombo recognized the city by the railway station.
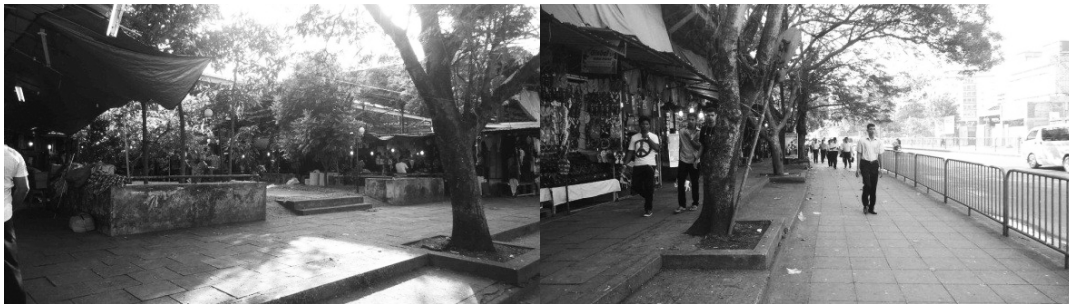

**Fig 6:** front open space of the 'World Market' [source-by author]

Even though this edge has no penetrations or visual linkages it has been an image defining element because of its function and the historic value. The railway station gives a **sense of arrival**(refer: 2.4.4 page 16) as it is used by many people who daily travel to Colombo either by train or by bus. Railway station edge has more contribution to the city imageability by being a major transportation node and a major land mark.

3.4 Case study 03: BodhirajaMawatha

Fig 7: Link to the bus terminal [source-by author]

BodhirajaMawatha is prominent in city structure as it acts as the edge of the bazaar district and can identified by the different built fabric on either sides (map: 10). It's also an important link which connects the Main Street Railway Station and the Munasinghepura bus terminal (figure: 7 page 18).
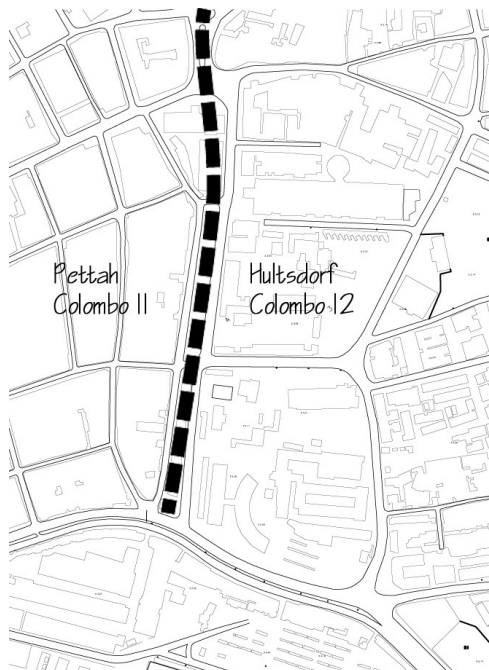

Map 9: Bodhirajamawatha [source-by author]

Map 10: Figure ground map [source-by author]

The edge is congested by people throughout the day as it provides immediate link to the bus terminal and the railway station. The edge becomes a transit point of commuters to Colombo from outside of the city. From the southern side of the edge Bo Tree and Viharage(figure 8 page 32) and from the north side the old town hall (figure 9 page 32) acts as significant land marks of the area. Two bus terminals located on the east side of the edge acts as a transitional area especially for the people who enter the city of Colombo. The sense of arrival is there for some extent because of the Bo Tree and the Viharage at the end of the OlcottMawatha.
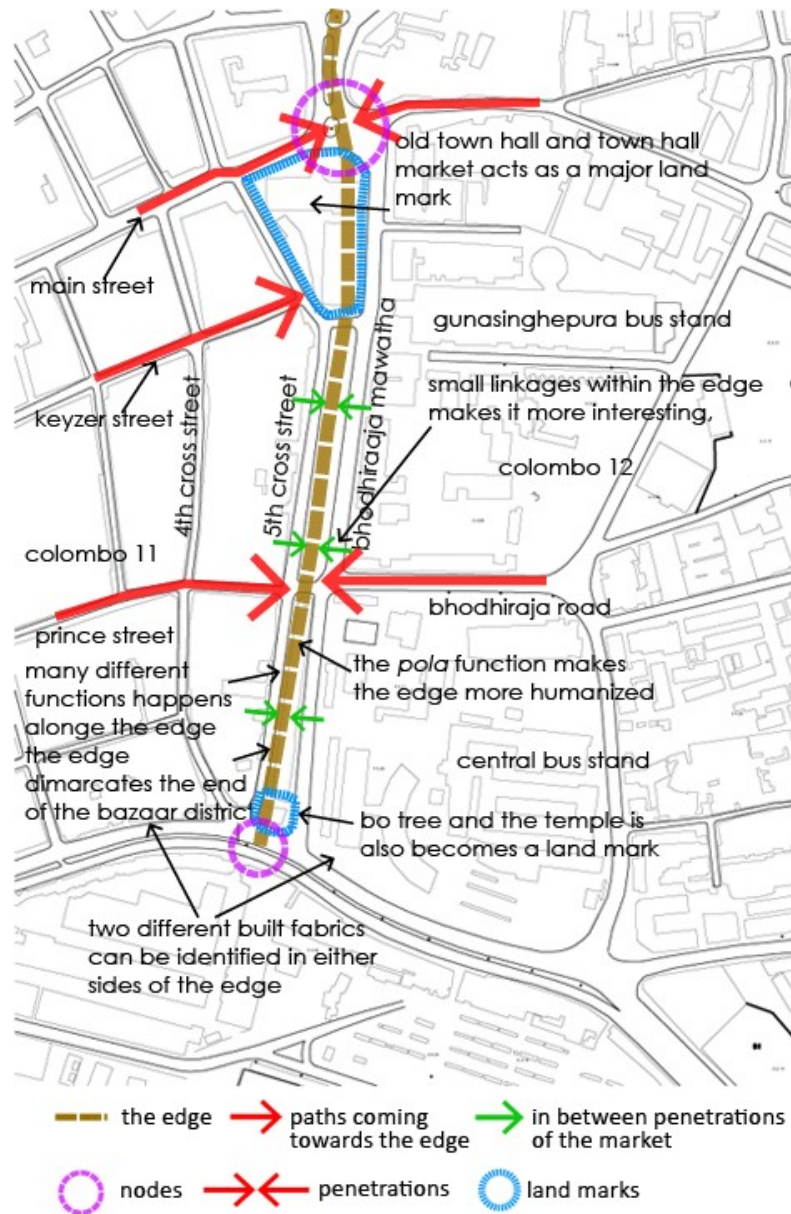
Map 11: Legibility analysis [source -by author]

Beside the two penetrations in the edge there are few small penetrations within the structure that built for the market activity. The edge has been clearly defined by the **man-made structures**. All the elements around the edge, the nodes and land marks make the edge more recognizable element of the city. The edge is more popular among the people who visits Colombo because of there are many day to day items can be found here.

Fig 8: Botree and the viharage at the southern corner of the edge [source-by author]

Fig 9:   Old townhall building at the northern corner of the edge [source-by author]

Amidst the noise of people, movement of traffic in the tick of activity the Bo Tree junction evolves in to a meaningful urban space in the urban edge of Pettah. It adds to the social possibilities of a place within the edge and intensely filled with pedestrian and commuters the place of its activities (figure 10 and 11) relates to the flow of live character of Pettah.
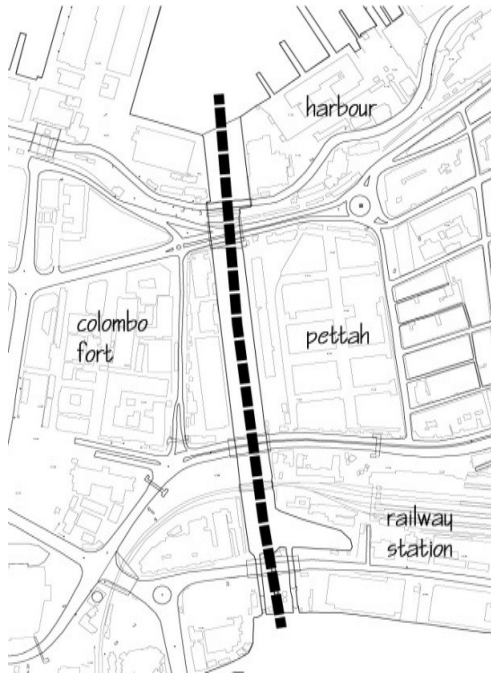

Fig 10: Man made built structure at the edge [source-by author]

Fig 11: public activities at the edge [source by-author]

3.5 Case study 04: East Beira Canal; between Fort and Pettah

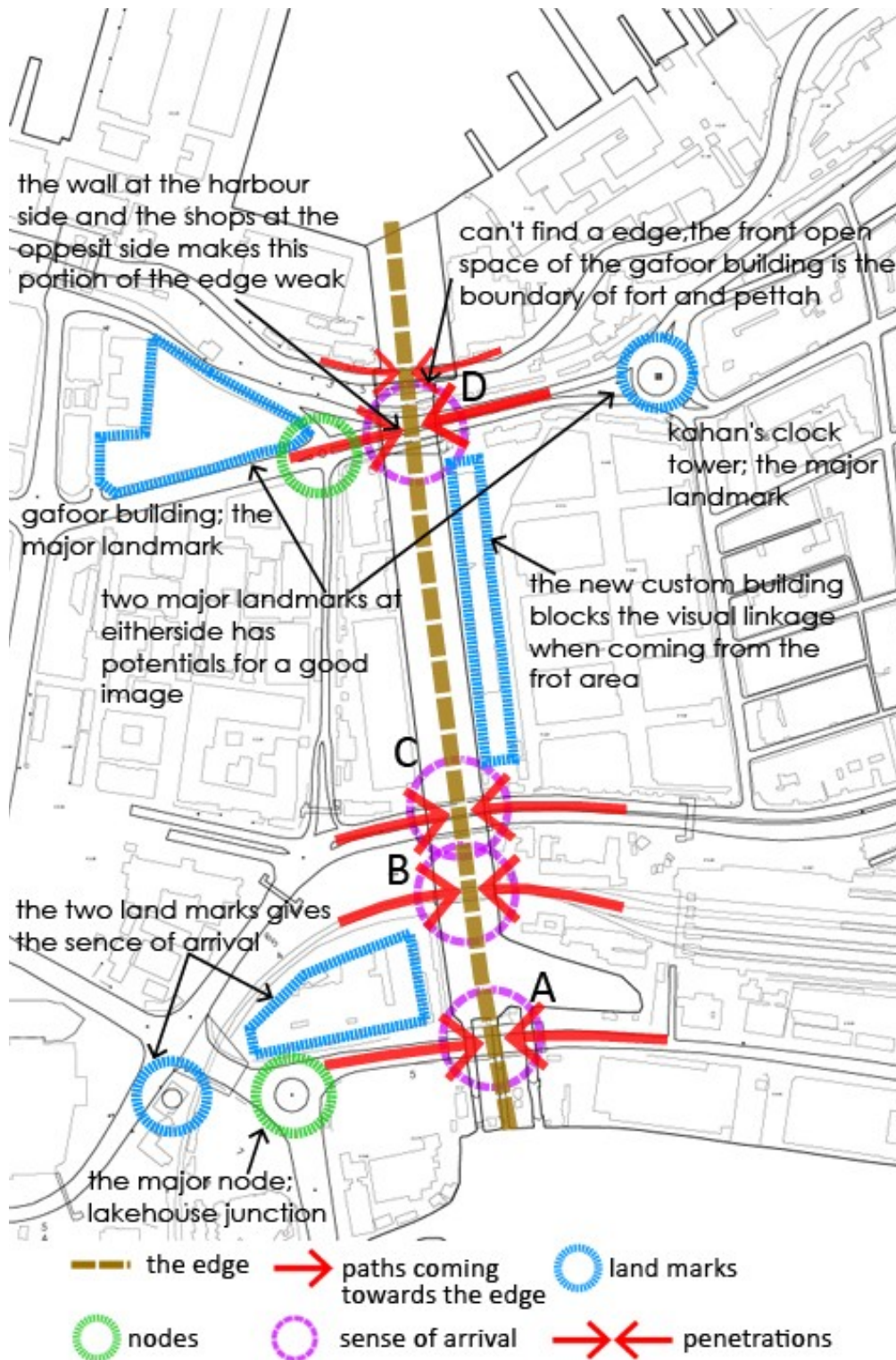Map 12: West Beira canal [source-by author]

Map 13: Figure ground map [source-by author]

An important edge of Colombo down town as it's demarcates the separation of; two of the historical districts, Fort and Pettah. According to (Perera, 1999)the separation of the Fort and the rest of the city including Pettah where first introduced by the Portuguese by raising the water level of the marshes. Later the Dutch have reduced the separation in to a canal which the breadth of it within the range of a cannon ball.

When considering the historic perspective and the current situation, the edge West Beira Canal is a prominent demarcation in the city. Even though there are five penetrations in it only four of them are used by the general public.

As mentioned earlier there are only four public penetrations in this edge, but the way some of these penetrations are treated, it's hard to identify as penetrations which affects the sense of arrival to the city. For example, penetration A and D (map 15 page 22), because of the way either sides of the penetrations have been treated, the view of the canal been blocked (figure 12, 13, 14 and 25 page 22) making the sense of arrival weaker.

the wall at the harbour side and the shops at the oppesit side makes this portion of the edge weak

can't find a edge;the front open space of the gafoor building is the boundary of fort and pettah

kohan's clock tower; the major landmark

gafoor building; the major landmark

two major landmarks at eitherside has potentials for a good image

the new custom building blocks the visual linkage when coming from the frot area

the two land marks gives the sence of arrival

the major node; lakehouse junction

- - - the edge

→ paths coming towards the edge

○ land marks

○ nodes

○ sense of arrival

→← penetrations

Map 14: Legibility analysis [source -by author]

Fig 12: penetration A [source by-author]

Fig 13: penetration A [source by-author]

Fig 14: penetration D [source by-author]

Fig 15: penetration D [source by-author]

But when considering penetration B (the railway line) and C, the situation is different. The newly built Custom Building along the canal made the edge more prominent and it has become new land mark of the city which emphasis the sense of arrival at the above penetration (figure 16). But when considering the visual linkage towards Pettah from Colombo Fort, has been lost (figure 17).

Fig 16: west beira canal edge [source by-

Fig17: blocks the visual linkage to other side [source by-author]

As a water front city, there are much potential to the city image from this edge because the canal connects to the Ease Beira Lake, West Beira Lake and to the St. Sebastian (figure 18) Canal. The Canal still have the old methods that used to control the water level of the city (figure 19), still none of them are visible to people and not used by public.

Fig 18: St. Sebastian canal [source by-author]

Fig 19: west beira canal [source by-author]

When having discussion with people, as mention above penetrations A at D. R. WijewardanaMawatha and D at Main Street has the minimum amount of sense of arrival; while penetration C has the height sense of arrival (table 2)
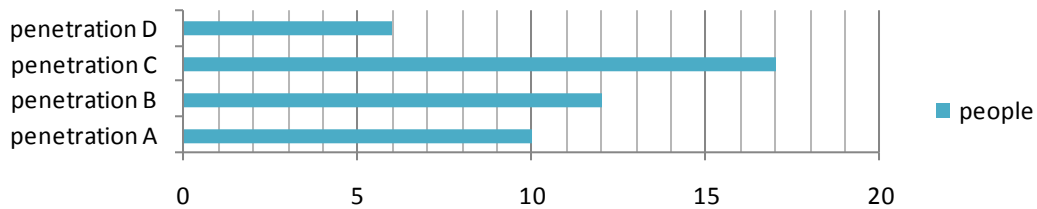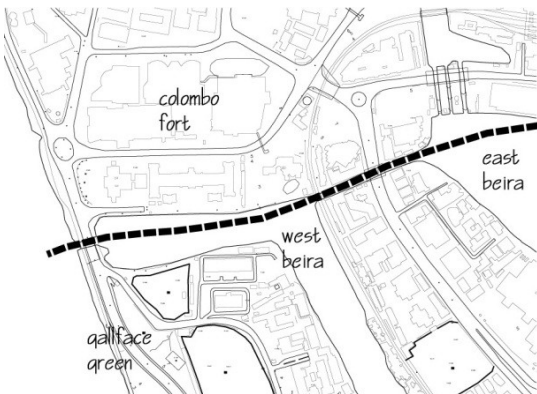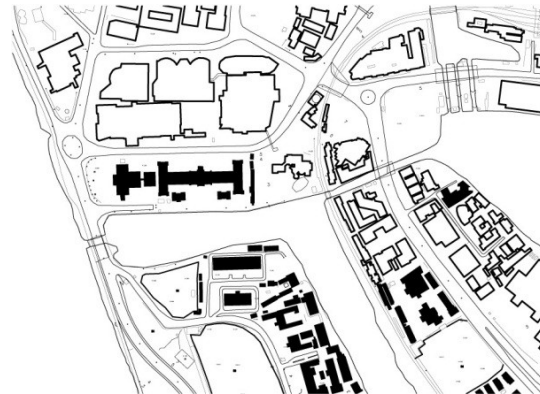

Table 2: Sense of arrival [source-by author]

3.6 Case study 05: West Beira; Canal near Old Parliament
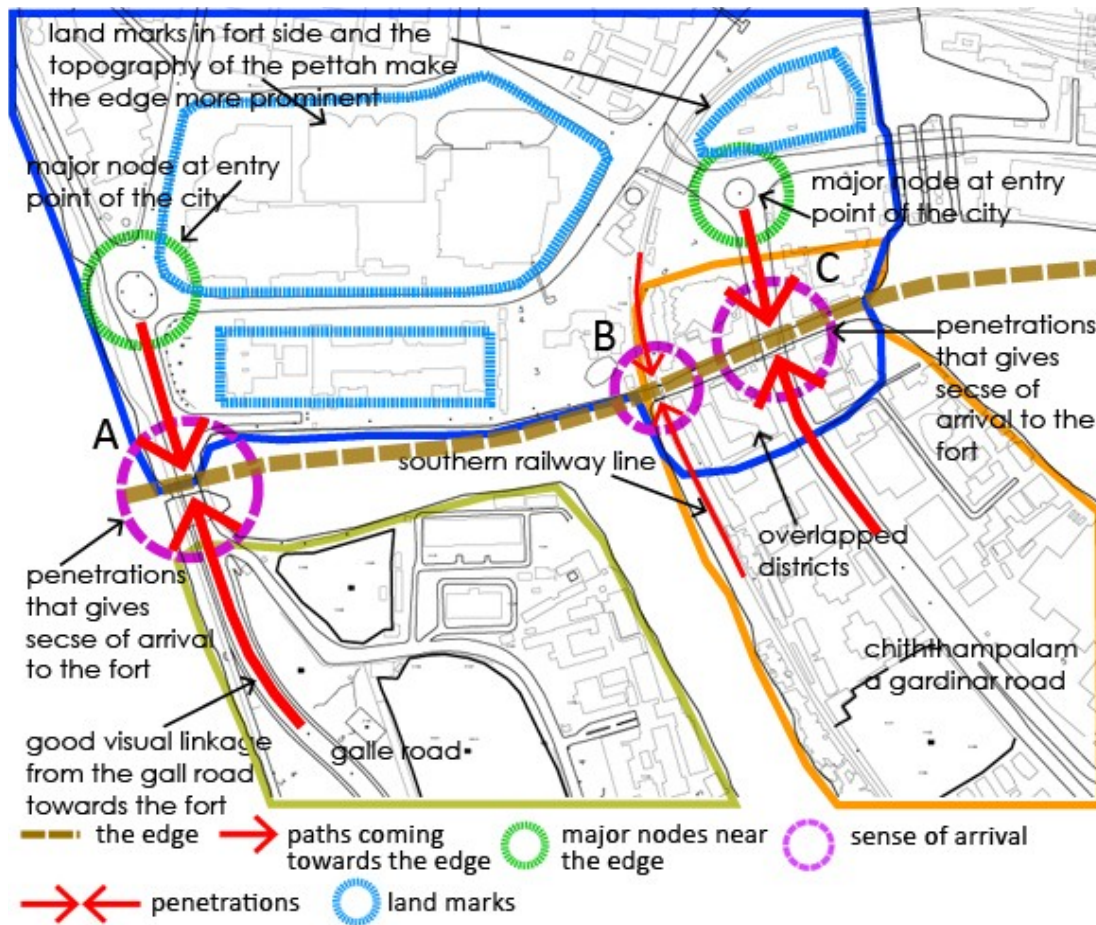

Map 15: Ease beira lake [source-by author]

Map 16: Figure ground map [source-by author]

The selected edge was a defined edge which have defined Colombo fort since early colonial era, the fortification made the edge more clear and defined. The old parliament building and the new CBD area in the back drop contrasts the significant of the edge.

Map 17: Legibility analysis [source -by author]

Fig 20: east beira canal-penetration A

[source-SumuduGajanayake]

Fig 21: east beira canal-penetration A

[source-Sumudugajanayaka]

The selected edge has a clear define image to it. Among the three pathways coming towards the edge, penetration 'A' has a serial vision to it making the edge more prominent to the city (figure 22, 23, 24 and 25). Sense of arrival is high at the penetration A (table 3 page 37), because of the location of the penetration, surrounding buildings and Galle Face Centre Road, which has more recreational activities emphasis the quality of the edge than other selected edges. The penetration C; when considering the surrounding buildings and nodes has less sense of arrival than the penetration A.

Fig 22: serial vision 1 [source by-author]

Fig 23: serial vision 2 [source by-author]

Fig 24: serial vision 3 [source by-author]

Fig 25: serial vision 4 [source by-author]

When considering the layout of the edge and its surrounding, the location of the elements (Landmarks, Nodes), that surrounds the edge helps to define the city districts without destroying the city image while still keeping the visual linkages and functional linkages. For example, the Gall Face Green and the Beira Lake area, the recreational quarter of the city and the Fort, the administrative quarter of the city are the two districts that separates by the edge but the way the edge is treated there are no separations of functions and links.

For example, overlapped districts (figure 26) near the penetration C and D and the contrasting near the penetration A; the overlapped districts does not create social segregations or cultural ghettos like fort and pettah because the links and functions are distributed. When considering fort and pettah even the built fabric is also different to each other. When considering the geographical location and the man-made built form the West Beira Canal edge become an image defining element of the city.

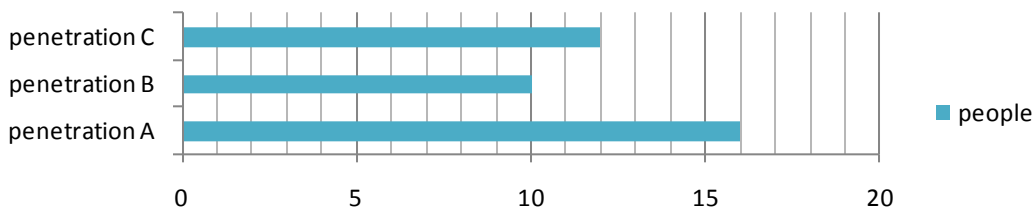**Fig 26:** Overlapped districts [source-SumuduGajanayake]

Table 3: Sense of arrival [source-by author]

4. Conclusion

4.1 Conclusions, remarks and discussions

The city, a place of architecture is most complex form of human build environment, usually considered as an accumulation of events, a process of change or the overlapping of fragmentary sequences. A city is not something that can be created and but returns to descriptions of perceptions. Nevertheless, while one is doing so, the city keeps on expanding and changing searching for new boundaries.

The analysis of the study implies several condusions for the selected case studies as stated bellow.

- According to Lynch (1962) paths, nodes, edges, landmarks and districts play an important role in the image of a city. Therefore, a question arises whether the weakened image of Colombo is a related to the five elements above.

  Colombo city's edges as an important component of the image of city, has contributed to weakened holistic image of Colombo as the edges are building up their own identities rather than contributing to the overall identity of the city.

- It is the people who recognize the five elements of the city scape and built up an image for the city. Most of the edges, as well as some quarters of the city, which have historic value,

are restricted to the public access. Then the question rises, whether an image can be built for the city excluding people who live there? Which resulting imagelessness of the city.

- Colombo is the cultural and historical remark of the urban setting in Sri Lanka. The city core itself has defined legible elements such as paths, nodes, districts and landmarks; yet it does not acknowledge the well-defined edge. The intention of this study; Edges as an important component of the image of the city, has contributed to weakened the image of Colombo. The following is the components that were found as issues during this research "urban edges which weakening the city image".

■ Physical fragmentation

Physical fragmentation of an edge can take place with new built structures coming up and interrupting the identity of an established edge and its various penetration points etc. A physically fragmented edge can give rise to various other issues such as visual discontinuity and even social segregation. The custom building at the Beira Canal in-between Fort and Pettah; harbour edge is the best examples.

■ Visual discontinuity

The obvious reason for visual discontinuity is the disruption of visual connection of the areas on either side of the edge. This can be due to impenetrable structures such as walls, new buildings of overwhelming scale etc. Visual discontinuity impairs mental mapping and thus creates a negative impact on the imageaility of a city. The boundary wall and the buildings within the harbour (refer case study 4.2 and 4.5)

■ Social segregation

When there are differences in the social categories on either side of an edge, it has to be treated specially to facilitate interaction and to maintain links from either side. If not, the edge morphs into a boundary that contains and limits as opposed to a well-connected seam that allows interaction and encourages variety.

■ Cultural ghettos

If a community is bound by several edges that do not function well, it can lead to isolation of that particular community. With time, especially in the case of lower income communities, such an area may morph into a ghetto, containing only the people of that particular community. The malfunctioning edges will contribute in adding to the isolation as well as inequity faced by the population within.

■ Functional isolation

Weak linkage of functions on either side of an edge will lead both areas to be functionally isolated from each other. Since a gradient in terms of functions do not happen, both side will be isolated and necessary support that may be derived for their function will be lost. Functional isolation can lead to other issues such as social segregation and cultural ghettos. For example, The Harbour edge.
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