

Sustainable Tourism in Hikkaduwa; Evaluations of Sustainability Parameters & Design Recommendations

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Abstract: *This research intends to identify the factors that influence tourism industry of Hikkaduwa coastal area and to give an overall architectural guideline to implement resulting in sustainable tourism. At present, rapid and unsustainable development of Hikkaduwa area have caused different kinds of environmental, economic and social issues. Many of those cases have been identified and studied on coastal tourism, sustainable parameters and existing regulations that related to architectural or urban planning to give out solutions. Based on these studies, a case study was done for identifying the special characteristics of Hikkaduwa for modifying and adjusting the parameters that are fitting for Hikkaduwa. While following these parameters, the study has proposed a suitable design guideline for overall Hikkaduwa study area. These proposed parameters and guidelines are supportive to the existing regulations and these architectural solutions have been implementing the criteria for sustainable development automatically. Therefore, the study has been given proper contribution for achieving the sustainable development and creating a sustainable tourism city.*

Keywords: *Sustainable Development, Design Guidelines and Parameters, Coastal Tourism*

1. Introduction

Inheriting a tropical climate and accessing the glamorous beach front and coral reefs, Hikkaduwa is known as one of the most famous tourist destinations of Sri Lanka. Yet, the Urban

Development Authority (2019) states that this tempting destination has now dropped even below Rumassala and Unawatuna when compared. Through observations, one dominant reason for this devolution has been noticed as the development of its built environment being abysmally out of order and control.

Tourism industry has been identified as one of the best foreign income sectors in the world with 83% of the world's largest employment generating industry and the world's fastest growing business (Cossio, 2016). It is a globally accepted sustainable development process. Therefore, the World Tourism Council's report (1993) states that protection of the environment is a moral responsibility of the tourism industry.

Yet at present any parameters of sustainable tourism industry adopted by foreign nations to overcome the impact of collapsing tourism cannot be embraced as it is to Hikkaduwa city whose context is much disparate to the contexts of other regions. Hence, it is evident that a fresh set of parameters have to be developed within the context of Hikkaduwa, which will subsequently lead to sustainable tourism industry growth in the area. Thus, the major motivation of this study is to evaluate the collapse in the tourism industry of Hikkaduwa city and eventually to introduce appropriate guidelines and convenient recommendations in order to flourish a sustainable tourism industry within the Hikkaduwa coral city.

A. Problem identified

Due to the rapid development with tourism, Hikkaduwa has grown without any development plans causing degradation of coral reefs, disruption of coastal water high-quality, rush congestion and excessive exploitation of ecological benefits (Hoon, 1997).

Therefore, the lengthy-time period survival and excellent of such assets is threatened through declining tourism in Hikkaduwa area. Furthermore, buildings have been constructed with insufficient street allocation (Ministry of Sustainable Development, 2018) and it has been noted that unplanned boom of Hikkaduwa has caused unsuitable coordination and discipline where foreign travellers are affected with infected seashores, traffic noise and many more severe issues in the region. Thus, at present Hikkaduwa suffers from over improvement and useful resource degradation. The problem identified was even though a number of activities have been prescribed to triumph over these challenges, only much little has been performed. Because of these issues and cases this research will fill in the gap by finding the solutions/methods with appropriate parameters.

B. Need of study

Tourists who come to Sri Lanka mainly attracts to the coastal region and experience sea foods, beach huts, beach parties, scuba diving, snorkelling, sun bathing and relaxation. For tourist satisfactions, 5 crucial parameters have been identified as beach type, safety, facilities, water quality, litter and scenery.

Therefore, this research tries to emphasize the need of sustainable tourism development to Hikkaduwa under major sections of social, ecological and economic significance. Hence ultimately this will aid with introducing appropriate design guidelines and recommendations that will assist urban planning and future development of the city.

C. Research aim & objectives

The aim of this research is to evaluate and identify parameters of sustainable tourism and assist the applicability for Hikkaduwa while

proposing design guidelines to make Hikkaduwa a sustainable tourist city.

The aim will be fulfilled by following objectives,

- To understand the concept of sustainable tourism and its application in Sri Lanka and Hikkaduwa area
- To evaluate and identify parameters of sustainable tourism in accord with local guidelines
- To assess application and to propose guidelines for sustainable tourism to Hikkaduwa

D. Scope & limitations

Though Sri Lanka is home to many coastal cities with tourism, the scope of the study only Hikkaduwa city with recreational tourism is selected within the costal belt area and surrounding. Uniqueness of each beach and time allocated are ministrations to the study.

E. Literature review

Literature review focus on main two areas sustainable tourism and design guidelines. The first review on main ideas and criteria of sustainable tourism. And second review on what and how the design guidelines implementing the costal tourism.

F. Tourism industry at Hikkaduwa

Beach tourism or costal tourism defined as 'a travel for recreational, leisure or business purposes specifically on beaches. The tourists who come they like sea breeze and salt water. They want a clear blue vision of the ocean' (Cano and Prentice, 1998). And according to Jentoft and Knol (2014), today the Coastal areas are still the main tourist destinations.

Hikkaduwa is placed in the Galle District, 95km south of the capital of Colombo - emerging as one of the tourist destinations. It is one of the main vacationer destinations in Sri Lanka with appealing seaside and coral reefs. It affords completely unique underwater surroundings

within the presence of coral reefs, aquatic creatures and marine flora. The shallow ocean ground within the coral reef is very stunning with diverse shapes in the backdrop of underwater plants and aquatic organisms (Rajasuriya, 1995). The natural beauty of Hikkaduwa makes it an ideal place for nature lovers including coral for snorkelers, waves for surfers and white pristine beaches for those who want to enjoy the sun and the sand. The reason for such attraction on Hikkaduwa has been noted as the natural environment including corals and the related activities by tourists (Orrin H. Pilkey, 2011). Hikkaduwa is also home to Sri Lanka's first Marine Sanctuary which was established in 1979 to protect the fringe coral reef which extends along the beach front and provides Hikkaduwa with a remarkable natural tourist attraction. Also, Hikkaduwa and the nearby area which offers major attraction points and activities that include beach, surfing, diving, snorkelling, fishing, ecotourism, bird watching, and wildlife viewing (Rajasuriya, 1995).

Also, Hikkaduwa boasts of an abundance of industries and jobs compared to other tourist areas in Sri Lanka (Orrin H. Pilkey, 2011). According to the Hikkaduwa Grama Niladhari Report (2006), out of 4440 employees in the private sector, about 60% are employed in the tourism industry. A similar proportion of 4055 self-employed persons are also employed in tourism through major sources of industry associated with tourism.

In the present, Hikkaduwa has exceptionally urbanized with significant improvement alongside the Galle road (A2) for a distance of approximately 8km by all commercial, governmental, and tourism activities on sides, while residential, agricultural and sports related built environment is established on eastward from the Galle avenue (USAID SCOTIA-SL, 2007). Although the tourism industry succeeded until 90's, now it is in a situation of conflict due to unplanned and uncontrolled development (Joseph, 2009). The government recognized the potential of tourism development in Sri Lanka and continued with

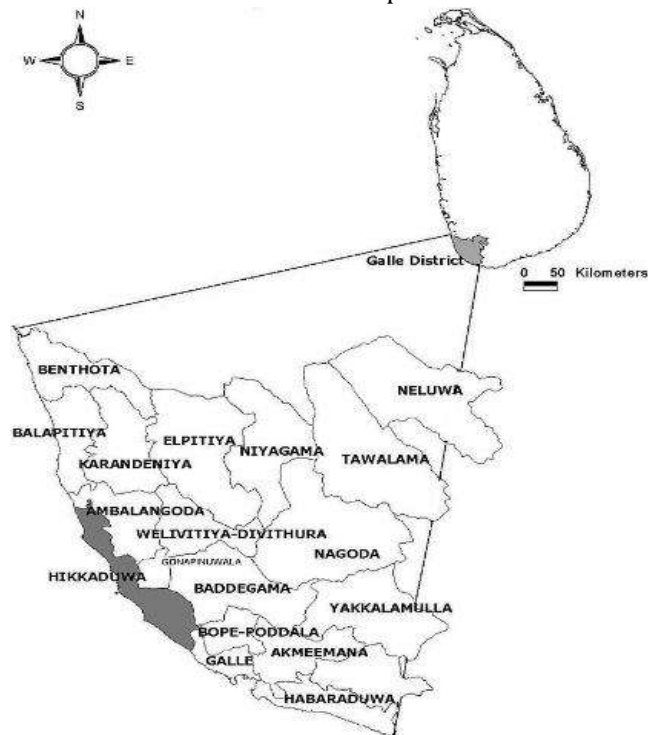


Figure 1. Hikkaduwa context
Source: Department of Town & Country Planning

their attempts to promote tourism only as a means of expanding economic activities (Fernando, 2012).



Figure 2. Tourist attractions & types in Hikkaduwa
Source: author

1. Sustainability & sustainable tourism

According to Grant (2020) 'sustainability' is defined as 'meeting the needs of the present without compromising the ability of future generations to meet their needs. It is composed of three pillars: economic, environmental, and social—also known informally as profits, planet, and people'. 'You matter' (2020) has stated that sustainability can be defined as 'the

Sustainable tourism is a tourism development with balancing the environmental, economic, socio – cultural aspects. Also, it has taken a major role of environmental preservation by minimally impacting nature and local culture for the future while providing for employment, increasing and produce incomes (World Tourism Organization,1990).

“The United Nations World Tourism Organization defines sustainable tourism as tourism that meets the needs of present tourists and host regions while protecting and enhancing opportunity for the future. The objective of sustainable tourism is to retain the economic and social advantages of tourism development while reducing or mitigating any undesirable impacts on the natural, historic, cultural or social environment. This is achieved by balancing the needs of tourists with those of the destination.” (UNWTO, 2020).

The aim of sustainability brings many meanings which include earnings redistribution, ecosystem preservation, first-class of life, the system of natural and human environment, and the redistribution of energy (UN, 2013). However, these Sri Lankan communities are excellent in keeping up with increasing plans

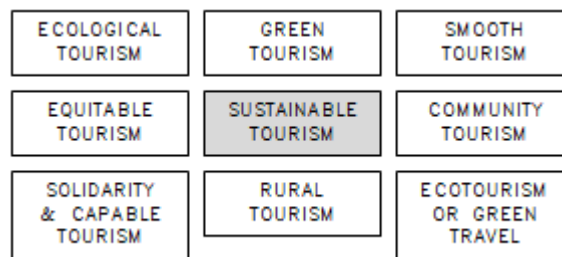


Figure 3. Types of sustainable tourism
Source: author

processes and actions through which humankind avoids the depletion of natural resources to keep an ecological balance so that society's quality of life doesn't decrease'. Similarly, Kuhlman and Farrington (2010) Sustainability is not just environmentalism. Embedded in most definitions of sustainability we also find concerns for social equity and economic development'.

for a sustainable boom. Recognizing the issues first, Sri Lankan people provide the maximum achievable solutions (UNWTO, 1999).

Coastal regions are transitional regions among the land and sea characterized by biodiversity and they consist of the richest and most fragile ecosystems in the world, like mangroves or coral reefs. Additionally, amongst all unique components of the planet, coastal regions are those which is often visited by tourists and in lots of coastal region's tourism offers the maximum essential financial works (Cossio, 2016).



Figure 4. Major assets of coastal region
Source: author



Figure 5. Examples for sustainable tourism area
Source: author

2. Parameters of sustainable tourism

In considering sustainability development parameters, it is important to analyse different types of sustainability approaches that cause changes at Hikkaduwa (Kiper, 2013). Also, Gebhard, Meyer and Roth (2009) has mentioned the criteria to be considered in sustainability (Gebhard, Meyer and Roth, 2009).

2. Methodology and Experimental Design

Sustainable coastal tourism does not have a specific formula. According to State (2009), after gaining the involvement of stakeholders who are interested in local growth, sustainable coastal tourism strategy and an action plan can be established through the steps shown in Figure 8. The study methodology framework consists of 3 main phases.

- Phase A – Site Survey
- Phase B – Analysis
- Phase C – Proposal of guidelines

At phase A, the study area will be understood

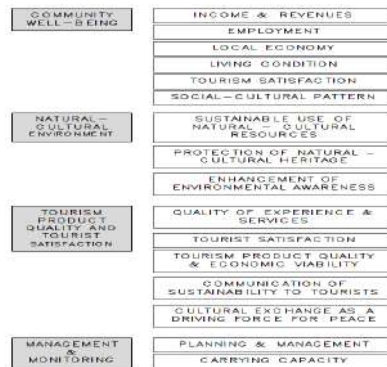


Figure 6. Parameters of Sustainability
Source: adapted from Gebhard, Meyer and Roth, 2009

and evaluated for its prevailing conditions and complications through observations. At phase B, concepts which studied in the literature review will be adopted to the case studies. Finally, at phase C, sustainable parameters of

Hikkaduwa will be identified using the obtained data and thereafter focus on creating and developing the guidelines and recommendations that should be adopted when introducing a sustainable tourism industry to the region.

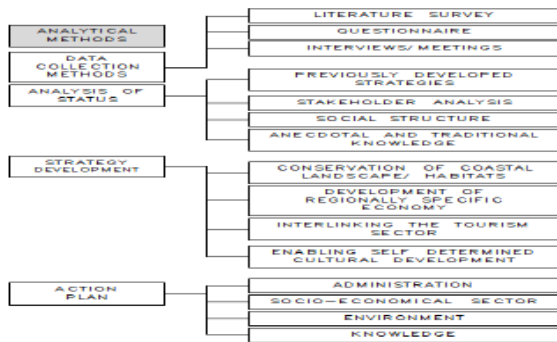


Figure 7. Methodology Framework, Source: author

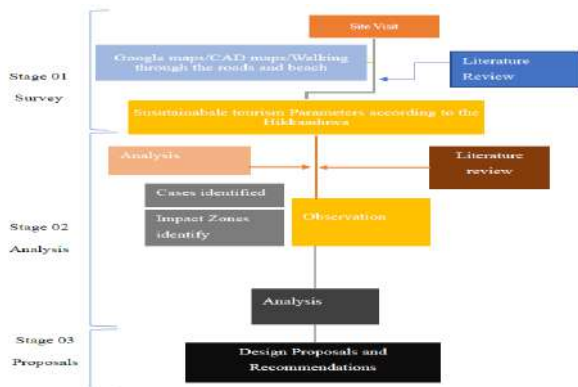


Figure 8. Steps for establishing a strategy & action plan, Source: adopted from Satta (2009)



Figure 9. Hikkaduwa tourism zoning map
Source: author

Study Area

The coastal tourism parameters were identified through the literature review and accordingly the application of those parameters tallied with the process of identifying following matters to promote tourism in the coastal area of Hikkaduwa.

- Places with high tourism attraction/promotion
- Developments within the past years
- Changes happened after Tsunami where the impact can be evidently observed

Table 1. Defining the study area

	Tourism Zone I	Tourism Zone II
Boundaries	Hikkaduwa Transfer building to Thiranagama	Hikkaduwa town to Thiranagama
Observations	Satisfying development in accord with sustainable principles	Area between Kumarakanda and Thiranagama is adapting to tourism industry
Characteristics	<ul style="list-style-type: none"> * Less traffic * Walkable spaces on either road sides * Maintained green spaces * Parking facilities * Visual access to the beach & sea * Maintained a character to the potential of the area 	<ul style="list-style-type: none"> * Traffic conjunction * No visual access to the beach & sea * Lesser walkable spaces on roadsides * Polluted environment * Facades do not comply with the character of the area

Source: author

Both of these areas have regulations that is implemented by the UDA. It was noted that

there was no any specification rules, regulation or guidelines for these two zones for implementing or developing the sustainable tourism. Therefore, this study has a major potential to create specific guidelines to achieve the sustainable tourism. The research design is to gather more information through field surveys to identify details of the character of the building. Thereafter go through the existing studies of sustainable tourism to discuss those characters complying with sustainable criteria to propose the layout design guideline plan for the study area hoping to continuously promote sustainable tourism within the coastal area. Therefore, the process of identifying the sustainable parameters of Hikkaduwa zoned area to be done by focusing on the high tourist density places, hotels, restaurants and other specific buildings to implement the proposed guidelines as per said in the objectives of the study.

Field survey

The field visits were made to Hikkaduwa to study the area to find the characteristics of the connection between urban planning and architecture. Also focus was given to the existing rules and regulations that are already imposed by the UDA to come up with the proposal or guidelines to the study area for implementation. The following UDA regulations should be adhered in evaluating the existing conditions of the area.

- Maintaining Road Width
- Road Frontage
- Entrance to the Site
- Height Restrictions
- Building Lines
- Boundary Walls
- Beach Side Reservations
- Other Special Reservations

Moreover, the study extends on to old and new buildings within the area as case studies in order to identify and comply with facade development and its need to be included in the proposing guidelines through identified parameters. Therefore, through the identification of those said parameters will aid

in creating the guidelines which will bring out the criticality of views within a walker's range in the town area. Thus, the focus will be in showing case studies with implemented of such process - where needed guidelines and recommendations can be brought forward.



Analysis of the case studies




Under a span of 5 days, the field survey was done in the said tourism zones I and II. In each case study, sustainable parameters were tried to identify and potential to implement new parameters as well. A summary of said parametric characters of each case study is given as a details analysis.

These findings will be later analysed into produce a layout plan for the study area.

1) Tourism Zone I:

Table 2. Observations of case studies of Zone I

Place	Observations
	<ul style="list-style-type: none"> * An infill with a vivid contrasting appearance * Planting landscape on front * Lack of boundary walls
	<ul style="list-style-type: none"> * Open facade building * Visual & physical connection to the beach and sea * Building consist of 5 storeys * Building language against the Hikkaduwa character
	<ul style="list-style-type: none"> * Modern building with views to the sea through the building * Front without any boundary - won't disturb pedestrians * Attractive elevations
Refresh restaurant	<ul style="list-style-type: none"> * One of the oldest buildings * Good maintenance

	<ul style="list-style-type: none"> * Consists of green spaces * Either side of the public accessible alleyway are food stalls * Temporary structure with thatched roofs * Comparatively high green cover * Dining space and an observation platform to the sea * Sign board disturbs the pedestrians
<p>Ancient building</p> 	<ul style="list-style-type: none"> * Open space on one side * Can be renovated as an open or garden restaurant or as an alleyway accessing the beach
<p>Abandoned building with alleyway</p> 	<ul style="list-style-type: none"> * Act as a publicly accessible alleyway * Parking requirement can be provided easily

Source: author

Table 3. Identified parametric characters within Zone II

		Riff Hotel	Hotel Cottage	Avendra Garden	Refresh restaurant
1	Alleyways				√
2	Parking slots		√		
3	View to the sea	√	√	√	
4	Building form				T
5	Building height		5		√
6	Building structure				P
7	Boundary walls	x	x	x	
8	Facades		0		

9	Sign boards				√
10	Double walls				

Source: author

2) Proposed master plan for Zone I:

It is an essential concept for the Hikkaduwa area for a long period of time. But unauthorized construction of buildings had made this situation more difficult. Yet with the accreditation of CCCRM, those buildings can be demolished with prioritizing the requirement of a sustainable tourism city.

The area between the Coral Garden Hotel and the Co-operative building is the most suitable plot to be considered as beach park since it already provides the main access and act as an entrance to the beach. Within the area between Bansai Hotel and Coral Garden Hotel, all the buildings can be removed and re-establish them in accord with the concept of a sustainable tourism city. Developing this area as a beach park would solve all the prevailing problems related to environment and society. Also, gradually by attracting tourists it will enhance the economic benefits as well. When the identified parameters are set in an organized way within, the city will become a sustainable city effortlessly.







Figure 10. Proposed Beach Park, Source: author


Same as the Zone I, the study was conducted through observation in Zone II as well and the detailed analysis of the selected buildings are given above. The summary of each zone is then given according the chosen sustainable parameters on the existing condition to get a whole idea on the existing built environment in both zones.

In the study, the building forms were categorized as temporary (T) and compatible (C), building structure categorized as renovated (R), preserved (P), and facades were categorized as green (G), unsuitable (U) and open (O).

3) Tourism Zone II:

Table 4. Observations of case studies of Zone II

Place	Observations
 <p>Bansai Hotel</p>	<ul style="list-style-type: none"> * Renovated building * View of sea through the building * Not exceeding 2 storeys * Green double wall with creepers to the 1st floor
 <p>Coral Sand Hotel</p>	<ul style="list-style-type: none"> * Unpleasant facade towards the road site disturbing pedestrians * A/C machines, sewage pipes and pumps installed to the roadside. ** Building a double wall can solve the issue
 <p>Mandala Hotel</p>	<ul style="list-style-type: none"> * Green facade with protective tree covers & creepers * Attractive side walls instead of sign boards * Visual & physical access to the sea through the building * Parking
 <p>Citrus Hotel</p>	<ul style="list-style-type: none"> * Parking and view of the sea through the centre of the hotel * provided green spaces * presence of boundary walls and an acceptable height

 <p>Abandoned building near the co-operative building</p>	<ul style="list-style-type: none"> * Unpleasant appearance overall * Can be developed as a rest house for the tourists
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Source: author

Table 5. Identified parametric characters within Zone II

		Bansai Hotel	Coral Sand Hotel	Mandala Hotel	Citrus Hotel
1	Alleyways				
2	Parking slots	√	x	√	√
3	View to the sea	√	x	√	√
4	Building form	C		C	
5	Building height	2	2		
6	Building structure	R	R		
7	Boundary walls	x	√	x	√
8	Facades	G	U	G	
9	Sign boards	x		x	
10	Double walls	√			

Source: author

The whole study looked after 11 buildings in both zones - 6 in zone I and 5 in Zone II and thereafter 10 alleyways that were observed throughout the coast line in both good and bad pedestrian and walkability experience to both locals and tourists (see Figure 13).

4) Proposed master plan for Zone II:

When considering about the master plan for the Zone II, the main element stands out is the existing main entrance to the Hikkaduwa beach. At present both local and foreign tourists use the premises, but the path has become congested with vehicle parking and having the path in middle of 2 busy shops.



Figure 11. Existing entrance to the Hikkaduwa beach, author

With the DWCMDO supporting through the social upbringing, his alleyway to be developed as an attractive point with properly functioned amenities with provided bathing places on the either side as well.



Figure 12. Existing entrance to Hikkaduwa beach, Source: author

Buildings should be re-established with green facades to be introduced instead of dark and narrow ones and should adhere the spacing requirements from the road as well as the beach. Having demolished the unnecessary elements in the built environment, new built environment can be oriented without any other existing errors.

3. Results , Discussion and Conclusion

From the above field survey analysis, parameters that are suitable for the Hikkaduwa context have been identified which are to be used in the sustainable tourism contributing through architecture.

G. Parameters for Hikkaduwa

5) Alleyways:

When considering the alleyways that were identified in the Zone I, they were not up to standards and had poor connection to the beach through the facades of the built environment.



Figure 13. Types of alleyways observed, Source: author

Some were blocked by temporary and outward structures with disturbing views along the way. Thus, it can be proposed to clean up those alleyways and provide separate spaces for those said structures and make room on the either side creating a welcoming ambience to enter and have an impression that won't hesitate local and foreign tourists. In Zone II, most identified were dark alleyways as a result of cantilevered structure from near buildings. Those can be demolished under regulations and can improve the alleyway to be pleasing to the eye with comfortability to walk-in.

6) Parking slots:

Mainly this matter for commercial and mixed-use buildings as well as in common spaces. People are expecting the requirement thus, can

even have the minimum requirement of floor space and stalls that have been divided from a larger floor space. Some of these are built in

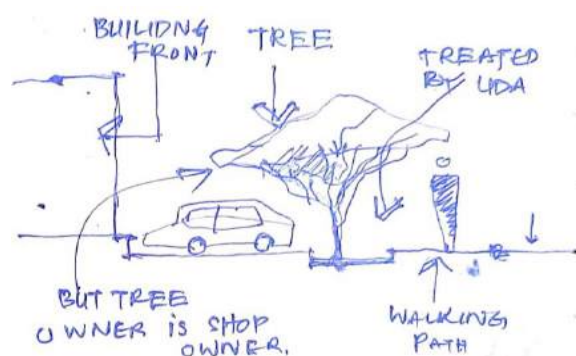


Figure 14. Proposed parking slots
Source: author

be catered through removing boundary walls or modify them accordingly. Also, it is a crucial point to be implemented in a master plan level in planning.

7) Views:

At present construction of buildings in the beach side have caused to block the scenic view of the sea for the people or pedestrians. Wind path from the sea is also blocked by the said buildings and prevent the wind from entering inside the land. Thus, it can be proposed that those said buildings could be converted or reconstructed allowing views of the beach and sea through the building as can give access physically through a connected bridge or preparation of a side as an alleyway. For the above suggestion, there are standard dimensions and planning to be adhered to.

8) Building form & structure:

It was noted that there are many numbers of temporary structures within the study area. Both sustainable and well-functioning structure and unpleasant abandoned structures were found. These abandoned structures can be renovated and use with sustainable functional requirements where other better ones can be facilitated with other needed requirements such as parking. Other compacted building types that have been built along either sides of the road causing many problems as well. They can be identified as small shops which does not

alleyways blocking the path, thus they should be removed as they are unauthorized structures. When considering about building heights, at present many sea side buildings can be categorized as tall buildings, but they should be not allowed to go that high and should impose regulations regarding height restrictions as wind should be allowed to flow to the land side, thus buildings in the coastal line should not exceed the height of the mangrove tree level.

9) Building development and function:

In Zone II, it was identified that most of the buildings are renovated and currently functioning as restaurants. Yet there are some houses to be found among commercial built areas which results in scatter effect where there is no proper zoning has been done. Also, old buildings which were found in the area which carries the Hikkaduwa character should be highlighted and renovated preserving the language for tourist development. Also, within these built areas, public activities should be catered improving walkability through alleyways.

10) Boundary walls:

Construction of a boundary wall can be considered as a disturbance in the perspective of improving walkability for pedestrians. Even though many sea side hotels and restaurants plan to view the beach and the sea through their

building, boundary walls make the effort useless. Thus, boundary walls should be demarcations with permeable surfaces with a restricted maximum height of 3ft.

At present sign boards and hoardings have become a disturbance for the improvement of walkability for pedestrians as hotels' and restaurants' name boards have been placed up to the pedestrian line. This can be considered as

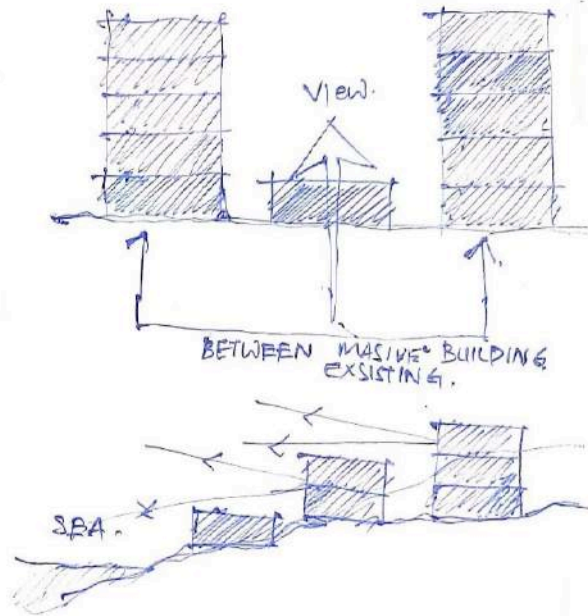


Figure 15. Proposed building height restrictions
Source: author

11) Facades:

The main reason for a building's facade to be a darker one is due to the materials that is used. Also designing facades that are not compatible with the Hikkaduwa language can be considered as a violation of urban planning principles. Thus, they should give the impression of ingenious characteristics. Other unpleasant facades in abandoned buildings should also to be renovated with the building to function to uplift tourism industry. Thus, the most suitable solution would be creating green facades. If the landowners hesitate due to maintaining costs, that can be facilitated by the Town Council or the Divisional Secretariat where they will plant trees, water and maintain them. This is successful tactic that it used to uplift tourism industry through economically sustainable environment.

an obstructing element to tourists when roaming around the city and would lead to hesitation. Mainly it is major issue at night, since tourists like night tours. Thus, regulations should be imposed with standard lengths and sized for hoardings representing uniqueness of Hikkaduwa.

13) Double walls:

It can be considered as an architectural element which adds value to both street side and coastal side while increasing building's security and efficiency. Also, it provides solutions to thermal comfort, dusty winds and act as a climatic responsive and sustainable unit. The wind from the sea side will be controlled and as well as will gain the attention of the pedestrians of the road side.

12) Sign boards/hoardings:

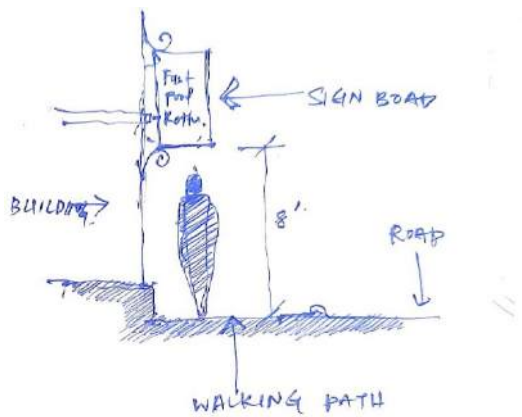


Figure 16. Proposed signboard/hoarding regulations, author

All of these above-mentioned parametric characters that found from the field survey had based through the architectural view that should be implemented for sustainable tourism in Hikkaduwa area. Through those sustainable criteria of environment, social and economic factors, architectural parametric strategies can be fulfilled. Hence, it will create and improve the quality of life of the area with social interactions. Then these factors altogether will pave the way for automatically environmental-social-economic sustainability

Proposed layout Plans

The field survey study had given an idea of what to considered as design guidelines with the said parameters. Comparing with the existing rules and regulations, parameters were implemented as design guidelines to the proposed layout



plan. As the main parametric feature, creating alleyways on the existing coastal belt have to be done as much as possible in development

Figure 17. Proposed alleyways

Source: author

strategies as a sustain mechanism. Where an alleyway cannot be created, an openable

ground level is another alternative to the matter.

The following figure shows the proposed guideline layout plan for the creating alleyways. They have more potential to creating the new alleyways with connecting sea side and its views.

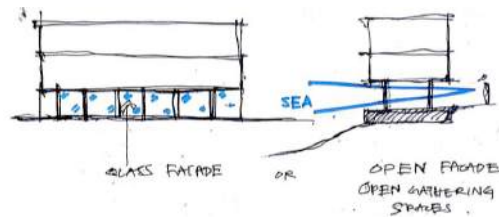


Figure 18. Proposed open ground floor
Source: author

The section shows the proposed design guidelines to be implemented to the sea side of the Hikkaduwa area. It is clear how the buildings get the wind and the view through height restrictions and considerations on implementing pedestrian path's walkability with green paths and facades.

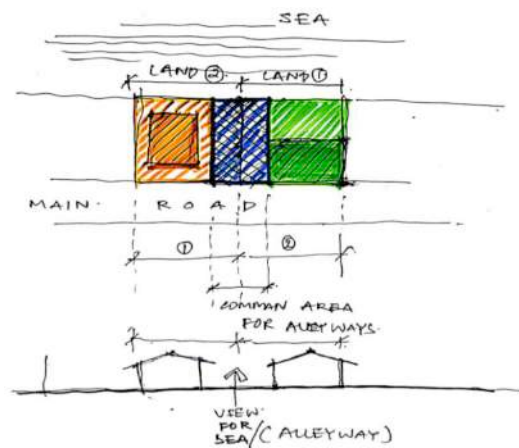


Figure 19. Proposed alleyway plan
Source: author

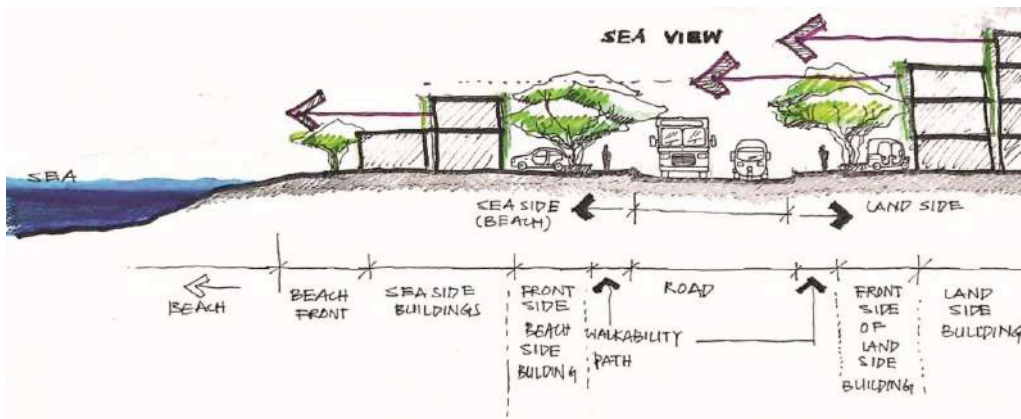


Figure 20. Proposed design considerations for the sea side
Source: author

The proposed layout plan shows the considerations for a typical beach side along with green developments, improved connectivity and walkability. Thus, those cover all the main sustainable parametric criteria to be implemented for sustainable tourism in Hikkaduwa. Thus, following should be considered as notable factors in making design guidelines.

- Buildings to give the scenery of the sea to pedestrians as well
- Attraction of tourists and simultaneously reducing the traffic conjunction

Through such action, it will bring on improvement of tourism zone I to sustainability with existing potentials and tourism zone II have to re-establish in sustainable manner with implementing parameters with guidelines. For that course, the guidelines and recommendations are of huge assist within the process affecting on the identified area creating a solution to the identified problem. Here, the advantage in identifying zone categorization within the Hikkaduwa town area is laying interest and knowledge on the small areas and architectural features which are neglected or missed during the process of catering a highly developing project. Thus, this study brings an overall idea regarding the process of making Hikkaduwa a sustainable tourism city as a whole.

Conclusion

The Hikkaduwa is known for its tourism, especially beach tourism; each year being the centre of attention for a long time with the increasing demands for such tourism opportunities. Hikkaduwa including the tourism industry has been developing rapidly completely ignoring the development guidelines & social, environmental & economic impacts. Due to this reason, the Hikkaduwa Town has covered up with non-permitted buildings which would cause poor walkability &



Figure 21. Proposed alleyway design considerations with improved walkability

- Spaces to build alleyways
- Spaces to create parking slots
- Areas that have and not been exposed to the sea
- Building functions on the sea side or overlooking the beach
- Location of old buildings to be renovated

pedestrian accessibility, blockage of views which would cause in less gathering areas and also resulted in less appalling built environment with unpleasant facades & building envelopes. Overall, this affects the urban planning process including vehicular parking and accessibility. Due to these causes Hikkaduwa town is gradually becoming unpleasant for tourist attraction which would cause lesser tourism and would gradually become unsustainable as a town. Considering these factors, concerned authorities have been come up with regulations, Urban plans or master plan developments to develop the Hikkaduwa town and the tourism industry. Yet, there is a huge gap between those development plans and the problems that have been created due to the existing contextual situation. These development plans only focused on certain areas including the existing regulations separated under specific areas. This has caused the issue of not having an overall guideline for Hikkaduwa town for tourism and sustainable development.

Therefore, as a solution to this issue, based on the existing studies and the regulations a proposal has been made by this study considering the factors that should identify as characteristics for the Hikkaduwa town development and made parameters including design guidelines accordingly for application of the overall Hikkaduwa tourism area. Hence, after defining the study area, a field survey was done with a case study which lead to identification of specific sustainable characteristics where they were studied on how to develop those as architectural solutions to achieve environmental, economic and social sustainability. Thereafter, those identified characteristics were improved as parameters which were used for design guidelines and layout plans to be implemented for the overall Hikkaduwa area. It was identified that the addition/implementation of proper alleyways, fulfilling the parking requirement, establishing openable ground floors which consist with good views through the building, creating proper façade with green development as the potential

of bringing about improved sustainable tourism factors in Hikkaduwa. Thus, it was proved that to the above-mentioned issue, architectural solutions can be given with parameters and guidelines to follow and maintain as a starting point of the Hikkaduwa coastal area to become a “Sustainable coastal tourism city”.

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Abbreviations and Specific Symbols

UDA- Urban Development Authority

CCCRM - Coast Conservation & Coastal Resource Management

CMC- United States

DWCMDO- Department of Wildlife Conservation Marine Department Office

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