

A Spatial Decision Support Framework for Location-Allocation Problems in E-Government Service Delivery: A Case of Solid Waste Management

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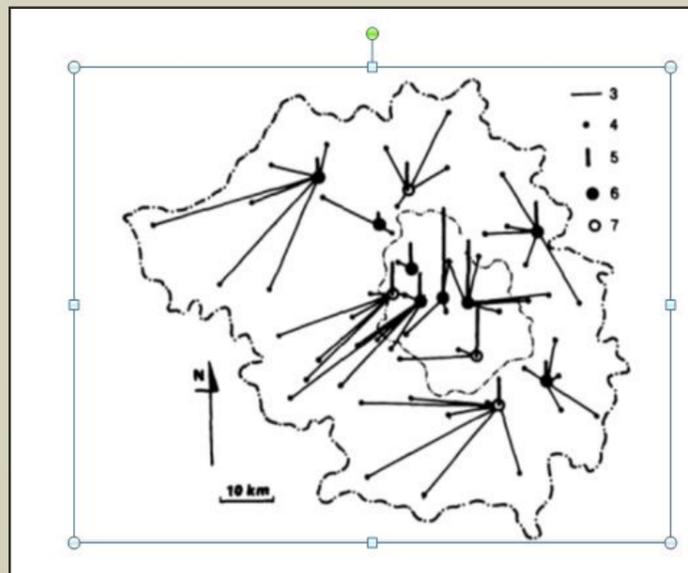
Kampala

Introduction

E-Government information technologies that have the potential to improve interactions between citizens, businesses, and other arms of government.

Technologies enable;

- ✓ better delivery of government services to citizens,
 - ✓ improve interactions with business and industry,
 - ✓ citizen empowerment through access to information, and more efficient government management.
- E-government service delivery involves making decisions such as locating facilities.
 - Facility Location allocation problems are complex characterized by conflicting objectives
 - complexity necessitates new approaches such as spatial decision support systems (SDSS) to enhance decision making.



facility location allocation using GIS

STUDY PROBLEM DOMAIN

- Solid waste management studies focus on one or more stages of waste management
- Waste disposal -a core activity in solid waste management has complexities associated with choosing suitable methods for disposal and selecting suitable sites for collection and disposal.
- The location of waste facilities such as landfill sites and incinerators can be major public concern especially in relation to public health, environmental and economic considerations.
- It is an extremely contentious issue among local residents which necessitates consensus of the affected stakeholders.

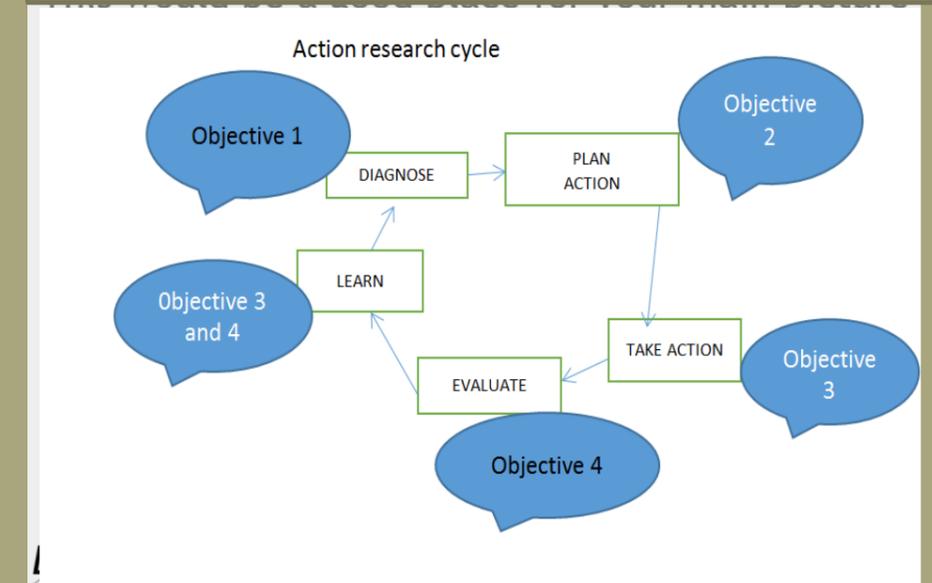
STUDY OBJECTIVES

1. Determine challenges of solid waste disposal in Uganda
2. Investigate factors affecting selection of waste disposal methods and site for waste disposal
3. Design GIS system to facilitate decision making in selection of waste disposal methods and landfill site for waste disposal
4. Evaluate GIS system to facilitate decision making in selection of waste disposal methods and landfill site for waste disposal

RELATED STUDIES

- Fuzzy multicriteria disposal method and site selection for municipal solid waste (Ekmekcioglu et al 2010).
- Credibilistic TOPSIS Model for Evaluation and Selection of Municipal Solid Waste Disposal Methods (Roy et al., 2016).
- Analytical network process model for municipal solid waste disposal options (Khan and Faisal, 2007)

RESEARCH METHOD



Conclusion

Solid waste disposal and management is a complex problem influenced by social, political, socio-cultural, technical, fiscal, and environmental factors. Often, while formulating and adopting a strategy for disposal of solid waste, the municipal authorities overlook one or more of the important factors that frequently make solid waste disposal a poorly-performed service, resulting in environmental degradation, lack of sanitation, and a plethora of health problems

Bibliography:

- Henry, R. K., Yongsheng, Z., & Jun, D. (2006). Municipal solid waste management challenges in developing countries–Kenyan case study. *Waste management*, 26(1), 92-100.
- Modak, P. (2010). Municipal solid waste management: Turning waste into resources. *Shanghai Manual-A Guide for Sustainable Urban Development in the 21st Century*.
- Amasuomo, E., Tuoyo, O. J. A., & Hasnain, S. A. (2015). Analysis of Public Participation in Sustainable Waste Management Practice in Abuja, Nigeria. *Environmental Management and Sustainable Development*, 4(1), 180.
- Hannan, M. A., Al Mamun, M. A., Hussain, A., Basri, H., & Begum, R. A. (2015). A review on technologies and their usage in solid waste monitoring and management systems: Issues and challenges. *Waste Management*, 45(6), 1121-1130.

