



# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## Spatio-Temporal Change Detection of Urban Green Space as a Result of Real Estate and Residential Development in Greater Accra

Stephen Ofori Smith  
Mphil. GIS  
Geomatic Engineering (KNUST)

Emmanuel.O Akrofi  
Geomatic Engineering (KNUST)



ORGANISED BY



PLATINUM SPONSORS





# FIG Working Week 2024

19-24 May

Accra, Ghana

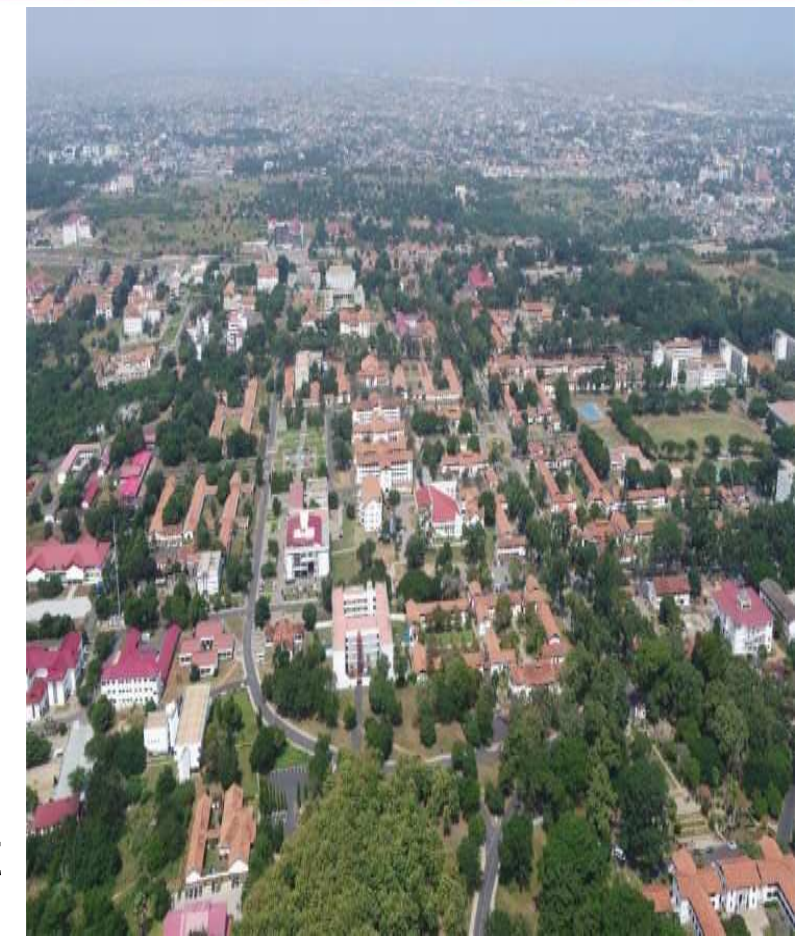
Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## Findings

Urban infrastructure, excluding urban green space is increasing at an alarming rate in the Greater Accra Region (1.4% annually for residential development)

This is influencing the decline of greenspaces in Greater Accra. (20% reduction in 14 years)

More than 55% of respondents agree that there are policies and institutions responsible for managing green space however, 79% are not aware of any regulations being enforced





# FIG Working Week 2024

19-24 May

## Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

### Study Area

- Greater Accra is the smallest among the sixteen (16) regions in Ghana.
- It extends about 3245km<sup>2</sup> and is considered the fastest-growing region in terms of infrastructure with a population of 5,455,692. (GSS, 2021).
- It has 29 Metropolitan, Municipal and District Assemblies (MMDAs).



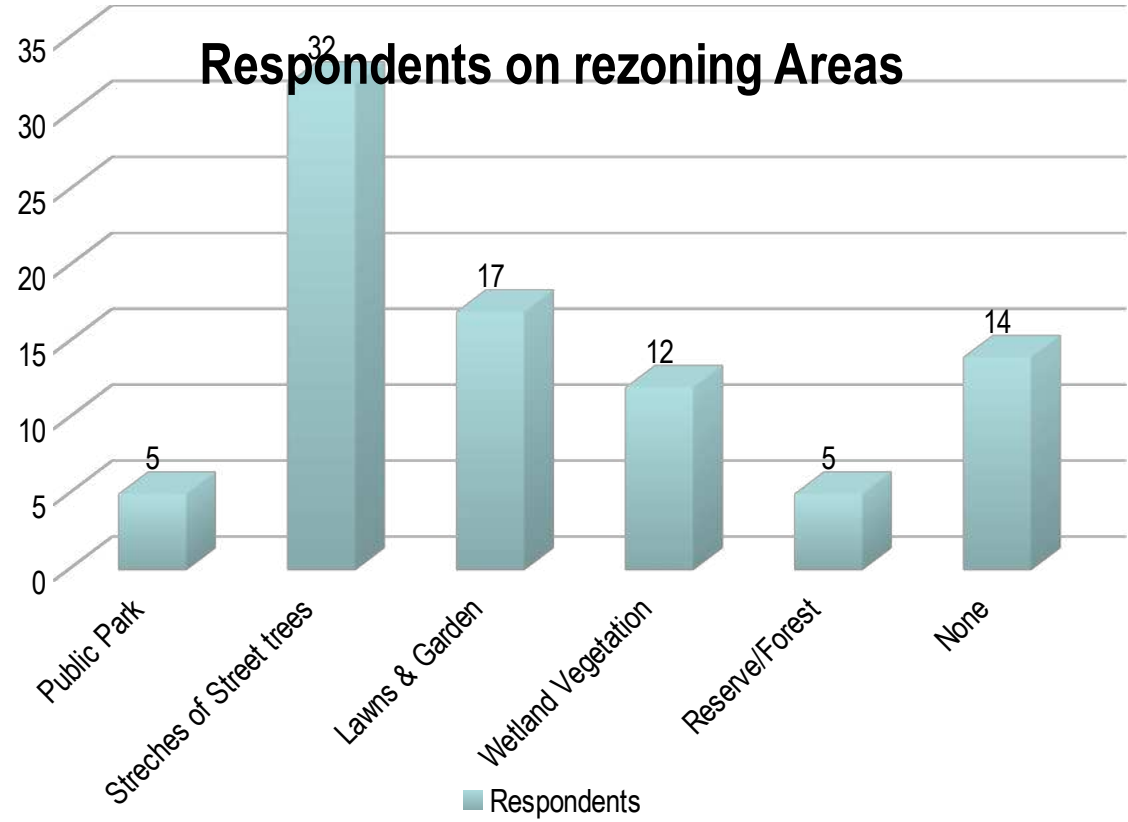


# FIG Working Week 2024

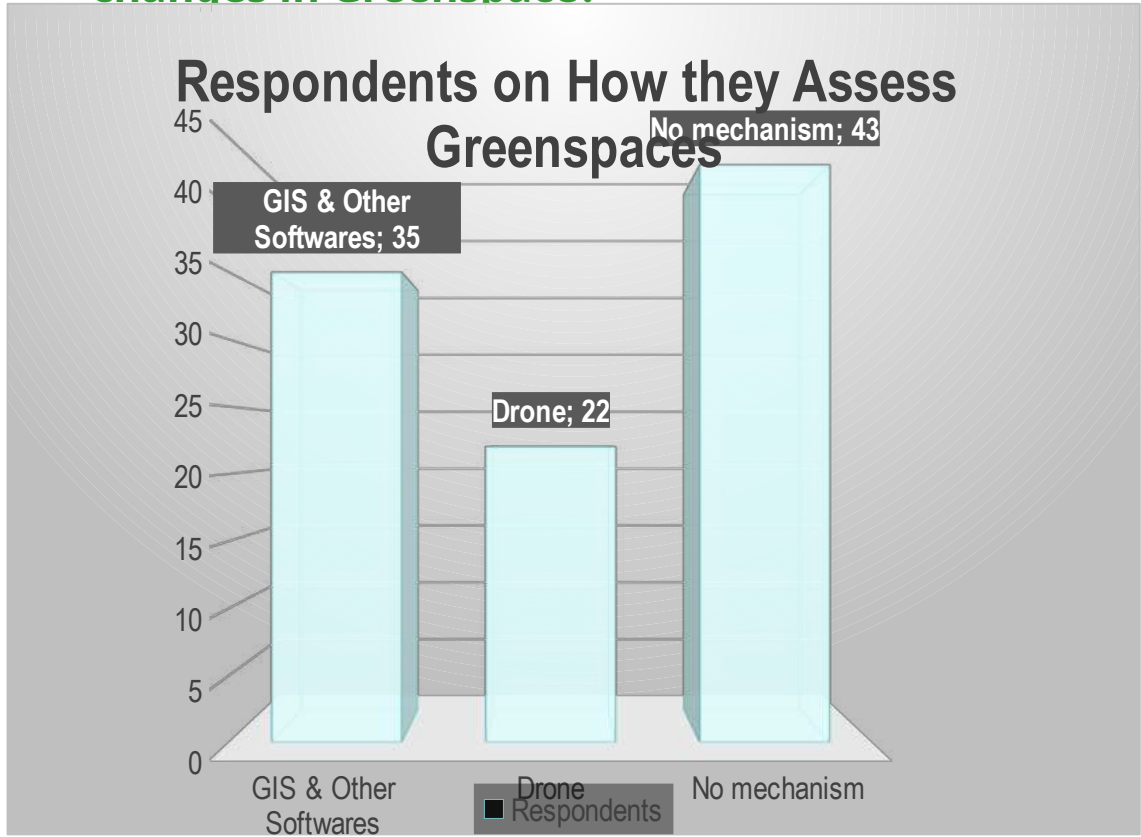
19-24 May

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

Is there any Greenspace that is converted to other land use?



How does residential developers assess changes in Greenspace?





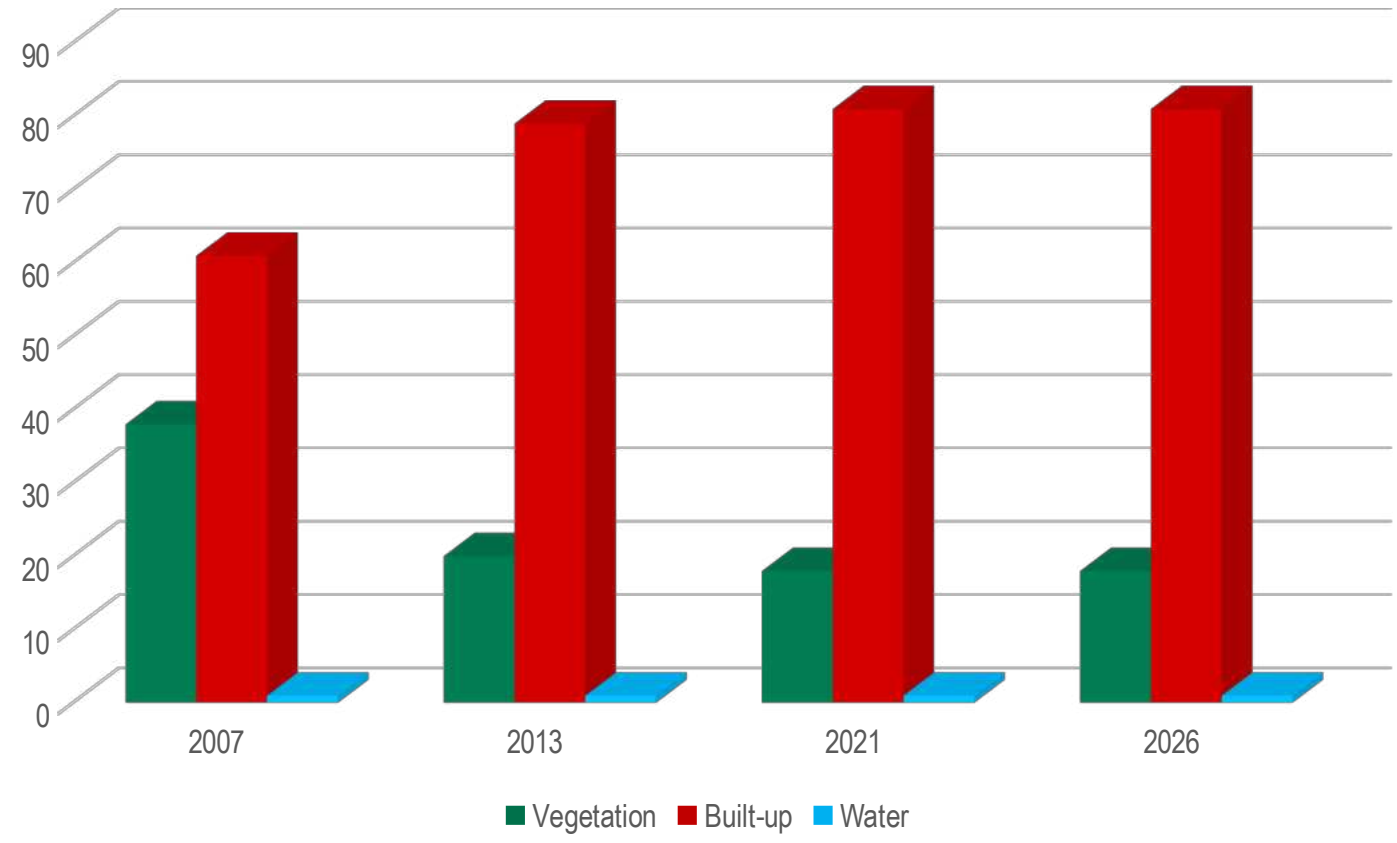
# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## LULC Changes and Prediction 2007- 2026





# FIG Working Week 2024

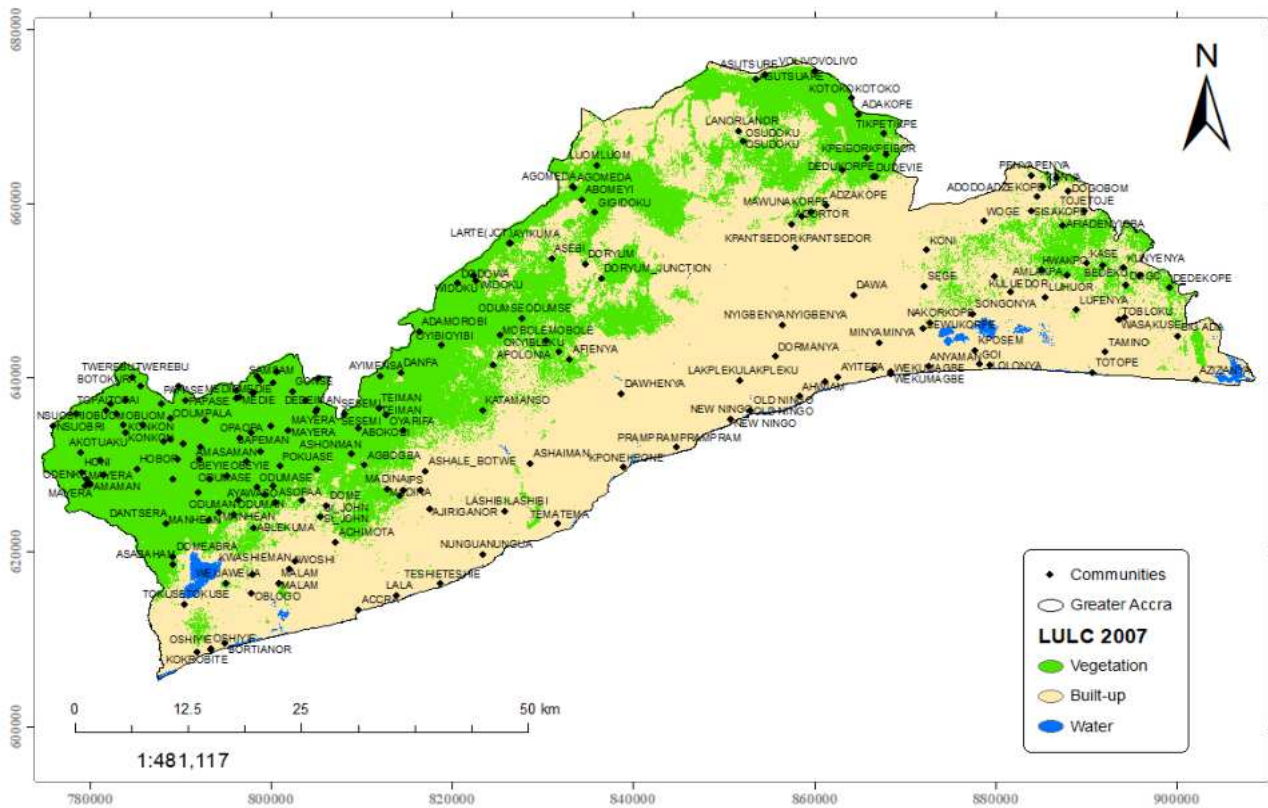
19-24 May

Accra, Ghana

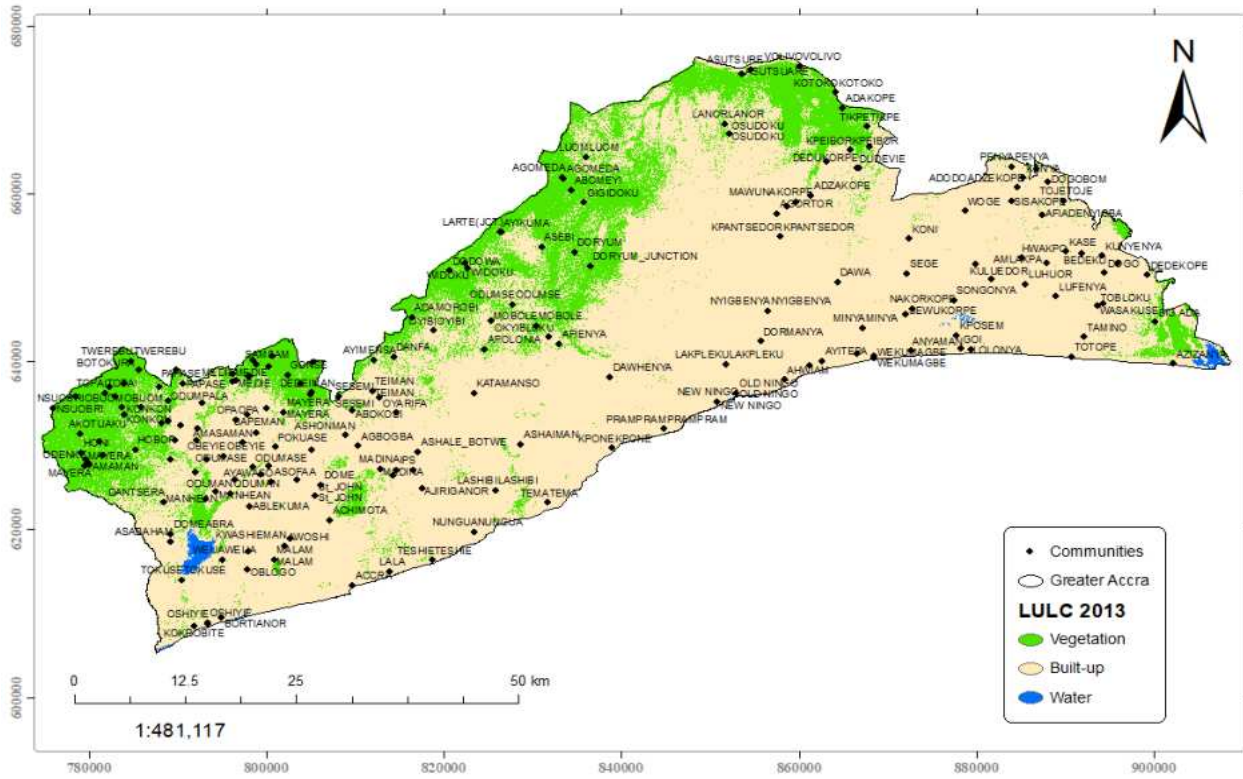
Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## Land Use Land Cover

LANDUSE/LANDCOVER 2007



LANDUSE/LAND COVER 2013



ORGANISED BY



PLATINUM SPONSORS





# FIG Working Week 2024

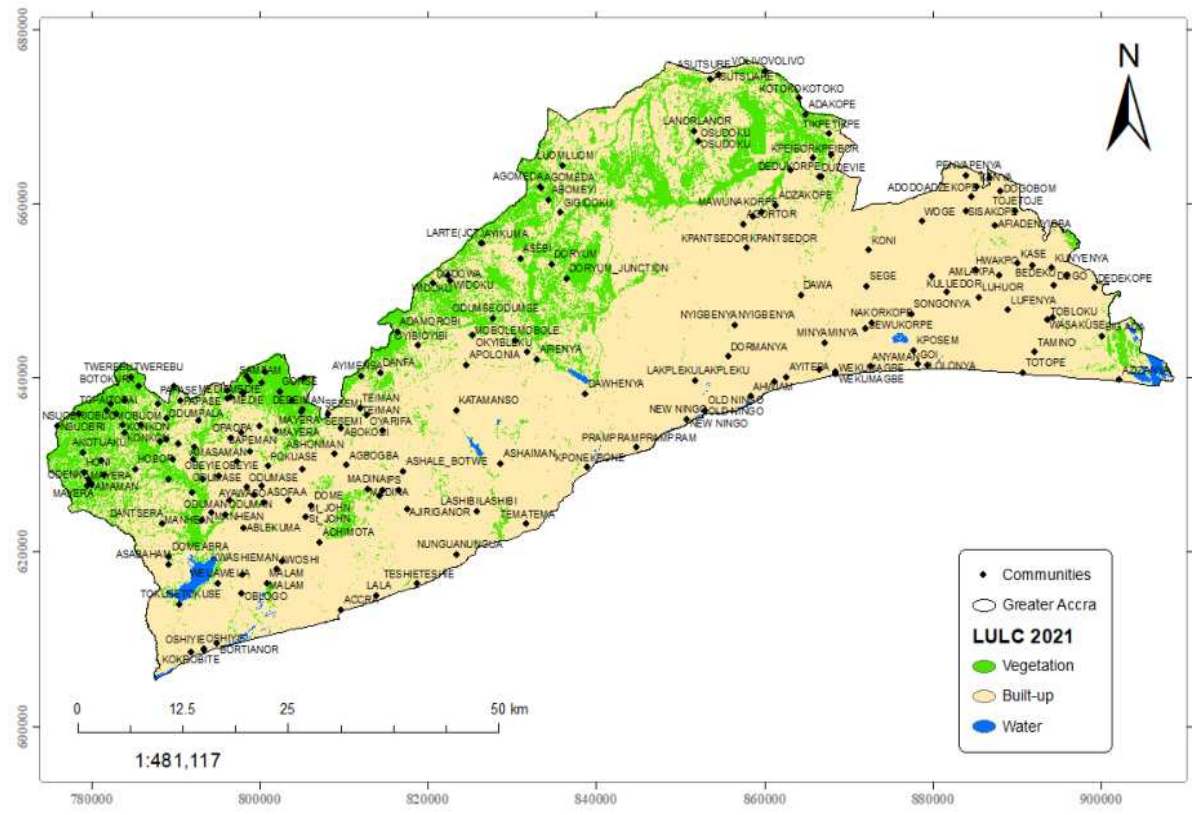
19-24 May

Accra, Ghana

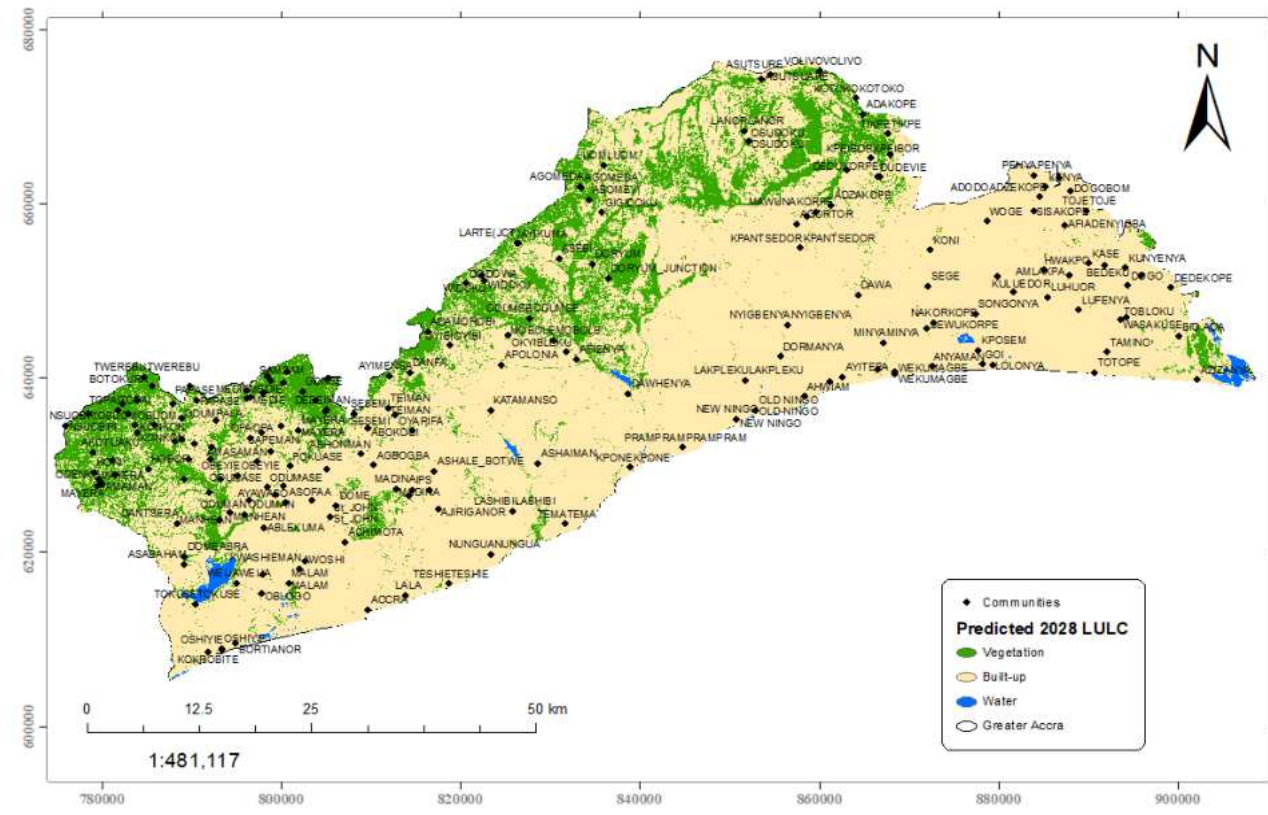
Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## Results and Discussion Con't

LANDUSE/LAND COVER 2021



PREDICTED LANDUSE/LAND COVER FOR 2028





# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## Findings

- Annual increase of 1.4% of built up areas
- 20% (75599500m<sup>2</sup>) decrease of green spaces within the 14 years.
- Farmlands and wetland are increasingly being converted to sand wining sites.
- Existing policies are not being enforced for the management of urban space

ORGANISED BY



PLATINUM SPONSORS







# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All



Sand winning site at Dawhanya



Converted Urban farmland in Tsopoli



Some converted  
Green spaces



Tempered Wetland Vegetation in Tetegu



# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## Conclusion

- The study recognise institutions like the Environmental Protection Agency (EPA), Land Use and Spatial Planning Authority (LUSPA), Department of Park & Gardens, and regulations like the EPA guidelines, Spatial Planning Act 2016 (Act 925), zonal regulations, designed to manage green space, however, the enforcement of the regulations by these institutions have not been effective over the years.
- Lack of mapping mechanism to monitor urban green space for management.

ORGANISED BY



PLATINUM SPONSORS





# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## Recommendation

- Develop effective mapping mechanisms.
- Increase public awareness and prioritize the growth of green space.
- Effective coordination between key stakeholders of Institutions.
- Incorporate green space management plan into residential development.
  - ❖ Avenue Plantation in an open planting bed.
  - ❖ Green Roof Technology



ORGANISED BY



PLATINUM SPONSORS





# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## Sustainable Development Goal

- The study resonates to the SDG 1, 2, and 11.
- Greenspace plays a vital role in the well-being of communities and cities in form of:
  - ✓ Carbon sequestration; Storm-water management; Conservation of biodiversity
  - ✓ Fostering social connections
  - ✓ Enhancing economic development etc.
- By incorporating greenspaces into urban residential development, communities can create vibrant, sustainable, resilient and livable places for all.
- Focuses on sustainable cities and communities and emphasizes on the creation, preservation and integration of public greenspaces into communities' physical landscape to enhance quality of life.

ORGANISED BY



PLATINUM SPONSORS





# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

**SUSTAINABLE DEVELOPMENT GOALS** | International Federation of Surveyors supports the Sustainable Development Goals

## Commission 8

Spatial Planning and Development

Serving Society for the Benefit of People and Planet





# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

## Thanks you for your attention



ORGANISED BY



PLATINUM SPONSORS

