Chapter Four

Ecological Variables and Crime: An Overview
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ECOLOGICAL VARIABLES AND CRIME:
AN OVERVIEW

4.1 Ecology – What it means?

Man decides how he wants to live within natural limitations of a space by utilising the spatial resources available to him, viz., food, local products, communication facility, earning opportunity etc., by overcoming also its drawbacks against health, safety, security and natural risks. He evaluates the said space in terms of the utility value of the space as perceived by him. Human ecology study attempts to investigate the processes by which the biotic balance and social equilibrium, once achieved, is maintained. Here society remains as a superstructure above the mere basic levels of struggle for existence – in the competitions for mere survival of biotic community.

Besides a physical individuality, ecology of a space may be characterized by its demographic peculiarities, nature of gender proportions, literacy rate, employment opportunity, socio-cultural constraints, social problems, mode of land use, life style and perceived value of the dwellers about the occupied space. Community life of dwellers in natural areas is mainly formed by their respective differential abilities to cope with competition-stress resting on the in-group cooperation and advantageous communications. Culture, ethnic attributes, languages, religion, customs, etc. operate also along the dimension of economic worth and other social accomplishments or affluency – “poverty dimension” – to cause further stratification to segregate psychosocially the dwellers’ population.
A microspace or a locality is formed to indicate shared interest of the local dwellers' community. It may be described as the function of a common residency of a dwelling group. It may be a culturally defined space for living depending on (i) choice of location by a group and effort for adaptation with the surroundings, (ii) maintaining modes of landuse of choice, (iii) developing a style of life, and (iv) maintaining a set of values, norms and quality of life.

Ecology of a territorial area may be changed, altered or re-designed as thought of by an interested group according to the members' knowledge, experience, insight and attitude by removing constraints and creating facilities for the cause of the group life. Consequently, the members build-up 'activity space' and 'preference space' and develop within their mind a 'perceived space' whose boundaries or maps remain a matter of projected idea of the percipients only. In between two such well-conceived types of 'spaces' – 'activity space' and 'preferred space' – generally lie a no-man's land or buffer zone, which remains so under the vigilance of one or few interested group(s). No-man's land indicates a plot of undesirable area, not utilized for some reasons by the local group of residents.

Attractions and repulsions of members under different subgroups of a stratified population and their styles of life are reflected in the residential fabrics of the community. At the micro-level it is mainly reflected in the attitudes and behaviour and residential structures of a particular area in a settlement – urban or rural – causing social differentiation also. At the macro-level a relationship between residential and social differentiation help generating a socio-cultural phenomena in the encompassing society.
In India and particularly in West Bengal, presently, the said differentiation takes place mainly due to social rank and family status. The former is indexed by occupational status and education and, obviously, to a good extent monthly or annual income of the family concerned. The increased demand for educational competencies and expansion of range of professional and occupational opportunities have created a great opportunity to a fraction of population, who are educated and have acquired professional or occupational skills. Therefore, differences in vocational preparations and competencies in the job market have become the bases for the dimension of social accomplishment ranks. In traditional social life of Indian communities it was different when caste and religious controls used to determine the said ranks and to a great extent by way of inheritance by the descendent family members.

In modern urban life the range of opportunities for an individual remains dependent on (i) economic status, (ii) family status, (iii) migration status, and (iv) ethnic status. As a person of modern decades, in India, migrates from his traditional group life to a reference group life for social achievements — by refers to a new form of social mobility for getting accustomed with a complex, technologically advanced, and rapidly changing style of life. Residential differentiation of urban population (e.g., High income group flats, middle income group colony, low income group tenements) reflects the basic social differentials existent in the society concerned and develop a link with the degree of modernization and its quality of life.
4.2 Influence of Ecology on Crime

Crime is the wrong against society. In public thought the word 'criminal' is generally applied to those who are ostracized by the society. It may also be stated that criminals are "social excrement". In our traditional criminal law, a criminal is one who in the past, generally with evil intentions, committed an act made punishable by law. From the social viewpoint, we are more concerned to protect society against future acts than to requite the criminal for past acts. The concern is not with past wickedness but rather with possible future dangerousness.

Broadly speaking there may be two approaches to seek the reasons for crime: (1) Subjective approach and (2) Objective approach. The subjective approaches analyse motives and examine the nature of the criminal and the various aspects of his personality. The use of the word 'subjective' may create an impression that personal speculation or opinion of the investigator of causation is involved. However, the individualistic approaches have lost much of the credibility with the advent of more sophisticated environmental theories. Their main weakness lies in the fact that they fail to see that crime represents a socio-cultural phenomenon, which is not associated with the physical or mental equipment of an individual as such. To use the words of Taft and England, individual conformity or non-conformity to criminal codes are as much socio-cultural phenomenon as speaking or failing to speak grammatical English and are not necessarily indicative of the possession of abnormal biological or psychological traits. It cannot however, be denied that the constitutionalists focused attention on the personality of the criminals for the first time which was a step in the right direction towards modern criminology.
Objective approaches (Environmental or Ecological approaches) turn first to the examination of the physical and social conditions within which crime is generated, or which have conditioned the life-long development of the personalities of criminals. Donald R. Taft divided objective approaches into geographical, ecological, economic, social, sociological and cultural approach of which the present investigation is much concerned with the ecological and geographical approaches to unearth the influence of social data on the crime rate and their variations in terms of social environment like urbanization, literacy, occupations, poverty etc. In this context several scientists used shaded maps and compared the distribution of offenses in a geographic zone of France to draw the following conclusions:

(i) Crimes against property were generally more common in towns than rural areas;

(ii) Wealth showed a closer positive relationship to property crimes than population density; and

(iii) Education was not a panacea for crime.

In 1833, Westminster Review published (pp. 361-362) further that the most literate zones had low rate of person-victim crimes while high rate of property crime. Later Fletcher (1849) in his pioneer investigation in England corroborated Guerry’s observations. About a century later, White (1987) observed that there were a characteristic distance between the residence of the criminal and the place of occurrence and the distance varied with the types of crime revealing their well-known tendency to maintain anonymity and deception to evade law.
To delineate geographic areas of urban crime and legal deviancies several American Scientists used ‘concentric zone’ model (Shaw & McKay, 1971). Quite a few of them helped to indicate important milestones of research methods to study ecology of crime and spatial pattern of crimes. For example:

(i) By mapping out the locations of residences of Cook County Juvenile Offenders Shaw & McKay (1971) revealed that they hailed from 75% of community areas of the County.

(ii) Bullock’s Study (1955) with Houston sample revealed that 87% cases of murder “the victims and assailants knew each other before the crime was committed and that their residences were generally less than a mile around the spot of murder.

(iii) Lander’s Study (1971) Baltimore area incidents helped him to identify finally two factors – ‘anomic’ and ‘economic’ factors responsible for the crimes occurred.

(iv) Bordua’s similar type of study (1971) with Detroit sample revealed different results.

(v) Boggs (1966) opined that the rates of crime could be safely considered as a “risk statement” – “homicide, assault and residential burglary got concentrated only in the offenders home neighbourhood but not the business robbery and night burglary”. Her findings remained open for further verifications for generalization.

(vi) Shaw & McKay, in a subsequent study (1971), inferred that “delinquency must be the result of a social processing in certain
pointed out socially disorganized areas of metropolitan development areas, under study, in terms of legitimate institutions and avenues of success. The rates of change could be fitted to simple linear trend lines with a high degree of accuracy”. They reported also a relation of changing rates of delinquency in the six Chicago community areas – “increasing in three areas where large number of Negroes were moving in, declining in older ghetto areas”.

(vii) Harries (1974) justified the need for probing further the influence of ecology on crime by probing such spatial irregularities which remained unexplainable by variables like distance, demographic, social, economic and landuse characteristics of the area.

(viii) By using a regression model Lee (1996) studied forty eight police precincts of Denver, constituting a micro-community and identified a positive relationship with high crime precincts and less distance from central business district busy with industrial activity, low nocturnal population, lucrative crime targets and easy accessibility as some of the contributing factors. Amongst other factors, they observed insignificant relations between low crime rate and high security arrangements.

(ix) The need for building up a man-environment model was felt by Ziesel (1975) for effective ecological study. A need for studying interaction of psycho-bio-sociological variables by interdisciplinary approach had been recommended for true ecological probing by Jeffery (1977).
4.3 Ecological Correlates of Crime

Ecological researchers interested in exploiting causal relations of crime with environmental variables have observed that opportunities to commit crimes vary from neighbourhood to neighbourhood. Areas where offenders reside are not likely to be areas where the highest number of crimes occur. Central business places of urban localities are found to carry the risk of property crimes, mainly; while urban or suburbs populated by disorganized community lives are the preferred dwelling places of the antisocials linked with common cognizable crimes. Risk group of specific crime varies significantly. Density of population is not a factor to stimulate high crime rates while for certain crimes, against person, low density of population or sparsely populated area seems commonly linked. Doer-victim pairs could be used as the base for criminal homicide and aggravated assaults – the greater the number of pairs of persons, the greater the opportunities. The number of occupied housing units could be used as the base for residential burglary rates. The above inferences reported between 1920-1960 through the findings of U.S.A. and U.K. social geographers practically helped to prepare the base for encouraging further researches on the environmental correlates of crime.

In general, crime rates are highest in the most urbanized regions and lowest in the rural areas of hilly regions of a country. Most of the researchers have agreed on the point that crime rate increases with city size along with the size of an urbanized area – which indicates that crime may be a consequential incident of urbanization (Harries, 1974) – possibly due to stress and conflicts in highly densed localities. Besides, Harries (1974) observed that the cities with a high crime rate tend to have (i) larger population; (ii) fewer jobs in manufacturing; (iii) higher per capita income;
(iv) greater social disorganisations; (v) higher rates of population change; (vi) more unemployment; and (vii) larger black population. Harries (1974) grouped them as *opportunity factor* to cause different *violent factors (crimes)*. Findings, published so far, suggest that variations in the incidences of crime remain more open to ‘within cities’ influences than ‘between cities’. Central areas of some cities are found to carry more risk than others. In probing the relationships between offenders and victims in 17 cities of the U.S., Mulvihill & Tumin (1969) observed that in 82% cases of robbery, 53% of rape cases, 31% of aggravated assaults and 17% of criminal homicides were committed by strangers, i.e., absence of doer-victim relationships. Presence of some kind of doer-victim relationships was found present in case of criminal homicide (37%), aggravated assaults (31%), forcible rape (36%), and robbery (11%) only. According to them, about 46% of violent crimes in those cities were committed by strangers, 27% by friends or acquaintances, and 11% only by family members. Highest percentages of criminal homicides (25%), approximately, were done by family members while for forcible rape 36% friends or acquaintances were the ‘doers’. Criminal Statistics of England and Wales (1976), Table-8.4 presented a different picture where family members and acquainted persons were found around 40% linked with violent crimes.

"Murder in Britain is slowly becoming a more impersonal crime" (Home Office, 1980, Table-10.3). According to Lambert (1970), where no police action was taken to prevent situational disputes, in Birmingham there distinct patterns of crimes appeared in between sophisticated part of the city and older areas of the city. ‘Murders are localized more in proximity to the suspect’s residence, if not actually there : 66% of murders in Akron, Ohio took place in the same Census Tract as lived arrested suspects"
There are distinct microlocational attributes with murder cases and impersonal street crimes in North America \cite{FBI Uniform Crime Reports, 1978}.

According to Amir \cite{Amir, 1971}, rape, despite micro-locational similarities to murder, is more alike assault in its environmental correlates, being associated most closely with poorer inner-city areas. In Philadelphia data, Amir \cite{Amir, 1971} observed that the incidence of rape rises more rapidly with city size than robbery and assault.

Robbery of employees’ salary on the pay-day is high in city centres and localities with industries in the suburban areas. Mugging, where robbing of individual property is the only aim of victimization, is found high in residential districts and localities and under opportuned moments – particularly when the question of ‘interference’ is remote and ‘vigilance’ is poor. Here, at the microscale three locational factors are important \cite{Conklin, 1975}, viz., (i) a street leading off a main thoroughfare or shopping centre; (ii) good opportunities for concealment of the doer before victimization and (iii) good opportunities for escape through alleyways, buildings, slums, dumping ground etc. Mugging and residential robbery both are highly linked with some common opportunity factors and motive \cite{Reppetto, 1974, 1976}.

Amongst the offences against property, theft cases cover more than 50% of total crime incidents, universally. These cases are concerned mainly with theft from a house, from shops, from public places and from open streets (of vehicles). A more serious offense takes place in the residential area is burglary in which, if opportunity comes, the skilled thieves are interested. Burglary is a fairly homogeneous theft group with a fairly high
rate of both reporting and recording. Davidsson’s study (1980) in this regard has revealed that of 86 Census Districts in Christchurch, New Zealand, five richest suffered six burglaries involving a loss of $1,204 whereas the five poorest had forty six burglaries in which $30,876 was stolen. Burglars move to the fringe of their neighbourhood to commit their crimes (Brantingham & Brantingham, 1975). Police response to burglary cells is only marginally affected by prior perceptions of the type of dwelling involved (Conklin & Bittner, 1973). The risk of burglary to business premises is higher in suburban areas, perhaps because in such locations the premises may offer greater rewards to the thief and may be less protected against him (Davidson, 1980).

By reviewing the information collected from different authentic reports it seems that environmental settings play an important role to cause crimes – the offenders always prefer to exploit loopholes, to commit legally wrong activities, which they discover and consider advantageous to achieve their goals by evading vigilance. It has become further evident that on the basis of reported crime statistics it is possible to present patterns or geographical distribution of risk-areas for particular crime, in a locality, like city-centre, residential areas of locality, fringes and areas where concealment opportunity for the doers is high. In this connection, Mawby’s (1977) comment on the influence of a “criminogenic environment” deserve due attention.

4.4 Environmental Perception of the Victims of Crime

Crime victims show unequal influences of gender groups in different countries where the number of male victims dominate over the number of female victims. In the findings of Hindelang et al. (1978) the ratio was 1:5
of eight American cities while in a different study with London sample the margin was found significantly lesser. According to Davidson (1980) in both person and property crimes the number of male victims were found higher than female.

The highest risks for victimization, with American data, was observed in the age range of 16-19 years. Mawby (1979) reported a less clearly differentiated picture of juvenile victimization than adult in his Sheffield study, irrespective of area and status.

The possibility for victimization in certain types of crime remains more open to lack of experience and settings within which it occurs. Purposive violence and its gravity bear high positive correlation with ‘unfamiliarity of the locations to the offender or where he anticipates confrontation with his victim’ (Davidson, 1980). According to Waller & Okihiro (1978) less ‘defensive spaces’ remained more risky to burglary in Toronto – “social cohesion was found to have no independent effect, but the hours a property was left vacant did”. Davidson (1980) opined that burglars were found to select victims irrespective of any of their attributes and all emphasis on the value of goods to be stolen.

The proportion of people in any locality with direct experience of being affected as crime victim remains significantly low in usual cases, under the umbrella of criminal justice administration. Yet the issue of law and order often perceived by the people, dwellers population, as questionable or not upto the mark. The 1964 presidential campaign first brought the issue of law and order into the national spotlight. The crime rate was soaring; what was the federal government going to do about it? After sixteen years, dozens of investigative task forces and presidential
commissions, the establishment of the Law Enforcement Assistant Administration (LEAA) and now it is virtually dismantling, the answer is decreasingly simple: not much. In an American locality where the official rate for the chances of burglary remained 1:1406 there 27% of the residents being asked about their chances of being burgled replied more than 50:50 (McPherson, 1978). Why the residents of the least burgled neighbourhood of Minneapolis were found so apprehensive? Because they perceived so—'Crime is perceived predominantly as a non-local issue' (Davidson, 1980).

Residents of neighbourhoods with more incidents are less likely to perceive the recorded local rate as lower than elsewhere. But the said perception is not universal in character. McPherson (1978) found a good correlation between perception of risk and recorded rates of variety of offenses in Minneapolis. Generally, one’s own neighbourhood is felt less dangerous.

Victims of crimes against the person are over represented to 'deteriorated neighbourhoods, victims of economic offenses in good neighborhoods and those of property crimes equally distributed. Patterns of multiple victimization tend to reinforce these area differences, especially for crimes against person.

Fear of crimes remain open to specific crimes, feelings of 'no safety' in high crime rate areas, community beliefs and norms, anonymity, isolation, lack of privacy, immobility, etc. 'Those who perceive more crime are less willing to report it' (Davidson, 1980). There are localities populated by heterogeneous group of dwellers which are perceived by dwellers of distant areas as fearful spots—where criminals live—which notion is so old that it is difficult to trace. The said belief to perceive a fringe or a particular village with notoriety help stigmatizing its dwellers also as 'dangerous' people. In India such perception and fear are found present in most of the
provinces, including West Bengal (for example, Lodha community in Midnapore District, West Bengal).

Perception of people about a safe and secured environment is highly linked with their fear and apprehension. Localities where good citizens generally live is perceived as unsafe when people’s confidence becomes low and stray incidents of crime caused by strangers increase suddenly. It reflects the peoples’ defence mentality and where victimization is not necessarily direct. Sometimes, rumour spread by fear-stricken dwellers intensify or exaggerate the fear of local residents to unrealistically high level. Here, collective response may dominate the individual.

The said defense mentally is equally applicable to offenders. There are localities in the rural areas, urban areas and fringes in different states of India where particular type of offenders prefer to take shelter – as safe place. They find here communities or dens for gang life where the dwellers adopt a defensive posture towards crime, become less active in other areas of interpersonal relations and, thereby, get themselves away from legitimate social networks. Their development though unusual but not rare around the areas where abrupt urbanization takes place and anonymity increases in the heterogeneous population. ‘Attitudes in refuge environments express alienation from the general norms of society : Crime in these neighbourhoods is not so much a violation of the norm, as the norm itself’ (Davidson, 1980). Here, police recording practices may vary between communities, reflecting perceptions among policemen about their role as law-enforcers – quite common in the fringes of border areas between India and Nepal, India and Pakistan and India and Bangladesh in West Bengal. Offenders may be found to concentrate in certain localities which have
bearing on why and where they offend. It seems that social location and perception of crime problem bear a significant relationship, universally.

Fear of crime is more prevalent than actual victimization, yet relatively few studies have explored the environmental correlates of fear. Fear has a pervasive association with health, with studies indicating that fear can heighten feelings of anxiety and unease to the detriment of psychological wellbeing and mental health (Whitley & Prince, 2005; Stafford, 2007; Green et al., 2002. White et al., 1987; Ross, 1993). Furthermore, to alleviate their fears, people may constrain their social and physical activities to avoid certain places or situations they perceive to be unsafe (Skogan & Maxfield, 1981; Liska et al., 1988). This withdrawal can affect the formation of social ties (Ross & Jang, 2000), social participation (Stafford, 2007) and physical activity levels (Foster & Giles-Corti, 2008). Moreover safety concerns can induce parents to constrain their children’s physical activities (Carver et al., 2010). There is also evidence of a direct association between fear of crime and physical health, whereby frequent stimulation of physiological stress mechanisms can cause these responses to malfunction, leading to a range of disease outcomes (McEwen, 1998). Thus, improved knowledge of the neighbourhood characteristics that minimize fear could benefit both mental and physical health.

Recent research has focused on the capacity for characteristics of the built environment to encourage physical activity (Owen et al., 2004; Saelens et al., 2003). Many of these physical attributes also have links to crime and perceived safety, suggesting some commonalities between those environments that encourage walking and those that influence neighbourhood safety. For example, physical disorder (e.g., litter, graffiti
and vandalism) and 'suburban incivilities' (e.g., presentation and upkeep of properties) (Brown et al., 2004) can amplify feelings of insecurity (Lewis & Maxfield, 1980; Austin et al., 2002; Wood et al., 2008) and these negative visual cues can deter residents from engaging in physical activity (Ellaway et al., 2005; King, 2008; Mendes de Leon et al., 2009; Miles, 2008; Nagel et al., 2008; Shenassa et al., 2006; Sugiyama & Ward-Thompson, 2008).

Broader neighbourhood design and planning attributes (e.g., street connectivity, residential density and retail destinations) demonstrate positive associations with utilitarian walking (Frank et al., 2005; Owen et al., 2007; Lund, 2003; McCormack et al., 2008; Saelens et al., 2003); however, evidence suggests many walkability characteristics are associated with more crime (Cozens, 2008; Schneider & Kitchen, 2007), and that homogeneous neighbourhoods with restricted vehicular and pedestrian access are safer (Poyner, 1983; Greenberg et al., 1982). The association between neighbourhood planning and perceptions of safety is more ambiguous, and may be confused by the distinction between actual crime and fear of crime. These are separate, but related constructs; crime is a tangible event (Schneider & Kitchen, 2007), whereas fear of crime is an 'emotional reaction of dread or anxiety to crime or symbols that a person associates with crime' (Ferraro, 1995). Thus, the neighbourhood attributes that reduce crime may not be the same as those that minimise residents' fears about crime. Many environmental characteristics have assumed associations with perceived safety through their capacity to generate natural surveillance (Jacobs, 1961); however, there is little empirical evidence supporting this. Indeed, evidence that neighbourhood design can promote or inhibit residents' feelings of safety is somewhat elusive.
4.5 Neighbourhood Design and Crime

Many crimes are opportunistic, committed as people go about their daily activities (including travel between activities), when they discover potential targets (Brantingham & Brantingham, 1993). Routine activity theory suggests three elements are necessary for a crime to occur: (1) an offender; (2) a target; and (3) the absence of a capable guardian (Clarke & Felson, 1993; Cohen & Felson, 1979). This theory supports the notion that walkable neighbourhoods, which ensure the presence of guardians, will restrict crime. However, the effectiveness of guardians to prevent crime remains contingent on the type of crime. Capable guardians may prevent serious offences, yet large volumes of people can serve to mask low-level offences (e.g., pick pocketing, drug sales) (Loukaitou-Sideris, 1999).

In general, property crime occurs near destinations that attract both local residents and visitors (e.g., shopping centres, recreational facilities, transport nodes) (Beavon et al., 1994; Brantingham & Brantingham, 1993; Brown, 1982; Bowes, 2007), whereas crimes against the person occur in the home or close to drinking venues (Peterson et al., 2000; Gorman et al., 2001). Numerous studies have reiterated this association between non-residential land-uses and crime (Schweitzer et al., 1999; Greenberg et al., 1982; Smith et al., 2000; Gruenewald et al., 2006; Roncek, 1981; Roncek & Lobosco, 1983; Wilcox et al., 2004). However, studies also suggest that some non-residential land-users can be protective against crime. Peterson et al. (2000) found that certain destinations (e.g., recreation centres), which provide sites for positive resident interaction, were associated with less violent crime in disadvantaged neighbourhoods, while other land-uses (e.g., small businesses) can augment the number of ‘legitimate users’ (Kurtz et al., 1998). This highlights the complexity of
land-use and suggests that analyses that distinguish between business and resident oriented land-uses may be pertinent to the incidence of crime (Wilcox et al., 2004).

Permeable street layouts that facilitate walking appear to increase crime by improving access (Cozens, 2008). For example, gridded street networks have been associated with household burglary, as logical layouts make navigation and exploration easier (Brantingham & Brantingham, 1993). Doyle et al. (2006) generated a county-level indicator of walkability from block sizes and street connectivity, and identified a moderate positive correlation with crime (Doyle et al., 2006). Such links between connectivity and crime appear to be the consensus of much of the literature (Cozens, 2008; Schneider & Kitchen, 2007); however, there is some evidence to the contrary associating cul-de-sacs with property crime (Shu, 2000). Nonetheless, connectivity alone may not impact crime unless other elements are present that make the neighbourhood appealing to potential offenders (e.g., destinations, suitable targets) (Brantingham & Brantingham, 1993).

### 4.6 Neighbourhood Design and Fear

Fewer studies have examined direct effects between land-uses and perceived safety, and the findings are mixed. Living in close proximity to a grocery or convenience store was found to correlate with higher fear of crime (Schweitzer et al., 1999); however, other research found distance to the nearest commercial or industrial land-use had no bearing on fear (McCrea et al., 2005). Wood et al. (2008) found that as the number of destinations within 800m of participants increased, feelings of safety diminished; however, this association attenuated after adjusting for neighbourhood design (i.e., gridded vs curvilinear layout). The authors
proposed that a threshold may exist, where an optimal number of destinations could promote feeling safe; and both the quality and type of destinations needs consideration (Wood et al., 2008).

Furthermore, Wood et al. (2008) hypothesized that suburbs designed to be more conducive to walking, thus encouraging interaction between neighbours, would be positively associated with feeling safe. New Urban planning also draws on the premise that building designs that promote natural surveillance and public spaces that facilitate social interaction will create safe, inviting streets for pedestrians (Congress for the New Urbanism, 2001). However, contrary to expectations, Wood et al. (2008) found residents in a conventional suburb (i.e., curvilinear street layout) felt safer than those in a traditionally planned (i.e., grid layout) suburb.

The presence of green space has also generated some conflicting evidence. Vegetation can conceal perpetrators as they select a target, commit an offence and flee the scene (Nasar & Fisher, 1993) and promote fear by limiting visibility in the immediate vicinity (Nasar & Jones, 1997). However, green space with well-maintained grass and widely spaced high canopy trees does not impede visibility nor provide cover for criminal acts. Indeed, some studies suggest vegetation may promote safety. In residential settings, the presence of vegetation has been associated with less fear of crime, a greater sense of safety among residents (Kuo et al., 1998; Mass et al., 2009) and lower reported crime (Kuo & Sullivan, 2001).

Nearly all residents prefer to live in neighbourhoods free of crime and disorder. Studies consistently show that residents report less satisfaction with the neighbourhood if there is, or they perceive, more crime (Adams, 1992; Davis & Fine-Davis, 1981; Harris, 2001; Lu, 1999;
Likewise, crime and disorder reduce attachment to the neighbourhood (Sampson, 1991). Furthermore, studies have suggested that neighbourhoods with more crime or disorder lead to higher rates of residential mobility (Dugan, 1999; Kearns & Forrest, 2003; Oropesa, 1989; Skogan & Maxfield, 1981), and a subsequent downward spiral (Skogan, 1990). Thus, crime and disorder play important roles in neighbourhood transition. Of course, crime or disorder can only bring about behavioural change if residents actually perceive this increased level of crime or disorder.

A key theory for understanding perceptions of crime and disorder is the social disorganization theory, and one of its key constructs is the notion that racial/ethnic heterogeneity affects the amount of neighbourhood crime. Implicit in this formulation is the notion of social distance, building on Merton's notion of social distance – based on various social categories – rather than a measure of social distance based on interaction behaviour. Thus, residents who differ on the characteristic of race / ethnicity may interact less frequently as a consequence, or may have differing cultural attitudes and perspectives, reducing the ability of the neighbourhood to provide informal social control in response to crime threats. Indeed, there is a wealth of evidence suggesting that neighbourhoods with more racial/ethnic heterogeneity have higher rates of crime (Hipp, 2007b; Roncek & Maier, 1991; Rountree & Warner, 1999; Sampson & Groves, 1989; Smith et al., 2000; Warner & Rountree, 1997) and disorder (Connerly & Marans, 1985; Hipp, 2007a; Rountree & Warner, 1999; Warner & Rountree, 1997). Although race/ethnicity is clearly important for social processes in the U.S., there seems little reason to ignore other dimensions of social distance. There is a broad literature building on
the work of Blau (1977, 1987) suggesting that social distance along a number of dimensions can affect social interactions (McPherson & Ranger-Moore, 1991). Given that a key insight of social disorganization theory is that neighbourhoods with fewer social interactions will have more crime due to a reduced ability to provide informal social control, exploring any social dimensions that might affect social interaction is crucial.

Studies have not addressed these questions in part due to the data limitation challenges but utilize a unique dataset that provides as information on all residents in a micro-neighbourhood (usually eleven households) by creating a measure of social distance that takes into account numerous social dimensions – rather than just race/ethnicity – and create a matrix for each micro-neighbourhood based on these social distances and then test whether individuals who are more socially distant from their neighbours perceive more crime or disorder in the neighbourhood. Beyond such individual-level effects, extant theory suggests that structural dimensions of aggregate social distance may increase perceptions of crime or disorder by all residents in the micro-neighbourhood. This may occur because this social distance affects the actual level of crime or disorder, or because it affects residents’ perceptions of this crime or disorder. Regardless which process is at work, the consequence is the same if these perceptions lead to behavioural changes on the part of residents. Furthermore, this social distance need not only affect crime or disorder in a linear fashion, but there are also theoretical reasons that may be explored to expect that these structured effects may have nonlinear effects. In this context it may be relevant to mention that a very recent study (Hipp, 2010) links social network methodology with the social disorganization literature to test the effect of block-level social distance on neighbourhood perceived
crime and disorder. The results disclose that more socially distant residents perceive more disorders than their neighbourhoods.

Nevertheless different researchers conducted a series of investigation taking various criteria of which certain are urbanization-state specific, a few are related to their unique pattern of development but this findings unequivocally accepted the ecological characteristics of respective neighbourhood. Hence, considering the background history and ecological characteristics the North 24 Parganas was selected as the study area of the present investigation.