

Crime Pattern Analysis in Mysore City, Karnataka State

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Abstract

Crime is, first of all, a 'legal conception, human behavior punishable under criminal law'. It is again defined as an organized crimes or individuals. Organized crime is the illegal activities carried out by structured groups of three or more persons existing for a prolonged period of time and having the aim of committing serious crimes through concerted action by using intimidation, violence, corruption or other means in order to obtain directly or indirectly, a financial or other material benefit. Crime analysis can be described as a law enforcement function where by data relating to crime is collected. Crime analysis is the study of crime patterns and trends in an attempt to solve crimes or prevent their occurrences. For reasons of simplicity, in this survey no distinction is made between crime analysis and criminal intelligence analysis.

The rapid growth of population and along with the development of commercial and transport facilities have favored uncontrolled urban expansion and development. Sudden increase in population human migration aggression and natural increase of population resulted many fold problems in urban areas. Physical, social and economic conditions of urban areas have deteriorated with an alarming rate. The congestion, environmental pollution and lack of employment cause social problems and increase the crime and alienation in crisis. The uncontrolled growth, the non availabilities of housing and unemployment in urban areas influences the social crimes and resulted in unhealthy climate in urban centers. Proper planning includes administration and maintenance of law and order minimizes the problem.

KEYWORDS: crime patterns, urban centers, human migration, Crime analysis, criminal law.

Introduction

The present research aims at analyzing the crime pattern in Mysore city using Geographic Information System. The effective policing and maintenance of law and order are the most essential components of a good governmental organization. The efficiency of policing is highly dependent on the choice of the tool, appropriate database on various aspects of crime to take a decision at the right place and at the right time. GIS is one such tool which would not only increase the efficiency of the police in understanding the patterns, prevention, detection and investigation of crime but also to create awareness among people living in Mysore city.

Decision making in policing has always been constrained, influenced by the geographical factors. Mapping crime data can help law enforcement agencies to protect crimes more effectively in the areas they serve. Simple maps that display location of crimes, concentration of crimes or occurrence of crime are immensely useful. Maps will also help people visualize the geographic aspect of crime and socio-economic characteristics of criminals and the resultant criminal behavior over space. Geographic information plays a vital role in establishing effective control, providing timely direction and drawing meaningful policies for policing. GIS is an effective tool that can be used in the police decision and policy making.

Though computer mapping has been used as a tool for law enforcement since the 1970's in many western countries, the application of GIS technology has increased drastically in the last decade. Indian police researchers have always focused their attention on the need for sophisticated tools for effective policing. There is no doubt that the GIS technology would increase the efficiency of the police in the prevention, detection and investigation of crime. In India though Bangalore, Hyderabad, and Kerala police uses customized GIS, the application of GIS is still in a rudimentary stages. (Jayashankar, 2002) This technology supports a wide variety of problems solving and spatial support decision-making applications in crime and crime locations. (Saddler 1999). The Geographic Information Systems allow integration and analysis of data to identify and apprehend and prosecute suspects, it aids more proactive behavior through effective allocation of resources and better policy setting. (Nelson Lew, 1999). Jaishankar and Shanmugapriya have applied GIS in their case study to identify crime patterns in Chennai city. With GIS applications the spatial patterns of property were accurately identified and effectively presented.

THE PROBLEM OF STUDY:

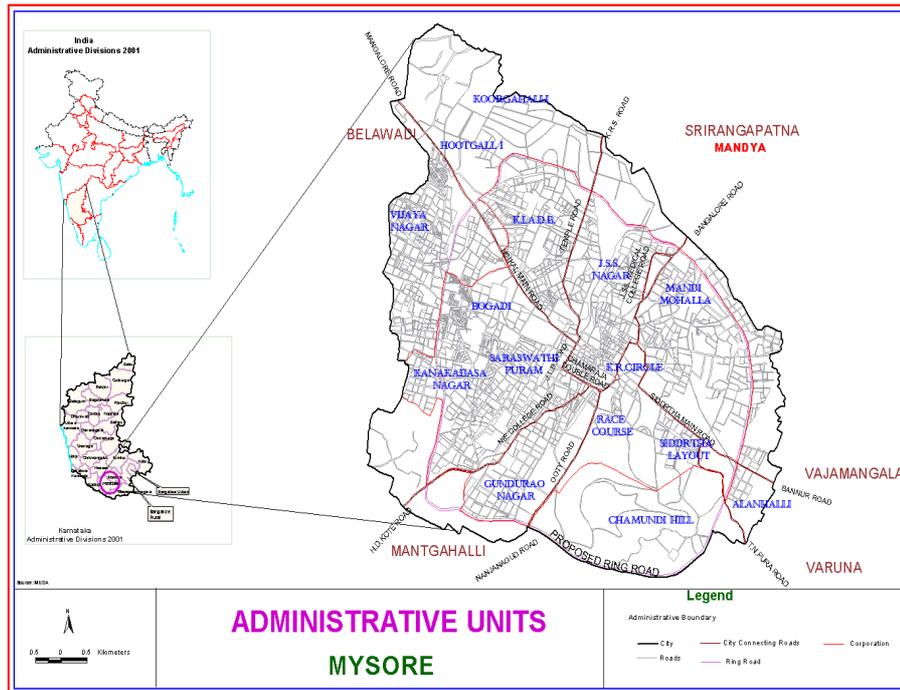
Mysore city area is being located in the Southern part of the Karnataka. This city, is a highly populated and commercialized place. The city highly crime in sub-urban bus stand placed in this area adds a never ending flow of travelers from various places. The major heads of crime occurring in this area are cheating, theft, crimes under Prevention of Immoral Trafficking (PIT) Act, and crimes under Criminal Procedures (Cr.Pc.) Act. These heads of crime were chosen for studying the pattern, their area of influence (zones) and identifying the further areas which can be a victim. GIS application and its tools like Standard distance, mean centre, Standard Deviation Ellipse, Directional Distribution, and Kernel Density are used to make the crime mapping and analysis more accurate and meaningful.

Objectives

- * To analyze the spatial distribution of crimes in Mysore city and to create number of thematic maps using GIS technology.
- * To study the existing crime scenario of Mysore city and to create spatial and attribute database in GIS format.

Study area

The city of Mysore is situated in the southern part of Karnataka State between It lies between the 12° 17' 23" N and 12° 18' 28" N latitude and 76° 39' 28" E and 76° 40' 16" E longitudes. and an elevation of 777mts. The City of Mysore is about 140 kms, away from Bangalore City the capital of Karnataka. It covers an area of 110 sq. kms. The southern extremity of the city is bounded by Chamundi Hills, while K R Mills form the northern boundary. Mysore City is one of the oldest urban centers in southern Karnataka. The city has divided into 7 mohallas consisting of 65 wards. According to 2011 census These Mohallas are: K R Mohalla, Fort Mohalla, Mandi Mohalla, Lashkar Mohalla, Devaraja Mohalla, Chamaraja Mohalla and N R Mohalla. Mysore City is one of the fastest growing cities in Karnataka state next to the capital city of Bangalore. The city has a population of 9,14,919 according to 2011 census.

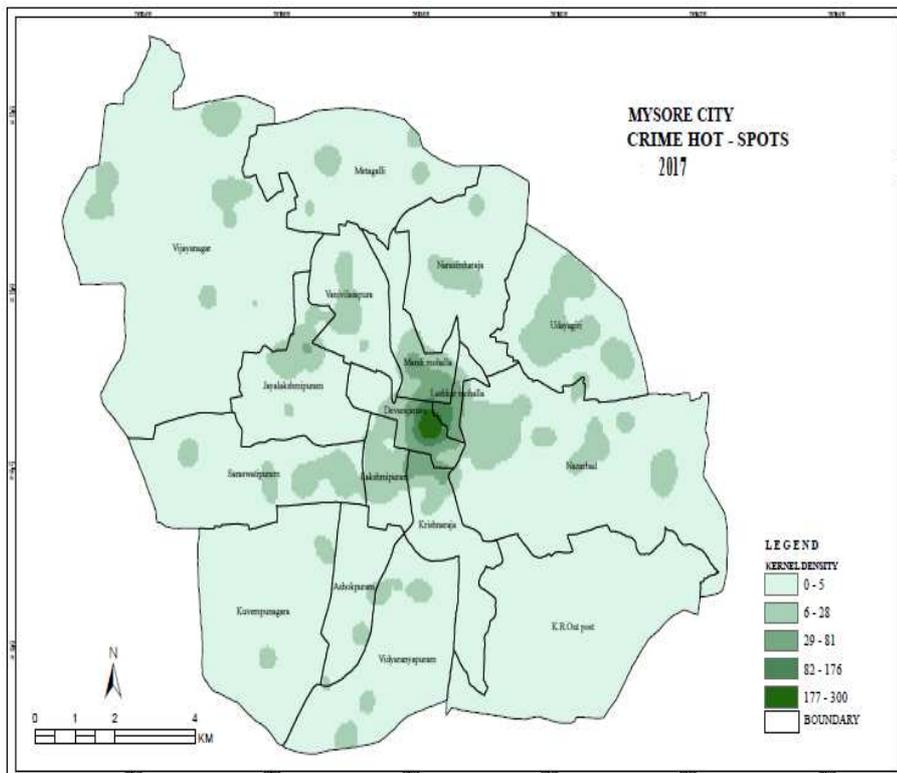


Methodology:

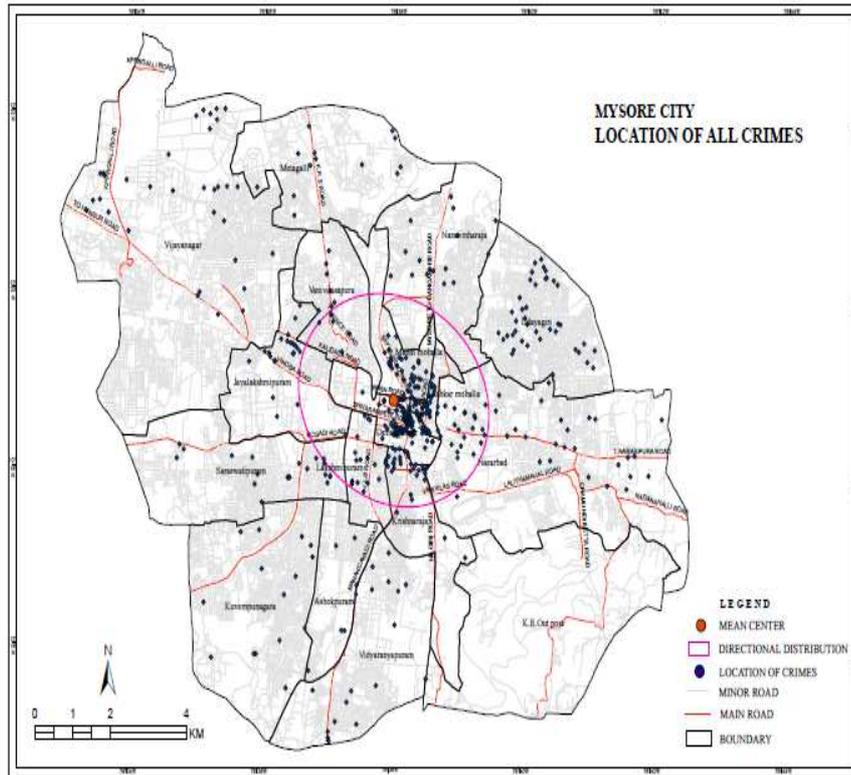
Any research work should follow a systematic methodology. Keeping this in view, the study tries to understand the existing crime scenario of Mysore city. The data will be collected only from the secondary sources. Secondary data will be collected from the office of the Commissioner of police, Mysore, Mysore City Corporation, Mysore Urban Development Authority. Etc. Mysore city map with a scale of 1:20,000 will be scanned and digitized and necessary vector files will be created using Auto CAD 2000 software. Socio-economic data like population size, density, literacy, income of the residents in each ward, will be collected and appropriate thematic maps will be generated after analyzing these data by applying appropriate statistical techniques. After creating vector files, these fills will be exported to Arcinfo environment to create topology. The data analysis will be carried out by using Arcview software. Statistical techniques will be employed to find out the association between variables. Mysore City will be divided in to different Mohallas consisting of 65 wards.

Sl. No	Crimes Heads	Abbreviation	Code
I	a) Dacoity 395	D	X1
	b) Petty	P	X2
	c) Missing	M	X3
	d) PIT	PIT	X4
	e) Auto Mobil Theft	AMT	X5
	f) Jewellery Theft	JT	X6
	g) Robbery 391-394	ROB	X7
	h) Murder	M	X8
	I) others	O	X9

MYSORE CITY: POLICE STATION WISE CRIMES: 2017										
POLICE STN	CRPC	PETTY	MISS	PIT	AUTO	JEW	ROB	MUR	OTHER	TOT
DEVARAJAMOHALA	42	15	14	0	108	0	18	4	104	305
LASHKARMOHALA	64	8	8	5	24	3	13	3	74	202
UDAYAGIRI	29	46	45	0	15	10	4	11	58	218
NAZARBAD	30	54	39	0	13	12	14	11	110	283
KRISHNARAJAMOHALA	29	35	24	0	27	0	4	2	69	190
LAXMIPURAM	19	4	9	4	15	2	2	0	62	117
SARASWATHIPURAM	2	12	0	0	13	4	4	0	59	94
KUVEMPUNAGAR	17	20	19	0	3	0	7	4	57	127
ASHOKAPURM	11	13	19	0	6	1	0	1	30	81
VIDYARANYAPURAM	19	20	38	0	4	6	6	1	33	127
NARASIMHARAJMOHALA	29	19	33	0	0	0	8	7	91	187
MANDIMOHALA	35	30	20	0	29	7	0	1	60	182
VANIVILASAMOHALA	12	19	26	0	12	0	0	0	55	124
METAGALLI	28	29	25	3	9	4	0	0	136	243
VIJAYANAGARA	32	34	28	0	11	4	7	11	85	203
JAYALAXMIPURAM	18	5	9	0	18	1	4	0	40	95
TOTAL	416	363	356	12	307	54	91	56	1123	2795



Map 3 Kernel density of Crime Hot Spots in Mysore City -2017



Map 3 Crime Hot Spots in Mysore City -2017

ANALYSIS:

The present investigation is a case study that applied GIS. With GIS capability the spatial patterns crime were accurately identified and efficiently presented. The aim of the study is to analyze the crime scenario of Mysore city by using GIS technology and develop an information system. The present study of crime mapping analysis will be helpful in charting out a frame work for police patrol planning and preventive measures will help to increase their awareness of hot spots of crime.

The present studies mainly relied on secondary data. Data pertaining to the properties offences, automobile theft, jewellery theft, murder, robberies, and dacoity have been taken for the year 2017.

The four types of crimes taken for this study are separately mapped for each year. The distribution of crime incidents show that almost all parts of the city are affected by nefarious activities in the cities. The distribution cannot be labeled as uniform throughout as the level of concentration varies from place to place and police station to police station limits. These GIS analyses done are kernel density, hot spot analysis and mean center and eclipse

On the practical level, the results showed that, the police department can utilize GIS instead of traditional pin maps, particularly if GIS could be integrated in a holistic ways with other information system in the police department. The results show that GIS is a useful, effective and necessary tool in combating crime.

In Mysore City, the crime of ordinary theft is the highest incidence the year 2017. But the this year 2017 showed the highest incident rate within the crime of

ordinary theft. The incidences of crime for Section 279, Section 337 and section 338 of IPC Act jointly accounts little higher than that of ordinary theft. The crime of cheating has an increasing trend from last few years . All other heads of crimes are having a comparatively less number of incidences in 2016 than the previous year, i.e., 2016, which resembles a control over the increasing crime. The above chart demonstrates the variation of the major crimes from 2017 for Mysore City.

In 2017 out of 2795 reported cases in the mysore city all the police stations Devaraja Mohalla has registered the highest number of cases reported 305 cases Nazarbad police station reported 283 cases and Lashkarmohala, Udaygiri police station situated heart of city because these police station also highest crime incidents reported which accounts for more then 200 different cases registered Metagalli and vijayanagr also highest number of cases reported because outscored of the city Sarswathi puram , Ashokapuram Laxmipuram has registered the least number of cases in 2017.

The incidences of crimes are mapped as point features and the most sensitive zones are identified. Map 2 (left) shows the incidence of all Crime under IPC Act for Mysore city Police Station area of Mysore City as a point feature. Majority of the crime is found in the southern part of the police station limit and is concentrated on the area of Clock Tower, Gandhi Square, Irwin Road, and Sub-urban Bus stand. Map 2 (right) shows the zone where the crimes under the Section IPC Act are highly affected and which needs a special attention by the Police Department.

Crime density map was generated using Kernel density Interpolation technique that has been used to generalize incident locations to the entire study area. Kernel density estimation is an interpolation technique that is appropriate for individual point locations

Conclusion

The total crime cases 2795 in 2017 to analyze the crime incidence, spatial distribution of cognizable crimes was analyzed at the police station levels. Present there are 17 police stations in Mysore city. Vidyaranyapuram Police Station is the biggest police station in Mysore city and Lashkar and K.R outpost police stations are smallest in their limits.

Growth of slums is also major causes for increasing in crime in the city. Increase in the crime rate in Bamboo bazaar, Laskhar, Vidyaranyapuram is due to the industrialization, urbanization and socio- economic factors.

The study analyses the impact of Socio-economic indicators, growth of population, density, occupational structure , urbanization, industrialization, status of income are responsible for the high incidence of crime in the city.

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Recommendations and Implications

Until a good database is maintained by police department, it will be difficult for crime analysts to get the require data. The police can deploy more patrolling and such preventive action to stop these crimes in the sensitive zones identified. The department should make the complaint procedure easier so the people do not hesitate to lodge their complaint. Hidden camera can be installed on these spots connected to GPS information to collect the live information on the crime and the culprits. Regulating the traffic will help to a great extend to control the increasing incidence of crime as it allows people to track the culprits.

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