

FIG
2018
ISTANBUL

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XXVI FIG CONGRESS

8-11 May 2018, İstanbul



Application of Remote Sensing to Monitor Thermal Emission, a case study of Accra Metropolitan Area

Stephen and Priscilla Djaba

EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:
ENHANCING THE GEOSPATIAL MATURITY OF SOCIETIES

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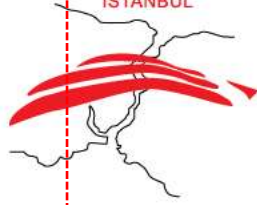
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Overview

● Background



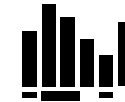
● Surface
Temperature
Analysis (1991-
2016).



● Land Use/
Land Cover
Changes
(2002-2016)



● Accuracy
Assessment



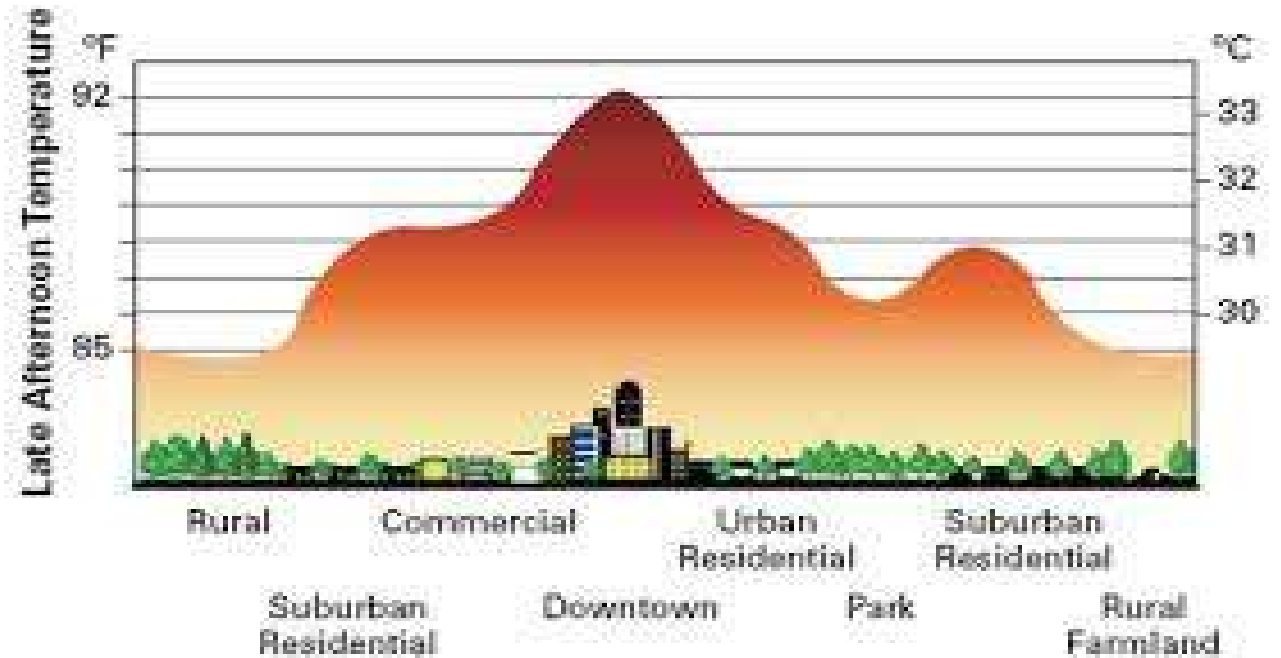
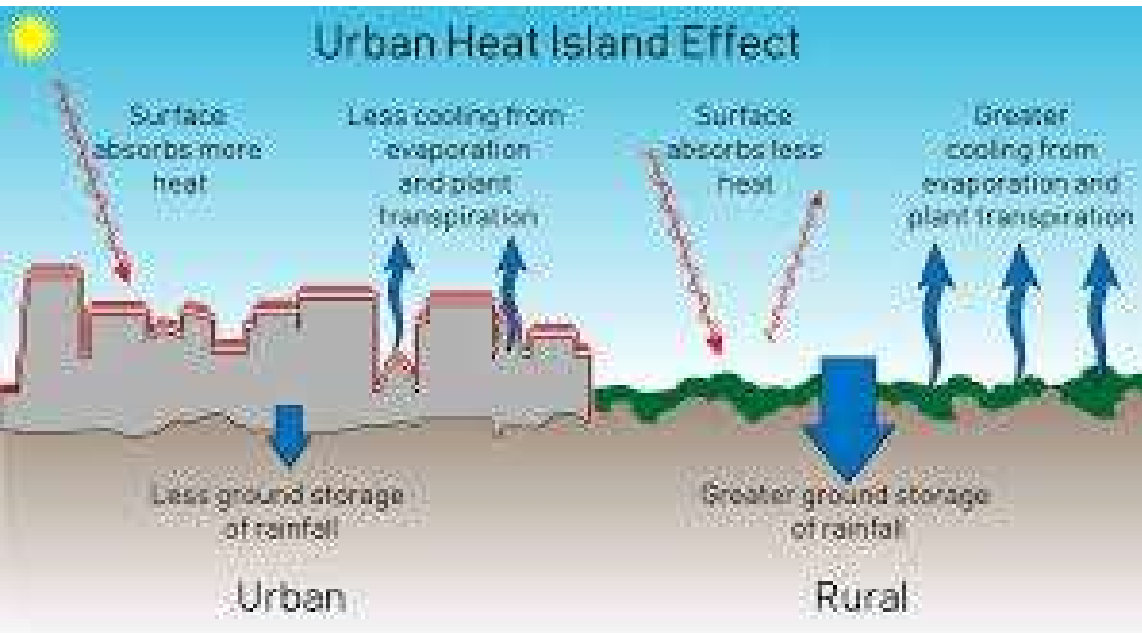
● NDVI Analysis



● Respondents
Perspective

Creation of Urban Heat Islands

Increased sub-surface, surface, or air temperatures observed in an urban environment compared to the undeveloped rural surroundings due to thermal energy build-up (Landsberg, 1981).



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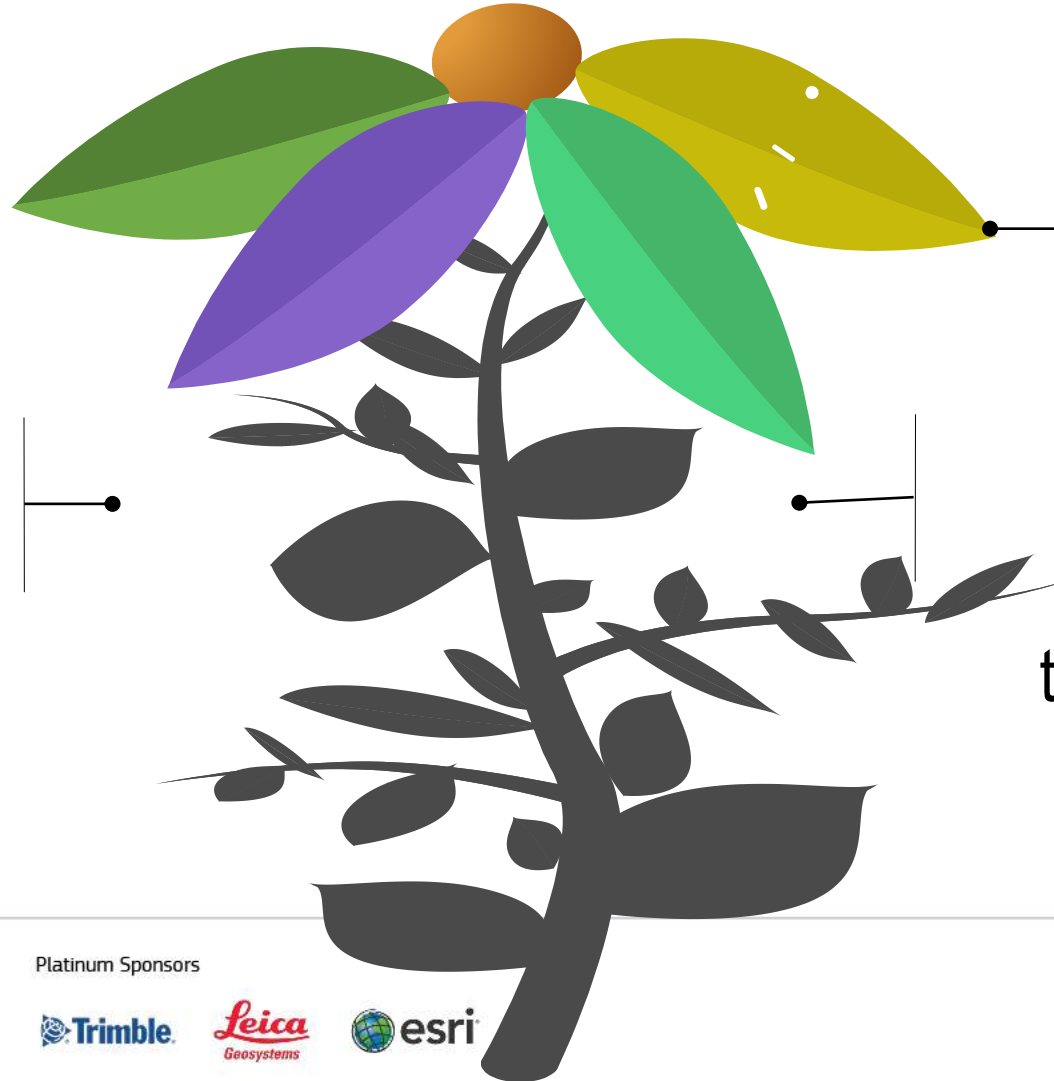




Our urban environment

Replacement of vegetative cover with impervious surfaces, increases sensible heat flux

Higher concentrations of pollutants from anthropogenic factors



The urban environment creates a massive harbor for carbon sequestration

Haven for ameliorate temperatures

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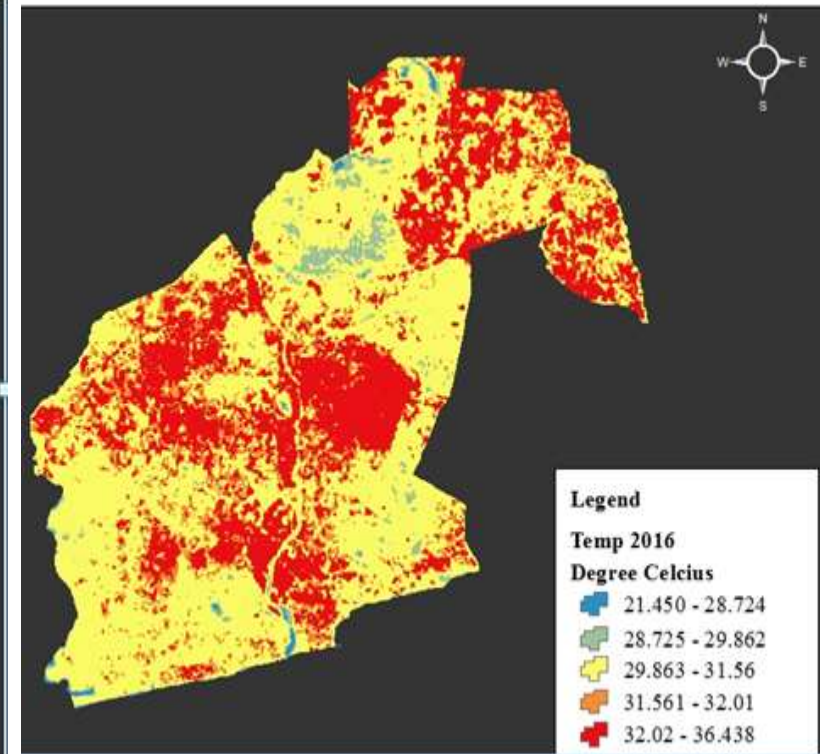
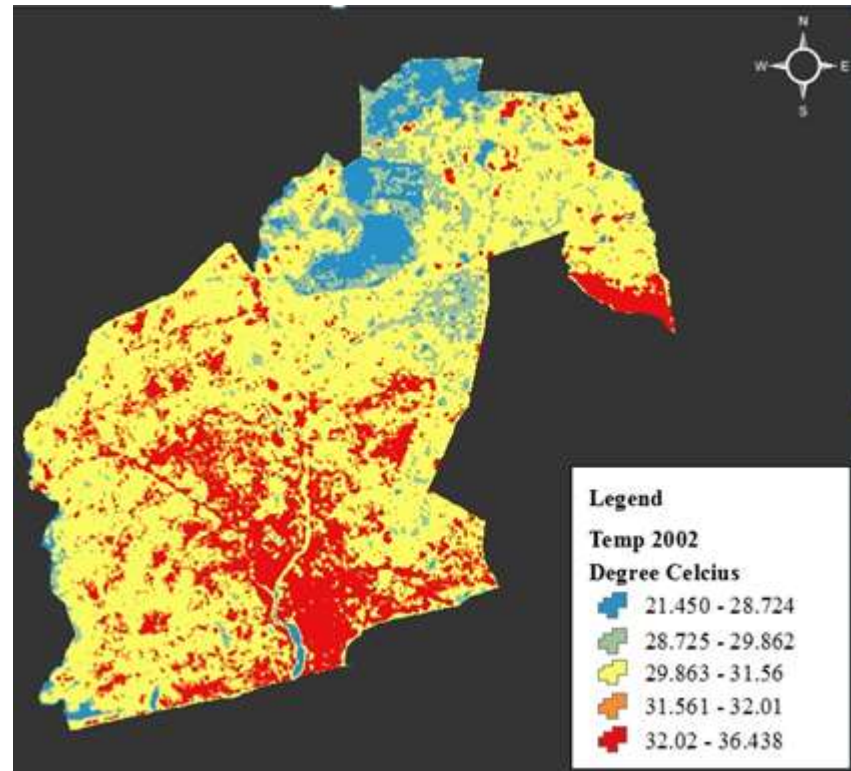
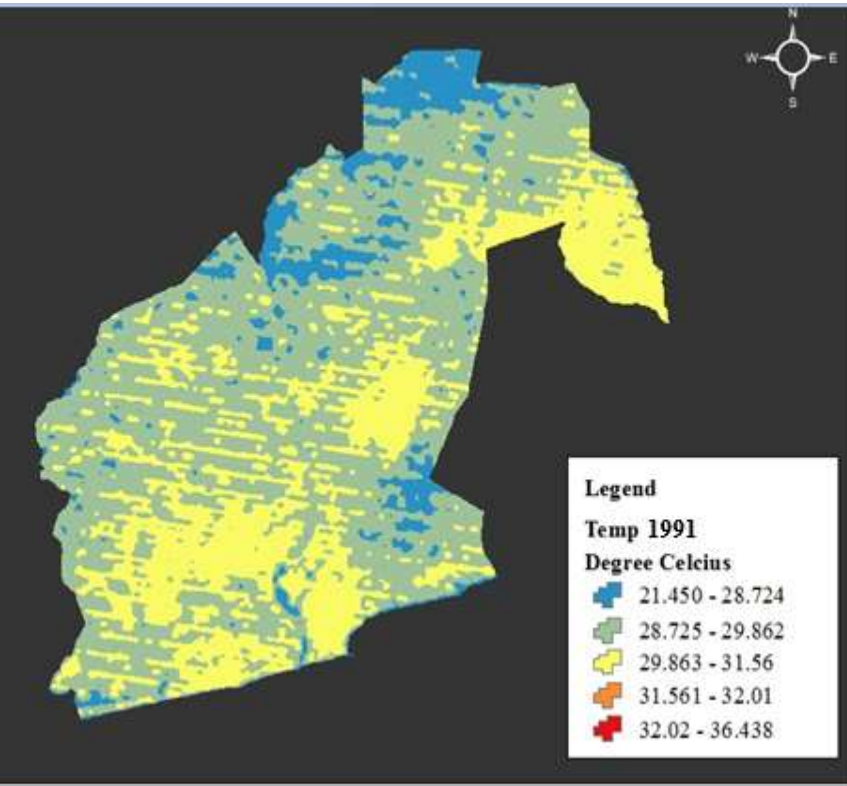


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Surface Temperature Analysis of AMA



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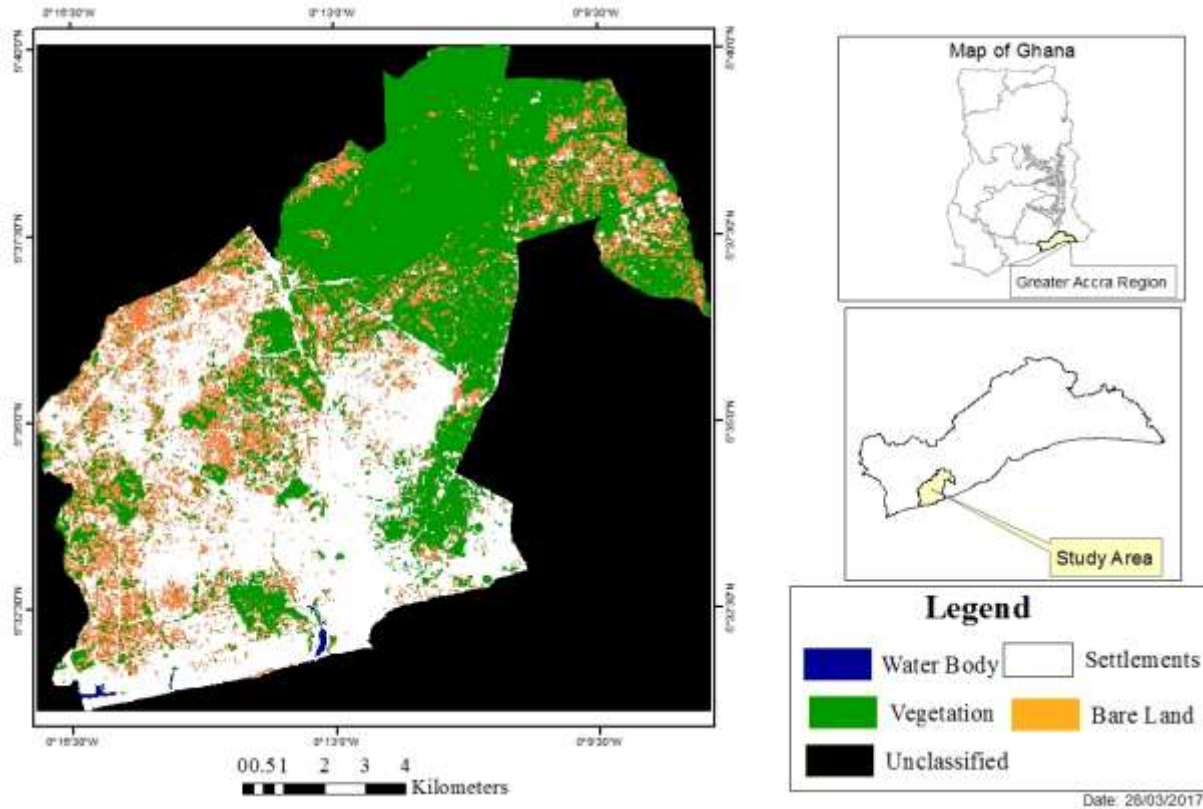
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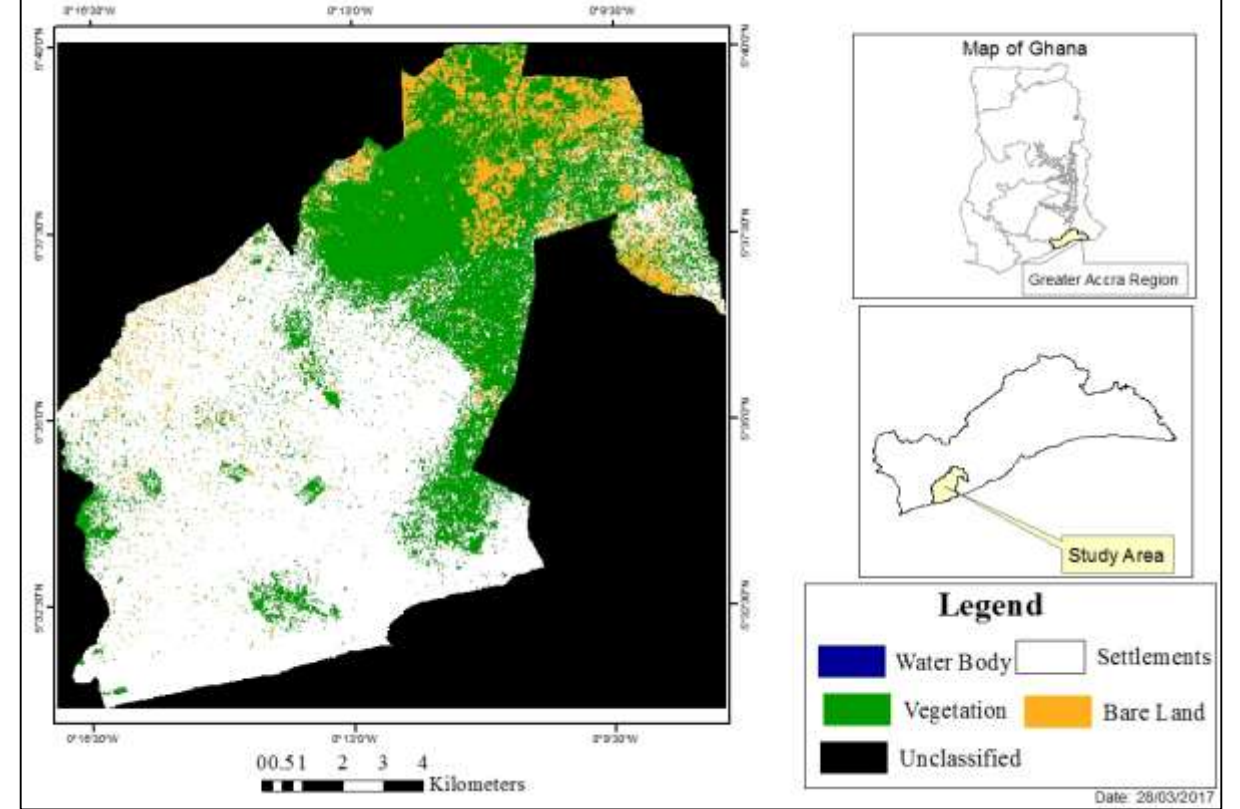


Supervised Classification

2002 Maximum Likelihood Classification



2016 Maximum Likelihood Classification



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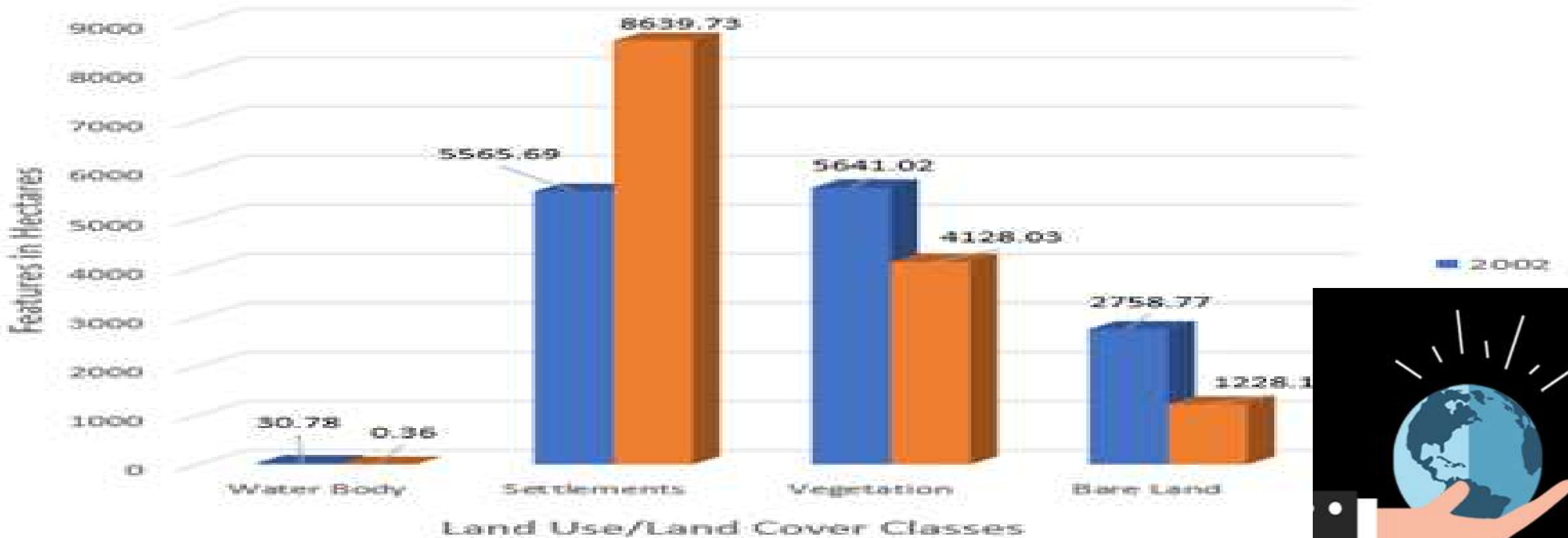


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LAND USE/ LAND COVER CHANGE FROM 2002 TO 2016



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Data Analysis



01

Surface Temperature over the 25 year period has increased by 5°C within the ROI

Accuracy Assessment Classified Image showed Overall Accuracy of 94%

The analysis also showed a more than 50% decrease in vegetative cover which can be attributed to rapid urbanization

03

04

54% of residents within the ROI stipulated the loss in vegetative cover as the main reason leading to increasing surface temperatures

05 Majority of the residents stated the increase in electrical consumption and health implications as the effects of the phenomena

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Bare Lands should be covered with vegetative cover to prevent dust particles from circulating in the atmosphere

Ensure a quarter of land is devoted to green spaces in every community



Adopting practices such as planting on rooftops and the use of lighter colors for roofing

Enforcement of laws protecting forest reserves in the urban environment

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