GEOSPATIAL ANALYSIS OF CRIME ZONES IN KADUNA METROPOLIS, NORTHERN NIGERIA

Azua, S., and O. A. Isioye
Department of Geomatics
Ahmadu Bello University, Zaria
E-mail:adzuasamuel@yahoo.com

Abstract

*In recent years, the rate of crime in Nigeria is causing a widespread concern. There is need for effective monitoring and control of crime to enhance the security of lives and properties. This paper seeks to use Geographic Information System (GIS) to identify, map and analyze the distribution of crime scenarios in Kaduna metropolis. Data about crime incidences between 2006 and 2008 was obtained from the State Criminal Investigation Department, Police Headquarters, Kaduna. These data alongside with the digital map of Kaduna metropolis were used in ArcGIS environment and analysis carried out to identify crime zones in the study area.The result shows that Sabon Tasha has the highest rate of crime with 13 percent of the total reported cases of crime in the area under review, while Unguwar Sanusi has the lowest rate of crime with 2 percent of the total reported cases of crime in the study area. It was therefore recommended that more Police Stations be established in Sabon Tasha,*Banawa*, Kabala Doki, Ungwan Rimi and Kabala West tointensifythe effort of the patrol team in fighting crime in the affected areas.*

Keywords: Geospatial Analysis, Crime Zones, Geographic Information System (GIS) and ArcGIS 9.2.

Introduction and Background

Crime may be defined as any violation of law, an omission of a duty commanded, or the commission of an act prohibited by law and punishable by the state (Tudela 2004 and Chaudhari, 2005). The rate of crime in Nigeria today is causing sleepless night to many Nigerians. There are various cases of crime ranging from arm robbery to kidnapping. The traditional and old system of intelligence and criminal record maintenance has failed to live up to the requirements of the existing crime scenario (Mubashir, 2010). Manual processes neither provide accurate, reliable and comprehensive data round the clock nor does it help in trend prediction and decision support. It also results in lower productivity and ineffective utilization of manpower. Inadequate modern technology and insufficient manpower have prevented the Nigerian security agents from tackling the issue of crime in Nigeria effectively. There is therefore need to device a new way of crime record, monitoring, and management to abate the occurrence of crime in Kaduna metropolis and of course, Nigeria as whole.

The solution to this ever-increasing problem lies in the effective use of Information Technology. According to Chaudhari (2005) successful crime prevention strategies require a larger scale analysis to identify possible intervention points. Intervention strategies must be crime and situation specific.

Geographic Information System (GIS) has been identified to be a convenient tool for this study. It has great potential in criminological research because of its three key functions; database management, spatial analysis and visualization (Alexander and Xiang, 1994).GIS uses geospatial data and computer-generated maps as an interface for integrating and accessing massive amounts of location-based information (Johnson, 2000). It is the comprehensive idea to provide the information required to the administrative staff to analyze

and make a quick decision by providing the end user with descriptive information allowing the enforcement agencies to identify areas that are crime prone and the rate of crime in the affected areas. Crime mapping will enable police understand how to make decisions and how to deploy patrol teams to the affected zones.

Crime analysis is defined as a set of systematic, analytical processes directed at providing timely and pertinent information relative to crime patterns and trend correlations to assist the operational and administrative personnel in planning the deployment of resources for the prevention and suppression of criminal activities, aiding the investigative process, and increasing apprehensions and the clearance of cases(Chaudhri, 2005). Crime Analysis through GIS is today becoming more necessary in Nigeria as the rates of crimes are very much on the rise, in order to make better informed decisions and to present crime information in geographic context. GIS can be used as a very useful tool to display and apply spatial analysis to data, which reside in large databases to yield a strong visual appreciation of the patterns of crimes.

Crime mapping and assessment has become very important in our society in view of the fact that it is committed daily with more perfection. The methods used for mapping and assessing crime are many, depending on the use to which the map will be put and the source of data.

Hyatt (1999) used Geographic Information System (GIS) to generate catchment zones similar to police precincts around public housing developments in three cities. The address-matched locations of all reported crimes cases were then overlaid to count crimes and calculate crime rates within these zones, producing data to answer criminological questions.

Alexander and Xiang (1994) used GIS to the identify crime patterns in the Charlotte, North Carolina, urban area. With GIS capabilities, the time series and spatial patterns of murder were accurately identified and effectively presented.

Chaudhari (2005) employed the use of GIS to monitor crime, analyze the volume of crime, violent crime, and organized crime, as a potential analytical tool for tactical investigative forecasting. In his paper emphasis was placed on organized crime within a small locality of Pune, India.

Chainey and Dando (2006)used crime data for a period before a fixed date (that has already passed) to generate hotspot maps, and test their accuracy for predicting where crimes will occur next. Hotspot mapping accuracy is compared in relation to crime type, the retrospective time period of data used, and the time period after the production of the hotspot map. Therefore, the research compares which crime types produce the most reliable hotspot maps for predicting where crime happens next. The results indicate that crime hotspot mapping accuracy differs significantly across different crime types and in relation to the volume of data used, and how relevant the maps continue to be in accurately identifying crime problem areas.

Currently, GIS is not being used for crime control and management in kaduna. This may be due to the lack of awareness of the benefits offered by GIS in crime control and management in the country.

The aim of this study is therefore, to map Crime incidences and to assess the spatial distribution of crime in Kaduna metropolis that would assist in crime control.This will provide firsthand information to enforcement agents to take adequate and effective steps to

reduce and prevent crime, to reduce suffering of victims, to punish the guilty, and to direct our limited resources where they can do most good.

Kaduna State is located on the southern end of the High Plains of northern Nigeria, bounded by parallels 9°03'N and 11°32'N, and extends from the upper River Mariga on 6°05'E to 8°48'E on the foot slopes of the scarp of Jos Plateau.

The state capital covers an area of about 25km by 10km with a population estimate of about 1.7mililon (National Population Commission, 2006). Kaduna metropolis comprises of Kaduna North, Kaduna South and part of Igabi Local Government Area.

Methodology

Data about crime incidences between 2006 and 2008 were obtained at the Police Headquarters, (State CID). This data showed the nature of crime, dates and places of occurrence, number of suspects and the locations where crimes frequently occurred (see Table 1 for nature of crimes and appendix I for details). Also acquired from Police Headquarters was all the divisional headquarters of police including their areas of jurisdiction. A total of fourteen Police divisional headquarters were acquired on which the crime locations are based (See Table 2). To carry out proper analysis of the trend of crime occurrence in the area under study, there was a need to edit the data to remove any possible error. The data was also examined to identify and map areas of crime concentration using Hand-held GPS. The zoning was done using the list of areas covered by each Police divisional Headquarters as guide. As a result, the study area was divided into 14 different zones as shown in Table 3 and Figure 1.

A street guide map of the study area was acquired to serve as a base map and was imported into ArcGIS9.2 environment. The demarcations of the zones were done in the ArcMap environment by digitizing a vector file into polygon features using copy of the street guide map of the study area as background.

Table 1: Nature of crimesidentified in the study area

S/N	NATURE OF CRIME
1	Culpable homicide
2	Armed robbery
3	Theft & other stealing
4	Theft of vehicle
5	Vandalizingpublic properties
6	Bank fraud
7	Rape
8	House breaking &theft
9	Receiving stolen properties
10	Fire incidences
11	Assault
12	Unlawful possession of fire arms
13	Terrorism

Table 2: Police post and their Locations

FID	SHAPE	X	Y	DIVISION_H
0	Polygon	329442.70	1161110.05	Kabala Doki
1	Polygon	332147.30	1155190.17	Sabon Tasha
2	Polygon	329282.94	1163021.97	Gabasawa
3	Polygon	326931.74	1158624.19	Kakuri
4	Polygon	329659.38	1168589.36	Kawo
5	Polygon	327998.69	1161580.14	Sabon Gari
6	Polygon	328991.37	1157516.22	Barnawa
7	Polygon	327117.10	1162350.46	Tudun Wada
8	Polygon	326578.64	1167285.94	Kurmi Mashi
9	Polygon	323798.20	1161519.07	Kabala West
10	Polygon	332495.61	1167568.9	Malali
11	Polygon	325746.95	1163782.90	Unguwan Sanusi
12	Polygon	332145.66	1164086.79	Unguwan Rimi
13	Polygon	320341.37	1165461.22	Rigasa

From the 14 crime zones obtained in the study area, 2 major crime zones were determined based on the number of crimes that occurred in each area. If the total crimes occurrence in an area is less than/equal to 125, the area is classified as a low crime zone. However, if the total crime occurrence is more than 125 times, the area is classified as a high crime zone. The total number of crime cases recorded within the study period of 2006-2008 is 1,749.

Table 3: Areas contained in each Zone

S/N	ZONES	AREAS
1.	BARNAWA	Narayi, Barnawa town, Station roundabout, Down quarter, Railway.
2.	GABASAWA	Luggard hall, Marafa, Bidda road, Yakubu Gawan way, Old wolf road, Nursing home, Sokoto road, Durba hotel, NEPA roundabout, Ali Akilu road.
3.	KABALA WEST	Kudandan, Unguwar Mallam Ma'azu,Kabala west.
4.	KABALA DOKI	Kabala Doki, Costin, Gamji gate, Swimming pool road by police college.
5.	KAKURI	Industrial area, Market, Nasarraw,DIC, Peagout junction, Textile by brewery, Atilari
6.	KAWO	Unguwar Dosa, CSOA, Unguwar Kanawa, Unguwar Shanu, Unguwar Sarki, Abakwa, New Barrack, Unguwar Gwari, Rafin Guza, Unguwar Kaji, Mando park, Afaka village, Hayin Banki.
7.	KURMIN MASHI	Panteka(new), Nnamdi Azikiwe way, Express way
8.	MALALI	Badarawa, Kwaru, Raba road, Technical School, FGC Malali, New Isa Kaita road, New Dawaki road.
9.	RIGASA	Hayin Taroro, Eskolaye, Bakin Ruwa.
10.	SABON GARI	Constitution road, ABS Stadium, Katsina road by Ahmadu Bello way, Lagos Street roundabout, Abubakar Gumi (central), Lokoja by Maiduguri road, Oriokpata, NEPA roundabout, Luggard hall roundabout.
11.	SABON TASHA	Unguwar Sunday, Television, Unguwar Boro, NNPC Quarters, Unguwar Maisamari, Kakau, Tollgate.
12.	TUDUN WADA	Fire Service, Zango, Baccama road, Tudun Nupawa, Polythenic, Tudun wada cinema area, Kwana Lami.
13.	UNGUWAR RIMI	G.R.A, Hayin Danbushiya (new Kaduna city), Unguwar Rimi.
14.	UNGUWAR SANUSI	Badikko, 44 Barack area, Unguwar Sanusi, Kasuwar Bacci.

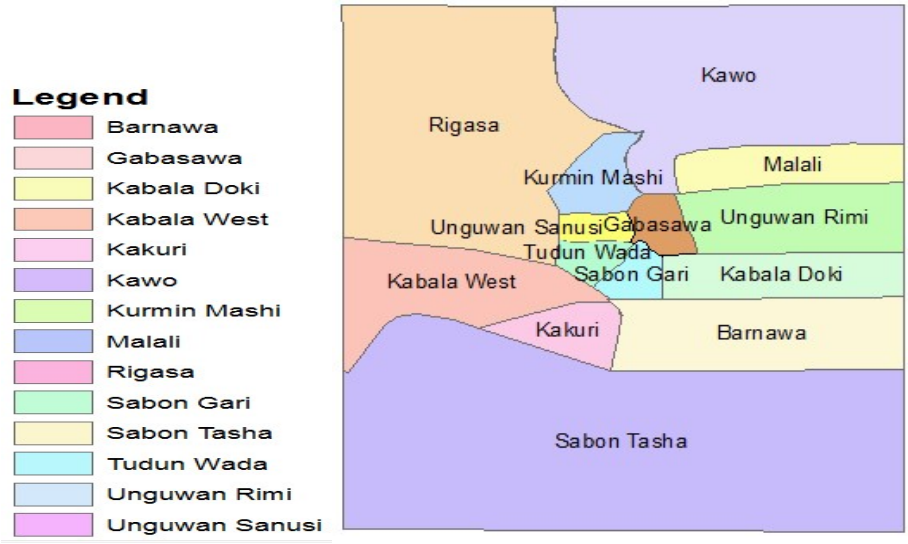

Figure 1: The Study area showing Zones

Database Design

A database system is a large computerized collection of structured data whose overall goal is to store information and allow users to retrieve and update information on demand. Database design constitutes one of the core tasks in developing any GIS application. It involves the process by which the real world entities and their interrelationships are analyzed and modeled in such a way that maximum benefits are derived while using the minimum quantity of data (Kufoniyi, 1998). The database design consists of two main phases namely: The Design phase and the Implementation phase. The design phase consists of the conceptual, logical and the physical.

Conceptual Design

Conceptual data model is the representation of human perception of reality. It considers the relevant entities and their interrelationship with other entities as well as their characteristics and attributes which support the process and the application for which the database is designed. In spatial data model we have a choice of three types of conceptual models of which one may be adopted. These schemes are;Tesselation, Vector and Object oriented. This paper however made use of the vector data model.

After organizing the data into zones, four layers; Police Station, Streets, Crime and Zones were identified together with their attributes as shown in the entity relationship diagram (see Figure 1). An entity relationship diagram (ER) is a graphical representation of the logical relationships of entities (or objects) in order to create a database. In line with vector model representation, Police stations and crime incidences were taken as point features, streets taken as linear features and zones were taken as polygon feature.

Logical Design

The logical design is concerned with the transformation of the conceptual model to a particular kind of database Management System (DBMS) for which the system will be implemented. The design was made to reflect how the data is going to be recorded in the computer system. In this study, the relational data model was adopted. This involves arranging data into series of tables called relation. Each table represent an entity in which all the attributes associated with it are recorded.

The logical design for this study is as shown below:

Police Station:PS_ID, Location, No. of Crimes, No. of Staff, Str_ID
Streets: Str_ID, Street name, Zn_ID, Cr_ID
Crime: Crime_ID, name, location, date, No. of occurrence, gender of suspect, PS_ID
Zone: Zone_ID, name, location, area covered represents the primary keys of Police Station, Streets, Crime and zones respectively, PS_ID.

Physical Design

This involves mapping into the inbuilt data types of the selected logical model being used to implement the conceptual data model. A physical database model shows all table structures, including column name, column data type, column constraints, primary key, foreign key, and relationships between tables(See Table 1 to Table 4 below).

Table1: Police Station

ATRRIBUTES	*DATA_TYPE*	*FIELD_ LENGTH/SIZE*
PS_ID	Number	Long_Integer
Location	Text	30
No._of_crimes	Number	Long_Integer
No._0f_Staff	Numbre	Long_Integer

Table2: Streets

ATRRIBUTES	*DATA_TYPE*	*FIELD_ LENGTH/SIZE*
Str_ID	Number	Long_Integer
Str_name	Text	25

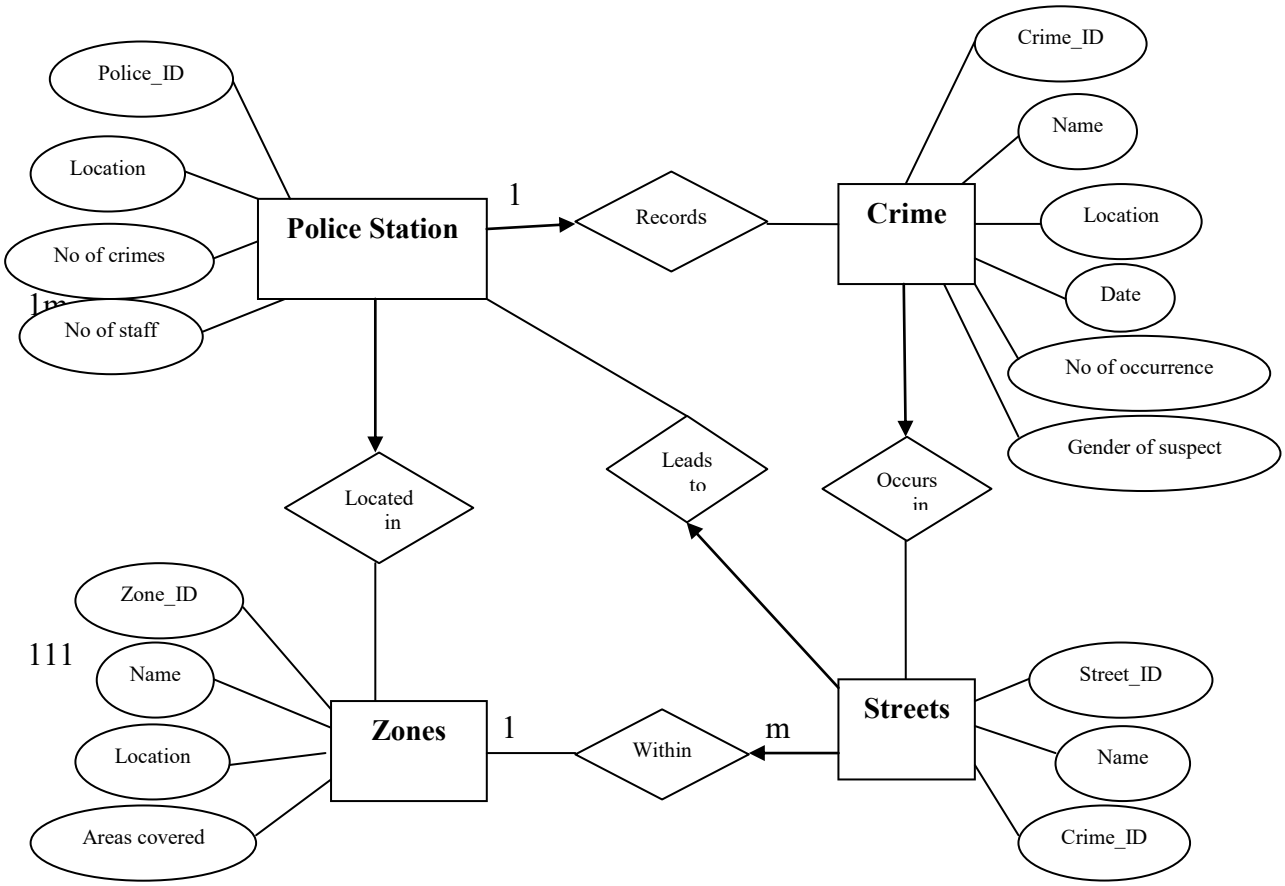

Figure1: Entity Relationship Diagram

Table3: Crimes

ATRRIBUTES	*DATA_TYPE*	*FIELD_ LENGTH/SIZE*
Cr_ID	Number	Long_Integer
Name	Text	25
Location	Text	25
Date	Number	Long_Integer
No._of_occurences	Number	Long_Integer
Gender_of_suspect	Text	10

Table 4: Zones

ATRRIBUTES	*DATA_TYPE*	*FIELD_ LENGTH/SIZE*
Zn_ID	Number	Long_Integer
Name	Text	25
Location	Text	25
Area_Covered	Number	Long_Integer

Results and Discussion

GIS is different from other information system because of its ability to perform spatial analysis. In this study, the following analyses were performed: Spatial Search (database extraction), Classification and Hotspot Analysis and Proximity Analysis using ArcGIS 9.3 software.

Spatial Search

Spatial search operations are used to extract certain attributes in the neighbourhood, which must be logically defined.This operation enables the user to retrieve data from the database to obtain information that will be needed to support decision making. The following queries were carried out from the database developed to demonstrate the usability of the data. The results obtained from the queries and analyses are shown in Figure 2 and 3 below:

(i) Low crime zone in Kaduna metropolis

Syntax: "Total_Crime <= 125

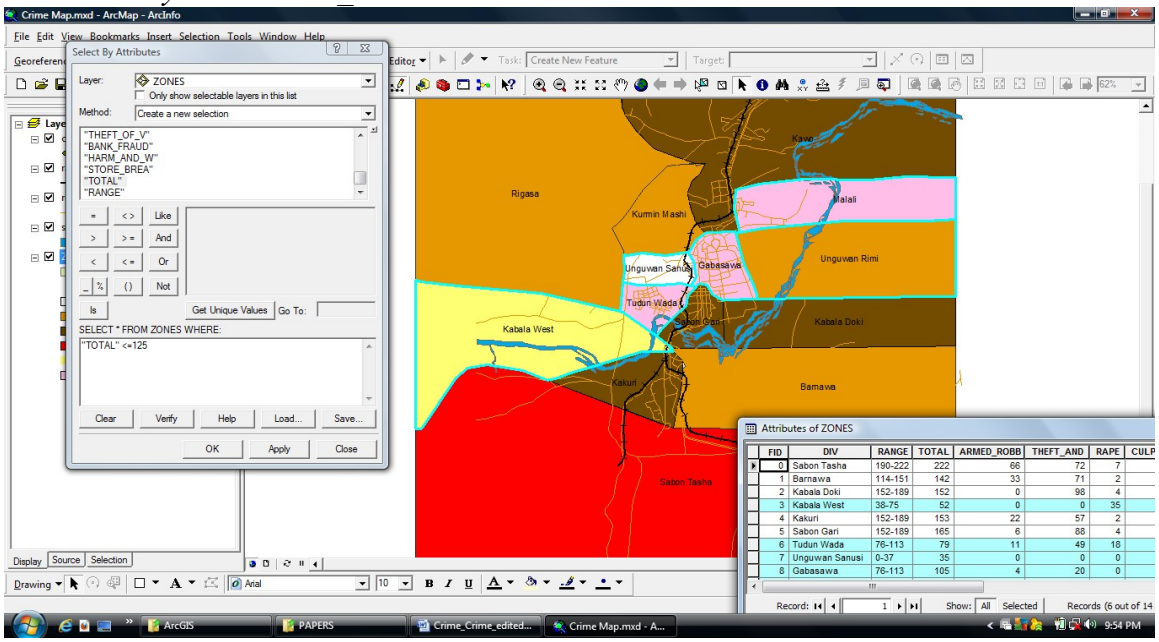

Figure 2: Low crime zone in Kaduna metropolis

(ii) High crime zones in Kaduna metropolis

Syntax: Total_Crime > 125

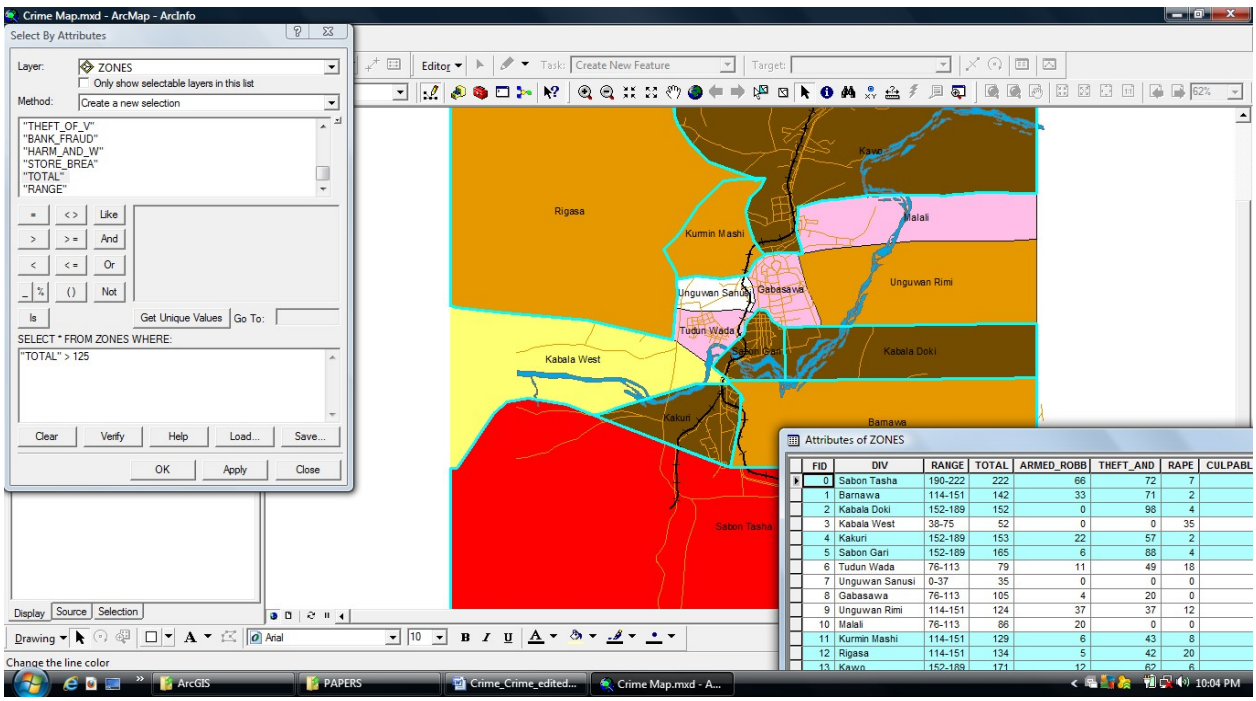

Figure 3: High Crime zones in Kaduna metropolis

The result of Figure 2 shows the zones, high-lighted with blue as the low crime zones. These zones have crime cases less than/equal to125 times and include Kabala West, Tudun Wada, Gabasawa, Malali, Unguwar Rimi and Unguwar Sanusi Sabon.

Figure 3 shows the zones, highlighted with blue, as high crime zones, having number of occurrence more than 125 times. These zones include Kawo, Sabon Gari, Barnawa, Kabala Doki, Kakuri, Rigasa, Kurmin Mashi and Sabon Tasha. This therefore means that more effort is needed by security agents to reduce crime in these areas.

3.2 Crime Classification

The data obtained from Police Stations was studied to identifyand map crime hot spotsas shown in Figure 4 below.

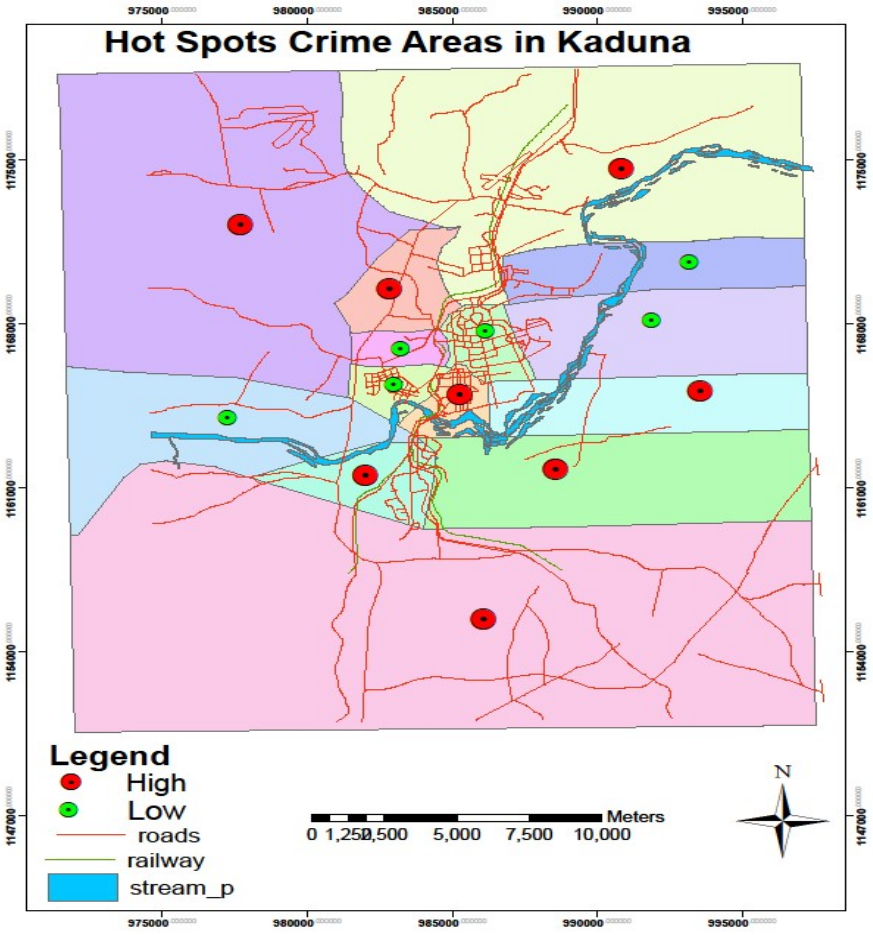

Figure 4: Crime Hot Spot in Kaduna Metropolis

A detailed result is shown in Table 2 below in which the different areas are categorized into low and high crime zones. It also gives the total number of crime cases committed in each locality.

Table 2: Zones with high and low crimes.

S/N	Zones	No of Crime Cases (NCC)	Percentage crime	Difference (NCS-AVC)	Remarks
1.	Barnawa	142	8%	17	High
2.	Gabasawa	105	6%	-20	Low
3.	Kabala West	52	3%	-73	Low
4.	Kabala Doki	152	9%	27	High
5.	Kakuri	153	8%	28	High
6.	Kawo	171	10%	46	High
7.	Kurmin Mashi	129	7%	4	High
8.	Malali	86	5%	-39	Low
9.	Rigasa	134	8%	9	High
10	Sabon Gari	165	9%	40	High
11.	Sabon Tasha	222	13%	97	High
12.	Tudun Wada	79	5%	-46	Low
13.	Unguwar Rimi	124	7%	-1	Low
14.	Unguwar Sanusi	35	2%	-90	Low

Table 2 shows that, Sabon Tasha and Kawo have the highest crime cases of 222 and 171 respectively, which represent 13% and 10% respectively, of the total crime cases in the area. This may be as a result of the high population in these areas. This means that more effort is needed by law enforcement agents to fight crime in these areas. On the other hand, Unguwar Sanusi and Kabala West have the lowest crime cases of 35 and 52 respectively, which represent 2% and 3% respectively of the total crime.

3.3 Proximity Analysis using Buffers

Figure 5 below shows the distribution of Police Divisions (Police Stations) in Kaduna metropolis. Buffers were created at 2km around the Police Stations to access the proximity of the Police station to the crime areas. It was observed that the location of the Policestations is concentrated at the heart of the city and far apart, leaving most of the crime areas at the mercy of the hoodlums. Hence, Sabon Tasha which has the highest crime incidences has only one police station and is located more than 2km away from the crime hot spot. Other crime hot spot located in Kawo, Rigasa and Barnawa are also located at a distance more than 2km away from Police Stations. This implies that the criminalactivities can take place in this area without fear of intervention by security agents. It was also observed that Kabala Doki has no police station placed near to their areas. This will limit the effort of the officers in fighting crime most especially during emergency situation. Successful crime reduction in this area requires the location of at least a Police station to combat crime in this area. This will enable the Police officers to respond promptly to crime especially during emergency calls.

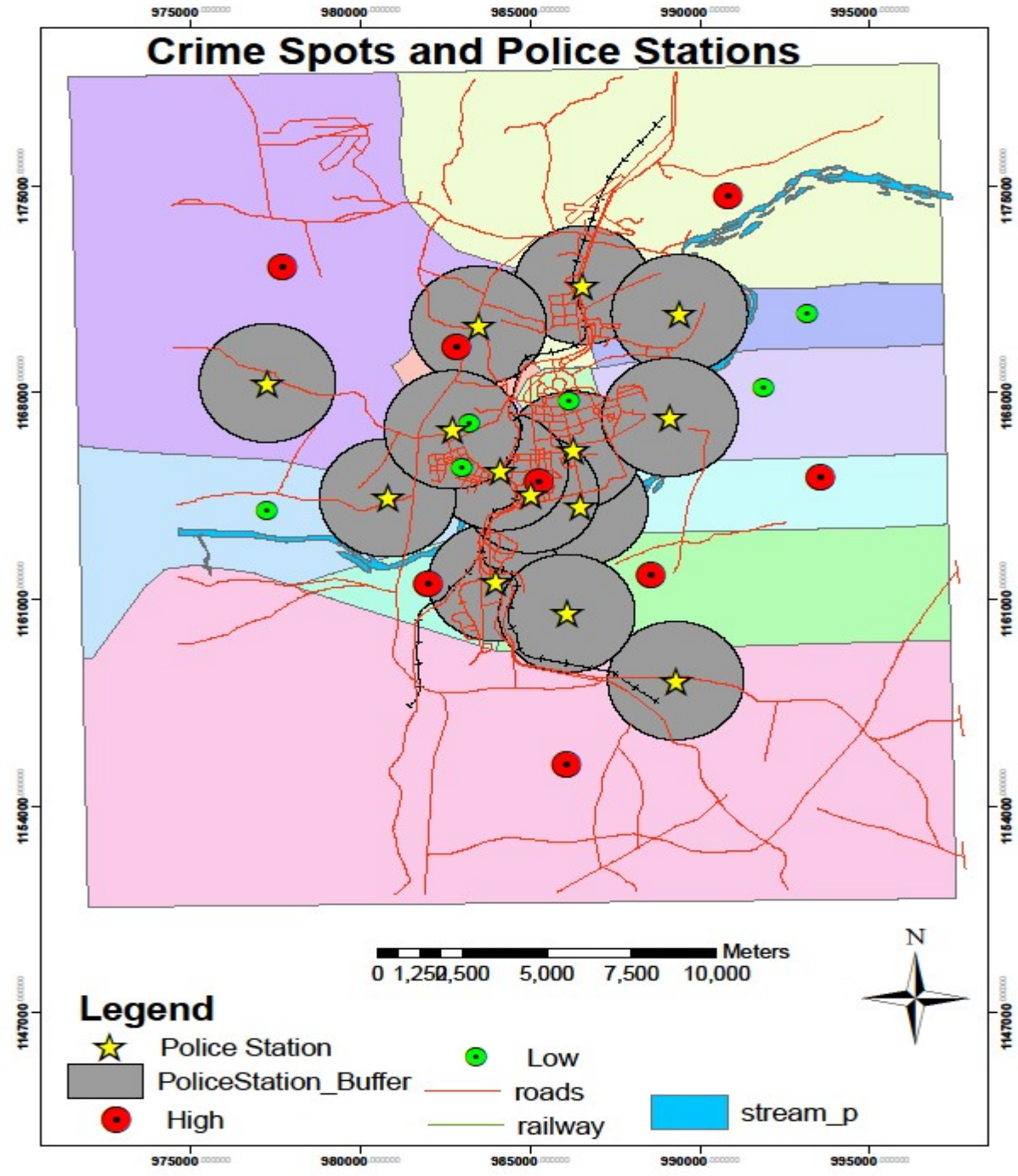

Figure 5: Police Stations buffered at 2km

Furthermore, Table 3 below shows the number of crimes that occurred in each month of the period of study starting from 2006 to 2008. The data in Table 3 are used to plot the incidences of crime in the study area as shown in Figure 5 below.

Table 3: Number of crimes in the period under review

	2006	2007	2008
Month	**No. of crimes**	**No. of crimes**	**No. of crimes**
January	37	34	38
February	62	43	36
March	38	44	27
April	43	30	81
May	129	34	36
June	69	39	41
July	50	29	91
August	49	18	71
September	40	41	18
October	27	46	44
November	20	72	85
December	135	38	146

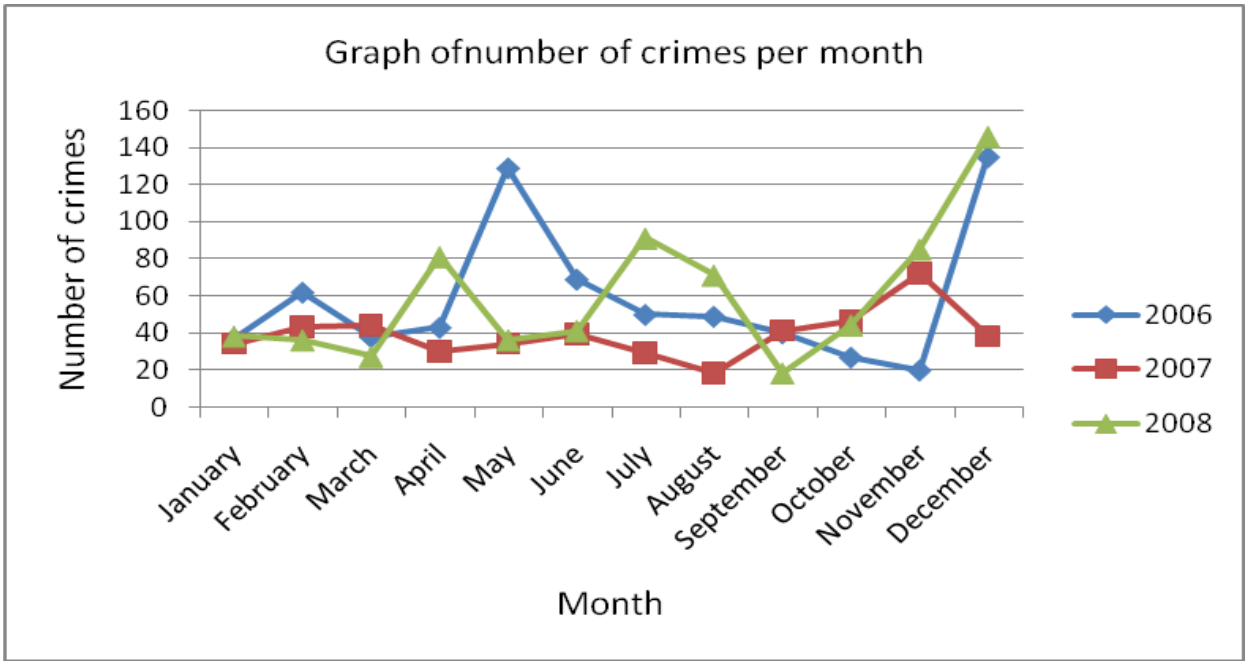

Figure 5: Number of crime occurrence per month

In Figure 5, it was observed that year 2006 experienced high crime occurrence in the month of May and December with 129 and 135 cases respectively while October and November recorded the lowest cases of crime with 27 and 20 cases respectively. In 2007, the numbers of crime occurrences were minimal compared with 2006 and 2008. However, November shows a total of 72 cases as the highest in that year while the month of August recorded the least number of crime cases in that year with a total 18 occurrences. In year 2008, crime cases were recorded highest in April, July November and December with 81, 91, 44 and 146 cases respectively.

With the high crime cases shown in December of 2006 and 2008 respectively, one may be tempted to say that this is due to the Christmas and Sallah celebrations that took place in December. However, security agencies should increase surveillance during December to monitor the activities of hoodlums in the area and also to ensure safety of lives and properties of all Nigerians in the area.

Conclusions

The introduction and the use of GIS in Police and public agencies, facilitates the information, knowledge and result management in crime prevention. The findings of this study showed that using GIS is a much more compatible means of crime pattern analysis than the old method because of its geographic referencing capabilities. The three basic categories of GIS functions (database management, spatial analysis and visualization) in a single computer-based system created an environment much more conducive to the location analysis of crime patterns than current method of keeping criminal records in files.

With the support and encouragement from all relevant authorities, GIS can be used to map and analyze crime occurrences with a view to determine factors leading to such crimes and how they can be effectively managed. Police and other law enforcement agents could produce maps showing the crime scene and their police posts or stations, by performing simple analysis using GIS. This will assist the Police in locating more stations and deploying its men to control crime.

Crime monitoring and control is very important in our society because development in any community depends to a large extent on its state of security. Today the rate of crime in Nigeria has been on the increase and these crimes are being carried out with more perfection and sophistication.

It is therefore, recommended that the use of GIS for crime mapping should be introduced in Kaduna State to enhance crime monitoring and control in the study area. In addition, government should provide fund to purchase all the necessary equipment and software needed for the smooth running and operation of GIS and for the training of personnel that will handle the GIS equipment. This will go a long way in fighting crime in the area.

It is also recommended that the research should be extended to a period of at least five years so that more data will be collected to help assess the pattern of the activities of the criminals in the area. This will give law enforcement agents an understanding of the activities of hoodlums and to device a means of controlling them.

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Appendix I: Abstract of Crime Records of Kaduna Metropolis (2006-2008)

S/N	Nature of Crime	No Of Crimes	No of Suspects	Gender of Suspects	Coordinates Location		Location of Crimes	Date Of Crimes
					E	N		
1	Armed Robbery	5	12	M	332238.58,	1164346.98	Post Office Road, Unguwar Rimi	Jan-08
2	Theft &Other Stealing	6	8	M	331096.74,	1156474.80	Sabon Tasha	Jan-08
3	Theft Of Vehicle	11	6	M	331356.13,	1168653.27	Malali	Jan-08
4	Vanderlization(PHCN)	4	6	M	328562.66,	1159397.32	Aliyu Makama Road, Barnawa	Jan-08
5	Bank Fraud	1	1	M	327919.53,	1165094.59	Bank Road, Tudun Wada	Jan-08
6	Vanderlization(PHCN)	2	8	M	326016.70,	1156947.76	Samaru Road, Kakuri	Feb-08
7	Unlawful Possession	5	5	M	331628.86,	1156717.44	Sabon Tasha	Feb-08
8	Armed Robbery	2	10	M	331900.14,	1156170.07	Sabon Tasha	Mar-08
9	Armed Robbery	2	5	M	331630.36,	1169957.99	Kagarko Road, Kawo	Apr-08
10	Armed Robbery	2	4	M	331900.14,	1156170.07	Sabon Tasha	Apr-08
11	Culpable Homicide	3	8	M	330223.25,	1159012.23	Kawo	June-08
12	Culpable Homicide	2	5	M	329451.11,	1167821.43	Kurmin Mashi	Jun-08
13	Armed Robbery	2	5	M	330646.25,	1169795.60	Kawo	Jun-08
14	Theft & Other Stealing	5	7	M	327001.37,	1162802.88	Sabon Gari	Jun-08
15	Theft & Other Stealing	3	0	M	330646.25,	1169795.60	Kawo	Jun-08
16	Armed Robbery	1	5	F	330145.40,	1158198.23	Barnawa	Jul-08
17	Armed Robbery	3	9	M	325925.56,	1158149.29	Kakuri	Jul-08
18	Theft &Other Stealing	3	1	M	330396.11,	1158036.78	Barnawa	Jul-08
19	Theft &Other Stealing	4	3	M	327373.83,	1162994.01	Tudun Wada	Jul-08
20	Theft & other stealing	5	2	M	325925.56,	1158149.29	Kakuri	Oct-07
21	Theft & other stealing	1	1	M	329021.09,	1167840.96	Kurmi Mashi	Oct-07
22	Theft & other stealing	2	7	M	328438.37,	1163210.99	Gabasawa	Oct-07
23	Unlawful Possession	3	3M		327687.58,	1162997.69	Unguwar Sanusi	Oct-07
24	Rape	3	6	M	327373.83,	1162994.01	Tudun Wada	Oct-07
25	Armed Robbery	3	5	M	330309.34,	1158443.01	Barnawa	Oct-07
26	Armed Robbery	3	8	M	330442.90,	1156486.02	Post Office Rd, Sabon Tasha	Oct-07
27	Armed Robbery	3	9	M	326093.31	1157871.49	Baban Dodo Rd, Kakuri	Oct-07
28	Theft & other stealing	3	1	M	330309.34,	1158443.01	Barnawa	Oct-07
29	Theft & other stealing	4	3	M	326820.88,	1163054.24	Tudun Wada	Oct-07
30	Armed Robbery	2	3	M	327373.83,	1162994.01	Tudun Wada	Nov-07
31	Armed Robbery	1	1	M	325925.56,	1158149.29	Kakuri	Nov-07
32	Theft & Other Stealings	6	5	M	331900.14,	1156170.07	Sabon Tasha	Nov-07
33	Theft & Other Stealings	10	6	M	331882.81,	1169603.19	Kawo	Nov-07
34	Theft & Other Stealings	10	11	M	329034.11,	1167859.43	Kurmin Mashi	Nov-07
35	Armed Robbery	2	11	M	333756.11,	1158044.21	Barnawa	Dec-07
36	Armed Robbery	1	3	M	325925.56,	1158149.29	Kakuri	Dec-07
37	Theft & Other Stealings	4	5	M	331900.14,	1156170.07	Sabon Tasha	Dec-07
38	Theft & Other Stealings	4	4	M	323790.56,	1166075.09	Rigasa	Dec-07
39	Receiving stolen property	6	8 M	M	330646.25,	1169795.60	Kawo	Feb-06
40	Receiving stolen property	2	5	M	330396.11,	1158036.78	Barnawa	Feb-06
41	Armed Robbery	1	1	M	328438.37,	1163210.99	Gabasawa	Feb-06

42	Culpable homicide	3	4	M	330149.77, 1155866.14	Kagarko Close, Sabon Tasha	Apr-06
43	House breaking and theft	12	15	M	331342.01, 1168508.10	Malali	Apr-06
44	Rape	6	8	M	327771.69, 1162221.64	Unguwan Rimi	June-06
45	Store Breaking & Theft	4	6		327376.21, 1162425.97	Sabon Gari	Sept-06
46	Theft & other stealing	8	8	M	323790.56, 1166075.09	Rigasa	Sept-06
47	House Breaking Theft	2	3	F	325539.26, 1157382.93	Samaru Road, Kakuri	Dec-06
48	House Breaking Theft	2	6	F	331882.81, 1169603.19	Kudan Road, Kawo	Dec-06
49	Armed Robbery	1	3	F	325925.56, 1158149.29	Kakuri	Dec-06
50	Theft & Other Stealing	3	4	F	331981.01, 1156145.20	Sabon Tasha	Dec-06
51	Theft Of Vehicle	3	3	M	327687.58, 1162997.69	Unguwar Sanusi	Dec-06
52	Store Breaking & Theft	4	6	F	327376.21, 1162425.97	Sabon Gari	Dec-06
53	House Breaking & Theft	3	6	M	327001.37, 1162802.88	Sabon Gari	Dec-06