

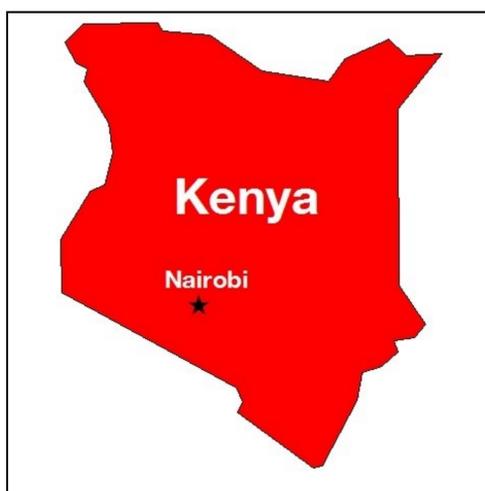
KaribuniKwetu:

A Suitability Analysis for Participatory Slum Upgrading Programme Implementation in Kibera, Nairobi, Kenya

Introduction

According to recent figures, 24% of Kenya's population now resides in its urban centers. Among this ever-burgeoning urban population, more than half live in the country's sprawling informal settlements, a number that grew from 1.5 million residents in 1990 to more than 6.4 million in 2014. No city epitomizes this trend better than the country's largest city of Nairobi, home to one of the largest informal settlements in the world, Kibera.

Kenya ¹	
Total Population (2014)	45,546,000
Population Living in Urban Areas	25.2%
Urbanization Rate	4.34%
Urban Population Living in Slums	56%
Population of Urban Slum Dwellers	6,427,000



The Participatory Slum Upgrading Programme (PSUP) is an innovative, grassroots approach developed in 2008 by UN-Habitat, the African, Caribbean and Pacific (ACP) Group of States, and the European Commission to give voice to residents of informal settlements and facilitate inclusive dialogue on improvement and reform efforts. Currently in action in 35 ACP countries and 160 cities, PSUP represents an innovative method of addressing the challenges faced by the urban poor by integrating them into the broader city decision-making ecosystem and promoting slum-dwellers in a positive light.

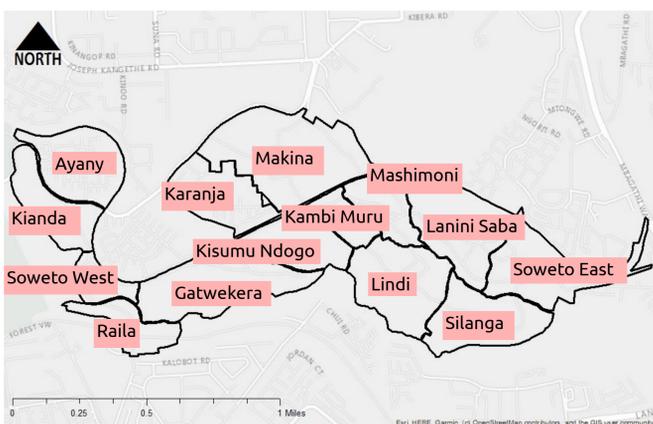


Figure 1. Twelve Kibera Villages

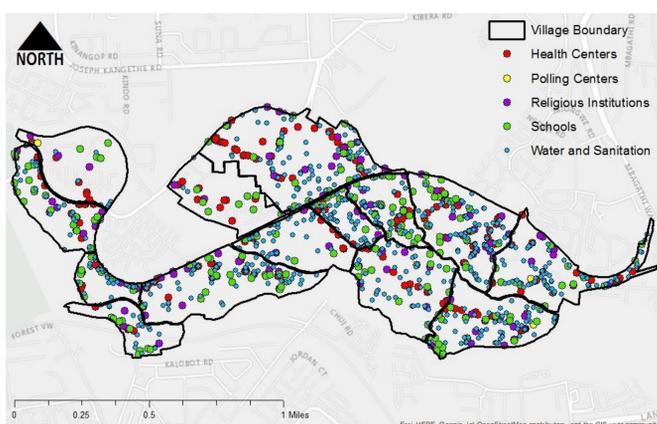


Figure 2. Distribution of Amenities in Kibera

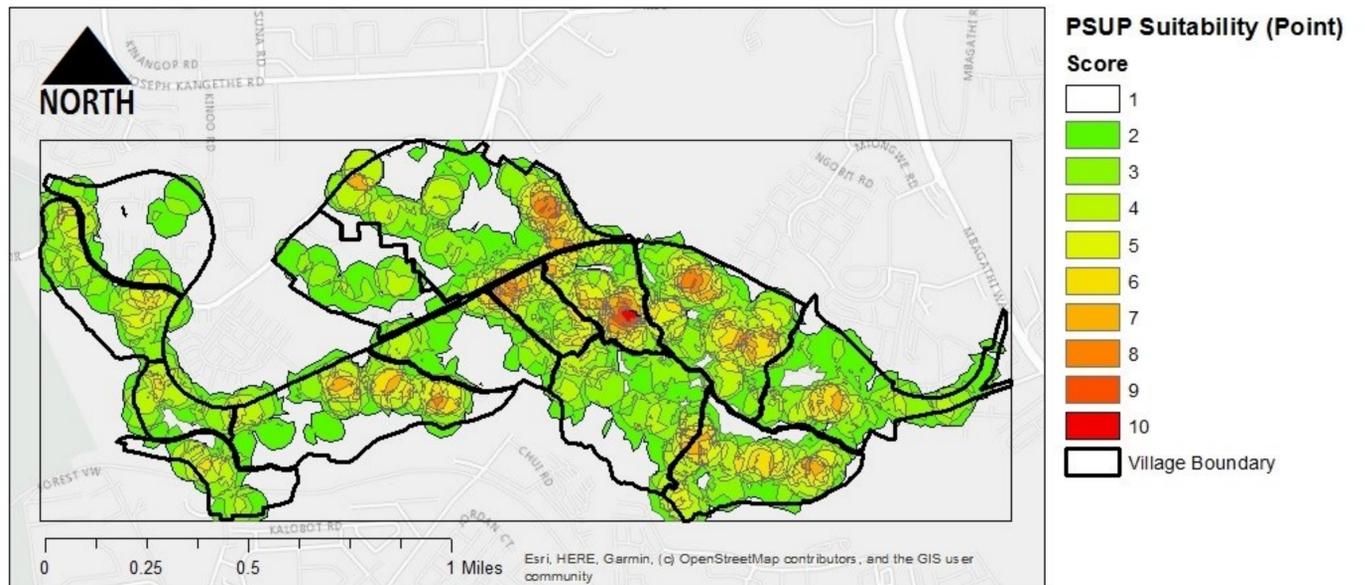


Figure 3. PSUP Suitability Using Point Density

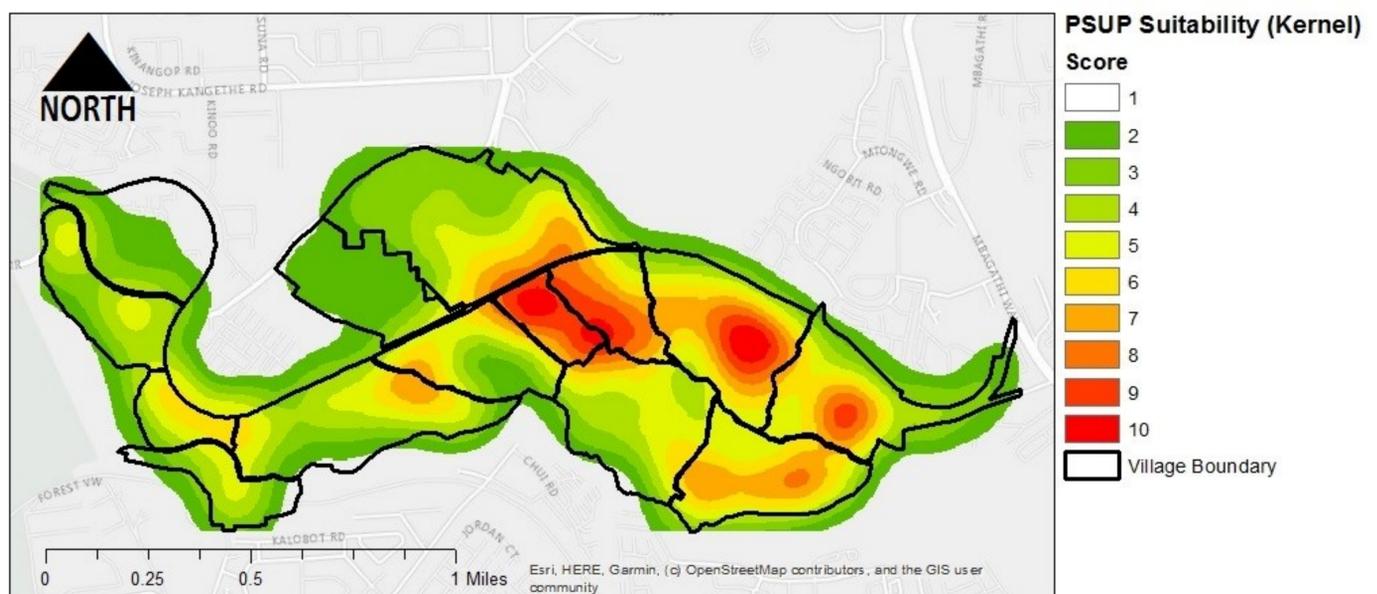


Figure 4. PSUP Suitability Using Kernel Density

Methodology

This analysis uses data obtained from the community-based organization, Map Kibera Trust, to predict where suitable locations exist for city-planners and municipal administrators to engage residents of Kibera were they interested in implementing PSUP.



Picture Credit: Steffan Jensen

The density of different amenities was used as a proxy for civic engagement and suitability for areas of PSUP implementation and data collection. Shapefiles were projected into WGS 1984 UTM Zone 37S, before points were spatially joined to village boundaries

Point density and kernel density were to determine the points per square meter for each data layer. These resulting layers were then added together using raster calculator. The density maps were reclassified into 10 equally divided levels. Regarding point density, 80m regarding point density to describe account for points within a 1 minute walk.²

Results and Discussion

As is evident from Figures 4 and 5, the kernel density map does not provide insight as to where implementers should go for every village but rather where hot spots exist in Kibera as a whole. The point density analysis indicates areas of interest at the village level of granularity.

While potentially useful, a further step for analysis could be to derive a formula to weight the separate density layers differently when calculating the PSUP suitability score. While there are 100s of water sanitation facilities, there are only four polling stations in the entire settlement. The density of these points should likely be valued differently.

Geoffrey Tam

UEP 0232 Intro to GIS

Coordinate System: WGS 1984 UTM Zone 37S

Projection: Transverse Mercator

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THE FLETCHER SCHOOL OF LAW AND DIPLOMACY
TUFTS UNIVERSITY

Data Sources

1. Map Kibera
2. ESRI, World Light Gray Canvas Base

References

1. UN-Habitat, Slum Almanac 2015/2016
2. https://en.wikipedia.org/wiki/Walking_distance_measure