USER PERCEPTION OF LAND USE ACTIVITIES AND FORMS ALONG RIVER CORRIDORS: A CASE OF THE NAIROBI RIVER URBAN WATERFRONT

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User Perception of Land Use Activities and Forms Along River Corridors

A Case of the Nairobi River Urban Waterfront

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

For William and Kabura

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LIST OF ACRONYMS

EBR	Environmental-Behaviour Research
CCN	City Council of Nairobi
CBD	Central Business District
MEMR	Ministry of Environment and Mineral Resources
NCBDA	Nairobi Central Business District Association
NEMA	National Environment Management Authority
NRBP	Nairobi River Basin Programme
NYS	National Youth Service
UNEP	United Nations Environment Programme

ABSTRACT

The Nairobi River corridor is neither pleasant nor enjoyable. Accessibility to the waterfront is illdefined and obscure. The built and natural environments are neglected, dilapidated and unsightly. The river basin is highly polluted with mounds of garbage, raw sewage, and chemical wastes. Unplanned and unregulated development schemes proliferate, and the areas adjacent to the river are extremely dangerous and crime prone. This research studies the relationship between environments and human behaviour. The study employs Environmental Behaviour Research methods to establish how the forms and land uses along the Nairobi River corridor relate to the users' attitudes and resultant behaviour patterns. Observation methods are used to establish the land use activities and dominant behaviour patterns of the users. User perception and attitude are assessed through scheduled interviews which employ preference/judgment scales, open ended questions and visual aids, where respondents rate 80 photos representing a variety of urban scenes and urban waterfronts. 5 urban design professionals have also rated the photos, in order to establish their Complexity, Monumentality, Order, Openness, Balance and Commonness. The respondents rate the best things about the river corridor as the Commerce/Business environment, and the worst things as Environmental Issues, Social Issues, Poor Infrastructure and Poor Maintenance. They like Complex, Ordered, Open, Balanced and Commonplace urban scenes; and Complex, Monumental, Ordered, Open, Balanced and Unusual urban waterfronts. It is recommended that regeneration efforts enhance essential linkages through an integrated transportation network, giving priority to pedestrian circulation. A vibrant mix of uses, and cultural events should also be incorporated to attract users to a continuous waterfront promenade, in order to inject vitality and bring active participation by users with the water's edge.

CHAPTER 1: INTRODUCTION

1.1.0 BACKGROUND

During the last centuries, the urban waterfront areas have undergone large transitions (Breen and Rigby, 1991; Hudson, 1996; Sairinen and Kumpulainen, 2006). Urban waterfront redevelopment has grown out of the need to respond to the historic alteration of land and water uses along the edges of thousands of cities throughout the world. In the past 30 years, the development trend has mainly been guided by the shift from industrial to commercial, residential, cultural and recreational uses of waterfront areas. In addition, the natural environments and waterfronts of Third World countries are negatively impacted by the absolute primacy of economic development over human development (Silva, 1997). Consequently in many cities, efforts are currently being made for urban waterfront regeneration to keep up with the demands of change (Fisher et al, 2004; Sairinen and Kumpulainen, 2006).

Although the social dimension of urban waterfront regeneration plans have become increasingly important in urban policies, the social impact assessments of waterfront regeneration interventions has been a much more weakly developed area. In various waterfront regeneration projects, environmental issues have been widely addressed through Environmental Impact Assessments (EIA) and Strategic Environmental Assessments of waterfront redevelopment interventions, at the expense of social issues (Nairobi River Basin Program (NRBP), 1999; Seattle's Waterfront Concept Plan, 2004; Bayfront Park, 2003; Mississippi Riverfront Revival, 2004). Sairinen and Kumpulainen (2006) propose that the social dimension of urban waterfront regeneration can be divided into four categories: *resources and identity; social status; access and activities; and waterfront experience.*

Resources and identity involves analysing the main characteristics of the waterfront area, identifying the resources that can be considered as strengths in the area, as well as the cultural or historic values of a specific area. Study of *social status* involves identifying for whom (social, age or ethnic groups) the physical facilities and service areas are planned and built. *Access and activities* involves establishing how accessible the waterfront areas are to the public, the ease or difficulty people have while approaching the waterfront and what kinds of activities are possible at the waterfront. Finally, *waterfront experience* explores the effects of the physical presence of water (sea, lake or river), its restorative experiences and visual and emotional/spiritual stimulation (Sairinen and Kumpulainen, 2006).

Since urban waterfronts are public spaces that are experienced on a regular basis by large numbers of people, they have a substantial influence on the evaluative image of the city. At present, decisions about the visual quality of the environment predominantly the domain of design professionals (Moughtin, 2003). Unfortunately, research indicates that professionals and the public do not share aesthetic values; they differ significantly in their environmental preferences, and professionals do not always accurately gauge aesthetic needs of the public (Sommer, 1969; Nasar, 1988). Reliance on professional intuition alone is therefore not acceptable. Since *waterfront experience* centrally involves the relationship between physical stimuli and human response, social dimensions of regeneration should involve Environmental Psychology and Environmental Behaviour Research (EBR) and Environmental Aesthetics. These areas of expertise use scientific methodologies to help explain the interrelationship between environments and human behaviour. Findings in these fields indicate because of its importance, visual quality may well influence well-being and behaviour in a given setting (Zeisel, 1984; Nasar, 1988; Fisher, 2005; Bechtel and Churchman, 2002).

1.2.0 PROBLEM STATEMENT

The Nairobi river corridor does not offer pleasure or enjoyment to the public. Visitors to the city do not venture into the river corridor without a local guide; in fact few local residents feel comfortable attempting to access the river corridor. Accessibility routes to the river are ill-defined and obscure. Unregulated development obstructs a major vehicular access road (Plate 1.2.1). Dilapidated road networks impede both pedestrian and vehicular circulation (Plate 1.2.2). Informal activities and informal structures have mushroomed in the area blocking existing access routes (Plate 1.2.3). These activities impede connection between different sides of the waterfront (Plate 1.2.4).



Plate 1.2.1: Obstruction of access road. (Source: Author, 2007)



Plate 1.2.2: Dilapidated road network. (Source: Author, 2007)



Plate 1.2.3: Informal trading encroaching on bridges. (Source: Author, 2007)



Plate 1.2.4: Makeshift pedestrian bridge. (Source: Author, 2007)

3

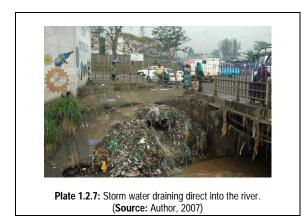
The Nairobi River corridor is a highly polluted environment. Mounds and mounds of garbage characterise the length of the river corridor, and the public regularly uses the river as a 'public toilet' (Plate 1.2.5). What once used to be a fresh water river is now a toxic black liquid, saturated with suspended and dissolved solids, heavy metals, raw sewage, fertilizers and other chemicals (Plate 1.2.6). Untreated storm water and raw sewage are discharged directly into the river (Plate 1.2.7). Instead of attracting tourists, the river is a magnet for 'street urchins', who scavenge in the garbage heaps in an attempt to eke out a living (Plate 1.2.8). This unchecked pollution has rendered the river water unsafe for human consumption, and it is a cause of high rates of water-borne diseases and other infections (NRBP, 2001). Some parts of the river have been invaded by alien plant species and lost all their biological value (Karisa, 2000).

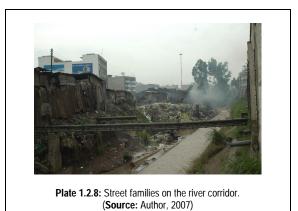


Plate 1.2.5: Solid waste along the riverbank. (Source: Author, 2007)

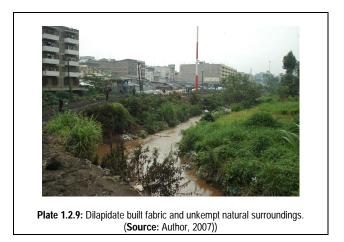


Plate 1.2.6: Poor water quality. (Source: Author, 2007)





Urban waterfronts capitalise on views to the water from the surrounding streets and neighbourhoods. The planning guidelines for the city of Nairobi have major access routes as well as building frontages and access routes are located away from the river corridor. The views experienced along the river corridor are, therefore, predominantly of the rear side of buildings, a majority of which are in a state of disrepair. The visual stimulus afforded along the Nairobi river corridor is therefore not scenic, but rather of an unkempt environment, where the buildings and the natural environment is neglected and dilapidated (Plate 1.2.9).



Ineptitude in implementation of land use policy and environmental regulations by the relevant authorities has led to a disregard for the existing city planning and zoning regulations in the area. Unplanned urban development schemes have encroached on the former riverine areas. The result is the processes of devastation to the river basin due to the land use activities situated adjacent to it. Resale of used tire tubes, care spare parts and other second hand wares on the waterfront leads to pollution of the environment with a variety of toxic and non-biodegradable substances such as plastics, rubbers and rusting metals (Plate 1.2.10). Retail markets, small restaurants and hotels channel their untreated waste directly into the river channel (Plate 1.2.11). Car washing, servicing and repair are also rampant along the waterfront and the dirty water and oil generated seeps unchecked into the river (Plate 1.2.12). Adjacent printing and stationery premises (predominantly along Kijabe Street) generate chemical waste seepage that pollutes the river, as well as solid waste (waste paper). The sorting of this waste paper is carried out on the riverbanks, with no heed paid to the waste that inevitably seeps into and pollutes the river (Plate 1.2.13).

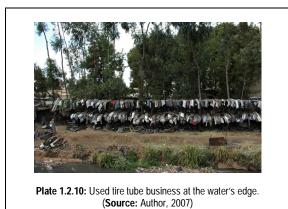




Plate 1.2.11: Informal structures draining waste into the river. (Source: Author, 2007)