INVESTIGATING THE EFFECTS OF BUILT ENVIRONMENT ON COASTAL SCENERY
Coastal scenic assessment of the Southern coastal belt of Sri Lanka

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Abstract: Haphazard development of built environment around coastal destinations, has become a thriving factor of scenic degradation; creating long term effects on coastal tourism. Sustainable tourism in coastal regions, must concern about sensitive factors like scenic management, in order to preserve unique coastal scenery and to extract long term benefits of coastal tourism. In a context, where the most scenic coastal sites in Sri Lanka, are rapidly degrading due to mass tourism, the Mediterranean born technique of Coastal Scenic Evaluation System (CSES) was used to evaluate the scenery of four selected sites along the Unawatuna-Rumassala coastline prioritizing the effect of built environment on coastal scenery. Results reveal the coastline portrays classes 4, 3 and 2 of CSES. Site A (Unawatuna beach) with the minimum D value of 0.169 presents Class 4 (Human touched unattractive sites with low landscape values). While, Site B (Cliffy shore) and site D (Jungle beach), belongs to Class 3 (Natural sites with few outstanding features). Site C (Unawatuna view point) which scored the highest D value of 0.708, falls to Class 2 (Attractive natural sites). Further analysis shows that; scenery of site A has been significantly declined due to lower scores obtained for parameters associated with built environment. This site was visually disturbed through built environment factors such as, infra-structural developments, direct and indirect exposure of buildings, contrasting exterior colours, unusual scales of new constructions and constructions in elevated locations. By applying strategic plans and development restrictions the coastal scenery of Site A can be enhanced. Hence, the study proposes far-reaching design implications to rectify coastal scenery of southern coast to promote sustainable coastal tourism.

Keywords: *Coastal tourism, Coastal Scenic evaluation, Built environment*

1. Introduction

In a context, where coastal tourism is growing rapidly as a main branch of tourism, coastal scenery acts as one of the thriving factors for increasing human attractions towards coastal areas. Countries with scenic coastlines have become world's top tourist destinations with increased appreciation for recreational activities within coastal regions.(Mestanza-Ramón et al., 2020) Developments in coastal tourism strengthen national economies by introducing new means of incomes for nations. Thus, countries with scenic coastlines have enormous potentials of growing national and regional economies by implementing coastal tourism. (Clark, 1996)

Although coastal tourism has numerous socio-economic benefits, it can cause for scenic degradation of coastal areas in many ways. Development of built environment around coastal destinations is one of such impacts. In most cases, destinations are getting built around, in order to facilitate tourism. But, built structures have huge visual impacts due to their large scales, comparatively to other interventions. (Lee & Lee, 2018) Sometimes natural scenery of destinations can be over dominated by the built environment, changing the destination image over the time, which can cause for declination of coastal tourism. Hence, the incorporation of built environment to destination landscapes must be carefully done in a way that they have minimum effects on the authentic qualities of particular landscapes.

In Sri Lankan context, most of the coastal destinations have been haphazardly built around, despite of even the major environmental issues. Most coastal destinations are already visually impacted by the built environment while, they are further growing. (Lakmali et al, 2017) In Sri Lanka, scenery and scenic degradation are quite unfamiliar concepts, which has ignored by most of related parties. But, maintaining scenery in coastal destinations is very important to enjoy long term economic benefits through coastal tourism. In this context, it's reasonable to assess the visual impact of built environment on coastal destinations and find better means of incorporation of built fabric.

1.1 NEED OF MANAGING SCENERY OF COASTAL DESTINATIONS: SUSTAINABLE COASTAL TOURISM

According to the Council of Europe, (2000) scenery is defined as 'the appearance of an area,' (Rangel-Buitrago, 2019) while coastal scenery may be defined as the visual perception of a coastal area by humans, whose perceptual characters resulted by different objective and subjective factors. (Heijgen, 2013). Thus, scenery is not totally an objectified attribute, as it depends both on the object and the observer. But, coastal landscapes are still able to provide a unique scenic experience to the viewer, due their distinguished forms and shapes caused by constant action of water and wind on littoral areas. (*Coastal Landscapes,* 2016)

Coastal scenery is one of the main drivers of attracting tourists for coastal areas. But it can be easily impacted by tourism, if it implemented with less concerns. Hence, means of managing coasts with special focus to its scenery, must be given in order to ensure the long term sustainability of coastal tourism. A well-managed coast supplies endless number of beneficiaries in a multiplicity of spatial and temporal scales to sustain socio economic activities. (Rangel-Buitrago, 2019)

United Nations' Environmental Program (UNEP) and United Nations' World Tourism Organization (UNTWO) defines **sustainable tourism** as "tourism that takes all account of its current and future economic, social and environmental impacts addressing the needs of visitors, the industry, the environment and the host community. Figure 1 shows the main aspects of sustainability, while figure 2 demonstrates the goals of sustainable tourism.

According to above definition, long-term sustainability of tourism must be considered by focusing on the needs of visitors, environment and the host community. Here it's very important to differentiate the two terms **tourism growth** and **tourism development** which relates to the sustainability of tourism. Tourism growth is measured by factors like number of arrivals, overnight stays and income rates, which basically focused on economic benefits. (UNEP, 2009) But tourism development is measured based on factors like increase of local income and employment, visitors' satisfaction and environmental benefits. (UNEP, 2009) Hence, the concept of tourism development is more related to sustainable tourism.

Figure 1: The sustainable development Venn diagram

Figure 2: Goals of sustainable tourism

Short term economic gains by the wrong implementation of coastal tourism is not a good option for empowering a country's economy. (Rangel-Buitrago, 2019) This is due to the mass tourism and over tourism which happens despite of carrying capacities of sensitive coastal areas which eventually causes for the declination of tourism industry and related economic benefits. Thus, coastal destinations must be managed by concerning every single aspect, including coastal scenery, to ensure the long term sustainability of coastal tourism. "An optimal coastal scenery management accompanied by a controlled tourism growth, an enhancing of product, by upgrading the quality of offer and service, a diversified clientele, can be considered as key points for an ideal tourism development, satisfying both visitors and those who livelihood depends on it." (Rangel-Buitrago, 2019)

Coastal scenic management also defined as an objective of both Integrated Coastal Zone Management (ICZM) and Marine Spatial Planning. (MSP). ICZM which consider a holistic approach for the development of coasts consider coastal tourism as an important activity take place within coasts. It emphasizes that the coastal tourism must be aligned and organized with respect to other important activities while highlighting the importance of preserving coastal areas with special focus to the scenery.

1.2 VISUAL IMPACT OF BUILT ENVIRONMENT ON COASTAL LANDSCAPES

The physical structures made by man in landscapes are tangible and cause for changing the visual environment which influence the human landscape perception. The structures which built for shelter (buildings) and movement (infrastructure) are larger in scale and be apparent from ground and aerial levels. Man-made structures change and limit target views, by creating homogenous environmental elements in the landscape foreground and hindering the original natural information in the back ground. (Lee & Lee, 2018) Further those structures separate people from nature, change the landscape perception and reduce authentic natural aesthetics.

Manmade structures usually are rigid, formal and sharp in the form, being contrast with natural elements which are informal, irregular and organic.(Lee & Lee, 2018) This makes manmade structures to be highlighted in the context which they stand. Figure 3 and 4 illustrate the visual qualities of manmade and natural environments. Thus, manmade structures are more visibly contrast in a natural environment than a homogeneous urban landscape. Hence, even a comparatively small manmade element may change the landscape perception and its aesthetic values in a natural environment which makes the planners to think about holistic figure of the context when designing for sensitive environments. Figure 5 shows how natural environments get visually impacted by built environment.
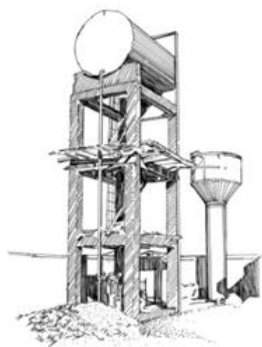
Figure 3: Formal, rigid nature of manmade structures   Figure 4: Informal irregular nature of natural Landscapes

A) Least impact on scenery   B) Moderate impact on scenery   C) Highest impact on scenery

Figure 5: Visual impact of built environment on scenery

Coastal destinations are getting highly built due to application of mass tourism. These developments include transportation based infra-structure like roads, parking, transits, accommodation complexes like hotels, resorts and recreational based developments like restaurants, marines etc. ("Coastal Wiki," 2021) The built environment vanishes the natural vegetation and landforms in the context and predominates its scenery. Hence, built environment can gradually change the landscape scenery and degrade the scenic beauty of coastal destinations which would negatively effect on the long-term sustainability of coastal tourism

Another important aspect is that the sense of preservation and the willingness to preserve the environment by the user groups depend on quality of landscapes. Here the quality of landscapes mainly depends on the visual perception which may change due to built environment. For an example a visually polluted landscape would more ignored by the public for protection and preservation. But a visually pleasing natural landscape without any human interventions is more likely to be preserved by people. Once it gets forcefully intervened by man, human perception would change to further intervention. Hence, it's very important to avoid or minimally intervene on natural environments and careful refinement of such interventions in order to preserve aesthetic perceptions.

1.3 NEED OF QUANTIFYING SCENIC BEAUTY
Human pressures on sensitive environments including coastal areas, are intensively growing day by day, due to conflicting for human requirements like habitation, recreation and industries. (Rangel-Buitrago, 2019) According to the findings of Queensland University, only 15% of world's entire coast line, remains untouched by humans. 43.3% of entire coast line is under high human pressures. Every human intervention has not only ecological and biological impacts on coasts, but also visual impacts on natural scenery.

1960s and 1970s onwards, several concepts including, natural scenery, wilderness experience and visibility values were concerned as important aspects of ecological conservation, broadening the range of environmental concerns (Rangel-Buitrago, 2019). Most of these factors are subjective, which depend on the observer, hence it was difficult to quantify and measure them objectively. Scenery here described as "a picturesque view or landscape" (Merrian - Webser Dictionary, 2004 as cited in Rangel-Buitrago, 2019) Within the past half century, (1970s onwards) a number of scholars have attempted to define a method for quantifying scenic beauty. (Rangel-Buitrago, 2019) Any natural scenery, including coastal scenery, is important to evaluate in an objective basis, in order to make comparison against

human activities and development plans (Rangel-Buitrago, 2019). Quantification also allows to identify level of temporal change or degradation happens to a particular site and encourage actions for protection and conservation.

Further, evaluation of coastal sites in terms of scenic beauty, helps to identify severely degraded sites and their degree of degradation; creating opportunities for uplifting their conditions with nourishments. On the other hand, evaluation process helps to recognize potential sites for tourism. A scenic evaluation frame work would supply an informed base line for assessing any kind of interventions on sensitive environments. It could be used as a tool by different stake holders like researchers, managers, planners etc. (Rangel-Buitrago, 2019)

Availability of well defined, quantified data about visual aspects of environments, including coastal areas, help to manage sensitive environments in a country. The data base would provide measurements, descriptions and classification schemes for landscape management. (Rangel-Buitrago, 2019)

1.4 AN INTRODUCTION TO COASTAL SCENIC EVALUATION SYSTEM (CSES).

Costal Scenic Evaluation system (CSES) can be identified as most recent and scientific methodology for quantitative assessment of coastal scenic beauty. The method of Coastal Scenic Assessment has been initially originated from Mediterranean regions (Ullah et al. 2010) based on initial assessment done within 57 coastal sites selected in Turkey, UK and Malta. 33 Dalmatian coastal sites in Croatia also were assessed as pilot studies. (Rangel-Buitrago, 2019). Thus, the application of theory has begun with 90 sites and has been applied over 1000+ sites around the world. (Mooser et al., 2021) The theory has been tested in many countries in the developed world like UK, USA, New Zealand, Ireland, Australia, Japan, Morocco, Tunisia and Turkey (Ullah et al. 2010) and developing countries like Pakistan and India, covering many coastal zones around the world, ensuring the universal application possibilities of the theory. However, the theory has not been applied for any coastal studies carried out in Sri Lanka, showcasing the gap of available knowledge in coastal preservation and conservation within Sri Lankan contexts.

The aim of CSES is to assess the scenic beauty of coastal environments, quantitatively and objectively. The evaluation index (D), which gain at the end of coastal scenic assessment, is a numerical value obtained for every coastal site assessed; can be used for comparison, ranking and classification of coastal sites. The process beginning with physical examination of coastal sites and ending up with coastal site classification, comprise with 5 major steps, (Er-Ramy et al., 2022) which represented by figure 6.

01 Selection and Evaluation of Parameters
Giving values from 1 to 5 for each parameters based on the check list developed by scholars through field observation

02 Weighting parameters (according to public perception)
The importance and weight of the selected parameters are measured through surveys on the public perception

03 Fuzzy logic assessment
Fuzzy logic mathematics is applied to reduce observer subjectivity

04 Development of a Decision parameter (D)
A decision parameter (D) is developed to obtain a numerical value for each site to compare them by scenery.

05 Classification of coastal sites
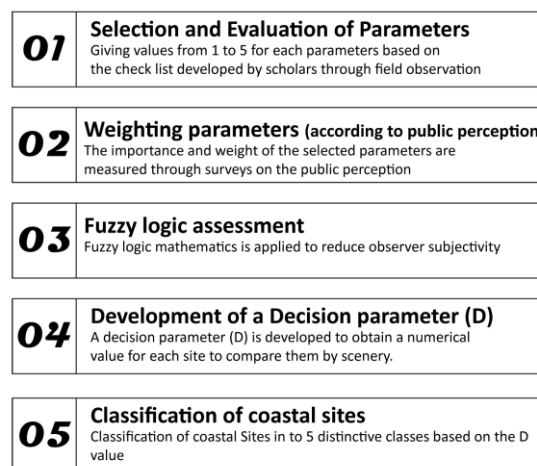Classification of coastal Sites in to 5 distinctive classes based on the D value

Figure 6: Major steps of Coastal Scenic Evaluation system

The methodology has been developed based on involvement of experts and trained groups in the field by conducting public surveys to identify the objective parameters which are most essential for coastal scenery. 26 parameters were finalized as 18 physical parameters (natural parameters - Cliff height, Cliff slope, Cliff special features, Beach face type, Beach face width, Beach face colour, Rocky shore slope, Rocky shore extent, Rocky shore roughness, dunes, valley, landform, tides, coastal landscape features, vistas of far places, water colour and clarity, natural vegetation cover, vegetation debris) and 8 human parameters (noise, litter, sewage, non-built environment, built environment, access type, skyline, utilities) (Ullah et al. 2010) which make the foundtion for the assessment. The parameters are rated in a 5 scale attribute range, with regard to sites that are examined while each parameter is weighted by considering public perceptions of the particular country/ region that the examination is carried out. Further, assessment is analyzed using fuzzy logic mathematics, with the aim of eliminating subjective pronouncements of the examiner and to reduce uncertainties of each parameter. At the end, Final evaluation index (D) is developed for each site which is a single numerical value which ranges from -2 to +2. This value is an indicator of the scenic quality; higher D value reflects higher scenic quality. Hence, it can be used, to make comparisons between scenery of coastal sites, for quantitative measurement of scenic impacts of development plans and for assessment of the scenic impact due to temporal changes caused by natural and human pressures on coastal sites

1.4.1 Parameters related to built environment

Out of 26 parameters described in CSES, last 8 parameters are related to human interventions on coasts. Three of them are directly related to built environment. If the parameters related to built environment taken as B,

B = { built environment, skyline, utilities }

This subset of parameters can be used to identify the visual impact of built environment on coastal landscapes. Each of these parameters are defined with 5 attribute levels, by considering the conditions which are likely to be present in a coastal landscape. The scored attribute level of a site examined, is a measure for the impact of built environment on its scenery. Figure 7 shows the parameters related to built environment and their related attribute values.
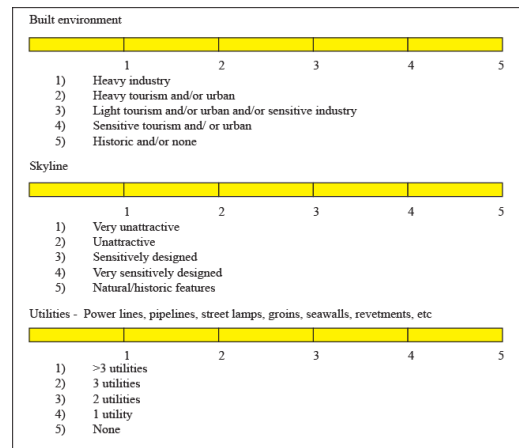
Figure 7: Parameters related to built environment and their attribute values
Source: Author generated

2. Methodology

In this research, the technique of Costal Scenic Evaluation system (CSES) was used to evaluate four scenic sites within the Unawatuna-Rumassala coastline with special concern on examining the effect of built environment on the coastal scenery. Figure 8 represents the methodological structure that was used for this particular study.
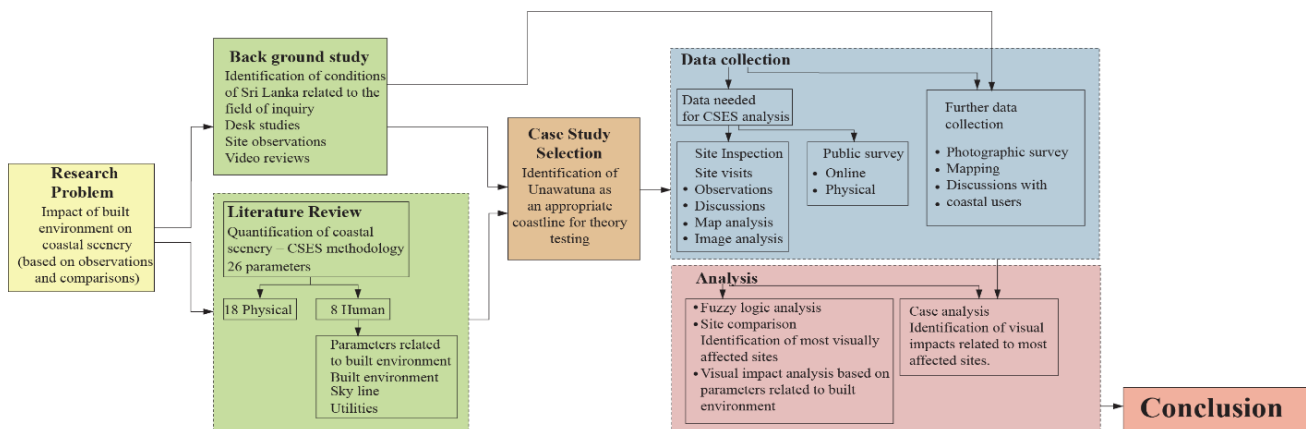
Figure 8: Research methodology

2.1 CASE STUDY SELECTION CRITERIA

Selection of an appropriate coastline for the application and assessment of the evaluation methodology was based on the consideration of 03 main criteria.

1) Availability of sufficient coastal sites with diverse territorial and littoral coastal features and admirable scenic qualities.
2) Being a tourism implemented zone.
3) Evidences of growth in manmade environment amplified by tourism.

Four sites on the coastline between Unawatuna to jungle beach were selected for the application of CSES. The sites were selected based on features like accessibility, degree of human occupation, landscape features and picturesque view. The locations of the selected sites are illustrated in figure 9.
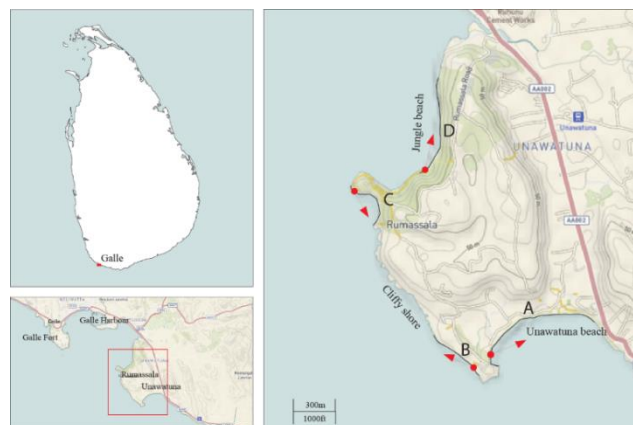
Figure 9: Selected four sites on Unawatuna coastline.

2.2 PARAMETER IDENTIFICATION AND GRADING IN THE LOCAL CONTEXT

The 26 parameters identified in the method of CSES are well defined in the theory and tested within different coastal climates in the world. The parameter checklist table developed by the theory builders was used as a baseline for checking and grading the presence or absence of the 26 parameters within the selected coastal sites in the local context. Table 1 demonstrates the checklist table used for parameter grading.

Table1: Parameter checklist table

N	Physical Parameters		Rating				
			1	2	3	4	5
1	Cliff	Height (H)	Absent (<5m)	5 m < H < 30m	30 m ≤ H < 60 m	4: 60 m ≤ H < 90 m	H ≥ 90 m
2		Slope	< 45°	45 - 60	60°–75°	75°–85°	Circa vertical
3		Special features	Absent	1 special feature	2 special features (e.g. banding and terracing)	3 special features (e.g. banding, jutting cliff)	Many >3 special features (e.g., irregular profile, notch)
4	Beach face	Type	Absent	Mud	Cobble/boulder	Pebble/gravel	Sand
5		Width (W)	Absent	W < 5m or W > 100m	5 m ≤ W < 25 m	: 25 m ≤ W < 50 m	50 m ≤ W ≤ 100 m
6		Colour	Absent	Dark	Dark tan	Light tan/bleached	White/gold
7	Rocky shore	Slope	Absent	< 5	5°–10°	10°–20°	> 20°
8		Extent	Absent	< 5m	5 m – 10 m	10 m – 20 m	> 20 m
9		Roughness	Absent	Distinctly jagged	Deeply pitted and/or irregular (uneven)	Shallow pitted	Smooth
10	Dunes		Absent	Remnants	Fore-dune	Secondary ridge	Several
11	Valley		Absent	Dry	Stream (< 1 m)	Stream (1 m – 4 m)	> 4 m
12	Skyline Landforms		Not visible	Flat	Undulating	Highly undulating	Mountainous
13	Tides		Macro (>4m)		Meso (2 m – 4 m)		Micro (< 2 m)
14	Coastal landscape features		None	1 feature	: 2 Features	3 Features	> 3 Features
15	Vistas		Open on one side	Open on two sides		Open on three sides	Open on four sides
16	Water colour & clarity		Muddy brown / grey	Milky blue/ green: Opaque	Green/grey blue	Clear blue/dark blue	Very clear turquoise
17	Vegetation cover		Bare (<10% Vegetation only)	Scrub/ Gaigue / grass (marram/ ferns, bramble / meadow, etc)	Wetlands/meadow	Coppice, Maquis (mature trees bushes)	Varity of mature trees/ mature natural cover
18	Vegetation debris		Continuous > 50 cm high	Full stand line	Single accumulation	Few scattered items	None
N	Human Parameters		Rating				
			1	2	3	4	5
19	Noise disturbance		Intolerable	Tolerable		Little	None
20	Litter		Continuous accumulations	Full strand line	Single accumulation	Few scattered items	Virtually absent
21	Sewage discharge		Sewage evident		Some evidence		No evidence of sewage
22	Non built environment		None		Hedgerow/terracing/ monoculture		Field mixed cultivation +/– trees/natural
23	Built environment		Heavy industry Continuous >	Heavy tourism and/or urban	Light tourism and/or urban and/or sensitive industry	Sensitive tourism and/ or urban	Historic and/or none
24	Access		No buffer zone/ heavy traffic	Buffer zone/light traffic		Parking lot visible from coastal area	Parking lot not visible from coastal area
25	Skyline		Very unattractive	Unattractive	Sensitively designed	Very Sentitively designed	Varity of mature trees/ mature natural cover
26	Utilities		> 3 Utilities	3 Utilities	2 Utilities	1 Utility	None

2.3 DATA COLLECTION FOR THE APPLICATION FOR CSES

2.3.1 Site inspection & Parameter grading

Site inspections were carried out to identify the grade of prevalence of 26 parameters in each selected sites. All sites were observed and assessed from 10.00 a.m. to 3.00 p.m. as per the recommendations by the theory builders. The checklist table and photo atlas which generated by the scholars, were used for the convenience of grading parameters. Some parameters with uncertainties were graded by considering most predominant features. The decisions were
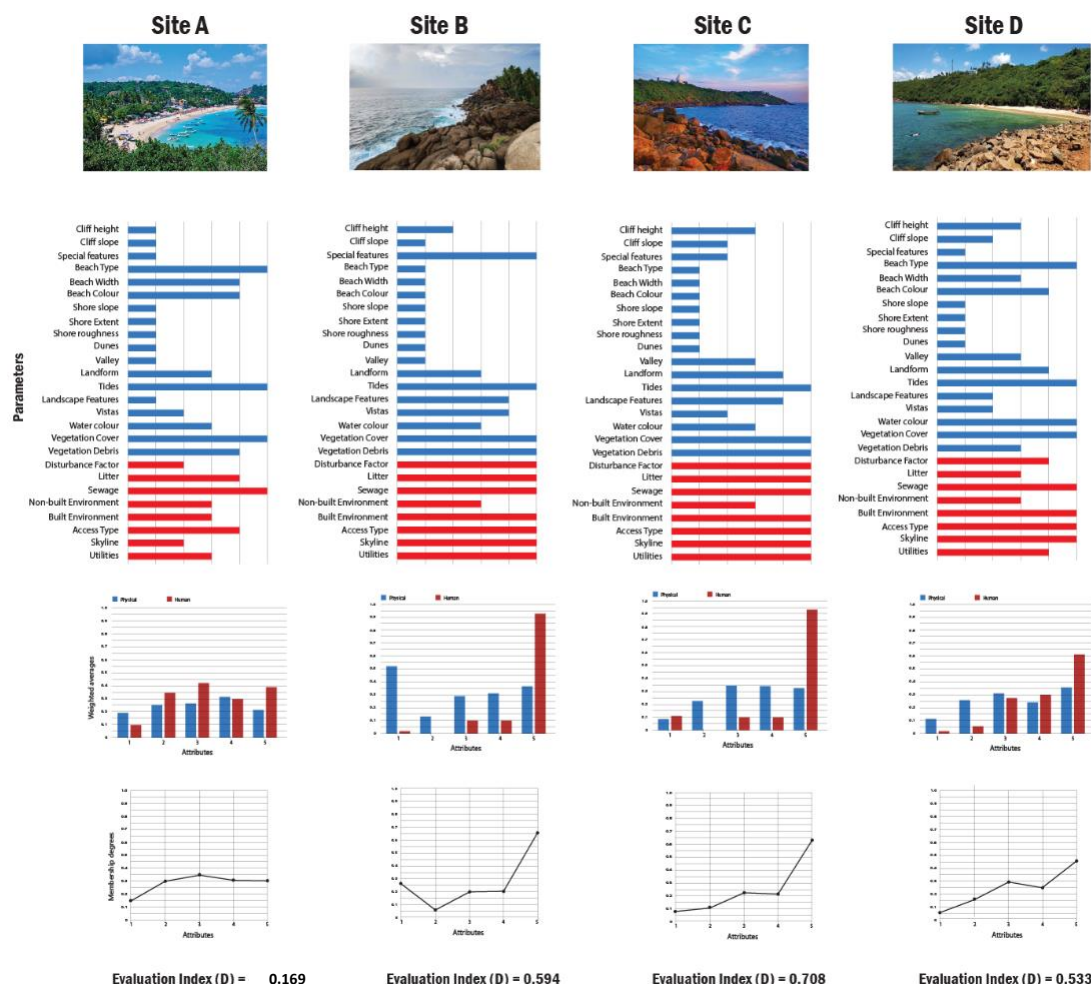
supported by some desk studies conducted for each sites. Contour maps were used to understand features like cliff slopes. Further, google maps, google views and images were used to determine the accuracy of site inspections.

2.3.2 Public survey organization for parameter weighting.
In order to weight 26 parameters, public surveys were designed aiming coastal users and expertise in the field. The total number of responds obtained were 55; out of 26 were physically done while 29 were online survey responses. A five-point grading scale was used to weight each parameter according to the perception of individuals. Verbal explanations and the photo atlas were used to clarify some parameters, in the physical survey, while photo atlas was shared with the online survey form for the convenience of online responders.

3. Research Findings and Discussion

After analyzing the four selected sites with CSES, Parameter histograms, weighted average graphs and membership degree curves obtained for each site, can be compared as follows.

| Evaluation Index (D) = 0.169 | Evaluation Index (D) = 0.594 | Evaluation Index (D) = 0.708 | Evaluation Index (D) = 0.533 |

By comparison of membership degree curves of each site examined, Site B, Site C and Site D show a rightward increment, which reflect the idea of overall higher scores for positive attributes in those sites. Site A doesn't show a significant increment or reduction of membership degree curve. The reason is, site A has scored nearly equal values for all positive and negative attributes. By comparing weighted average graphs, it's clear that site B and site C has the positive impact of all human parameters. The impact of physical parameters for the scenic beauty seems less, due to the absence of many physical (natural) parameters within site B. Site C shows a general increment of weighted averages of physical parameters for rightward, indicating that overall scenic property has enhanced by natural coastal features. Site D, shows a general increment in weighted averages of both natural and human parameters which indicates that the scenery of the site has the impact of both physical and human parameters. Site A has a general distribution of weighted averages over each attribute. Table 2 represents the D values obtained by each coastal site and their corresponding class, while Figure 10 illustrates the fluctuation of D values against the site number.

'Site A' has scored least D value and 'Site C' has scored highest D value. If the scenery of the sites ranked, based on D value, scenic beauty increases in the order of site A < site D < site B < site C. Site C can be identified as the most scenic site out of four with minimum human interventions and highest diversity of natural parameters.

According to the classification divisions, site A belongs to class 4 (0.40 > D > 0.15) which identified as 'human touched unattractive site with low landscape value'. Site B and D belongs to class 3 (0.4 < D < 0.65) which defined as

'natural sites with few outstanding features'. (These sites have less human interventions. But low scored due to poor natural features). Site C belongs to class 2 (0.85 > D > 0.65) which identified as an attractive natural site.

Table 2: Class categorization of sites examined

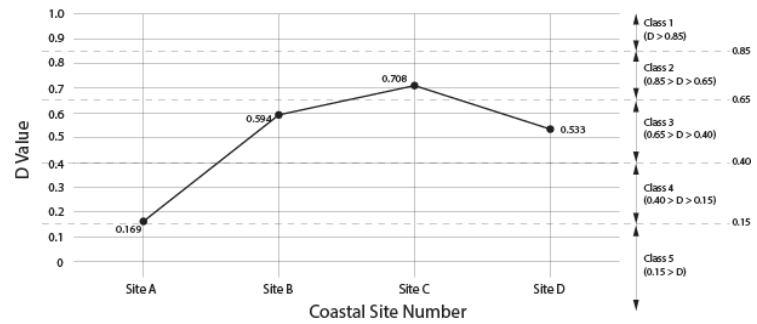| Site	D Value	Class
Site A	0. 169	Class 4
Site B	0. 594	Class 3
Site C	0. 708	Class 2
Site D	0. 533	Class 3

Figure 10: D values of the four sites against site number

3.1 ANALYSIS OF IMPACT OF PARAMETERS RELATED TO BUILT ENVIRONMENT.

Figure 11: Site A – Satellite View and attribute (related to built environment scores)

Parameters related to built-environment score comparatively lower attribute values for Site A; reflect the negative impact of the built environment on the overall scenery of the site. Figure 11 represents the aerial view of the site A and attribute values scored for parameters related to built environment.

Figure 12: Site B – Satellite View and attribute (related to built environment scores)

Parameters related to built-environment score highest attribute values for Site B; reflect the zero impact of the built environment on the overall scenery of the site. Figure 12 represents the aerial view of the site B and attribute values scored for parameters related to built environment.
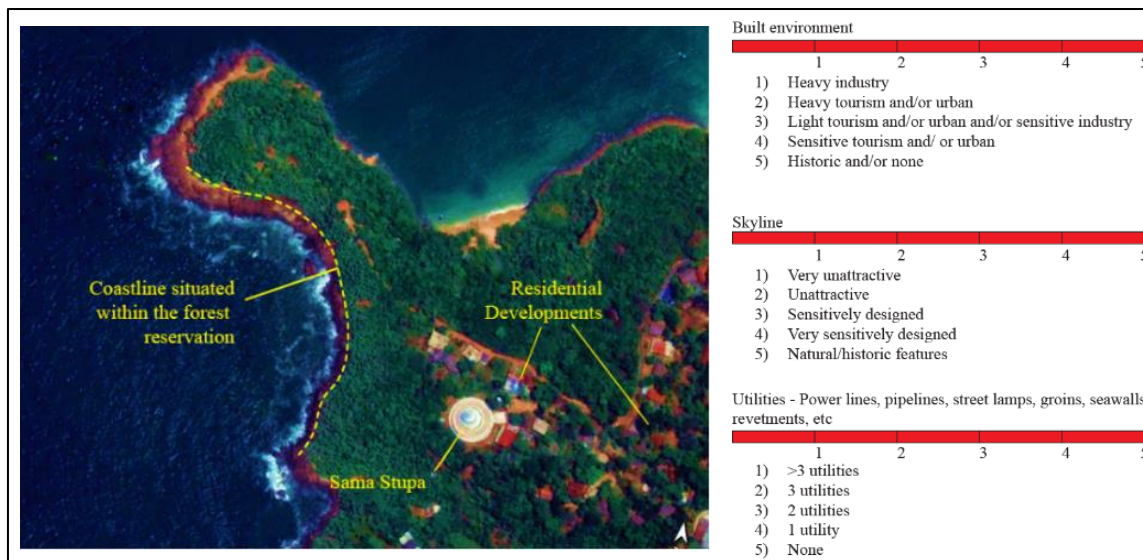
Figure 13: Site C – Satellite View and attribute (related to built environment scores)

Parameters related to built-environment score highest attribute values for Site C; reflect the positive impact of the built environment on the overall scenery of the site. (The Sama stupa acts as a landmark in the context) Figure 13 represents the aerial view of the site C and attribute values scored for parameters related to built environment.
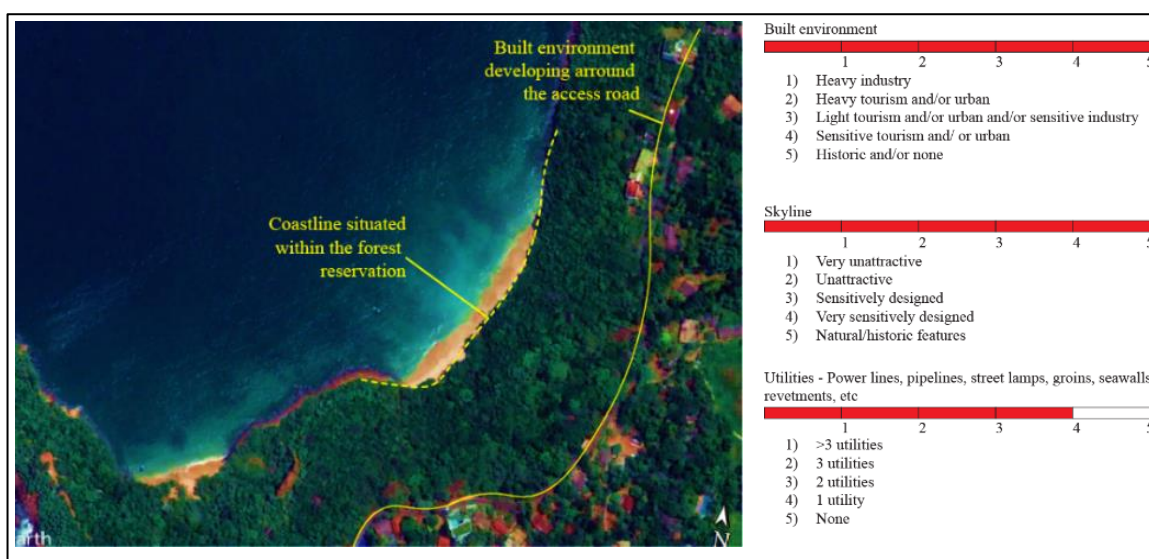

Figure 14: Site D – Satellite View and attribute (related to built environment scores)

Parameters related to built-environment score relatively high attribute values for Site D; reflect the relative less obstruction of the site scenery by the built environment. Figure 14 represents the aerial view of the site D and attribute values scored for parameters related to built environment.
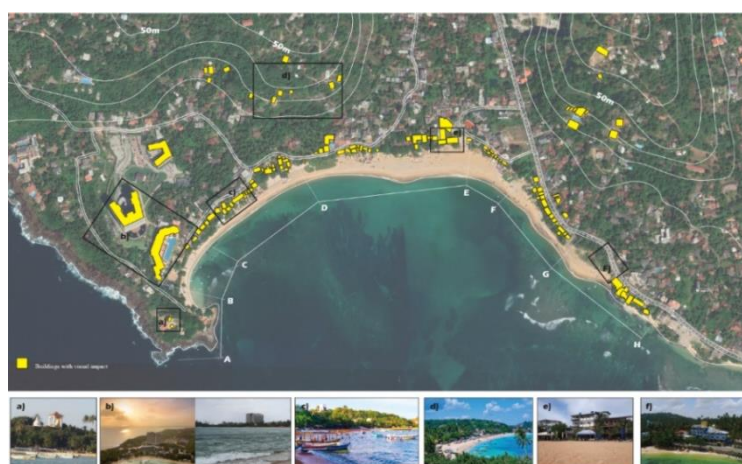

Figure 15: Mapping of visible structures to site A

Out of four sites, site A (Unawatuna beach) has the highest impact of the built environment on its scenery. The following main causes were finalized as the key reasons of scenic degradation by built environment; identified through further analysis and mapping of the particular site. Figure 15 shows the built structures which have direct visual impact to the beach.

a) Increment of infrastructural developments (access roads, vehicle parkings,) along the site.
b) Direct and indirect exposure of buildings and building parts built within development controlled zone.
c) Destruction of vegetation layer in development prohibited and development controlled zones.
d) Vast scales of new constructions. (Signs of emergence of mass tourism)
e) Visibility of building features due to contrasting colours.
f) Visibility of buildings due to their geological locations. (Buildings in higher elevations more visible to view points)

4. Conclusion

This research was conducted to examine the applicability of the identified technique of Coastal Scenic Evaluation System (CSES) within Sri Lankan contexts, specially focusing on the Unawatuna coastline which has been subjected to visual impacts of built environment, emerged due to coastal tourism. The results obtained reflects that, the Unawatuna beach site has been subjected to a severe scenic declination, falling to the category of class 4 with less appreciated scenic beauty. The scenic degradation has been mostly driven by the three parameters related to built environment; show cases the adverse effects of haphazard developments of non-sensitive coastal tourism. Other three sites have comparatively low impact of overall human parameters, but still within a higher risk of being subjected to visual impacts due to various human interventions.

The most impacted site, Unawatuna beach has been dramatically changed over the time and now being show casing emerging signs of mass tourism. Overall cause analysis shows that the site has been subjected to visual impacts of built environment due to the less concerns about important environmental aspects like scenic beauty; proves the knowledge gap of relevant subject scopes within Sri Lankan context. Relevant authorities like Coastal Conservation Department, focuses mainly on preservation of physical attributes of coastal areas. Hence, the relevant governing fields of those authorities must be updated and expanded with strict regulations and guidelines for designing and building within coasts, aiming the preservation of authentic qualities of coastal environments, in order to sustain long-term benefits of coastal tourism in Sri Lankan context. Future researches relevant to this field can be conducted in Sri Lanka, to maintain a database about valuable coastal landscapes of the country, by implementing the above mentioned technique in different coastal regions of the country. The developed database would supply baseline information for different involved stakeholders like, planners, architects, landscape architects, geologists, coastal managers and other decision makers, for assessing the visual impact of any kind of development proposed for coastal zones and for making judicious interventions for upgrading degraded coastal sites.

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