

## **SPACES Working Paper Series**

**No: 006 / November 2017**

# Challenges of measuring place attachment in Kenya and Mozambique

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*This working paper results from the project 'Sustainable Poverty Alleviation from Coastal Ecosystem Services (SPACES) NE-K010484-1' funded with support from the Ecosystem Services for Poverty Alleviation (ESPA) programme. The ESPA programme is funded by the Department for International Development (DFID), the Economic and Social Research Council (ESRC) and the Natural Environment Research Council (NERC).*

## **ABSTRACT**

Place attachment can be defined as “the emotional bonds between people and a particular place or environment” (Seamon, 2014, p.11). The SPACES project survey included questions on place attachment in 7 different coastal communities in Kenya and Mozambique. The 2280 surveys that had valid records were used to produce a single quantitative measure of place attachment. We analyzed both countries together and each country as a separate sample (Kenya, n=1638; Mozambique, n=642) because the questions were asked differently for each country. Two methods for generating a place attachment score were applied, one In general, the place attachment value was lower in Mozambique than in Kenya although this could be due to methodological differences in each country. We also explored the distribution of responses across the place attachment index. The majority of the respondents are strongly place attached—i.e. strongly agree with many or all of the statements. Thirty percent of respondents considering the whole data set gave the maximum score to all the scale items. We have tried to operationalize the concept of place attachment as an affective bond, acknowledging that this measurement reflects only one aspect of relationships to place (William, 2014). Two different methods for constructing a numerical score of place attachment were tried and the results were highly correlated. Although the data were highly skewed towards maximum place attachment scores, some evidence exists for differences between the sites. In particular, the most urban Kenyan site (Kongowea) had the least positive median scores.

## **About this working paper**

This work was conducted by Nicole Reid, MSc student, and Blanca González García-Mon, MSc student, as a part of a 5-weeks internship during May-June 2016. This internship is part of the Social-Ecological Resilience for Sustainable Development (SERSD) master’s programme at the Stockholm Resilience Center. Blanca is a scholar of “la Caixa” banking foundation.

## **To cite this working paper:**

González García-Mon, B., and Reid, N. et al. 2016, ‘The Challenges of measuring place attachment in Kenya and Mozambique’, SPACES Working Papers, no. 7. Available from: [www. Espa-spaces.org](http://www.espa-spaces.org). [date accessed].

## 1. Introduction

Place attachment can be defined as “the emotional bonds between people and a particular place or environment” (Seamon, 2014, p.11). When understood as this emotional bond, place attachment has been extensively studied in the last 20 years, and different alternatives to measure the strength of this bond have emerged in the scientific literature (Williams, 2014; Lewicka, 2011).

It has been suggested that people are naturally place attached, even in a globalized changing world (Lewicka, 2011). However, the importance of analyzing this bond is that it can vary considering the places or people’s characteristics (Scannell & Gifford, 2010a), and influence human behavior. For instance, many scholars have linked place attachment with environmental behavior (e.g. Scannell & Gifford, 2010b), and others have analyzed place attachment (or related concepts, i.e. sense of place) as an ecosystem service (MA, 2005).

In this context, the SPACES project analyzed place attachment in 7 different coastal communities in Kenya and Mozambique. It constitutes one of the very few examples analyzing place attachment in developing countries, which opens the door for further studies relating place attachment with poverty alleviation and sustainability.

## 2. Methods

### 2.1. Data collection.

The data was collected as part of the household survey of the SPACES project. Household surveys were conducted by trained local enumerators in 8 rural coastal communities in Kenya and Mozambique in 2014. The household survey gathered data on livelihoods, different dimensions of wellbeing, demographics, food consumption and details of livelihood activities. A randomly selected sample of households was included in the survey.

The household questionnaire was designed following the 9-items place attachment scale developed by Lewicka (2005). The scale includes two buffer statements which reversed the direction (i.e. more place attached people would be expected to disagree; *I feel a foreigner while in...; and I would like to move out of...*) to test the understanding of the questionnaire (Box 1).

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#### 4.1 → Place attachment

*[Awareness and attitudes are about how people **feel now** and not some time ago]*

I will read some statements which might describe how you feel about .....*[name of site]*. Please tell me whether you agree or disagree.

*[[IF 'yes'] Do you somehow agree [3] or strongly agree [4]]*

*[[IF 'no'] Do you somehow disagree [2] or strongly disagree[1]]*

	Question	Code (1-4)
4.1.1	I miss ..... <i>[name of site]</i> when i am far	
4.1.2	I feel a foreigner while in .....	
4.1.3	I feel safe while in ...	
4.1.4	I am proud of .....	
4.1.5	..... is a part of me	
4.1.6	I would like to move out of .....	
4.1.7	I want to be engaged in the affairs of ....	
4.1.8	I am rooted in .....	
4.1.9	I would like my family and friends to live at ..... <i>[name of site]</i> in to the future.	
4.1.10	<b>I feel.....<i>[name of site]</i> is a natural environment</b>	
	1) Strongly disagree    2) somehow disagree    3) somehow agree    4) strongly agree	

#### Box 1. SPACES survey section on place attachment

Some modifications from the scale developed by Lewicka (2005) were required to match the cultural setting. First, the scores were converted from a scale of 1 (strongly disagree to 5 strongly agree) to a four point scale which allowed a two-stage questioning: firstly whether the respondent agreed or disagreed and then whether their (dis)agreement was strongly or weakly felt. Second, the statements were reformulated as questions in Mozambique to facilitate their understanding.

### 2.2. Data analysis

The 2280 surveys that had valid records were used to produce a single quantitative measure of place attachment. We analyzed each country as a separate sample (Kenya, n=1638; Mozambique, n=642) because the questions were asked differently for each country. The complete sample grouping Kenya and Mozambique was also analyzed as a whole to compare both countries. Therefore the same process was repeated for only Kenya, for only Mozambique and for the whole data set.

First, we converted the scores of the buffer items so that all items pointed to the same direction. We observed that the mean value of these items is similar to the others, meaning that the statements or questions were understood. Second, we analyzed the scale acknowledging that it has not been tested in similar contexts. We performed two different types of factor analysis: Principal Component Analysis (PCA) to test the internal structure of the items. The results of PCA analysis showed that the buffer statements loaded into different factors, and thus they were eliminated from the scale for the following analysis. No clear structure of responses coherent with the literature was found. We then tested the consistency of the remaining 7-item scale through a Cronbach alpha test. The scale is consistent (Cronbach alpha>0,7), both when analyzing the sample as a whole (0,767) and Kenya (0,774) and Mozambique (0,758) separately.

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To create the Place Attachment Index, the 7-items scale was analyzed using a PCA (nfactors:2 , rotate: varimax , scores: True). The loadings from the first Principal Component were used to calculate the index according to the following equation:

$$\text{Place Attachment Index} = (q4.1.1 * \text{Loading}[1] + q4.1.3 * \text{Loading}[2] + \dots).$$

An additional scale was created following consultation with Dr Chris Raymond, who identified that according to place attachment theory work highlights the multidimensional nature of place attachment. Given the questions included in the survey five related strongly to the dimension of 'place identity'.

This involved a Factor Analysis conducted only on 5 questions that related specifically to place identity component of place attachment. The buffer questions (4.12 - I feel a foreigner and q 4.16 - I would like to move out) were removed, as well as 4.14 (I am proud) and q 4.13 (I feel safe while in), which relate less strongly to place identity and which also loaded in different factors in exploratory analysis in Kenya. The place identity index was calculated using a Maximum Likelihood Factor Analysis with factor: 3 and rotation: varimax. The number of factors were determined by the p-value where the null hypothesis is that number of factors are sufficient.

Comparing this scale with the PCA generated scale on 7 items described above showed a very high correlation (0.980 in Kenya and 0.918 in Mozambique). The remainder of this paper is based on the PCA-generated scale on 7 items.

### 3. Results

We explored the Place Attachment Index for the whole data set, for only Kenya and for only Mozambique. **Table 1** shows the summary statistics of the index. In general, the place attachment value was lower in Mozambique than in Kenya.

**Table 1.** Summary statistics of the Place Attachment Index. The results show the analysis of Kenya and Mozambique together and separated.

Data set	N	Mean	Median	Min	Max	NA's
Kenya and Mozambique	2293	15.070	16.060	4.196	16.780	13
Kenya	1647	15.660	16.730	4.364	17.450	9
Mozambique	646	11.630	12.220	3.276	13.220	4

We also explored the distribution of responses across the place attachment index (**Figure 1**). The majority of the respondents are strongly place attached—i.e. strongly agree with the statements. 30% of respondents considering the whole data set gave the maximum score to all the scale items, having the same place attachment index. This pattern is also observed for Kenya and Mozambique individually, where 42% of respondents gave the maximum score to all the scale items, but slightly different for Mozambique when

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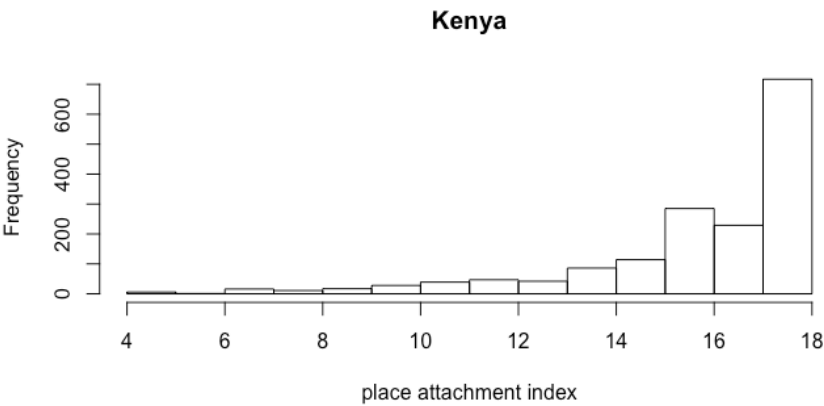
analyzed independently. Regardless of the sample analyzed, about 1/3 of responses show the same (i.e. the maximum) place attachment index.

Comparisons between sites showed some evidence of differences between sites despite the highly skewed data (Figure 2). In Kenya, a wider range of values for place attachment (i.e. a relatively lower proportion of the sample had maximum scores) were found in the urban site of Kongowea. In Mozambique, respondents most consistently had high place attachment scores in the rural site of Lalane.

a.)



b.)

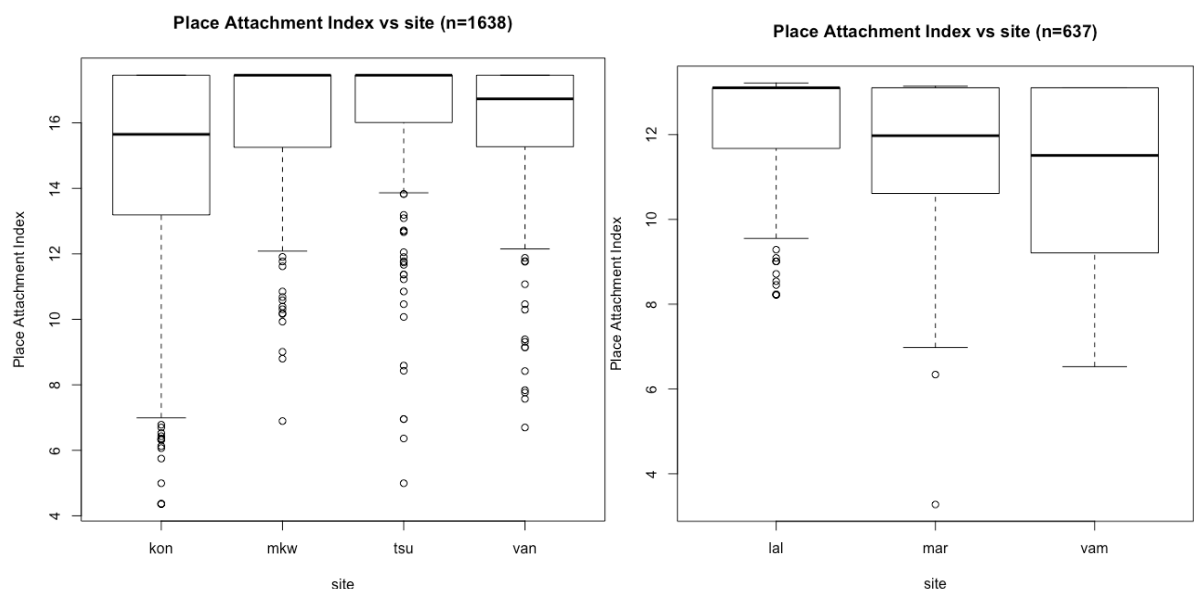


c.)

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**Figure 1** Distribution of responses across the Place Attachment Index: a) for Kenya and Mozambique together; b) Only for Kenya; c) Only for Mozambique.



**Figure 2** Place attachment values by site when analyzing Kenya (Left) and Mozambique (right) separated, and suggests that there are differences in the place attachment responses depending on the coastal community studied.

#### 4. Discussion

We have tried to operationalize the concept of place attachment as an affective bond, acknowledging that this measurement reflects only one aspect of relationships to place (William, 2014). There are different conceptualizations of place attachment emerging from different scientific backgrounds that suggest various methods to create quantitative measurements (Hernández et al. 2014). The conceptualization and methods selected

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will help to answer different questions, which contribute to the lack of methodological clarity that characterizes the place attachment analysis (William, 2014). In addition, place attachment measures have been operationalized differently in different contexts, for example in rural and urban environments (Hernández et al. 2014). This creates problems related to the validity of the measurement.

Whereas some authors use a bigger number of items to create sub-scales and scales that can relate to the multi-dimensional nature of the place attachment concept (e.g. Williams and Vaske, 2003; Brown and Raymond, 2007), this study is based on a scale with a single-factor structure (Hernández et al. 2014). This is because exploratory analysis did not reveal any consistent structure between the different questions. In this regards, the patterns obtained in our study differ from the results obtained by Lewicka (2005) using a similar scale in urban contexts in Poland. This may be explained by the the cultural and context-specific attributes of Kenya and Mozambique, but changes in the methodology required to conduct the questionnaire in Kenya and Mozambique cannot be ruled out.

Overall the distribution of responses suggests that, as measured, place attachment was universally high across sites but there is some evidence of differences between sites. However the highly skewed nature of the data and limited variability in responses may limit the ability of these data to reflect individual differences.



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## **Appendix I – List of associated files**

Files generated from this analysis have been compiled and archived in a folder stored on the SPACES shared filespace (SPACES common team folders\Shared publication working files\Working papers\2016 Student internships working files) containing the following files:

### 1. Christina (Lewicka) method- PA index folder

- Distribution of responses PA index
- Place attachment index output
- R Scripts
- A preliminary review of place attachment methods in the literature.

### 2. Exploring Methods folder

- Calculations for Raymond's methods
- Exploring place attachment data (doc)
- meeting notes with C. Raymond (doc)
- Review place attachment methods (doc)

### 3. Methods comparison place attachment (doc)