Chelsey Cu, Grihalakshmi Soundarapandian
Dr. Brian Klinkenberg
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Assignment 3: Crime Analysis and GIS

INTRODUCTION

The use of maps in studying crime has been traced back to the New York Police Department in the 18th century (Balogun, Okeke & Chukwukere, 2014). This is useful in determining the spatial attributes attached to certain crimes. Since crime is a prevalent part in our society, being able to it map out is integral to its hotspot analysis. As technology develops, nations have adopted GIS software to aid in the process, however, some of the developing nations still use outdated file systems. Balogun, Okeke & Chukwukere (2014) have found that several problems arise when using traditional "pin on maps" which include: the ability to make and access timely updates; the ability to manipulate data; the occupation of large amounts of space; and the difficulty in reading maps with several layers of different crime types. Therefore, their work seeks to find a better way to manage crime by further exploring GIS.

METHODOLOGY

The study took place in Benin City, Nigeria where that has been a steady progression in growth. As this area modernizes, the growing social inequities and rise in unemployment rates have led to an increase urban crime rates. Balogun, Okeke & Chukwukere (2014) used two sets of questionnaires to collect their data one was administered to the Police Public Relations Officers while the other was given to members of the general public. The questions used were intended to assess the crime situation in the metropolis area. From there, the data for crimes and their location as well as the location of police stations was inputted into a GIS software and analyzed.

The maps were produced by first converting the area from analogue to digital. Data of the crime hotspots and police stations were used to create a point map, and satellite imagery was used to correct any errors during translation processes. Then looking at routes, proximity and socio-

economic factors, and using ArcGIS and GPS, a single buffer of 1 kilometer was produced around areas that were deemed hotspots in order to determine where high crime rates prevailed. Then, a multiple buffer of 2 kilometers was produced to show that the rate of crime decreased farther away from the single buffer. Finally, a buffer was also placed around police stations to show the most effective areas of police patrol are those nearest to the station. The results indicated that there is an uneven distribution of police coverage throughout the city since many of the police stations are clustered together, leaving certain areas without stations vulnerable.

Through the analysis, Balogun, Okeke & Chukwukere (2014) discovered that armed robbery was the most prevalent type of crime. Further, they found that while most people had knowledge of where the nearest police stations are, many crimes went unreported due to a number of different reasons, such as fear of the police. There is also a lack of response by police when a crime is reported.

CONCLUSION

Balogun, Okeke & Chukwukere (2014) found that police public relations were very poor, leading to low numbers of reported crimes and suspects. This leaves numerous hotspots for crime and vulnerable citizens. With that said benefits derived from GIS technology become a way to combat this problem. Creating a geodatabase for crime analysis becomes a means to reduce redundancy in data and maximize operations in the field by increasing police presence where they are needed. We would rate this paper a 7 because while it provided a lot of background information for the uses of GIS in crime analysis, the methodology of the study was very vaguely laid out. Also, the data collection method could have been biased depending on how it was distributed and how the questions were phrased.

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References

Balogun, T.F., Okeke, H. and Chukwukere, C.I. (2014) Crime Mapping in Nigeria Using GIS.

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