Ethnicity, Urbanisation and Crimes in Malaysia: Sociological and GIS Transborder Analyses of a Social Conflict

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Abstract: This study aims to explore social phenomena from the perspective of scientific and technological knowledge. Information on urban development and its relationship with crime and conflict in a multi-ethnic urban setting is collected through a social survey, narcotics and crime records from the police, and the GIS on the development of the township of Sungai Petani. Surveys show that urban development is socially organized and that the Chinese community benefits more significantly than Malays and Indians from urban growth. The data on urban development reflect the fact that as both development and urban areas are growing, Malays living in rural areas and Indians on rubber estates are dislocated, thereby joining the urban poor with limited education, income, and job skills. The narcotic and crime data collected were superimposed on the GIS data of Sungai Petani, Malaysia. Drug-related crime patterns were observed to be related to the expansion of industrial and housing schemes. This situation, if not identified and managed, often ends in ethnic conflict. It happened in 2012, these ethnic groups of development losers, street bikers and gangsters fought across ethnic lines.

1 INTRODUCTION

Development, industrialisation, technological change and internal as well as external migration within Malaysia since the 1970s have transformed the landscape, especially of Peninsular Malaysia into cosmopolitan and urbanized society. Local Agenda 21 was introduced into the local governments throughout the country in managing the urban, town and city. The urban development agenda have prioritised societal well-being and security of the urban inhabitant in the urban planning and implementation by the local governments in Malaysia. The local governments are supported by other agencies such as the Police, Welfare, Fire and Rescue, Health, National Unity and, including

community and civil society to ensure that the urban development goals defined will be achieved.

Yet in situations of drastic development, urbanization, social changes and transformation, development failures and social inequalities that overlap over ethnic and religious lines in a diverse society, not only produce social problems and crimes but ethnoreligious skirmishes that eventually might lead to ethnic conflict (Noor 2000). There is indeed a correlation between crime, urban growth, and social mobility among various ethnic groups (Noor and Mansor 2017). In Malaysia, these societal dysfunctions of ethnic skirmishes have erupted in Kampung Medan, Kampung Rawa, Taiping, Pasir Gudang and, among others in Sungai Petani. GIS-based analysis is able to determine conflict hotspot

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Figure 1: Study area at Sungai Petani, Kedah.

zones to describe how the conflict is spatially located (Tadesse 2023).

1.1 The Ethnic Skirmishes in Sungai Petani, Kedah
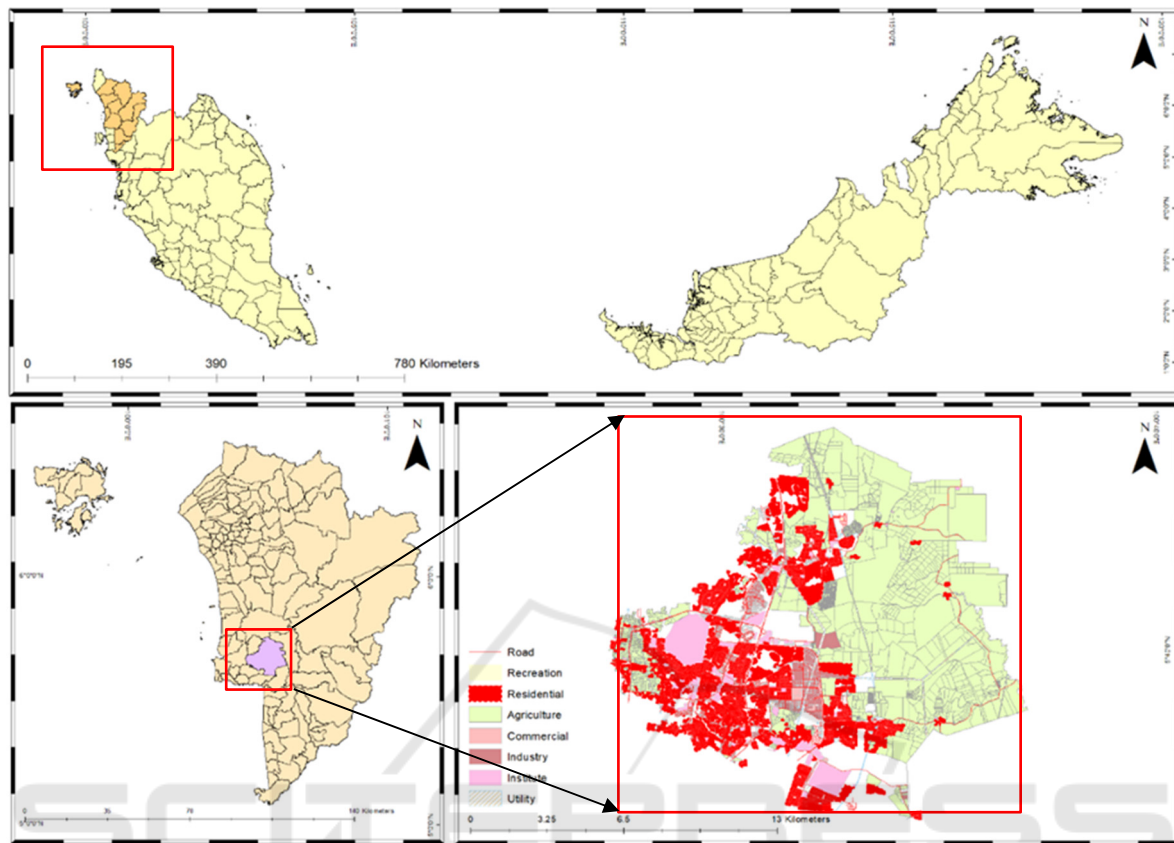
The township of Sungai Petani is located in the northern part of Kedah. (see Figure 1). Since the 1990s industries from Penang over-spilled into the Sungai Petani area, bringing in development and saw urban spatial growth of its town area into the traditional Malay villages and the rubber estates on the foothill as new industrial sites, housing schemes and urban centers were built. However, the urbanization taking place that has encroached on the Malay kampong and rubber estates have pushed the Malays and Indians to migrate to the urban areas and become the indigent urban poor there. The displaced groups of Malay and Indian have low level of education, unskilled occupation and low income. Thus, their migration to the urban center continued their structural inter-generational vicious circle of poverty that was inherited from their great grand-fathers (Mapjabil, Yusof, and Jusoh 2010).

On Sunday, 16 December 2012 group fighting between Malay and Indian youths over misunderstanding among the ethnic street-bikers in the previous night in Sungai Petani. Illegal motorbike street race among youth and gangsterism were the catalysts for the incident. The skirmishes took place in the low-income public housing scheme that housed the relocated Indian and Malay communities that were occupying on the river reserve land that pass through the town. However, interviews with the local leaders, government agencies and the community show that those involved in the incident are the victims of development losers that trapped them in inter-generational poverty.

1.2 Research Objective

The focuses of this article are to identify and explain the individual and urban security from social class perspective, the roles governance in the social problems, crimes, the individual and urban security

and action plans to manage the social tension for future peace and national unity. This sociological study was also supported by concurrent research of the changing pattern of the urban land-use and its relationship to crimes involving petty thefts, property thefts and drugs.

With such focuses of study, the hypotheses are that urban and individual security have a direct influence by social problems and crimes, social problems and crimes by urban governance and urban governance has an indirect influence on urban and individual security. While the patterns of land-use is to measure the rate of urban development and its relationship to crime. This trans-border study of combining the socio-logical perspective and science and technological approach using GIS in identifying and explaining physical, economic and social development could be better used in studying the dynamic of social phenomenon and social changes in the society.

2 RESEARCH METHODOLOGY

The research design is quantitative and a questionnaire was used to collect primary data. A total sample of 444 respondents were interviewed and by ethnic groups, 217 were Malays, 145 Indians and 82 Chinese. The areas studied in Sungai Petani Munici-pality were Taman Ria Jaya, Flat Paya Nahu, Flat Paya Nahu 1, Taman Keladi, Taman Ria, and Taman Petani Jaya.

The instrument of urban security has 6 items with a five scale of agree to disagree and the reliability composite is CR=0.586. While the individual security has 13 has 13 items, with five scale and reliability composite is CR=0.841. In the prediction variables, the social problem instrument has 5 items and CR=0.920 and the crime instrument has 5 items and CR=0.863. And both these instruments used a scale from 1 very bad to 10 very good. The governance and development instrument has a five scale of agreement with CR=0.877). In analysing the causal predictive variable (β), the changes to the main variable (R^2) and the impact of the predictive variable (f^2).

Primary data related to crime cases (Figure 2) is obtained from the crime record at the Royal Malaysian Police, Sungai Petani, Kedah. The researchers obtained information on crimes within the period of 2000 to 2014 from Kuala Muda Police Department covering, among others, violent crimes, property crimes, and drug-related cases. Such data, stored in an information system, can be analyzed based on the overall statistics on crime cases, crime rates, types of crimes, the geographical distribution of crimes, and the characteristics of crimes.
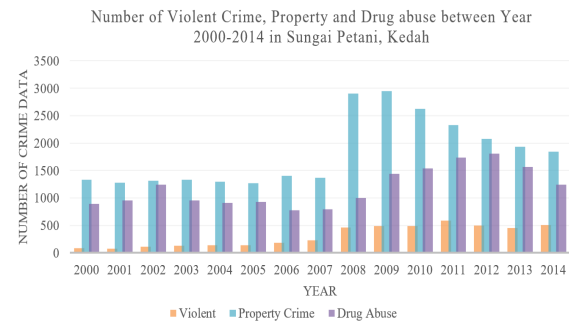

Figure 2: Total Number of Crime Data from 2000 to 2014.

The satellite imagery data (Figure 3) was obtained from the Malaysian Space Agency (MySA) and the Sungai Petani authority, Kedah. Both these primer data of crime and land-use patterns were collected from 2000 to 2013. Studies do show that urban growth, over time, can also change the potential for crime (Felson 1987).
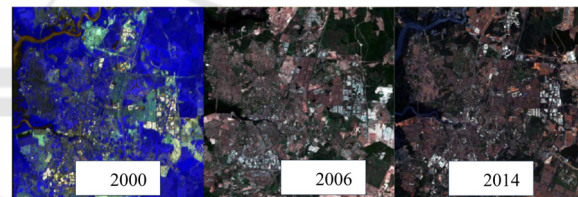
Figure 3: SPOT-5 Satellite Imagery Year 2000, 2006 and 2013 for Sungai Petani.

3 RESULTS AND DISCUSSIONS

3.1 Results

The predictive variables of urban governance, social problems and crimes predicted urban security along the low social status at 20.0 percent and middle social status at 22.2 percent. While the same predictive variables of urban governance, social problems and crimes predicted individual security at 6.8 percent among the low social status and middle social status at 18.4 percent.

Among the low social status respondents, crime at 36.6 percent has a direct relationship with urban security. While among the middle social status, social problem at 35.8 percent shows a direct impact on individual security. Both social status show that governance and development at 16.7 percent and 19.7 percent, respectively, registered an indirect

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relationship with urban security. Middle social status, at 17.6 percent, has an indirect relationship with individual security.

Analysing the instrument of social problem, the low social status at 59.8 percent and middle social status at 65.9 percent have a dominant influence on crime with low social status at 45.3 percent and middle social status with 49.9 percent. However, the governance and development instruments show to have a dominant influence on social problems, crime and urban security.

A strong discovery of this study is the fact that social problems are a major predictor of criminal behavior. The major inference from this is that such issues have a strong impact on people of both low and middle social classes. As such, this study establishes that governance and development of individuals from lower social strata are of paramount importance and must be informed by planning based on empirical evidence to prevent social problems, minimize criminal activities, and improve urban safety in the study area. In this regard, it is important to note that
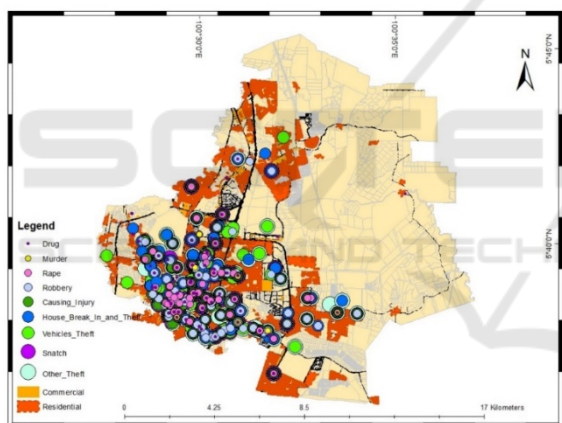
ethnic and religious differences do not form the basis of causes of conflicts witnessed in Sungai Petani.

In line with the above, the GIS analysis of the relationship between urban growth and crime using Spearman's rank-order correlation approach was conducted to test the relation of overall crime with urban land; the preliminary data examined via visual inspection of a scatterplot showed that the relation was not exactly monotonic. Although the linear equation shows slight positive relation, yet result is not statistically significant at $r= 0.059 > 0.05$, since it fails to reject, hence there is no significant association. However, in a Precise analysis of Violent Crime Related to Urban Growth in Sg. Petani That shows strong positive correlation on the Spearman correlation co-efficient (=0.833). The increase in

Figure 4: Crime Distribution in Sungai Petani from Year 2000-2013.

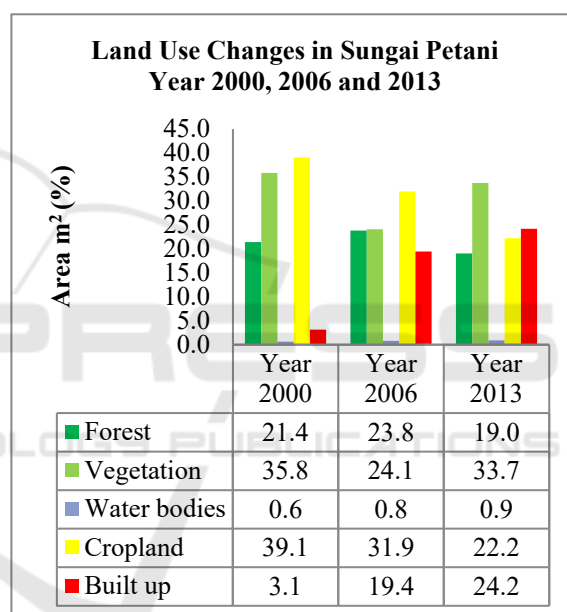|	Year 2000	Year 2006	Year 2013
Forest	21.4	23.8	19.0
Vegetation	35.8	24.1	33.7
Water bodies	0.6	0.8	0.9
Cropland	39.1	31.9	22.2
Built up	3.1	19.4	24.2

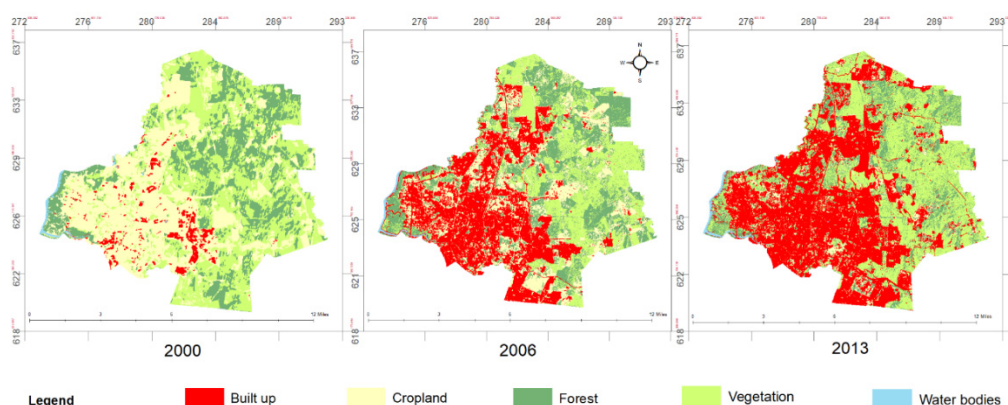Figure 5: Landuse Changes in Sungai Petani Year 2000, 2006 and 2013.

Figure 6: Landuse Changes in Sungai Petani Year 2000, 2006 and 2013.

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urban areas over the same period manifested a strong relationship with the recorded rise in general criminal activities, $rs(8) = 0.833$, $p < 0.05$. Additionally, a Spearman's rank-order correlation test was conducted to ascertain the strength of the relationship between urban growth over the period and the level of crime in Sungai Petani. The analysis showed a positive relation between urban growth and the prevalence of drug abuse, $rs(8) = 0.587$, $p < 0.05$. However, the

relationship between urban growth and violent crime is not significant in the scope of this research.

The increase in total crime recorded over the period under study was found to have a positive and significant relationship with the increase in urbanization, $rs(8) = 0.833$, $p < 0.05$. Further, Spearman's rank-order correlation was carried out to assess the nature and strength of the relationship between urban development over the stated period
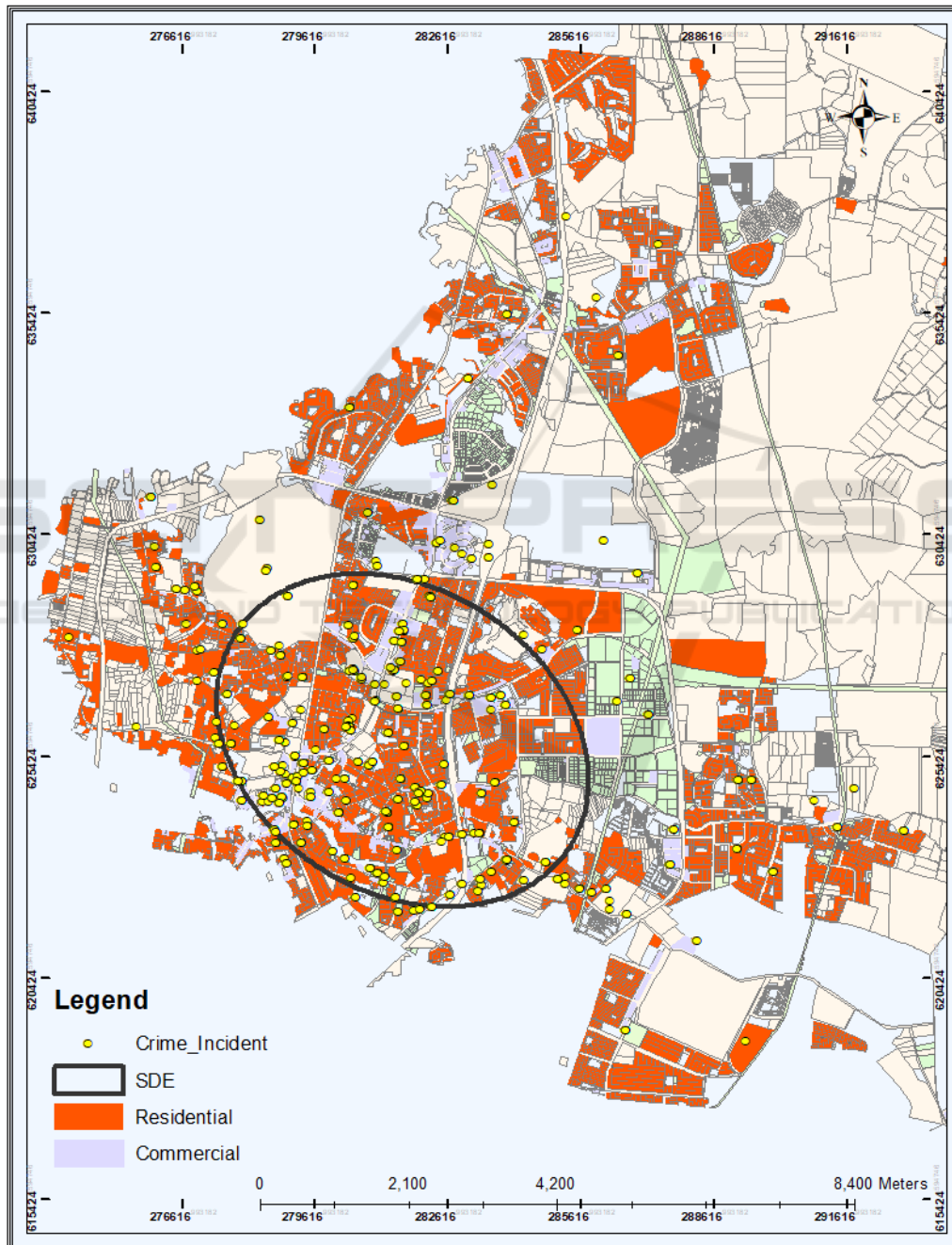

Figure 7: Course of Crime Occurrences in Sungai Petani for the Year 2000-2013.

and the prevalence of criminal activities in Sungai Petani. Urban growth was positively correlated with the rate of drug abuse, $rs(8) = 0.587$, $p < 0.05$. However, urban growth and violence crime is not significance in this study.

The types of crime distribution in Sungai Petani are drugs, murder, rape, robbery, house damage, vehicle theft, mugging and others in 2000 – 2013 (Figure 4). These crimes occurred in commercial and residential areas. Most of the crime that occurs is southwest of Sungai Petani area.

On Figure 5 it illustrates the variations in land use between 2000, 2006, and 2013, showing a rapid growth in built-up areas from 3.1% to 24.2%. Figure 6 provides a visual analysis of urban development, with water bodies in blue, forests in dark green, vegetation in light green, cropland in yellow, and built-up areas in red. The data indicates a significant rise in urban growth and population during this period. The findings from the sociological and GIS approaches show that urban growth affects social problems and crime, which negatively impacts individual and urban security.

The analysis depicted in Figure 7 reveals the movement patterns of criminal activity from 2000 to 2013, differing from previous results. The study
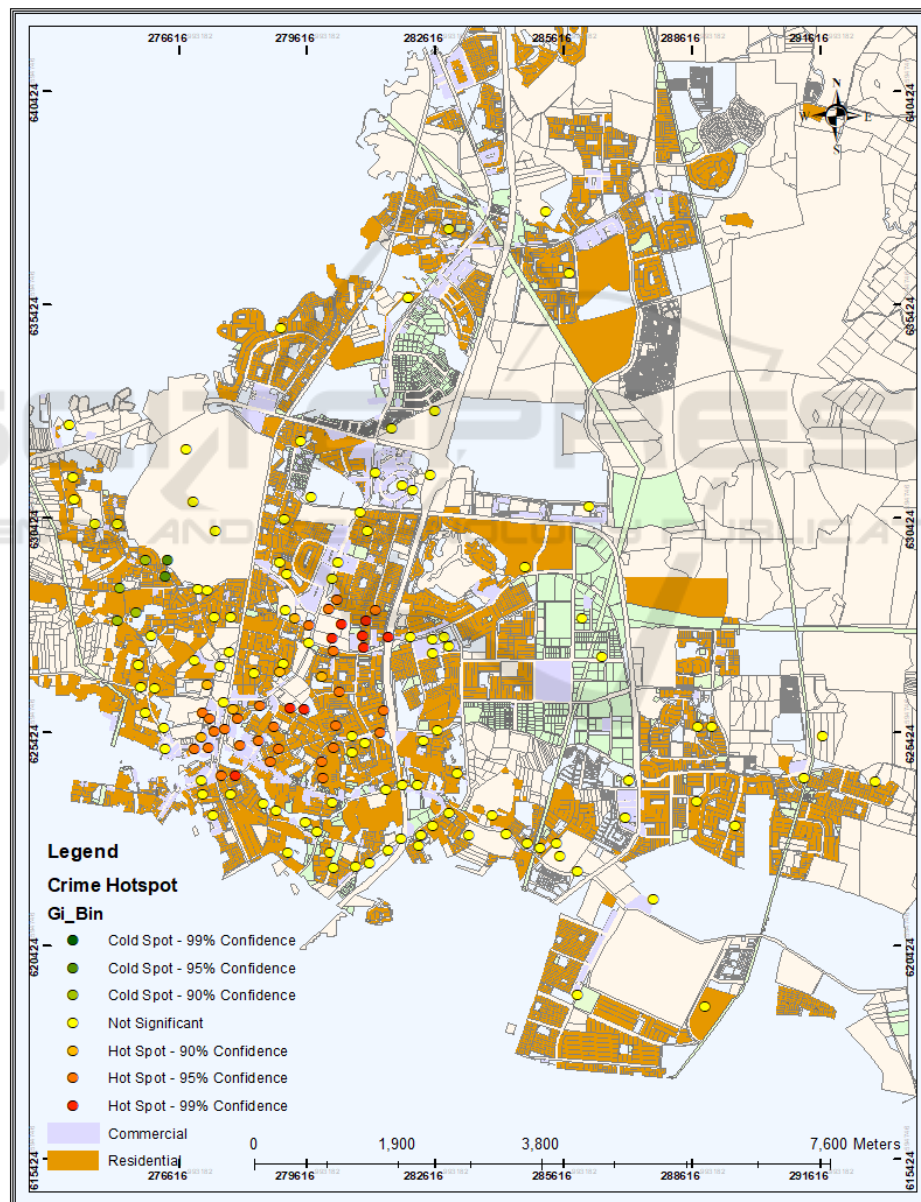

Figure 8: Hotspot of Criminal Activities in Sungai Petani.

suggests that the physical structure of areas can influence criminal behaviour. The map indicates that criminal activities are increasingly distributed towards Kulim and Penang, known as industrial cities.

The Hotspot analysis was carried out to determine the spatial distribution of crime activities that occurred between the years 2000 and 2013 using Euclidean distance for accurate measurement. The research resulted in a z-score for each value, which represents the statistical significance of the spatial clustering based on the randomization null hypothesis. The findings indicate that most crime hotspots, particularly those in commercial and industrial regions are located in Sungai Petani. To represent the density of crime, a map using graduated colors was made, in which green shows low z-scores and yellow and red show moderate and high z-scores, respectively, thus showing areas with the highest crime rates. Figure 8 shows these crime hotspots, with the red areas representing high crime rates standing out in Sungai Petani.

3.2 Discussions

The study shows that the social location of an individual, group and community do have strong relationship on social problem and crime experienced and its impact on individual and urban security as well their access to urban governance and development. Even though the incident of ethnic skirmishes in Sungai Petani did involve the ethnic Malay and Indian groups but the data collected did not give evidence that ethnic and religious differences as the cause to skirmishes taking place among these groups (Noor 2021).

The main causes highlight the failures of urban governance of security and the redistribution of the fruits of development fairly and inclusively, especially to low social status group. Thus, social problem and crime in urban area being studied are related to urban planning and implementation of the local development plan and, may be relevance to the hot spot of ethnic skirmishes in other urban centres in Malaysia (Browning et al. 2010).

Analysing the data by social status grouping do show that social problems and crime are observed to have negative impact on the family and life of the majority of the low social status group (Mansor et al. 2014). Urban governance and development failures that give rise to the social problem in the communities are the causes to the rising level of criminal activities that will influence negatively on urban security. Despite the above findings, the low social status

group studied still views positively and recognises the roles of governance by the local government in managing to reduce the social problem and crime in their areas. In fact, without effective intervention by the local government, other state and federal agencies as well as the NGO, they do anticipate that the security of their family and housing areas in their urban setting will be more negatively affected. Among the middle social status group, they foresee the initial factor of social problem and urban governance and development failures that generate the rising level of crime in their housing areas.

The variations between these social status groups could be identified in which the middle social status group place individual security compared to the low social status group. To the middle social status group, personal and family matters are importance to them over others. This prevails as fundamental needs from security is being con-trolled with care. Yet the group does inform that, generally, urban governance and development are still regarded as importance to ensure their individual security.

The GIS and crime data do support the sociological study that social location does influence behaviour of the urban dwellers. The 2000 to 2013 data on changing pattern of land use and crime including narcotic collected show that where the low social status group stays, social problem, petty crime and drugs overlap with social status and crime. While in the middle social status housing scheme, property crime is low as often theirs are a gated-community. The study on the relationship between pattern of land use and crime in Sungai Petani should be a comparative study of other township and city in Malaysia in order to measure the strength and significance of their relationship.

3.3 Way Forward in Managing Urban Skirmishes

These findings have contributed to the literature, informed practical applications, and influenced policy-making in the context of urban growth and overall well-being. The information added from this study will also contribute to the strategic planning of future urban redevelopments that consider all essential factors, particularly societal well-being, in an attempt to increase the liveability of our cities. The most important contribution that this study makes is in its methodology, since it combines capabilities of the social sciences with spatial analysts using GIS in detecting and describing the social phenomena being studied. This research has confirmed that the disciplines of science and technology combined with

that of the social sciences would be able to support our remark of the society together with the power to explain challenges faced.

Social problems, criminal activities, and social conflicts are linked to issues of rapid urban development, industrialization, and uneven development within urban and suburban areas. The social consequences are proven through information obtained from GIS, crime statistics, and social surveys that demonstrate all communities in the area are affected; this negatively hampers the realization of sustainable development objectives set for the areas (Tadesse 2023).

Planning for urban governance and development of Sungai Petani must be given priority in managing the social problem in eradicating crime so as to enhance the level of individual and urban security in the community (Jayasooria 2008). Intervention through com-munity development among the B40 group should be given greater emphasised. Among the initiatives can be planned for them are an educational intervention among the children of the B40 group be given in their community so as to strengthen their educational achievement from the kindergarten, primary school to the working world. Training job skills should be made available to their children who finish schooling and, especially the drop-out from the schooling system, in ensuring they be employable. Training social skills of life such as parenting, educational culture and home science be made available to the parents of the B40 group. At the community level, community-based self-help group and security patrol of their neighbourhood should be encouraged as their responsibility. Non-governmental Organisations and government agencies should provide institutional and leadership support to the local community in ensuring national unity, public security and prosperity in the housing areas be attained.

4 CONCLUSION

Urbanization is a universal phenomenon. Besides, urbanization is directly linked to industrialization. Industrialization is the major impetus to economic growth that fosters modernization and contemporary development in backward countries like Malaysia. Still, even as modernization brings many benefits, it also leads to problems of social stratification and marginalization which come with the said development.

Unplanned development and urbanization have brought about unintended side effects of political

instability and ethnic conflicts among the bottom fourty percent and the slum dwellers in Malaysia. Although ethnicity is unlikely to be the direct cause of tension and skirmish among a nation, how poorer urban individuals develop within post-colonial pluralistic societies may result in ethnic-group competition for access to a nation's resources and social attention that can sharpen ethnic divisions and social inequality.

ACKNOWLEDGEMENTS

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