

## LOCAL PERCEPTIONS IN CONSERVATION OF RURAL LANDSCAPES: A CASE OF KARUE HILL

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### Abstract

The scenic character of many rural landscapes has been degraded as people seek individual benefits from these natural resources, thus precipitating a tragedy in a commons. In most cases, the planning of these areas has been relegated to professionals who follow normative theories and individual tastes, creating psychological alienation to the public. This leads to aesthetic pollution in the landscape. The planning process adopted has failed to incorporate social aspects and emphasizes the technical aspects of master planning. The study therefore sought to establish the residents' attitudes towards the rural landscapes. A field study of 101 respondents was interviewed along the semantic differential scale in order to elicit attitudes towards these landscapes. Data was collected by sequentially exposing 100 colour photographs to respondents of Karue Hill. Formal aspects of the most and least liked photographs were interpreted and presented graphically. It emerged that most respondents preferred rolling landscapes with substantial coherence, spaciousness and complexity. It is recommended that designers and policymakers dealing with conservation of rural landscapes be guided by user perceptions to ensure project acceptability and aesthetic sustainability.

**Key words:** Local perception, rural landscapes, conservation, Karue Hill

### 1.0 Introduction

Karue hill is located in Embu County in Kenya 15 kilometres from Embu Town, two kilometres off the Embu-Meru Road (Figure 1). It is a moderate hill reaching 1590 metres above the sea level and covering a surface area of 19,642 square metres. The hill particularly draws its popularity from its vantage position, the unique rock formations (Plate 1 and Plate 2) and the cultural significance it presents to the Aembu people.

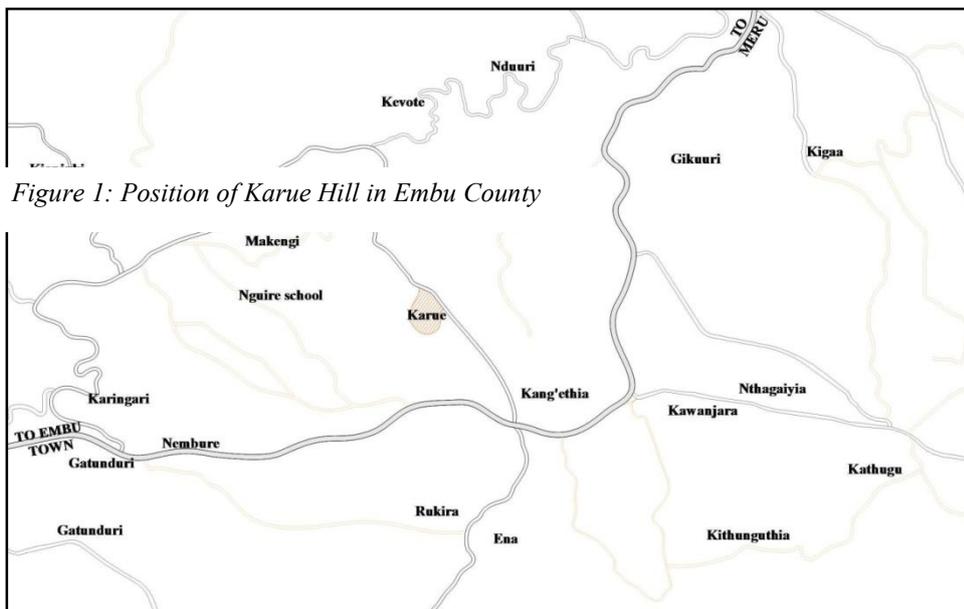


Figure 1: Position of Karue Hill in Embu County

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Source: Authors, 2013

Oral traditions indicate that it was a host of spirits that worked at night and rendered any visits to the hill impossible. Missionaries are believed to have driven them to the Maranga Hill through loud prayers. The

pouring of libations also took place at the hill. These included millet and beans by women collecting grinding stones. Today the hill is used for prayers by different religious groups and for romantic picnics, due to its serenity. The access to the hill is not well defined making the hill less inviting to visitors. Due to the steep slope, the elderly and physically challenged would find it difficult to climb to the peak. This effectively reduces the number of visitors.



*Plate1: A view of Karue Hill*  
*Source: Authors, 2011*

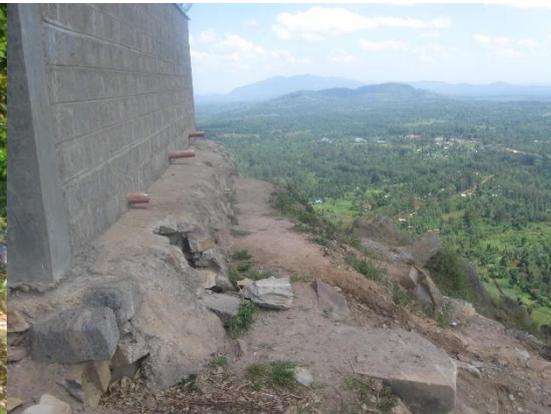


*Plate 2: Unique rock formations on Karue Hill*

Karue Hill is a visual resource whose potential for tourism has been undermined by the surrounding communities due to their concentration on direct economic benefits of quarrying and farming. The cultural significance of the hill has been reduced by changing lifestyles and poor preservation of local knowledge. Quarrying of rocks for construction materials by the residents has also tampered with the interesting rock formations on the hill. Telecommunication companies have indiscriminately installed network masts on the hill. The lack of consideration for aesthetics and conservation of natural heritage has led to an identity disarray and reduced the usable space at the hilltop (Plate 3 & Plate4).



*Plate 3: Discordant constructions at the peak*  
*Source: Authors, 2011*



*Plate 4: Deforestation on karue hill*  
*Source: Authors, 2011*

The establishment of unique visual experiences and rich cultural content on Karue hill would be consistent with the government of Kenya's aim of promoting all kinds of national and cultural expression through literature, the arts, traditional celebrations and other cultural heritage ( Kenya, 2010) . Most people in Embu County depend on small scale farming. This is currently on a downward trend. There is poorly developed tourism partly due to erosion of the indigenous culture and environmental degradation apparent in the deforestation and quarrying. The Kenya Vision 2030 has the goal of raising international visitors from 1.6 million in 2006 to 3 million in 2012, while raising the average amount of money spent per visitor from the present KShs 40,000 to at least KShs 70,000.

### **1.1 Rural Areas; Beyond Productive and Wild Landscapes**

This paper is grounded on the thesis that, for landscape architects and policymakers to make appropriate conservation plans, designs and aesthetic guidelines relating to rural areas, they need to assess the variables that determine the aesthetic value that contribute positively to public perceptions. The paper delves into these variables and proposes a method for measuring the aesthetic values of the lay users and these are then interpreted on the basis of expert assessment of the variables: coherence, spaciousness and complexity. Users of space helps a research to incorporate social processes whereas expert assessment helps in deriving design cues from users' perceptions.

The visual character of rural areas has been recognised as an important resource to human well-being and these areas should be viewed as both productive and scenic spaces for various types of recreation. Human beings generally prefer natural environments more than urban ones (Herzog, 1988). Natural environments are particularly rich in the characteristics necessary for restorative experiences (Kaplan, 1996). In the United States of America, the motivation behind driving to countryside is pegged on the experience of being in the country as by the need for vegetables (Nassauer, 1989).

Rural landscapes of great scenic significance exist in many parts of Kenya. However, uncontrolled exploitation has eroded their aesthetic values. Increasing poverty in many rural areas has led to destruction of vegetation cover and uncontrolled quarrying has stripped off the scenic quality. The ignorance in regard to aesthetic attributes of rural surroundings has been partially due to the economic approach of environmental resources where resources are valued on the basis of their monetary worth (Carlson, 1976). The lack of an alternative value measurement of these resources has led to destruction of the environment (United Nations Environment Programme, 1999). The poor understanding of the processes that shape the rural areas and the landscape features has led to the common view of these areas as either wilderness, or purely functional landscapes where the dweller has no sense of aesthetics towards the surroundings. In addition, uncontextual developments have produced identity disarray thereby eroding the visual character of rural landscapes.

### **1.2 Aesthetic Value of Rural Landscapes**

A large proportion of Kenyan population live in rural areas. Degradation of the visual character of their environment is injurious to their psychological health, safety and general welfare. Previous research on landscape aesthetics has consistently established that most people prefer wooded, savannah-like settings with open vistas, clumps of trees, topographic variation, lake, stream, or other water source (McGranahan, 2008). Directed attention towards scenic landscapes has also been observed as a restorative process against fatigue and stress since it avoids distractions (Kaplan, 1995). Nasar (1988) presupposes that the aesthetic quality of an environment affects the immediate experience and the sense of wellbeing in those surroundings. Rural tourism is also largely dependent on the scenic quality of the environment. Degrading the scenic qualities of the environment therefore reduces the national income a country generates through tourism.

Despite multiple indicators, previous studies have used very partial measures of landscape and offered no theory as to why some landscape features might be more attractive than others (McGranahan, 2008). This paper aims at creating awareness about the significance of scenic beauty in rural lands by developing an approach for quantifying the value of this visual resource. The paper draws a relationship between the physical attributes of the environment and people's perceptions. The use of photographs to obtain perceptions towards the rural landscapes enhances collection of innumerable information within a short duration. The continued destruction and neglect of visual resources calls for their consideration as equal to other land resources, an approach that will enhance a comparison between the visual resource and other land resources (Carlson 1976). Rural aesthetics as a resource can therefore be a key attraction to pull development and economic growth to rural areas.

### **1.3 Understanding Perceptions towards Rural Areas**

The term 'rural landscape' describes the diverse portion of the nation's land area not densely populated or intensively developed, and not set aside for preservation in a natural state (Coen, Nassauer, & Tuttle (1987). The visual resources differ in different areas including croplands, wetlands, woodlands and bare hills and peoples' preferences differ as much. Ulrich (2006) posits three reasons for people's preference to certain objects. Firstly, users will prefer a beautiful artefact to an ugly artefact, secondly, the aesthetic response to an

artefact is usually the first response to the artefact and finally, beauty may serve as a signal for unobservable attributes of quality in an object. Therefore, designers should explore deeper into the impact of different environmental settings on the users and these characters can be used as design cues.

The central concerns in environmental aesthetics include understanding environmental influences and translating that understanding into environmental design that is judged favourably by the public (Nasar, 1988). According to Lang (1987) there are two broad approaches to the study of aesthetics: The first involves the study of the processes of perception, attitude formation and cognition. It is psychological in character and is concerned with positive theory (Figure 2). The second involves the study of aesthetic philosophies and the creative processes. It is largely metaphysical and psychoanalytical. It is concerned with normative theories of designers and artists (Figure 3).

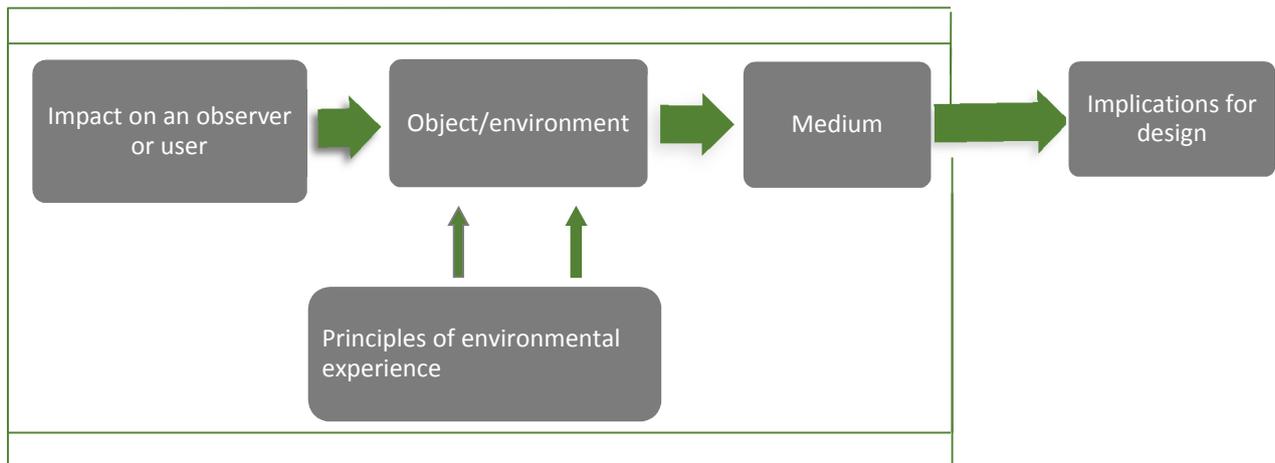


Figure 2: Developing positive theory  
Adopted from Lang, 1987

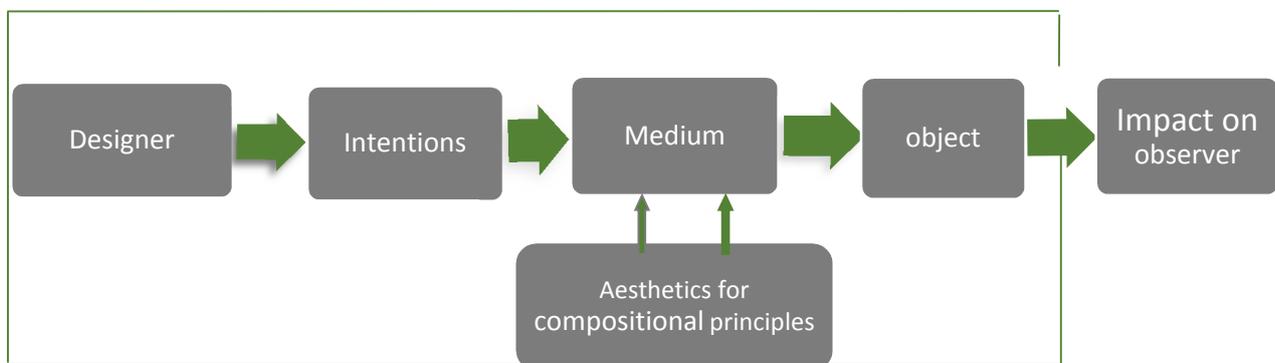


Figure 3: Developing normative theory  
Adopted from Lang, 1987

Herzog (1988) advocates for a broad sampling of scenes that reveal several categories of natural sceneries that are differentially preferred with specific identifiable variables that partially account for reactions to the natural environments. The analysis, description and manipulation of these variables by a landscape architect should undoubtedly formulate a successful design based on public opinion. Therefore, knowledge of the relationships between properties of the visual environment and human affect should help professionals to better plan, design, and manage settings to fit the preferences and activities of the people using these spaces hence contributing to an improved quality of life (Nasar, 1988).

## 2.0 Methodology

The research was carried out as a survey using structured interviews. Coloured photographs in an album were sequentially exposed to respondents for five seconds after which they stated their likability of the scenes in

the photographs on a semantic differential scale. Four judges assessed the photographs on the basis of specific variables (coherence, space and complexity). The researchers first interviewed the household head followed by other available members of the household. A respondent's replacement system was devised to replace those respondents who could not be reached for interviews by considering the characteristics (sex, age, occupation and years of residence) of the respondents being replaced.

### 3.0 Results

Figure 4 shows the averages of respondents' perceptions for all the sceneries represented in the photographs. The following guideline was used to collect data on likability; (1) Extremely Liked (2)Very liked (3)Quite liked (4)Neither Liked nor disliked (5)disliked (6)Very Disliked (7)Extremely Disliked.

*Figure 4: Averages of respondents' feelings for each scenery*  
*Note: The lower the value, the higher the likability*

		Mean Likability	Mean coherence	Mean spaciousness	Mean complexity
1	Photo 81	2.089108911	1.666666667	2.666666667	4.333333333
2	Photo 35	2.168316832	2.666666667	2	5.333333333
3	Photo 79	2.306930693	3.666666667	2	4
4	Photo 93	2.37	3	3	4.666666667
5	Photo 8	2.38	3	2.666666667	3.666666667
6	Photo 96	2.39	2.666666667	3.333333333	4
7	Photo 66	2.405940594	3.333333333	2.666666667	2.666666667
8	Photo 6	2.415841584	2	2.666666667	4
9	Photo 52	2.465346535	3.333333333	3	4
10	Photo 57	2.495049505	4.666666667	5.333333333	3.333333333
11	Photo 49	2.584158416	2.333333333	3	4
12	Photo 5	2.594059406	3	5.333333333	4
13	Photo 44	2.613861386	1.666666667	3	4.666666667
14	Photo 78	2.702970297	4.666666667	3.666666667	3.666666667
15	Photo 56	2.742574257	3	4.333333333	3.666666667
16	Photo 4	2.772277228	3	3	2.666666667
17	Photo 64	2.772277228	2.333333333	5.666666667	2.666666667
18	Photo 32	2.782178218	3	3	4
19	Photo 22	2.801980198	3.666666667	4.666666667	3.333333333

20	Photo 42	2.801980198	2	3.333333333	4
21	Photo 92	2.81	2	3.666666667	4.333333333
22	Photo 3	2.811881188	3.666666667	4	3.333333333
23	Photo 28	2.85	4.333333333	3.333333333	3
24	Photo 84	2.861386139	2.333333333	3	4
25	Photo 67	2.871287129	3.666666667	3	3.333333333
26	Photo 19	2.88	4.666666667	3.333333333	4
27	Photo 14	2.91	3.666666667	3.333333333	3.333333333
28	Photo 89	2.93	5	6.333333333	3.666666667
29	Photo 23	2.940594059	2.666666667	2	5
30	Photo 85	2.95049505	3	2	4.666666667
31	Photo 18	2.96039604	2.666666667	4.666666667	4
32	Photo 39	2.98019802	3.666666667	2.666666667	3.333333333
33	Photo 1	2.99009901	2.666666667	2.666666667	3.666666667
34	Photo 75	3.00990099	3	2.666666667	2.333333333
35	Photo 51	3.02970297	3.333333333	5.333333333	3.333333333
36	Photo 97	3.05	3	5.333333333	3.333333333
37	Photo 27	3.059405941	2.333333333	2	5
38	Photo 71	3.069306931	1.666666667	1.666666667	3.666666667
39	Photo 48	3.07	4	3	3
40	Photo 38	3.079207921	2	2.666666667	5.666666667
41	Photo 98	3.09	3.333333333	1.666666667	4.333333333
42	Photo 95	3.11	2.333333333	3.666666667	4
43	Photo 83	3.118811881	2.333333333	3.666666667	4.333333333
44	Photo 53	3.128712871	3	2.333333333	4
45	Photo 16	3.138613861	3.333333333	5	2.333333333
46	Photo 33	3.148514851	3	3	4.666666667

47	Photo 77	3.158415842	5	5.666666667	2.666666667
48	Photo 11	3.188118812	5.666666667	3.666666667	3
49	Photo 99	3.19	2.666666667	3.333333333	3
50	Photo 80	3.198019802	4.333333333	3.333333333	4
51	Photo 6	3.227722772	3.333333333	6.333333333	3
52	Photo 72	3.227722772	2.666666667	4.666666667	3.666666667
53	Photo 54	3.237623762	4	3.333333333	5
54	Photo 87	3.26	4	3	3.666666667
55	Photo 94	3.26	2.666666667	5	3.666666667
56	Photo 9	3.297029703	5.333333333	2.333333333	3.666666667
57	Photo 55	3.3	4.666666667	3.333333333	4.666666667
58	Photo 7	3.376237624	3.333333333	2	2.666666667
59	Photo 43	3.405940594	6	5.333333333	3.666666667
60	Photo 58	3.405940594	4.666666667	5.333333333	3.333333333
61	Photo 74	3.405940594	2.333333333	3	2.666666667
62	Photo 86	3.405940594	3.333333333	6.333333333	3.333333333
63	Photo 21	3.425742574	3.333333333	4.333333333	3.666666667
64	Photo 24	3.435643564	3.666666667	4.333333333	4.333333333
65	Photo 34	3.455445545	3	3	4.666666667
66	Photo 41	3.465346535	3.333333333	4	3.333333333
67	Photo 59	3.465346535	3.666666667	3	3
68	Photo 69	3.47	2.666666667	4.333333333	4.333333333
69	Photo 68	3.485148515	3.666666667	5	3.333333333
70	Photo 12	3.54	2.666666667	1	3
71	Photo 29	3.554455446	1.666666667	4.333333333	3.333333333
72	Photo 1	3.584158416	3.333333333	2.666666667	4.666666667
73	Photo 62	3.673267327	2	6	4

74	Photo 73	3.673267327	4.666666667	5.333333333	3
75	Photo 47	3.683168317	3.333333333	4.666666667	4.333333333
76	Photo 37	3.693069307	3	2.666666667	3.333333333
77	Photo 61	3.693069307	3.666666667	3.333333333	4.333333333
78	Photo 3	3.71	2.333333333	1.333333333	4.666666667
79	Photo 2	3.752475248	4	4	4
80	Photo 82	3.752475248	5	3	3
81	Photo 45	3.772277228	1.666666667	1.333333333	4.333333333
82	Photo 4	3.78	3.666666667	6.333333333	2.666666667
83	Photo 88	3.78	4.333333333	2.666666667	4
84	Photo 65	3.82	4	2.666666667	3.333333333
85	Photo 91	3.82	4.666666667	2	4
86	Photo 76	3.851485149	5	3.333333333	3
87	Photo 2	3.861386139	3	3.333333333	4.333333333
88	Photo 13	3.861386139	3.333333333	3	5
89	Photo 36	3.881188119	4	5.666666667	2
90	Photo25	3.910891089	5	5	3.666666667
91	Photo 90	3.919191919	4.666666667	5.333333333	3.666666667
92	Photo 26	3.940594059	2.666666667	4	3.333333333
93	Photo 46	3.99009901	3	3.333333333	4.333333333
94	Photo 17	4.059405941	5	3	5
95	Photo63	4.059405941	4.666666667	4	4
96	Photo 5	4.09	3	2.666666667	3.333333333
97	Photo 7	4.138613861	5	3.333333333	3.666666667
98	Photo 31	4.16	5	3	4.333333333
99	Photo 100	4.234693878	5	2.666666667	5.666666667
100	Photo 15	4.326732673	5.333333333	4.333333333	4.333333333

## Key

	Ten most-liked scenes
	Ten 'Neither liked nor disliked' sceneries
	Ten least-liked scenes

Source: Authors, 2013

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### 4.0 Discussion

The most liked scenery had a mean likability of 2.089 while the least liked scenery had a mean likability of 4.327. The most liked scenery also tied with other four other scenes for scoring best in coherence but had a median complexity. The ten most liked photos consisted of sceneries that were also rated favourably on coherence and space with an average of 3.000 and 2.933 rating respectively. The ten least-liked sceneries in turn scored 4.333 and 3.566 on the same variables; coherence and space respectively. This indicates that the respondents liked sceneries with great coherence and space.

Generally, complexity was the least contributing variable to the likability of sceneries. The authors' own assessment also indicated large contribution of mystery, 'identifiability' and rolling landscapes on positive perceptions by respondents towards sceneries. Majority of the sceneries that were ranked as neither liked nor disliked majorly consisted of landscapes with rock outcrops and bare land.

### 5.0 Conclusion and Recommendations

To ensure acceptability of conservation projects by users, landscape architects and policymakers carrying out projects in rural areas must create spaces with a significant level of coherence, space, 'identifiability' and mystery. The degree of order or structure present in the immediate environment i.e. coherence and the extent to which the larger setting is well structured in depth i.e. space is a components that aids in the process of 'making sense' of the environment. 'Identifiability' i.e. the ease of space users to understand a space contributes highly to the space's likability. Rural recreation spaces should therefore be very legible to ensure their likability. The use of artefacts relevant to communities in focus enhances the familiarity of users to certain spaces.

Mystery in experiencing spaces should be well articulated to satisfy the innate curiosity and urge to explore. This can be achieved by having spaces that encourage strolling and exploration. A user of a certain space should anticipate episodic views to be encountered through continued movement on site. To prevent further environmental degradation on the Karue Hill, interventions must go beyond conservation into alternative income generation plans especially in regard to rural tourism. The Karue Hill also forms a fundamental learning opportunity concerning past social and geological processes. This pedagogical aspect can be easily articulated through proper landscape design.

The paper recommends that future studies on perceptions should be extended to other parts of Kenya since peoples' perceptions and the physical attributes of rural areas may vary across regions. Future research should also be focused on people's perceptions of specific types of rural landscapes e.g. fields and forests and this should be carried out cumulatively at different times because people's attitudes may never stand long enough, an element that makes a cross sectional design insufficient.

## References

- Carlson, A. A. (1977). On the possibility of quantifying scenic beauty. *Landscape Planning* 4,131-172 Retrieved June 23, 2011, from <http://www.sciencedirect.com/science/article/pii/0304392477900156>
- Coen, D., Nassauer, J.I. and Tuttle, R. (1987). *Landscape Architecture in the Rural Landscape*. Landscape Architecture Technical Information Series (7)1. Washington, DC: American Society at Landscape Architects.
- Herterson, M. E. (1987). *How to measure attitudes*. California: Sage Publications.
- Herzog, T. R. (1988). A cognitive analysis of preference for field-and-forest environments. In J. L. Nasar (ed), *Environmental, Aesthetics: Theory, research and applications* (pp. 343-356). Cambridge: Cambridge University Press.
- Ittelson, W., Proshansky, H.M., Rivlin, L.G., Winkel, G.H. (1974). *An introduction to environmental psychology*. New York: Holt, Rinehart and Winston.
- Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of environmental psychology*. Retrieved 31st May, 2011 from <http://www.esf.edu/for/schuster/FOR%20475/Restorative%20environs.pdf>
- Kenya, Republic of, (2010). *The constitution of Kenya*. Nairobi: Government Press.
- Kenya, Republic of, (2010). *Vision 2030*. Nairobi: Government Press.
- Lang, J. (1988). Symbolic aesthetics in architecture: toward a research agenda. In J. L. Nasar (Ed), *Environmental, Aesthetics: Theory, research and applications* (pp. 11-26). Cambridge: Cambridge University Press.
- Lang, J. (1987). *Creating architectural theory-the role of behavioural sciences in environmental design*. New York, Van nostrand reinhold.
- McGranahan, D. A. (2008). Landscape influence on recent rural migration in the U.S. *Landscape and Urban Planning* 85(3-4), 228-240. Retrieved June 2, 2011, doi:10.1016/j.landurbplan.2007.12.001.
- Mugenda, O. and Mugenda A. (2001). *Research Methodology*. Nairobi: Oxford University Press.
- Nasar, J. H. (Eds.) (1988). *Environmental Aesthetics: Theory, research and applications*. Cambridge: Cambridge University Press.
- Nassauer, J.I. (1989). The Aesthetic Benefits of Agricultural Land. *Renewable Resources Journal* 7:4. Retrieved June, 2011 from <http://www-personal.umich.edu/~nassauer/Publications/Full%20Citation-%201989-%20RRJ.pdf>
- Nasar, J. H. (2001). *Cities, images of. Environment and Behaviour*. Retrieved May 19th, 2011 from <http://eab.sagepub.com>.
- Ulrich, K. T. (2006). *Creation of artifacts in society*, Retrieved May 26, 2011, from <http://opim.wharton.upenn.edu/~ulrich/publications.html>
- United Nations Environment Programme. (1999). *Spiritual and Cultural Values of Biodiversity*. London: Intermediate Technology Publications.