AN EXAMINATION OF THE RELATIONSHIP
BETWEEN OUTDOOR ACTIVITIES AND PHYSICAL
QUALITY OF STREET SPACES

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DECLARATION

I declare that this research project represents my own work concept where due acknowledgement is made, and that it has not being previously included in a thesis, dissertation or report submitted to the University of Moratuwa or to any other institution for a degree, diploma or any other qualification. I wish to also declare that the total number of words in the body of this report (excluding Tables, References and Appendices) is 9,105.

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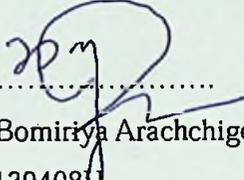
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CERTIFICATION

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ABSTRACT

The knowledge inputs by the professionals in the field of urban design, is pleased by the emerging awareness of making vibrant urban spaces which is somewhat beyond the current practice of just providing basic infrastructure or establishing physical assets which is more common in road infrastructure developments in Sri Lankan context. Thus, the time is good for a change to move away from the current approaches and practices to convert our roads to streets and look in to them as a vital part of public realm.

For such an initiation, it would be very much useful to have a thorough understanding about our streets and human activities occurring there. Therefore, this study has been focused on examining possible relationships exist between the occurrence of street activities and the physical quality of streets in Sri Lankan urban context.

Jan Gehl's explanation of three categories of outdoor activities has been taken as the underlining theoretical basis to conduct this study whereas the main street of Ambalangoda has been selected as a case study. Accordingly, based on the magnitude of accruing optional and social activities particularly, it has been attempted to identify special features and attributes associated with built environment as responsive to such activities.

The research findings have been analyzed using graphical analysis tools and ultimately this study derives some key points which may support in street design endeavours looking forward of creating more responsive physical environments which better suit with Sri Lankan urban context.

This study reveals that, street activities are noticeably responsive to the quality of physical environment. The detail analyses done on the built environment reveals about some of key features in the physical environment where social activities are particularly attracted to those spaces being vital parts of the urban public realm.

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1. INTRODUCTION

1.1 Background

The most of the urban infrastructure development endeavours currently taken place, substantially don't give an attention on the aspect of 'public realm' associated with those spaces. But fortunately, many urban designers and planners are now stimulating or in a way forward of looking into these urban infrastructure development efforts not merely as improving facilities but, facilitating for the public realm as well. In the field of Road Development in Sri Lanka, as almost we are unfamiliar with the terminology "streetscape development" which merely concerns on either to greater the connectivity or enhance the accessibility particularly facilitating vehicular movement. The matter of streetscape development is very rarely considered as a creation of public place. In this context, the involvement of urban designers in road development sector has become essential. Therefore, the knowledge input by the professionals in the field of urban design, is pleased by the emerging awareness of making vibrant urban spaces which is somewhat beyond the current practice of just providing basic infrastructure or establishing physical assets. The premier infrastructure planning agencies in Sri Lanka are not sufficiently employed with urban design professionals and thus there's a shortfall of urban design implications in current road development practices.

Thus, the time is good for a change to move away from the current approaches and practices to convert our roads to streets and look in to them as a vital part of public realm. It can be observed that some initiations have been already taken place recently to facilitate non-motorists as well by improving convenient and safe pedestrian walkways along main arteries. In this context, it is important to carry out a study on street activities inquiring which, where and when those activities are occurring and which special features or the physical qualities would support to attract such activities as being good quality physical environments.

1.2 Objectives

Various scholars in urban planning and designing fields have explored and emphasized the importance of urban public spaces, particularly streets as major public domains.

Accordingly, Ooi and Thomas (1992) examined how streets are better enough to bring people into intimate contact, co-operation and be a enjoyable space for city people as being a 'Dominant Locale' in Public realm. Further, Jacobs (1995) emphasized, sociability as a large part of why cities exist.

Perceiving the importance of streets in an urban environment as a major public domain, this research attempts to explore the capability of streets in Sri Lankan urban environments to attract activities towards them and thereby which types of physical features or attributes exist in such places, make them comparatively good quality physical environment.

Thus, the key objective of this research study is to examine the street activities and patterns in a selected urban environment and identify special physical features or attributes in those good quality street spaces/street segments as responsive to occurrence of activities.

1.3 Method of Study

Accordingly, this study focuses on identifying street activities under three categories as necessary, optional and social activities (Gehl, 1987) in a selected urban environment. Further, the quality of the physical environment would be determined based on the rate of occurrence of those activities which belongs to above three categories. Detailed observations would be carried out to examine the special features of those spaces which are determined as "Good quality physical environments".

To comparatively determine the quality of selected streetscape as good or poor, it will be used Jan Gehl's graphical representation of three types of outdoor activities and the proportionate responsiveness of the quality of physical environment as a theoretical basis for this research study.

By this research study, street activities would be identified under these categories and the results will reveal about the quality of physical environment at the end, as

responsive to the occurrence of activities. The detail observations would be carried out to identify the physical features or attributes which may support to create good quality street spaces.

Figure 1.1 Method of Study

Literature Review	Study the empirical explanations, theoretical approaches which have focused on outdoor activities in public spaces
	↓
	Justify the selection of Gehl's theory as a theoretical basis of this study

	↓
	Examine the outdoor activities occurring in a streetscape of a Selected Town
Analysis	↓
	Map out identified/examined street activities under three categories as discussed in Gehl's theory
	↓
	Identification of special features in the physical environment which support to street activities
	↓
	Detail observations on identified physical features as responsive to magnitude of occurring street activities
	↓
	Conclusion

1.4 Scope and Limitations

This research is a part of a broad research study which merely focuses to examine the street activities occurring in a sleeted urban environment in Sri Lankan context. Accordingly, the special physical features or the qualities of physical environment would be further observed and studied as responsive to the magnitude of occurring activities belonging to three categories introduced by the theoretical explanation of Jan Gehl, to understand the possible relationships exist between the rate of occurring

street activities and the quality of physical environment. In that way, this study can be introduced as a study to evaluate the quality of streets through a functional approach where the occurrence of street activities is considered as a determinant of evaluating quality of streets.

To verify the outputs derived by this study, further studies should be carried to examine whether these streets are good or bad in terms of their physical attributes or characteristics themselves. It needs to evaluate the physical characteristics of these streets thoroughly, since this study seeks to examine the quality of streets just through a more functional approach where the quality of streetscape would be evaluated as responsive to the occurrence of street activities.

A more comprehensive and reliable recommendations would be derived after coinciding the results of both these studies which would have examined a common scenario with two different approaches by evaluating the quality of street environment, through:

1. Examining the occurrence of different outdoor activities which is mostly a functional approach and

2. Evaluating the physical characteristics or the attributes of streets which is mostly a physical approach

With time limitation only one town has been selected for this study. However, this needs to be expanded into few more urban areas in different urban contexts with variety of social and physical characteristics to derive more comprehensive and rational output at the end.

In a broad perspective; the quality of streets in Sri Lankan context are needed to be examined and studied in different urban contexts using both said functional and physical approaches to derive a more consolidated insights, which would ultimately direct to set-up a series of streetscape design guidelines to replace the currently practice of 'carriageway designing'. In that sense, this study would be an initiation for such a broad study.

2. LITERATURE REVIEW

2.1 Re-thinking about Streets

The continuing efforts by various Urban Planners, Designers and Architects to revitalize cities by creating more dynamic urban spaces to attract people where they can work, live, enjoy and relax are remarkable milestones in Post- modern Urbanism. In Ralph's words (1987) Post-modern Urbanism as a reaction to the modern urbanism have ushered in 'a quiet revolution in how cities are made and maintained' with the result that 'repressive architecture and planning by great corporate or government bureaucracies is being replaced by more sensitive and varied alternatives'. Such concerted efforts to create high quality public spaces have also produced some welcome results. In many instances, the "return to the street" from the shopping mall has been successful in bringing vitality back to street life. (Ellin 1996, cited Larice and Macdonald 2013, p. 337)

The efforts by Allan B.Jacobs and his team on pursuing behind great streets to discover the secrets of their greatness have opened a new direction to re-think on our streets and street designs.

2.2 Importance of Streets in City Life

Alan B. Jacobs (1995) states that "If a city's streets look interesting, the city looks interesting, if they look dull the city looks dull". Saying that, Jacobs (1995) explains the role of streets in urban life under several topics as follows:

1. Communication remains a major purpose of streets, along with unfettered public access to property. In that sense, streets are more than public utilities, more than equivalent of water lines and sewers and electric cables, which are almost designed to carry something from here to there.

2. Streets allow people to be outside in a very elementary way. Barring private gardens, which many urban people do not have or want, or immediate access to countryside or parks, streets are what constitute the outside for many urbanities; places to be when they are not indoors.

3. Being on the street and seeing people, it is possible to meet them, once you know or new ones. Street is a place to be seen. Thus, sociability is a large part of why cities exist and streets are a major if not the only public place for that society to be developed.

4. Some streets are for exchange of services or goods; places to do business. They are public showcases, meant to exhibit what a society has to offer and to entice. The entrepreneur offers the goods, displays them, comes out onto the street as much as will be allowed, with wares to be seen.

5. Public Street is a special political space, most difficult to control, as important in the playing –out of people's most cherished ideas as the Piazza or Public Square.

Jacobs (1961) in her book, 'The Death and Life of Great American Cities', discusses about the usefulness of Sidewalk contacts- casual contacts which supports to bring the life on to streets as binding forces of community integration and sense of belongings. Regarding the importance of sidewalks, she emphasized some ideas as;

1. Streets bring together people who do not know each other in an intimate, private social fashion and in most cases do not care to know each other in that fashion.

2. Sidewalks keep cities and its users safe since that eyes are on the streets, the possibility to occur anti social activities become less. Jane Jacobs explains this phenomenon by using her famous terminology 'Brains Behind the eyes.' The trust of a city street is formed over time, from many little 'public sidewalk' contacts. It grows out of people stopping by at a shop frontage to share some words - admiring on their children while eyeing on others, or else criticizing on current politics.

3. The formal public organizations in cities require informal public life because, to strengthen the sense of collectivity between the members of a particular organization, it needs those members to be in intimate contacts which may be usually informal in nature.

4. A good city street neighbourhood achieves a marvel of balance between its people's determination to have essential privacy and their simultaneous wishes for differing degrees of contact, enjoyment or help from the people around. Jane Jacobs explains this phenomenon with an example of those storekeepers who leaves their keys for their friends for the sake of safe. Thus, this kind of service cannot be formalized in anyway except by such social intimacy leads to an enduring trust.

5. Sharing information

Ultimately all these aspects support to build 'togetherness' which is something like a 'Magic of streets' as known by Alan B. Jacobs.

"Think of a city and what comes to mind? It's streets." (Jacobs 1961, cited Malone K, 2002)

Streets, As Jane Jacobs reminds us, have always held a particular fascination for those interested in the contested domain of cities. Streets are the terrain of social encounters and political protest, sites of domination and resistance, places of pleasure and anxiety. (Fyfe N, 1998 cited Malone K, 2002)

2.3 A Definition for Street and Street Design

A definition of a street includes more than just the street surface itself. Not only does it include the carriageway (lanes dedicated to moving traffic) and special purpose lanes on the street surface (for parking and / or bicycling), the definition also includes medians, tree planting strips immediately adjacent to the street surface, the sidewalk and objects on the sidewalk, and all spaces up to the private property lot line (Frank L.D et. al 2003, cited Larice and Macdonald 2013 p. 429-430)

According to the definition denoted in Wikipidia, "The word "street" is still sometimes used colloquially as a synonym for "road", for example in connection with the ancient Watling Street, but city residents and urban planners draw a crucial modern distinction: a road's main function is transportation, while streets facilitate public interaction."

But, mostly Transport and Highway Engineers seems to be just rely on defining streets based on vehicular movement rather than on its physical qualities or in point of

passenger convenience. In further explanations by Frank L.D (2003), he also emphasized this matter depicting that American Traffic Engineers as well as many transportation planners define the purpose of streets on functional terms as moving the city's automobile traffic, measured by the number of vehicles that can be moved along the street over an hour or day. Thus, streets with the heaviest traffic are called arteries, while those that are slightly smaller but still carry a significant amount of traffic are called feeder streets. According to Frank, these observations reveals that most of current practices in street or most commonly highway designing is given more concern or space allocation for carriageway while very little space is devoted to medians, sidewalks and other elements.

According to Oxford Learner's Dictionary, 'the streetscape' is referred to a picture or view of a particular street or area of street.

The term, "street design" refers to the layout and design of individual streets and street segments. The influence of street design is independent of the basic structure of the street network that is whether the street network is highly concerned or not. (Frank L.D et. al 2003, cited Larice and Macdonald 2013 p. 429)

More elaborately, Frank conveys that, the street design influences physical activity, (which is the special type of activity concerned by him) by shaping one's desires to engage in such activities like walking, jogging and cycling. Hence, desirability is defined by him in two ways as;

    (a) How the street's basic design influences one's perception of safety

    (b) How it influences one's perception of physical and social attractiveness of the street, and areas adjacent to the street.

Thus, street design cannot be merely confined to street surface, which stretches even outskirts of street edges to reach adjacent land uses.

Explaining the criteria for designing Great Streets, Jacobs (1995) emphasizes that, street should help to make community. In that sense, he explains about possible activities which need to be facilitated with designing endeavors. According to him, "A great street should be a most desirable place to be, spend time, to live, to play, to work at the same time what it markedly contributes to what a city should be". As well as the

best streets encourage participation by pausing them for a talk, sit and watch as passive participants in a huge arena.

It is not surprising that, given their multiple roles in urban life, streets are require and use vast amounts of lands. If we can develop and design streets so that they are wonderful, fulfilling places to be, community building places attractive public places for all people of cities and neighbourhoods, then we will have successfully design about one-third of the city directly and will have had immense impact on the rest. (Jacobs, 1995)

The people of cities understand the symbolic, ceremonial, social, and political roles of streets not just those of movement and access. Regularly, if they are aware of what is being planned, they protest widening as well as new streets, particularly if those improvements will mean dislocation of people or more traffic in their neighbourhoods. (Jacobs, 1995) Thus, streetscape designing for current day cities, becomes very much critical and responsible where it urges to have thorough understanding on streets activities and the variation of occurring these activities under different physical conditions.

2.4 Outdoor Activities and Users

At the very early discussions on outdoor activities, the recreational activities were the prominent type of activities that the consideration was given since because it has been identified as a retreat to the polluted and crowded urban environments emerged with blooming industrialization. American Parks movement was one of repercussions emerged on this kind of background where the major enthusiasm was to create New York City Park under this revival.

The competition to design New York city's central park was won by Frederick Law Olmstead (1822-1903) with his partner Calvert Vaux, deemed to carry out a thorough study on recently built planned suburbs, large parks, country sides, road ways and paths in Europe.

There he identified that aesthetic leisure is an apt description of two types of recreation: exertive and receptive. Exertive recreational activities required physical and mental exertion, such as sports, games or chess. Receptive recreational activities were those people engaged in without conscious effort such as music or art. The letter

was the only type of recreation Olmstead deemed appropriate for large city parks. (Larice and Macdonald, 2013 p. 37) proceeding to the consideration of receptive recreations, it has been further subdivided in to two subdivisions under two heads, according to the degree in which the average enjoyment is greater when a large congregation assembles for a purpose of receptive recreation or when the number coming together is small, and the circumstances are favourable to the exercise of personal friendliness. (Olmstead M.L, 1870 cited Larice .M and Macdonald .E, 2013 p. 41-42) The first category is termed as 'gregarious' while second as 'neighbourly.'

The idea that cities are social entities that must be responsive to local concerns and daily life has been central to user – based urban design theory since the 1960s. (Larice .M and Macdonald .E, 2013 p. 344).

Crawford, M. (2008) introducing the concept of 'Everyday urbanism' talks about a new position in understanding and approaching the cities. At a common-ordinary - sense level, every day describes the lived experience shared by urban residents, the banal and routes we know all too well – commuting, working, relaxing, moving through city streets and sidewalks, shopping, buying and eating food, running errands. Even in this descriptive incarnation, the everyday city has rarely been the focus of attention for architects or urban designers, despite the fact that an amazing number of social, spatial and aesthetic meanings can be found in the repeated activities and conditions that constitute our daily, weekly, and yearly routines. The utterly ordinary reveals a fabric of space and time defined by a complex realm of social practices – a conjuncture of accidents, desire and habit. (Crawford .M, 2008 cited Larice .M and Macdonald .E, 2013 p.345-346) Street, being a dominant locale in this everyday life of cities, by integrating number of identifiable realms such as home, workplace, and institution is necessarily required to be understood with embedded social practices and activities varied with time and space. Crawford, further discussed these every day routines in cities, specially pertain to streets, emphasizing on some of street activities such as garage sale and street vendors. These activities were not much considered in urban designing and planning. In some instances these activities are neglected or trashed away with the label of 'street hawkers'.

Rastegar N. et al, (2014) identifies a set of activities as social uses of a selected street in Johor Bahru city. Almost all of these activities could be even found on streets in Sri

Lankan context, as observed by this author in preliminary observations carried out under this research study.

Figure 2.1 The social uses of public space – Field survey(2011)

Social uses of Wong Ah Fook Street	
Activity	Dominancy
Waiting	More dominant
Eating	More dominant
Selling	More dominant
Strolling / window shopping	Dominant
Resting	Dominant
People watching	Less dominant
Telephones	Less dominant
Newspaper	Less dominant

Source: (Rastegar N. *et al*, 2014)

Vendors

All over the city, informal vendors appropriate marginal and overlooked sites chosen for their accessibility to passing motorists and pedestrians: street corners, sidewalks, and parking lots and vacant lots that are often surrounded by chain-linked fences. Through the types of goods they sell, vendors bring to these urban spaces the quality of domestic life. Used dresses from innumerable closets form a mural of female identity. The delicate patterns of lace, flowers and pillow the softness of T-shirts and stuffed animals – all invoke the intimacy of the interior rather than no man's – land of the street. (Crawford 2008, cited Larice, M. and Macdonald, E. 2013 p.355p.355)

Children

It is also interesting to see children on streets where they play in streets because they lack playground space. But many children play in streets because they like to. The street itself is a play area for them. Adjoining stoops and fire escapes provided prime viewing across the street and are highly functional for mothers and older people. (Whyte W.H 1980, cited Larice .M and Macdonald .E 2013 p.199)

Conviviality

Banerjee T. (2001, cited Carmina M. and Tiesdell S. 2007 p.157-159) emphasizes the importance of conviviality of cities further adding to the ideas conveyed by Peattie .L (1998) and Illich (1973). As criticized by Lisa Peattie, "planners usually seem to be obsessed with creating or restoring a sense of community, they have given very little

attention to conviviality as a planning goal. It is more than just feasting fun, drinking and good company." According to the definition given by Illich (1973) conviviality is autonomous and creative inter-course among persons and the inter-course of persons with their environment. Peattie (1998) recognizes social pleasure as one of purposeful activities in which people are desirably involved with. "And these may include not just singing in pubs, street dancing or tailgate parties, but also small group ritual and bonding in serious of collective action from barn raising and neigbourhood cleanups to civil disobedience that blocks the street or invades the missile site."

Thus, most of streets in Sri Lankan context are used for various gregarious activities (Olmstead, 1870) such as propagandas organized by various political parties, school children and general community and working people attached to various institutions. As well as it is a common item in most of our streets of having 'perahera' celebration. Accordingly, the terminology "Use" in theory and practice of Urban Design, refers to different things to different people. So, space should be designed with different users in mind. Users range from those who want a place for contemplation to those who want to be actively engaged from children who want something interesting to do, to multicultural users who have a tradition of using public space in different ways from those who want the experience of a parochial space to those want the anonymity of a public space. Spaces should be designed to accommodate all of these different uses. Dougherty L.D. (2006)

Further, Banerjee T. (2001) discussed this phenomenon quoting from (Habermas, 1989) and (Pine and Gilmore, 1999) that "it is believed that effective public life is linked to a viable public realm. This is because the concept of public life is inseparable from the idea of a public sphere and the notion of civil society where the affairs of public are discussed and debated in public places.

2.5 Quality of Streets

A research conducted by Appleyard, D. and Lintell, M. to study the environmental and social impact of transportation system referring to selected few streets in San Francisco reveal that, the light street or the street with less vehicular movement has become a good residential street which performs a critical function in urban lives. Further they emphasized on that 'environment selection' and 'environment adaptation'

as important phenomenon in measuring the response of environmental quality. In which environmental selection refers "to an environment tends to be selected by those groups who find it most amenable, and to be rejected by those who find it least amenable", where as environmental adaptation means that "those who remain in one environment for a length of time will become adapted (or resigned) to it whether or not it is or has been pleasant, especially if they see no future change in sight."

2.6 The Relationship between Human Activities and Environment Quality

Human activities are specific behavioural manifestations of man's response to the environment and hence are affected by cultural, social, economic and climatic factors (Shamsuddin, 2011, cited Ghahramanpouri A. *et al*, 2012)

Thus, Activities require a physical setting to take place and the choice of this setting depends on the ability of the environment to support such activities (Shamsuddin, 2011 cited Ghahramanpouri A. *et al*, 2012)

As the very first of identifying possible relationships exists between types of human activities as responsive to environment quality, various attempts have been taken by several expertises in categorising such activities under various types based on their characteristics and patterns.

Accordingly, Chapin and Brail (1969), Francis (1991) and Gehl (2002) have classified these human activities under several categories based on their nature.

Figure 2.2 Classification of human activities by Brail, Francis and Gehl

	Chapin and Brail (1969)	Francis (1991)	Simon (2000)	Gehl (2002)
Activity Grouping	Work related	Travel	Movement	Traffic
	Socialising	Shopping	Rest	Commercial
	Home working	Interaction	Encounter	Leisure
	Recreation/relaxation			

Source: (Ghahramanpouri A. et al, 2012)

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Further, Ghahramanpouri A. *et al*, (2012) quotes from Mehta (2006) and stated about another three categories of activities which have been identified by Mehta (2006) on the basis of characteristics and features of them. Those are;

1. Stationary Activities - Standing or lying down in one place in the outdoors for more than 15 seconds.

2. Lingering Activities - those are involving a person starting to move around in the outdoors within a 50 to 60 foot street length for more than 15 seconds.

3. Social activities – those are involving two or more persons engaged in stationary sustained or lingering activities and interacting with each other either actively or passively. (Mehta 2006, cited Ghahramanpouri A. *et al*, 2012)

Gehl J, (1987) explains about three types of activities and attempts to proportionately delineate the relationship exists between these three types of outdoor activities and the quality of physical environment. According to his classification, outdoor activities in public spaces can be divided into three categories, each of which places very different demands on the physical environment: necessary activities, optional activities, and social activities. (Gehl 1987, cited Larice and Macdonald, 2007) As further explained by him;

1. *Necessary activities* include those that are more or less compulsory – going to school or to work, shopping, waiting for a bus or a person, running errands, distributing mail – in other words, all activities in which those involved are to a greater or lesser degree required to participate. (Gehl 1987, cited Larice and Macdonald, 2007)

    In general, everyday tasks and pastimes belong to this group. Among other activities, this group includes the great majority of those related to walking.

    Because the activities in this group are necessary, their incidence is influenced only slightly by the physical framework. These activities will take place throughout the year, under nearly all conditions, and are more or less independent of the exterior environment. The participants have no choice.

When outdoor areas are of poor quality, only strictly necessary activities occur. (Gehl 1987, cited Larice and Macdonald, 2007)

2. *Optional activities* – that is, those pursuits that are participated in if there is a wish to do so and if time and place make it possible – are quite another matter. This category includes such activities as taking a walk to get a breath of fresh air, standing around enjoying life, or sitting and sunbathing. These activities take place only when exterior conditions are optimal, when weather and place invite them. This relationship is particularly important in connection with physical planning because most of the recreational activities that are especially pleasant to pursue outdoors are found precisely in this category of activities. These activities are especially dependent on exterior physical conditions. (Gehl 1987, cited Larice and Macdonald, 2007)

3. *Social activities* are all activities that depend on the presence of others in public spaces. Social activities include children at play, greetings and conversations, communal activities of various kinds, and finally – as the most widespread social activity – passive contacts, that is, simply seeing and hearing other people. Different kinds of social activities occur in many places: in dwellings; in private outdoor spaces, gardens, and balconies; in public buildings; at places of work; and so on. These activities could also be termed "resultant" activities, because in nearly all instances they evolve from activities linked to the other two activity categories. They develop in connection with the other activities because people are in the same space, meet, pass by one another, or are merely within view. (Gehl 1987, cited Larice and Macdonald, 2007)

Social activities occur spontaneously, as a direct consequence of people moving about and being in the same spaces. This implies that social activities are indirectly supported whenever necessary and optional activities are given better conditions in public spaces.

When the quality of outdoor areas is good, optional activities occur with increasing frequency. Furthermore, as levels of optional activity rise, the number of social activities usually increases substantially. (Gehl 1987, cited Larice and Macdonald, 2007)

Further, as emphasized by Gehl (1987) in his book "Life between buildings", the necessary or the functional, recreational and social activities intertwine in all conceivable combinations. Therefore, the examination of the subject of outdoor activities does not begin with a single, limited category of activities. With this understanding, a study which focuses on outdoor activities should explore the entire spectrum of activities which combine to make communal spaces in cities and residential areas meaningful and attractive.

Figure 2.3 Graphical representation of the relationship between the quality of outdoor spaces & the rate of occurrence of outdoor activities

	Quality of the physical environment	
	Poor	Good
Necessary activities	●	●
Optional activities	·	⬤
'Resultant' activities (Social activities)	●	●
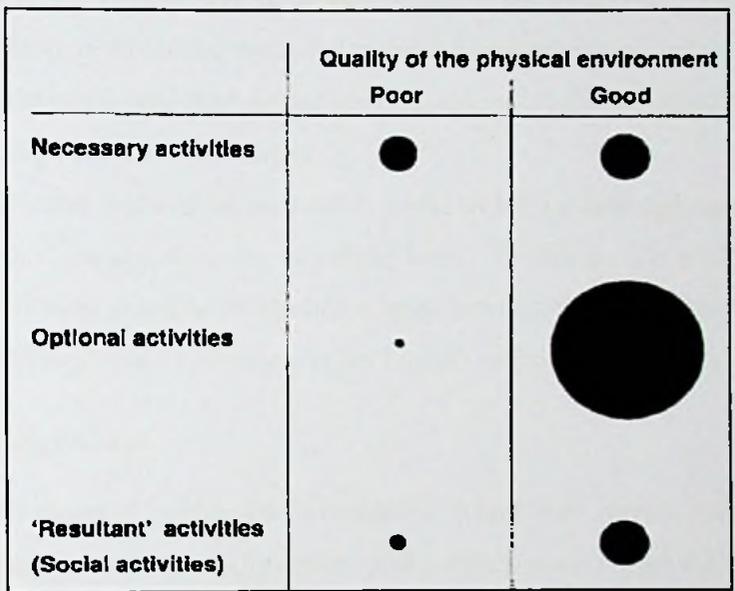
Source; Gehl 1987, cited Larice and Macdonald, 2007. P.365

As expressed in above, Jan Gehl has exposed something more than just categorizing outdoor activities. His attempt to proportionately represent the relationship exists between the occurrence of outdoor activities and quality of physical environment has been a significant contribution to the field of urban design. This Graphical Explanation presented by him has been considered as the theoretical basis for study. Accordingly, through this research study it is supposed to examine the quality of Street spaces giving a special reference to Ambalangoda town, where the type of

activities occurring in those spaces has been considered as a determination to value the quality of such spaces.

2.7 Current Practices of Road Designing in Sri Lanka

Currently, there is no proper standardized or legitimate road design guideline manual to be followed by the responsible agencies or parties involved in road development sector in Sri Lanka. Except several provisions in National Thoroughfare act, there is no such a separate set of guidelines being formulated yet.

Since because of unavailability of such guidelines, it is used to adapt the guidelines formulated in ASTROROADS publication No. AGRD 06A/09 which was prepared by ARRB Group and published by Austroads incorporated, Australia. On this back ground, it has become an utmost necessity to formulate road design guideline manual to deviate from conventional road development practices which are mostly concerned on just facilitating vehicular movement.

For such an initiation, it would be very much useful to have a thorough understanding on our streets and human activities occurring there. Therefore, this study has been focused on examining possible relationships exist between the occurrence of human activities and physical quality of streets in Sri Lankan urban context.

2.8 Knowledge Gaps

At the very first stages of public spaces designing, it had been merely concerned just providing greenery spaces specially urban parks which were called by the popular terminology 'Green Lungs' in urban environments. This is because, that the main concern behind this movement was to get rid of rush and polluted environment which had been created due to industrialization, urbanization and motorization in sequence.

Later on, especially with the ideas aroused during post-modernism era, several scholars had critically argued on prevailed practices in urban planning. Most of their argument was to make our cities more livable by attracting people towards them rather than vehicles. As it is emphasized by Jacobs (1995) one third of our cities are generally covered with road spaces. Therefore, wherever it is talking about City planning or Urban designing it should be given with the highest attention towards these spaces which are having greater potentials for attracting people towards cities

and making them vivid through careful designing endeavours. In that sense, this research study is to identify and understand our streets and human activities occurring there, in which the ultimate objective is to examine the possible relationships exists between occurrence of human activities and physical quality of the street spaces.

As a theoretical basis for this study, it has been taken Gehl's "Graphical representation of the relationship between the quality of outdoor spaces & the rate of occurrence of outdoor activities" in which he has clearly delineated about the possible relationships exist between these two variables proportionately.

Since, that it has been an utmost necessity to introduce a set of Standard Street designing guidelines to Sri Lankan road development sector, in order to convert our roads to streets where the people are also facilitated and encouraged to use the existing road spaces more amenably, this study would contribute to such an endeavour by providing some insights.

3. RESEARCH DESIGN

3.1 Introduction

This research study intends to study the occurrence of street activities as responsive to the physical quality of street spaces. As a theoretical basis for studying the outdoor activities, it has been taken that Gehl's "Graphical representation of the relationship between the quality of outdoor spaces and the rate of occurrence of outdoor activities" in which he has clearly delineated about three types of outdoor activities and their proportionate relationships with the quality of outdoor spaces.   Based on his theoretical inputs, it could be derived that the magnitude of occurrence of various types of human activities in a particular space as a determinant of evaluating the physical quality of outdoor spaces. Comparatively, based on the predominant type of activities occurring in such a space, the quality of physical environment is determined. According to his examinations, those optional and social activities are mostly occurring in spaces with good physical environment quality, where as the necessary activities occur irrespectively not revealing such a strong affinity with quality of physical environment.

3.2 Research Question

The research question of this study is that what kinds of activities are occurring on a selected street in different time periods of a day, and what are the prospects of built environment which may attract or support those activities.

3.3 Method

William H. Whyte began pondering the design effectiveness of city's outdoor spaces to update of New York City's comprehensive plan in the late 1960s. Whyte's Street life project was concerned on effectiveness and use of these outdoor spaces, where several techniques were used to present their findings such as direct observations, mapping physical activities, time lapse photography, filming, behavior mapping, questionnaires, interviews and pedestrian path tracing. (Larice .M and Macdonald .E 2013, p.198)

Accordingly, gathered data and information from preliminary observations, video records (which have been taken at different time periods of the day) and interviews are used to formulate activity maps as the method of representing survey findings for this study.

Afterwards, the highlighted places where outdoor activities occur in high frequency have been observed in detailed. For that, sections, elevations and perspective views of those spaces have been drafted to identify special features in the built environment which support or attract outdoor activities towards them.

3.4 Study Area

Jacob (1961) emphasized in her book 'Death and Life of Great American Cities' that functional physical diversity among adjacent land uses is one of key determinants in making a space more livable. Mixture of uses of buildings directly produces mixture of users who enter and leave a particular space at different times. Diverse surroundings have the practical power of including a natural, continuing flow of life and use. (Jacob, 1961, p.111)

On this basis, in selecting a study area for this research the surrounding land uses and mixture of uses of buildings have been considered predominantly. Accordingly, the main street in Ambalangoda (Old Colombo-Galle road) has been selected for this study. Comparatively, this street is not almost being dedicated to vehicular movements and the adjacent lands plots are densely built up with mixed uses buildings accommodating for commercial and residential purposes. As well as, several alleys spread out ward from this street connect with interior residential areas to form a substantial intricacy and power to confer the boom of life upon it. Further, this street provides direct access to the nearby railway station, public fair and few of government institutions and fishery harbour. The most functional segment of the road has been considered here, which spreads between Wickramasooriya Mawatha and the Rest House access road.

Map 3.1
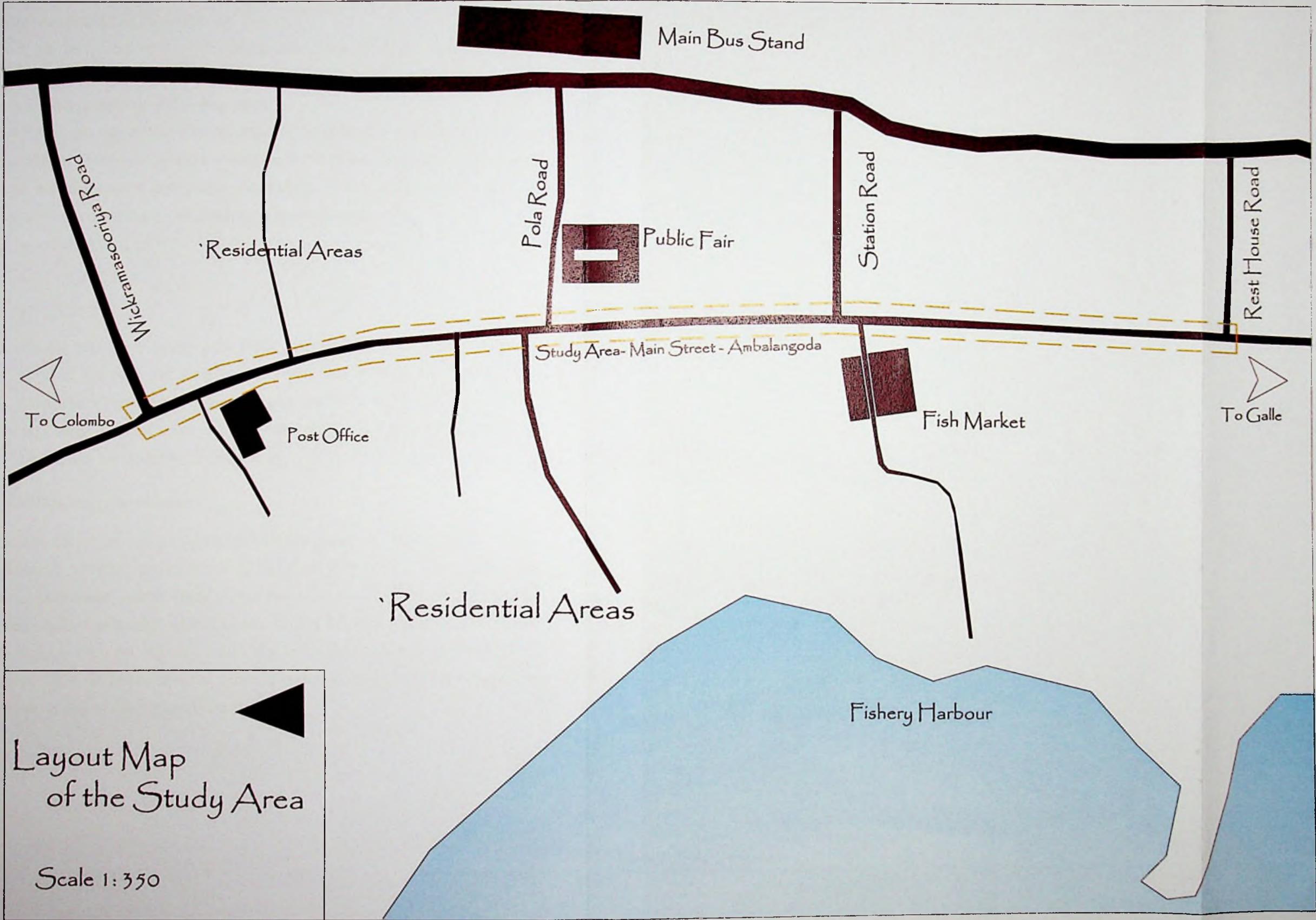
Main Bus Stand

Wickramasooriya Road

Pola Road

Station Road

Rest House Road

`Residential Areas

Public Fair

Study Area- Main Street - Ambalangoda

To Colombo

To Galle

Post Office

Fish Market

`Residential Areas

Fishery Harbour

Layout Map
of the Study Area

Scale 1: 350

3.5 Time

Following conditions have been considered in determining a time to study the outdoor activities occurring in the selected street.

1. It has been considered a time period when there would not be much drastic change in the activity pattern of the considered urban environment.

    e.g . School opening and closing hours

In such a case, the type of activities occurring in the space may be drastically change such as waiting for buses, running for train..etc. Most of these activities are necessary activities and therefore it will distort the findings of this study. Accordingly, the outdoor activities occurring on the street have been recorded during;

- 9.30-10.00 A.M

- 2.00-2.30 P.M

- 5.30-6.00 P.M

2. For the purpose of covering the entire spectrum of activities which could be occur in this particular street, within a day, three different time periods have been selected covering morning, afternoon and late evening of the day. As well as, a week day is selected to conduct this study, since some of the shops and institutions are closed for the weekends.

3.6 Delineating street space

The concerned street space, where within that particular street space, all the outdoor/street activities occurring would be counted in to this study except the vehicular movement. Accordingly, the paved street space including carriageway, shoulders, adjoin pedestrian walkways and 12 feet building façade area extending outwards from the street edge is considered if such façade area is directly open in to the street. Here the direct 'open in' referred to both physical and visual accessible from street to those building façade areas.
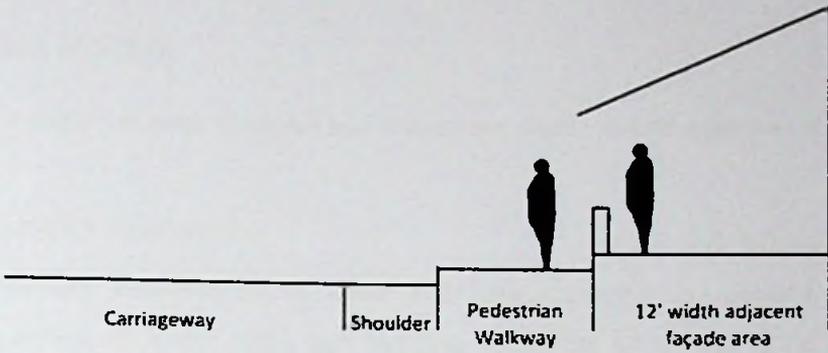
Source: Author's illustration

According to the Diagram of Edward T. Hall's personal reaction bubbles (1966), shows that the space with 12 feet radius of a person is considered as the social space. Therefore, in delineating street space which to be considered in this study work has concerned 12 feet width adjacent building façade area, where both physically and visually accessibility is ensured between street and the façade area.

Figure 3.1: Diagram of Edward T. Hall's personal reaction bubbles (1966)

Source: http://en.wikipedia.org/wiki/Proxemics
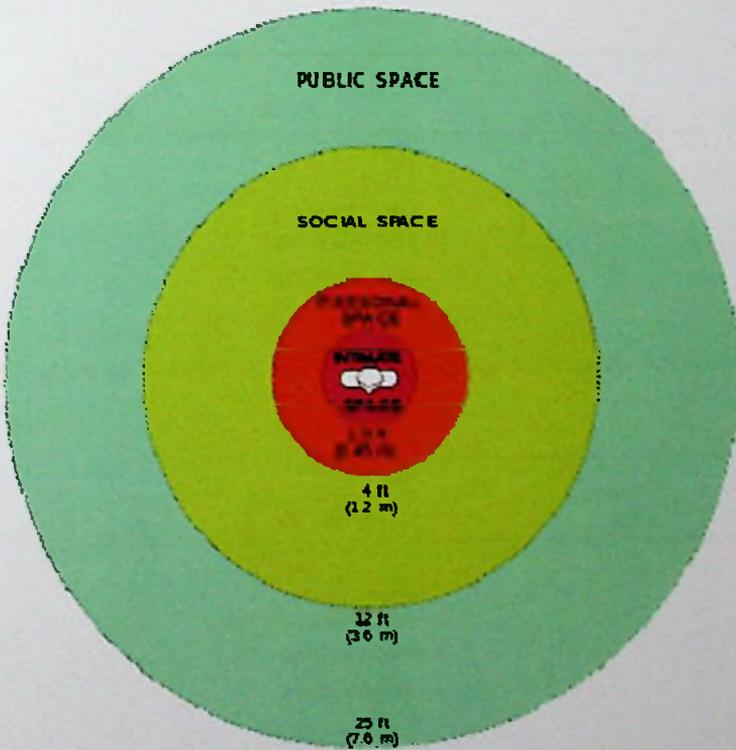
3.7 Method of Study

The research study has been designed and carried out under several stages as stated in below.

1. Preliminary observations

   Preliminary observations of street activities occurring in selected street, preparation of layout maps and building footprints have been done before studying the outdoor activities in detail.

2. Detail study

   Get video records encompassing delineated street space for the pre-determined three time periods, and conducting interviews with people inquiring frequency and purpose of visiting to this area.

3. Representing findings

   Mapping of all those activities (the vehicular movements on road space will be ignored) according to Gehl's classification (necessary, optional and social activities)
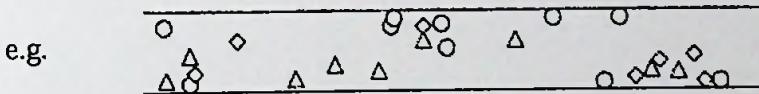
   e.g.

   △ Necessary activities
   ○ Optional activities
   ◇ Social activities

   Source: Author's illustration

4. Identification of clusters or the spaces which are densely occupied with street activities
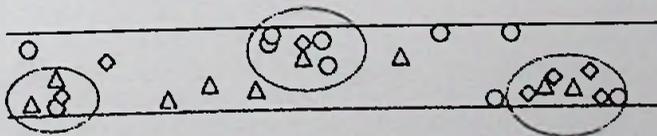
   △ Necessary activities
   ○ Optional activities
   ◇ Social activities

   Source: Author's illustration

24

5. Conduct detail studies to identify special features in the built environment where activities have been occurred densely and specially optional and social activities are present. Here, sections, elevations and perspective drawings will be used to analyze the built environment in detail.

6. Identification of possible relationships exist between the quality of built environment and rate of occurring street activities within the selected study area in particular time periods.

Ultimately, this analysis will support and fertile the existing knowledge base and the understanding of the street activities particularly in Sri Lankan urban context, which should be facilitated and harnessed through innovative street design endeavours. Further, the detail studies of built environment will provide some insights to relevant professionals to create responsive, quality physical environments which are admired by street users.

4. ANALYSIS

4.1 Introduction

This chapter intends to analyze the types of outdoor activities and their patterns of occurring on the selected street during particular time periods. Ultimately, based on the magnitude of accruing optional and social activities particularly, the highlighted places have been sketched out in detail to identify possible and evidential relationships associated with the built environment and occurrence of activities. By this endeavour, it is also attempted to identify some of key features in the built environment which attract activities towards those spaces and thereby form a quality environment which may considered in street design endeavours by later on.

All these activities have identified under three types of categories introduced by Jan Gehl as depicted in the chapter 2.

Activity Mapping has been used as a tool to display the types of activities occurred in this particular space. Whereas, the sketches have been used to analyze the respective special features in the built environment. Comparing both of these graphical analyses, at the end of this chapter, it has been listed several evidential relationships exist between the occurrence of activities and noticeable features of built environment. In that sense, those features could be identified as some of attributes of a good quality physical environment or a responsive environment which are sensible to the outdoor activities occurring on streets in Sri Lankan urban context.

4.2 Analysis

The analysis of this study is consisted with:

- An Activity map depicting the magnitude of occurring outdoor activities along the selected street segment during three time periods of a day. (Activities have been represented under three categories as necessary, optional and social)

- The research findings have been summarized and analyzed using a comparative matrix. This matrix enable to compare and highlight the special features of the built environment as presented by series of sketches drafted

forselected locations where either optional and social activities seem to be occur with comparatively high frequency or noticable dense areas.

- A list of noticeable and evidential key features or the preferable attributes of the built environment have been provided which may attract people towards those spaces.

MAP 4.1

3.5

3.1

3.2

3.3 3.4

5.30-6.00PM

2-1 2.2 2.3 2.4

2.00-2.30PM

BUS STAND

1.3

RAILWAY STATION

1.5

1.2

1.1

1.4 FISHERY HARBOUR

9.30-10.00AM
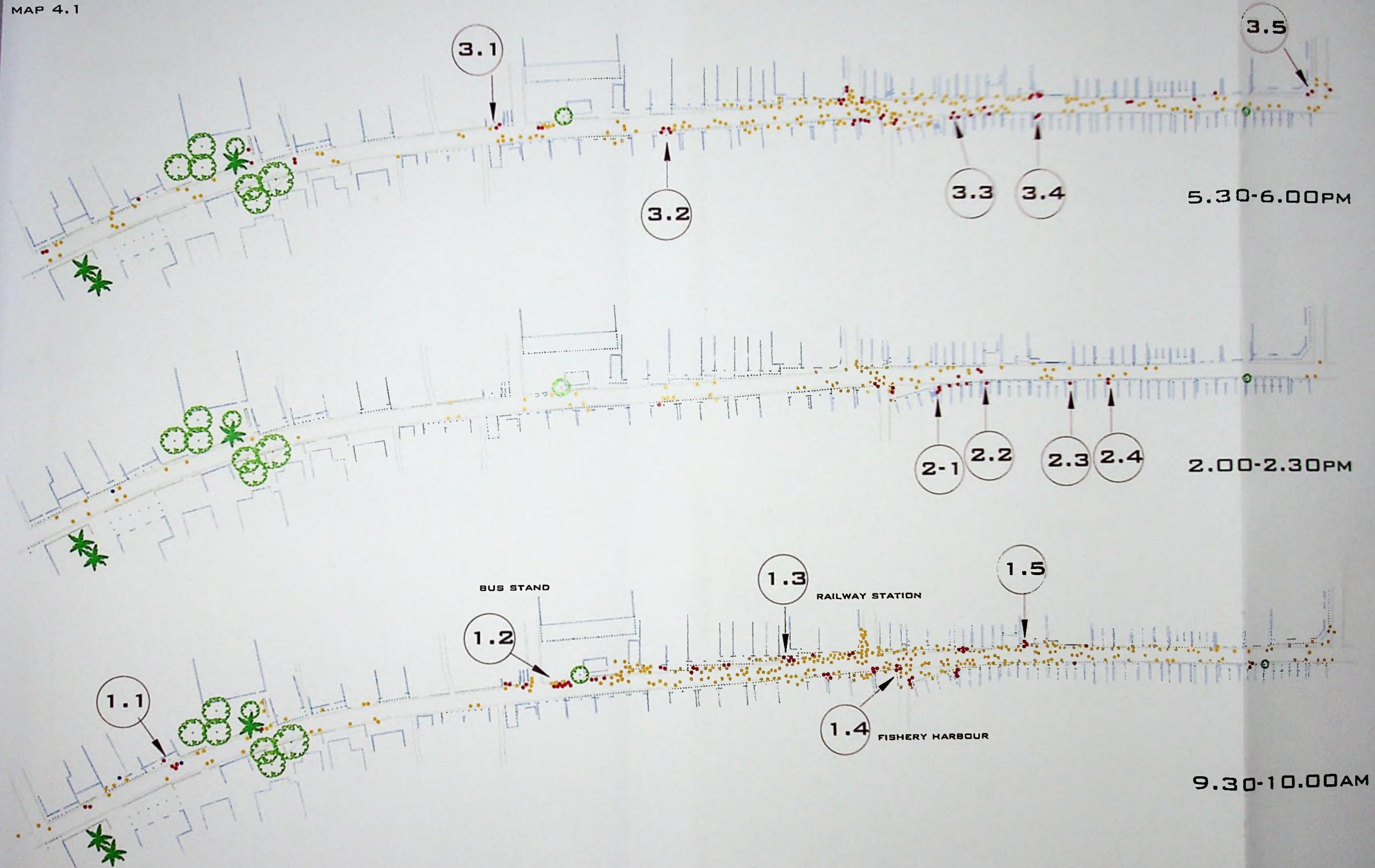
LEGEND

NECESSARY ACTIVITIES

OPTIONAL ACTIVITIES

SOCIAL ACTIVITIES

ACTIVITY PATTERNS ON DIFFERENT TIME PERIODS

MAIN STREET-AMBALANGODA

SCALE 1:1200

Source : Author's illustration

Comparative Matrix

Reference number to the location pointed out in Map 2 *(Activity Patterns on different time periods – Main street – Ambalangoda)*	Illustration by author	Noticeable Features/attributes
Morning (9-30-10.00AM)		
1.1		The **typical eaves** overhanging are being used by a passive participant. The **front mean wall** deviate the busy street from his personal space. The drop back space provides a convenient space for a person to read newspaper as well as a place to instantly park his cycle.
1.2		The tree provides a **shady environment** for street vendor and also the woman standing near her to have a talk for a while. The lottery cage is a place where customers tend to spent few minutes to search the luck while having a talk with next customer and vendor. And also the **shade** over the cage is safe enough to cover customers from morning sun.
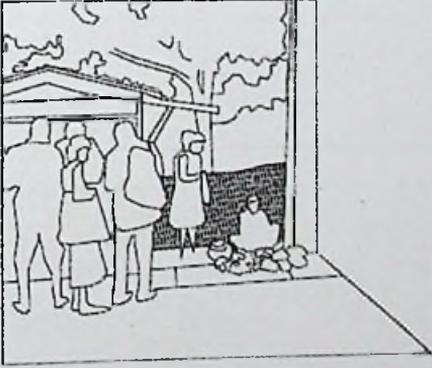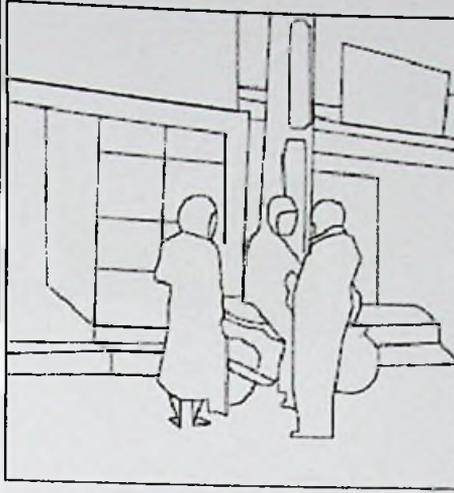
| 1.3		The motor bike itself provides kind of **seating facility** to have a talk with a friend accidentally met while waiting for the woman who went to the nearest shop. Stay right on the road and it does not let them for a long discussion due to the **passing vehicles.**
1.4		The main junction is occupied with vendors selling fish. Their stalls have been put up at **corners of the right on the junction**. The temporary shades over the junction together with the building shadows provide **least convenience** for them to be there. The vendors regularly talk to other vendors while running their businesses.
1.5		While walking on the street, a woman finds another woman/shop owner and stopped there for a talk. It seems they were already known to each other from very earlier and **closed door steps to the street edge** encouraged her to pause for a while.
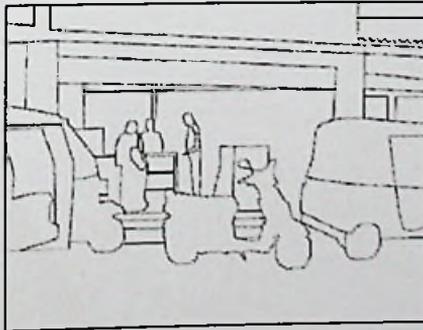
2.1
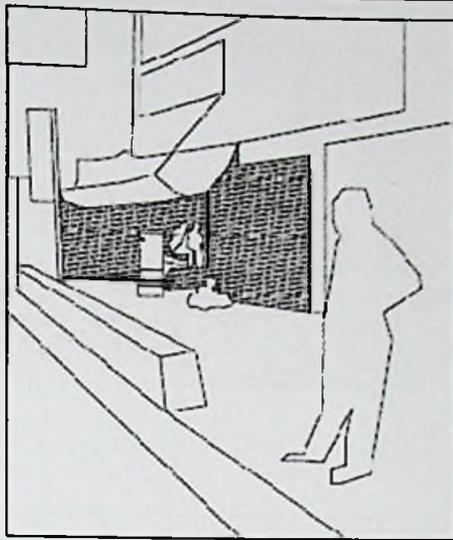
The space between **two buildings** and the temporary **shed** hanging over provides a kind of drop back for passive participants to **sit and watch** the things happening on street.

2.2
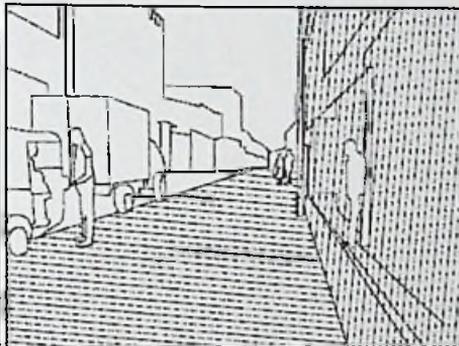
During the afternoon, one side of the street is **shaded** with building shadows. Remarkably, most of the social activities are happing along this edge during this time period of the day. Meanwhile, the drivers tend to be inside the parked vehicles gathered in small groups.

2.3
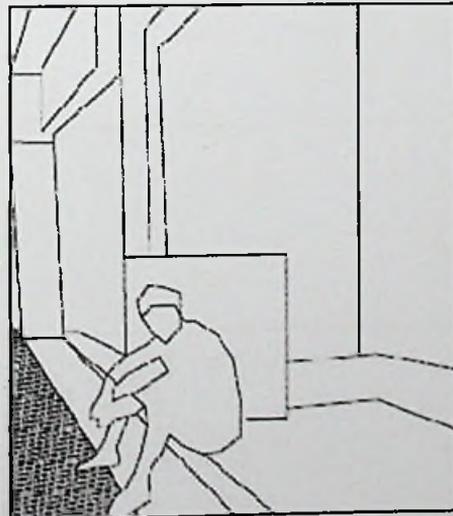
The **front door steps** under the eave provide kind of seating facility for tired passengers during these hot hours.

2.4
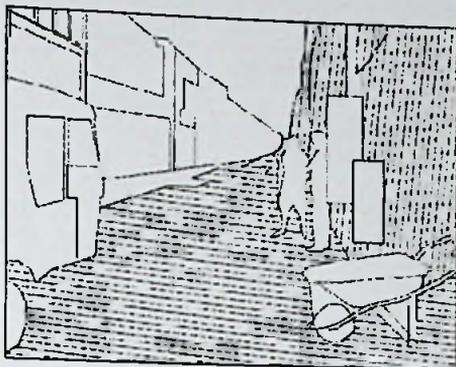
Since there is no more Customers, Shop owners get out from their shops and have a talk with next door person standing along the **shaded edge.**

Evening (5.30-6.00PM)

3.1
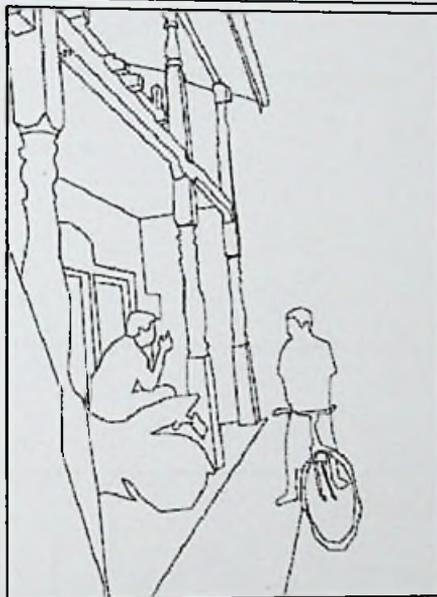
An abandoned old building with a **front veranda** which is usually used by cyclists to park their cycles and wait. This space is normally occupied by males and while seating on their bikes/cycles tend to have a chat with a passer-by.

3.2
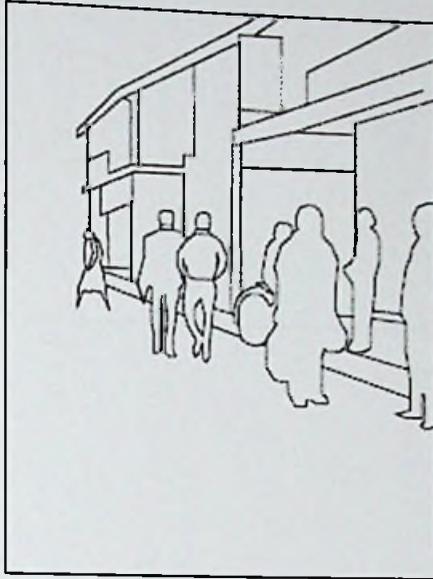
At the evening, people tend to stop right at mid of the street and talk to each other. This is usually happing in places which are located quite away from the main congested junction. And also pedestrians walk all over the street not aligning to a side, since the **vehicular movement is quite lower** than the morning.

3.3
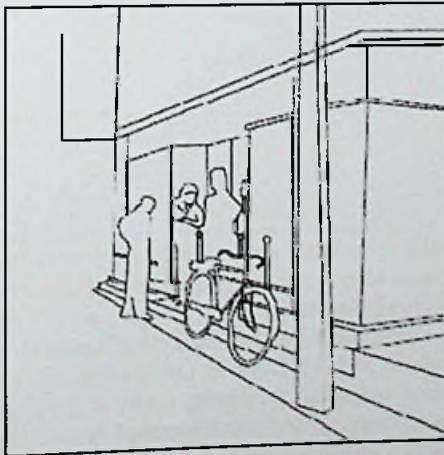
At the evening, people seem to be quite relax and having long discussions with each other. **The shop front with a fence** provides a convenient and secure space to instantly park the cycle and have a talk, bending to the fence.
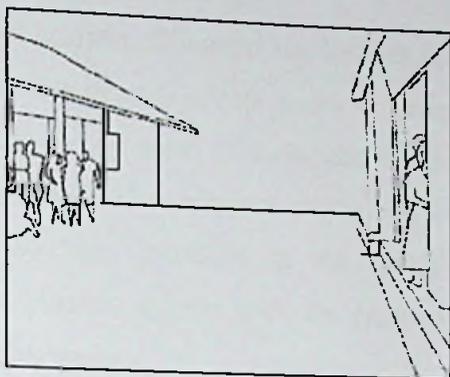
| 3.4 | | The front door steps become convenient spaces for groups of people to talk and enjoy with others. **Width of the street** is also a supporting factor for those people who are in either sides of the street to make a conversation between these two edges. The occurrence of such door to door conversations become possible since, the **vehicular movement is comparatively low** during this time of the day. |
| 3.5 | | **The corners of the junction** are also occupied by certain activities. Being a possible space for integrating movements, people accidentally meet together in such spaces tend to align to the corners of junction to exchange few words. |
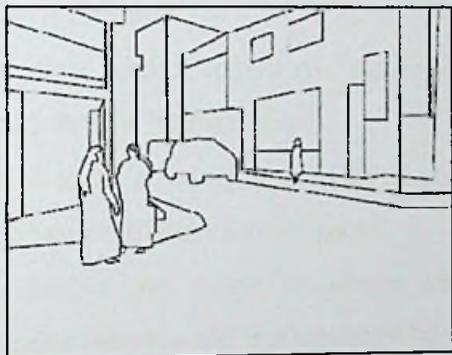
Notes: *As it is observed during this study, most of people who come in to this area for shopping which is basically a necessary activity, spontaneously involve with social activities in most of instances. For an example, a man came with the purpose of buying some fish from a street vendor, likely to extend their discussion from business matter to further beyond, asking about fishing, boats, fish harvest and so on. Therefore, in some instances, it is quite difficult to decide just by a glance, to which category a particular activity belongs. Most of the people who come in to this area for necessary activities at least do not forget to make a smile to the next person. If those small reactions are also counted as social activities, it would have distort the overall results of this study, by exacerbating the correlations exist between the actual quality of physical environment and response of human activities. To avoid these overwhelming interpretations, a conversation which lasted for more than two minutes has been only considered as a social activity.*

4.3 Findings

Through above graphical analysis, following key features or the attributes have been identified which do have a noticeable effects on the occurrence of outdoor activities. Particularly, the frequency of presence of social and optional activities may imply about the quality of the physical environment which may considered. Accordingly, following attributes have been identified as the special features of the build environment which has possible affinity with the presence of social and optional activities as derived by this study.

1. Close distance between the doorsteps and road edges encourage both passer-by and the indoor person to have close association.

    The physical proximity is a vital factor for encouraging activities as observed during this study. The preferable width of the street bring people together, letting to form door to door conversations among shop owner where their shops have been located in either sides of the street.

2. Presence of front verandas and eaves provide shade and safe spaces for both active and passive participants.

3. The presence of street vendors form active places, where people are brought together physically in to an intimate space.

4. The occurrence of social activities is possibly required the presence of high frequency of necessary activities in such spaces.

5. People tend to involve with longer discussion where they are adequately provided with shades and seats and less disturbed by vehicles.

    It is remarkably revealed by this study, that the placing of social activities highly responsive to the time. Particularly, during the afternoon, almost all the social activities seem to be aligned to one side of the street where those areas are shaded by the shadows of buildings.

6. The fences, front door steps and small backdrops provide preferable spaces for street users.

7. Street corners are also vital in terms of providing spaces for outdoor activities especially for people who meet accidentally and waiting people.

5. CONCLUSION AND RECOMMENDATIONS

This research study initiated with the intention of exploring the capability of streets in Sri Lankan urban settings in adorning street activities as being good quality physical environments. The ultimate objective of this study was to study the street activity patterns of a selected urban setting, and identify the possible and evidential features or the physical attributes exiting on that particular space which attract outdoor activities towards it, being a vital part of public realm.

In the literature review, it has been examined several selected empirical studies done on this subject field, to identify the existing knowledge gaps. Particularly, in Sri Lankan context it has not been given adequate consideration to study street activities which is almost been neglected in current practices of road designing. Out of the selected empirical studies, Jan Gehl's explanation of three categories of outdoor activities has been taken as the underlining theoretical basis to conduct this study. The reason to be based this study on Gehl's 'graphical representation of the relationship between the quality of outdoor spaces and the rate of occurrence of outdoor activities is that, it provides sufficient knowledge background to examine the outdoor activities under a board categorization, which clearly elaborates the scale of each of activity type which may differently demand on the quality of physical environment. The research findings have been analyzed using graphical analysis tools and ultimately this study derives some key points which may support in street design endeavours looking forward of creating more responsive physical environments.

This study provisionally concludes that, street activities are noticeably responsive to the quality of physical environment. The detail analyses done on the built environment reveals about some of key features in the physical environment where social activities are particularly attracted to those spaces. Being a tropical country, the presence of shade is a key determinant factor in attracting social activities and length of time involved in those activities.

Meanwhile, the frequencies of occurring activities vary with the time period of the day. Remarkably, in the morning, the rate of occurring activities are comparatively higher than the other time periods of the day, but the length of participating in those social activities particularly during morning hours, is shorter than the time spend on

evening. This is moreover having a positive correlation with the number of vehicles moving on the street. Once the number of vehicles are higher, it obviously disturb to the passengers on the street and in consequence, the time spend on social activities get reduced.

Further, the spatial distributions of street activities differ with the time. Most of the outdoor activities including both necessary activities and social activities have been converged towards the main junction during the morning likely to disperse along the street during the evening.

The presence of street vendors such as lottery sellers always attracts people towards them and allows them to be in an intimate space which encourages them to contact with next person.

Accordingly, this research derives some of important observations and findings which could be considered in street designing endeavours with a more social oriented approach enriched with a set of guidelines to enhance the physical quality of the street environment assuring the convenience and safety of street users.

This study, attempts to identify noticeable features in the built environment which support to outdoor activities. To verify the outputs derived by this study, further studies should be carried out to examine whether these streets are good or bad in terms of their physical attributes or characteristics themselves. It needs to evaluate the physical characteristics of these streets thoroughly. This study is limited to initially identify the special features or the attributes of the built environment as responsive to the presence of outdoor activities itself, which in mostly a kind of functional approach to evaluate the quality of streets. The quality of the streets needed to be evaluated further by taking several numbers of case studies in different socio-economic contexts to derive more comprehensive and consolidated insights to formulate street design guidelines.

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