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UMESH SHARRAF*

Introduction:

Policing in India is a mostly de- intellectualized activity. Academics like sociologists, psychologists or behavioural economists who should find policing a fecund ground to examine their theories are conspicuous by their marginal presence in Indian Policing[1]. Also, much of criminological theory taught in India is derived from concepts developed abroad. We tend to borrow criminological precepts from the West, albeit with some lag, and apply them wholesale to our conditions, without pausing to examine their empirical validity to our contexts.

For instance, 'Plea bargaining' was introduced in the Criminal Procedure in 2005 based on its success in countries like the USA but has remained a dismal failure in India despite occasional seminars and frequent exhortations by judges and senior police officers to adopt it to solve court pendency problems. However, in Indian circumstances this is likely to remain a dead letter in the foreseeable future[2].

Take for example, the concept of 'Community Policing'. We have taken to it wholeheartedly and a number of innovative initiatives have been launched under its rubric. The only thing is, that most of these programmes are more

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[1] *This marginal presence, too, appears to be dominated by pseudo-scientific 'experts'*

[2] *"The Chimera of Plea bargaining", Umesh Sharraf, Indian Police Journal,*
   Jan-March 2017

for public outreach and for improvement of police image (organizational or individual) and less in the nature of implementing policing strategies based on the requirement of the community. Most of these so called 'community policing' initiatives therefore continue to be 'Command Policing', where policing objectives are dictated top-down and have little to do with what the local community wants.

The 'Broken Windows theory' was, for instance, recently claimed as inspiration behind the drive in anti- human trafficking operations[3]. The 'Broken Windows' theory actually relates signs of public disorder and urban decay with urban crime rates. Issues like human trafficking are not really well explained by it. This theory was conceived by the criminologists James Q.Wilson and George Kelling[4]. The broken windows theory argued that minor nuisances, if left unchecked, turn into major nuisances; that is, rampant crime is the inevitable result of disorder. If a window in a building is broken and left un-repaired, it is an invitation to break more windows, and lawlessness spreads outward from building to streets to entire communities. In the subways, low-level crimes like fare jumping act similarly as small but unmistakable signals that, left unchecked, invite further chaos. In such an environment, according to Kelling and Wilson, citizen complaints will often be met with excuses such as, the police are understaffed, the courts don't punish first-time offenders, etc. Soon citizens stop calling the police, convinced that police can't do anything.

The 'Broken Windows' theory also has a hoary counterpart in the British era precept of Indian policing that emphasized enforcement of special and local laws and booking of "petty cases" (summary trial cases). Officers were encouraged to do more and more enforcement of these laws relating to public behaviour (e.g. vagrancy, littering, committing nuisance etc.) with the exhortation that healthy administration of 'petty case' work would result in reduction of occurrence of IPC crime. In many ways the 'Broken Windows theory' is old wine in a new bottle for the Indian Police!

In the recent past, 'Evidence based policing' or EBP has emerged as a newer way of policing and a number of police officers have started professing by its principles, if not by its practices.

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[3] *"Broken Windows Theory & Human trafficking in Rachakonda", The Pioneer, Hyderabad, 24.4.2019*

[4] *Wilson, James Q; Kelling, George L (Mar 1982), "Broken Windows: The police and neighbourhood safety", The Atlantic*

It is not 'evidence' as in Investigation

Much of policing requires collection and collation of 'evidence' during investigation of criminal cases. The purpose of investigation is to collect good evidence for successful prosecution. However, this is not 'Evidence Based Policing.' Recently, some officers have started talking of video recording of witnesses' statements as a model of EBP. This again, is not EBP.

Actually, 'Evidence based Policing' is a species of which 'Evidence based Policy making' is the genus. Very often policies are framed and executed based on personal ideologies, beliefs, whims and fancies of administrators and policy makers. Evidence based policy making tries to bring in statistical literacy and scientific impact assessment of policies in administration. Proper impact assessments require positing and examining proper counterfactuals[5], measuring outcomes properly, understanding statistical significance of the findings and whether the findings may be generalized to other contexts. At the end of this exercise, one should have a sound 'theory of change'. Policing, like any other State function, requires myriad administrative, strategic and tactical decisions at every stage- recruitment, training, resource or manpower deployment, public engagement- beyond prevention and detection of crime. Policing policies adopted by the political, bureaucratic or police executive have a direct impact on the investigation function as well. Evidence Based Policing requires these policies to be tested at the anvil of evidence. And, therein lies the rub.

With Madhya Pradesh Police (the prosecution wing is headed by an IPS officer presently) showcasing its success[6] in securing death penalty in a record number of rape/murder cases in the last two years[7] and Telangana Police (the prison department is headed by an IPS Officer) showcasing its prisoners' rehabilitation, education and reform initiatives[8] resulting in lower jail occupancy[9]; the question that should arise is that with both these narratives being accepted as success stories in crime control, can both be the complete truth at the same time? The degree of mutual exclusivity or

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[5] *Counterfactual thinking involves creation of possible alternatives to events that have already occurred.*

[6] *https://thewire.in/law/madhya-pradesh-death-sentence-pocso-law-convicted-rapists*

[7] *"Madhya Pradesh tops Death Sentence List", www.ndtv.com, 29.10.2018*

[8] *https://thewire.in/rights/the-successful-reformation-of-prisons-in-telangana*

[9] *"Jail occupancy in Telangana below normal", Deccan Chronicle, 26.8.2018*

otherwise of these two approaches can be understood only by examining proper counterfactuals for both.

Research on criminal behaviour after release from prison with regard to impact of hygiene, sunlight, exercise, vocational training by making proper control variables are all subjects that could go a long way in making theories of sentencing more empirical. However, it is very difficult to experiment in policing due to legal constraints and issues pertaining to human rights and political feasibility. Examination of past data merely validates post hoc our own vision of the theory of change. It is for this reason that an officer prosecuting offenders to their death may suddenly morph into a reformer if he is transferred from the prosecution to the prison department! The reality is that the Madhya Pradesh story is validated in a frame of reference that is based on the neo-classical theory[10] of crime and punishment whereas the Telangana model is rooted in the frame of reference based on the positivistic ideas[11] on justice. These are two fundamentally different world views.

The problem with our world views

People do not think only associatively (as assessed by Pavlov) and neither do they reason only by logical deduction. What they do is to infer by causal analysis – deliberate or intuitive. Intuitively held positions sometime change after deliberation but sometimes they harden! In fact, moral conclusions like political beliefs or sacredly held values[12] usually harden with deliberation, despite evidence to the contrary[13]. Strong moral or political opinions do not require reasons. Shattering the illusion of explanatory depth[14] reduces extremism only when people's positions are consequentialist[15] and not based

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[10] *The Classical theory places responsibility on the criminal's free will. The neo-classical approach adds judicial discretion to the Classical theory.*

[11] *Positivism places responsibility of crime outside the individual- to social, biological or psychological influences.*

[12] *Sacred values possess an infinite or transcendental significance that precludes comparisons, trade-offs or any other mingling with bounded values*

[13] *A. Tesser, L. Martin & M. Mendolia (1995), "The Impact of thought on attitude extremity and attitude – behaviour consistency"*

[14] *People feel they understand complex phenomena with far greater precision, coherence, and depth than they really do; they are subject to an illusion—an illusion of explanatory depth.*

[15] *Consequentialism holds that the consequences of one's conduct are the ultimate basis for any judgment about the rightness or wrongness of that conduct. Thus, from a consequentialist standpoint, a morally right act is one that will produce a good consequence.*

on sacred values. Yet, why do governments, activists or officers take 'sacred value' positions rather than thinking through the causal consequences of various policies? Not only because the causal analysis may generate an unwelcome answer, but also because outcomes do not matter in sacred values.

Believing things based on meagre evidence is what people do- that is the strength as well as weakness of human cognition. We determine what is probable based on our prior experience of the world and all that interests us is the evidence we have that supports the conclusion better than the other. This is what is called Inductive Reasoning. However, our beliefs are not necessarily true but only probabilistically so[16]. According to Popper, the problem of induction is asking the wrong question: it is asking how to justify theories given they cannot be justified by induction. Popper argued that justification is not needed at all and seeking justification "begs for an authoritarian answer". Instead, Popper said, what should be done is to look to find and correct errors.

Hence, while inductive reasoning covers a large part of our day to day cognition, it also makes us fallible because of the series of biases in the way we think. In fact, we not only do not assess evidence before formulating a theory, we assess evidence in light of the theory we have already formulated on the basis of earlier evidence! Thomas Kuhn in his seminal 1962 work *The Structure of Scientific Revolutions* showed that pre-existing theories are necessary to do the kind of inquiry that is the essence of science. To deal with reality, we need a conceptual framework to guide us what to look for. When we find something useful – it is the triumph of inductive reasoning. When we make errors – it is due to confirmation bias.

People have preference over beliefs[17] that are more appealing to them especially when the marginal cost to them of holding that potentially

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[16] *Karl Popper (1959), 'The logic of Scientific Discovery', Routledge Classics, 2002*

[17] *Certain beliefs are more appealing to people for reasons other than their truth value. Some possible sources of preferences over beliefs are Self-interested bias (People tend to hold beliefs that would benefit themselves), Beliefs as self-image constructors (People prefer to hold beliefs that best fit with the images of themselves that they want to adopt and to project), Beliefs as tools of social bonding (People prefer to hold the political beliefs of other people they like and with whom they want to associate), Coherence bias (People are biased towards beliefs that fit well with or reinforce their existing beliefs, regardless of those beliefs' degree of coherence with reality).*

erroneous or irrational belief is low[18]. However, they may abandon this belief if the cost increases beyond a threshold. For instance, an ardent supporter of human rights may abandon his ideals after suffering victimization at the hands of a professional criminal. Judges may end up exhorting police officers to use "third degree" to extort information on property stolen from their houses.

Many creative forms of avoiding the counterfactual represent the importance of evidence. If we expect our beliefs to be taken as true, we have to furnish the grounds. If we hold our beliefs because they are in conformity with the evidence, we should also be willing to revise them in light of any contrary new evidence. Hence, every proposition must have an evidentiary threshold – where disbelief passes into belief or belief changes to disbelief. In face of certain types of beliefs, as discussed supra, this evidentiary threshold is almost impossible to get crossed. No amount of counter evidence may override the confirmation bias in such cases. We must therefore learn to actively fight our inductive biases to deliberately seek out evidence that challenges our beliefs and to take such evidence seriously, when it comes.

At a seminar in the Indian Institute of Advanced Study, Shimla in April 2016, a prominent social activist, who was also a member of the National Advisory Council, took great exception to a paper presented by an officer on radicalization in which he had conducted interviews with undertrial accused in terror cases in Odisha and was presenting an empirical framework to understand Islamic radicalization. She took umbrage at the fact that the subjects of this study were only 'undertrials' and had not been convicted of the terror changes and the study was flawed for that reason. A little while later, while presenting her paper on police accountability, she cited the extremely low conviction rate in SC/ST (POA) Act cases as an example of the upper caste bias of the police. When one pointed out the logical fallacy of her treating 'not convicted' as a mark of innocence in one category but treating the same as mark of police bias in another, she lost her cool and refused to engage in dialogue!

History is replete with examples of men and women of strong convictions and profound trust in their own judgment. They adopt policies, develop bold theories for why they work, denounce the opposition and spread their

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[18] *Bryan Caplan, 'The myth of the rational voter', Princeton University Press, 2007*

insights with evangelical zeal. It is very difficult for these 'experts' to deviate from their world view despite evidence to the contrary.

Beyond mere 'Expertise'

In 1984, a study[19] was done to put expert political and economic predictions to the test. Forecasts were collected from 284 highly educated experts who averaged more than 12 years of experience in their specialties. To ensure that the predictions were concrete, experts had to give specific probabilities of future events. The researchers had to collect enough predictions so that they could separate lucky and unlucky streaks from true skill. The project lasted 20 years, and comprised 82,361 probability estimates about the future. The result: The experts were, by and large, horrific forecasters. Their areas of specialty, years of experience, and (for some) access to classified information made no difference. They were bad at short-term forecasting and bad at long-term forecasting. They were bad at forecasting in every domain. When experts declared that future events were impossible or nearly impossible, 15 percent of them occurred nonetheless. When they declared events to be a sure thing, more than one-quarter of them failed to transpire. Not only do experts get it wrong, not only do they refuse to acknowledge that they are wrong, even those who get it right often make erroneous assumptions (which suggests that they are right by accident, not design).

However, when knowledgeable people join forces they <u>are</u> capable of accurate forecasting. While the highly specialized experts know "one big thing," the integrators know "many little things." Some experts spend their career studying one problem. They make neat theories of how the world works based on observations through the single lens of their specialty. Integrators, meanwhile, "draw from an eclectic array of traditions, and accept ambiguity and contradiction." Incredibly, the experts perform especially poorly on long-term predictions within their specialty. They get worse as they accumulate experience and credentials in their field. The more information they have to work with, the more easily they fit any story into their worldview. Integrators are willing to accept other views, modify their beliefs in light of new evidence and course-correct their ideas. In the humble opinion of this author, Police leaders need to be such 'integrators' also, while having some expertise in any policing domain.

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[19] *David Epstein, 'The Peculiar Blindness of Experts', The Atlantic, https://www.theatlantic.com/ magazine/archive/2019/06/how-to-predict-the-future/588040/*

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Our cognitive illusions

It is only in the last century that ideas of randomized control trials, careful measurement and statistical analysis started getting adopted in social sciences. In describing how we think and decide, modern psychologists often use a dual system model that divides our mental world into two domains[20]. System 2 is the well known realm of conscious thought ('thinking slow') that comprises logic, rational decision making and deduction. System 1 is the realm of automatic perception and intuition ('thinking fast') that comprises induction and is insensitive to the quality of evidence. It delivers strong conclusion at fast speed because it treats evidence at hand as complete and significant. But because our brain demands order, many intuitive decisions get cloaked with post hoc System 2 type reasoning that is often just pseudo-science. In fact, the best evidence that a hypothesis is true is often an experiment designed to prove the hypothesis false but which fails to do so. We must be able to answer the question 'What would convince me that I am wrong?' If we can't, it is a sign that we have grown too attached to our beliefs.

"... there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns - the ones we don't know we don't know…" is the famously infelicitous phrasing by Donald Rumsfeld, former US Secretary of Defence, to describe levels of knowledge shown in this *Johari window*[21] type table:

Quadrant A **What we know that we know** *Good*	Quadrant B **What we know that we don't know** *Learn*
Quadrant C **What we don't know that we know** *Bonus*	Quadrant D **What we don't know that we don't know** *Danger*

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[20] *Daniel Kahneman describes System 1 as the fast, automatic, frequent, emotional, stereotypic, unconscious and System 2 as the slow, effortful, infrequent, logical, calculating, conscious modes of thought.*

[21] *The **Johari Window** is the psychological model developed by Joseph Luft and Harrington Ingham that helps an individual to understand his relationship with himself and with other people.*

While the security analysts may treat quadrant B knowledge as opportunity for learning and training, Quadrant C as opportunity for refining inherent knowledge, Quadrant A as dependable knowledge and quadrant D as the source of risk and threat; we can see that it is sometimes from Quadrant A that fundamental errors of judgment can arise- when we think that we know something for sure- but the said knowledge just may not be true!

The Cognitive illusions that cause such errors of judgement can be summarised as follows:

Randomness[22]: Because we are hardwired to look for patterns, even random events generate patterns in our minds from which we induce theories to explain the said pattern. However, such theories are bound to fail when put to test of time. Confusing correlation with causation is part of this cognitive failure.

Regression to the mean[23]: When things are in their extremes, they are likely to settle back down to the middle- or regress to the mean. When they do, often the same is seen as an illusory pattern and causation ascribed where none exists.

Confirmation bias[24]: The bias towards positive evidence we consistently seek out evidence that confirms our hypothesis and overvalue any confirmatory evidence.

Prior beliefs[25]: Our assessment of the quality of new evidence is affected by our prior beliefs. Usually our faith in research data is not predicated on an objective appraisal of the research methodology but on whether the research validates our pre-existing views.

Availability bias[26]: Because we are good at spotting patterns, we also pick out the more "available" information. Prominent things are more easily noticed and remembered. While a single bad case lingers in public memory, the occurrence of a number of similar cases that did not become prominent does not figure in memory.

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[22] *Gilovich T, Vallone R, Tversky. A., On the misperception of random sequences. Log Psych (1985); 17: 295-314*

[23] *Schaffner PE. Specious Learning about reward & punishment. J Pers Soc Psych (June 1985); 48(6): 1377-86*

[24] *Syyder M, Cantor N., Testing Hypotheses, J. Exp Soc Psych (1979); 15: 330-42*

[25] *Lord C G, Ross L, Lepper MR. Biased assimilation & Attitude polarisation. J. Pers SoC Psych (1979); 37: 2098-109*

[26] *Tversky A, Kahneman D., 'Availability : A heuristic', Log Psych (1973), 5: 207-32*

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Social influences[27]: Our values are socially reinforced by conformity and the company we keep. We are selectively exposed to information that revalidates our beliefs because we expose ourselves to situations where those beliefs are apparently confirmed. Our Social media and Internet searches also give us information based on our past searches and preferences.

Errors beyond cognitive mistakes

The combination of intuition, experience and received wisdom on which we depend for commonsense explanations of social phenomena also disguises certain errors of reasoning. The first error is that when we try to explain why individuals do what they do, we focus on factors like motivation, beliefs, incentives of which we are consciously aware. However, there would also be any number of apparently irrelevant factors that may influence individual behaviour. Similarly, the models of collective behaviour ignore myriad interactions between individuals that are impossible to measure and analyse and we therefore invoke fictitious representative individuals like "youth", 'unemployed', 'minorities' etc. However, these approximations very often fail to understand and analyse behaviours properly. We also do not learn properly from history. Whenever something happens, we look for explanations. Yet because we seek to explain events only after the fact, our explanations place far too much emphasis on what actually happened relative to what might have happened but didn't. The result is what appear to us to be causal explanations are mere descriptions of what happened and tell us little of the mechanism at work.

Social sciences have been trying to emulate physical sciences to generate theories to explain human behaviour. However, no sooner is a theory developed than critics are able to find evidence against it. It is for this reason that Robert Merton had advised focus on developing 'theories of the middle range'[28] instead of grand theorizing: meaning theories that are broad enough to account for more than isolated phenomena but specific enough to say something concrete and useful.

Crime, Big Data and Theories on Crime reduction

In large part the difficulty for most of the history of social sciences like

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[27] *Asch SE, Opinions & Social Pressures, Sci Am (1955); 193: 31-5*

[28] *Merton, Robert K., 1968, "On Sociological theories of the Middle Range", Social Theory & Social Structure, New York; Free Press, pp 39-72*

criminology has been that it hasn't been possible to measure the elements of the social phenomena the way elements of physical and biological sciences can be measured. Added to that is the peculiar problem of measuring crime[29]. With the advent of communication technology, Internet and Google, however, interaction between individuals and how individuals interact with the world can be measured in ways hitherto thought impossible. Big Data is now observing, measuring and predicting human behaviour in the economic market place. Web searches, online media and electronic commerce are generating ever increasing information about intentions and actions of people. This capability also raises issues about rights and privacy but also exhibits tremendous scientific potential to observe the real time behaviour of large groups. Big data based on Internet behaviour can be used to allocate resources. Big data results are in the nature of the wisdom of the crowds but there are dangers too.

Predictive programmes like PredPol or CompStat aim to place police where crime is most likely to occur. However, as the data is generated by police activity itself, it may create a feedback loop[30]. More policing of an area would generate more data on arrests and more would be the prediction of crime in that area. The morphing of the 'broken windows' theory into the 'zero tolerance' campaign[31] or 'stop and frisk'[32] is just one example. Because we view crime as a pyramid with violent crime (murder, rape, robbery) at the top with theft or fraud at the bottom, prioritizing the crime at the top makes intuitive sense (with data flowing based on the crime at different levels of the pyramid - it is easy to see that areas that are neglected/degraded as per the 'broken windows' theory - would generate more data points). However, big ticket financial crimes that ruin lakhs of families would not figure in these models because the models do not capture

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[29] *Crimes may not be reported, if reported they may not be registered, if registered they may not be registered accurately!*

[30] *Steven Henshaw, "Homicides in Reading rise, other crimes down", Reading Eagle, August 30, 2015*

[31] *Judith Greene, "Zero Tolerance", Crime and Delinquency 45 (April 1999): 171-87,*

[32] *The 'stop-and-frisk', in New York City, is the practice of temporarily detaining, questioning and searching civilians on the street for weapons and other contraband. The program became the subject of a racial profiling controversy. The vast majority, 90% in 2017, of those stopped were African-American or Latino, most of whom were aged 14–24. Furthermore, 70% of all those stopped were later found to be innocent.*

these crimes well. Hence, a supposedly scientific tool may end up making policing discriminatory instead of fair.

Blaming crime on society has been part of social science discourse since the eighteenth century but has gained prominence only in the latter half of the twentieth century. This view of crime de-emphasized punishment and emphasized prevention by focussing on the social "root causes" of crime prior to and by 'rehabilitation' of the criminal afterwards. Theories in this genre mitigated personal responsibility of criminals by blaming unhappy childhoods, stressful adulthood or other factors beyond their control.

In the USA, where murder rates kept going down since 1933 and were reduced to nearly half by 1961, the legal 'reforms' of 1960s based on positivistic ideas were followed by reversing the above trend with murder rate doubling by 1974[33]. Similar policy changes in Britain resulted in similar reversal in crime rates[34].

The likelihood of this sudden reversal in a long downward trend in crime rate in two continents being due to complex socio-cultural changes that evolve over a long arc of time is likely to be low. However, in a short time and almost together, legislative changes, judicial orders and executive policies in both the UK & the USA had reduced the probability of conviction, severity of punishment and reduced the ability of the common citizens to defend themselves, if necessary, with firearms with several prosecutions of would be victims of burglaries or robberies for use of even toy weapons to frighten the criminals[35].

Keeping aside the emotive appeal of bans on firearms, the zeal for gun control laws was not mapped by evidence in several studies. Studies had shown that use of handguns in crime rose by 40% in the 2 years after they were banned in the UK[36]. Other studies also showed that in the US and in the

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[33] *James Q. Wilson & Richard J. Herrnstein, 'Crime & Human Nature' (New York: Simon & Schuster, 1985), p 409*

[34] *Joyce Lee Malcolm, 'Guns & Violence: The English Experience' (Cambridge, Massachusetts: Harvard University Press, 2002), pp 164-165*

[35] *James Q. Wilson & Richard J. Herrnstein, 'Crime & Human Nature' (New York: Simon & Schuster, 1985), p 423-425; Joyce Lee Malcolm, 'Guns & Violence', pp 166-168, 171-189; David Fraser, 'A land fit for Criminals' (Sussex : Book Guild Publishing, 2006, pp 352-356; Theodore Dalrymple, 'Protect the burglars of Bromsgrove!' City Journal, October 20, 2008*

[36] *Peter Hitches, 'A Brief History of Crime', (London: Atlantic Books, 2003), p.151*

UK, gun control laws had no effect on professional criminals[37]. Studies proved that tightening of gun control laws was not at all correlated positively with murder rates in UK, Canada, USA, France, Italy and Switzerland[38]. Even today, every shooting of innocent citizens by crazy individuals carrying automated weapons in these countries is followed by outcries to ban weapons and tighten gun-control laws.

Similarly "root causes" theory of crime has been resistant to evidence for quite some time now. In the USA & the UK, crime rates increased during the period poverty was reducing (a supposed root cause). Ghetto riots in the USA for instance, were more in cities like Detroit where white-black income disparity was much lesser[39]. In the USA, years of high crime resulted in changes in policy-resulting in higher incarceration rates and crime rates started falling in many years. Yet, there was puzzlement as to why crime was reducing and still prisons were overflowing[40]! Despite the same inverse correlation between incarceration rates and crime rate also found in Australia and New Zealand[41], the evidence that a disproportionate amount of crime is committed by relatively small segment of the population and putting that segment of population behind bars will reduce crime, therapeutic approaches to crime reduction had greater salience[42]. These were not treated not as hypotheses to be tested but as axioms to be defended.

In the undivided state of Andhra Pradesh, the scourge of house and highway dacoities had reached alarming proportions. In the early nineties, 'Range Crime Control Squads' with the existing manpower were formed in each range by taking crime work knowing staff and known gangs of dacoits were targeted. Long pending warrants were executed and these teams travelled across the country to apprehend offenders who had committed similar offences in the past but had subsequently jumped bail. Hundreds of such offenders were arrested by these squads and charge sheets filed and

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[37] *Joyce Lee Malcolm, Guns & Violence, p. 168*

[38] *Franklin E Zimring, 'The Great American Crime Decline' (New York: Oxford University Press, 2008) pp 6,15; Dept. Of Treasury, Bureau of Alcohol, Tobacco & Firearms, 'Commerce in Firearms in the USA', February 2000, p6; Joyce Lee Malcolm, 'Guns & Violence', pp5, 204*

[39] *Stephan and Abigail Thernstrom, 'America in Black & White' (New York, Simon & Schuster, 1977), p 162*

[40] *"Prison Nation", New York Times, March 10, 2008, p A16*

[41] *David Fraser, 'A Land fit for Criminals', p 97*

[42] *David Barrett, "Thousands of Criminals spared prison go on to offend again", Daily Telegraph online (London), 20/12/2008*

trials taken up on priority and conviction secured. From a high of 1033 dacoities in 1991, this figure fell to 132 in 2014[43] (the year the state got bifurcated).

This was a great example of effect of incarceration of the high risk individuals on crime rate. As most criminal careers are short, imprisonment at the right time invariably shows up in reduced crime. However, it may not be necessary to impose very long sentences as old policing wisdom says: it is not the severity of punishment but the certainty and celerity that matter.

As already mentioned before, the 'Broken Windows' theory has been often cited in relation to crime control. The 2nd Administrative Reforms Commission of India in its report[44] cited this theory for adoption with great approval.

However, as claimed by Steven D. Levitt, the actual reasons for the drop in the crime rate in New York lay elsewhere[45]! New York City was a clear innovator in American police strategies during the 1990s crime drop, and it also enjoyed the greatest decline in crime of any large American City. Homicide rates fell from 30.7 per 100,000 people in 1990 to 8.4 per 100,000 people in 2000, a change of 73.6 percent. But, Levitt argued that the claimed policing strategies probably had little effect on this huge decline.

The new police strategies were accompanied by a much more significant change within the police force; a hiring binge. Between 1991 and 2001, the NYPD grew by 45 percent, more than three times the national average. An increase in the number of police, regardless of new strategies, has been proven to reduce crime. By a conservative calculation, this huge expansion of New York's police force would be expected to reduce crime in New York's homicide reduction. Levitt felt that most damaging to the claim that New York's police innovations radically lowered crime was one simple and often overlooked fact: crime went down everywhere in the USA during the 1990s, not only in New York. Few other cities tried the kind of strategies that New York did, and certainly none with the same zeal. But even in Los Angeles, crime fell at about the same rate as it did in New York once the

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[43] *State Crime Record Bureau, A.P.*

[44] **The Second Administrative Reforms Commission (ARC) was constituted on 31.08.2005 for preparing a detailed blueprint for revamping the public administrative system & its 15 reports were submitted between June 2006 & April 2009**

[45] *Levitt, S. D. (2004). Understanding why crime fell in the 1990s: Four factors that explain the decline and six that do not. Journal of Economic Perspectives, 18(1), 163*

growth in New York's police force is accounted for. In Los Angeles, where Bratton himself became police chief in late 2002, he announced that his highest priority was findings the money to hire thousands of new police officers.

Levitt postulated that legalization of abortion in the United States had several consequences. Infanticide fell dramatically. Perhaps the most dramatic effect of legalized abortion; however, and one that would take years to reveal itself, was its impact on crime. In the early 1990s, about sixteen years after the "Roe V.Wade" judgment of the US Supreme court, the rate of crime began to fall. The first group of children born soon after the judgment did not obviously include the children who stood the greatest chance of becoming criminals. And the crime rate continued to fall as an entire generation came of age, minus the children whose mothers had not wanted to bring a child into the world. Legalized abortion led to less 'unwantedness'; 'unwantedness' leads to high crime; legalized abortion, therefore, led to less crime.

Steven Pinker's counterfactual[46] to the abovementioned Steven Levitt's counterfactual to the 'Broken Windows' is that availability of abortion as a legal option actually emboldened women to have more unprotected sex and since 1973 (Roe vs. Wade) the proportion of children born to women in the most vulnerable categories- poor, single, teenage and black communities actually increased[47]! Also, though unwanted children may grow up to commit more crimes, it is more likely that women in crime affected areas may have more unwanted children than 'unwantedness' may cause criminality. Thus it may more be a case of correlation than causation. Keeping genetic effect constant, parenting was shown to be less effective than peer environment in criminality[48]. Pinker explains the crime decline in terms of the State becoming bigger, smarter and more effective and also the civilizing effect of trade and commerce and globalization.

Post Hoc Ergo Propter Hoc!

Other provocative theories of change explaining this dramatic reduction of crime in the USA & some other countries have also been made claiming

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[46] Steven Pinker, 'The Better Angels of our nature', Penguin Books, 2011

[47] Lott & Whitley, 'More at risk children following Roe vs Wade', Zimring 2007

[48] Harris, 'Peers Trump parents', 1998/2008, Ch.9,12,13, Wright & Beaver, 2005

primacy of the following: objective and perceptual economic prosperity[49], public and personal security efforts[50], the stabilization of drug markets[51], aging of the population[52], rising immigration[53], regulations of and changes in lead exposure from automobile exhaust[54], rising civility and self-control[55], transformations of family arrangements[56], reduced alcohol consumption[57], increased use of psychiatric pharmaceutical therapies[58] and emergence of cell phones[59]! The key point being made here is that <u>all</u> the above theories of change explaining the reduction of crime in the USA <u>found</u> evidence to support themselves- and this is the problem with 'evidence based policing', just as it is with what passes for much of social science research in India.

Way Forward

We live only once- and all our past when examined today, will yield only post-hoc explanations of what we believe. It is a great challenge to devise properly controlled trials to validate theories; it is much easier to 'find' evidence in the past to justify a theory- to justify future policies. One finds

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[49] *Rosenfeld, R., & Messner, S. F. (2009). The crime drop in comparative perspective: The impact of the economy and imprisonment on American and European burglary rates. British Journal of Sociology, 60(3), 445-471*

[50] *Cook, P. J., & MacDonald, J. (2011). Public safety through private action: An economic assessment of BIDs. The Economic Journal, 121(552), 445-462*

[51] *Cook, P. J., & Laub, J. H. (2002). After the epidemic: Recent trends in youth violence in the United States. Crime and Justice, 29(1), 1-37*

[52] *Gartner, R., & Doob, A. (2010). Explaining trends in homicide in Canada. A tour of communities and levels of explanation. Unpublished Manuscript. Toronto, Canada: University of Toronto*

[53] *Sampson, R. J., Morenoff, J. D., & Raudenbush, S. (2005). Social anatomy of racial and ethnic disparities in violence. American Journal of Public Health, 95(2), 224-232.*

[54] *Nevin, R. (2007). Understanding international crime trends: The legacy of preschool lead exposure. Environmental Research, 104(3), 315-336*

[55] *Eisner, M. (2008). Modernity strikes back? A historical perspective on the latest increase in interpersonal violence (1960–1990). Journal of Conflict and Violence, 2(2), 288- 316*

[56] *Stevenson, B., & Wolfers, J. (2007). Marriage and divorce: Changes and their driving forces. Journal of Economic Perspectives, 21(2), 27-52*

[57] *Blumstein, A., & Wallman J. (2006). The crime drop in America (Rev. ed.). New York: Cambridge University Press*

[58] *Marcotte, D. E., & Markowitz, S. (2011). A cure for crime? Psycho-pharmaceuticals and crime trends. Journal of Policy Analysis and Management, 30(1), 29-56.*

[59] *Edlund Lena & Machado Cecilia, It's the phone, Stupid, http://www.nber.org/papers/w25883, National Bureau of Economic Research, USA, May 2019*

'evidence based policing' being used to justify investments in expensive technological solutions that are often vendor driven. Proper examination of their efficiencies is usually avoided.

Take for example the use of body worn cameras. A study[60] found that body cameras have not had statistically significant or consistent effects on police and citizen behavior or citizens' views of police. While body-worn cameras tended to reduce complaints against police, it was unclear whether that was because improved officer conduct led to fewer complaints or because citizens who knew they are being recorded were less likely to file complaints. The research also found that it was hard to determine whether cameras improved citizen satisfaction with individual police encounters despite the technology's promise of improving accountability among police and the public.

Many times, we adopt standardized practices in maintenance of public order without questioning their efficacies. Indian police has executed approximately half of the world's known network shutdowns in face of serious public disorder or terrorist events. A study[61] found that information blackouts sometimes compelled agitators to substitute non-violent tactics for violent ones that are less reliant on effective communication and coordination.

As far as investigation is concerned, India is often referred to as the narcoanalysis capital of the world with so-called biscuit teams (behavioral science consultation teams) using pseudoscience to back 'truth serum'-based interrogations[62]. Similarly, high profile cases have seen the use of 'Brain fingerprinting' which uses electroencephalography to determine whether specific information is stored in a subject's brain. The technique consists of measuring and recording a person's electrical brainwaves and brain response when asked questions about a crime, attempting to elicit a "P300 response" that indicates familiarity with the details of the crime. The technique is unproven, of questionable accuracy and makes dangerously exaggerated

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[60]https://www.washingtontimes.com/news/2019/apr/2/police-body-cameras-fail-deliver-irrefutable-evide/

[61] Jan Rydzak, Global Digital Policy Incubator, Stanford University working paper on 'Of Blackouts and Bandhs: The Strategy and Structure of Disconnected Protest in India', 2017, https://ssrn.com/abstract=3330413

[62] Kala, A.K. "Of ethically compromising positions and blatant lies about 'truth serum'". Indian Journal of Psychiatry. 2007 Jan-Mar; 49(1): 6–9

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claims[63]. One is still to see a Police leader resist demands for utilization of these two 'techniques' in high profile cases.

Yet, it would be misguided to go through one's life and career reconsidering one's belief system every time a contrary fact is encountered. That is not the argument of this article at all. If a belief system has received the support of a lifetime, it is perfectly justified to be skeptical of antagonistic 'facts'. Tenets of policing acquired over decades should not be junked summarily. Policing nous is acquired with experience. In fact, we are vulnerable to whims and fancies when we don't have that clarity in the subject. Just as we should be wary of inflexibility and tradition despite contrary evidence, we should be equally careful of novelty for the sake of novelty. The power and the flexibility with which we reason should depend on the context, generic knowledge and pre-existing information- to extract meaning out of new information. Developing mental habits that consciously avoid drawing inferences based on incomplete or unrepresentative evidence and truly examine counterfactuals would go a long way in truly aligning our policing systems to the changing requirements, while avoiding the charms of 'snake oil' vendors and the fashions in policing that get salience from time to time.

As already suggested earlier, Police Leaders therefore need to become 'integrators'. They need to be aware of different disciplines, take interest in subjects beyond the narrow confines of day to day policing and be open to discussion, debate and dissent. They also need to build some expertise in selected police sub-domains, so that 'experts' don't hijack the policing agenda. 'Evidence Based Policing' should also encourage us to conduct experiments, study real world problems and try to get useful ideas for application. Or even the reverse- to reveal gaps in existing theories! We also need to encourage skepticism, adopt humility in practicing policing principles, stay open to the influx of contrary evidence, understand the complexities of statistical analysis, formulate 'middle range' theories in different facets of policing and devise experiments to test their fallibility. And, stay open to the possibility that may be we don't have the complete truth yet!

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[63] *Rosenfeld, J. P. (2005). "Brain fingerprinting: A critical analysis". Scientific Review of Mental Health Practice. 4 (1): 20–37*

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Public Private Partnership in Police Administration - Need of the Hour

Dr. KALPESH KUMAR L GUPTA & MRADUL MISHRA*

Introduction

In a welfare society, the government has to do multifarious functions and sometimes it becomes difficult on the part of the government to perform all those functions in an effective and efficient manner and so the government hires the private sector for those functions which are essentially to be performed by the government. Thus, when the government hires any private sector entity to perform certain function which are essentially to be performed by the government, the term used for those model is Public-Private Partnership (Hereinafter PPP). As is clear from the name also, it is a kind of arrangement between the government entity on one hand and any private entity on the other hand to facilitate the public services. Although it is very difficult to define PPP, National Public Private Partnership Policy 2011 defines PPP in following terms:

> "A Public Private Partnership (PPP) means an arrangement between the government/statutory entity/government owned entity on one side and a private sector entity on the other, for the provision of public assets and/or public services, through investments being made and/or management being undertaken by the private sector entity, for a specified period of time, where there is well defined allocation of risk between the private sector and the public entity and the private entity receives performance linked payments that conform (or are benchmarked) to specified and pre-determined performance standards, measurable by the public entity or its representative."

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India is a country where people of various cultures, religions reside and it is a herculean task to maintain law and order in such society. The primary duty of the police is to maintain law and order and crime prevention. The police also play an important role in providing security to the people and ensuring that the decisions of the government and courts are respected by the people and the democracy prevails. When we look at today's scenario of growing violence and social conflicts and new dimensions of crimes coming into picture, the role of police become more challenging.

On the other hand, police is confronted with various operational issues which decreases the level of ability and which need to be addressed to make the police more efficient and effective. One of the methods which can address this challenge is the implementation of Private-Public Partnership in Police administration. The PPP model can be introduced in the police administration at various levels and in different segments like infrastructure development including residential apartments and police stations and traffic management.

Various committees and commissions like National Police Commission (1977), Julio Ribeiro Committee (1998-1999), Padmanabhaiah Committee (2000) and Malimath Committee (2003) have submitted their reports on police reforms but majority of the recommendations have not been executed by the government and because of that there has been a significant gap between police and citizens and the image of police is not getting better in the eye of citizens. Police forces often face different level of financial and operational challenges like the issues of lack of personnel, weaponry and effective training. All these issues can be appropriately addressed by allowing the police to work in partnership with private sector entities. This may be a new development for the police force but it is highly required to meet the challenges of changing dimensions and maintaining high standard of services.

The crime rate is getting higher and higher every year. Though there are stringent laws to curb it but it seems like there is no fear of punishment among the offenders and so the time has come that something new must be tried in crime prevention and that can be done through collaborative partnerships with non-governmental organizations, private firms, social service providers and other private entities. The government can take help of private organizations in the area of providing technical assistance in crime investigation, serving of summons, monitoring suspects and prisoners, managing juveniles, conducting traffic control etc. These activities can be

taken care of by the private entities effectively and the burden of the police force can be lowered down.

'We recognize the importance of strengthening public private partnerships in preventing and countering crime in all its forms and manifestations. We are convinced that through the mutual and effective sharing of information, knowledge and experience and through joint and coordinated actions, Governments and businesses can develop, improve and implement measures to prevent, prosecute and punish crime, including emerging and changing challenges.' [1]

- Paragraph 34, The Salvador Declaration 2010

Traditionally, there has been a strict demarcation of roles between the State and Private sector, both carrying out their responsibilities towards harmonious construction of the society. The State vested with a political authority to govern the sovereign must ensure overall development and prosperity, through meticulous planning and implementation of schemes. This task is tough to carry out especially in a densely populated and diverse nation like India. With the advancement in time and technology, the State has frequently found itself in a position to devise ways through which necessary facilities can reach the citizens. Budgetary constraints and ageing in terms of technology mar a majority of State-funded projects. With such concerns Governments across the globe have taken steps forward, garnering partnership with the private sector in order to provide better infrastructure and services to the public.

As briefed above, a Public-Private Partnership (PPP) is a co-funding approach to the development of public investments such as infrastructure projects, or the provision of services; this may involve partnerships between the private sector and governments, government bodies, the police etc., also non-government organizations, institutes, foundations and universities.

PPPs combine the skills and resources of both the public and private sectors through sharing of risks and responsibilities which enables governments to benefit from the expertise of the private sector, and allows them to focus instead on policy, planning and regulation by delegating day-to-day operations.[2] This model of developmental and inclusive governance

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[1] *https://www.unodc.org/documents/crime-congress/12th-Crime-Congress/Documents/Salvador_Declaration/Salvador_Declaration_E.pdf*
[2] *https://ppp.worldbank.org/public-private-partnership/about-public-private-partnerships*

has been accepted worldwide, more importantly by organizations such as the United Nations; following are some notable International and Regional Organizations –

- United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
- United Nations Economic Commission for Europe (UNECE)
- International Project Finance Association (IPFA)
- European PPP Expertise Corner (EPEC)
- European Institute of Public Administration (EIPA)
- South African Development Unit (SADC) Public- Private Partnership Network

Public-private partnerships (PPPs) take a wide range of forms varying in the extent of involvement of and risk taken by the private party. The terms of a PPP are typically set out in a contract or agreement to outline the responsibilities of each party and clearly allocate risk. The graph below depicts the spectrum of PPP agreements.[3]

SPECTRUM OF PRIVATE SECTOR PARTICIPATION IN INFRASTRUCTURE AND DEVELOPMENT PROJECTS

Source: Delmon, Jeffrey (2010) Understanding Options for Public-Private Partnerships in Infrastructure. World Bank.

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[3]id.

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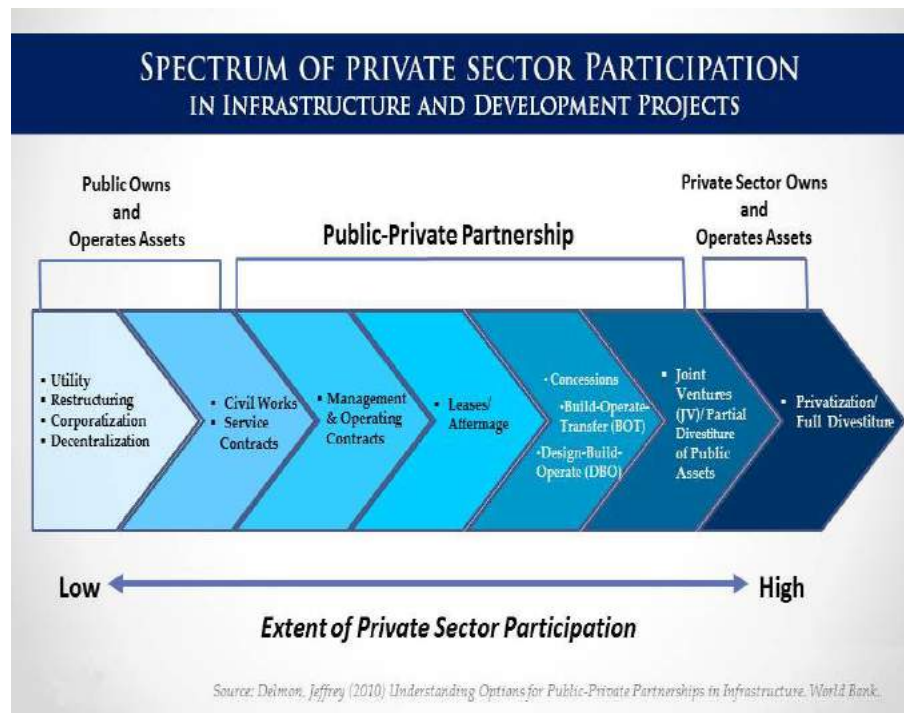
While looking at the PPP model, it is essential to talk about its benefits. With an amalgamation of the strengths of the public and private sector, there is a high chance of the society benefitting in the following ways[4]:

- They provide better infrastructure solutions than an initiative that is wholly public or wholly private. Each participant does what it does best;
- They result in faster project completions and reduced delays on infrastructure projects by including time-to-completion as a measure of performance and therefore of profit;
- A public-private partnership's return on investment or ROI might be greater than traditional, entirely private or government methods. Innovative design and financing approaches become available when the two entities work together;
- Risks are fully appraised early on to determine project feasibility. In this sense, the private partner can offer a break on unrealistic government promises or expectations;
- The operational and project execution risks are transferred from the government to the private participant, which usually has more experience in cost containment;
- Public-private partnerships may include early completion bonuses that further increase efficiency. They can sometimes reduce change order costs as well;
- By increasing the efficiency of the government's investment, it allows government funds to be redirected to other important socioeconomic areas;
- Greater efficiency of PPPs reduces government budgets and budget deficits;
- High-quality standards are better obtained and maintained throughout the life cycle of the project;
- Public-private partnerships that reduce costs also allow lower taxes.

Sowing the seeds of a PPP model may look easier but nurturing of the same is difficult. There a number of risks involved with this model, which are summed up as follows[5]:

- Development, bidding and ongoing costs in PPP projects are likely to be greater than for traditional government procurement processes

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[4]*https://www.thebalancesmb.com/public-private-partnership-pros-and-cons-844713*
[5]*https://ppp.worldbank.org/public-private-partnership/overview/ppp-objectives*

- the government should therefore determine whether the greater costs involved are justified;

- There is a cost attached to debt – While private sector can make it easier to get finance, finance will only be available where the operating cashflows of the project company are expected to provide a return on investment (i.e., the cost has to be borne either by the customers or the government through subsidies, etc.)

- Some projects may be easier to finance than others, some projects will generate revenue in local currency only, while others will provide currency in dollar or other international currency and so constraints of local finance markets may have less impact;

- Some projects may be more politically or socially challenging to introduce and implement than others - particularly if there is an existing public sector workforce that fears being transferred to the private sector, if significant tariff increases are required to make the project viable, if there are significant land or resettlement issues, etc.

- There is no unlimited risk bearing – private firms (and their lenders) will be cautious about accepting major risks beyond their control, such as exchange rate risks/risk of existing assets. If they bear these risks then their price for the service will reflect this. Private firms will also want to know that the rules of the game are to be respected by government as regards undertakings to increase tariffs/fair regulation, etc. Private sector will also expect a significant level of control over operations if it is to accept significant risks

- Private sector will do what it is paid to do and no more than that – therefore incentives and performance requirements need to be clearly set out in the contract. Focus should be on performance requirements that are out-put based and relatively easy to monitor

- Government responsibility continues – citizens will continue to hold government accountable for quality of utility services. Government will also need to retain sufficient expertise, whether the implementing agency and/ or via a regulatory body, to be able to understand the PPP arrangements, to carry out its own obligations under the PPP agreement and to monitor performance of the private sector and enforce its obligations

- The private sector is likely to have more expertise and after a short time have an advantage in the data relating to the project. It is important to ensure that there are clear and detailed reporting

- requirements imposed on the private operator to reduce this potential imbalance
- A clear legal and regulatory framework is crucial to achieving a sustainable solution
- Given the long-term nature of these projects and the complexity associated, it is difficult to identify all possible contingencies during project development and events and issues may arise that were not anticipated in the documents or by the parties at the time of the contract.

While talking about implementation of the PPP model to police administration, there are a few instruments that have given recognition to this model.

United Nations Guidelines on Crime Prevention:

Some notable examples of the Public-Private Partnerships in the area of police administration and crime prevention are:

- **CyberCap –** It is a non-profit organization that has functioning since more than two decades at Montreal, Canada. It is largely perceived that youth definitely has more tendencies to turn towards crime of various types, this organization provides training to young people in personal, social or professional difficulty, who run a high risk of turning towards crimes, and even ex-offenders as well as their families. Such training is imparted through multimedia. This organization has public-private partnerships with global organizations such as Microsoft, Ubisoft, Radio Canada, TSQ Television, Quebec banks; these organizations provide funding as well as resources like computers and materials.[6]
- **SulAmerica Peace Parks,** Brazil- This is an insurance company working with local youth at risk and their communities as well as in high risk areas, to recover public spaces.
- **Bogotá Comó Vamos,** Colombia- This is a shining example of 'citizen exercise' of monitoring changes in the management of a particular geographical area and its impact on the quality of life of its citizens. The work of Bogotá Como Vamos has been to combine the analysis of technical indicators and the citizen perception that allows to know the results of the management. It also organizes

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[6] *http://cybercap.qc.ca/*

forums, technical work tables, citizen debates, makes early warnings about potential problems in the city and develops communication strategies to include key issues for Bogotá in the public agenda.[7] The major aims of the organization are an effective and transparent government along-with a better informed, responsible and participative citizenry.[8] Further, it has established partnerships with publishing house El Tempio, Corona Foundation and Bogota Chamber of Commerce to organize permanent discussion forum to promote improved and effective local public safety policies, and public accountability.

- **Encuestas de Victimization**, Peru- In a major victimization survey, various mining and cement companies and the Andean Development Corporation come together for carrying out national as well as urban victimization surveys. The areas covered are Lima and its 35 municipalities and 23 other large cities.

- **Prevention & Assistance to Survivors of Trafficking (PAST),** India- PPPs between International Organization on Migration and businesses, Chambers of Commerce, Indian Industry Conference, governments and civil society. The services provided range from rehabilitation, training, employment opportunities, micro-credit, and support for survivors, as well as peer education training and awareness raising.

PPP IN POLICE ADMINISTRATION

There are areas like prison management, retirement homes, correctional homes, guiding private properties etc. which can be worked under the PPP model and by doing that the efficiency of the police can be enhanced. There are countries which have adopted PPP model in developing police administration and the results are encouraging. Some of the successful examples of PPP model in Police administration are as following:

1. Lincolnshire Police (UK): The Lincolnshire County Police Force entered into an agreement with a private security firm named G4S in 2012 and G4S started to handle following functions

- Force control room- responding to emergency calls
- Entering and updating crime records

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[7] *About Bogotá How to go http://www.bogotacomovamos.org/acerca/*
[8] *Id.*

- Transportation of detainee/prisoner
- Management of crime files
- Property management, building maintenance, vehicle fleet operations
- Monitoring of offenders who are out on bail or parole

2. Frederik Police Department: They started partnership with universities and colleges to use the resources of the universities/colleges and get benefit by them. Students of universities and colleges also started working as interns and helping them in their office management.

3. Hong Kong Police: Mobile radios are an important tool for efficient policing. Most of the times these radios function properly but when the police officers are required to enter any building or basement then there becomes operational issues with the radios as they become unable to transmit and receive airwaves through solid structures of building and basement.

Hong Kong Police while partnering with the private sector configured the enterprise network of police force with indoor facility of mobile operators and by doing that Hong Kong police is now able to achieve full coverage through shopping malls and skyscraper buildings. On one hand this has saved the money of Government while on the other hand provided extra income for the private mobile operators and of course the main beneficiary is the public of Hong Kong.

4. PPP in Traffic enforcement: Courtiers like Italy, United Kingdom, Spain and Belgium are using PPP model in their traffic management in one or the other ways.

UK: National Traffic Control Centre (NTCC) was set out near Birmingham under the PPP model to provide accurate traffic information for Road users and transport operators throughout England.

Italy: Government of Italy entered into an agreement with Fiat and Mizar under the PPP model to develop a metropolitan area traffic operations center integrated with a real time public transport monitoring system.

Belgium: Belgium government has tied up with mobile service providers to provide real time traffic information.

Spain: By using PPP model, Spain is managing and financing motorways.

5. Other PPP models

USA: under PPP model, USA has created the Overseas Security Advisory

Council (OSAC) to promote security concepts and enhance co-operation between the US Department of State and US Organizations operating worldwide.

UK: While applying PPP model, UK has established the Security Information Service for Business Overseas (SISBO) which assists businesses by providing information on security and risks which they may face when operating in any particular market overseas.

World Economic Forum in its report[9] released in January 2016 recommended PPP model to be used against cybercrime. The recommendations mainly focus on following points:

a) Public and private sectors should share more information related to cyber threats, vulnerability and consequences.

b) Public and private sectors should work to create new platforms, strengthen existing platforms, and coordinate these platforms to increase information-sharing and improve investigations and prosecutions.

c) Public and private sectors should cooperate to encourage and advance wider adoption of the Budapest Convention on Cybercrime, or, of the principles it promotes.

d) Public and private sectors should work to build trust and discuss contentious topics related to cybercrime, such as encryption, cloud servers, data access and protection of privacy, to find appropriate solutions.

e) Public and private sectors can engage in other initiatives aimed at reducing cybercrime.

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[9] *http://www3.weforum.org/docs/WEF_Cybercrime_Principles.pdf*

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SUGGESTED PARTNERSHIP IN INDIA

Technology Partnership
Existing Indian Police App
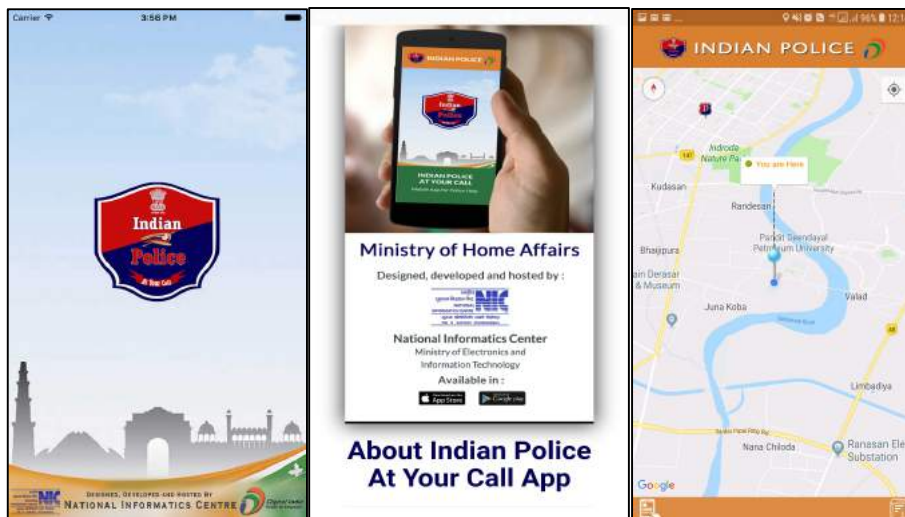
An app launched by Prime Minister Narendra Modi on helps the citizen locate the nearest police stations wherever he or she is. Not just that, the Indian Police app provides the names of the police stations, the telephone numbers, the distance from the place where you are and how much time it will take to reach whichever police station one wants to go.[10]

Drawback of this App

-   Citizen do not have idea about which is the appropriate police station for him/her
-   Finding and Calling on given number is like Dialing 100
-   No information, details about dispatching of police van i.e. GPS location

Suggested partnership
Govt. can enhance existing app or can collaborate with Uber or Ola to have system. All PCR vans should be equipped with GPS. Citizen can simply push the button, can be connected to nearest police van and locate exact

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[10] *https://timesofindia.indiatimes.com/city/hyderabad/PM-Modi-launches-Indian-Police-app-that-helps-you-locate-nearest-police-stations/articleshow/55642215.cms*

location of van. There are cases when we call on 100 or any police station/ chowki number, we do not have any clues whether van is dispatched or not.
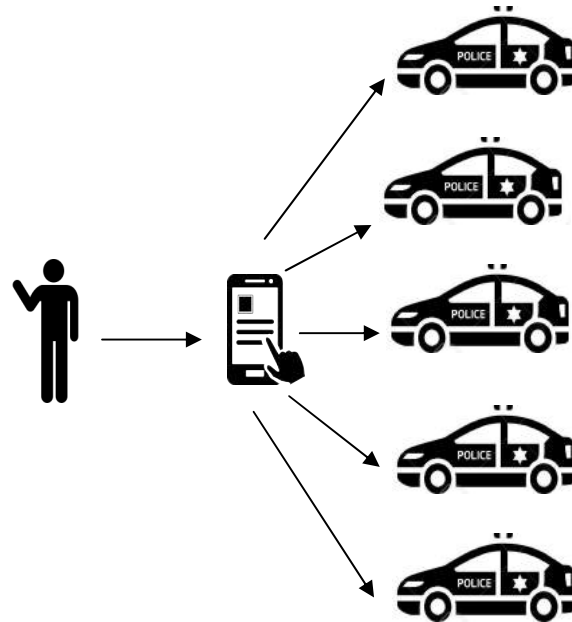
Infrastructure

Building

Infrastructure plays crucial role in public service delivery. Government fails to serve public due to lack of poor infrastructure. There are cases where police department have not proper infrastructure, in this circumstances how we can expect efficient and effective service from them. In this situation, infrastructure can be created with the help of public private partnership. One of good example is Satellite Police Station in Ahmedabad City which was built by Ahmedabad Nagrik Police Utkarsh Samiti at the cost of Rs. 90 lacs in the year 2005.[11] Corporate also can built this kind of infrastructure. This expenses should be considered as CSR expenses and amendment should be made for this purpose in Companies Act, 2013.

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[11] *https://vaastuyogam.com/wp-content/uploads/2014/02/Setellite_Police_Station_02_2014.pdf*

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Image:- Satellite Police Station, Ahmedabad, Gujarat

Waiting Area

Almost all police station and police chowkis suffer from basic facilities for visitors i.e. waiting area, washroom facilities, drinking water etc. This aggravate the problems for the victims and visitors. Additional infrastructure in the form of waiting area, small cafeteria, parking facility can be created for public under PPP mode. Kiosk also can be set up in waiting area to get details about visitors to police station, police chowki and visitors can put feedback after visiting the office. This feedback will help police administration to improve service delivery.

Traffic Booth

   Traffic Police plays a crucial role in traffic management for the country but basic amenities have been neglected to them. They serve their duties in harsh weather conditions for smooth functioning of traffic movement. Taking their plight into consideration, possible arrangements have been done for traffic police personnel by corporate, NGOs, business houses etc. as a part of social responsibility. Recently, Bruhat Bengaluru Mahanagara Palike (BBMP) has decided to build and upgrade chowkis for traffic police at 530 junctions under PPP model. BBMP is also taking up remodeling and construction of traffic umbrellas. The BBMP has finalized on the design prepared by Janaagraha (an NGO) and has also collected specification of the chowkis from the police department.[12]

Outsourcing

Traffic Management

There has been debate regarding outsourcing of some police functions. One of them is traffic management. Some states have moved in this direction. In Surat city, Traffic Regulation Brigade (TRB) was established to help traffic police with their duties. This was replicated in other cities namely Anand,

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[12] *https://bangaloremirror.indiatimes.com/bangalore/others/traffic-police-can-soon-lead-a-sheltered-life/articleshow/63130119.cms*

Dr. Kalpesh Kumar L Gupta & Mradul Mishra

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Academic Partnership

   Academic partnership has become essential for enhancing police service delivery system. We all can see wide gap between police and academia, bridging this gap can ripe good results in Indian Police Administration. Recently Gujarat has initiated and formed Police Academia Interaction Forum where four organizations namely Gujarat Police, Gujarat National Law University, Gandhinagar, Raksha Shakti University, Ahmedabad, Gujarat Forensic Sciences University, Gandhinagar joined hand together for police academia partnership.[13]

CONCLUDING REMARKS

Indian Police is responsible for keeping in place the law and order of a vast nation like ours where new-age troubles arise on a daily basis. A unique characteristic about the country and its system lies in the fact that the nation gets troubled with a mixture of difficulties for e.g. religion or politics getting involved with a crime. Such instances make it doubly difficult to maintain the required law and order. But surely the system isn't just for the Police to look after, citizens and private players are equally responsible to maintain a balance between rights and duties, whereby contributing to the growth of a peaceful nation.

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[13] *www.paif.gnlu.ac.in*

It is evident from the above discussion that Public Private Partnerships have the ability to play an important role in police administration and enhancing public delivery of services. Ample examples of success have been scripted for us to follow. However, barring a few examples India is yet to fully explore the possibilities of a PPP model for police administration. Among other priorities, an urgent requirement is that of funding for effective planning and implementation as well as administration of an efficient PPP model for police administration in India. A possible solution is earmarking of CSR funds of private companies towards creation of PPP model for police administration. However, even this is possible only by the intervention of the Government by way of amendment to the Companies Act, 2013.

The face of crimes has changed drastically with advent of modern technologies, making it difficult for the police to keep pace with the challenges of such development. Not just extreme crimes but also the maintenance of routine law and order and day-to-day activities is an uphill task. With appropriate help from different pockets of the society this task can be taken care of. This is the time for private parties and citizens to rise up-to the occasion and help the Indian Police with betterment of the system.

Constitutionality Issues in NDPS Act and A Critique in the Light of the Pending Amendment

ARSHITA AGGARWAL*

Introduction

Earlier there was no law which criminalized the possession and use of narcotics drugs and social convention was resorted to. Religious and mythological references to drugs, marijuana and alcohol in various forms were abundant. As the War on Drugs movement gained momentum throughout the world, the Rajiv Gandhi led Government finally introduced the Narcotics Drugs and Psychotropic Substances Bill which in 1985 became an Act. The Narcotics Drugs and Psychotropic Substances Act, 1985 made the possession, consumption and sale of narcotic drug a statutory offence. It has evolved in scope and direction over the years through amendments.

This Act has been challenged on constitutional grounds in several cases on the issues related like and burden of proof, restriction on trade and that under the Act the *mens rea* sentence cannot be suspended, remitted or commuted. These have been examined in detail along with the relevant case law in the subsequent parts.

The Act as already stated has undergone various amendments in 1989, 2001 and 2014. Section 31 A which provided for death penalty has been amended in light of the criticism regarding it being too harsh. The amendments have also tried to rationalize the sentence structure, which was considered severe and disproportionate. A brief overview of the various

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amendments has also been provided. Additionally the Private Members' Bill introduced by Dr. Gandhi in 2016 has also been discussed. Despite the developments in law, there are still certain issues with the Act which have also been looked into.

Narcotics Drugs and Psychotropic Substances Act, 1985

The consumption of mind altering drugs is not limited to the modern age. There is evidence of the use of opium in the Stone Age. The first mention of opium in European scientific literature can be traced back to 77AD. However, the appalling spectre of drug addiction which threatens to ravage a whole generation is a phenomenon peculiar to this age. Today the problem of drug addiction is international and the drug mafia works throughout the world. It is a system that thrives on profit motive and is now considered to be a crime against the society.[1]

  In India cannabis is prevalent for centuries for spiritual purposes, medicine and for recreation and documentation of its use dates back to 2000 BC. The British tried to regulate it through excise laws before independence. They also organized large scale cultivation of opium through the Opium Acts of 1857 and 1878.[2] India's geographical location is closely connected to the development of the drug trafficking scenario. There is a massive in-flow of drugs from across the India-Pakistan border originating from the Golden crescent comprising of Iran, Afghanistan and Pakistan and the Gold Triangle comprising of Burma, Laos and Thailand on the North Eastern side, both of which comprise the chief source of opium derivatives in the world leading to easy access.[3] The Government of India being concerned with the twin problems of drug abuse and illicit traffic is taking stern legal and administrative measures to combat them. The Constitution of India in Article 47 states that, "the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health".[4] The Directive Principles of State

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[1] V. Swaroop, THE NARCOTICS DRUGS AND PSYCHOTROPIC SUBSTANCES ACT, 1985, 7 (1st edn., 2000).
[2] T. Tandon, Drug Policy in India, International Drug Policy Consortium (2015), available at http://idhdp.com/media/400258/idpc-briefing-paper_drug-policy-in-india.pdf (Last visited on April 9, 2017).
[3] Swaroop, supra note 1.
[4] Art. 47, THE CONSTITUTION OF INDIA, 1950.

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Policy are not enforceable but are used as justification for the relevant legal enactments. Furthermore, India has signed conventions viz. The UN Single Convention on Narcotics Drugs 1961, The Convention on Psychotropic Substances, 1971 and The Convention on Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988.[5] The first major step in this process was the enactment of the Narcotics Drugs and Psychotropic Substances Act, 1985 on November 14, 1985. The Act was a special legislation enacted for consolidating and amending the prevalent laws pertaining to narcotic drugs and psychotropic substances. The Act provides for the forfeiture of proceeds of narcotics related crimes, and to implement the provisions of India's international obligations.[6] It prohibits the manufacture, production, use or trade of narcotics and psychotropic substances for purposes other than research and medicines. The Act combines elements of regulation and prohibition.[7] The Act had a mandatory minimum penalty of ten years rigorous imprisonment and one lakh rupees fine for contravention involving commercial quantity.[8] It was then supplemented by the Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988 which provided for the preventive detention of accused involved in illegal trade in narcotic drugs and psychotropic substances[9]. However, the deterioration of situation due to rampant illegal trade in India and worldwide led to Parliament of India bringing amendments through the Narcotics Drugs and Psychotropic Substances (Amendment) Act, 1988 to be able to bring further deterrence in the law. The Act helped in spreading awareness about the negative effects of drug use. In order to create general awareness amongst the public about the deleterious effects of narcotics and drugs, the Department of Social Welfare acts as the nodal agency to monitor and coordinate the initiatives of various governmental and non-governmental organizations. Narcotics Control Bureau, an agency of the central government oversees and coordinates the functioning of law enforcement agencies and is responsible for ensuring compliance with various

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[5] *Department of Revenue, Overview (2014), available at http://www.dor.gov.in/overview_ndps (Last visited on April 9, 2017).*

[6] *P.K. Jain, COMMENTARIES ON THE NARCOTICS DRUGS AND PSYCHOTROPIC SUBSTANCES ACT, 1985, 1.*

[7] *Indian Harm Reduction Network v. Union of India, Criminal Writ Petition No. 1784 Of 2010, June 16, 2011(A.M. Khanwilkar, A.P. Bhangale JJ.).*

[8] *Sec. 15 (c), Sec. 17 (c), Sec.18(c), The Narcotics Drugs and Psychotropic Substances Act, 1985.*

[9] *Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988*

international conventions signed by India.[10]

 The Act provides for severe punishment for accused indulging in trafficking in drugs and for rehabilitation of those addicted to drugs.[11] It provides for presuming the guilt and shifting the burden of proof on the accused.,[12] discourages grant of bail,[13] puts a restriction on suspending, remitting session and commuting of sentences awarded[14] and release of offender on probation[15] and enhances punishment for more than one conviction.[16] Earlier, it imposed a mandatory death sentence for subsequent conviction for specific offences.[17] Due to the stringent provisions, the Courts have taken care to safeguard the life and liberty of the innocent persons so that they are not punished for the crimes they have not committed.[18] Article 21 requires a balance in the requirement of society to enforce law on one side, and to protect citizens against illegal torture, detentions and oppression on the other.[19]

Constitutional Issues

Burden of Proof

In criminal offences an essential requirement is *mens rea*. Indian legal system follows the rules of construction adopted in English Common Law. In the absence of any enactment by expression or impliedly excluding *mens rea,* any legal provision creating an offence is construed in conformity with the common law. The requirement of guilty mind is not dispensed with on the mere ground of the objective legal enactment being social welfare or to curb a social menace.[20] In case insistence on *mens rea* defeats the very purpose of the Act, the element of *mens rea* is excluded by necessary

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[10] *Jain, supra note 6.*

[11] *N. Singhal and Sakshi, India's Anti-Narcotics Law is in Urgent Need of Rehab, The Wire (January 26, 2016) available at https://thewire.in/19907/indias-anti-narcotics-law-is-in-urgent-need-of-rehab/ (Last visited on April 9, 2017).*

[12] *Sec. 35, Narcotics Drugs and Psychotropic Substances Act, 1985.*

[13] *Sec. 37, Narcotics Drugs and Psychotropic Substances Act, 1985.*

[14] *Sec. 32A, Narcotics Drugs and Psychotropic Substances Act, 1985.*

[15] *Sec. 33, Narcotics Drugs and Psychotropic Substances Act, 1985.*

[16] *Sec. 31, Narcotics Drugs and Psychotropic Substances Act, 1985.*

[17] *Deleted Sec. 31A, Narcotics Drugs and Psychotropic Substances Act, 1985.*

[18] *R.P. Kataria, LAW RELATING TO NARCOTIC DRUGS AND PSYCHOTROPIC SUBSTANCES IN INDIA, 3 (2nd edn.)*

[19] *Directorate of Revenue and Anr. v. Mohammed Nisar Holia, (2008)2SCC370.*

[20] *Swaroop, supra note 1, at 494.*

implication. [21] In this Act, Section 35 states that,

> *"(1) In any prosecution for an offence under this Act which requires a culpable mental state of the accused, the Court shall presume the existence of such mental state but it shall be a defence for the accused to prove the fact that he had no such mental state with respect to the act charged as an offence in that prosecution. Explanation.-In this section "culpable mental state includes intention, motive knowledge of a fact and belief in, or reason to believe, a fact.*
> *(2) For the purpose of this section, a fact is said to be proved only when the court believes it to exist beyond a reasonable doubt and not merely when its existence is established by a preponderance of probability."[22]*

Therefore, the section provides for presumption pertaining to mental state of the offender in case of offences requiring specific mental state.[23] Explanation to the section clarifies as to elements included in culpable mental condition. The standard of proof required to prove a fact is to prove it beyond reasonable doubt and not merely on the basis of a preponderance of probability.[24] This requires more proof than what is specified in Section 3 of the Indian Evidence Act.[25] The mental state depends on the facts and circumstances of the particular case and there is no standard.[26]

On reading this section with Section 54,[27] which provides for "presumption from possession of illicit articles", it can be seen that an accused found in possession of contraband is presumed to have committed the offence until the contrary can be proved.[28] These provisions were included at the time when the Act was brought into force as there was a need for stringent provisions to ensure that drug traffickers do not go scot free and to reduce the burden on the State during prosecution.[29]

The provisions of the section are attracted when the prosecution has succeeded in proving all the ingredients of the offence against the accused

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[21] *Nathulal v. State of Madhya Pradesh, AIR 1966 SC 43.*
[22] *Sec. 35, Narcotics Drugs and Psychotropic Substances Act, 1985.*
[23] *Swaroop, supra note 1, at 492.*
[24] *Babu Chakraborty v. State of West Bengal, (1998) 1 EFR 580.*
[25] *Sec. 3, Indian Evidence Act, 1872.*
[26] *Swaroop, supra note 1, at 493.*
[27] *Sec. 54, Narcotics Drugs and Psychotropic Substances Act, 1985.*
[28] *A. Talukdar, NARCOTICS DRUGS AND PSYCHOTROPIC SUBSTANCES ACT, 1985, 234 (2010).*
[29] *Jain, supra note 6, at 169.*

beyond reasonable doubt except the requisite culpable mental state. It cannot be invoked to dispense with proof of offence by the prosecution.[30] This would imply that the legislation intended that the possession by itself amounts to conscious possession.[31] The accused can seek to displace the inference of guilt by pleading a fact or circumstance which has the effect of disproving a fact that constitutes an essential element of the crime.[32] The accused can place reliance on evidence produced by the prosecution, cross examination of prosecution witnesses and by producing witnesses in his defense. The defence only needs to show to the Court that he did not have the required intention or knowledge and need not necessarily adduce evidence when he is asked to provide for his defense.[33]

Common Law requires the prosecution to establish the guilt of the accused. This rule of common law principle is subject to specific law enacted by parliament prescribing for presumption of guilt. Frequent exceptions being made to this common law principle by Parliaments worldwide is a matter of concern.[34] In India this provision has to satisfy reasonableness test provided for in Article 14 as well as the liberty clause provided for in Article 21.

The constitutionality of this section was questioned in Noor Aga v. State of Punjab. In the case it was contended that the provisions of Sections 35 and 54 of the Act were draconian in nature as they imposed the burden to prove absence of requisite mental state on an accused and were thus against the provision of International Covenant providing the right to the accused person to be presumed innocent until proved by the prosecution to the contrary.[35] It was contended that these legal provisions are unconstitutional being in violation of Articles 14 and 21 of the Constitution of India.[36] Article 14(2) of the International Covenant on Civil and Political Rights provides a right to the accused to be presumed innocent.[37] The Court felt that, "Reason to believe, as provided in several provisions of the Act and as defined in Section 26 of the Indian Penal Code, on the part of the officer concerned is essentially a question of fact. The procedures laid down under the Act being

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[30] *Kataria, supra note 18,at 166.*
[31] *Omwati v. State, 1990 Cri LJ 304.*
[32] *Pentapati Venkata Satyanarayana Murthy v. State of A.P., 1999 Cri LJ 4190.*
[33] *Talukdar, supra note 28, at 233.*
[34] *Noor Aga v. State of Punjab, (2008) 16 SCC 417.*
[35] *Article 14(2), The International Covenant on Civil and Political Rights, 1966.*
[36] *Art.14 and Art. 2, THE CONSTITUTION OF INDIA, 1950.*
[37] *Article 14(2), The International Covenant on Civil and Political Rights, 1966.*

stringent in nature, however, must be strictly complied with." A fundamental right is not absolute in nature and a prosecution under a statute may not be constitutional despite the constitutionality of the statute. The provision for reversal of proof is present even in Indian Penal Code and Indian Evidence Act[38] and is not limited to special statutes.

The significance of the provision of presumption of innocence was discussed in the case of State v. Coetzee. Justice Sachs explained that the constitutional protection of the accused becomes more important as the case has a greater public interest in securing conviction of the guilty and is considered a more serious crime. The public interest in making sure that an innocent person is not punished is greater than the public interest to ensure punishment to a criminal.[39]

The Supreme Court has held that a limited inroad into the presumption of innocence would be justified. It stated that the doctrine of *res ipsa loquitur* which provides for shifting the burden of proof on the accused has been applied to civil as well as criminal proceedings. The basic human right of presumption of innocence cannot be disregarded but it is subject to certain exceptions. The presumption operates in the trial only when the other circumstances are satisfied. The initial burden is on the prosecution and on satisfaction of it does the legal burden shift to the accused. The standard of proof on the accused is of preponderance of probability and that on the prosecution is of beyond reasonable doubt. The prosecution needs to prove the foundational facts before the section can be applied. Therefore the sections cannot be said to be unconstitutional but the procedural requirements contained in it must be strictly complied with.[40]

Right to Trade

Section 8 of the Act has been challenged on the grounds that it violates Article 19 (g).[41] It states that

"No person shall—

(a) cultivate any coca plant or gather any portion of coca plant; or
(b) cultivate the opium poppy or any cannabis plant; or
(c) produce, manufacture, possess, sell, purchase, transport, warehouse, use,

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[38] *Sec. 113 A and Sec. 113B, Indian Evidence Act, 1872.*
[39] State v. Coetzee, (1997) 2 LRC 593.
[40] Noor Aga v. State of Punjab, (2008) 16 SCC 417.
[41] Art. 19 (g), THE CONSTITUTION OF INDIA, 1950.

consume, import inter-State, export inter-State, import into India, export from India or tranship any narcotic drug or psychotropic substance,
except for medical or scientific purposes and in the manner and to the extent provided by the provisions of this Act or the rules or orders made thereunder and in a case where any such provision, imposes any requirement by way of licence, permit or authorisation also in accordance with the terms and conditions of such licence, permit or authorization…"[42]

This prohibition cannot be said to in violation of the fundamental right of the citizens to pursue any lawful trade or business provided under Article 19 (g) of the Constitution[43] as it is subject to reasonable restrictions as the Government may deem necessary in the interests of the general public, for their safety, health and for peace, order and morality of the society.[44]

Restriction on Suspension, Remission and Commutation

Section 32 A of the Act provides that there is no suspension, remission or commutation in any sentence awarded under the Act. This section violates Article 14 of the Constitution as it makes an unreasonable distinction between a prisoner convicted under the Act and one convicted for other offences.[45] In Ram Charan v. Union of India, it was held that Section 32 A of the Act is hit by Article 14 and 21 and therefore is declared ultra vires and cannot be given effect.[46] Later, it was considered unconstitutional to the extent that it affects the functioning of the criminal courts of the country. The rest of the section in respect to the executive's right of suspension, remission and commutation of the sentence has been considered to be intra vires and constitutional. The whole section is not invalid as the restriction imposed is distinct and severable.[47] In Santosh v. Union of India, it was held that the embargo put by the section on the remission of sentence is neither discriminatory nor ultra vires the Constitution.[48]

In *Krishan v. State of Haryana*,[49] the question raised before the Supreme

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[42] Sec. 8, Narcotics Drugs and Psychotropic Substances Act, 1985.
[43] To practise any profession, or to carry on any occupation, trade or business.
[44] Kataria, supra note 18,at 30.
[45] Ishwar Singh v. State, 1991 (2) Crimes 160.
[46] Ram Charan v. Union of India, 1995 (2) JIC 1815 (All).
[47] Dadu @ Talsidas v. State of Maharashtra, 2001 (1) EFR 15.
[48] Santosh v. Union of India, 1998 Cri LJ 612 (Raj).
[49] Krishan v. State of Haryana, AIR 2013 SC 2139.

Court was whether the section violates Article 72[50] and Article 161.[51] The Court felt that on plain reading the section seems contrary to the Articles. However, the judges concluded that the matter needed to be considered by a larger bench before the matter could be decided. The larger bench decided that the particular case does not involve a conflict between the Articles and the section and thus the Court will not adjudicate on issues that do not arise strictly from the facts before the Court especially if they involve constitutional law.[52]

The Supreme Court later held that the power granted under Article 72 and 161 is different from the one under Article 32.[53] The power under Article 32 can be invoked in case fundamental right is violated or the grievance comes in the sphere public interest litigation.[54] The Court dismissed the writ petition seeking to grant remission to the accused and consider section 32 A of the Act to be unconstitutional.[55]

Changes in the Law

After 1989, the Act was subsequently amended in 2001 by the Parliament. The Act aimed to rationalize the sentence structure, which was considered severe and disproportionate. It aimed to impose stringent punishments on drug traffickers dealing with large quantities and lesser punishments to drug addicts and offenders accused of less serious crimes. The provisions of the Act were at times misunderstood to mean that the quantity calculated should only include pure drug content that was seized. The amending Act clarified that the entire quantity that had been sized was to be considered while deciding the quantum of punishment. It also strengthened the provisions regarding seizure of proceeds of drug crimes.[56] The Narcotic Drugs and Psychotropic Substances (Amendment) Bill, 2011 was finally passed by the Rajya Sabha in 2014. The Act of 2014 created a new category of "essential narcotic drugs" for medical use. This widens the scope for medical and

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[50] *Power of President to grant pardons, etc, and to suspend, remit or commute sentences in certain cases.*

[51] *Power of Governor to grant pardons, etc, and to suspend, remit or commute sentences in certain cases.*

[52] *The State v. Banumathy, Criminal Appeal No. 239 Of 2014, January 21, 2014 (Dr. B.S. Chauhan, J. Chelameswar and M.Y. Eqbal JJ.)*

[53] *Tara Singh v. Union of India, Writ Petition (Crl.) No. 190 of 2014, June 29, 2016 (Dipak Misra and S.K. Singh JJ.).*

[54] *Bandhua Mukti Morcha v. Union of India and others, (1984) 3 SCC 161.*

[55] *Tara Singh v. Union of India.*

[56] *The Narcotic Drugs and Psychotropic Substances (Amendment) Bill, 2011.*

scientific use of these drugs in the quest to achieve a balance between control and availability of these drugs.[57]

Dr Dharamvira Gandhi, an MP, however felt that these measures were not effective in curbing the drug mafia and moved a private member Bill to amend the Act. In October 2016, the legislative branch of the Parliament has vetted the Bill to ensure legal and constitutional validity before being placed in front of the Parliament. The Bill aims to modernize the Indian drug policy. In its Statement of Objects and Reasons it states that, "The War on Drugs has caused the creation of the dangerous drug mafia, scores of human rights violations and destroyed innumerable lives. As the common man's recreational substances were unavailable, newer, more potent, addictive and dangerous drugs began being created." The Bill would thus seek to legalize recreational drugs like poppy husk, bhang and opium to keep youth from resorting to more dangerous synthetic drugs. It does this by categorizing psychotropic substances into soft and hard drugs.[58]

Critique

The regulation of recreational drugs through this statute has proved to be difficult. It is considered to be a draconian Act but it has not been able to make any significant difference in the drug activities in the country. The smooth and efficient functioning of law is obstructed due to lack of institutional mechanism. Many states have still not established Special Courts as envisaged under the Act.[59] This leads to the Sessions court judge functioning as the special judge resulting in delayed trial of cases and accused remaining under trial prisoners for longer period. These structural defects have led to ineffectiveness of the criminal justice system. Multiple authorities are responsible for implementation of The Narcotic Drugs and Psychotropic Substances Act, 1985. The Ministry of Home Affairs is

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[57]*The Narcotic Drugs and Psychotropic Substances (Amendment) Act, 2014.*
[58]*Gandhi drafts Bill to amend NDPS Act, THE TRIBUNE (July 14, 2016) available at http://www.tribuneindia.com/news/punjab/community/gandhi-drafts-bill-to-amend-ndps-act/265616.html (Last visited on April 9, 2017);*
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[59] *Sec. 36, Narcotics Drugs and Psychotropic Substances Act, 1985*

responsible for coordination with international agencies and control of drug trafficking, the Department of Revenue has to monitor implementation provisions of the Act and to monitor the legally produced opium, the Ministry of Social Justice & Empowerment has the responsibility of rehabilitation of drug addicts while the Ministry of Health & Family Welfare is responsible for treatment and aftercare. This division of work instead of ensuring smooth facilitation of law leads to unnecessary complications in most cases.[60]

The Act also does not differentiate between a consumer and an addict and uses the words interchangeably at times. The 2011 report of the standing committee uses addict to mean someone who should be punished but is on the lower end of the guilt scale. This causes problems in the quantum of sentencing.[61]

Conclusion

In order to tackle the growing menace of narcotic drugs and psychotropic substances The Narcotics Drugs and Psychotropic Substances Act, 1985 was enacted. In view of the severity of problem and its adverse effects on society, the Act contains stringent provisions. It was the first of its kind as there was no previous legislation on the possession, consumption and sale of narcotic drugs. This Act has often come under criticism on account of debate surrounding the constitutional validity of certain provisions and also with regards to issues of mens rea and burden of proof. Over the course of this project, these criticisms have been analysed with relevant case law.

As *mens rea* is of prime importance in so far as criminal offences are concerned (except in strict liability offences), the fact that under the Act, such guilty mental state is presumed to be present becomes problematic. Further, the Act does not permit the suspension, commutation or remitting of sentences adds to the problem. Apart from all these issues, the Act has also often been considered draconian and has not brought any real results. The current situation in the country with regards to drug abuse continues to be a cause of concern.

Despite the various amendments brought about in the Act to help tackle its

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[60] *N. Singhal and Sakshi, Multiple Agencies, Addicted to Turf, Make Mess of India's Anti-Narcotics Law, The Wire (March 3, 2016) available at https://thewire.in/23747/too-many-authorities-has-led-to-poor-application-of-anti-narcotics-law/ (Last visited on April 9, 2017).*
[61] *N. Singhal and Sakshi, India's Anti-Narcotics Law is in Urgent Need of Rehab, The Wire (January 26, 2016) available at https://thewire.in/19907/indias-anti-narcotics-law-is-in-urgent-need-of-rehab/ (Last visited on April 9, 2017).*

shortcomings, drug abuse even today is rampant among the Indian youth and the same is reflected in the various debates surrounding the same and even depicted in popular culture including films and documentaries. Therefore, even apart from the constitutional challenges that have brought the Act under criticism, the effectiveness of the Act is also questionable.

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Police Leaders and the Changing Paradigms – A Fresh Look

Prof. A.K. SAXENA*

Introduction

As a former Professor of the National Police Academy, Hyderabad for more than 3 decades, I have come to certain conclusion through my interactions in the classes and outside with the top brass of police in our country. I feel that the Police Leadership will have to undergo the following transitions to make Police more vibrant in effectiveness to serve the people of our great country.

Figure 1: Transitions in Police Leadership

From		To
1. Traditional Leadership Approach.	→	Transformational, Charismatic and Servant Leadership approaches.
2. Autocratic & Dictational Style of Leadership.	→	Participative and Empowering Leadership Styles.
3. Confined region and country specific policing.	→	Borderless Policing (Policing across the boundaries).
4. `I am the king' Mindset.	→	''I am the servant of people' mindset.
5. Policing by common sense.	→	More emphasis on `Evidence based' Policing.

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From		To
6. Reactive Policing (Managing the present).	→	Proactive Policing (Anticipation and futuristic orientation).
7. Frog in the well mentality.	→	Going for better Networking and collaborative organic linkages.
8. Sticking to own Police sub-culture (confined space).	→	Evolving police sub-culture of excellence in tune with the culture and ethos of the society.
9. Protecting erring subordinates.	→	Strict control on subordinates with regard to discipline and ensuring accountability to society (Ensuring law abiding policemen).
10. Random decision-making and planning.	→	Scientific decision-making and strategic planning.
11. Focus on traditional crimes.	→	Focus on crimes related to chemical, nuclear and cyber threats also
12. Use of age-old technology, weaponry and strategy.	→	More use of modern technology, IT applications, weaponry and data management system.
13. 'Managing'.	→	Leading with the managerial excellence.
14. Lesser sensitivity by the subordinates towards neglected sections of the society.	→	More sensitivity towards the weaker sections of society women and children.
15. Biases, prejudice and discrimination in police action.	→	Ensuring accountability and neutrality in police action ('Police is my religion' approach).
16. Age-old HR practices.	→	Creating and using modern HR- practices.

From		To
17. `Jack of all but master of none'approach. (Police workforce)	→	Highly specialised police force with the specialists and knowledge workers
18. Skill in leading a less educated work force.	→	Skill in leading a highly educated workforce (leading the brains).
19. Lesser participation of public/community in policing.	→	Better participation of public.
20. Lesser emphasis on the `on the job' training and development of subordinates.	→	More emphasis on training and development of subordinates (leader as a great teacher and trainer).
21. Age old training systems and methodologies.	→	Ensuring advanced subject matter inputs with experiential learning methodology.
22. Follower of systems.	→	Creator of system through visioning, creativity and insight (Through `Research').
23. Mindset to treat `Media', Elected representatives of people, Judiciary and Magistracy etc as interfering	→	Bonds of friendship are required for ensuring the police organisation effectiveness.
24. Less emotional intelligence and resilience.	→	More functional emotional intelligence and resilience in the field.

To address these transitions, 'What should Police do?' is a question. Very concentrated efforts will be required. Before, we go for searching the plausible solutions, we should be very clear on:-

- Emerging concept of Leadership and various functions of Leadership.
- Set of Leadership Traits and the Personality Correlates of Leadership.

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Leadership concept and functions:

Leadership is an art of getting the right things done in a right way. Following definitions are worth mentioning:

`Leadership is an influencing process of leaders and followers to achieve organisational objectives through change'. (Lussier and Achera, 2001).

`Leadership is the lifting of people's vision to a higher right, the raising of their performance to a higher standard, the building of their personality beyond its normal limitations'. (Drucker, 1981)

`The leadership process is similar in effect to that of the secret chemical that turns a caterpillar into a butterfly with all the beauty that was the caterpillar's potential. Leadership, then, is the catalyst that transforms potential into reality'(Hersey and Blanchard)

`Lead from the right and manage from the left' (Ducker)
On analysis, we find that leadership is a process:

- of ensuring `Right things' done in a right way to achieve the organizational objectives.
- for creating a vision to be followed by the followers
- for empowering the followers to perform.
- requiring right brain functioning i.e. creative thinking, imagination etc.

Leadership Functions

Udai Pareek (1990) has classified leadership functions in below-cited 2 categories:-

Transactional Leadership functions
- Policy making.
- Planning.
- Developing systems.
- Monitoring performance.
- Conductivity.
- Coordinating.
- Rewarding.
- Coaching.

Transformational Leadership functions

- Visioning
- Modelling
- Setting Standards
- Building culture and climate
- Boundary Management
- Synergising

 'Transactional functions' are essentially the managerial functions whereas 'Transformational functions' fall under leadership domain.

Leadership Traits

3 Very recent classifications of Leadership traits are being presented –
Drucker (2009)

- Vision
- Passion or enthusiasm
- Integrity
- Curiosity
- Risk taking ability
- Generosity

Achua et al (2002)
Meta analysis of 500 research papers and studies have led to the following classification of leadership traits:
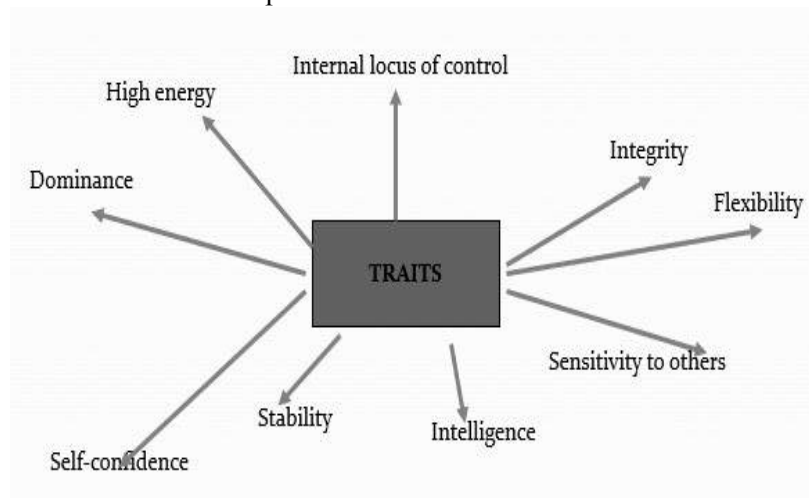
Figure 1: Meta analysis and Leadership traits

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Rao (2002)

- Versatility
- Efficacy
- Internality
- Values
- Creativity
- Interpersonal engagement
- Team Building
- Time and Talent Management
- Communication
- Motivating

The above traits are self-explanatory.

Leadership Style:

In leadership literature below cited 2 models are quoted
In Figure 2, three styles of leadership are discussed:

- Autocratic
- Participative
- Free-rein
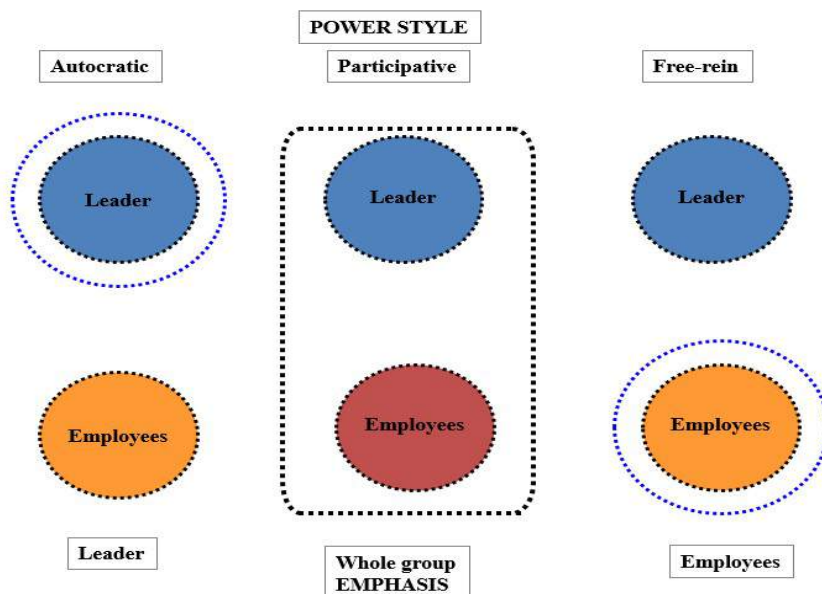
Figure 2: Style of Leadership

In situation leadership theory as per the situations, leaders are to use any one of the styles:

- Telling
- Selling
- Participating
- Delegating
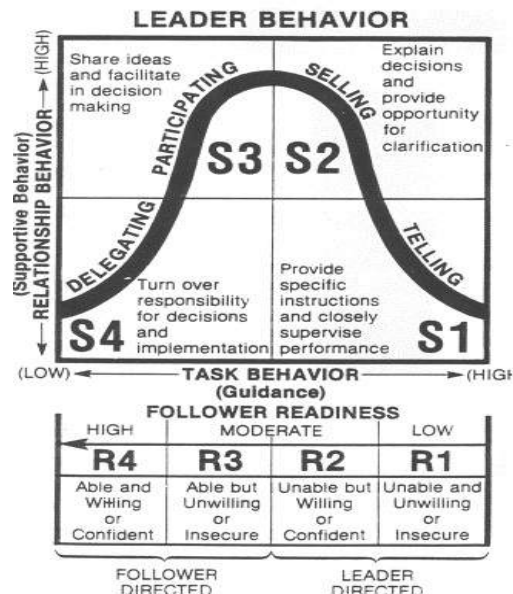
Figure 3: Situational Leadership

After presenting the theoretical background, it is proposed that the transitions should be addressed by the Police Leaders and Police Training Academies and the police organisations as a whole.

Strategies

1. **Strong R & D Function:** There is almost a blackout of research in Police. Both fundamental and applied research should weave the fabric of Police by better performance Organization Development (OD) strategies should be the product of research in Police facilitating the Police Leaders to effect desired changes in the system. How can we think of `Evidence -Based Policing' without the solid base of applied and action research?

Research will have to focus on the following aspects to help the Police Leaders function more effectively-

- Leadership Models.
- Decision Making Models.
- Organisation Development interventions on:

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- Change Management.
- Collaboration and Networking.
- Technology transfer.
- Human/Behavioural processes.
- Human Resource Development strategies.

  - Human Resource Management.
  - Police Training.
  - Strategy formulation.
  - Use of Human Resource Development tools/techniques like Performance Appraisals, Counselling, Mentoring and Talent Management.

2. Exposure of Police Leaders to world class practices (as an OD intervention)

The Police leaders should be exposed to the world practices pertaining to all aspects of Policing as a very systematic and planned strategy. As per the competencies mapping learning groups should be formed. The Government will have to be bear the cost of travel etc. After returning from there, they should be involved in the 'Action-Planning' workshops at the National Police Academy. The action plans should be sent to all the Police Officers for adaption in their systems.

3. Creation of Knowledge Management Portals in Police

With the use of `Information Technology' Knowledge Management Portals should be established linking all Police Leaders. The Knowledge Management portal may contain:-

- Recent Knowledge and practices
- Best practices in police from around the world
- Research inputs on Police from India and abroad
- Sharing of practical knowledge and practices
- Literature on

  - Law
  - High Court and Supreme Court Judgements (with the recommendation for Police)
  - Science and Technology in Police

- Biographies and life sketches of great leaders including police leaders of India and abroad etc.

4. **Highly Specialised Training (In India and Abroad)**

At every level of Police Leadership training through experiential learning mode seems to be necessary in the following:
- Strategic Leadership (through workshop training model)
- Servant Leadership (art and science of continuously train and develop subordinates).
- Research Methodology (focusing on conducting research).
- Decision Making models.
- Emotional Intelligence.
- Sensitization workshops.
- Collaboration and networking skills (Boundary Management.
- Modern advances in Human Resources Management.
- Organizational Learning and Knowledge Management Strategies.
- How to evolve and implement OD intervention?

5. **Motivating Police Leaders for Higher Education**
Police organization should nominate and motivate Police Leaders to pursue higher education in the organisations of excellence in India and abroad.

6. **Drafting police leaders to go on deputation to MNCs, Private and Public Sector Undertakings.**
This exercise will help Police Leaders to develop new dimensions of practical knowledge for applying in police for change. Learning from other organisation seems to be necessary.

7. **Research Based Training**
The training system of the Police Officers should be evolved on the basis on well researched –
- Training Needs Assessment
- Internal and external validation of training design
- Training Material
- Training evaluation tools (more focussed on post-training evaluation)

Summing up

An attempt has been made in this paper to identify 23 transitions which are required in police in our country for more effective and better service to the people. These transitions focus on transformational mind-set covering

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knowledge, skills and right attitudes of police leaders Emphasis is to be laid on `proactive' approach in Police. Brief descriptions regarding Concept, Traits and Styles of Leadership has been presented. Recommended Strategies to manage various transitions encompass strong R & D function; systematic and planned exposure of the Police Officers to the world class Police organization; creation of knowledge Management portals; highly specialised training in India and abroad; motivating Police Leaders for higher education; sending police officer on deputation to MNCs, private and public sector undertakings; and conducting the research-based training for police leaders.

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Appraisal of the hostile applications of Internet based Technologies

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Introduction

"Every major technology has been intensively exploited not only for the peaceful purposes but also for the hostile ones" (Meselson, 2000). Using this dual nature of Technology as a theoretical framework, this essay examines the case for 'misuse side' of Internet based technologies. While peaceful uses of internet technologies are well studied and are evident, the focus is kept on the hostile exploitation of the Internet. Further, the essay juxtaposes this theory of dual exploitation, against an empirical framework, through a taxonomy of internet wrongs.

The essay is presented in 3 sections. First section dwells upon the causes underlying vulnerabilities of internet technologies for their hostile applications. Section two attempts, a mapping of whole range of *aposteriori* instances of such misuses or 'internet wrongs'. The final section provides concluding remarks with pointers for future research.

Internet refers to a global network of connected computers using technical set of computer rules like 'packet switching' and 'Transfer Control Protocol / Internet Protocol' (Miller, 2014). It is called as world wide web. Collectively, it is a very huge database of information held in so called 'cyber-space'. Apart from being an 'Information communication technology (ICT)', recently Internet has spawned myriad of internet–based technologies

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like Internet of Things (IoT) through convergence (Bainbridge & Roco, 2016) (Fortino &Trunfio, 2014). IoT is network of connected physical devices, which exchange data (Wikipedia, 2018). IoT, alongwith the field of data-science has given rise to 'smart cities'. Internet has transformed other fields and the world is at the brink of 'fourth industrial revolution', solidly backed by internet based technologies through convergence of robotics, Artificial Intelligence, Bigdata, cloud computing etc. (Frederick, 2016).

Section 1: Aetiological examination of hostile applications of Internet

Internet is indeed astronomical in shape and size, which by nature at once becomes its strengths and weakness (Physics world, 2000). Like every technology, internet technology is also value neutral and depends on the derived value of its user for harmful exploitation (Sundström, 1998).

It also is deeply embedded in sociology and Actor Network Theory (Callon, 2007), but it also suffers from inherent vulnerabilities for its misuse as follows.

1) **Historical vulnerability -** Internet technology emerged as an outcome of US military programme of ARPANET (Gromov, 1998). It was not designed or invented to become what it has become today. This means internet was built based on different shared motives and values among its original users. It was based on tacit trust of its users (Timberg, 2015). Due to the then socio-technical compulsions, the inventors of the internet chose not to use full encryption of the data from beginning (ibid, 2015).

2) **Technical vulnerability -** The very feature of the Internet that makes it so robust against random connection failures might leave it vulnerable to intelligent attack, according to (Albert & Barabasi, 2000). Technical analysis of the cyber-attacks reveals that the attacks exploited the same attributes and loopholes in the internet that made Internet technologies really effective. Lawrence Lessig thinks that "This is a fundamental consequence of an open system" (Markoff, 2000).

3) **Criminological reason -** According to criminological principles, crime follows opportunity. Internet based technologies are abundant with opportunities to be exploited for hostile and wrong purposes (Vasiu and Vasiu, 2004).

4) **Increasing cyber dependence -** According to the (Internet World Stats, 2018), 54.4% of world population had internet access by 2017. Number

of people depending indirectly on internet must be very high. This entails enormous scale of its vulnerability for misuse.

5) **Easier access and cheap -** Unlike many other technologies, the barriers of access to codified and tacit knowledge for masses are very low. It is relatively cheap and hence more vulnerable than most other technologies like Nuclear, Genetic, Nano-technology or space-technology.

6) **High cost-benefit ratio to misuse -** There is a vast gap between the number of cyber- crimes committed, reported and prosecuted worldwide (Brown, 2015). The global volume of illegal proceeds from cybercrimes would touch $6 trillion by 2021, up from

$3 trillion in 2015. This will be more 'profitable' than all drug trafficking combined (Morgan, 2018). This makes Internet economically vulnerable and lucrative to cyber- crimes.

7) **Anonymity**- Internet technology, particularly so called 'dark web' technically allows a potential misuser to access web without leaving any trail. This anonymity psychologically emboldens the misuser, making cyberspace more vulnerable in turn.

8) **Cross-border** -The 'world-wide' nature of web allows the misuser to seamlessly act without geographical or jurisprudential borders. This feeds back in lower prosecution rates of cyber incidents, thereby further increasing the vulnerability for misuse.

9) **Weaker Internet Governance regime**– Cyber laws, conventions and international legal frameworks are still evolving and struggling to keep pace with the dynamic nature of internet technology development. This scenario is unlike other technology fields which are relatively better governed against hostile misuse.

Section 2. Taxonomy of internet wrongs

The data of cyberspace threats perceived by people of different countries as studied by (Kaspersky lab, 2018) points towards the ubiquitous and voluminous nature of internet misuse.

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Percentage of internet users in selected countries who have encountered any cyber threat as of 1st half 2017

India	49%
Indonesia	47%
Belarus	46%
China	43%
UAE	42%
Brazil	37%
Russia	37%
South Africa	36%
Mexico	34%
Kazakhstan	33%
Malaysia	32%
Turkey	32%
Colombia	31%
France	28%
Worldwide	27%
Czech Republic	26%
Spain	22%
Singapore	22%
Israel	22%
Poland	21%
Sweden	21%
Denmark	20%
Belgium	19%
Australia	18%
Italy	17%
Japan	15%
Germany	14%
United Kingdom	14%

Share of respondents

Source
Kaspersky Lab
© Statista 2018

Additional Information:
Worldwide; Kaspersky Lab; H1 2017; 20,082 respondents; 18 years and older; encountered any cyber threat

These cyber threats are qualitatively becoming more sophisticated due to blending of different forms of attacks (Choo, 2011). Different financial, criminal and ideological motivations are driving the plethora of internet misuses (ibid, 2011).

2.1 Rationale for taxonomy:

It is a very daunting and difficult task classify the wide array of internet misuses (Furnell, 2001). There have been several studies to classify misuses of internet technology (Li, 2016). Some authors present computer and security taxonomies as lists of single terms. For instance, (Cohen,1997)

presents a list of 96 terms of potential attacks. (Moitra, 2004) differentiates between cybercriminals, the crime and victim. (Howard, 1997) identifies attackers, tools, access, results and objective as important dimension for classifying Internet security incidents (Donalds, 2014). However, these taxonomies look at one tangent of crime, criminal or victims. They also fail to account for bigger menace in cyberspace which are 'cyber wars' and 'Information warfares'. They also overlook some important ethical issues in internet like digital divide, filter bubble, fake identity etc.

Therefore, this essay proposes a new taxonomy of misuses of internet with three broad teleological purposes. 1) To substantiate the empirical evidence for the claim of exploitation of internet for hostile purposes. 2) To provide comprehensive taxonomical framework of all misuses in internet including legal, social, financial, military and ethical wrongs. 3) To act as a guide to researchers and law enforcement persons in internet governance.

2.2 Scope, methodology and limitations of proposed Taxonomy:

This essay takes a broad outlook of all the potential and actual instances of exploitation of internet for hostile purposes. Therefore, to provide an umbrella term for these terminologies, a diffuse term "Internet wrongs" is used. Other terms as 'cyber-crimes', cyber-harms', 'cyber- threats' fall short.

The **methodology** adopted for this taxonomy is qualitative study of literature review on various instances of internet wrongs and attempted studies to classify them. A mix bag of factors as motive, *modus operendi,* target is considered while classifying the internet wrongs. It qualifies to be a 'characteristic structure taxonomy' (Lough, 2001).

However, given the ever-growing complexity of internet wrongs, this taxonomy in no way suggests an omnipresent, 'exhaustive' (Amoroso, 1994; Howard 1997) framework for mapping all possible internet-wrongs. Second limitation is that the taxonomy does not strictly qualify the criterion of 'mutual exclusiveness' (ibid) due to diffuse nature of issues.

2.3 Taxonomy of Internet wrongs:

Internet misuses or wrongs can be broadly divided into four categories depending upon the main target of those wrongs and the main motivations underlying, as shown in the following diagram.

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1) ***CYBERCRIMES***: These are the clear violations of cyber and other penal laws.

Cybercrimes are "Offences that are committed against individual(s) with criminal motive to harm the reputation of victim or cause physical, mental harm, or loss, using telecommunication networks such as Internet" (Halder & Jaishankar, 2012).

Depending further on motive and *modus operendi,* following types are proposed. These are mostly indicative and not exhaustive due to their evolving nature.

- **Phising and financial frauds** – Online attempts to illegally obtain password and other financial credentials of the victim and causing financial loss (Ramzan & Zulfikar 2010).
- **Ransomware** – Malicious software that encrypts the data of the victim with a motive to extort ransom in lieu of decrypting the data (Young, 1996).
- **Doxing -** Internet based practice of researching and broadcasting private information of victim in for malicious purpose (Oxford dictionary, 2018).
- **Piracy**– Copyright infringement using internet technology.
- **Cyber bully**– mental harassment to the victim in cyberspace.
- **Defamation**– Causing harm to the reputation of a person or organisation using malicious campaign using ICT.
- **Hacking**– Unauthorised access of victim's computers using internet.
- **Data theft or manipulation** – stealing or changing the data or code of victim's computer illegally.
- **Digital impersonation** – Act of intentional mis-representation of victim's identity.
- **Child pornography**–Using internet technology for disseminating child pornographic content.
- **Regular crimes using internet**– here internet technology is incidental in assisting the commission of other crimes like drug pedalling, wildlife crimes, corruption etc.

2) ***CYBERWARFARE:***

Using of cyberspace as means or ends in the conventional wars among state or non- state actors. The target is generally the state but can involve civilian cyberspace as an act of warfare or due to diffuse boundaries in cyberspace. It

involves both offensive and defensive operations pertaining to the threat of cyberattacks, espionage and sabotage (Wkipedia and Wired, n.d.).

- **DDoS attacks–** Distributed Denial of Service attacks flood the cyberspace with massive access requests thereby crashing the websites of the target.
- **Cyber espionage–** Cyber surveillance and gathering of data, information by hacking or invasion of privacy of the target.
- **Infrastructure sabotage -** Causing sabotage to physical infrastructure as a power station or aircraft by malicious manipulation of its electronic command structure using internet technology.
- **Website defacement -** Bringing down the websites and thereby attacking the communication channel of the target.
- **IoT attacks -** Crashing or paralysing of the internet of things using internet.
- **Data alteration -** Data manipulation of the target organisation as a part of warfare strategy.
- **Cyber Terrorism –** Cyberterrorism can be also defined as the intentional use of computers, networks, and public internet to cause destruction and harm for personal objectives (Matusitz, 2005).

3) *INFORMATION WARFARE:* Use of internet to manipulate or shape the opinion of group of people by targeted misinformation, disinformation propaganda in order to demoralise or shape their behaviour (Hutchison, 2012). Recent controversy about manipulation of US elections of 2016 and Brexit referendum highlights this internet wrong.

- **Disinformation propaganda–** Deliberate dissemination of altered narrative using internet, social media to the target group.
- **Radicalisation -** attempts to heighten the sense of belonging of a person to a group or ideology to radicalise the opinions and behaviour using internet and social media.
- **Misinformation -** Using internet to deliberately misinform people to create confusion in their minds with an intention to either reinforce or erode their faith in the state or institutions.
- **Social Engineering–** Manipulation of choices of a person in cyberspace and making him vulnerable for further internet wrongs.
- **Hactivism -** Using internet for activism or ideological purposes.

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4) **ETHICAL WRONGS -** These are various moral and ethical wrongs committed deliberately or otherwise by the individuals, state or entire system.

- **Fake avatar -** merely creating fake digital identity may not violate law in many countries, however it is ethical wrong as it involves clear falsehood.
- **Anonymous conduct -** deliberate masking of identity may be a conduct in ethical grey area.
- **Digital divide -** Inequality in access to internet on accounts of poverty, infirmity or illiteracy is an ethical concern.
- **Filter Bubble -** State of intellectual isolation in internet access of information resulting due to designing of algorithms or searches (Pariser, 2012).
- **Spamming -** Unethical advertising or unsolicited flooding of information in internet.
- **Privacy invasion -** Privacy is a huge ethical concern in itself apart from being a legal violation.
- **Uninformed consent -** Often the consents and 'user licence agreements' in internet involve forced consent, which is an ethical issue.
- **Ethical wrongs in other internet wrongs -** There is always an underlying ethical wrong in other three types of internet

Cyber Crime
- **Mainly against Individual / Company**
- MOTIVATION – Money, Revenge

- Phising and financial fraud
- Ransomware
- Doxing
- Piracy
- Cyber bully
- Defamation
- Unauthorised web access
- Data theft / manipulation
- Digital impersonation
- Regular crimes through web
- Child pornography

Cyber Warfare
- **Mainly against state**
- MOTIVATION – Nationalism, Ideology

- DDoS attacks
- Cyber espionage
- Infrastructure sabotage
- Website defacement
- IoT attacks
- Data alteration
- Cyber terrorism

Information wars
- **Mainly against group of people**
- MOTIVATION – Ideology, Eroding legitimacy of institutions

- Disinformation propoganda
- Radicalisation
- misinformed confusion
- Social engineering
- Hactivism

Ethical Wrongs
- **Mainly against individual**
- MOTIVATION – Diffuse moral code

- Fake avatar
- Anonymous conduct
- Digital divide
- Filter Bubble
- Unethical advertising
- Invasion of privacy
- Uninformed consent
- All other three wrongs

Taxonomy of Internet wrongs

Section 3. Conclusion and future research

This essay considered the theoretical claim that every major technology is exploited for both peaceful and hostile purposes and attempted to examine the case for internet based technologies. It first looked into the broad meaning of these technologies and assessed the theoretical claim. The essay assumed the postulate that internet is indeed used for peaceful purposes and found on *apriori* examination that it is also used for hostile purposes. It also briefly discussed vulnerabilities underlying internet for its misuse. It then conducted aposteriori examination by looking at very wide range of internet wrongs in order to further validate the theoretical claim of dual use of internet.

As an attempt to present an inductive inference of internet wrongs as evidence for misuse, a taxonomy of such wrongs is proposed. Accordingly, four main types of internet wrongs namely, Cybercrimes,

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Cyberwarfare, Information warfare and Ethical wrongs are proposed. Each type has subtypes of wrongs depending upon the target, motive and *modus operendi*. This essay thus firmly concludes that Internet based technologies, like other technologies are exploited for both peaceful and hostile purposes. Due to limitations of scope and space, the essay does not go further in deeply identifying the causes of harmful exploitation and actual gaps in internet governance. It warrants a further study in the proposed taxonomy of internet wrongs as it is not exhaustive or completely mutually exclusive. Study on their inter connections, *modus operendii*, and reducing the cost-benefit ratio to the wrongdoers will go long way in the direction of minimising the hostile applications of internet technology.

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Trends in Cyber Crimes in Telangana

JANAKI SHARMILA* & ABHISHEK KUMAR**

Abstract

Telangana is the 12th largest and 12th most populous state in the country with a combined population of around 3.5 Crore people. With an overall literacy rate of more than 80 percent and with active promotion of digital India initiatives by the state and the central government, districts like Hyderabad, Rangareddy, Malkajgiri, Warangal and Mahbubnagar etc have seen a sharp rise in digital transactions, use of social media and financial transactions including Debit/credit cards, online banking, and e-commerce etc. However, with increased use of digital interactions and increasing financial transactions, a certain trends in Cyber Crimes is also being noticed. People of all age groups and genders have been the victim of cyber crimes in the state. Hyderabad recently was ranked third in terms of total cyber crimes registered[3]. This paper is an attempt to study the patterns based upon the data received from various police stations and units spread across the state where cases of cybercrimes are getting registered. Objective of this paper is to have an informed understanding of the issue at hand and how best we can prepare ourselves in Investigation and prevention of Cyber Crimes in Telangana.

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Introduction

In order to find suitable trends about Cyber Crimes in the state, an intense study of the data points received from various police units (for the years 2015 - 2017) was taken. In particular, data from following districts/commissionerate/units were studied -

1. Cyberabad Commissionerate
2. Hyderabad Commissionerate
3. Rachakonda Commissionerate
4. CID Telangana

The data from the above mentioned units might not depict the situation in the state in its entirety, but they certainly are indicative of the various Modus Operandi of the cyber criminals as well as subtle indication of the numbers as major volume of the cases registered (and investigated) are from the above four places.

The data analysis revealed some interesting and intriguing patterns which have been emerging in Telangana. The patterns are also a subtle reflection of the Internet penetration in the state and the increased awareness about use of technology to a large number of netizen. The trends are especially visible in the IT corridors of the state where people have been duped of their hard earned money or became victim of various other types of cybercrimes.

Analysis objective & tool

The Analysis of the data received from various police units (which are looking into the core areas of cyber crimes investigations) is based on a simple premise that any trend found through it would continue for some time which would give us an opportunity to build a model to not only investigate the crimes in a much better fashion but ability to prevent it through various govt. programs such as Cyber Crimes Awareness campaigns and proactive outreach to the 3rd party service providers (as Facebook, Yahoo, Google, Twitter etc.).

Hence, the data is analysed with different angles and thoughts such as ongoing trends, future trends, and suggestions basis those trends.

The Pivot table feature of MS Excel is used to analyse the data. It's a simple yet a robust mechanism of analysing it.

Ongoing Trends

Some of the ongoing trends which could be identified from the
data are given below -

- In terms of **age group** which was most affected, a clear pattern
  has emerged where around 750 cases were registered by victims
  under higher age group i.e. 30-40 as against victims under lower age
  group i.e. 20-30 from whom 641 cases got registered. It indicates that
  unlike earlier, people at higher and mature age groups also becoming
  part of this increased cyber awareness and subsequently the rising
  cybercrimes. **Average age of victims turned out to be around 38
  year.**

- In terms of the **city which is leading in registration of cyber
  crimes cases**, it is clear that Cyberabad and Hyderabad together
  constitute around 75% of the total cases registered. However,
  Rachakonda being a new police commissionerate has picked up
  very fast and provided a conducive environment for victims to come
  ahead and register their complaints.

Row Labels	Count of Place
Hyderabad City	978
Cyberabad PS	509
Rachakonda PS	498
CID Telengana	28
Grand Total	2013

- Another interesting trend which has emerged out of this data is
  the nature of crimes. Out of 2013 cases reported, 1315 cases were
  of financial frauds. It means, more than 65% of the total cases
  were of financial crimes. It roughly explains the average age of 38

years of the victims as this is age group which primarily earns money and subsequently get trapped in frauds.

- Total financial losses as reported by the victims are around INR 800 million which is a substantial amount. However, it is perceived that not all victims of cyber crimes report it to the police and hence the loss of money is perceived to be much higher than the reported figure.
- An important observation was made in terms of number of cases which could be solved or which remained unsolved during this time. Out of Total 2013 cases registered, 672 cases were solved by the cyber crimes investigation team. However, 1340 cases still remained unsolved for variety of reasons.

Row Labels	Unsolved Cases
Rachakonda PS	462
Hyderabad City	437
Cyberabad PS	413
CID Telengana	28
Grand Total	1340

Fig: Unsolved cases

Row Labels	Solved cases
Hyderabad City	540
Cyberabad PS	96
Rachakonda PS	36
Grand Total	672

Fig: solved cases

Some of the reasons for case remain unsolved are –

A. Lack of International cooperation in terms of getting information from service providers which are based outside the country.

B. In many cases of financial frauds, it is difficult to trace the accused as proper KYC is not done by the financial institutions (such as Wallet providers, banks, etc.). It allows the criminals to transfer funds to accounts (which are opened on fake documents) and later withdraw the same.

C. Lack of high resolution CCTV footages at the ATM machines due to which it is very difficult to identify the person withdrawing the money.

D. Lack of capacity building on cyber crimes investigation among the officials working at various police stations. It results into piling of cases on the cybercrimes police station.

- There were multiple cases of financial frauds where the money (fully or partially) was recovered. The data shows that out of around INR 800 million in losses, INR 43.4 millions were recovered. Also, around INR 13.3 millions were spent as the cost to police during the investigations.

Row Labels	Total Financial Losses (in Lakhs)	Total Police Expenditure (in Lakhs)	Sum of RECOVERY AMOUNT
CID Telengana	65	1	27
Cyberabad PS	3452	57	71
Hyderabad City	3446	28	264
Rachakonda PS	1108	47	72
Grand Total	8072	133	434

- During the investigation of many financial frauds cases involving the skimming of ATM cards (where the card was cloned using a device called skimmer and ATM pin was stolen through a spy camera), it was found that it were Romanian Gangs which were illegally in the country (after expiry of their visa) and committing this fraud. The problem of Romanian gangs though is prevalent not only in Telangana but many other parts of the country.

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- ○ **Hyderabad (May 2018)**
  http://www.newindianexpress.com/cities/hyderabad/2018/m
  ay/16/romanians-trav elled-all-way-to-hyderabad-for-atm-
  fraud-1815239.html
- ○ **Goa (March 2018)**
  https://www.business-standard.com/article/pti-
  stories/romanian-held-in-goa-for-at m-skimming-
  118032801033_1.html
- ○ **Jaipur (March 2018)**
  https://www.hindustantimes.com/jaipur/atm-fraud-3-
  romanian-nationals-sent-to-fi ve-day-police-custody/story-
  Tw62iofUSzL0a3x6nYDdIP.html
- ○ **Mumbai (Feb 2018)**
  https://www.hindustantimes.com/mumbai-news/two-
  romanian-nationals-arrested- in-south-mumbai-s-rs9-11-
  lakh-atm-fraud/story-lODgA6zj8fvxGpdJKY7EyO.ht ml
- ● Another important trend in financial frauds (involving Skimming, phishing, cheating in the name of online trading, and providing cheap online products/services such as - UBER/OLA rides, Microsoft gaming credits, Skype recharge etc) is the involvement of local offenders unlike before when acts like these were mostly done by Nigerian Gangs. Other kind of frauds such as OTP frauds, lottery frauds, payment frauds, recruitment frauds etc are also being carried out by Indian nationals.

Future Trends

Based upon the data points received from various police units of Telangana, current trends are deduced and mentioned above. However, the data points, if extrapolated, also suggest some future trends, and unless the digital scenario changes substantially, the trends would continue.

A. Financial frauds will continue to be the focus of most of the cybercrimes, given that there is huge ongoing thrust on digital literacy, financial inclusion, and e-commerce etc.

B. Unless the present challenges in cyber crimes investigations (mentioned above) are overcome, the delay and pendency of cases would continue.

C. It is no longer the younger generation (18-25 years) who are the victim of cyber crimes. The modus operandi followed by the cybercriminals is very much directed towards people of the all earning age group (men and women). The trend would continue to grow in future too.

D. One major future trend is going to be 'Spear Phishing' especially targeted for corporates and its employees. Spear Phishing is essentially a fraudulent practice of sending emails 'supposedly' from a known email ID in order to trick the user into revealing data/password/sensitive personal information. Telangana being a software & Technology Hub is extremely succeptive to such phishing campaigns which steals the valuable data and use it to commit financial frauds.

E. An important ongoing trend which is expected to take inflict great harm in future to the customers of online banking/wallets and all other payment methods, which use OTP as authentication, is SIM SWAP. It is essentially done by fraudsters by presenting fraudulent documents to the Mobile Service Providers to get a new SIM of victim's phone number. This is done after the usernames and passwords are hacked through various methods (such as Spear phishing, shoulder surfing, malware, keyloggers etc). Both Nigerian as well as domestic criminal gangs are found to be indulged into this.

Suggestions

A. It is pertinent at this point to note and realize that origin of cyber crimes could be anywhere not only in the country but across the globe. To set the point right, we can take an example of Jamtara at Jharkhand which the Govt.Home Secretary recently declared as the "Cyber Crimes Capital of India". (ref: https://www.deccanchronicle.com/nation/current-affairs/010618/this-town-in-jharkhand-i s-the-cybercrime-capital-of-india-jamtara.html)

B. The trends very promptly suggest the spurt of Financial Crimes and their continuous rise. This essentially means that the financial institutions including the newly launched wallet and payment banks services should be highly cautious in letting their online

platform being the tool in the hands of miscreants to fraud the masses.

C. The investigations of the Cyber Crimes is highly dependent upon the information to be received from the service providers (such as social media platforms, financial institutions, mobile/data services providers etc.) in a most timely basis. Unfortunately, many of the service providers are based out of the country, and hence either not reachable or do not honour the legal notices sent to them. Hence, its high time that an international treaty is signed which binds the internet based service providers to share data to the LEAs in response to a proper legal subpoena.

Hence, the "Budapest convention on Cyber Crimes" which India has not signed yet needs to be revisited in the wake of the huge push on "Digital India" and Financial literacy by the govt. In fact, Home Ministry has recently shown its interest on signing it.

https://indianexpress.com/article/india/home-ministry-pitches-for-budapest-convention-on-cyber -security-rajnath-singh-5029314/)

D. Know Your Customer (KYC) compliance remain an important area which is not fully addressed by the service providers (including Mobile Service Providers, Internet Service Providers, Mobile Wallets, Banks etc. It remains a huge bottleneck in investigation as well as apprehending the culprit.

E. Capacity Building in Cyber Crimes Investigation for LEAs across all policing units is another important milestone to be achieved. A substantial study is required on framing a curriculum which addresses various needs of the LEAs ranging from reactive investigation to proactive intelligence gathering using online and social media sources.

F. The most important tool however in curbing this rising menace of Cyber Crime is the awareness at large to netizen about the various modus operandi the possible safeguards. From a simple OTP sharing to a complex DNS hack, the awareness about these methods wills what help us prevent these crimes in the coming future.

Conclusion

Telangana being one of the most progressive and IT industry friendly state receives massive interest (and investment) from IT and ITeS companies.

Moreover, the internet penetration is very high especially in certain pockets such as Hyderabad/Cyberabad/Rachakonda, Warangal, Nizamabad, Khammam etc. The govt. Policies by both central and state government further emphasize and necessitates use of computer/Internet for availing govt. services and benefits of govt. schemes.

Though the rise of digital literacy and its increased use is extremely desirable, it has some unwanted ramifications too. Cyber based frauds and Cyber Crimes are negative outcomes of this technology explosion. Telangana is also witnessing a incremental rise in the cases of cyber crimes and wider strata of the society is getting the impact.

The major chunk of the crimes registered at the concerned units of Hyderabad, Cyberabad, Rachakonda and the CID essentially suggest the huge tilt towards financial frauds. Also, unlike earlier, the average age of the victims is 38 which essentially point towards matured (and earning) people being trapped and losing money. Involvement of local gangs are more prominent than Nigerians unlike earlier.

The investigation of cyber crimes cases however is unfortunately not as progressive as the modus operandi of the fraudsters. One of the many reasons is the lack of cross border cooperation. It is hence a high time for India to give a second thought on its stand on not signing the only international treaty in this area i.e. Budapest convention.

Study of Black Spots in Greater Mumbai: Enforcement Related Factors

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Introduction

The identification, analysis and treatment of road crash Black Spots are widely regarded as one of the most effective approaches to road crash prevention. Several studies have reported large reductions in the number of crashes when safety measures were introduced at these locations.

As per data available on www.worldhighways.com it has been estimated that India currently accounts for nearly 10% of road accident fatalities worldwide. As per given figures more than 15 Lakh deaths happened in a year worldwide due to road accidents. In India about 1.48 Lakhs people died in road accidents and 5.01 Lakh injured. The increase in fatality rate is approximately 4 to 5% every year. Half the people,who died in the crashes, were aged between 15 and 34 years, revealing that there is particularly high risk for the young on the Indian roads.16 children died on Indian roads daily. The actual figures may be considerably higher as on many occasions crashes go unreported. On an average around 400 people per day are killed on Indian roads. There is one death every four minutes and one serious accident every minute is caused due to road network in India.

Definition of Black Spot (MoRTH): According to Ministry of Road Transport & Highways (MoRTH), Government of India, road accident black spot on National Highways is a road stretch of about 500m in length in which either 5 road accidents (involving fatalities/grievous injuries) took place during last three calendar years or 10 fatalities took place during last three calendar years.

Study of Black Spots in Greater Mumbai

Greater Mumbai with a human population over 130 Lakhs and a vehicle population of over 34 Lakhs is one of the biggest metropolitan cities in India. It has a total area of 438 Sq. Km. and almost static road length of 1950 Km. An average of 500 deaths due to road accidents. The numbers are now declining to around 375 in the last year. Though this is a result of concentrated road safety efforts by the Traffic Control Branch of Mumbai Police and the Municipal Corporation of Greater Mumbai, a lot of work needs to be done towards sustaining the declining trend.

This paper is an attempt to study and analyze the Black Spots in Greater Mumbai and understand the factors including those of environment , engineering, education and especially enforcement related actions.

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Aim and Objectives

1. Select Black spots as per MORTH definition and with adequate data.
2. Study enforcement related factors like the spots of drink and driving testing, distance of common trauma hospitals from black spot, availability of CCTV near that area etc.
3. Study other factors related to road environment present at black spots as per survey forms from traffic divisions.
4. Study the pattern of victims of road accidents.
5. Recommendations for improvement.

Methodology

A total of 52 black spots were identified in Greater Mumbai and surveyed. However, only 40 spots were fulfilling the definition as per MORTH and with adequate statistics for study.

1. Historical data available for a three year period from 2015 and 2018 was obtained from various references and the study report is based on the data till 30 June 2018.

2. A simple form stating various parameters were distributed to all 6 Assistant commissioners of Police (Traffic) posted in Greater Mumbai after briefing them regarding each parameter. With the help of Police Inspector, incharge of 34 traffic divisions and their experienced constables, the survey was to be conducted and reported personally by ACP after considering inputs from officers and staff working under him.

3. A site visit was done and few factors were validated to have a more reliable report of various factors and then a master chart was prepared containing all these data.

4. Travel time to the nearest hospital during peak and non-peak hourswas obtained from the Google Map.

5. The crash analysis data pertaining to fatal accidents and grievous injuries were obtained for 35 black spots from available records of the Traffic divisions till June 2018. This data was then compared and calibrated with the data available from local police stations as far survey forms.

6. The E-challan data for the stretch of 100 meters on all approaches of the black spot was taken from official database of Traffic Control Branch of Mumbai Police for evaluation of enforcement actions near black spots.

List of Black Spots in Greater Mumbai For Study

1. Vashi Toll Naka

2. Priyadarshini Circle

3. Postal Colony Bus Stop, EEH, Chembur

4. Everard Nagar Bus Stop, EEH

5. ChhaganMitha Petrol Pump, SionTrombay Rd.

6. Highway Apartment

7. 'Y' Jn., SionBandra Link Rd.

8. Mahim Jn.

9. Sane Guruji Garden, Siddhi Vinayak

10. KamgarBhavan, Phool Market

11. Krishna Hotel, SenapatiBapatMarg

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12. Navghar Bridge/ Anand Nagar Toll Naka
13. Airoli Bridge
14. 'T' Jn., Service Rd., EEH
15. Godrej Ghoda Gate
16. Godrej Soap Gate
17. BhandupPaanchKhadda
18. Narayan BodheChowk
19. Pheroze Shah Bridge
20. BehindVikhroliChowky
21. Ramabai Nagar Bus Stop
22. Dattani Park, Kandivali East
23. Sanjay Gandhi National Park
24. Dahisar Toll Naka
25. Metro Mall, Borivali East
26. Times of India Bridge
27. Oberoi Bridge South Bound
28. NESCO Gate 2
29. Gaffar Khan Jn.
30. Regency Hotel,Vakola Bridge
31. Bandra 'U' Bridge
32. NABARD Jn.
33. ITO Office, BKC
34. AbovePrabodhankar Thackeray Bridge
35. Kalanagar Jn.
36. Church Signal, near Canara Bank
37. NSCI Gate
38. Haji Ali Jn.
39. Sir J.J.Flyover, Mandvi P.S.
40. Badhvar Park Jn., Machhimar Nagar, Colaba

LOCATION OF BLACKSPOTS IN GREATER MUMBAI

LEGEND:

 - Blackspot

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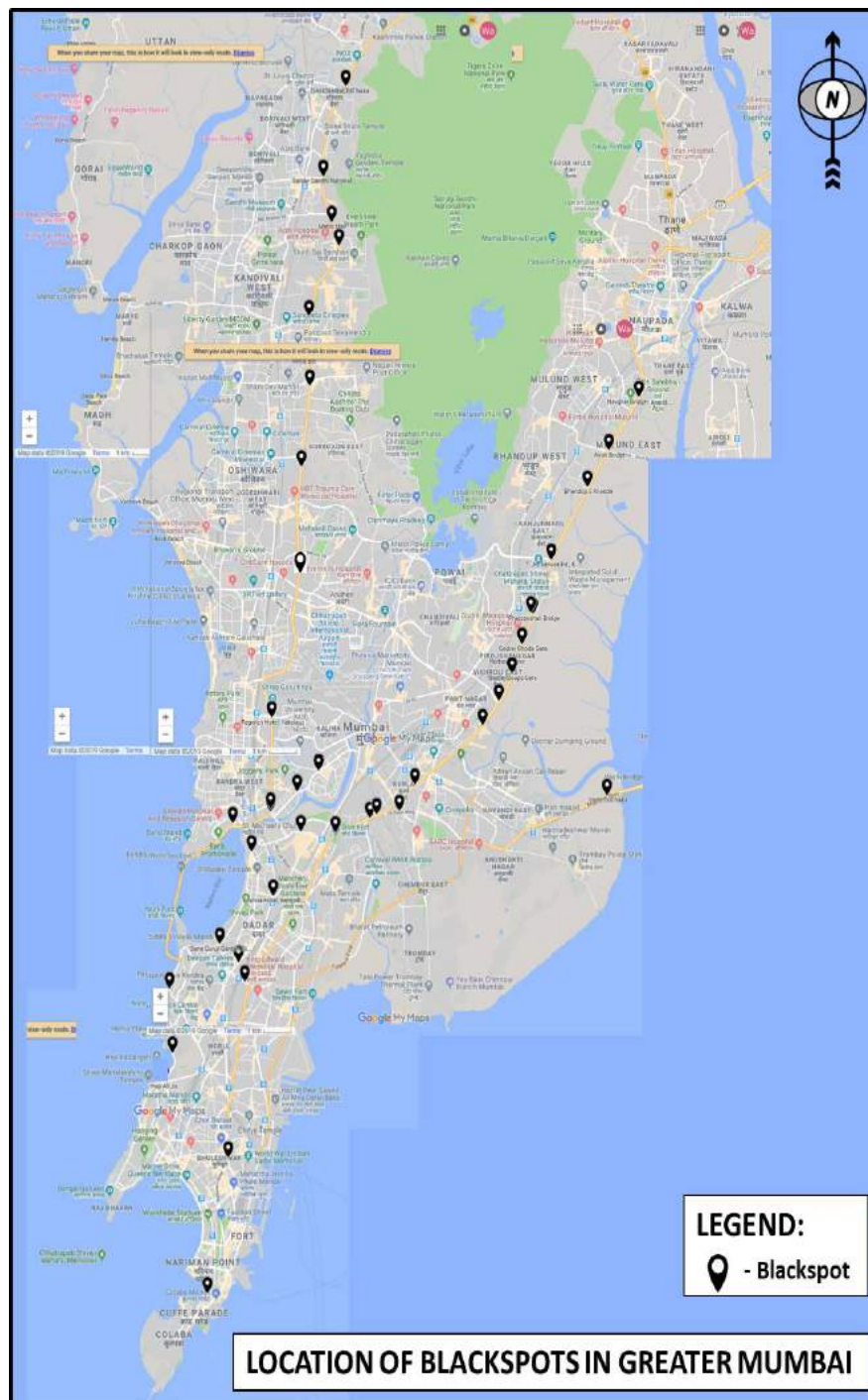
Classification of Accidents at the Black spots

Data collected from the Crash Analysis Centre of the Traffic Control Branch further calibrated with data available from Police Stations was taken for analysis. The total number of accidents that occurred at each spot in the year was further classified as Fatal, Grievous injuries (not Fatal) so that the gravity of the situation can be appreciated analytically.

The data for consecutive 3 years between 2016 and 2018 was taken for study and analysis. The comparative figures for these 3 years are presented in the bar charts at pages 91, 92 and 93.

It can be seen from the bar charts that the total accidents in 2017 are increasing as compared to the previous year.

The total number of fatal accidents is also showing a decreasing trend over the last year.

The total number of grievous injuries however show decreasing trend over the previous year.

However, this cannot be conclusive and attributed to any particular reason due to lack of adequate scientifically analyzed date.

Further available date regarding other factors such as time of the day-night, age group of victims, type of vehicles involved, drink and drive etc., road conditions, lack of traffic control devices such as signs, signals and road markings was collected for the corresponding years.

While it is difficult to comprehensively analyse all related factors and since several such attempts have been made by other agencies such as IIT, Bloomberg etc. This paper is an attempt to focus on Enforcement related issues and actions.
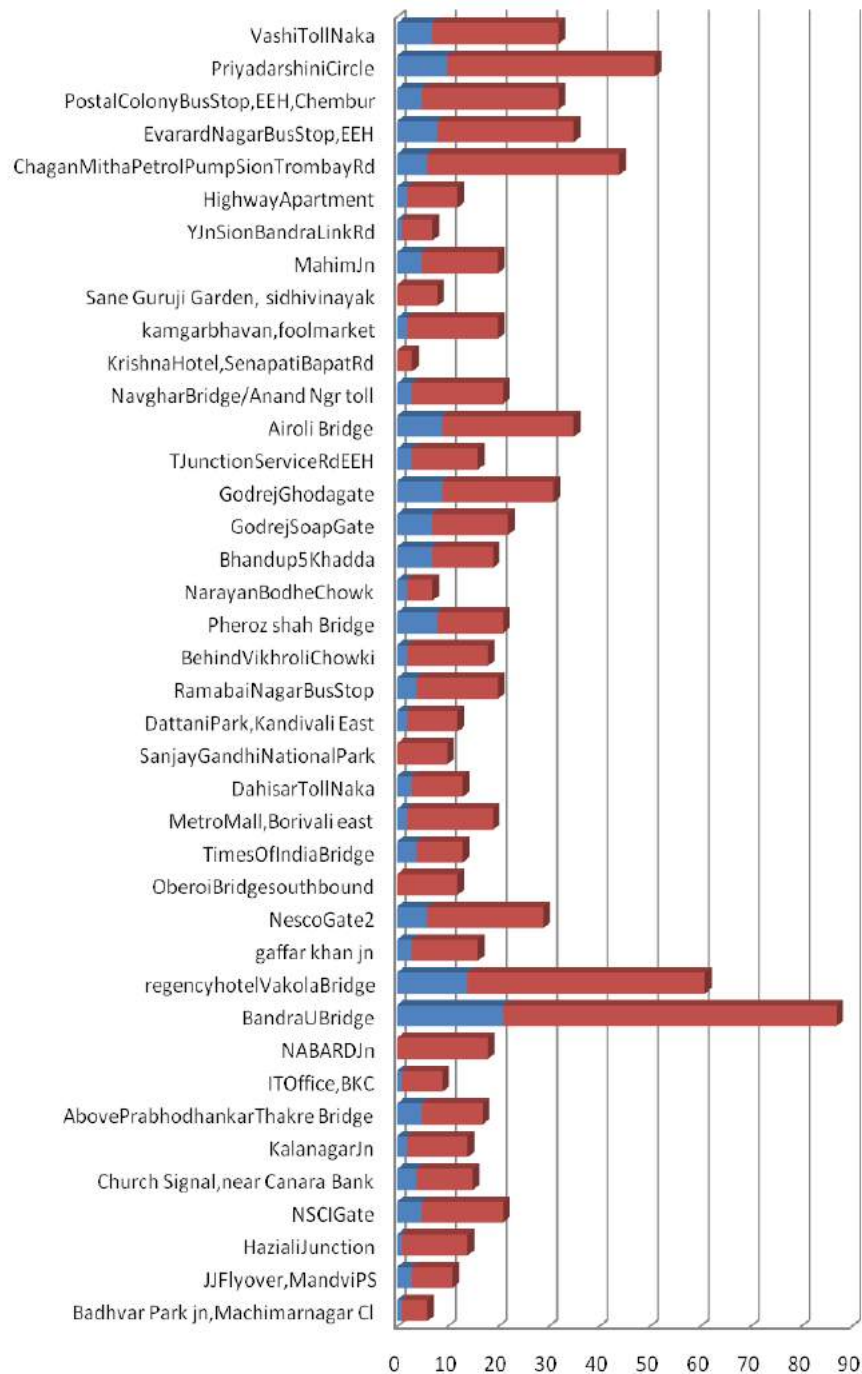
TOTAL ACCIDENTS 2016-2018

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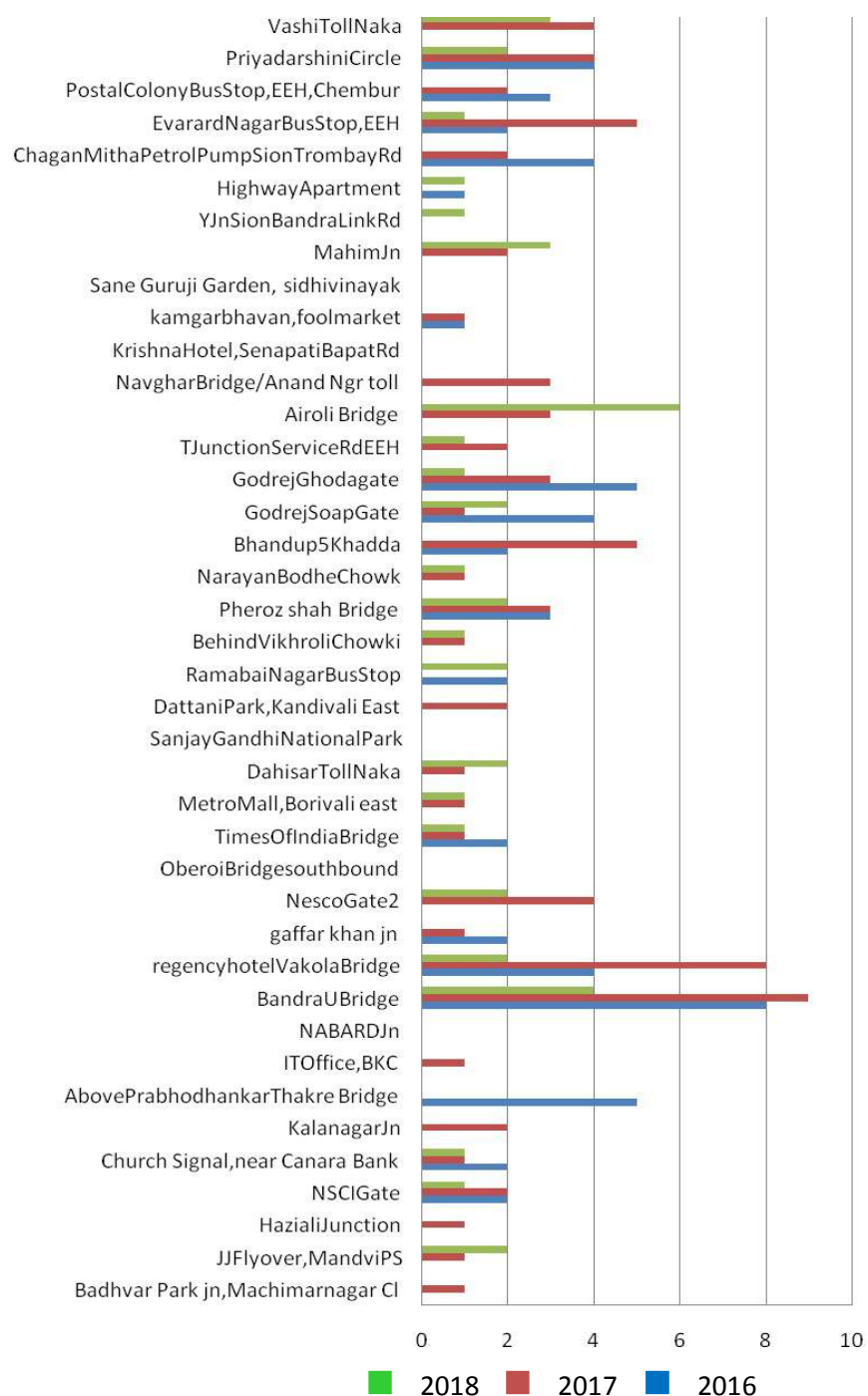
YEARWISE FATAL ACCIDENTS YEARS 2016-2018
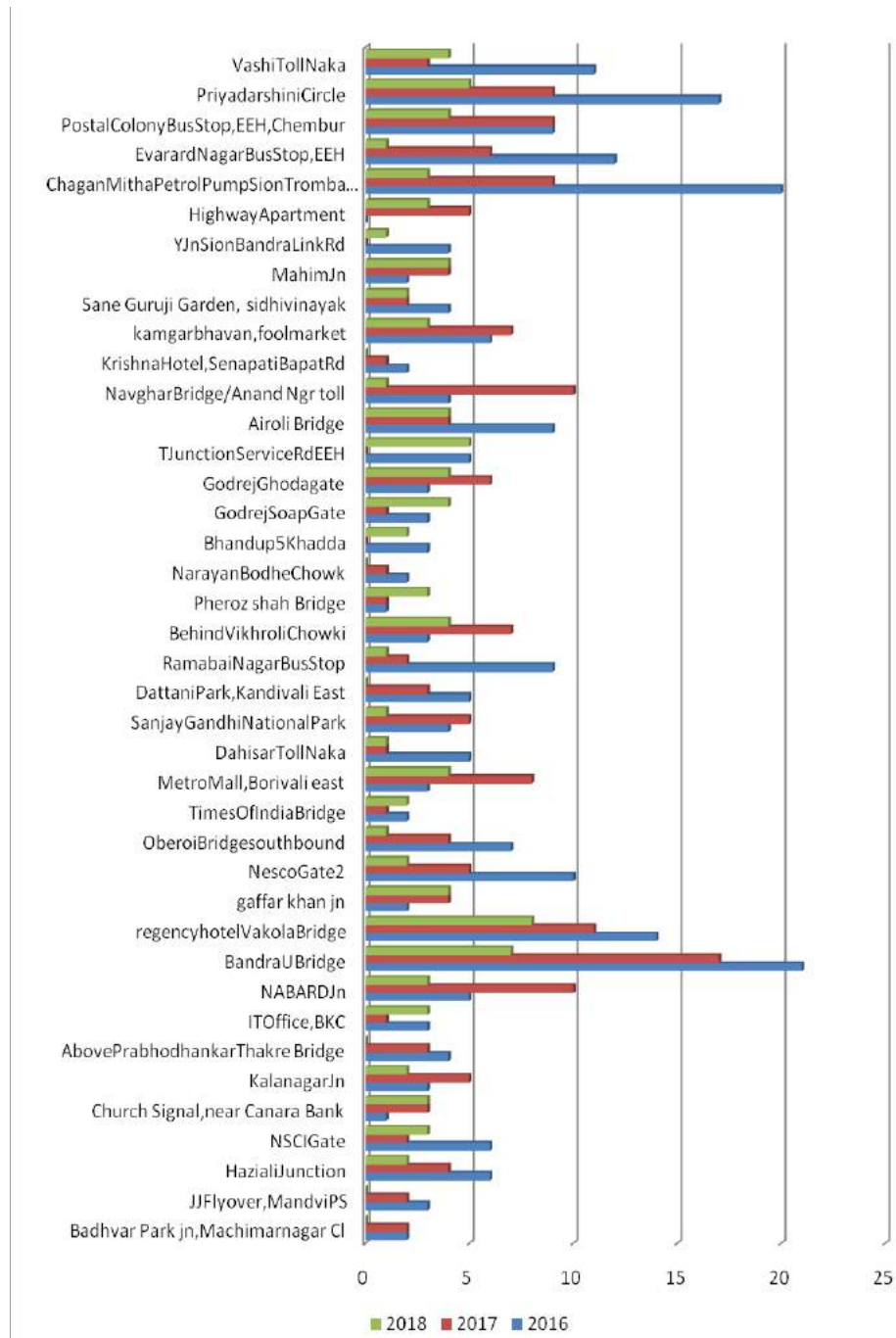
YEARWISE GRIEVOUS INJURY ACCIDENTS 2016-2018

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DAY TIME ACCIDENTS

Accidents at Black Spots taken for analysis were categorised with inputs from the Traffic Enforcement Staff, Police Station data and Crash Analysis data. It is observed that accidents during day time were occurring at the following 7 black spots.

- Badhwar Park Jn., Machhimar Nagar Colony
- Haji Ali Jn.
- Gaffarkhan Jn.
- Nesco Gate No. 2
- Metro Mall, Borivali East
- Dattani Park, Kandivali East
- Krishna Hotel, SenapatiBapatMarg

DAY TIME ACCIDENT

NIGHT TIME ACCIDENTS

Accidents at Black Spots taken for analysis were categorised with inputs from the Traffic Enforcement Staff, Police Station data and Crash Analysis data. It is observed that accidents during night time were occurring at the following 24 black spots.

- Sir J.J.Flyover, Mandvi Police Station
- NSCI Gate
- Bandra 'U' Bridge
- Regency Hotel, Vakola Bridge
- Oberoi Bridge, South Bound
- Times of India Bridge
- Ramabai Nagar Bus Stop
- Behind VikhroliChowky
- Pherozeshah Bridge
- Narayan BodheChowk
- Bhandup 5 Khadda
- Godrej Soap Gate
- Godrej Ghoda Gate
- 'T' Jn. Service Rd., EEH
- Airoli Bridge
- Navghar Bridge/ Anand Nagar Toll
- KamgarBhavan, Phool Market
- Sane Guruji Garden, Siddhivinayak
- Mahim Jn.
- 'Y' Jn., Sion-Bandra Link Rd.
- Highway Apartment
- ChhaganMitha Petrol Pump, Sion-Trombay Rd.
- Everard Nagar Bus Stop, EEH

- Postal Colony Bus Stop, EEH, Chembur

NIGHT TIME ACCIDENT

DAY/ NIGHT TIME ACCIDENTS

At the following 9 black spots accidents were occurring both during day and night hours;

- Church signal near Canara Bank
- Kalanagar Jn.
- Above Prabodhankar Thackeray Bridge
- IT Office, BKC
- NABARD Jn.
- Dahisar Toll Naka
- Sanjay Gandhi National Park
- Priyadarshini Circle
- Vashi Toll Naka

It may be seen from the above that most of the black spots are concentrated on suburban areas in Greater Mumbai and the highways such as the Eastern Express Highway, Western Express Highway, Sion-Panvel Road, Flyovers at Sir J.J.Hospital area, Mahim Interchange area etc. This is due to the fact that over speeding happens at these locations especially at night hours and a carriageway is reasonably wide. Occasionally racing activities by young bikers, drink driving etc. is also found to be another reason and cause for fatal accidents. This information is helpful in deployment of manpower at these black spots and deploying nakabandi/ DD action etc.

The top 12 black spots of Greater Mumbai in the last 3 years are listed below;

Number of accidents in the years 2016,2017 & 2018

Sr. No.	Name of the Location	Non fatal Accidents	Fatal Accidents
1.	Bandra 'U' Bridge	66	21
2.	Regency Hotel, Vakola Bridge	47	14
3.	Priyadarshini Circle	41	10
4.	Godrej Ghoda Gate	22	9
5.	Airoli Bridge	26	9
6.	Pherozeshah Bridge	8	8
7.	Everard Nagar Bus Stop, EEH	27	8
8.	Bhandup 5 Khadda	7	7
9.	Godrej Soap Gate	7	7
10.	Vashi Toll Naka	25	7
11.	ChhaganMitha Petrol Pump, Sion-Trombay Rd.	38	0
12.	NESCO Gate No.2	23	0

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OBSERVATIONS

Age Group of accident victims

It is found that most of the victims in accidents were the age group of 18 to 45 years. This is due to adventurous nature of the young citizens, especially two-wheeler riders who tend to over speed and occasionally drink drive.
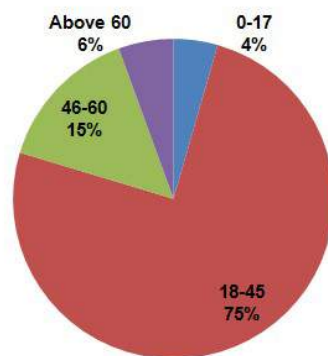
AGE GROUP OF ACCIDENT VICTIMS

Type of vehicles

At most of the black spots, two-wheeler riders and pedestrians were involved in accidents. Pillion riders were also involved. In general, it is observed that most of them do not use helmet at all.

Pedestrians

Pedestrians mostly get involved due to jay-walking, not using zebra crossings, sub-ways, foot over bridges. The younger generation are also getting involved due to usage of mobiles, texting etc. while crossing the road, walking on footpath where occasionally bikers ride to avoid traffic congestion on the carriageway. Lack of safe crossing facilities such as zebra crossings, signal lights, sub-ways and foot-over bridges was making them vulnerable. It may be noted that approximately 50% accidents in Greater Mumbai involved pedestrians who were the victims. Lack of footpaths with sufficient width and without encroachments were also the reasonfor pedestrians to walk on the carriageways and so exposed to vehicular traffic.

JAYWALKING

It was found that at 70% of the locations pedestrian zebra crossings are not marked and even at signalized pedestrian crossings only 35% were properly timed. Only 35% of the black spots had skywalks or subways. Skywalks were not patronized due to almost 44 steps to climb and long distance for entering them. Pedestrians were also found to be using the carriageways of the flyovers where they are prohibited. Footpath widths were found to be varying between 0 and 2 Meters which is narrow for the pedestrians using it.

Enforcement Actions

The only alternative left to the police other than continuously coordinating with infrastructure agencies is to enforce the traffic rules and regulations and ensure discipline on the roads which will lead to better management of traffic flow. In order to ensure safety and quick redressal of the problems at the black spots, several actions such as deployment of policemen especially at night hours, installation of cameras for surveillance, installation of ANPR cameras for speed detection, personnel with breath analyser instruments, personnel with e-challan handsets, LED batons, reflective jackets, barricades and other general equipments such as two wheelers for riders etc. are provided.

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It is observed that less than 250 challans were done in a year at following 21 Black- spots;

Sr.No.		No. of E-Challan
1	Badhvar Park Jn., Machhimar Nagar Colony	127
2	Haji Ali Junction	0
3	NSCI Gate	96
4	Church Signal, Near Canara Bank	0
5	Above Prabodhankar Thackeray Bridge	9
6	NABARD Jn.	215
7	Bandra 'U' Bridge	24
8	Metro Mall, Borivali East	212
9	Dattani Park, Kandivali East	61
10	Ramabai Nagar Bus Stop	193
11	Behind VikhroliChowky	0
12	Pherozshah Bridge	0
13	Narayan BodheChowk	0
14	Bhandup 5 Khadda	78
15	Godrej Ghoda Gate	12
16	'T' Junction Service Rd. EEH	3
17	Airoli Bridge	0
18	Everard Nagar Bus Stop, EEH	232
19	Postal Colony Bus Stop, EEH, Chembur	110
20	Priyadarshini Circle	86
21	Vashi Toll Naka	1

OTHER FACTORS (ROAD ENGINEERING, HUMAN FACTORS ETC.)

Encroachments

At several locations even though there were footpaths and wide carriageways the same were not available for optimal use for traffic due to encroachments on the footpath and sometimes even on the carriageways. This promotes jaywalking as the pedestrians are forced to spill over on the carriageway which results in potential conflicts, haphazard crossings and accidents.

On an average 12.5% of the footpaths and carriageways were found encroached at these black spots under study. 6 black spots had no footpaths, 11 black spots less than 1 Meter, 16 between 1 and 2 Meters, 4 black spots between 2 and 3 Meters and 1 black spot had between 3 and 4 Meters and 2 black spots had footpath width between 4 and 5 Meters.

Encroachment on footpaths of road was found at the following 5 Black spots

Sr. No.	Encroachment Present on Footpath	Percentage
1	Dahisar Toll Naka	
2	Sanjay Gandhi National Park	
3	Ramabai Nagar Bus Stop	12.50%
4	Mahim Jn.	
5	'Y' Jn. Sion-Bandra Link Rd.	
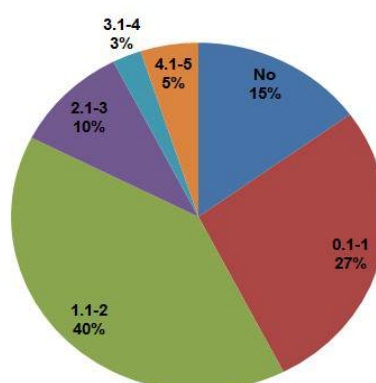
WIDTH OF FOOTPATH AT BLACKSPOTS (IN METERS)

12 black spots have zebra crossings, 13 black spots had either subway or skywalk, 34 black spots had footpaths and 14 black spots were equipped with pedestrian signals.
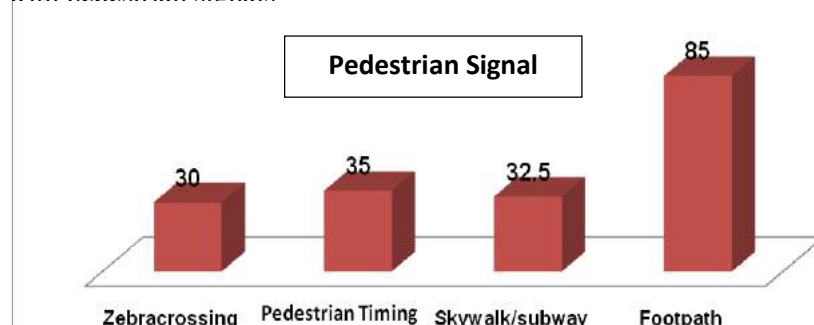
PERCENTAGE OF PEDESTRIAN AMENITIES AT THE BLACKSPOTS

Dr. Saurabh Tripathi, IPS & Dr. Shankar Vishwanath

Poor lighting

Lack of visibility due to poor lighting and glare caused by headlights of vehicles was found to be another reason for accidents. Pedestrians, cyclists and two wheeler riders not using reflective material especially where lighting is poor were victims.

POOR STREET LIGHTING

Traffic Signals

Traffic signals at intersections are generally kept on flasher mode in night hours with red flash on minor roads and amber flash on major roads. Motorists who travel at high speeds and sometimes drink and drive do not obey these indications and slow down. This leads to collisions of vehicles coming from major and minor roads at the intersections. Turning traffic especially two wheelers, cyclists and pedestrians misjudge a speed of oncoming vehicle on the major roads and get involved.

Red light violation at intersections by negligent drivers even during day time has also resulted in accidents.

TRAFFIC SIGNALS

Road Conditions

At some of the locations the road surface was uneven, smoother than friction required, displaced paver blocks etc. This has resulted in vehicles suddenly slowing down and rear end collisions occurred. In case the preceding vehicle was a two wheeler the accidents were severe and fatal.

DISPLACED PAVER BLOCKS

Basic requirements is structurally strong roadway, shoulder, geometric designs of horizontal and vertical curves, intersection designs with channelisers etc. Well-designed bridges, proper visibility in all weather conditions needs to be ensured by the infrastructure providers like MCGM, PWD, MSRDC, MMRDA, Railways, Metro Rail and others. Lack of such actions at these black spots has also been a reason. The traffic police are co-ordinating with these agencies to the best possible extent.

Traffic Signs and Markings

It is also imperative on the part of infrastructure agencies to provide appropriate traffic signs, lane markings, arrows, bus-lanes, pedestrian crossings etc. so as to ensure discipline and safety on the roads. Enforcement can be successful only if these are regularly upgraded and properly maintained by them. One of the reasons for black spots is lack of these activities.

Speedbreakers

At several locations when accident occurs, there is tendency to install speedbreakers on the carriageway by the infrastructure agencies. However, the same is mostly not constructed as per IRC guidelines etc. with proper slopes and leveling etc. These speed breakers are also not painted as per the guidelines in black and white squares on the top. Even if they are painted then in diagonal stripes etc. The same is not maintained and the painting gets faded away soon enough. This results in lack of visibility and potential

hazards especially in night hours. It is observed that two wheeler riders become victims of such speedbreakers.

SPEED BREAKER NOT PAINTED

Presence of Pedestrian Amenities

Sr. No.	Pedestrian Amenities	No. of Black spots	%age
1	Zebra Crossing	12	30
2	Pedestrian Timing	14	35
3	Skywalk/Subway	13	32.5
4	Footpath	34	85

Width of footpath observed at Black spots (in Meters)

Sr. No.	Footpath Width (in Meters)	No. of Black spots
1	No	6
2	0.1-1	11
3	1.1-2	16
4	2.1-3	4
5	3.1-4	1
6	4.1-5	2

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POLICE PERSONNEL ON ENFORCEMENT DRIVE

Several studies have established the fact that enforcement action not only at the black spot but also on a complete stretch of road on either side of the black spot results in reduction of accidents.

All the 40 Black spots listed above were checked for various enforcement actions using digital ticketing (challaning) system within 100 Meter stretch on the road approaches to the spot taken from official database of the traffic police. It was found that enforcement was very minimal at certain spots and needs to be strengthened. The analysis for the reason for the lack of enforcement was found to be heavy traffic volume in peak hours which compelled the manpower to concentrate more on regulation of traffic than enforcement. Also shortage of staff during night hours was another cause for lack of enforcement. The only alternative was to leverage technology for enforcement such as speed cameras, CCTV challans, focusing on Red Light Violation Detection, not wearing Helmets, Over speeding, lane cutting and not wearing seat belts etc.

Drink and Drive Enforcement Spots

Drink and drive is recognized world over as major cause of accidents and can be reduced only by strict enforcement. Apart from random enforcement at various places it is essential to understand and prioritize this enforcement near accident prone areas. Thus the survey contained usual places of

establishing Drink and Drive Test through a breath analyser as screening test and its distance from the black spot.

It was found that 14 black spots didn't have any DD spots deployed near them. The average distance of such spots from black spots was 829.23 Meter.

It was found that 14 Black spots mentioned below didn't have any Drink & Drive spots deployed near them:\

1. Sir J.J.Flyover, Mandvi Police Station
2. Gaffarkhan Jn.
3. Metro Mall, Borivali East
4. Ramabai Nagar Bus Stop
5. BehindVikhroliChowky
6. Pherozeshah Bridge
7. Narayan BodheChowk
8. Bhandup 5 Khadda
9. Godrej Soap Gate
10. Godrej Ghoda Gate
11. 'T' Jn., Service Rd., EEH
12. Navghar Bridge/ Anand Nagar Toll
13. Sane Guruji Garden, Siddhivinayak Jn.
14. 'Y' Jn., Sion-Bandra Link Rd.

BREATH ANALYSER TEST DONE BY TRAFFIC POLICE

Dr. Saurabh Tripathi, IPS & Dr. Shankar Vishwanath

CCTV /Speed Cameras

CCTV cameras and speed cameras are major technological intervention to monitor traffic movement as well as help in enforcement. Where present the distance of CCTV camera from black spot was also calculated and it's seen that usefulness of such CCTV cameras depend on their picture clarity - resolution, distance from spot and orientation. Total 44% CCTV cameras were within 200m of black spots and if count is taken to 500m radius then it stands at more than 90% black spots where CCTV is available. Thus the coverage is good but their orientation, quality and focus should be done properly.
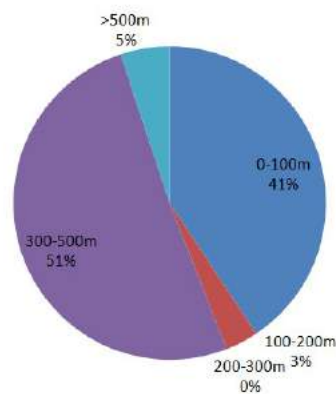
DISTANCE OF CCTV CAMERAS FROM BLACKSPOTS

At the following 11 Black spots CCTV cameras were not found:

1. Sir J.J. Flyover, Mandvi Police Station

2. Church signal, near Canara Bank

3. Sanjay Gandhi National Park

4. Dattani Park, Kandivali East

5. BehindVikhroliChowky

6. Pherozeshah Bridge

7. Bhandup 5 Khadda

8. Godrej Soap Gate

9. Navghar Bridge/ Anand Nagar Toll

10. Sane Guruji Garden, Siddhivinayak

11. Highway Apartment

Number of Traffic Police and Police Station Personnel deployed in Day Time at following 40 Black spots

Day Time Deployment of Police Personnel			
Sr. No.	Name of Black Spot	No. of Traffic Police	No. of Police Station Staff
1	Badhvar Park Jn., Machhimar Nagar Colony	2	1
2	Sir JJFlyover, Mandvi PS	4	4
3	Haji Ali Junction	4	4
4	NSCI Gate	0	0
5	Church Signal, near Canara Bank	0	0
6	Kalanagar Jn.	2	0
7	Above Prabodhankar Thackeray Bridge	2	0
8	IT Office, BKC	2	0
9	NABARD Jn.	1	0
10	Bandra 'U' Bridge	0	0
11	Regency Hotel Vakola Bridge	3	0
12	Gaffarkhanjn.	2	0
13	Nesco Gate 2	2	0
14	Oberoi Bridge South Bound	6	0
15	Times Of India Bridge	2	0
16	Metro Mall, Borivali East	1	0
17	Dahisar Toll Naka	0	3
18	Sanjay Gandhi National Park	4	4
19	Dattani Park, Kandivali East	1	0
20	Ramabai Nagar BusStop	2	2
21	Behind VikhroliChowky	2	0
22	Pherozshah Bridge	2	0
23	Narayan BodheChowk	2	2

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Day Time Deployment of Police Personnel			
Sr. No.	Name of Black Spot	No. of Traffic Police	No. of Police Station Staff
24	Bhandup 5 Khadda	2	0
25	Godrej Soap Gate	2	2
26	Godrej Ghoda Gate	2	0
27	'T' Junction Service Rd EEH	2	2
28	Airoli Bridge	6	3
29	Navghar Bridge/AnandNgr Toll	8	3
30	Krishna Hotel, SenapatiBapat Rd.	2	0
31	KamgarBhavan,Phool Market	2	0
32	Sane Guruji Garden, Siddhivinayak	6	4
33	Mahim Jn.	4	0
34	'Y' Jn. Sion-Bandra Link Rd.	4	0
35	Highway Apartment	2	0
36	ChhaganMitha Petrol Pump Sion-Trombay Rd.	4	0
37	Everard Nagar Bus Stop, EEH	1	0
38	Postal Colony Bus Stop, EEH, Chembur	0	0
39	Priyadarshini Circle	1	0
40	Vashi Toll Naka	4	3
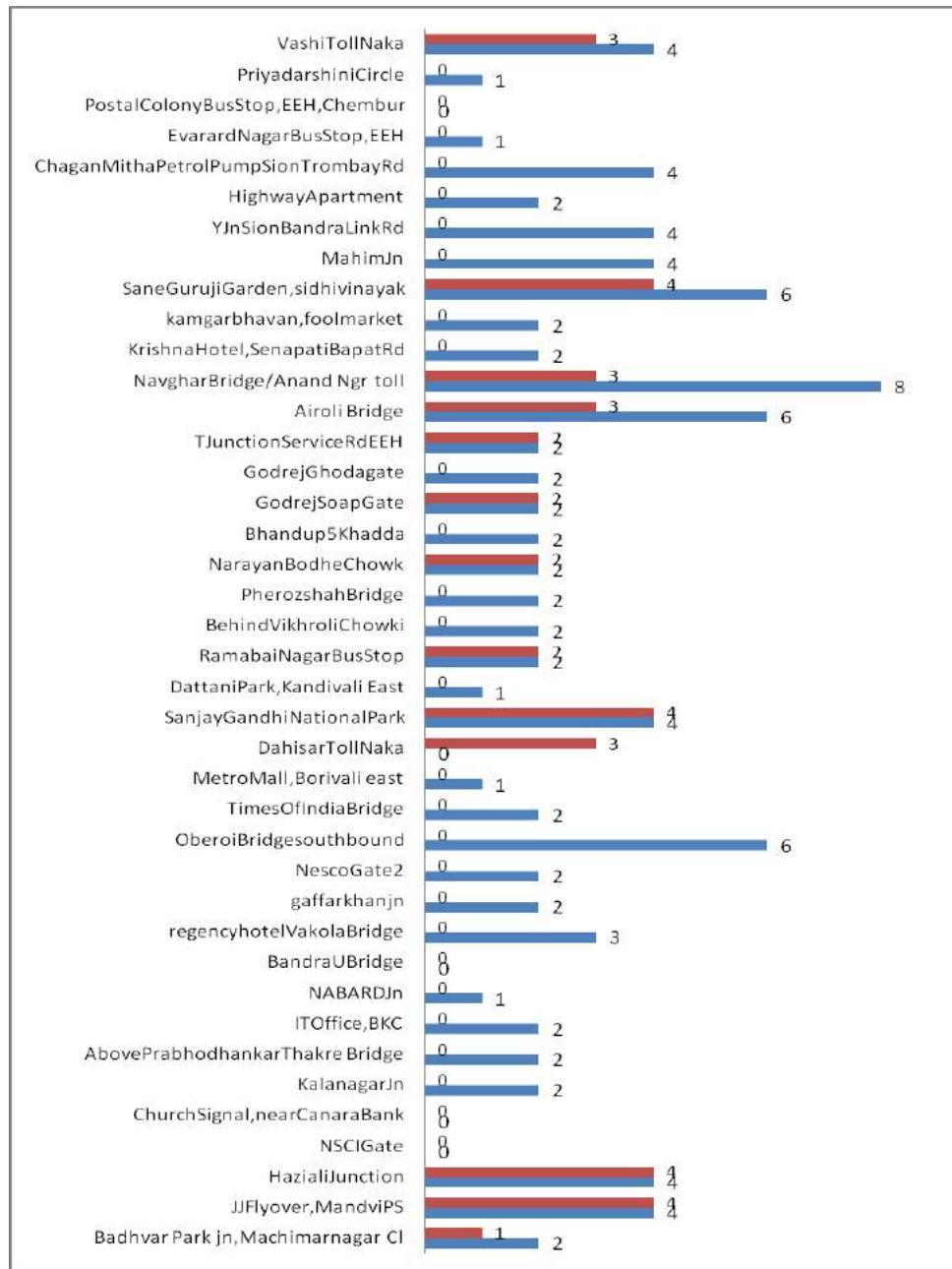
DAY TIME DEPLOYMENT

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**Number of Traffic Police and Police Station Personnel deployed in Night Time at following 40 Black spots**

Sr. No.	Black spot Name	No. of Traffic Police	No. of Police Station Staff
	Night Time Deployment of Police Personnel		
1	Badhvar Park Jn., Machhimar Nagar Colony	0	0
2	Sir JJ Flyover, Mandvi PS	2	2
3	Haji Ali Junction	0	3
4	NSCI Gate	0	0
5	Church Signal, Near Canara Bank	0	0
6	Kalanagar Jn.	1	0
7	Above Prabodhankar Thackeray Bridge	1	0
8	IT Office, BKC	1	0
9	NABARD Jn.	0	0
10	Bandra 'U' Bridge	0	0
11	Regency Hotel Vakola Bridge	1	0
12	Gaffarkhan Jn.	0	0
13	Nesco Gate 2	0	0
14	Oberoi Bridge South Bound	0	0
15	Times Of India Bridge	0	0
16	Metro Mall, Borivali East	0	0
17	Dahisar Toll Naka	0	3
18	Sanjay Gandhi National Park	0	0
19	Dattani Park, Kandivali East	0	0
20	Ramabai Nagar BusStop	0	2
21	Behind VikhroliChowky	0	0
22	Pherozshah Bridge	0	0
23	Narayan BodheChowk	0	2

Night Time Deployment of Police Personnel			
Sr. No.	Black spot Name	No. of Traffic Police	No. of Police Station Staff
24	Bhandup 5 Khadda	0	0
25	Godrej Soap Gate	0	2
26	Godrej Ghoda Gate	0	0
27	'T' Junction Service Rd EEH	0	2
28	Airoli Bridge	0	3
29	Navghar Bridge/AnandNgr Toll	0	3
30	Krishna Hotel, SenapatiBapat Rd.	0	0
31	KamgarBhavan, Phool Market	1	1
32	Sane GurujiGarden,Siddhivinayak	0	0
33	Mahim Jn.	0	0
34	'Y' Jn. Sion-Bandra Link Rd.	0	0
35	Highway Apartment	0	0
36	ChhaganMitha Petrol Pump, Sion-Trombay Rd.	0	0
37	Evarard Nagar Bus Stop, EEH	0	0
38	Postal Colony Bus Stop,EEH, Chembur	0	0
39	Priyadarshini Circle	0	0
40	Vashi Toll Naka	2	3
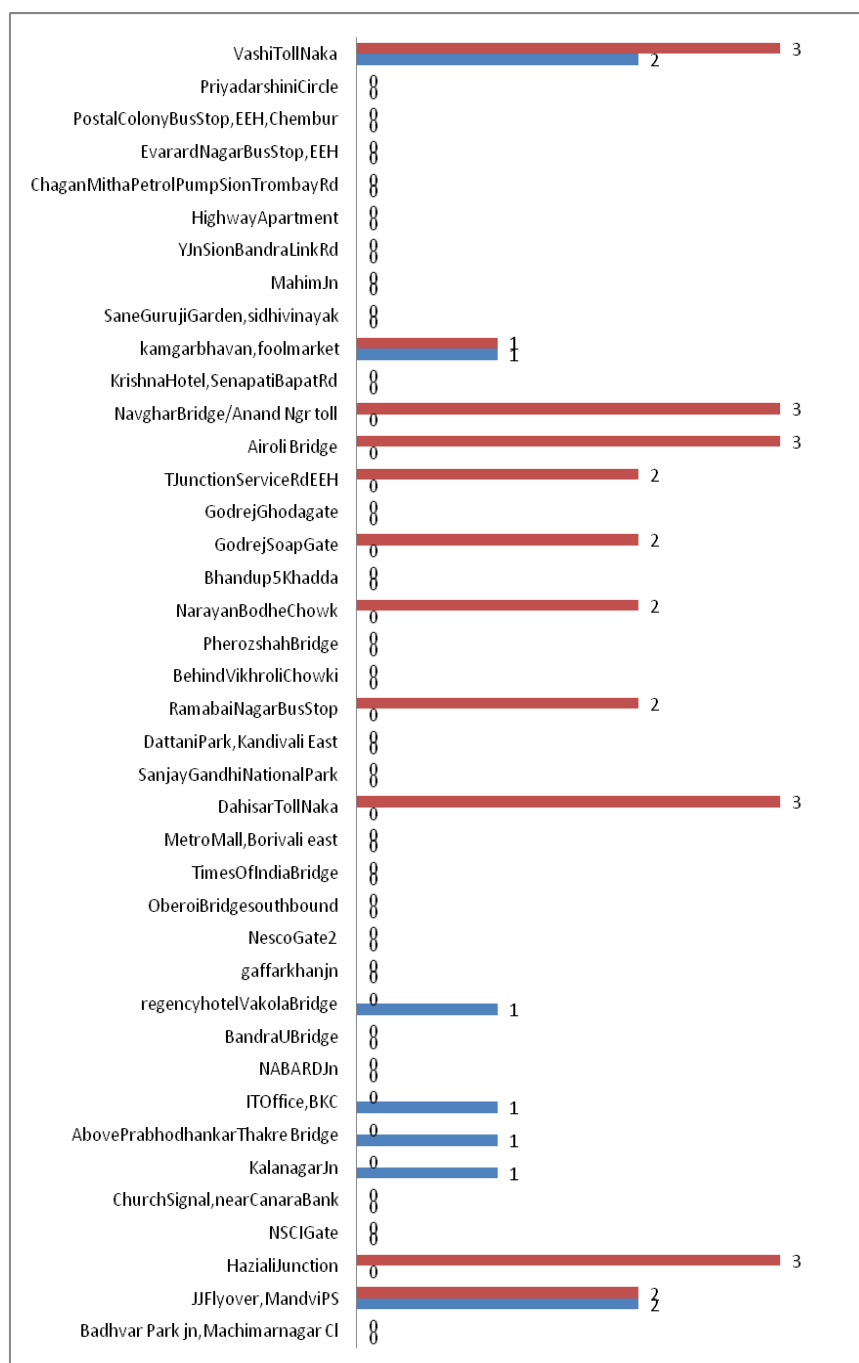
NIGHT TIME DEPLOYMENT

Sr. No.	BLACK SPOT NAME	TRAUMA HOSPITAL			
		HOSPITAL NAME	DISTANCE (in Mtrs.)	TIME PEAK HR.	TIME NON-PEAK HR.
1	Badhvar Park Jn., Machhimar Nagar Colony	G.T.Hospital	3800	20	19
2	Sir JJFlyover, Mandvi PS	Sir J.J.Hospital	800	7	5
3	Haji Ali Jn.	Nair Hospital	2300	14	8
4	NSCI Gate	Nair Hospital	3800	29	9
5	Church Signal, near Canara Bank	KEM Hospital	1500	15	11
6	Kalanagar Jn.	Asian Heart Hospital	800	7	6
7	Above Prabodhankar Thackeray Bridge	Asian Heart Hospital	800	15	3
8	IT Office, BKC	Asian Heart Hospital	50	3	1
9	NABARD Jn.	Bhabha Hospital	1000	13	13
10	Bandra 'U' Bridge	V.N.Desai Hospital	700	2	1
11	Regency Hotel Vakola Bridge	Nair Hospital	6000	27	17
12	Gaffarkhan Jn.	Balasaheb Thackeray Hospital	1500	8	5
13	NESCO Gate 2	Balasaheb Thackeray Hospital	4000	9	7
14	Oberoi Bridge South Bound	Balasaheb Thackeray Hospital	6000	18	17
15	Times Of India Bridge	Shatabdi Hospital	3000	16	12
16	Metro Mall, Borivali East	Shatabdi Hospital	6000	21	19
17	Dahisar Toll Naka	Shatabdi Hospital	5000	18	14

Sr. No.	BLACK SPOT NAME	TRAUMA HOSPITAL			
		HOSPITAL NAME	DISTANCE (in Mtrs.)	TIME PEAK HR.	TIME NON-PEAK HR.
18	Sanjay Gandhi National Park	Shatabdi Hospital	4000	25	15
19	Dattani Park, Kandivali East	Rajawadi Hospital	1500	10	9
20	Ramabai Nagar BusStop	Godrej Hospital	1000	13	7
21	Behind VikhroliChowky	Godrej Hospital	1500	7	6
22	Pherozshah Bridge	Godrej Hospital	500	5	3
23	Narayan BodheChowk	Godrej Hospital	400	6	5
24	Bhandup 5 Khadda	Godrej Hospital	4000	6	1
25	Godrej Soap Gate	Godrej Hospital	200	1	10
26	Godrej Ghoda Gate	Godrej Hospital	200	14	12
27	'T' Junction Service Rd EEH	Fortis Hospital	2000	19	8
28	Airoli Bridge	Fortis Hospital	2000	8	5
29	Navghar Bridge/AnandNgr Toll	Fortis Hospital	4000	15	10
30	Krishna Hotel, SenapatiBapat Rd.	KEM Hospital	3000	27	11
31	KamgarBhavan,Phool Market	KEM Hospital	1000	15	11
32	Sane Guruji Garden, Siddhivinayak	Hinduja Hospital	1500	15	10
33	Mahim Jn.	Rajawadi Hospital	2700	13	12
34	'Y' Jn. Sion-Bandra Link Rd.	Sion Hospital	3400	14	10
35	Highway Apartment	Rajawadi Hospital	5000	29	25
36	ChhaganMitha Petrol	Sion Hospital	5400	12	11

Sr. No.	BLACK SPOT NAME	TRAUMA HOSPITAL			
		HOSPITAL NAME	DISTANCE (in Mtrs.)	TIME PEAK HR.	TIME NON-PEAK HR.
	Pump, Sion-Trombay Rd.				
37	Everard Nagar Bus Stop, EEH	Sion Hospital	3500	10	10
38	Postal Colony Bus Stop,EEH,Chembur	Rajawadi Hospital	2700	13	12
39	Priyadarshini Circle	Sion Hospital	3400	14	10
40	Vashi Toll Naka	Rajawadi Hospital	5000	29	25

BLACKSPOTS/ NEAREST TRAUMA HOSPITALS & DISTANCES

LEGEND:
- Trauma Care Hospital

TRAUMA HOSPITALS NEAR BLACKSPOTS IN GR. MUMBAI

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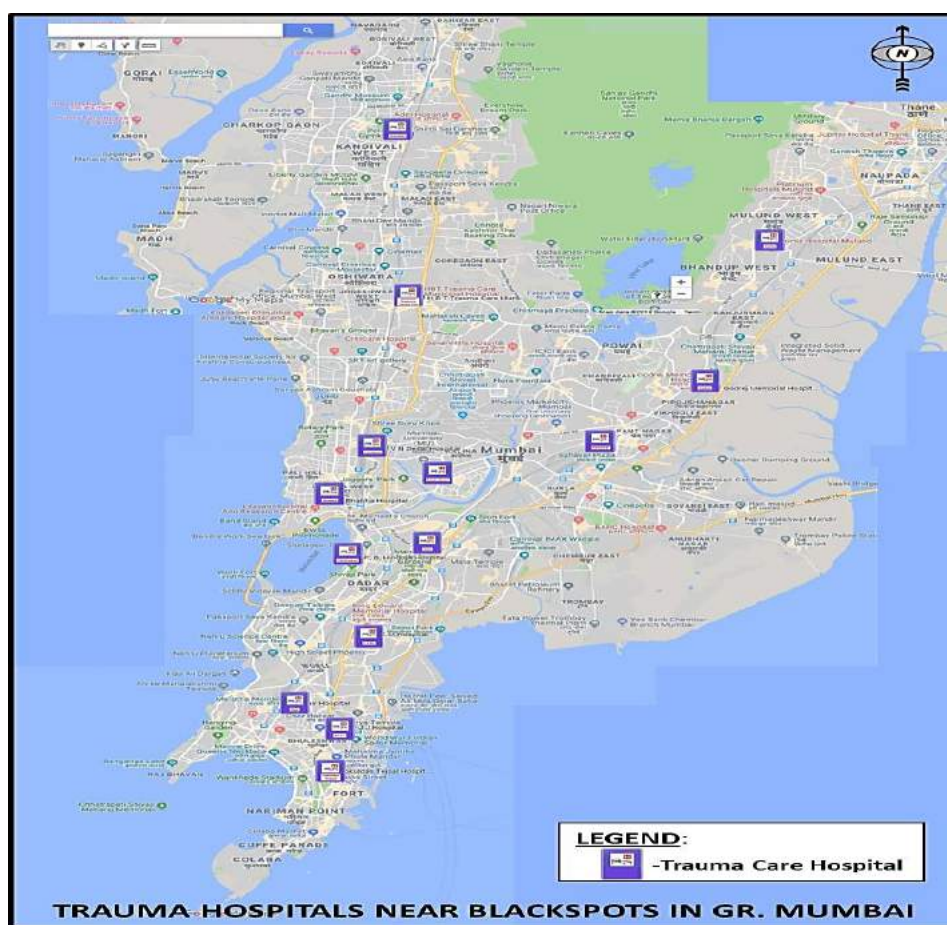
Distance observed of Trauma Hospitals from Black spots

| Sr. No.	Distance from Black Spots	No. of Black Spots
1	0-0.5km	5
2	0.5-1.0km	7
3	1-1.5km	8
4	1.5-2km	0
5	2-2.5km	3
6	2.5-3km	4
7	>3km	13
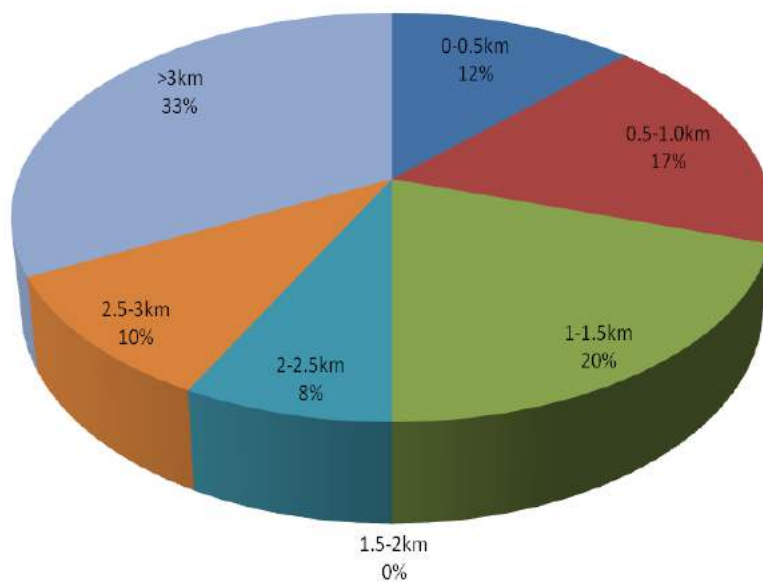
DISTANCE OF TRAUMA HOSPITALS FROM BLACK SPOTS

The average distance of trauma hospital where victims are actually taken is 2.49 Km. which is high in a city with high density of hospitals. The average time taken in peak hours is 13.58 minutes and nonpeak hour stands at9.83 minutes.

Thus as per the locations where distance is more and time taken is also high priorities to ambulance may be given and stationing of vans with emergency specialty care may be provided in vicinity to save lives and utilize the golden hour. Also the availability of trauma hospital more close to black spots and conducive in medicolegal formalities may be considered while shifting patients after crash.

Enforcement Action ON Traffic violations through Echallan

Its agreed upon in many studies that enforcement action not only at the spot but at complete stretch helps reduce the accidents. All the 40 spots were checked for various enforcement actions using digital challaning system within 100 m radius of the spot taken from official database of Traffic Police. It was found that at few junctions the enforcement was very less and it needs to be improved. The reason of less enforcement action is possibly the heavy traffic in peak hours which may lead to more of regulation than enforcement by the manpower available and absence of staff in night due to shortage. Solution is in strategic physical enforcement as well as technological enforcement like speed cameras and CCTV challans with focus on particular actions like Red Light Violation Detection, Helmet actions, Over speeding, Lane Breaking and Seat Belt actions etc.
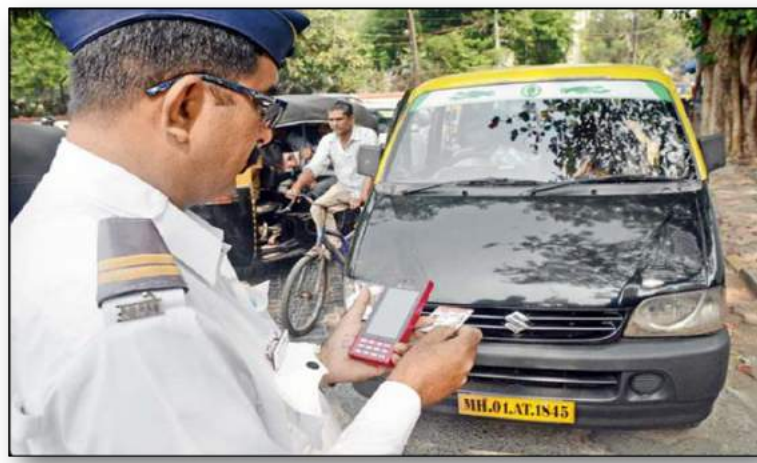

ENFORCEMENT USING E-CHALLAN

Dr. Saurabh Tripathi, IPS & Dr. Shankar Vishwanath

NARROW FOOTPATH & PARKING

Common reasons causing accidents:

SR. NO.	REASON	NO. OF BLACKSPOTS	%AGE
1	Divider Problem	10	25%
2	Over Speeding	40	100%
3	Pedestrian Crossing	15	37.5%
4	Sharp Turn	6	15%
5	Sudden Turn	12	30%
6	Construction/ Road Repairs	2	5%
7	Lane Merging	2	5%
8	Narrow Road	2	5%
9	Absence of Guarding Rail	2	5%
10	Overtaking	19	47.5%
11	Reflectors	10	25%
12	Uneven Road	8	20%
13	Blind Angle	1	2.5%
14	Mechanical Failure	3	7.5%

- Percentage of Black Spots
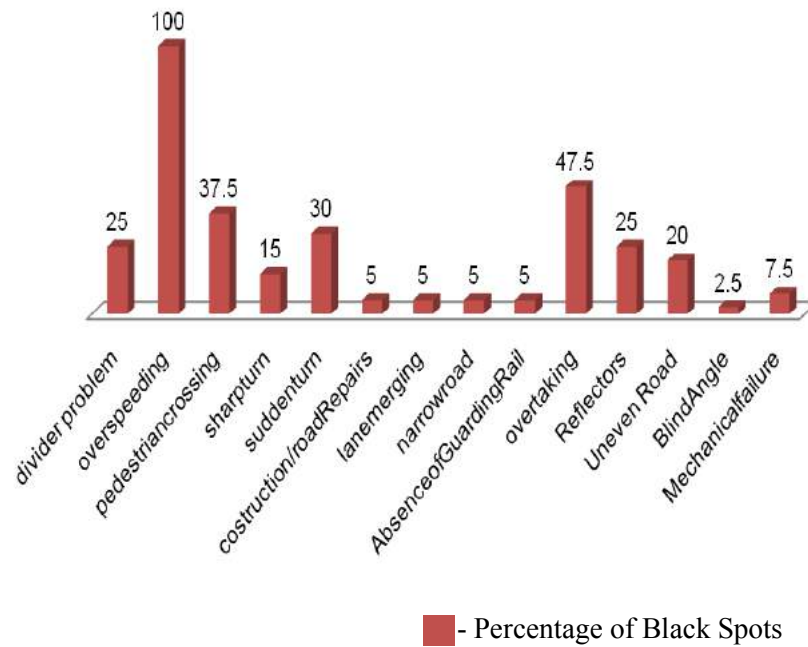
REASONS FOR ACCIDENT
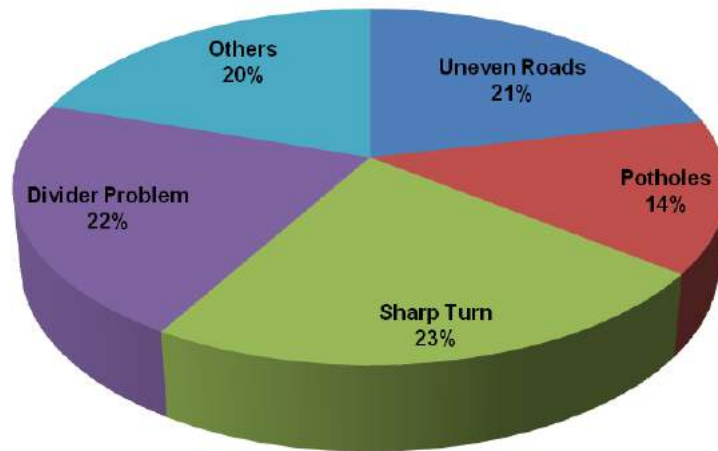
ROAD ENGINEERING DEFECTS
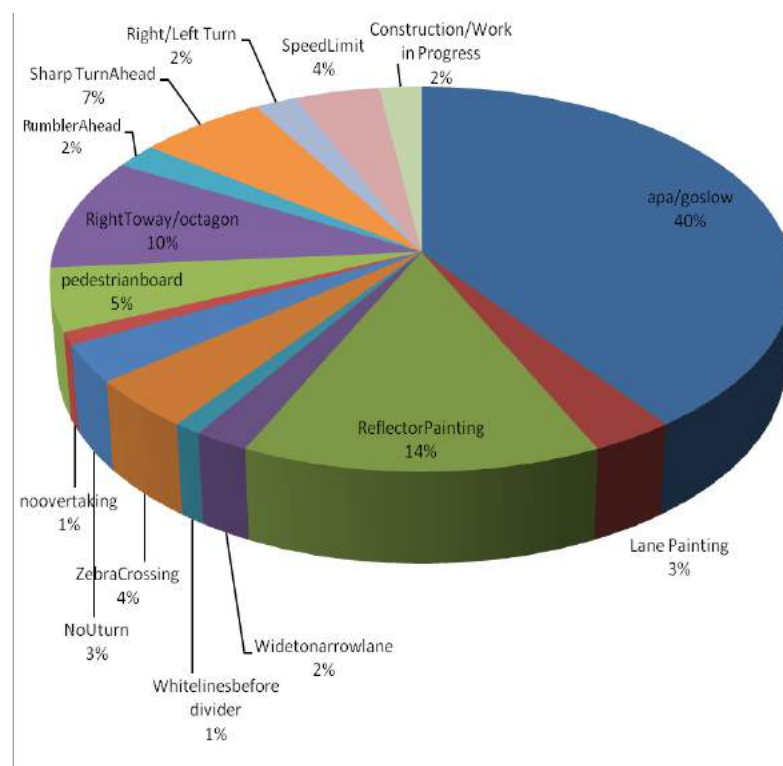
LACK OF ROAD SIGNAGES

Conclusion

It is observed that fatal accidents were involving pedestrians and bikers mostly.

The pedestrians should be provided with amenities like railings along footpath, at grades to have zebra crossings, traffic signals, subways and skywalks to segregate them, prevent vehicle-pedestrian conflicts and ensure their safety. Rules of the Road Regulations to be widely publicised and Road Safety Patrol programs in the schools, traffic guides and wardens at critical places to be stationed for helping especially the elderly and handicapped pedestrians.

More fatal and grievous injury accidents occur in the corridors prone to very high speeds like the Eastern Express Highway and stretches of Western Express Highway at the far end of the city.

Most of the black spots are concentrated in the suburban areas of Mumbai, Eastern Express Highway, Western Express Highway. Enforcement actions need to be intensified along these road stretches.

Flyovers like Sir J.J.Flyover, Mahim Causeway 'U' turn ramp, Eastern Freeway are potential accident spots where accidents happen due to over speeding. All types of Cautionary Signs, Delineators, Rumblers, Catseyes etc. needs to be installed and maintained to ensure visibility and effective performance.

Black spots often are the result of drink drive habits of drivers especially in the night hours, weekends, holidays etc. Several times it is observed that the black spots are stretches of roads before the spot where high speeding occurs due to drunkenness or over confidence of the semi-conscious drivers. It is essential to identify these stretches which are on an average 800 Meters or even more. It is therefore necessary to get these stretches well lighted. Position traffic constables with reflective jackets, LED batons, breath analysers etc. in the whole stretch so that the drivers are identified much ahead of the nakabandi at the black spot at the same time ensuring the visibility and safety of the traffic police personnel. It is also necessary to equip the staff with tools for testing the consumption of psychoactive drugs like cannabis, cocaine, LSD etc. as various studies point out consumption of such drugs by the drivers not necessarily detected by breath analysers.

A test kit for screening shall be provided at few spots especially nearby bars and discos which is common in metro city like Mumbai. Also cannabis and Bhang are another form of such addiction for these neurotropic drugs common in drivers of rural India.

Alco Booths are being encouraged in Bars and Restaurants so that the driver can conduct a self-check on himself about the level of alcohol in his blood and avoid drink driving. This will ensure safety for himself and others on the road. He will also be provided with information regarding available Taxi details or drivers available on hire for safe driving.

Actions are being taken by the Traffic Control Branch, Mumbai Police in this connection.

Mostly the CCTV cameras are areal and don't help in focusing on number plates and that's the reason for poor enforcement at these points. These CCTV cameras also if well focused and with proper resolution help in accident reconstruction, thus improving investigation and accident analysis. Speed cameras are very limited in number and need to be put at fast moving

corridors like on Eastern Expressway after Amar Mahal Junction, Western Expressway after KandivaliEast, JVLRetc.Interceptor vehicles with speed guns and PTZ camera used for mobile enforcement may also prove beneficial and economic until more speed cameras are installed. They are mobile and can be randomly rotated near black spots. The orientation, quality and focus of the cameras needs to be more accurate and made efficient. Efforts are under way to increase the number of ANPR (Automatic Number Plate Reading) speed cameras which will record the number, time, location as well as the speed at which the vehicle was travelling so that an evidence will be available both the camera print and simultaneously the control room server at Traffic Police Head Quarters. The placement of these cameras to cover the stretches on the either side of the black spot to a distance of 500 to 1000 Meters is also being tried out.

CCTV CONTROL ROOM

Footpath widths should be increased at all places to uniform minimum width of 2 Meters or above and should also be provided with railings at the edges to segregate the pedestrians and guide them towards the authorized zebra crossings, subways, skywalks etc. This will ensure uninterrupted flow of vehicular traffic on carriageway as well as safety for the pedestrians. The Municipal Corporation of Greater Mumbai, MMRDA, PWD, MSRDC, MRCL and other infrastructure agencies are being persuaded by the Traffic

Control Branch to implement these pedestrian facilities including marking of zebra crossings and construction of grade separated pedestrian infrastructure especially at the black spots on priority basis.

Overall, studies in the world including Australia have revealed that in general fatality (human life) accounts for 80% of the accident cost while the remaining 20% of cost is accounted for hospital admission, medical treatment, property damage etc. Such a study for Indian conditions including Mumbai needs to be done.

The Transport Ministry is setting up an IT based system to capture accident data from across India. The system will have a mobile app than can send alerts to authorities for taking actions. The Ministry is also taking up other activities to design accident forms to get classified data for crash analysis including Engineering, Education, Enforcement, Environment and Emergency Response etc. Calculation of cost of accident based on economic criteria for Indian conditions is also taken up by the Transport Research Wing of Ministry of Road Transport and Highways (MORTH), Govt. of India. The Traffic Control Branch of the Mumbai Police will also follow these efforts and try and collect data in the appropriate format for future evaluations of black spot programs including the collection of data regarding a number of parameters such as traffic flow volumes, geometry and engineering deficiencies, environmental and other factors including emergency response. Pre-implementation studies about counter measures as well as post-implementation studies to study the effectiveness of these measures will be carried out regularly so that standards can be set for Mumbai in particular.

Directions from the Honorable Supreme Court Committee on Road Safety have already been taken cognizance of, by the Govt. of Maharashtra and a separate and dedicated Road Safety Management Cell is being formed under Transport Commissioner, Govt. of Maharashtra.

This cell will do the following;

- Formulate / adopting a Road Safety Policy.
- Action Plan for reducing road crash fatalities and injuries.
- Activate State Road Safety council and hold its meetings at least twice in a year.
- Establish a Lead Agency in the State with adequate dedicated and professional staff to deal exclusively with road safety issues.

- Establish Road Safety Fund by making available a portion of the fines collected from traffic offences to the fund and also make adequate provisions in the budget for meeting expenses on road safety.
- Implement directions of the Hon'ble Court on Road Engineering as contained in its Judgment dated 22nd April 2014.
- Rectify immediately all Black spots identified since 2011.
- Draw up a protocol and an annual calendar for identifying Black spots and their removal and further monitoring to see the effectiveness of the action taken.
- Carry out road safety audits during design, construction and operation of roads and implement recommendations of the Audit.
- Undertake construction of road beyond G 10.00 Crores only after design audit is completed and its recommendations implemented.
- Adopt traffic calming techniques at locations where accidents are occurring due to over speeding.
- Suspend driving license for not less than 3 months under section 19 of MV Act and Rule 21 of CMVR for over speeding, red light jumping, and use of mobile phones while driving and over loading.
- Make use of helmet compulsory both for main and pillion riders.
- Tighten procedure for issue of permanent driving licenses. Commence action in a time bound manner for establishing sensor based computerized driving tracks to eliminate human intervention of issue of permanent driving licenses.

The Traffic Control Branch of Mumbai Police is committed to ensure Road Safety in the entire road network of Greater Mumbai through proper Traffic Management and Enforcement measures using well trained personnel, technology as well as co-ordination with all infrastructural agencies and other stake holders.

Executive Summary of Actions to be Taken:

1. Priority should be given to the black spots mentioned for enforcement action independent study along with supervision of enforcement action and other related factors to be done periodically to reduce road accidents to significant minimum.

2. The manpower deployment in day time and night time shall be done by traffic police as well as by local police station at deficient spots as per chart to improve presence. This shall reduce chances of violations and quick post-crash help.

3. Focus of road safety to be shifted to pedestrians crossing the road randomly and lack of amenities to cross it. Punitive action against Jaywalking may be strictly enforced along with coordination with agencies for facilities like subways/ usable skywalks and grilling of footpaths with minimum gaps in between.

4. There is a significant increase in two wheeler accidents as well as indiscipline on road. Use of helmet and correct application for riders and pillion riders shall be enforced in letter and spirit. Strict action on violation will help discipline them specially against wrong side driving, signal jumping and driving on footpath.

5. The top 12 black spots as stated in study needs to be taken on priority and monitored monthly regarding enforcement and engineering related factors for immediate results. It's also suggested that any black spot improvement plan shall include these spots first.

6. Enforcement shall take priority than regulation to show better results. Shifting to area traffic control from manual signals will help more in enforcement at junctions.

7. The drink and drive test spots should cover roads approaching black spots and 14 black spots where no nearby tests are conducted should be covered accordingly.

8. CCTV cameras are now core of enforcement. Vast stretches still are uncovered. Where installed they are of no use to traffic violation because of orientation (mostly aerial not focusing on number plates), clarity and focus. 11 spots uncovered by them shall be fitted with standard fixed and PTZ cameras for enforcement as well as accident scene reconstruction.

9. The golden hour after major crash is very important to save lives. Training at basic skills to manage as first respondent till any medical help arrives is important. Personnel should be trained in such skills

and Traffic Control Room should coordinate for faster medical help by facilitating ambulance movement and locating nearby hospital.

10. Enforcement on traffic violations shall priorities on road safety factors which include wearing helmets and its proper application, safety belts, signal jumping, over speeding, drink and drive etc. Special drives shall be taken regularly specially in vicinity of the 21 spots with less than 250 yearly challans to have a targeted approach and better results.

11. Different departments like MCGM, MMRDA, MSRDC, PWD should concentrate on black spot improvement by involving expert reports with feedback from traffic department. As per Supreme Court guidelines on Road Accident yearly audit report be submitted for improvement of blackspots and addition/ subtraction in existing list.

12. Over speeding remains essential factor accordingly of accidents and installing speed cameras on multiple sites in Eastern Express Highway, Eastern Freeway and Western Express Highway specially near blackspots is important. Also interceptor vehicles may be deployed near these blackspots for targeted approach strategically.

13. Traffic signals at important junctions and at black spots should have pedestrian crossing signals and sufficient timing. Also the putting of signals at flasher in night causes more accidents.

14. Barricades for 'Nakabandi', actions against 'Drink Drive' etc. should be provided with reflectorized material and made visible with flashers so that they do not become potential accident spots. The same should be promptly removed from carriageway after actions are completed.

15. Enforcement should concentrate on recovery of payment, suspension of licenses and permit for regular violators and drink and drive cases to discipline drivers more for road safety and have regard of law.

16. Involvement of various stake holders like drivers, students, policemen etc. for awareness campaigns on road safety and promoting it through RSP, e-learning and workshops regularly is required.

17. A proper assessment study, as follow-up of interventions taken, shall be done periodically to understand the trends and effects for future course.

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Book Review:
Sutras for Supercops - The State of The Heart Policing

Prof. A.K. SAXENA*

Title	: **Sutras for Supercops: the State of The Heart Policing**
Author	: A.P. Durai
Publisher	: A.P. Durai, IPS (Retd) (Available on Amazon.in and www.sapnaonline.com)
Price	: Rs.200
Pages	: Soft bound having 182 Pages text.

The Reviewer had an excellent opportunity to serve under Mr. A.P. Durai as a Professor when he was the Director of the SVP National Police Academy. He enforced the culture of performance, discipline and etiquette in the Academy. The reviewer did not find any dissonance between what the author has written in the book and for what he stood as a distinguished police officer in his professional life as an epitome of morality, spirituality and as an enforcer of discipline.

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Prof. A.K. Saxena

The strength of the book lies in the coverage of many anecdotes from the professional life of the author reflecting on the importance of ethical issues and dilemmas faced by an IPS officer and their resolution in his career. The issues focussed in the cover, inter alia, Character, Integrity, Discipline, Obedience, Karma, Self-introspection, Sensitivity, Service orientation, passion for excellence and the Heart-based policing .With reverence, he has quoted number of IP and IPS officers he had known besides his master Parthasarathi Rajagopalachari of Shri Ram Chandra Mission from whom he has learnt the lessons of ethics and morality as applicable in life and Police profession.

A few thoughts beautifully depicted and illustrated through his valuable experiences in police and personal life are worth mentioning to motivate the supercops specially in the making and others for their self-introspection-

"…..Selfless service to God's creation is the purposeful activity that shall redeem humanity and our planet (P.17)

…… Once the character of a person is set on the foundations of inner qualities… they will be self-assured, balanced, focussed and manifesting true integrity. A person of character is truly Nature's engine creating ripples and vibrations of change and transformation in a silent way (P.19).

….. As you change, grow and develop internally, you will send out vibrations of confidence and a sense of security to those who depend on you , your team members and the common man (P.27)

….. You are now a warrior for God and the country without fear or favour, blessed with sharpened faculties and a new sensitivity, love and compassion. (P.57)

….. When we permit ourselves a degree of personal dignity and self-esteem, we shall automatically extend that dignity and respect to people at large who are the unfortunate victims of prejudice, suspicion, contempt and hostility at the hands of the powerful and the ambitious (P.63).

….. As a young officer, you should learn to utilise the Media to project a positive image of the force rather than for building up of your own image. (P.76)

….. If you do not want to do any favours to the powerful, do not expect any favours from them. Always remember that your destiny is in the hands of your Maker, not on His instruments (P.90)

…. You must know that, in this cruel and selfish world, what most people are looking for is self-less love and compassion and when they find it, they feel God's presence there. (P.94).

…..Compromises and adjustments suggested by others should be scrutinized very closely. (P.122).

… If simplicity is your template and your character is proofed against fear, threats and temptations; if your heart is in the right place with your mind obeying its dictates; if naturalness and transparency is your style; if dharma(meaning professionalism) is your shield and protection; if courage becomes your sword and a passion for selfless service your signet ring; then, by the time you hang up your boots literally and metaphorically, Nature will stand up and say, "Here was a true policeman, because he policed not only his society, but also policed his mind and obeyed his heart!"

This thought-provoking book has been organized in well crafted 14 chapters. The hallmarks of the book include:

- Simple and comprehensible language
- Subject matter is substantiated with spirituality lessons
- Anecdotes, illustrations, personal examples etc.
- Reflections by the author on various ethical dilemmas faced by the Supercops.
- Advice for the upcoming generation of IPS Officers.
- Black and white photographs as memories of the past.

The book may be utilized by NPA, State Level Academies training Gazetted ranks and the Paramilitary Forces to acquaint and train the officers in the resolution of moral, ethical and spiritual dilemmas leading to maximisation of internal resources for Police Organization's excellence. It is a must read for all the IPS Officers and would be of considerable benefit to all those who are involved civil administration and criminal justice system.

The book is moderately priced. The quality of printing is good and it is soft bound.