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महानिदेशक

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Foreword by Chief Patron

Indian Police Journal is the flagship quarterly publication of the Bureau of Police Research & Development. Quality articles, well researched and articulated, by the contributors on varied topics cutting across police domains are published in it. I joined the Bureau in August last year. It was always my intention to motivate my colleagues in the Bureau to pen their thoughts and author articles on different subjects. Ladies and gentlemen, it is an absolute honour and privilege to present this special edition of the IPJ, on the occasion of the 52nd Foundation Day celebrations of the Bureau, wherein all the articles have been contributed by serving officers of the Bureau.

2. Any organisation that seeks development and robust growth must similarly realise its ultimate responsibility of keeping its employees motivated. The **Police** is an organisation where the employees are tasked to work in group settings. Therefore, to work successfully as a team, hard work is imperative. When individuals with different personalities and skills work together, things can either get done or get ugly, depending on the way the senior management cadre handles them. However, personalising recognition while commending the whole team can go a long way in achieving the goals and objectives of any organisation.

3. There is no gainsaying the fact that employees contribute actively only if they feel comfortable and appreciated in their workplace. Over the years in Government, one has been inspired by the rich and varied experiences of colleagues at various ranks. The following **Commandments** have thus evolved which, if practiced in letter and in spirit, should contribute substantially to any organisation's development commensurate to its mission statement:

(i)   Create work for yourself; don't wait for it to be assigned to you.

(ii)   Take the initiative in performing your job instead of playing a passive part.

(iii)   Grabble with big jobs - petty tasks debase you.

(iv)   Choose difficult jobs; progress lies in accomplishing difficult ones.

(v)   Once you begin a task, never give it up - complete it, no matter what the obstacles are.

(vi)   Lead those around you, leading others instead of being led makes a substantial difference in the long run.

(vii)   Have a plan, a long-term plan engenders perseverance. Planning and effort give you hope for the future.

(viii)   Have self-confidence; otherwise, your work will lack force, persistence and even substance.

(ix)   Always use your brain to the fullest. Keep an eye on all quarters and always be on the alert. This is the way to ensure satisfactory service.

(x)   'Friction' is the mother and stimulant for progress. If you fear friction, you will become servile and timid. However, it should not lead to insubordination.

4.   In conclusion, one is tempted to equate the above Commandments with self-development and organisational growth for harmonious progression in moving towards an 'Aspirations Equilibrium', albeit asymptotically.

(Balaji Srivastava)
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It is a privilege as ever to pen an editorial for the prestigious Indian Police Journal (IPJ). The sheer opportunity to carry the written word to practitioners across the length and breadth of the country, is a reward in itself. On behalf of Team Publication, I am especially delighted to present before the discerning readers this very special edition, showcasing a rainbow of themes, each curated by serving officers of the BPR&D!

Milestones such as this exclusive edition, are often occasions to revisit the past - to reminisce the journey, but equally, to engage with the objectives, and recalibrate in the light of emerging concerns - especially as this publication comes in the wake of the 52nd Foundation Day of the Bureau.

Over the years, a key task of the Bureau has been to equip the police and security grid to face-up to the challenges of tomorrow. We may not know it yet, but that tomorrow is already upon us. All the lightness of its hopes and aspirations, the burden of its anxieties and challenges, a promise of sunshine - but also a hint of rain!

You will find several of these moods reflected in the articles that follow - here's hoping they meet the high standards of our discerning readers.

At the Bureau, as perhaps everywhere else too, we are teachers as much as we are students & learners ourselves. We aspire to learn everyday, and are happiest sharing whatever we can with the stakeholders at large - but, even as we rededicate ourselves to this remarkable task, it is important to remain mindful of the warning of Todd Whitaker, who said, "The best thing about being a teacher is that it matters. The hardest thing about being a teacher is that it matters every day."

May we all be worthy of the cause we serve!

(Neeraj Sinha)

Contents

The Other Radcliffe

Neeraj Sinha*

It would seem that Mr Cecil Radcliffe was more than a little distracted when he sat down to give the finishing touches to what would become the most defining strokes a man could ever make with a pen in hand. To the random eye the lines he drew from his remote perch, on the map of British India, appeared to follow no rational path. Barring brief interludes of lucidity - when Murshidabad was given to India to open a passage between north and south Bengal – the exercise might seem like a drunken stupour across a massive cartographic sheet. Or even, for the sheer volume of the upheaval it caused, the uncontrolled meander of a river in spate, bringing calamity and destruction in its wake.

The fate of millions living across either side of an undulating line - over 4000 kms in length, unravelling across plains and hills, mountains & ridges, languages, ethnicities and identities - sealed by an old man in a lonely room in a country as alien to him, as he was to the many caught at the receiving end of his doodle.

75 years after the world first saw them, the Radcliffe Line(s), at either end of India's landmass, have continued to play a critical role in defining its security matrix. Each bend of the line, each inclusion of a village, every exclusion of a pond, a culvert, a riverine edge, has helped shape the concerns of the country's security establishment.

Seeped in a history of aggravated animosities - the issue of Kashmir, the newsworthiness of events around it, even the sheer proximity to Delhi - has allowed the western borders to remain in sharp focus of the nation's consciousness. In contrast, the Indo-Bangladesh border, equally critical to India's National Security concerns, traditionally remained in the rain-shadow area of attention.

Skirting across the 5 States of West Bengal, Assam, Meghalaya, Tripura and Mizoram, this is a dynamic border. Unlike its sedate twin at the western end, it registers everyday, multiple exchanges of the good, the bad and the ugly – of legal transactions in commodities & services, clandestine crossings of livestock, smuggling of essentials, medicines & intoxicants masquerading as prescription drugs, unnoticed entries of aliens for business, pleasure or medication – among many others.

For national security professionals beyond the border guarding forces, clandestine activities per se, should hardly be ever more than a blip on the radar - infringements that uniformed and other personnel deployed at the borders ought to take care of. Amusingly, much of the discussion on national security in the less informed circles, begins by quoting data on

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infringements relating to lesser aspects of smuggling across the border. The only reason smuggling and allied activities on the Indo-BD border should ever feature in deliberations on national security is on a far more malignant count – terror suspects piggybacking - an aspect that often gets ignored in the maze of data on human trafficking and cow smuggling.

The well entrenched touts and the thriving infrastructure, operating with the covert patronage of many that traffic Phensydyl in bottles, can be equally used to transport RDX or bring across inimical elements from terror groups and deliver them right inside the heart of India. In order to make them meaningful, debates on national security, especially in the media and security circles, need to shift focus from counting the many thousands of clandestine merchandise and livestock that slip across the border to the one or two which could potentially slip in, accompanied by determined terror modules primed for action. This has happened on multiple occasions in the past and there remains a fair possibility of it happening again.

Many of our deep rooted concerns about the hinterland as well as the North East, are a function of the integrity of our borders with Bangladesh. In the not too distant past, hordes of the North East Insurgents had found safe havens deep inside the Chittagong Hill Tracts (CHT) of Bangladesh. The sanctuary allowed them to strike at Indian interests with impunity with limited fear of a reprisal. The relative peace of recent times should not hasten anyone into complacency – the calm has more to do with a responsive establishment across. It wouldn't take much for attitudes to change should there be a change of heart in Dhaka. A way has to be found of securing lasting peace by making it immune to regime changes.

Some have steadfastly believed in the miracle powers of the barbed wire fence along the border. For them, border fencing, has settled the issue of transgressions forever. One only need turn to the facts of the Agartala blasts of 2008 to puncture that myth. The prospective Agartala Bombers, had allegedly entered Tripura from across by fording the fencing, armed only with a couple of bamboos and some nimble footwork, in the quiet of the night.

Dozens sustained injuries in the serial blast, said to be engineered by the All Tripura Tiger Force (ATTF) in crowded market places, overflowing with shoppers on the eve of Durga Puja. The barbed wire fencing has done well in dealing with the illegal cattle trade and human trafficking. But the assumption, that it might equally stop a determined terror module from crossing over, needs a rethink. This is especially true for the riverine interludes, where in the absence of physical fencing, robust technical solutions would be resorted to.

In the west they say that necessity is the mother of invention. In India, one makes do with 'Jugaad'. A unique class of service-providers operating all along the length of the border: 'Ghatiyals', literally people who man the banks of the border on either side, are not new to the area. This unofficial access control & facilitation mafia has been in existence for as long as there were people waiting to cross over.

But with the fence coming up, one needed area knowledge of a very high order to negotiate the terrain, the fence and the border guarding forces on either side. A price had to be paid both for coming in as well as for going out. Never were the laws of Economics – Demand, Supply, Inflation & Scarcity, better exemplified than in the marshy badlands of the no-man's land between India & Bangladesh. What started as Rs 100 for getting a family across in the 90s, rose to Rs 5000 per person per trip in 2020, and further to Rs 11,000 per person during the pandemic & lockdown. Who's to

say the institution of 'Ghatiyals' won't be used to slip across a terror module unnoticed, until it is too late!

Disturbingly for India, the neighbour on the other side of the Radcliffe, has remained in the flight path of terror. Other inimical elements in the neighbourhood have used its soil with impunity, using local elements, either self-radicalised, or part of the larger Jehadi network, for logistics and support. The tangled web of terror & the underworld, as well as the use of the soil across the border, is tellingly borne by the manner in which the attack on the USIS Centre in Kolkata on January 22, 2002 unravelled. Half a dozen policemen were killed and more than a dozen injured as a consequence of the terror attack.

Media reports suggested that the then Dubai based underworld gangster, Aftab Ansari had teamed up with Amir Reza Khan (who later went on to form the Indian Mujahideen) along with elements of Jehadi groups in Pakistan. Later, in follow-up action, sections of Pak terrorists were killed in an encounter with the Police in Hazaribagh. This group had earlier reached India via Bangladesh and had taken the same well traversed clandestine route taken by thousands of others with the help of border touts. It is this threat to the security fabric that really needs to form the core of the discourse, rather than the routine crossings that seem to attract greater media space.

Many other high profile terror incidents, deep inside Indian hinterlands, trace their footprints across the border - the infrastructure of the neighbouring country being used as a proxy by inimical elements to target Indian interests. The highjacking of IC-814 is a case in point, a horrific incident that made security experts the world over sit up and take notice - the hijacking highlighted the fragile nature of the security infrastructure across neighbouring countries, and the ease of access that terror modules leveraged for accomplishing their task.

The case of Captain Abdul Majed, involved in the assassination of Bangabandhu (Sk Mujibur Rahman), and the accidental Burdwan blasts of 2014, are reminders of the porosity of the borders and the innate ability of those on the wrong side of law to arrange local documents, including passport, with ease, and merge in the background – making it extremely difficult for the enforcement agencies to call them out.

It is common knowledge that the ethnicity, language and sensibilities of the population closest to the border on either side has close affinity with each other. There are historical reasons for this and predate the Radcliffe divide. Before 1947, these were, as one would imagine, contiguous areas, with close relations and kinships that haven't been lost altogether. When the borders were not as strictly controlled in the days before the barbed fencing, family visitations were the norm. Keeping the tradition alive and the conversations going in the post-fencing era, are social media platforms and mobile connectivity.

Among the many articles trafficked across the border in the east, the case of Fake Indian Currency Notes (FICN) remains unique. High quality fakes trafficked to far flung extremities of India have all had a common origin – across the Indo BD border. After the old 1000 & 500 currency notes ceased to be legal tenders, FICN smuggling had hit an all time low. Some media reports, however, have suggested that the fake industry is sprouting green shoots again and the authorities may be looking at a resurgence in its activities in the times to come.

To the casual eye, the entire length of the border may appear like one contiguous stretch, with just a change of geographical relief, where the plains of Bengal give way to the mountains of the North Eastern States. In

reality, the commonalities notwithstanding, the border is a dynamic being, impacting issues of national security in ways unique to the region. Even where the barbed fencing is ubiquitous, the diverse population on either side, their attitudes and aspirations keep changing from state to state, sometimes even across districts.

The attitude of the Government and the administration on the other side of the border have seen these activities wax and wane like phases of the moon. The border itself, the imaginary line between India and Bangladesh, may not have changed much over the years, barring the exchange of areas following the protocol of the Land Boundary Agreement of 2015, but the factors impacting security concerns astride it, have changed all the time.

To be fair, Bangladesh too, has been at the receiving end of Jehadi depravations over the years. The country had a rude awakening on August 17, 2005 when nearly 500 bombs exploded simultaneously at hundreds of pre-determined sites in 63 of the 64 districts across Bangladesh - all engineered to blast within 40 minutes of each other. Following investigation, the founders of Jama'at-ul-Mujahideen (JMB), Bangladesh, Abdur Rahman & Siddiqul Islam @ Bangla Bhai (Jagrata Muslim Janata Bangladesh/JMJB) were convicted for masterminding the incident, and following judicial pronouncements, executed by hanging along with a few other members of its Majlish-e-Shoora.

On the scale of notoriety and the tragic consequences it left in its wake, however, few come close to the terror attack on the Holey Artisan Cafe in the posh Gulshan area of Dhaka in July 2016. Over 20 innocent persons of multiple nationalities were killed and several others injured after terrorists claiming allegiance to IS stormed the restaurant, took hostages and targeted the foreign diners for no reason other than their faith. The most

poignant of all was the death of young Tarushi Jain, daughter of Indian parents, who had lived in the city for decades. Tarushi, a bright and talented student, was visiting Dhaka during a break from her university in the US.

Spillages across the borders, of groups such as these, and many more that keep mushrooming, have remained abiding concerns for India's security establishment. There are many ways of approaching these concerns and many more to creating mechanisms that could mitigate their impact on national security. There is the tried and tested approach, if not always successful, of neutralising and prosecuting the offenders in the hope it will also deter the others. In the real world, however, this is hardly ever enough. The residents of the border-stretch on either side have gotten used to the easy money that smuggling, illegal trafficking and cattle trade brings them. An alternative virtuous economic cycle, ably supported by robust infrastructure for transportation, immigration and industry, alone, can effectively break this nexus. Prosecuting by itself, without making the border residents partners in peace, may not be deterrent enough.

The desire for curative efforts & a need based prescription to make the border regions safer and in sync with India's security concerns, was never more than now - including by flagging common issues across states for leveraging unity of purpose, coordination and commonality of approach by State & Central Police Agencies. Equally, the need remains of creating a central think tank to distill domain expertise on issues that impinge the India-Bangladesh border.

Some have looked at the long stretch of 4000 kilometres of the Radcliffe Line in the East and wondered how to keep the peace with multiple concerns staring them in the face. But of all of India's international borders, this is the one

line, which despite a chequered past, shows immense potential for growth.

The effort to reach out to the largely well meaning people of Bangladesh should remain a constant feature of India's security doctrine. Many of the industries in India and Bangladesh are dependent on each other for production. An amiable horizontal and vertical integration of some of these, especially in the garment sector, where Bangladesh is an acknowledged success story, could set the tone for mutual trust and prosperity. Past experience has shown that commoners and opinion makers of Bangladesh alike, who've had the opportunity of visiting India, have usually gone back with positive impressions.

Deliberations at the apex level have been key to creating the atmospherics, for the much needed vigour and purpose for action on the ground. Summit level engagement between Bangladesh and India in September, 2022 has given a fillip to endeavours of mutual concern, with Bangladesh seeking 'rail connectivity to Bhutan' and India reiterating its request for 'one major land port without port restrictions or negative list of restrictions, on the border with North Eastern States of India, for easier market access', among others. Many more initiatives, including rail, shipping and road projects, as well as the much awaited Akhaura-Agartala Rail link across India-Bangladesh border, received significant attention at the meeting. Importantly, both countries agreed that 'peaceful management of India-Bangladesh border is a shared priority'.

Common people across the divide have to be encouraged to develop a stake in peace at the borders making it immune to regime changes. Looked at from that perspective, the 4000 kilometres long stretch of the Indo-BD border would cease to be one of adverse concern. Instead, the Radcliffe Line in the east, could well turn into 4000 kilometres long

doctrine of opportunity!

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Elections: Planning, Preparation, and Execution

Tajender Singh Luthra*

Abstract

Tasks of planning, preparation, and execution for elections are sensitive and exhaustive. Good planning helps create the appropriate strategy, and timely preparations help accumulate essential resources. Similarly, balanced strategy implementation yields rich dividends in terms of peaceful elections and the strengthening of democracy.

A successful election from the point of view of law and order isn't necessarily a violence-free election. A non-violent poll could also be peacefully rigged. There might be skirmishes, street brawls, and sometimes significant cases of violence among political stakeholders, and yet the election could be fair. The real test of a successful election is whether the voters were fearless in casting their votes or not. Therefore, the law and enforcement agencies must create an environment that empowers voters to exercise their franchise without any fear and apprehension. Against this backdrop, we must explore the planning and preparations for elections.

The planning and preparation of elections starts with enlisting activities essential for the smooth functioning of elections. It ranges from assessment of force needed, vehicles, and other infrastructure requirements, appraisal of security of polling stations, review of identity documents to cast vote, evaluation of pending summons/warrants, the deposit of arms, mobilization of central forces and auxiliary forces like forest guards, home guards and civil defence volunteers. Similarly, we should review and settle issues like coordination with Civil Administration and election observers, division of polling stations into critical and non-critical categories, initiation of Section 107/150 Criminal Procedure Code (1973) proceedings against potential trouble makers, planning of area domination, checking of hotels/guest houses, review of migrant population and vulnerability mapping.

The assessment of force is one of the most critical steps in preparations for parliamentary elections. Optimum assessment of force needed, and more importantly, its availability, can have a far-reaching impact on the conduct of elections. Factors like the review of the security of the polling station premises, division of polling stations into critical and non-critical categories, area topography, nature & limitations of mobility, threat perception to VIPs in the area, visit of national leaders to the constituency, the number of polling booths and premises, the intensity of poll campaign

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by candidates, general law and order situation and norms decided by the Election Commission of India determine the correct number of police required. In the same way, estimation of the need for vehicles should also be done while assessing the force needed. Transportation of force from one place to another, particularly the CAPF and auxiliary force, their mobility, designing patrolling beats and frequency, and the need for quick response teams are essential factors having a bearing on the number and type of vehicles required.

The District SP must estimate the force required well in advance and inform the quarters concerned. It is the duty of the Returning Officers, the Chief Electoral Officer, and the Election Commission of India to provide the necessary force to conduct just and fair elections. However, the local administration must provide sufficient accommodation with adequate power, water, and vehicles to the outside force.

Given the shortage of central forces, other forces like civil defence volunteers, forest guards, and home guards can be utilized as effectively as any other high-quality crack force. If briefed, rehearsed, and debriefed properly about their nature of duties, such auxiliary forces can play a vital role in the elections. A fully equipped home guard with a smart turnout is as significant and deterrent to mischief creators as any police constable. Moreover, they can be mobilized in great numbers and activated to supplement the regular Police. Being local to the area, Home-Guards know the topography, recognize the criminals and understand the crime pattern. A word of praise can enhance their morale, a sense of facing a challenge can bring a sea change in their approach, and a feeling of belonging can make them loyal to their leader and the target.

Even after so many years of hard work, it hasn't been possible to issue voters' identity cards to all voters. Therefore, the Returning Officer gives an order detailing a list of various other documents like passport, PAN card, and driving license for casting vote. Before the Returning Officer issues such an order, Police must review the possible list of such identity documents and convey their views on the risk of the misuse and forgery of any such document. But, if Police cannot do it for any reason, Police must raise their guard, in collaboration with the civil administration to check the possible abuse of such voter identity documents. One may argue that it's not the duty of the Police to check voter identity cards/documents at the polling stations, but the use of forged identity documents at the mass level and in an organized fashion would raise doubts about the impartiality and effectiveness of the Police only.

Review and execution of pending summons and warrants are mandatory as per the guidelines of the Elections Commission of India. However, it should not be done in a perfunctory way. A non-executed warrant under Section 138 of The Negotiable Instruments Act (1881) would not have any bearing on the general law and order, particularly on the conduct of elections. However, on the other hand, even a pending summons under Section 107/150 of the Criminal Procedure Code (1973), against a white-collar political miscreant might significantly impact the smooth conduct of elections, leave alone the pending warrant in a heinous case against a known criminal. The heat of electioneering would come to normalcy, naturally, if inconspicuous pending summons and warrants are evaluated objectively, assigned proper priority, and executed effectively.

Instead of making it a run-of-the-mill exercise, the arms licensees' list needs to be examined

in the light of potential troublemakers. A senior citizen, respectable businessman, government servant, and professional with no political affiliations should not be harassed and forced to deposit his arms. This exercise will not only offend his self-esteem but also waste the valuable time and energy of the Police. Instead, the Police must concentrate on the licensees with criminal records and political affiliations.

The need for coordination with Civil Administration, particularly with the Returning Officer and Chief Electoral Officer, can hardly be overemphasized. From proceedings under Section 107/150 of the Criminal Procedure Code (1973), the deposit of arms, categorization of polling stations, mobilization of auxiliary forces, mapping of vulnerable areas, and review of voters' identity should be synchronized to achieve effective results.

The Election Commission of India issues guidelines to determine whether a particular polling station is a critical polling station or not. The number of voters not having Electronic Photo Identity Cards, the number of missing voters without family links, hamlets/villages/ electoral segments vulnerable to threat and intimidation, polling percentage, history of re-poll in the previous elections due to electoral malpractices or violence, other local factors like the number of election-related cases and complaints during last elections can help categorize a polling station as a critical polling station. But nothing stops the Police from determining a polling station as critical based on other local factors. Local factors are as important as the parameters listed by the Election Commission of India. It will be a grave mistake if regional undercurrents affecting law and order, mainly during elections, are overlooked while determining critical polling stations.

Security proceedings under Section 107/150 of the Criminal Procedure Code (1973) against potential aggressors, mischief creators, hooligans, and habitual criminals, mainly during elections, are as successful a weapon as an action taken under National Security Act. As soon as elections are announced, such lists must be prepared and forwarded to the area Executive Magistrate. But, merely preparing and delivering the lists to the Executive Magistrate would not serve the purpose. It should be followed up regularly so that notices/summons are issued, served, and in deserving cases, bonds to keep the peace are executed as a matter of deterrence. Police must look for cases of violations of interim bonds and report to the executive magistrate for further preventive action.

Area Domination and *Nakabandi* are valuable tools to check the movement of criminals, weapons, money, and liquor. Being an obvious exercise, Nakabandi sends a stern message to the mischief-mongers. Intensive foot and vehicle patrolling, mainly at night, is extremely helpful in dominating the area. Area domination is an essential psychological exercise to enhance the morale of the Police and deter criminals and political goons. A long row of vehicles blinking red lights and hooting sirens can create the right environment for the ordinary voters assuring them to go out and cast vote.

Coupled with *Nakabandi* and Area Domination, zero tolerance on minor offenses like non-possession of driving license and registration certificate, etc., make people realize very fast that Police mean business and won't spare anybody even for a petty crime. Checking of driving license, registration certificate, and tainted car glasses and the movement of stolen vehicles used to carry illegal arms, musclemen, liquor, and money during elections is of utmost importance.

Hotels, guest houses, and labour *chawls* are safe hide-outs of terrorists, anti-social

elements, and muscle men imported from neighbouring states. Through an order under Section 144 of the Criminal Procedure Code (1973), issued by the District Magistrate, hotels/guest houses and labour *chawl* owners can be directed to obtain a reasonable, valid identity of their customers, keep its copy and inform the local police station. Likewise, the onus can be placed on the landlords to tell the Police about the identity of their tenants. It does help in keeping a tab on the movement of strangers.

A visit to the polling premises, particularly the critical ones, at least by the Superintendent of Police, is vital and helps to appreciate the pattern of deployment of force, perimeter security, barricading, and queuing requirements followed by backyard arrangements, patrolling requirements, safeguarding of electronic voting machines, and sleeping, resting, and food arrangements for the force. Barricading at 200 meters outside the polling premises, particularly the critical ones, is essential. It not only brings semblance of order to the polling area, but also creates a buffer zone for rapid police action in case of any eventuality. It also deters impersonators and goons with intentions to rig the polls.

Migrant labour, if the constituency is industrialized, has some typical characteristics. Labourers come and go very often. They are most interested in getting a ration card for cheap ration and a bank account to deposit and remit their earnings. Not all of them are interested in being listed as voters and getting a voters identity card. However, many of them do get listed. But, after they move out, their names on the list of electors become vulnerable to impersonation and forged voting. Influential candidates from the industrial area or labour chawls try to get such inactive votes cast through impersonation and forged identity documents. Sometimes, the less influential

party applies for deletion of such dormant names from the voters' list. On the other hand, a candidate with influence in the industrial area or labour *chawls* would oppose such a move and further try to add fictitious names of industrial workers to the voters' list. The Police must raise its guard in these circumstances, as this can become a bone of contention during the elections.

The advent of the cell phone has taken its toll on wireless logs. Without wireless logs, it's difficult for Police to prove a point in an inquiry. Messages transmitted over cell phones, even with holy intentions, have no records and thus can't prove the innocence of the Police in the aftermath of elections. Therefore, besides speaking over the cell phone for its apparent speed and comfort, Police must rehearse all messages through wireless and keep their logs to reap their benefits in the aftermath of elections.

An election observer can be a great help to the Police. The role of the observer is to keep an eye on the function of the Civil Administration and Police. Often, the Police are under pressure to overlook a lot of things. An intensive audit by an observer, of the job done by Police during the election can support Police to follow the due process. It can extend much-needed protection to the Police, which hitherto was dithering due to political and other pressures. Therefore, election observers and Police should cooperate in depositing arms, executing pending summons and warrants, initiating proceedings under Section 107/150 of the Criminal Procedure Code (1973), conducting zero tolerance exercises, barricading polling premises, and dominating the area by patrolling.

Senior Police Officers must visit all crime scenes with political overtones to assess and dominate the situation. Briefing from juniors with half-baked facts and figures does not

give enough confidence to take right action. Therefore, a police officer must know the facts and interact with the witnesses to save the day.

The day of filing of nomination by the candidate of a national party and any other candidate worth his salt is vital for Police. Candidates go in the full strength of their supporters, violating norms of the Election Commission or the Supreme Court. As soon as the polls are announced, Police must brief all candidates about the criteria and the preparations made by Police like video recording to deter them from violating any standard. Similarly, on the counting day, victory processions and thanksgiving rallies need certain arrangements by the Police.

Often our action may not follow specific written dictates on paper, but conscientious efforts are a testimonial of being true to the touchstone. The Police owe a different duty to preserve the ethos and authentic character of our democracy. And to achieve this goal, nothing is more important than a fair and just election.

Leveraging AR, VR and MR. for Effective Law Enforcement

Dr. Karuna Sagar*

Abstract

Rapid technological advancement in IT and communication made humans smarter and enhanced the quality of human life. Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality (MR) are examples of such technology which have numerous applications. It is evident that the significantly increased scope of AR, VR and MR since the last decade motivates many sectors in investing in the technology. The Law Enforcement sector is one of them. Although the use and adaptation of AR, VR and MR based technology are in an emerging state for Law Enforcement Agencies (LEAs), there is a need for new and innovative solutions to be developed to cater to the emerging challenges of LEAs.

This paper reviews different technologies related to AR, VR and MR; and their scope and relevance for the LEAs. The paper also focuses on potential applications of AR, VR and MR technology, with respect to various tasks related to the Law Enforcement Sector. Finally, the future scope and directions of advanced AR, VR and MR based solutions are proposed for Law Enforcement.

Keywords: *Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality (MR), Law Enforcement Agencies (LEAs), Extended Reality (XR)*

Introduction

With the new-age advancements of information and communication technologies, people are getting eager to enhance the quality of human life. Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality (MR) are rapidly emerging technologies with their multidisciplinary applications. During the last decade, the scope of AR, VR and MR has significantly increased, and significant industry investments are evident in the field research and development of various AR, VR and MR based products, for different applications. With such vast multidisciplinary applications, various industries like Information Technology, Military, Aviation, Civil and Architect sector, Biomedical engineering and training and simulation sectors are all investing in AR, VR and MR. The law enforcement sector which always relies on new technological advancements to aid in solving various emerging challenges, is also one of the major investors in AR, VR and MR.

AR, VR and MR are advanced technologies that use various digital (artificial) immersions

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and then overlay on the real world in a very interactive manner for its users. While AR overlays the media which is computer-generated on top of the real-world inputs, VR replaces the existing reality by a 3-D digital environment that distinguishes the user from the real world; and MR combines both AR and VR technologies into one wearable device.

This paper reviews different technologies related to AR, VR and MR, their scope and their relevance for the Law Enforcement Agencies (LEAs). It also describes some applications currently being used in the LEAs and classifies these applications into different categories. It also shows what technological developments are taking place in the field of AR, VR and MR for Law Enforcement. Based on these developments, the scope of advanced AR, VR and MR technologies are suggested, as well as future directions are proposed for Law Enforcement Agencies.

This paper is categorized in the following sections: Section 1 presents a brief of various AR, VR and MR Technology available, their implementation and highlights the basic difference between them. Section 2 presents various applications of AR, VR and MR for Law Enforcement by mentioning the existing use of these technologies. Section 3 presents and recommends the future possibilities and dimensions of AR, VR and MR technology for Law Enforcement. Finally, the last section concludes the paper with a summary of this research.

AR, VR and MR Technology, Implementation and Distinction

Although Virtual reality (VR) is a century-old term, VR has its roots in many science fiction based novels and articles. The first-ever experience of VR was evident in 1962 with the creation of a game developed by Morton Heilig called Sensorama that gave its players an experience of riding a motorcycle on the streets. The goal was to encompass all five senses into one virtual experience. Since then in the entertainment sector, VR has made its special appearance, particularly in video games and movies. The concept of Milgram Mixed Reality Spectrum was given by Professor Paul Milgram and Fumio Kishino In 1984, to explain the range of virtual and augmented reality. This scale was the base most manufacturers had used for 30 years. With the popularity and ease of access to the Internet, VR had been a popular topic as the Internet boomed in the 1990s. The technology then lost momentum, interest, and funding from many technology companies. Currently, AR and VR technology is growing much beyond the entertainment industry and covers a plethora of ideas in the overall technology domain in multi-disciplines.

AR, VR and MR are advanced technologies that use various digital (artificial) immersions and then overlay on the real world in a very interactive manner for its users.

Augmented Reality (AR)

AR overlays the media which is computer-generated on top of the real-world inputs. This superimposed digital overlay can easily interact with the environment in real-time, superficially. Generally, AR can be experienced using a wearable AR glass device and smartphone AR applications. In AR, like Google Glass or AR Apps on mobile devices, the visible natural world is overlaid with a layer of digital content. AR is a digital overlay of the real world. It augments the real world with digital data. For example, using an AR App, a phone's camera can be used to see a real-world place with other inputs like place information based on GPS and route to go to any destination from that place.

The advantage of using AR is that it overlays digital content on a user's view of the real world.

It enables the user to see any content in 2D, 3D, or 4D and any data (i.e. location, temperature, details, messages, directions, etc.) through an AR device. Augmented content doesn't recognize or interact with the physical objects within a real-world environment, however, it does enhance the user's experience. AR has more potential for mass usage as compared to VR or MR, as it can be delivered easily on smartphones that we already own and use.

AR has multiple potential applications and practical daily uses with the capability to change the way users interact with digital devices. Furthermore, AR is considered less restrictive than VR and doesn't disengage a user from the real world.

Followings are the various categories of AR products:

1. Wearable AR glasses (smart glasses): AR glasses are wearable glasses that add any digital content/information alongside or to real world view of the user. For example, various High-end AR smart glasses (micro displays) are used in commercial, manufacturing, engineering, and sports application. In terms of product development, Apple, Samsung (in partnership with Windows) and Google are working on AR headsets or AR smart glasses development. Examples of popular AR glasses are Vuzix Blade Smart Glasses, Meta 2, ODG R-9.

2. Smartphone AR: Smartphone AR has been accessible for mass consumption, through apps utilizing AR. For example, various Games (Pokemon Go) as well as retail (IKEA Place) applications. Multiple apps are available for smartphones to experience AR for entertainment, enterprise, and practical purposes. Another example of a Smartphone AR

is an immersive and engaging shopping experience. Using AR shopping apps, the user can point the camera on the mobile at an object in the real-world environment and the AR app will overlay content such as an image, animation, or data related to that product for the user. Apple, Facebook, Snapchat, Google, and other well-known tech companies already offer AR applications and software development kits (SDK) for developing smartphone AR apps.

Virtual Reality (VR)

VR can be defined as an artificial environment created, using tools including hardware or software and presents simulation and feel like the real-world environment to its user. This virtual environment is interactive in nature, which makes the user completely immerse him/her in an artificial world away from the real surroundings. Virtual reality can be experienced by using two of its five senses: sight and sound. To experience/sense mostly the three-dimensional images, devices such as frequency modulators, mouse, joysticks, earphones, special gloves, head-mounted display, goggles and VR box are used. All these devices work on inputs from a computer system. VR consists of immersive experiences using digital and computer-generated content via gadgets like VR headsets or head-mounted displays (HMD). Using VR, the existing reality is replaced by a 3D digital environment that distinguishes the user from the real world. While VR places the user in another location entirely, that location may be computer-generated or captured by video, it entirely impedes the natural surroundings of the user.

VR products can be categorized as follows:

1. Tethered VR: Tethered VR headsets require a cable connection to a powerful high-performance computer for a

superior desktop VR experience. Most of the Windows Mixed Reality headsets fall in this VR category. For example, ASUS HC102, Acer Mixed Reality headset, Dell Visor, HP Mixed Reality headset, Samsung HMD Odyssey etc. Oculus Rift and HTC VIVE Pro are popular PC VR headsets.

2. Standalone VR: These standalone headsets are wireless VR, that don't require a connection to a PC or a smartphone and are generally a more affordable option. For example, Pico Neo, VIVE Focus, Oculus Go etc.

3. Smartphone VR: This VR category is the most diverse in terms of products, as the range of devices available, the affordable price range, combined with the number of users who own smartphones. The screen type, resolution and battery life is a major factor in smartphone VR headsets. For example, Samsung Gear VR, Google Daydream View 2.

Mixed Reality (MR)

MR combines both AR and VR technologies into one wearable device. Using the MR lenses or headsets, an overlay of digital media/content is presented that interacts with objects in the real world in real-time. Generally, MR is viewed through transparent wearable glasses. Another term called Extended Reality (XR) encompasses all real and virtual environments which include VR, AR, and MR. Virtual, augmented, and mixed reality have some fundamental differences. VR is content that is 100% digital and can be enjoyed in a fully immersive environment. While AR overlays digital content on top of the real world. On the other hand, MR is a digital overlay that allows interactive virtual elements to integrate and interact with the real-world environment. MR devices constantly scan a

real-world environment to enable mixed reality experiences. Mixed Reality use occlusion to remove the boundaries between the real and virtual world. Occlusion is the computer-generated objects that can be visibly obscured by objects in the physical environment from the user's point of view.

There are fewer MR headsets available as compared to AR and VR headsets. Following are the available MR headsets:

1. Microsoft's HoloLens: The Microsoft HoloLens is untethered and doesn't require any external power to run. It includes 3 distinct types of sensors and 5 cameras to offer mixed reality. The HoloLens has a limited FOV of 50 degrees.

2. Magic Leap: It is still under development. It aims to project the light straight into the user's retina through a digital light field.

As various technologies are available related to AR, VR and MR there are multiple applications in different industries. To undergo the digital transformation for any industry, AR, VR and MR play a very important role in this transformation. AR/VR technologies combined with Artificial Intelligence and the Internet of Things (IoT) present powerful application areas that will revolutionize and change the way these industries work. Although the Gaming industry was the first place where AR, VR and MR technology were used, applications of these technologies are not limited to it. Followings are the various real-life applications of AR, VR and MR technologies:

1. Education: AR and VR based content for learning is revolutionizing the education sector, by making learning more immersive and engaging. Using AR and VR content, many schools and universities are designing their courses for better learning. It can also help various

industries to train their staff.

2. Retail: Many existing retailers are using AR technologies for selling their products. Many furniture retailers allow its user to virtually choose the furniture or artefacts and visualize it in the user's home settings. Using AR, these objects can be shifted to different locations, and purchases can be made. Many fashion brands using AR apps, allow users to virtually try a dress without having to go to the trial room.

3. Aerospace and Defence: Using AR and VR devices, computer-generated objects can be combined with real-world objects by allowing human interaction. Flight simulators, used for training pilots of both commercial and defence planes rely on immersive technologies of AR, VR and MR for initial pilot training. In addition, using the AR prototypes significantly boosts the ability to build new equipment and speed up the development. Using AR glasses, the ramp handling workers can scan special QR codes placed on cargo containers, speeding up the loading process significantly.

4. Real Estate: In the real estate sector, virtual reality can be used for showcasing properties in a more interactive manner. Unlike photos, VR is immersive, so potential buyers can take three-dimensional walkthroughs and better understand what each property has to offer before visiting in person. Various VR based apps are available that use 360-degree video showcases for interacting with buyers and users in real estate.

5. Healthcare: AR and VR enable doctors to have an in-depth look into human anatomy, which aids in better diagnosis and treatment of patients. On the other hand, VR technology is very relevant in surgical training. For example, a platform built by Medical Realities uses 360-degree videos and virtual anatomy to train future surgeons.

6. Advertising: AR technology helps marketing professionals and advertisers reach out to their audiences faster. Unlike orthodox ads, AR ads are more interactive and engaging so they not only promote sales but increases brand awareness as well.

7. Automobile: AR and VR technology is used to demonstrate the features of an automobile to a customer as AR instructions and guides can replace tedious manuals. Using AR aids, automobile engineers can learn the manufacturing and maintenance process of vehicles more efficiently and faster. The design and prototyping team leverages AR to expedite the development process.

8. Communications: Using MR technology, communication can be done easily where people at remote locations can interact mimicking the real-time interaction. Employees can put on headsets and start collaborating without being blocked off from the real world. For example, Skype or Microsoft HoloLens.

9. Navigation: AR and VR are very useful for navigation applications. Using AR apps, any virtual objects overlapping the real world can show directions and guide people to locations in real-time.

10. Maintenance and Repairs: A specially catered AR application can be used to help users to perform a repair and maintenance.

Applications of AR, VR and MR for Law Enforcement

The application of AR, VR and MR technology in Law enforcement mostly relies upon Augmented Reality (AR) or Mixed Reality (MR), as these technologies aren't as immersive as Virtual Reality (VR), thereby allowing officers to maintain awareness of what's going on in the surrounding area of operation. AR technology having the ability to overlay any information or contents over a person's real-world view can aid in officers accomplishing a variety of tasks and assignments more efficiently. It can make a significant change, where one officer equipped with AR technology could complete the same work better than many other unequipped officers.

AR Glasses for Suspect Identification

In many advanced countries, AR glasses are being combined with artificial intelligence (AI) and facial recognition software to help police officers on the streets identify suspects. These smart AR glasses are deployed at highway inspection points, airports and other critical places. These AR glasses look like normal sunglasses and it enables the police officers on duty to access national database information with the information of facial recognition, ID Card data and vehicle number plate information, all in real-time. Using these AR gadgets, suspects and people traveling under false identities can be caught easily. Although, using such systems has privacy concerns, in terms of usage, it can equip officers with valuable real-time information for assisting in their assigned operation. Thus, AR-based solutions may aid in investigations of crimes significantly.

AR/VR Apps for Crime Scene and Evidence Management

At the crime scene, it is a challenge for the first responder officer to process and preserve all the evidence in a timely manner as the officer on the scene may not be the most qualified person to identify and preserve such evidence. This may hamper the investigation process as it may lead to mistakes in preserving physical evidence or securing a crime scene by first officers. In such cases, AR or MR technologies can be helpful. For example, the tuServe mobile policing app works with Microsoft HoloLens MR headsets and mobile devices and is designed to assist the police officer on the crime scene. This app enables the officer to identify, map out and label the crime zone, captures digital evidence and allows officers to place virtual markers, without affecting the physical scene and potentially tampering any evidence. Such digital versions of the crime scene may be shared with other investigators, without a need to be physically present at the scene. Also, it can be used to investigate online along with the crime scene, so that all relevant details of the scene can be recalled even after the scene is cleared. This will be a boon while presenting the cases in a court of law.

AR/VR based solutions for Situational Awareness

AR/VR based displays and glasses can deliver improved situational awareness for many LEAs troops on the ground. Using these gadgets, troops can easily locate the troop's position, locate others around them and identify a friend or foe around them with accuracy. It also displays information related to the distance to the target and other related information with respect to the troop's movements. IVAS (Integrated Visual Augmentation System) goggles are one example of such AR/VR solutions that display critical information and are designed to help troops identify enemy forces and make decisions more quickly. Generally, these goggles are enabled with thermal and low-light vision sensors for use in

dark or low light situations. One advantage of using such AR/VR systems is that they are far less distracting than handheld systems. Using goggles, the troops don't have to take their eyes off the operational field. These AR/VR gadgets are essential for creating situational awareness for LEAs in many situations like emergencies, security arrangements VIP movements, riots, natural disasters etc.

Advanced IVAS Goggles

In addition to IVAS goggles, facial recognition capabilities could be incorporated for easy identification of targets. Also, weapons could be linked to these systems, to give soldiers the ability to fire without even seeing the enemy. Using these goggles, the troops can see through their weapon's sight, which enables holding their weapons around the corner of a building and firing the targets accurately, while remaining safely undercover.

AR/VR Enhanced Training for LEAs

Using VR simulations immersive training experiences can be created for various LEAs.

Existing VR technologies can simulate dangerous scenarios or events that would be difficult to simulate in real life for training the personnel of LEAs and the military. For example, using VR technology, flight simulators training is delivered to pilots which create a realistic on-ground training experience.

Meanwhile, in police training, the VirTra VR police training tool is another example. This tool is used to train police officers in hundreds of simulated scenarios.

Using such tools, Law enforcement officers can be trained for many real-world scenarios they may encounter during their duties. These training scenarios may include a routine traffic stop, emergency situations like hostage or kidnapping, domestic violence callout to mass shooters or many others. These VR

based training simulators have 360-degree simulations, where LEA personnel can learn how to deal with such dangerous and emergency situations, and when and how to use force.

Various LEAs across the world are using AR/VR simulators to practice de-escalating mental crisis calls, which includes situations, such as dealing with persons with disabilities or mental disorders. Virtual training with multiple officers to develop teamwork skills can be improved using VR Technology. There are a lot of examples where LEAs personnel have been trained using AR/VR based simulators during the COVID situation. AR/VR based programs could add hundreds of extra training hours each year, helping officers to learn to handle critical situations using simulated environments and thus AR/VR play a significant role in Police Capacity Building.

Future of AR/VR Technology for Law Enforcement

In the future, AR, VR and MR based solutions may provide real-time information to our police officers and help them in situations like unnecessary stops and de-escalation, response to shoot/don't-shoot situations, and tense interactions between LEAs and lawmakers. Using these advanced technologies, the margin of error would decrease and accountability would increase.

In the near future, first responders can be trained by offering fully-immersive VR training simulators and other VR technology training solutions. Using AR/VR based systems, Police and public safety officers can simulate and practice various real-world situations in a virtual setting, focusing on de-escalation techniques and conflict management skills. Also, VR can be used to train officers for situations like active shootings and violent crowds etc.

AR-based solutions are useful for mission

management for airborne law enforcement officers for viewing streets, addresses, businesses, infrastructure, vehicle locations, and other information, directly on top of sensor video of UAVs and drones in real-time. The AR overlay on one single display provides a comprehensive analysis that can assist in stopping hot pursuits and other high-risk situations.

The use and adaptation of AR/VR/MR based technology is at an emerging state. So, there is a need for new and innovative solutions to be developed for various applications related to LEAs. AR/VR enabled technology has already been adopted by many countries for improving police investigations, situational awareness and training purposes. VR and AR may bring about a vast amount of knowledge and information both in training and on the field. The possibilities that are provided currently, and in development, will provide law enforcement and security personnel an edge that they never had before. AR glasses and VR headsets are becoming more advanced, while at the same time more affordable, the applicability of these technologies for policing and law enforcement is only in its inception. Ultimately, the power of VR and AR can help save lives.

Conclusion

Over the years, the use of AR, VR and MR based technology by LEAs have increased at a significant rate. Rapid growth and developments in IT and communication technology has brought a surprise resolution in AR/VR based technology.

Training is one important area where the utility of AR/VR based solutions has seen more for LEAs. Although, virtual training may not completely replace physical and on-field training, AR/VR technologies are playing a major role in various other aspects of training

due to technological and financial advantages over physical training.

The importance of AR, VR and MR technology for LEAs would increase in the near future much more due to the advanced developments in technology, offering many good solutions and many AR/VR enabled tools are now available for catering to the requirements of LEAs beyond training and other conventional use. The new age challenges of LEAs are conventional as well as asymmetric in nature, which needs the evolution of innovative technologies like AR/VR to address them. AR/VR based technology, offers solutions without causing any loss or damage to humans and equipment, also, the technology is now available at an affordable price. The present generation mobile devices and smartphones have the capability of performing high-performance computing and handling AR/VR based apps.

For LEAs, there is an added advantage of using AR/VR, as it manages to successfully keep the 'clutter' away while taking operational decisions as it works on different dimensions simultaneously, and makes available, the required information to the officers. This allows the officers to take correct and timely decisions during the operations. While considering all these advantages, the Law Enforcement sector is likely to invest in AR, VR and MR technologies in near future. Overall, the AR, VR and MR technologies show a great potential to change the way operations are carried out by LEAs, and aid with a lot of opportunities to support the troops to perform numerous operations in an effective and efficient manner in the future.

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Mirror

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Abstract

Indian road network has seen an accelerated growth in the creation of road infrastructure in the past few decades. This shall keep pace with the all-round development in the country. However, there has been an abnormal high in road crashes, road traffic injuries and fatalities on the roads. Despite the United Nations resolutions and adoption of the decades 2010-20 earlier, and now declaring 2020-21 as International Decade for Action on Road Safety and the Supreme Court appointed Committee to reduce the road fatalities to half (earlier by 2020 and now by 2030), not much progress has been made by any state government. Tamil Nadu has attained the Sustainable Development Goal last year by concerted efforts by all stakeholders with governmental thrust in the area of post-crash trauma care. Despite its criticism all we need to do now is mirror the blue print etched by them. This shall be our legacy to our children.

The past few decades have seen a tremendous increase in road infrastructure in the country. Starting with the dream project, golden quadrilateral of former Prime Minister Shri Atal Behari Vajpayee and also his Pradhan Mantri Gramin Sadak Yojna, the country is now ranked second in the world so far as the road network is concerned. The total road length in India is 6,215,797[1] kilometers, which is marginally lower than the United States at 6,853,024 kilometers. Starting from the Nagpur Plan in the 1940s with a planned road density of 16 kms per 100 sq. km (and existing road length of approximately 8 lakh kms), road density has increased to 1.94 kms per square kilometer, making the country one of the densest road infrastructure which is higher than the US and BRICS nations. The endeavour by the Ministry of Road Transport and Highways under the dynamic leadership of Shri Nitin Gadkari remains unparalleled.

The share of National Highway and Expressway in terms of the percentage of road length has decreased from 4.95% in 1940 to 2.51% in 2020-21[2]. However, the total length of the national highways has increased more than 7 times. There has been a commensurate broadening of the roads by way of six lane and four lane increase in the existing roads.

According to the Roads Industry Report of November 2021, The Government of India has

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1   https://morth.nic.in/sites/default/files/Basic%20_Road_Statics_of_India.pdf
2   ibid

allocated Rs.111 lakh crore (US$ 1.4 trillion) under the National Infrastructure Pipeline for FY 2019-25. The road sector is likely to account for 18% capital expenditure over FY 2019-25."

However, these swanky National Highways and Expressways do not constitute the major chunk of the road infrastructure in the country. The document[3] published by the MoRTH categorizes the roads on the basis of the various government bodies administering the roads.

Category	Managing Authority	Length (km)	Length share
National highways	Ministry of Road Transport and Highways	1,51,000	2.19%
State highways	Public works department of state/union territory	1,86,528	3.00%
District Roads	Public works department of state/union territory	6,32,154	10.17%
Rural roads	Panchayats and PMGSY	45,35,511	72.97%
Urban roads	Municipal corporations and municipalities	5,44,683	8.76%
Project roads	Various government departments of states/union territories, and SAIL, NMDC and BRO	3,54,921	5.70%
Total	**Total roadways**	**62,15,797**	**100%**

As the names in the chart above suggest, besides the National Highways that connect major cities throughout the country and that are now constructed and maintained by the NHAI and other such National bodies, the state highways connect major cities through a particular state and are administered by state government authorities, District roads connect the district headquarters to the smaller towns in the district, urban roads are maintained and administered by the urban administrative bodies and the rural roads are constructed and maintained by the Panchayats and or the state authorities. What is significant from the above chart is that about 80% of the road network is either rural or urban and the mainstay of the state governments and its local self-governing bodies.

The Indian Road Congress which was registered as a society in 1937, and has more than 16,000 registered members and more than 50 lakh associates, is a premier organisation under the MoRTH to promote standards in construction of road an allied infrastructure, classifies the roads into National Highways, State Highways, Major District Roads (MDR), Other District Roads (ODR) and village roads. The Road Statistics of India[4] states that the growth of the rural roads in India has seen more doubling in the road length and increase in share from 51% to about 73% in the past 70 years.

Road length is a clear indicator of development. It facilitates logistics, removes socio-economic barriers and opens up the environment for numerous economic activities. Roads are meant to be used by motorised traffic for hauling of passenger and freight. Many studies[567] suggest that roads carry almost 85 percent of country's passenger traffic and

3   ibid
4   ibid
5   https://www.mordorintelligence.com/industry-reports/india-road-freight-transport-market
6   https://morth.nic.in/road-transport.nic.in
7   https://www.worldbank.org/en/news/feature/2011/09/23/india-transportation

more than 70% of its freight, and are a major contributor (about 14%) towards the GDP. Despite major fillip by the Government as far as investment in road infrastructure, roads in India are neither safe nor fast.

Long queues of truck alongside dhabas (countryside makeshift restaurants and resting places), repair shops, petrol stations, toll booth etc. are intrinsic part of the road infrastructure. The avenue of any and all sorts of economic activity is along roads and hence, the real estate value of the roads and adjoining land is therefore, always at a premium price. Due to lack of proper regulation and enforcement, roads and its vicinity always attract people and their mode of transport. This results into generation of traffic conflicts and resultant road crashes, Road Traffic Injuries (RTI) and Road Traffic Deaths.

The Ministry of Road Transport and Highways (MORTH) publishes[8] annually, the details of Road Accidents in India. The latest report states "A total number of 3,66,138 road accidents have been reported by States and Union Territories (UTs) during the calendar year 2020, claiming 1,31,714 lives and causing injuries to 3,48,279 persons", with an Accident Severity (Persons killed per 100 accidents) of 36%. It means simply that one in three road crash results in mortality.

Bosch India, which is a first of its kind study[9] on road accidents in India have calculated "the total socio-economic cost due to road traffic accidents in India's is $15.71–38.81 billion, which is estimated to be 0.55–1.35 percent of the nation's GDP". There are some other startling observations- "Nearly 781,668 vehicles were involved in road accident in 2019 according to RASSI Weighted data, amounting to $0.57–1.81 billion in damages and that the total medical cost of the road traffic accidents victims in 2019 was close to $0.82–1.92 billion". This study and the report of MoRTH have a variance of more than double in the number of Road Accidents. According to a study by Gururaj (2006) in Bengaluru and as reported in Journal of Public Transportation, Vol. 13, No. 4, 2010, "total number of injuries are grossly underreported, deaths were underestimated by five percent, and the number of injured who needed treatment in hospitals was underestimated by a factor of more than two." Wadhwa has also similarly observed that "In the absence of trauma registry, adding unreported accidents, it is frightening to note this fairly high rate when compared with developed economies[10]".

A World Health Organisation report[11] states that more than 90% of road traffic deaths occur in low and middle income countries and the death rates are the highest in the African continent. The socio economic status of those deceased in road traffic accidents invariably in all countries is the low income group. What is of immense concern is that the victims are children and young adults aged between 5-29 years. The same study suggests that 73% of these deaths are of young males. A World Bank study[12] along with the Save LIFE foundation states that India has only 1% of the world vehicles which makes a contribution of 10% of all Road Accident Deaths. The same study underscores that more than half of these deaths are vulnerable groups- pedestrians, bicyclists and two wheeler riders belonging to lower and middle income group. Another World Bank report[13] states that India tops the

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8   https://morth.nic.in/sites/default/files/RA_2020.pdf

9   https://www.bosch-press.in/pressportal/in/en/press-release-4608.html

10   http://www.autocarpro. in/news-national/road-accidents -in -india-claimed - 405-lives-- injured-1-290-each-day-in-2017-41006

11   https://www.who.int/news-room/fact-sheets/detail/road-tra c-injuries

12   https://www.worldbank.org/en/country/india/publication/tra c-crash-injuries-and-disabilities- the-burden-on-indian-society

13   https://documents1.worldbank.org/curated/en/761181612392067411/pdf/Tra c-Crash- Injuries-and-Disabilities-The-Burden-on-Indian-Society. pdf

world in road crash deaths with more than 400 fatalities per day. A WHO report[14] states that the RTI are the 3rd leading cause of death globally after Ischemic heart disease and Unipolar major depression. There is a change in rank order of DALYs (Disability adjusted life year) for RTI which was rated 8th in the year 1990. The WHO considers road deaths, injuries and disability as a major public health concern.

The MoRTH road accident report[15] which is largely based on the police reports suggests that 17.8% fatalities in road accidents are of pedestrians, 3.2% of bicyclists, 43.2% two wheelers, 3.8% auto rickshaws, 13.6% of LMVs, 7.5% Trucks, 2.3% buses, 1.3% other motor vehicles and the rest 6.7% animal drawn or other non motorised vehicles. The report clearly suggests that the vulnerable road user contributes to about 62% of road fatalities. This, however, doesn't correspond to independent study done by Marvin Hsiao[16] "The age-adjusted mortality rate was greater in men than in women, in urban than in rural areas, and was notably higher than that estimated from the national police records. Pedestrians, motorcyclists and other vulnerable road users constituted 68% of RTI deaths nationally. Among the study sample, the majority of all RTI deaths occurred at the scene of collision (58%), within minutes of collision (55%), and/or involved a head injury (62%)".

The MoRTH report[17] also records that National Highways that contribute to only 2.9% of the total road length contribute to 31.82% RTI and 36.43% fatalities, state highways that contribute to only 2.9% of the total road length contribute to 24.8% RTI and 25.2% fatalities and other roads (urban and rural) that contribute to 95% of the total road length contribute to 43.4% RTI and 38.4% fatalities.

The same report records the various types of accident as - Hit and Run (14.3%), With parked Vehicle (3.03%), Hit from Back (19.9%), Hit from side (13.1%), Run off Road (5.0%), Fixed object (3.5%), Vehicle overturn (5.2%), Head on collision (20.1%), Others 15.7%. However, this data is based on the 21 different types of format that a police officer is required to fill up while investigating a road traffic accident case and is already overwhelmed by the investigation that he is undertaking and hence, there is all likelihood of mistakes resulting in faulty data. The report also records the road accidents by types of traffic rules violation and attributes 69.3% fatalities to over speeding, 2.5% fatalities to drunken driving, 5.6% fatalities to driving on wrong side/lane indiscipline (as if both are the same), 7% fatalities to red light jumping, 2.2% fatalities to use of mobile phones and 19.8% to others. No use of safety devices such as not wearing helmets attribute to 30.1% fatalities and not wearing of seatbelts to 11.5% fatalities.

A research study by PRS Legislative research[18] reports "drivers are held responsible for 78% of accidents whereas only 3% accidents are caused by neglect of civic bodies, other causes of road accidents include fault of others (7.1%) such as fault of cyclists, pedestrians or drivers of other vehicles. Fewer accidents are caused due to neglect of civic bodies (2.8%), defect in motor vehicle (2.3%), and poor weather conditions (1.7%)". Besides the above reasons the WHO lists[19] unsafe road infrastructure, unsafe vehicles, inadequate post-crash care, inadequate law enforcement as other risk factors resulting in road crashes.

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14   https://apps.who.int/iris/bitstream/handle/10665/42871/9241562609.pdf;jsessionid=ED6CF555069CF5DDBFD93362A181BA8D
15   https://morth.nic.in/sites/default/files/RA_2020.pdf
16   https://bmjopen.bmj.com/content/3/8/e002621.short
17   https://morth.nic.in/sites/default/files/RA_2020.pdf
18   https://prsindia.org/files/policy/policy_vital_state/Overview%20of%20Road%20Accidents.pdf
19   https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries

DECADE OF ACTION FOR ROAD SAFETY 2011-2020

Alarmed by the growing trends in road crash the world over and resultant loss of human lives the United Nations General Assembly adopted a resolution number 255[20] in its 64th session 2nd March 2010 and proclaimed the period 2011–2020 as the Decade of Action for Road Safety, "with a goal to stabilize and then reduce the forecast level of road traffic fatalities around the world by increasing activities conducted at the national, regional and global levels and requested the World Health Organization and the United Nations regional commissions, in cooperation with other partners in the United Nations Road Safety Collaboration and other stakeholders, to prepare a plan of action of the Decade as a guiding document to support the implementation of its objectives." The UN set an ambitious target 3.6 of Sustainable Development Goals (SDG) to halve the road traffic deaths by 2020. A decade was chosen assuming this long time shall provide a longer opportunity for long tern coordinated activities, accelerated investment in road safety which will be encouraged and resources placed for action. The Global plan advocated action on five pillars of Road safety management: Safer roads and mobility, safer vehicles, safer road users and Post-crash response. Each pillar had numerous intrinsic activities to be undertaken both at the National and Regional levels with clear scope statement for funding. The action plan[21] for the decade was ambitious and well in time. However, the dissemination of the UN resolution was slow. WHO published a report[22] in 2018 stating "The number of road traffic deaths continues to climb, reaching 1.35 million in 2016. However, the rate of death relative to the size of the world's population has stabilized in recent years. The data presented in this report show that progress has been achieved in important areas such as legislation, vehicle standards and improving access to post-crash care. This progress has not, however, occurred at a pace fast enough

to compensate for the rising population and rapid motorization of transport taking place in many parts of the world. At this rate, the Sustainable Development Goals (SDG) target 3.6 to halve road traffic deaths by 2020 will not be met." Consequently the United Nations General Assembly further adopted resolution 299[23] in its 74th session, endorsed the Stockholm Declaration, approved at the third Global Ministerial Conference on Road Safety, held in Stockholm on 19 and 20 February 2020; and proclaimed the period 2021–2030 as the Second Decade of Action for Road Safety, with a goal of reducing road traffic deaths and injuries by at least 50 per cent from 2021 to 2030. The Declaration calls upon Member States to continue action through 2030 on all the road safety-related targets of the Sustainable Development Goals, including

20   https://documents-dds-ny.un.org/doc/UNDOC/GEN/N09/477/13/PDF/N0947713.pdf? OpenElement

21   https://cdn.who.int/media/docs/default-source/documents/un-road-safety-collaboration/global_plan_doa_2011-2020.pdf?sfvrsn=a34009ff_3&download=true

22   https://www.who.int/publications/i/item/9789241565684

23   https://documents-dds-ny.un.org/doc/UNDOC/GEN/N20/226/30/PDF/N2022630.pdf?OpenElement

GLOBAL PLAN

DECADE OF ACTION FOR ROAD SAFETY 2021–2030

UN General Assembly Resolution 74/299 declared a **Decade of Action for Road Safety 2021-2030**, with the target to reduce road traffic deaths & injuries **BY AT LEAST 50%** during that period

The Global Plan describes what is needed to achieve that target, and calls on governments & partners to implement an integrated **SAFE SYSTEM APPROACH**

target 3.6, in line with the pledge of the 2019 high-level political forum on sustainable development convened under the auspices of the General Assembly, especially taking into account the remaining decade of action to deliver the Sustainable Development Goals by 2030 in their entirety.

The United Nations came up with a Global Plan to achieve the SDG goal 3.6, making safety a core value and embarked on a SAFE SYSTEM APPROACH that "anticipates and accommodates human errors; incorporates road and vehicle designs that limit crash forces to levels that are within human tolerance, to prevent death or serious injury, motivates those who design and maintain the roads, manufacture vehicles, and administer safety programmes to share responsibility for safety with road users, so that when a crash occurs, remedies are sought throughout the system, rather than solely blaming the driver or other road users. The Plan pursues a commitment

to proactive and continuous improvement of roads and vehicles so that the entire system is made safe rather than just locations or situations where crashes last occurred; and adheres to the underlying premise that the transport system should produce zero deaths or serious injuries and that safety should not be compromised for the sake of other factors, such as cost or the desire for faster transport times." The Global plan recommends creation of Multimodal transport and land use planning, safe road infrastructure, vehicle safety, safe road use and effective post-crash response. The plan also recommends provision of financing, creation of Legal frameworks, speed management, capacity development, and adapting technologies to the safe system with a focus on low and middle income countries. The plan exhorts shared responsibility with specific roles for government, academia, civil society and youth, private sector, funders and the UN itself with a robust monitoring and

evaluation mechanism. The plan has set 12 individual targets within a decade for all stake holders.

Meanwhile, S Rajaseekaran, a leading orthopaedic surgeon and the Chairman and Head of the Department of Orthopaedic Surgery in the Ganga Hospital at Coimbatore, and the President of the Indian Orthopaedic Association filed a writ petition (Civil) no 295 of 2012 in the Apex Court[24] "seeking the Court's intervention, primarily, in the matter of enforcement of the prevailing laws and also seeking directions for enactment of what the petitioner considers to be more appropriate legislative measures and for more affirmative administrative action. The petitioner also seeks directions from the Court for upliftment of the existing infrastructure and facilities with regard to post-accident care and management to minimize loss of life and physical injuries to victims of road accidents" citing the MoRTH document Road accidents in India. The three judge bench led by the then CJI P. Sathasivam passed an order appointing a committee under the Chairmanship of Justice KS Radhakrishnan a retired Supreme Court Judge to undertake the process of monitoring on behalf of the court. Accordingly, a 25 action points[25] namely, Road Safety Policy, State Road Safety Council, Lead Agency, Road Safety Fund, Road Safety Action Plan, District Road Safety Committee, Engineering Improvement, Traffic Calming Measures, Road Safety Audits, Engineering Design of New Roads, Working Group on Engineering, Drivers' Training, Lane Driving, Road Safety Equipment, Alcohol and Road Safety, Road Safety Education, Speed Governors, Emergency Medical Care, Universal Accident Helpline Number, Permanent Road Safety Cell, Data Collection, GPS, Bus/Truck–Body Building Code, ABS,

Air Bags and Headlights and Crash Test were enumerated to be complied by the Centre and the states. The ultimate goal was to reduce fatalities on road to 50%.

Looking deeper into the Road accident data as published by MoRTH,[26] 5,01,423 accidents were reported in 2015 which reduced to 3,66,238 in 2020 and deaths were reduced from 1,46,133 to 1,31,714 fatalities respectively which roughly corresponds to 27% reduction in accidents and 9.87% in fatalities. However, the numbers of accidents depict a sharp decline of 18.46% from 2019 to 2020, forcing us to derive a caveat of prolonged lockdown due to COVID in 2020. For other years there is a gradual reduction of about 4% in accidents and 2% in deaths. Despite the interventions of the Supreme Court and an ambitious plan of the United Nations, where do we falter?

At the time of formation of the Supreme Court Committee, Tamil Nadu was the worst performer in road accidents. In 2014, Tamil Nadu contributed to more than 15,000 fatalities. However by 2019 the fatalities were reduced to 10,000 which is a reduction of over 25%. Further progress to the extent of attaining the UN SDG 3.6 Goal was achieved by Tamil Nadu, as in the year 2021 only 8616 people died in road accidents[27]. Tamil Nadu could attain this by concerted action by all stake holders- Transport department, Highways, Health, Education, and Police and led by the District, Collectors. The success story is data driven with the emphasis on the 4 Es of road safety- Education by way of awareness through campaigns, Enforcement by way of issue and revoking of driving license and also in depth study of the causes of accidents. Engineering by way of illumination, signage, road safety audit and   a brilliant Emergency care.

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24   https://indiankanoon.org/doc/169219343/
25   https://pwd.uk.gov.in/files/PWD/Download_File_1.pdf
26   https://morth.nic.in/sites/default/files/RA_2020.pdf
27   https://tnsta.gov.in/pdf/analysis_january2020.pdf

The government created the Tamil Nadu Accident and Emergency care initiative with pre hospital innovations such as GIS mapping of accidents to find the hotspots, Dynamic Allocation of Ambulances based on GIS Mapping, 108 Global Position transmitter App (Latitude & Longitude of caller location), Pilot navigation app to reach the Scene, Introduction of Advanced Paramedics in the field and Pre- Arrival Intimation to 75 TAEI centers to expedite the reception and resuscitation. Innovations at the Hospitals included- Pre Arrival Intimation at 75 Centres, Trauma Reception (Triage Codes Red Yellow Green), Creation of Resuscitation Bay, Time Stamped Management, Point of Care Testing at ER, Linkages with Multidisciplinary Units , Multi-Disciplinary Critical Care Unit, Nurse Driven Model , TAEC Protocols, Capacity Building (Training), Formation of Emergency Department and Rehabilitation starts From the Day of Admission. Setting time limits to triage, survey, resuscitation, investigations, specialist opinion resulted in timed response. In essence, the model ensures that a trauma victim is saved by timely and due medical response with a total focus on post-crash response. World Bank[28] acknowledges that Tamil Nadu has brought down the response time of emergency medical teams to 14 minutes. This approach is in sync with the Lancet research[29] "We found that more than 2, 00,000 lives per year can be saved globally with the implementation of a complete trauma system with 100% coverage in LMICs. Partial system improvements such as establishing trauma centres (>1, 45,000 lives saved) and instituting and improving trauma teams (>115000) were also effective. Emergency medical services had a wide range of effects on mortality, from increasing mortality to saving lives (>200000 excess deaths to >200000 lives saved per year). For clinical interventions, damage control resuscitation (>60000 lives saved per year) and institution of interventional radiology (>50000 lives saved per year) were the most effective interventions." The Union Minister Shri Nitin Gadkari has also urged other states to follow the Tamil Nadu model[30].

There was some criticism[31] when it was found that around 20,000 people died in road accidents in Tamil Nadu between 2017 and 2020. These deaths were not recorded. With claims and counter claims as to recording of these deaths notwithstanding, Tamil Nadu has paved a way for saving endangered life by a robust post-crash trauma care system that requires to be replicated to achieve the directions of the Supreme Court and the Sustainable Development Goal of the United Nations.

28 https://blogs.worldbank.org/endpovertyinsouthasia/road-safety-how-state-india-leading-way- lower-road-crash-deaths

29 https://www.hifa.org/dgroups-rss/lancet-improvement-trauma-care-road-traffic-injuries-and- mortality-lmics

30 https://newsonair.gov.in/News?title=Union-Minister-Nitin-Gadkari-says%2C-Tamil-Nadu-has-become-a-pioneer-in-reducing-road-accidents-by-50-per-cent&id=409995

31 https://timesofindia.indiatimes.com/city/chennai/tamil-nadu-missed-recording-22000-road-accident-deaths-in-3-years/articleshow/93604341.cms

Actualization of Rawlsian Theory of 'Justice as Fairness': The Empowerment of Women in Bihar

Mrs. Anupama Nilekar Chandra*

Prelude

The Preamble of the Constitution of India, distinctly spells out that the guiding principles of the Constitution, states "We, the people of India, having solemnly resolved to constitute India into a sovereign Secular Socialist Democratic Republic and to secure to all its citizens Justice, social, economic and political; Liberty of thought, expression, belief, faith and worship; Equality of status, and of opportunity; and to promote among them all Fraternity assuring the dignity of the individual and the unity and the integrity of the Nation; In our Constituent Assembly this day 26th of November, 1949, do hereby adopt enact and give to ourselves this Constitution."[1]

The people of India have given the Constitution to themselves, where in justice, liberty equality and fraternity are sought to be secured for all its citizens, irrespective of caste, class, creed, sex etc. Specific provisions have been made in the Constitution of India to provide equal opportunities to women to ensure empowerment of women of the nation. Earlier, the welfare of women was not focussed upon in the constitution. However, from the Fifth Five Year Plan (1974-78) the issues related to the development of women starting gaining credence. In the recent years, there has been a paradigm shift with the focus being entirely on the development and empowerment of women.

As stated in the National Policy for the Empowerment of Women (2001), the goal of this policy is to bring about the advancement, development and empowerment of women by creating an environment through economic and social policies for full development of women, to enable them to realize their full potential and to ensure enjoyment of all human rights and fundamental freedom on an equal basis in all spheres – political, economic, social, cultural and civil.[2]

The empowerment of women in the state of Bihar in the last decade from the year 2005 onwards, assumes great significance, as an outcome of policies of equal opportunities adopted by the state for achieving the growth, development and the empowerment of women. John Rawls in his book 'Justice as Fairness' has lucidly advocated the entitlement of each person to the basic liberties as enjoyed by others, equality of opportunity and that greatest benefit must reach the most disadvantaged.[3]

As per Census 2011, the total population of Bihar is 10.4 crore, of which women constitute 4.9 crore. Deprivation and denial of equal opportunity has relegated women into the background and their ability to realize their

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potential has been affected adversely. It also affects the economic growth of the nation as half of the population remains disadvantaged and hence not in a position to contribute to the growth of the nation. Hence, discrimination against women has serious consequences not only for women, but also for the nation as a whole.

This paper intends to study the implementation of policy interventions, providing opportunities to women and the impact of this on the economic, social, political, educational status of women, their role in decision-making and their presence in the organizational set up. It also highlights the pro-active orientation of the policy makers that has commenced the irreversible process of undoing the historical wrongs heaped upon women since times immemorial. This is proving to be an enabling factor for women to acquire the status befitting of them in all spheres of life as individuals with dignity, equality and liberty.

In his book, 'Justice As Fairness: A Restatement' which finds its genesis in the lectures that he delivered at a course on political philosophy at the Harvard University in the 1980s, John Rawls elaborates on the concept of equality and liberty to each individual as all others are entitled to and each such disadvantaged individual to be positively discriminated in favour of and to have a fair and equal opportunity in all spheres of life.

The National Policy for the Empowerment of Women, 2001[4] takes note of the wide gap between the goals enunciated in the Constitution, legislations, policies, plans, programmes and related mechanisms on one hand and the situational reality of the status of women in India, on the other and has drawn the road map to empowerment of women.

The "Mukhyamantri Nari Shakti Yojana"[5] : The Women's Empowerment Policy, of the state of Bihar aims at implementation of policies and schemes, mainly addressing the empowerment needs of women in the economic, social and cultural field.

1. Introduction

Bihar is one such state, whose economic profile is much below the national average on key development parameters like incidence of poverty, per capita income, levels of industrialization and levels of social and physical infrastructure. Backwardness is more accentuated when we delve into the demographic profile. Girls and women in Bihar faced several gender- specific multidimensional vulnerabilities.

2. Constitutional provisions and case laws

(i) Equality before law is enshrined in Art. 14 of the Constitution of India.

(ii) Prohibition of discrimination on the grounds of religion, race, caste, sex or place of birth (Art. 15)

(iii) Equality of opportunity in matters of public employment (Art. 16)

Art 16 (3) Special provision for women and children. With a view to ensure gender equality, the makers of the Constitution intended to apply equality amongst men and women in all spheres of life.[6]

(iv) Vishaka v. State of Rajasthan, (1997) 6 SCC 241; AIR 1997 SC 3011, now legislated as the Prevention of Sexual Harassment at Workplace Act, 2013.

Gender equality includes protection from

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4   The National Policy for the Empowerment of Women, 2001

5   www.icsbih.gov.in

6   Durga Das Basu, Shorter Constitution of India (LexisNexis, Gurgaon,2001)

sexual harassment and right to work with dignity, which is a universally recognised basic human right.

(v) Apparel Export Promotion Council v. A K Chopra, (1999) 1 SCC 759; AIR 1997 SC 3011

Each incident of sexual harassment, at the place of work results in the violation of fundamental right to gender equality and the right to life and liberty – the two most precious fundamental rights guaranteed by the Constitution of India.

These guiding principles have enabled policy makers in Bihar to proactively intervene for enabling women to get their due equality of opportunity in all spheres.

3. An overview of the State Policy for Empowerment of Women in Bihar

The Bihar Government has adopted the Women Empowerment Policy which seeks to ensure "equitable access by women, irrespective of caste, class and race to economic, education and health resources by addressing structural and institutional barriers guaranteeing gender equality and to ensure that equity transcends across all sectors of development."

It aims to accelerate gender equity, equality and women empowerment through advocacy, capacity building, socio-economic and political and cultural empowerment, consultative processes, as well as ensure networking with Governmental and Civil Society Organizations, private sector, the media, and development partners in order to achieve sustainable gender parity at all levels and in all spheres of life.

The overall goal of this policy is to mainstream gender in all state and sectoral policies, programs, plans and budgets to achieve gender, equity, equality and women empowerment and bring about sustainable development in the state.

In order to achieve this goal and to reach out to every single woman from any section and segment, the state investments and efforts have been directed and aimed at achieving certain outcomes which are being adapted and translated into specific results with associated targets and indicators in strategic planning at the state and at the level of various coordinating departments. The three overarching objectives are-

• To reduce gender disparities in access to, control over and benefit from resources, wealth, opportunities and services - economic, social, political, and cultural;

• To reduce gender-based violence and mitigate its harmful effects on individuals, women and societies and provide a secure environment for women.

• To increase capability of women and girls to realize their rights, determine their life potentials, and influence decision-making in households, communities, and societies.

4. Policy Intervention of the State

The policy makers, in the year 2005 realized that the full potential of the demographic dividend cannot be reaped unless gender inequalities are decisively addressed. The State Government accorded top priority to empowerment of women in the State. Several legal provisions, policies, institutional mechanisms and programs were conceptualized to empower women in the State. Gender inequality arising out of social norms and cultural traditions has been addressed through a range of direct and indirect measures to bring about social change, especially changes in attitudes and perception towards women. Decisive interventions were undertaken to provide girls and women with equal access to education, health care, representation in political and

economic decision-making processes, access to productive resources and due participation in public life.

4.1 Equality of opportunity

The State's effort itself reflects the aspirations of women in the State. Some of the notable policy interventions were in terms of providing an equal opportunity to women in offices and in positions of power and decision making, which empowered women in a big way are as follows:

- In the year 2006, 50 per cent reservation for women was provided in the three tiers of Panchayati Raj Institutions and in 2007, the same provision was made for Urban Local Bodies.

- 50 per cent reservation to women in primary school teachers' recruitment.

- 35 per cent reservation to women in police recruitment in the rank of constables and sub-inspector, in addition to the existing 3 per cent

- Separate Women Police Stations were established in all 40 police districts and 4 rail police districts with additional creation of 647 posts exclusively for women.

- For the first time a women battalion was established in the State.

- Another police battalion by the name "Swabhiman" Battalion was established specifically for Schedule Tribe women of the State.

- Under its "Saat Nischay" (Seven Resolutions), in Jan 2016, the State government provisioned for 35 per cent reservation for women in all state government jobs.

4.2 Economic Empowerment

Another transformational initiative of the Government of Bihar is JEEVIKA, which is India's largest state level women's socio-economic empowerment program, working directly with nearly 90 lakh families in rural Bihar. The program involves mobilization of women into Self-Help Groups, commodity specific producer groups and higher federations. These community institutions enable collective capacity building, improved access to finance and public services and direct linkage to markets. The objective of the program is to diversify and enhance household-level incomes and improve access to and use of nutrition and sanitation services among rural households.

The program was introduced in 2007 under the World Bank supported Bihar Rural Livelihoods Project (BRLP) in 6 districts of Bihar. Successful implementation of the first phase of the program (2007-11) provided a large-scale proof of concept where women collectives emerged as platforms for delivering transformational socio-economic outcomes and prompted restructuring of the erstwhile Swarnjayanti Gram Swarojgar Yojana (SGSY) into the National Rural Livelihoods Mission (NRLM). JEEVIKA is funded under the World Bank supported Bihar Transformative Development Project (BTDP), NRLM and leverages significant resources from several state level livelihood and welfare schemes.

JEEVIKA presently operates in 31,656 villages, across all 534 blocks and 38 districts of Bihar. Under the program, Bihar has the highest number of SHGs

nationally, with more than 7, 59,000 Self-Help Groups, further federated into 48,360 Village Organizations and 776 Cluster Level Federations. By the year 2020, the program targeted to mobilize a total of 10 lakh SHGs covering nearly 70 per cent of rural Bihar. The program focussed on poorest of the poor by initiating social mobilization from poorest hamlets in villages, ensuring adequate representation of poorest section in group and federation leaders, implementing specialized financial products around food and health security to reduce vulnerability and linking eligible households to key government schemes for accessing benefits and entitlements. It has amplified the reach of rural bank branches in Bihar by developing SHGs as credible borrowers for establishing small businesses that not only provided additional incomes but also created new jobs in rural economy. The programme is leveraging its massive outreach to deliver large scale behavior change on improved nutrition and sanitation practices. JEEVIKA groups are playing a vital role in the sanitation value chain by triggering demand for improved sanitation, facilitating ready availability of finance and materials for toilet construction and ensuring sustainability by participatory monitoring of toilet usage and maintenance. JEEVIKA SHG women have emerged as potent forces for social change, acting as vigilant citizen platforms supporting local institutions like Schools, Anganwadi centers and PRIs while also actively participating in campaigns around alcohol prohibition, dowry and child marriage.

4.3 Educational Empowerment

The educational status of girls in Bihar was very poor as compared to other developed states as well as against that of the boys in Bihar. It was seen that there was a high drop out of girls at the level of secondary education; the main reason being schools at distant locations and also security concerns among parents. The Human Resource Department of the State government initiated new schemes in order to motivate the girls to continue secondary education and address the security concerns of parents, some of which are as follows:

- Mukhya Mantri Poshak Yojana: Under this scheme, girl students from Class I - II get Rs 400 every year in their bank account for purchase of two pairs of uniforms. Similarly girl students from Class III to V get Rs 500 every year.

- Mukhya Mantri Balika Poshak Yojana: Under this scheme, girl students from Class VI and VIII get Rs 700 every year in their bank account for purchase of two pairs of uniforms and study materials. In the financial year 2016-17 under the abovementioned two schemes 87 lakh girl students were covered.

- Bihar Shatabdi Mukhya Mantri Balika Poshak Yojana: Under this scheme, girl students from Class IX to XII get Rs 1000 every year in their bank account for purchase of two pairs of uniforms and teaching materials. In the financial year 2017-18 under the scheme 13.90 lakh girl students benefitted.

- Mukhya Mantri Balika Cycle Yojana: The scheme was mainly launched to ease the commuting for attending the school at secondary level; all

girls would be given money to purchase bicycles by the state government after getting admission to Class IX. Bank accounts of girls studying in Class 9th were credited with Rs 2500 each for buying bicycles. Till 2017-18, more than 66.27 lakh girls have benefitted from the scheme. This scheme not only ensured that girls came out of their homes in large number to access high school education, but also led to a social transformation where the society at large accepted the free movement of girls which was almost non-existent till then.

- Mukhya Mantri Balika Protsahana Yojana: This scheme was mainly launched to promote higher studies among girls. Rs 10,000 is paid to every girl who passes class 10th with 1st division. Since the commencement of this scheme in 2010, more than 2.20 lakh girl students have benefitted from it.

- Kasturba Gandhi Balika Vidyalaya: For the girls of weaker sections of the society, 535 Kasturba Gandhi girl schools were set up with hostel facilities to provide middle school education from class VI to VIII. These girls were also provided martial arts training to instil self-confidence in them.

- Mukhya Mantri Akshar Anchal Yojana: Aimed at improving women's literacy in Bihar among the weaker sections of the society especially targeting the schedule castes/tribes, most backward class and minorities. Habitation approach was adopted by education volunteers providing adult education to women

folk. These volunteers were also given the responsibility to ensure that children within the age group of 6 to 14 in these habitations were initiated to formal education in government schools and drop-outs are again brought within the ambit of formal education. More than 30.53 lakh women of SC/ST and OBC categories along with 12.15 lakh women of minority communities have been made literate under this program.

4.4 Social Empowerment

The State Government made efforts to improve the poor condition of women on various social indicators like sex ratio at birth, age at marriage, status of girl child, nutrition of girls and living condition of widows. A number of schemes and programs were undertaken to address the social issues.

- Mukyamantri Kanya vivah Yojana: The objective of the scheme is to provide financial assistance of Rs 5000 for marriage of girls in poor families. This scheme also aims to promote marriage at right age with registration of marriage and to curb child marriages.

- Mukyamantri Kanya Suraksha Yojana: This scheme was implemented with a four-fold objective – to prevent female foeticide, encourage birth of girl child, improve the adverse sex-ratio and encourage birth registration.

- Antarjatiya Vivah Protsahan Anudan Yojana: This scheme aimed to address the problem of dowry and promote inter-caste marriages. An assistance of one lakh is given by

State Government to such marriages in the State.

- Bal Vivah and Dahej Pratha Unmoolan Abhiyan (Campaign against Child marriage and Dowry System): From 2nd October, 2017 the State Government launched a state-wide campaign against child marriage and dowry system. Extensive mass awareness and sensitization programs have been under taken from villages to cities to sensitize and orient all stakeholders (public representatives, officials, students and public etc.) about the ill-effects (social, economic, psychological, health etc.) of child marriage and dowry system. The existing legal provisions have also been publicized to invoke the deterrence among the wrong doers. On 21st January 2018 a human chain of more than 14000 kms was formed through which people from all walks of life expressed their support to this campaign in the State.

- Kanya Uthan Yojana: This scheme aims at protection of girl child at birth, ensuring her primary health, incentivizing her education and enhancing her self-reliance. The scheme aims to prevent female foeticide, encourage registration of birth of girl child, ensure full immunization of girl child, improve sex-ratio, reduce girl child infant mortality rate, encourage girl education, check child marriage and reduce fertility rate. Thus under the various components of Kanya Uthan Yojana, a girl from birth to graduation gets Rs 54,100, in addition to the financial assistance she gets through the scholarship scheme (class I to XII), the cycle scheme, the kanya vivah yojana etc.

4.5 Women as agents of Social Change

Women, especially those organized as self-help groups played a decisive role in implementation of Prohibition in Bihar. Initially it all started in a small way, through localized protests against the spread of liquor and in favour of prohibition. It gained momentum in due course in the form of agitations by SHGs, demanding for prohibition. On 9th July 2015, in a State Level Conference of ''Gram Varta'' jointly organized by Women Development Corporation, Bihar and DFID, the women members of Self Help Groups demanded for implementation of prohibition in Bihar. Prohibition came into effect in Bihar in the form of legislation, w.e.f. from 1st April, 2016. Thus assertion of empowered women in Bihar culminated in the formulation and implementation of the Prohibition of liquor policy in Bihar.

5. Outcomes of the Policy Interventions

The multi-pronged policy interventions adopted to address gender inequalities and to ensure social, political and economic empowerment of women in the State - has enabled greater participation of women in decision-making processes, enhanced access to productive resources and larger contribution in public life.

Some of the outstanding quantifiable outcomes are as follows:

- More than 50% Women representatives have won election in three-tier Panchayati Raj institutions (Mukhiya (50.93%), Panchayat Samiti members (51.24%) and Zila Parishad members (53.23%)) which is more than the reservations provided for

them. Similarly large numbers of women have won elections in the urban local bodies also.

- Provision of 35 % reservation in employment in State jobs has resulted in recruitment of more than 4400 women in police and 1798 women in general administrative posts.

- Under the JEEVIKA program, Bihar has the highest number of Self-Help Groups nationally, with more than 7, 59,000 Self-Help Groups in 38 districts. The program targets to mobilize a total of 10 lakh SHGs covering nearly 70 per cent of rural Bihar. JEEVIKA groups have thus far leveraged more than Rs. 5200 crores of bank credit, in addition to 700 crores in small savings by SHGs, highlighting the immense inherent potential of rural women.

- The bicycle scheme for girls increased the enrolment of girls in schools from 1.7 lakh girls in class 9th in the State to more than 9 lakh. In 2005 out of the school children (largely girls) was 12% which is presently less than 1%.

- The incidence of child marriage has also registered the highest decline in Bihar. As per the NFHS-4(2015-16) in 2005-06 the percentage was 47.8% which has come down to 19.7% in 2015-16. In 2005 the Total Fertility Rate (TFR) was 4.3, it has come down to 3.3 in 2016. In 2011 Census, Bihar registered a 20% decadal growth in female literacy, which was the highest in the country. The Boy-Girl ratio for Class X annual exam in 2005 was 67:33, which increased to 51:49 in 20, thus exemplifying that the initiatives in the education sector have borne fruit with boy-girl ratio almost attaining parity.

- If we compare the percentage of male and female voters in Assembly Elections in Bihar since 1990 a phenomenal increase in number of women voters has been seen since 2005. In fact, in the Assembly Elections in 2010 and 2015, the percentage of women voters is significantly higher than that of men. This is a significant indicator of the greater sense of participation, empowerment and decisiveness of women in electoral politics.

Sl.	Assembly Election (year)*	Male %	Female %
1	1990	69.63	53.25
2	1995	67.13	55.80
3	2000	70.71	53.28
4	2005(Feb)	49.94	42.51
5	2005(Oct-Nov)	47.02	44.62
6	2010	51.11	54.44
7	2015	53.32	60.48

(published figures from CEO, Bihar website)[7]

6. "Justice as Fairness" by John Rawls as the basis of Empowerment of Women in Bihar

The thrust placed by John Rawls on the principle of justice, covering the basic liberties and of equality of opportunity, reverberate emphatically in each of the policy interventions undertaken for the empowerment of women in Bihar. Rawls further states that the members of any civilized society need a conception that

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enables them to understand themselves as members having a particular political status – in a democracy, that of equal citizenship – and how this status affects their relation to their social world.

The empowerment of women was possible because they were able to avail their liberty and equal rights in terms of access to the various opportunities provided to them through state policy to enable them to fully realize their potential. The social and economic inequalities were rearranged in such a manner in Bihar that the most disadvantaged group i.e. the women of Bihar got the greatest benefits. This justifies the concept of "Difference Principle" of Rawls.

7. Conclusion and suggestions

The study of the concept of "Justice As Fairness", the policy intervention with reference to women's empowerment in Bihar and the actual outcome based on the data clearly indicates that when policies were made to ensure that women, the disadvantaged group, get an equal opportunity and liberty and freedom of thought and expression, then the local self-government, government services increased their participation in these bodies and the decision making process transferred into the hands of women in those posts. This participation in decision making, along with the social, economic and educational empowerment has boosted the confidence of women who have become role models for other women, thereby encouraging them to free themselves from the shackles of deprivation and avail all possible opportunities to empower and strengthen themselves. So the focussed policy intervention has ensured empowerment of women and women as role models are perpetuating this process further.

The reservation for women in local self-government and public services is ensuring filling up of the quota reserved for them. Apart from this, women are also qualifying for and thereby occupying unreserved posts and outweighing the men in numbers.

The participation of women in the process of casting their votes in elections has increased drastically which is a clear indication of their informed and independent status in taking decisions. This is a healthy sign for a democracy with empowered women voters.

This makes a strong case for continuation of focussed policy intervention of the state until the entire female population is at par with the male population on all indicators of development. Thus, equal opportunity policies in favour of women are necessary for their economic, social, political, educational and cultural empowerment.

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Demystifying the Police Leadership

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"Leadership is not about titles or the corner office. It is about the willingness to step up, put your-self out there, and lean into courage. The world is desperate for braver leaders".   - Brown

Abstract

The article attempts to throw some light on police leadership, and the various functions a police leader has to perform. The article attempts to understand what challenges a police officer as a leader has to face, and how he overcomes those challenges. The challenge is not just from one front, or does not have a "one size fits all" strategy. To be an effective leader he has to not just be an exceptional leader in policing but needs to be a good mentor and counselor as well, since the subordinates may at times get overwhelmed with the extent of work and associated challenges. The paper has briefly highlighted many such roles a police leader has to and must play.

Keywords: *Police, Police Leadership, Leadership, Emotional Intelligence, Level 5 Leader*

Introduction

Leaders are the driving force in any organisation. The Police department is no different and requires effective leaders. A police leader has to play various roles and this requires him/her to develop as well as possess a host of skills and abilities. A police leader has to develop an understanding of complex situations to help him/her to function effectively in a difficult social, political, and organizational environment (Casey and Mitchell, 2007). The challenges for a police leader have grown manifold with the advancements in crime techniques, technology, advanced gadgets, reforms, to name a few. Thus, the need for effective leaders in the police has taken a centre stage (Meaklim and Sims, 2011). With so many challenges, the leadership holds an important role in effectively running the organisation so that it functions well; hence leadership is one of the most important predictors of the success of the organisation (Peterson et al., 2009).

The article attempts to throw some light on the ever-growing challenges that a police leader has to face and how s/he deals with those

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challenges. The article will take reference of some past studies as well as some recent examples that will help demystifying the police leadership.

Review of Literature

A leader in the Police services needs to have certain essential qualities to successfully take the organisation ahead, while facing critical challenges. The research studies that were conducted in the past have identified a few essential attributes that a police leader must possess, some of them are being 'ethical'; a quality that exhibits integrity and honesty, while consequently being able to create a feeling of trustworthiness amongst the subordinates (Murphy and Drodge, 2004; Vito et al., 2011; O'Leary et al., 2011). Literature proves that trustworthiness has to be at all levels between the leader and the subordinates. It was found that not only the subordinates should trust the leader, but vice-versa as well, including the trustworthiness of the community members (Atwater et al., 2000; Schafer, 2008; Wheatcroft et al., 2012). Legitimacy in the eyes of one's staff is yet another essential attribute where the subordinate has the confidence that the leader would lead from the front and take the baton in hands, if needed (Rowe, 2006; Silvestri, 2006; Schafer, 2008).In addition, the subordinates knowing well that the superior or the leader has performed various duties of various ranks in the past and thus possesses a sound knowledge of the duties and responsibilities, create a strong ground for being considered a 'role model' (Engel, 2000; Densten, 2003; Johnson, 2006; Andreescu and Vito, 2010). Literature suggests that being able to think strategically and making successful strategic decisions is one of the most essential qualities a police leader must possess (Metcalfe and Dick, 2000; Andreescu and Vito, 2010; Dick, 2011). In addition, being an exceptional communicator is yet another

attribute the police leader must possess. It is important for one to communicate most effectively and clearly, (Densten, 2002; Murphy and Drodge, 2004; Steinheider and Wuestewald, 2008; O'Leary et al., 2011) with not only subordinates but important stakeholders in Government and community as well. For a police leader to be effective, he/she must possess a thinking ability, which would help making critical decisions while creative thinking is regarded as a key attribute of successful leaders (Davies, 2000; Miller et al., 2009; Meaklim and Sims, 2011).

Methodology

To understand the complex role a police leader has to play, websites for original research papers were searched. Websites like EBSCO Host and Google Scholar were searched. The keywords inserted on the search engines were police, leadership, police leadership, complex leadership roles, challenges to police leaders, and police leadership post COVID-19. Out of the results generated, 168 articles were selected, however, due to their quality of research or not matching the criteria, only 48 out of them were considered. Those research papers selected were either a systematic review of literature or empirical research papers.

The challenge of demystifying the police leadership

One important aspect of police leadership is the activity that a leader has to perform, especially as a Police leader.

A systematic review of the literature identified few such activities that are critical for the leadership in the police. One of these is having a shared vision with the subordinates in the interest of the organisation. (Engel, 2001; Murphy and Drodge, 2004; Butterfield et al., 2005; Miller et al., 2009). Creating organizational commitment plays an important

role in the life of a leader (Dick, 2011; Metcalfe and Dick, 2001 Steinheider and Wuestewald, 2008; Vito and Higgins, 2010). Since the Policemen and women work in extreme conditions, having a caring attitude towards their subordinates is essential (Davies and Thomas, 2003; Butterfield et al., 2004; Fleming, 2004; Andreescu and Vito, 2010). Driving and managing change has its own importance and is critical for a police leader, especially in today's dynamic environment in which the police force has to function (Fleming and Lafferty, 2000; Vito et al., 2005; Butterfield et al., 2005; Clarke, 2006; Miller et al., 2009).

Recommendations and Suggestions

Given the background above, there are several challenges a police leader has to face and manage effectively. To deal with them successfully, some recommendations and suggestions are provided below:

Self-awareness

One of the essential qualities of a police leader is self-awareness. He needs to be constantly aware of how s/he is acting, what they are saying, and what non-verbal messages they are communicating with their gestures and postures. Sometimes, the leader inadvertently displays negative qualities which are blindly followed by the subordinates who consider them their role models and thus emulate them during similar situations.

Generate Credibility

Credibility or the ability to be trusted is one of the most important characteristics of a good leader. This goes without saying that it functions better in police leadership. People are ready to sacrifice their lives for their leader if they believe in their leadership. Therefore, police leaders must gain the credibility and trust of their subordinates/ team by doing what

they say and holding themselves accountable, putting the need of the team before their own.

Relationship leader

A police leader requires top-class human resource management skills to connect with his subordinates, peers, and superiors. It is said that if you touch the hearts of the people, they will give their hand. He needs to create a deep relationship with people under his command or the people in the organization; He also influences citizens, opinion leaders and media personnel in his spheres of responsibility.

Action-oriented Leader

With Police being the most visible arms of the State, police leadership is always action-oriented. Some leaders talk good but can never deliver. Such a thing does not work in the police organization. It is an action-oriented organization and police leadership faces one or the other type of crisis 24 X 7, which has to be meticulously and immediately dealt with.

Visionary Leader

One of the most sought-after qualities of a police leader is of his/her being a visionary. He/She must develop himself/herself in a manner that he/she must be able to foresee many challenges or developments beforehand to avert any major crisis and if it is unavoidable, at least he/she along with the team must be well prepared, in advance, to take care of it.

Transformational Leader

A transformational leader is one who transforms his team and subordinates for the good, not just for their own but in the larger interest of the organisation. A police leader must be a transformational leader as well, one who is capable of transforming his team and subordinates in such a way that every individual contributes effectively in their

own personal capacities in policing. When every individual will effectively be involved in policing, the results will be gigantic, which will eventually help society, in particular, and improve the image of the police.

Boundary Management (Collaboration with other organisations)

In order to maintain the boundaries safely, the police leader must maintain a strong liaison with the officers of other organisations of the Government, Civil Society Organization, Not for Profit organisations, Local Vocational organizations, Religious, Social, Professional institutions etc. and especially with the CAPs, Army officers so that both the forces may work in coordination, when required, to avoid any unwanted situation.

Continuous Training and Development of Subordinates

Learning is a continuous process and so must be the training, given the circumstances in which police personnel have to function. It thus becomes imperative for a police leader to schedule, organise and send the subordinates on training programs regularly, even if it is a challenge. Police leader must ensure Learning, de-learning and relearning.

Humility

The Constitution and the legal setup bestow enormous powers in the hands of the police, and the saying goes, power corrupts and absolute power corrupts absolutely. Therefore, the Police leader needs to understand and accept the power with all humility to make things good in the life of all the stakeholders, whether inside the organization or the community. Leaders with humility tend not to be overly proud of their work, power, and authority, rather, they work as a team member, without carrying the aura of position with themselves, think more

about others and putting their subordinates before themselves in terms of growth, credit for exceptional work or benefits. They further focus on how the team can do better, gain the subordinates' trust and help them develop and grow beyond what they might have thought possible of themselves. It would not be wrong to say that a Level 5 leader is more required in police force than at any other place. A Level 5 leader is a strong combination who celebrates the triumph of humility and possesses a fierce resolve (Collins, HBR, 2001) i.e. humility plus strong will to take the organisation to next level,

Strengthening the team

The Police leader cannot be present everywhere; therefore, he has to inculcate and create many leaders in the organization at different levels so that people can take on the challenges. A Police leader who empowers such leaders promotes juniors to take on the challenges, unleashing their ability to act in their area of work and also providing them the opportunity to grow and improve. This also helps the police leadership to decentralize the functioning of the police and also democratize quick and faster decision-making at different levels by subordinates, due to which the organization does not suffer from decision paralysis. This is yet another quality of a Level 5 leadership wherein the leader develops the potential of the subordinates to the best possible extent so much so that s/he makes her/himself redundant and the organisation does not suffer on their being transferred or retired and works in its best capacity.

Authentic

A leader needs to move together as entity with his head and heart at the right place. In Police, leadership has to be authentic in actions and deeds. The subordinates watch them, make their perception and constantly communicate

amongst themselves. Consistent police leaders, whose words and actions are similar in identical situations, enable the subordinates to anticipate and act and do not have to wonder or worry about how the leader has to respond. The subordinate relies on such leaders' credibility, which helps build trust and relieve workplace stress and anxiety.

Role model for subordinates

Though we may not realize it, Police leaders are constantly watched by their subordinates. In the police culture, the subordinate is oriented to look upward and watch how their leader responds to events, crises and achievements. A good police leader, who knows that the subordinates are observing them, sets an example and inculcates the feeling of dutifulness amongst the subordinates.

Fully present

Policing is considered to be one of the most highly challenging jobs, as police official and their leaders have to deal with one or the other types of crisis on a regular basis. The citizens look towards the police as the first responder, therefore, he has to be present physically as well as mentally at all times. When the leader is present, he demonstrates his values to his subordinate. Being fully present for the subordinate means the police leader is focused on what is happening within and around him and accordingly, calibrating his action and direction for the subordinates. Leaders who are not present, aware of, or appear to be distracted cannot give their team full attention and proper direction.

Communication

Communicate, Communicate, And Communicate! No other quality can be overemphasized than communication, where a police leader has to spend a lot of time communicating with his subordinates, seniors, and citizens. He needs to understand the local culture and rituals, festivals, and language of the local community and his men to create a connection.

Active Listening

One important aspect of exceptional communication skills is not just communicating, but effectively listening as well. The police leader has to, at times, speak less, listen more, and keep his eyes open to watch and understand the organization's and the community's internal dynamics.

Courage

This quality of the police leader can never be undermined, however, there are exceptions. The courageous police leader does not mean he is not afraid of anything but can tactically employ and deploy his physical and mental ability to overcome the adverse situation. However, if something goes wrong, he should be someone who takes responsibility for his actions.

Emotional Intelligence

The concept of Emotional Intelligence was made famous by Denial Golmen in the year 1997 through his publication, Emotional Intelligence. A Police leader has to be emotionally intelligent because he has to deal with human beings all the time, be it his/her subordinate or the general public. A good police leader does not mean he does not get angry or is always happy or cheerful; instead, his action is always mature, and he always responds to the situation accordingly. He is very well aware of his own emotions, as well as other's emotions, he knows how to manage relationships and stay motivated during crisis and is empathetic.

Professionalism- Policing has to deal with

many situations like law and order, individual crime, public order, or internal security issues. Therefore, it has to sharpen its edge, as the public expects the police to act with surgical precision. Such precision will only come when the police force is highly trained. However, training becomes a challenge at times due to the excessive deployment and shortage of man power, in such a situation, the leader must innovate and use his creative skills to keep his subordinates trained. Thus, the police leaders need to organize cutting-edge short-time, specialized and specific training programs in the weaker area to deal with new challenges or upcoming events so that troops are not caught off-guard, while simultaneously encouraging and motivating subordinates to learn. On-the-job training, mentoring, counselling, practice, simulated exercises, demo, simulators and online training can be good options that facilitate the police forces to train and equip them to meet the challenges wherever they are.

Citizen-Centric Policing: Now, much emphasis is given to Citizen Centric Policing and converting the police forces into citizen-centric policing. Even the Prime Minister of India, Sh. Narendra Modi emphasized this in his message to the BPR&D on the occasion of its Golden Jubilee "The focus needs to be innovation and research to utilize technology and human resources. It is vital to continue all areas of skill, research, and training to further the outreach and capability of the forces with a citizen-centric approach". The technological up-gradation of the troops, community policing, etc., should be used widely to make the policing citizen-centric. Meeting with civil society organizations, socio-religious groups and different professional organizations, enhances the social outreach of the police to build a good community relationship. Knowing the society, customs, rituals and the proper sensitivity towards them further enhances the

acceptability of the police forces. Laying a helping hand in any kind of distress enhances image and acceptability of the Police. One needs to go beyond duty. COVID-19 is good example of such helping hand.

In addition to the above-mentioned areas, a police leader must evolve strategies for innovation in domains like technological up-gradation, implementing sound-management practices, inculcating workplace ethics, attempting to lessen the reaction time, continuously working to keep the motivation and morale of subordinates high, collaborating with the resource persons and agencies for bringing in improvement in the training function to name a few, are some of the additional areas a police leader must be contributing to.

Limitations

Many points could not be added due to paucity of space as well as time.

Conclusion

From the above, it can be concluded that a police leader has to undertake various challenges as a leader. Most of the time s/he has to stretch beyond his/her limits to ensure that the force remains motivated and the desired results in terms of law and order, primarily in addition to the plethora of responsibilities, are achieved.

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Developing Effective Strategies to Counter Terror Financing

Anurag Kumar*

Abstract

Terrorism like any other organized crime requires funding; in fact, terrorist activities are more akin to military and intelligence operations. It entails building an organization with highly trained and motivated cadres, owing unflinching loyalty to the ideology they believe in and the organization they belong to. Although the costs of specific operations may be relatively inexpensive, terrorist organizations require much larger budgets to function. Terrorist organizations and individuals carry out their activities furtively taking utmost precaution to avoid detection by law enforcement agencies. This makes predicting and preventing acts of terrorism extremely challenging. The best way to combat terrorism is by disrupting or if possible completely choking their financial flows; for which it is vital to understand the 'economy of terrorism.' The key elements of terror financing include the source of funds, their movement and use by operatives who finally execute acts of terrorism. Despite countries enacting elaborate and stringent laws, strengthening their security apparatus, and entering into bilateral and multilateral agreements, they still struggle to effectively combat terrorism. Are there ways and means to improve our response and come up with more potent and efficacious interventions?

For developing an effective strategy for countering the financing of terrorism, this article attempts to examine the existing legal, intelligence, administrative and law enforcement apparatus against terrorism and make suggestions that may help counter-terror financing that would seriously dent the ability of terrorist organisations and individuals to carry out their nefarious activities.

Keywords: *Economy of terrorism, Zakat, Hawala, Hundi, Maal-e-Ghanimat, Falah-e-Insaniat Foundation (FIF), Jammu and Kashmir Affectees Relief Trust (JAKART), Financial Action Task Force (FATF), Financial Intelligence Unit – India (FIU-IND), Suspicious Transaction Reports (STRs), Economic Intelligence Council (EIC), Regional Economic Intelligence Councils (REICs) and Central Economic Intelligence Bureau (CEIB)*

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What is Terror Financing?

Terror Financing (TF) is a process by which terrorist organisations and individuals raise funds. It typically involves three distinct stages, viz., raising, transferring and utilizing the funds. It has two broad aspects: organizational funding and operational funding. Organizational funding is required for infrastructure maintenance and upkeep, payment of salaries &allowances to members, expenditure on propaganda, etc. Operational funding is for costs incurred in recruitment, training, travel, boarding & lodging, procurement of weapons & explosives, etc. The funds are raised from both legitimate and illegitimate sources. Terrorist organizations and individuals take extreme precautions for the success of their operations, and hence, secrecy and disguising the funds are accorded top priority, which makes detection of these funds extremely challenging for Law Enforcement Agencies (LEAs)

For the past many years, terrorism has become a truly global phenomenon with the spread and footprints of terrorist organizations across multiple jurisdictions. The advent and exponential growth of internet-based services and a whole gamut of human activities shifting to cyberspace have also contributed to this phenomenon. It is in this backdrop and learning from the findings of investigations conducted against terrorist organizations, active in India or targeting India from abroad, the source of TF and sectors/channels abused by terrorist organizations can be identified.

Sources of TF

- Donations and Charities
- Proceeds of Crime
- Extortion and Protection of Money
- Siphoning of Governments Funds
- Armed Robberies
- Earnings from investments in Real Estate
- Earnings from investment in Jewellery and Precious Metals
- Funds generated by NGOs or NPOs
- Self-Funding
- Production, Smuggling and Circulation of High-Quality Counterfeit Currency
- Cross Line of Control (LoC) Trade

Main Sectors/Channels abused

- Formal and Non-Formal Banking Channels
- Money Value Transfer Services (MVTS)
- Digital Payments
- NPO or NGO
- Real Estate
- Government Funds

Cross-border terrorism sponsored by Pakistan and executed through its proxies is the biggest threat to India's internal security. To foment trouble in India, our hostile neighbour has created an elaborate terror network, with infrastructure and training camps established in its hinterland and Pak Occupied Kashmir (POK). These camps are used as launch pads to commit terrorist acts in Jammu and Kashmir and different parts of the country. Under the garb of supporting the so-called freedom struggle in Kashmir, Jihadi forces comprising of disparate groups and persuasions are unleashed. Since the entire edifice of this terror network is based on the fallacious ideology of militant Islam, terrorist organisations like *Laskar-e-Taiba, Jaish-e-Muhammad, Harkat-ul-Mujahideen,* etc. raise funds through religious charities and contributions, and by the unrestrained misuse of *Zakat* (payment made for charitable

and religious causes). NGOs and NPOs like Falah-e-Insaniat Foundation (FIF), Jammu and Kashmir Affectees Relief Trust (JAKART), etc. have been used as frontal organizations to raise and funnel funds for Jihadi violence. In the investigations conducted into some of the serious terrorist cases in the recent past, it has been established that the LoC trade was being abused to raise and transfer funds to terrorist outfits. Similarly, the production and circulation of high-quality counterfeit Indian currency, the nexus with the Dawood criminal syndicate and earnings from proceeds of the lucrative narcotics trade originating from Afghanistan, and other illicit activities have been used by state and non-state actors in Pakistan to fund terrorism.

Various means, including banking and non-banking channels, are used to transfer the funds to terrorist groups and individuals. The popular and historically prevalent alternate system of money transfer and payments *Hawala* and *Hundi* are extensively used to transfer funds from the Gulf countries to various entities in different parts of the country. Cash couriers, Money Value Transfer Services like Western Union, Money Gram, etc, and online Digital Payment Systems like Google Pay, PayPal, etc., have also been used to transfer funds for terrorist operations. Shell Companies created and registered in tax havens of the British Virgin Islands, Cayman Islands and other such territories continue to pose a grave threat so far as money laundering and financing of terrorism are concerned.

Another facet of Jihadi terrorism, often referred to as Home Grown, though inspired and supported by Pakistan-based state and non-state actors, and also by international terrorist groups like Al Qaeda and the Islamic State of Iraq and Syria (ISIS) has found its manifestation in organisations like Indian Mujahideen (IM) and Students Islamic Movement of India

(SIMI). Among other avenues to raise and transfer funds, these organizations also resorted to armed robberies – called *Maal-e-Ghanimat* (spoil, plunder or war booty). They also invested in jewellery and precious metals, which could be easily carried and exchanged for cash. In the Maoist and Naxalite areas and the North-Eastern region of the country, terrorist outfits have been rampantly carrying out extortions and demanding protection money from businesses and salaried employees working in government and non-government organizations. They have also, either in collusion with government employees or by coercive measures siphoned off mostly developmental funds given by Central and State governments and abused them for terror activities.

Domestic Legal Framework against TF

India has been a victim of terrorism and violent extremism, for decades now, being constantly targeted by different terrorist groups, especially the ones sponsored by Pakistan. Despite many sufferings, the nation's resolve to combat and defeat terrorism in all its manifestations has grown stronger and stronger - evolving into a comprehensive National Response to terrorism. Over the years the domestic legal regime against terrorism and its financing has undergone multiple changes to adequately empower the LEAs and create a robust system to counter-terrorism and disrupt the flow of funds to terrorist organisations and their affiliates. From Terrorist and Disruptive Activities (Prevention) Act, 1987 to the Prevention of Terrorism Act, 2002 to the Unlawful Activities (Prevention) Act, 1967 which has since 2004 been re-scripted and amended several times - the latest amendments being introduced in 2019, is the premier anti-terror law at the national level. In the wake of the dastardly terror attack in Mumbai, on 26.11.2009, which jolted the

conscience of our nation, it was realized that to deal with terrorism, which has national and international ramifications, an agency with an all-India mandate and sufficient powers was required at the national level – this led to the creation of the National Investigation Agency, with the enactment of the NIA Act, 2009. The strategy's recalibration helped create a national apparatus or response system for tackling terrorism and violent extremism. In a federal setup like ours, where law and order is almost the sole domain of the states, this was much needed, and perhaps a long pending reform.

Concurrently, the states of the union, particularly the ones, which have been most afflicted with terrorism, built capacities in the form of special police units with nomenclatures like Anti-Terrorism Squads (ATS), Special Task Force (STF), Special Operations Group (SOG), etc. Some of the states also came up with their terrorism-specific laws: Maharashtra enacted the Maharashtra Control of Organized Crime Act (MCOCA) and Karnataka enacted the Karnataka Control of Organized Crime Act (KCOCA) to name a few.

Key features of TF-related legal and administrative measures

Taking cognizance of the fact that the most effective way of countering terrorism is to choke the flow of funds to terrorist organisations, entities and individuals, the legal framework, as well as the institutional mechanism were adequately strengthened. Amendments to the Unlawful Activities (Prevention) Act (1967) has provided for an all-encompassing definition of terrorism, criminalizing all facets of financing of terrorism, providing for forfeiture of proceeds of terrorism, punishment for offences by companies, societies and trusts, and enhanced penalties for aiding terrorist organizations and preventive powers of the Central Government

to freeze, seize, attach funds and impose travel ban etc. Likewise, amendments to the National Investigation Agency Act (2008) have enhanced the powers of the NIA to investigate offences outside India, thus granting the Agency *extra-territorial jurisdiction.* Moreover, the scope of law concerning NIA's jurisdiction has also been widened by adding offences like Human Trafficking, manufacture and sale of prohibited arms etc., to the Schedule of the NIA Act. The amendments to the Prevention of Money Laundering Act have expanded the ambit, where, *proceeds of crime* and *money laundering* have been made a continuous offence.

At an institutional level, the Financial Intelligence Unit – India (FIU-IND)[1] is responsible for the collection, processing and dissemination of Suspicious Transaction Reports (STRs) and coordinating with national and international enforcement agencies for combating money laundering and related crimes. FIU-IND reports directly to the Economic Intelligence Council (EIC)[2] which is headed by the Finance Minister. The Economic Intelligence Council is responsible for coordination, strategy and information-sharing amongst the government agencies responsible for intelligence and control of economic offences such as smuggling, money laundering tax evasion and fraud. Under it are the Regional Economic Intelligence Councils (REICs)[3] which are responsible for coordination, strategy and information-sharing amongst the government agencies responsible for intelligence and control of economic offences such as smuggling, money laundering tax evasion and fraud. A chief constituent of the EIC is Central Economic Intelligence Bureau (CEIB)[4]. It is the nodal agency for economic intelligence mandated to ensure effective interaction and coordination among all the concerned agencies in the area of economic offences. Further, aligning

the legal framework, institutional architecture and measures enhancing effectiveness with the recommendations of the Financial Action Task Force (FATF), and giving effect to United Nations Security Council resolutions and other international treaties have resulted in building an overarching and vigorous system to counter terror financing.

The way ahead

In a fast-paced technology-driven world, things are always in flux; therefore, even after undertaking several measures to strengthen the legal framework and enhance the effectiveness of LEAs to combat TF, the vulnerabilities and risks persist, resulting in potential threats which may have serious implications for the country's internal security. Therefore, taking a cue from FATF, we must conduct a periodic review of our legal regime and institutional response against TF. This would enable us to identify risks and vulnerabilities and adopt timely remedial measures. Intensification of efforts in international cooperation for securing access to real-time intelligence, data sharing etc., by leveraging multilateral and bilateral agreements and MOUs would help in tracking the flow of funds across jurisdictions and pre-empt terrorist conspiracies.

Finally, our ability to counter terrorism and its financing would depend on the cohesion and synergy in efforts among the Centre and the States and also among the multiple agencies involved. This would imply reinforcing the security set up in the states with higher risks and threats; enhanced cooperation not only between central agencies and such states but also between agencies of such states. For this, at the central level, escalation of efforts, in pooling and deployment of resources and building capacities in terms of a comprehensive national digital repository on terrorism and its financing must be accorded top priority.

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Disaster Management: Strategizing, Mitigation & Response

Sarah Rizvi*

Abstract

A disaster implies a catastrophe, resulting in substantial loss of life & property and damage to environment, thus resulting in human suffering, which is beyond the coping capacity of the community of the affected area. Disaster management involves a continuous & integrated process of planning and executing necessary measures for achieving minimum damage to life & property. This paper discusses the myriad implications of disasters, dwells upon the significance of disaster risk resilience and proposes possible resolutions while highlighting the role of the Police, in disaster management.

Keywords: *Disaster Management, Coordination, First Responders, Police, Risk Assessment, Police-Community Relationship, Mitigation, Capacity Building, Integrated Command Centre, Plan Expenditure, Implementation Strategy*

Introduction

Human civilization has confronted disasters since its inception and despite its evolution into a species with astounding capacities, there is still no escape from this natural and often man-made phenomenon. Disasters do not make a distinction either between the poor and the rich, or the developing and the developed. The Asian continent is the most disaster-prone land mass in the world and is termed as the 'global epi-centre' of disasters. India is one of the five most disaster hit countries, and in terms of economic losses as well, it is among the five worst-hit countries in the world. As such, due to its characteristic omnipresence, the Indian Police becomes the first responder in any disaster situation. The disaster management dilemma is further compounded by the emergence of Chemical, Biological, Radiological & Nuclear (CBRN) weaponry, which can result in mass casualty situations.

Since a disaster affects lives and damages property, it involves political sensitivities as well. Political objectives include immediate relief & rescue and it is political will which sets the ground for the Police and administration to address the situation better. Sensible handling of the contingency can smoothen and streamline the entire relief, rescue & rehabilitation process. Any intervention in improving prevention and response to disasters, including capacity building, mitigation and budgetary allocation cannot be initiated without political will.

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A disaster also has wide ranging economic implications right from affecting private & public properties as also burdening the Exchequer due to the ensuing relief & rehabilitation measures. It traumatizes the affected individuals and society at large, who find it beyond their means to cope with the situation. Survivors often have to come to terms with loss of families and businesses and may need psychological help for holistic rehabilitation.

On the technological front, disasters drastically affect connectivity including mobile towers, power supply lines as well as Internet services thus severely hampering means of communication in a distress situation. Separately, Satellite Remote Sensing systems involving earth observation, geo-stationary and polar orbiting satellites, from their vantage positions, also aid in providing vital information for disaster management. Very Small Aperture Terminals (VSAT) and Ultra Small Aperture Terminals (USAT) are a further improvement as they offer low cost, viable technological solutions. India Disaster Resource Network (IDRN) is a web based platform for inventory management including equipment, skilled human resources and supplies for emergency response.

A disaster necessarily takes a toll on the natural environment; ecosystems vanish, trees uproot, animals perish, crops ruin and the flora & fauna is destroyed. While the damage is swift, the recovery happens in several years and sometimes even never. Pertinently, the manmade disaster of climate change has increased the frequency and triggered several natural disasters in hitherto less vulnerable areas.

The legal factors concerning a disaster involve developing institutions for mitigation and response, and empowering them to carry out planning, organizing and implementing relief and rehabilitation measures. The National Disaster Management Act, 2005 has set up the National Disaster Management Agency and provided for setting up similar bodies at State and District levels. However, apart from the Superintendent of Police being an ex-officio member of the District Authority, the role of the Police appears to be, by and large ignored. Though the Act is comprehensive and widely addresses the relevant aspects, it is extremely important to clearly define the role & responsibility of the Police in a disaster situation. Since paramilitary forces and the Army are often deployed, their functions need to be clearly outlined too.

Being the first responders during a disaster and in their role as saviours, the Police, functioning in a hierarchical organization structure, need to be more community oriented and less rule-bound. In order to achieve integrated Police involvement and optimum response, both political will and legal backing are extremely essential pre-requisites. In addition, internal reforms within the Police organization towards making it more proactive and people oriented, are imperative for preparing the force to handle aftermaths of a disaster more humanely.

Risk assessment

Imminent risks posed by a disaster are manifold, involving political, economic, social and environmental consequences. Further, another important vulnerability is of one disaster leading to another such as a fire leading to stampedes, floods leading to epidemics and CBRN disasters manifesting physical deformities. The UN Office for Disaster Risk Reduction (UNDRR), also known as the UN International Strategy for Disaster Reduction (UNISDR), defines disaster risk as *'the likelihood of loss of life, injury or destruction and damage from a disaster in a given period of time'.* As such, disaster risk assessment should be futuristic, dynamic & comprehensive, encompassing emergent, complex processes of climate change as well

as economic globalization. The fundamental of understanding disaster risk is to appreciate the fact that disasters are indicators of development failures or in other words sustainability of development. The three elements causing a disaster viz. hazard, vulnerability and exposure are impacted by various risk drivers such as population, poorly planned & executed area development programs, global warming and rapid environmental degradation.

Further, disaster risk resilience is associated with a community's capability to expect, prepare and recover from disasters. In this context, the role of Police is of paramount significance. Police has several advantages while dealing with communities. It has a physical, tangible on the ground presence which makes it the natural outreach institution during a disaster situation. In a multilingual and multicultural society like India, the Police hold a special advantage due to their knowledge of the local dialect, customs, traditions, demography and vulnerabilities. Thus, a comprehensive risk assessment for disaster mitigation and response has to necessarily include a Police component, keeping the Police-Community relationship in perspective.

Possible resolutions

1) Budgetary allocation for disaster mitigation and response under 'Plan Expenditure': Any disaster management strategy has financial implications and without earmarked funds for implementing the same, the desired results cannot be achieved. India has suffered from several disasters over the last two decades including the Bhuj earthquake (2001), Tsunami (2004), Kashmir Earthquake (2005), Mumbai floods (2005), Uttarakhand cloudburst (2013), Kashmir floods (2014) and the Chennai floods (2016 & 2017). Keeping the frequency & magnitude of disasters in view, it is a pre-requisite that separate

allocation is made in the Annual Budget for capacity building, disaster preparedness and response. However, this step would entail the Executive convincing the Legislature of the need for making such special budgetary provision. This cannot be achieved without the political will to burden the Exchequer which can be difficult for Governments of developing economies.

2) Renewed Focus on Mitigation: It is nearly impossible to fully recoup the damage caused by disasters. It is however possible to minimize the potential risk, by developing early warning systems, preparing & implementing developmental plans to ensure resilience and to design master plans for rescue & rehabilitation. Rapid urbanization and reclamation of coastal and river plain areas for agricultural, residential and industrial purposes has resulted in haphazard 'development' and has led to increased vulnerabilities. In case of floods, occurrence& magnitude can be forecast using hydrological models or gauge-to-gauge correlation techniques to issue alerts. Unfortunately, this vital aspect of preemption has remained largely neglected in policy making. It is important that urban development plans, particularly drainage systems, are designed in accordance with the local topography and that these plans are independently audited. Failure to adhere to approved plans should invite commensurate action. The repercussions of poor planning & failure in harnessing technology for mitigation are often borne by the Police. Hence, Police should be involved at the strategizing phase itself and should be the first recipient of alerts for quick dissemination and response.

3) Capacity building: Police training needs

to necessarily incorporate an element of disaster management and it is imperative that Police preparedness matches that of the administration. As first responders, Police officers need to be confident & compassionate and may often require special skills like swimming or driving to handle a situation. Establishing a disaster management unit in each district can help in imparting specialized training and thus save costs. The unit may invite participation of community volunteers for capacity building which shall further enhance the legitimacy of the force.

Overall Recommendation & Rationale

Disasters strike without discriminating between developing and developed economies. Countries like UK have been battling recurrent floods ranging from the devastating North Sea Flood (1953) to the more recent unprecedented flooding of parts of the country (2007) and of Northern England in August 2017 while USA has been harrowed by some of the deadliest hurricanes viz. Andrew (1992), Katrina (2005), Sandy (2012), Harvey (2017) Eta and Edouard (2020) and Elsa and Ida (2021). Therefore, it is imperative that a disaster management strategy for a resource deficit developing country like India should be more pragmatic, cost effective and practical.

A feasible starting point would be building mechanisms at district level involving all stakeholders namely Police, administration, civil society groups, hospitals, prominent media persons and responsible members of the community and determining the roles and responsibilities of each stakeholder in both disaster pre-emption and response. Standard Operating Procedure/Plan of Action may be drawn for disaster preparedness as well for the aftermath. This approach should be adopted in areas prone to certain disasters viz. earthquakes in the Himalayan belt, floods in metropolitan cities like Mumbai,

Chennai, Ahmedabad or stampedes in prominent religious institutions during specific timeframes.

Implementation Strategy

The starting point of any implementation strategy involving budget implications is genuine political will which emphasizes prevention of occurrence and is ready to invest in capacity building rather than waiting for a hazard to strike and make opportunity out of adversity. Police are often left to improvise and fend for communities themselves because disasters before striking are never a priority. It is necessary to appreciate the need to incentivize voluntary participation of Police and administrative personnel in framing disaster management policies and implementation strategies. The Police leadership has to take up the challenge of convincing the political class for a drastic change in the way we look at disasters which can be handled more effectively through community participation and genuinely empowering the police personnel on the ground.

An effective implementation strategy would thus require integration of the three resolutions, viz., budgetary allocation under 'Plan expenditure', renewed thrust on mitigation and capacity building as discussed earlier. Despite a legislation and decision making and implementation bodies in place, disaster management in India leaves much to be desired. Practical measures for effective implementation of an integrated disaster management strategy are suggested below:

- Conducting periodical drills in educational, government & business institutions and cooperatives regarding reflexive responses to different disasters likely to impact the area

- Organizing workshops/seminars for educating communities about mitigation and response without getting into panic

mode

- Developing an information disseminating mechanism including alerts & updates and also to counter rumors by using social media

- Making disaster a priority policing function, building a dedicated force on voluntary basis, training and incentivizing so that military deployment is minimized

- Making budgetary provisions for logistic preparedness including equipment to handle disaster situations

- After a disaster has struck, immediate setting up of a dedicated integrated command Centre within the Police Control Room for better coordination between agencies, to receive distress calls, monitor the situation, dispatch teams and dispel rumors as well as to ensure that the approved SOP is optimally implemented. On similar lines is the unique Disaster Monitoring Constellation (DMC) international co-operation in space for disaster prediction formed through a partnership between Algeria, China, Nigeria, Turkey, UK, Thailand and Vietnam. DMC satellites can operate independently or in tandem with other members.

- Investing in developing disaster management intelligent space missions configured with smart sensors & detectors with corresponding resonance frequencies and on-board data processing capabilities by Indian Space Research Organization/ISRO to enable simultaneous global measurement and analysis of data. NEMO (Naval Earth Map Observer) developed by the US Navy, PROBA (Project for On-Board Autonomy) by the European Space

Agency (ESA), BIRD (Bispectral Infra-Red Detection) by the German Space Agency (DLR) and COCONUDS (CO-ordinated Constellation of User Defined Satellites) by European Union are examples of such intelligent missions.

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Technology Infusion in Policing - A Quest for Quality & Advent of Police Technology Mission-2022

HOW TO GO ABOUT IT - A CONCEPT PAPER

Dr. Amandeep Singh Kapoor*

Abstract

The field of tech enabled transparent policing with visible results & outcomes is a holy grail for Indian Police. Not that the thinkers are technologically challenged, on the contrary, the policy makers in Indian Police are the best of the technologically trained brains that a meritocracy can offer, but solutions which are in tandem with the demands and needs of the states and which are also, legally & proprietorially sustainable in a domain which belongs to the state subject, but has to be deftly maneuvered by center in achieving uniformity and not to appear condescending or patronizing at the same time, is a huge challenge. It is like curating a 'Michelin Star Menu for a Highway Dhaba.' - both will have to temper their tastes, sourcing and justifications to meet at the central point.

With the increased interest in technology due to multiple interventions by t h e PMO & Home Ministry and impending certainty of seamless, digitally empowering and remotely accessible policing writ on the wall, this article discusses what exactly is technological infusion in policing, what is the need for and current uptrend of technological infusion in policing, the roadmap on curating a comprehensive bucket list for needs of state Police and Central Police agencies with some pertinent flag raisings and citation of best practices.

Keywords: *SMART Policing, Police technology mission, Technology Foresight, Cyber space, Crime Mapping, Digital Governance, Internet Governance, Predictive Policing, Virtual Reality, Edu-Tech, Hackathons.*

This Paper Covers Inter-Alia:

A) IDEATION OF CONCEPT

A.1 What is exactly technological infusion in policing?

A.2 What is need (& current uptrend) of technological infusion in policing?

A.3 Police Technology Mission -The contours & expectations.

A.4 Current state of technological wherewithal in policing.

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B) FORESIGHT FOR TECHNOLOGICAL INFUSION: FURTHER ENABLING TECH ENABLED POLICING

B.1 Broad Templates: Policing in the Digital age.

B.2 LEA issues in Cyber space.

B.3 Lookout at Technological Radar: Surveying the Horizontal Expanse.

C) ROADMAP: CURATING A COMPREHENSIVE BUCKET LIST (For The Stakeholders)

C.1 Technology infusion – Identifying Verticals - Aiming Depth

C.2 Curating Foresight & populating verticals: In Mission Mode

C.2.2 Foresight for maximizing gains to police forces in technology.

C.2.2 Foresight for maximizing gains to society through tech enabled policing.

D) FEW GOOD PRACTICES

PART-A
IDEATION OF CONCEPT

A.1 What is Exactly Technological Infusion in Policing

"Any sufficiently advanced technology is indistinguishable from magic."

- Arthur C. Clarke

Technology has always played a very important role in the lives of the people and more so, in the arena of policing in the service of the people. In so far as policing is concerned, the role of technology in maintaining law and order, internal security of the country and bolstering national security can never be over emphasized. The technology landscape is changing with unimaginable pace with time.[1]

Established technologies become obsolete and new technologies come into existence. Therefore, there is an urgent need to keep abreast of technological development, within and outside the country, and also improvise and upgrade usages in police organizations.

The technological infusion in policing will have to contend with all efforts in the following sphere:

• Application of knowledge, primarily scientific, to the practical aims of policing,

or

• Application of knowledge, primarily scientific, for occasioning, and responding to, changing human (Police) environment.

• Advancements in technology, for Police, which help to extend the reach of hand, expand musclepower, enlarge the senses & multiply the capacity of the mind.

• Technology to confront delinquents and the deviants.

• Any technologies relevant to policing will become part of Technology basket[2].

A.2 What is Need and Current Uptrend of Technological Infusion in Policing

"Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road."

- Stewart Brand

a) INTRODUCTION OF SMART POLICING CONCEPT

During the 49th DGs/IGs Annual

Conference held on 30th November, 2014, the Hon'ble Prime Minister introduced the concept of S.M.A.R.T Policing. It implies: S-Sensitive and Strict; M-Modern and Mobility; A-Alert and Accountable; R-Reliable and Responsive and T- Trained and Techno-savvy. To encourage innovations and the use of modern technologies, SMART Policing has been included and allowed as one of the categories of items under the scheme of 'Assistance to States for Modernization of Police'. Under this scheme, the States have been provided flexibility to include items/projects as per their strategic priorities and requirements.

b) SUBMISSION OF PARLIAMENTARY COMMITTEE OF HOME AFFAIR'S REPORT

Department - related Parliamentary Standing Committee on Home Affairs presented the 237th report on "Police-Training, Modernization and Reforms". To understand the factors and hindrances behind the lack of implementation of important reforms by the States, the Committee chose the subject 'Police-Training, Modernization and Reforms' for an in-depth examination of the gamut of issues surrounding the Police System in the States and report thereon.

"The growing need of technology for the police forces is also evident from the fact that the criminals have become tech-savvy and are leveraging on different technologies to commit crimes. Therefore, it is important for the police forces to accept the need for technology to improve policing in the country. Technologies like biometric identification, facial recognition, Automatic License Plate Recognition (ALPR), CCTV

cameras, GPS, forensic science, etc. are also proving instrumental in collecting and storing data, identifying and apprehending criminals. Moreover, with the development of Internet of Things (IoT), now more data is being generated, collected and analyzed than ever before by the law enforcement agencies across the globe" [3].

The Committee placed its findings and recommendations on the basis of the inputs received from theabove-mentioned Ministry/agencies/State Governments, first-hand information which was gathered.

c) THE ANNOUNCEMENT OF POLICE TECHNOLOGY MISSION

At the DGsP/IGsP Conference 2021, Hon'ble Prime Minister exhorted for setting up of a '**High- powered Police Technology Mission**' **to adopt future technologies for fulfilling grass root policing requirements.** He quoted about COWIN, GeM and UPI to bring home the point on how technology can improve public well-being**.**

A.3 Police Technology Mission - The Contours & Expectations

"A digitally empowered and ubiquitously connected community is smarter than 1,000 policy wonks. While there is a role for experts in government as a platform, there is a much more significant role for the non-expert population in co-creating solutions."

— David Bartlett

The Ministry of Home Affairs has emphasized on the adoption of new technologies in all aspects of policing. For that, special attention is focused on adoption of State-of-the-art technology for

policing, where a need has been felt for setting Police Technology Mission with specific mandate to facilitate adoption of new and emerging technologies in t h e police arena, standardization for easeof proliferation and usage and also to assess the requirement of futuristic technologies.

Accordingly, the Police Technology Mission (PTM) is constituted under the Ministry of Home Affairs. The Notification of PTM released on April 2022 has the following broad understanding on the concept[4:]

Charter of Function of the Empowered Steering Group (ESG) of the PTM

❖ To assess technological solutions being currently adopted by different Agencies, Central Police Organizations/ CPOs and State Police Organizations

❖ To explore technology that would result in improving policing & develop applications to adopt technology for meeting the requirements.

❖ To explore applications being used in other Government Departments and Institutions and adopt them for police organization. Conversely, applications devised for police could be shared with other users. (Inter-operable solutions).

❖ To focus on requirements in mega cities, in insurgency-affected area, in the field of communication, security of vital installations, big data analytics, voice and facial recognition, training, forensics, etc.

❖ To promote networking of Police Organizations with Educational and Industrial Bodies in order to utilize their expertise in devising technological solutions for policing.

The Empowered Group is a very high powered group of minds chaired by Union Home Minister as its chairman with NSA, Home Secretary, DIB, Chairman DRDO, DG's from paramilitary forces, DG BPRD etc. as its members. There is also a provision for creating State Task Force to hand over the learning to the states.

A.4 Current State of Technological Wherewithal in Policing

A) **Current state of use of Technology by State Police[5] :** Major technology-related initiatives taken by the different State police are given below:-

S.No	State	Technology-related initiatives
1.	Rajasthan	1. CCTNS based Analytics Dashboard is integrated with a data lake environment (HIVE Cluster), which is the first of its kind integration in thePolice Department (CCTNS Project) throughout India. This will help in scaling the analytics capabilities in real-time, with multiple data sources (inter-department and intra-department). 2. The unmanned aerial vehicle (UAV) is a multi-tasker that is useful in reconnaissance, live monitoring of situations as well as capturing photo/video clips for record purposes.

		3.	The RajCop Official app has been upgraded with a face recognition module.Rajasthan police is in the process of making the uploading of the photograph of all arrested persons in CCTNS module, mandatory, which will help develop a rich database of known offenders.
		4.	Helmet with camera has been specially designed and procured for use by officers in law and order situations.
2.	Gujarat	1.	Mobile forensic van equipped with scientific tools for collection of evidence along with forensic experts.
		2.	E-Gujcop, computerized the Police functioning extensively with crime and criminal information database for effective crime management.
		3.	Automated Fingerprint Identification System (AFIS) for digital fingerprints to be integrated with National Automated Fingerprint Identification System (NAFIS).
		4.	3D scanner for crime scene investigation.
3.	Orissa	1.	Arakhi App is an extension of CCTNS, which serves as a database for all FIRs registered in police stations and also auto-generates CDs.
		2.	Malkhana Module envisages maintaining proper chain of custody, safe and secure storage of seized/ gathered evidence and timely disposal in accordance with the law.
		3.	Medico-legal opinion system module enables investigating officers to directly send the requisition to medical officers who can upload examination reports against requisition.
		4.	All Police stations have been provided with live scanners for Finger Prints collection online and through central AFIS Software compared with the database for obtaining good quality FP and quick online verification/matching from database detection in solving several crimes.
4.	Madhya Pradesh	1.	The use of scientific investigation tools like DNA fingerprinting, call detail records analysis, use of sophisticated mobile fingerprinting tools.
		2.	District cyber cell units and State cyber cell uses the latest software for analyzing social media, open-source intelligence and call detail records.
		3.	Live surveillance system/CCTV surveillance- an integrated system of surveillance cameras in cities and also on highways

		4.	Body-worn cameras and interceptor vehicles are used by traffic police toensure the implementation of traffic rules.
5.	Punjab	1.	PAIS (Punjab Artificial Intelligence System), App uses machine learning, deep learning, visual search, and face recognition for the identification of criminals to assist police personnel. This app helps in storing and carryinginformation about criminals
		2.	Automatic License Plate Recognition (ALPR) devices is being used by police for a variety of law enforcement purposes, from identifying stolen cars to catching up with people who have active warrants .
6.	West Bengal	1.	Kolkata Police is implementing IFVP (Iris, Finger, Voice and Photo) software for the integration of all the biometric data of accused persons in a single database with a quick access facility for investigation purposes.
		2.	The following modern technologies are used for the detection Process:-
			a. DNA Analyzer.
			b. Chemical tests as classical examination. GMS (Gas Chromatography-Mass Spectra), FTIR (Fourier Transform Infra- Red), UV-Visible absorption, etc. instrumental technology.
			c. Comparison Microscope, SEM (Scanning Electron Microscope) used as a part of instrumental analysis.
7.	Telangana	1.	State-of-Art Computing and Command Center- Technology fusion Centre for convergence of disparate technologies and business applications.
		2.	Hawkeye App-empowering public to be citizen police.
		3.	TSCOP-Empowering the frontline police workers.
		4.	More than 8 Lakhs CCTV Cameras have been installed in the State inpartnership with the community.
		5.	Integrated Traffic Management System (ITMS).
		6.	JRMS- Jail Release Monitoring System for improved surveillance of repeated offenders.
		7.	Online fingerprint verification and facial recognition.
		8.	Evidence-based investigation and prosecution tools being adopted.
		9.	Bio-metric recognition through an automatic fingerprint identification system from a fingerprint database.

8.	Delhi	1.	CCTV Surveillance with GIS Mapping - CCTV cameras have been installed by Delhi police, the public and by the Delhi administration.
		2.	Delhi Government has collaborated with ISRO (Indian Space Research Organization) to start with a new technology called Crime Mapping Analytics and Predictive System (CMAPS). This initiative will use space technology for controlling crime and maintaining law and order. For example, the system will help to identify in which area theft is carried out at a higher rate and this information can be used to deploy police in the area to stop further cases of thefts.
		3.	Integrated Complaint Monitoring System-(ICMS)
		4.	Tatpar - One Touch App, Himmat Plus for Women Safety
		5.	Gantry/Cantilever Mounted Automatic Speed Violation Detection System (SVDS)

PART-B
FURTHER TECHNOLOGICAL INFUSION IN POLICING:

B.1 Broad Templates or Perspectives in Policing in Digital Age, & Technology Infusion through Police Technology Mission:

The confluence of big ideas on the future of policing in the digital age, at first instance, will inter-alia include the following main themes:

1. Technologies of the Future: The Security Challenges and Opportunities; The Destructive, Disruptive and Constructive Narratives.

2. Charting the Future: Building Specialized Capacities for the Digital Age – the Opportunities and Challenges Capacity Building for Policing in the Digital Age.

3. Partnering with Citizens: The Power of Social Media, Crafting a Social Media Strategy for Law Enforcement Impact of Digital-Age Media on Patterns of Conventional Policing.

4. The National Security Perspective: Forging Partnerships – Collaboration and Compatibility: Learning and Working across Organizational Boundaries to Improve Grassroots Level Policing and National Security.

5. Countering Extremism and Radicalization: Strategic Thoughts from the Media and Law Enforcement.

6. The Epidemic of Trafficking of Women and Children- Digital Age Challenges and Opportunities

B.2 LEA Issues/Challenges in Cyberspace

Digital disruption & digital resilience	Digital insecurity
Artificial machines	Cyber crime Victimization
Reactive approach in cyberspace	Multi-jurisdictional collaboration in Cyberspace

Alternate anonymous digital economy	Actionable and timely intelligence in cyberspace
Data tsunami	Skill and infrastructure gap in cyberspace
E-Evidence management	Preventing Digital Monopolies

B.3 Lookout @ Technological Radar for Tech Tools in The Basket

We will always have our radars sensitized to newer technological developments, both productive as well as destructive to be a step ahead of blunders, follies, catastrophes and warstriggered by tech zombies, criminals and mercenaries. Similarly, disruptive technologies will have to be delved deeply for larger societal good by the governments of the day in same scale as done by unicorns of the day. The "Moore's Law" will have to be always kept in mind – the technological pace will outlive best of the developments in a year and a half or so, when memory space reduces to half.

Apart from the areas in vouch known as ABCD Areas

(A)   ARTIFICIAL INTELLIGENCE,

(B)   BLOCK CHAIN,

(C)   COMPUTING & VIRTUAL REALITY

(D)   DATA ANALYTICS

This section also covers some of the relevant technologies that will be part of technological bucketof law enforcement & internal security, illustratively:

Big data   Internet of things (IOT)

Dark web   Blockchain technologies

Cryptocurrencies   Cloud computing

Artificial intelligence   Deep fakes

AI designed malwares   Robotics

Drone & anti drone technology   Unmanned vehicles

Virtual reality   Augmented reality

Mixed Reality   Predictive Policing

FRS (Face Recognition System)   Wireless technologies

3-d printing   Cloud Computing (SaaS Models)

Latest technologies in Traffic Mgmt   Latest tech in Arms & Ammunition

Latest technologies in Police housing   Space technology:GIS,GPS,e-CMAPS

Saga of The Main Developments among others

A) AI & ROBOTICS

By using AI and predictive policing analytics integrated with computer-aided response and live public safety video analytics, law enforcement agencies will be better able to respond to incidents, prevent threats, stage interventions, divert resources, and investigate and analyse criminal activity.[6]

The use case will lie within following domains, illustratively:

1. Law
   - Analyzing the case law history
   - Assist with discovery process
   - Summarize evidence

2. Detect patterns & anomalous behavior

3. Gunshot detection

4. Crime forecasting

5. Predict crowd behavior & crime patterns

6. Protect critical infrastructure

7. Uncover criminal networks & nodes & crime based on associations

8. AI Enabled prediction of potential criminal recidivism

9. Complex DNA mixture analysis -

10. Provide natural language systems for an easier interface & provide automated personal assistants(chatbots)

11. Provide automated tutoring & instruction

12. Video analytics for integrated facial recognition & the detection of individuals in multiple locations

13. Computational approaches to statutory interpretation performed by judges, attorneys, prosecutors, administrative staff, and other professionals.

14. AI algorithms to analyze elder victimization.

15. Situational awareness and context.

'When AI agents act autonomously, we expect them to behave according to the formal and informal norms to which we hold our fellow humans. As fundamental social ordering forces, law and ethics therefore both inform and adjudge the behavior of AI systems. The dominant research needs involve, both understanding the ethical, legal, and social implications of AI, as well as developing methods for AI design that align with ethical, legal, and social principles. Privacy concerns must also be taken into account. The challenge is how to apply those tenets to this new technology, particularly those involving autonomy, agency, and control.' [7]

B) BLOCK CHAIN TECHNOLOGIES

- The Use of Block chain within Evidence Management Systems

'According to the Netflix documentary 'How to Fix a Drug Scandal', more than 34,000 falsely convicted citizens were convicted due to tampered evidence and a lack of accountability of those working within the evidence management system. According to Edward Baumel, block chain researcher

from California State University, Sacramento, "What it boils down to is, the current system is not capable of detecting changes to the evidence while it is in transit from location to location,"[8] hence the need for block chain based chain of custody.

On the contrary, many have differed on the usability. Researcher David Billard states in his white paper *Tainted Digital Evidence and Privacy Protection in Block chain Based Systems[9]* that it is not practical to use block chain for the chain of custody in storing evidence due to multiple legal and information technology system challenges. His main concern was how to remove evidence from the block chain, if it is deemed inadmissible or invalid for any number of reasons.

- The Usefulness of Block chain in Court

  Theoretically speaking[10], when block chain is used in a court setting, a list of the evidence hashes from each case will be available to the prosecution, defense, and judicial authority, along with the physical evidence proposed for use in each case. The evidence will support the case and the block chain will add integrity by further enhancing the validity of the evidence. As a result, it may increase the speed with which the judge can determine the outcome of the case, and it may decrease the chances of having irrelevant or damaged evidence admitted into the courtroom.

  Frivolous cases will be dismissed early and an increased amount of

evidence will be proven relevant and validated, making less viable evidence obvious. This will ensure there will be a faster, more consistent and secure justice system because block chain does not allow for much human error.

- Police Complaint Management System using Block chain Technology

  This is the most benign sphere of usage of Block chain technology in policing, where tracking of complaint & complainant can be achieved with ease.

- Block chain Based Criminal Record Management System

  By incorporating criminal records in a block chain, authenticity and rigidity of records can be maintained; which also helps to keep the data safe from adversaries. A peer to peer cloud network enables the decentralization of data. It helps prevent unlawful changes in the data. The VCNB's (Village Crime Note Books) can be digitized, sanitized and made available on block chains for posterity. This will also make authentic data dovetailed to other police workflows like CCTNS & Passport verification software.

- Other probable use cases of block chain:

  1. Citizen Profile Smart Contract
  2. FIR Smart Contract
  3. Access Control Smart Contract
  4. Judgment Smart Contract
  5. Investigation Smart Contract
  6. Charge-Sheet Smart Contract

C) CLOUD COMPUTING, QUANTUM COMPUTING

In police work[11], nearly every modern criminal investigation results in the accumulation of a large amount of electronic data. Due to the proliferation of cell phones, surveillance systems, personal computers and social media, criminal investigators frequently search for, and recover, valuable clues contained in digital media files and all of those files become evidence that needs to be stored.

Broadly defined, cloud-based systems are any that use the internet to store, manage, and process data off-site rather than on a local server. While many departments have been reluctant to migrate to the cloud for a variety of reasons, adopting cloud-based resources can actually make case management much more efficient, and even more secure. It offers protection from Ransom ware Attacks- Doxing and Ransom ware is a real threat to the security and productivity of a department.

FBI's CJIS division (Criminal Justice Information Services) has policies and recommendations that apply to both on premise and cloud-based software and storage solutions.

The field of quantum computing is a blip at the moment, as open to policing as it to fundamental research labs or IITs

D) DATA LED POLICING & POLICING THE DATA: IMPENDING DATA PROTECTION REGIME & READINESS OF ORGANISATIONS

In his book "The Rise of Big Data Policing", Andrew Guthrie Ferguson raises some valid questions. He writes " In a high-tech command center in downtown Los Angeles, a digital map lights up with 911 calls, television monitors track breaking news stories, surveillance cameras sweep the streets, and rows of networked computers link analysts and police officers to a wealth of law enforcement intelligence. This is just a glimpse into a future where software predicts future crimes, algorithms generate virtual "most-wanted" lists, and databanks collect personal and biometric information.

But behind the data are real people and difficult questions remain about racial discrimination and the potential to distort constitutional protections of equality & privacy. How new technologies will alter the who, where, when and how we police, remains to be seen.[12]

These new technologies also offer data-driven methods to improve police accountability and to remedy the underlying socio-economic risk factors that encourage crime. Technology will revolutionize law enforcement but also create potential threat to the security, privacy, and constitutional rights of citizens.

This space is going to be the most watched out.

E) DRONE ATTACKS

Apart from cyber-crimes, misuse of drone technology also poses a significant threat to Governments all across the globe. Rogue drones have become a critical threat to any country's security, privacy and cyber-security. Drones are being used for surveillance of vital installations and for delivery of drugs, arms & ammunitions & other terrorist activities, which is alarming

issue. To add up, there is also the threat of hacking of drones, drone data, mobiles and other devices connected with the drones. Therefore, building capabilities to deter, detect & neutralize such aerial threats with help of anti-drone technology is an urgent requirement. Regular instructions/ advisories are issued to various departments of bordering areas about not sharing the strategic information with anyone on phone calls unless authenticated.

The various vital installations, Army/ Air Force bases, Oil Refinery areas and other similar strategic places, have been classified as Red Zone (no flying zones for drones), Yellow Zone (wheredrones could operate with permission and Green Zone (where permission is not required. The use of drone is recommended as per The Drone Rules, 2021 notified by the Ministry of Civil Aviationnotification dated the 25th August, 2021 i.e. also for specific purpose on application within the permitted zone with necessary restriction.

PART-C
ROADMAP -CURATING A BUCKET LIST
'Michelin Star Menu for a Highway Dhaba.'

Searching for technological solutions which are in sync with the demands and needs of the states, and which are also legally & proprietorially sustainable in a domain which belongs to the state subject but has to be deftly maneuvered by the Center. The challenge is in achieving uniformity & not to appear condescending or patronizing at the same time. It is like curating a '*Michelin Star Menu for a Highway Dhaba.' -* both will have to temper their tastes, sourcing and justificationsto meet at the central point.

The best strategy is to go for a 'Vertical Approach' after sufficient horizontal searching of tools and skills. It is like aggregating and sourcing all irrigation techniques before using irrigation, depending on the soil suitability and local conditions. The water can then seep as per the needof the soil.

C.1 Verticals

The recent outpourings of policy discussions in public have given the idea that in the future, policy & regulatory thought structure will evolve around:

1. One Nation One Technology Platform (Whole of Government approach)

2. Public Service Orientation of Policing

3. Developing Core Applications for Policing Needs, with minimum gaps in Center - State policing efforts & aiming uniformity.

The theme of this year's Digital India week was 'Catalyzing New India's TECHADE'. The exposition of achievements will make us understand how the thought process of government is beingfructified in real terms with respect to above three structural realms. The oft cited '**Population scale'** achievements in India's digital journey of sustainability are:

- 40% of global real-time digital payments in India in 2021.

- $1 trillion+ digital transactions on UP in FY 2021-22 bringing transparency and promotingease of living.

- 133 crore+ Aadhaar numbers enabling transparent and corruption free delivery.

- Rs. 23.78 lakh crore directly transferred

to beneficiaries by eliminating middlemen and leakages through DBT.

- CoWIN facilitating hassle-free administration of covid vaccine doses.

- Digilocker giving freedom from carrying physical copies.

- 5.5 lakh+ Common Service Centres (CCs) making e-governance accessible.

- 22,000+ services on a single mobile app UMANG for ease of living.

- GeM portal for corruption free government procurement

- DIKSHA making online learning accessible.

To be launched:

- MyScheme.gov.in : Service Discovery Platform

- Bhashini.gov.in - Bhasha Daan: Enriching Indian Languages

- Meripehchaan.gov.in: National Single Sign-on Service

- IndiaStack.global: Repository of India's tech products

- GENESIS: Gen-Next Support for Innovative Startups

The same approach of Population scale applications in Policing/Law enforcement agencies will follow a **'whole as the sum of its parts'** example because Law & Order is a state subject. CCTNS is one such example, which is being carried at various speed & textures by different states, unlike a unified 'Speed Post' or 'Passport Sewa'.

The Broad Verticals (In which above tools & thinking can be fitted) to be taken in initial phases are:

STAND ALONE VERTICALS

1. Investigation
2. Law & Order
3. Intelligence
4. Forensics
5. Immigration
6. Human Resource Development
7. Police Infrastructure
8. Police Training Including Edu-Tech & Computer-Assisted Training
9. Police-Public Interface

INTER-SECTORAL VERTICALS

11. Communication & Internet including Information Security & Internet Governance
12. Data Analytics
13. Cyber crime & Cyber Policy
14. Data Empowerment & Privacy Architecture
15. E-Governance Strategies of policing of a state
16. Efficiency Generation including Digital Transformation
17. Unique Electronic Identification
18. Intelligent Sensors, IoT, E-Transport Ecosystem
19. Real-Time Information Access
20. Crime Mapping & Predictive Policing

C.2 Moving to Open API Environment in Authentication for Law

ENFORCEMENT AGENCIES- Some Success stories elsewhere –

1. **SANDBOX approach of health ministry** - The NHA (National Health Authority) has launched the NDHM Sandbox: a digital architecture that allows private players to be part of Digital Health Ecosystem as health information providers or health information users.

   The private player sends a request to NHA to test its system with Sandbox environment. NHA then gives the private player a key to access the Sandbox & health ID API (Application Programming Interface). The private player then has to create a Sandbox health ID, integrate its software with API, & register the software to test link records & process health data consent. Once the system is tested, the system will ask for demo to NHA. After successful demo, NHA certifies & empanels the private player (hospital).

2. **INDIA STACK-** It is a set of APIs that allows governments, businesses, start-ups and developers to utilize a unique digital Infrastructure to solve India's hard problems towards faceless, paperless, and cashless service delivery. Each API within the India Stack collection is owned by a separate entity, which owns the specification, and the governance of that API. For instance, the Aadhaar authentication, and eKYC APIs are owned by the UIDAI. Similarly, the UPI API is owned by the NPCI. Using Open APIs, small teams inside Govt. or in the private sector can build relevant solutions to address Indian problems.

3. **OPEN NETWORK FOR DIGITAL COMMERCE** to be implemented fast- the government is seeking to replicate the success of Open Network for E-Commerce hoping to put in place, a backbone on which sellers & logistics service providers can connect with the buyers, no matter what platform they use through open APIs. This needs fast forwarding.[16]

C.2.1 Technology Foresight for Maximizing Gains to Police Forces- Operating where The Real Action Exists

"It's not that we use technology, we live technology."

- Godfrey Reggio

I. **STAND ALONE VERTICALS : Domain Specific requirements** for various branches of Police like, Crime, Law & Order, Intelligence, Personnel, Vigilance etc. are enumerated below. This is onlyan illustrative list. It will have to be ideated, ironed, brainstormed and finalized in subsequent deliberations of Empowered Steering Group at the Centre and State Task force in the state, collectively.

Department Areas	Sub-Types of domains	Technological Infusion
Police Station		➢ Automatic updation (cross entry) of FIR registration to Crime Register, MO, Conviction register, Malkhana register, Receipt, Dispatch register
		➢ Application which pushes notifications to constables for duties like summons, beat patrols etc. As they start the task, the GD gets updated in the server, and when he serves the summon he can immediately take a picture and that complete info with geo tag gets uploaded
		➢ Standardized Formats for different reports (type 1,2,3 parivad, passport verification, 107/116 instagasa, FIRs)
		➢ Malkhana linkages without court hearing dates, decisions and disposal - Malkhana digitization with status of each mal stored along with automatic integration with ICMS
		➢ Every PS to have dedicated @gov.in email id
	Project Management	➢ Files status/update about cases every fortnight, setting critical timelines for each type - Medical examination, 161,164, records, decision etc. and then finishing files within prescribed timelines and updates to supervisory officers
		➢ Court monitoring system – production ofremand via VC,
		➢ Clubbing court appearances into same time slots, advanced alerts
		➢ Electronic delivery of files to HC
Crime Intelligence	Technological aids in conventionalcrime	➢ Technological aid for beat and patrol officers
		➢ Generate improvement for tower dump tech
		➢ Device linked to various databases
		➢ e-Beat Book (on the lines of Delhi Police)
		➢ Development of a team for Data Analytics and System for Intelligence and effective investigation
		➢ Managing and providing technical assistance in Cyber Crime Investigations.

Department Areas	Sub-Types of domains	Technological Infusion
Welfare	Data Entry Management	➢ Transfers as per set conditions (locations, place, preferences, skill set, familyconditions) ➢ Automatic allocation of duties to different task in rotation from Reserve Line/s giving adequate rests
	First Aid	➢ CPR devices, ➢ AED Devices, ➢ Blood clotting devices when shot ➢ portable stretchers fittable in vehicles
	Inventory Audit	➢ RFID tagging of physical infrastructure, issueand deposit
	Financial Audit	➢ Tally type software to show funding, expensesand remaining amount in different budget heads
	Administrative Management & Conflict Resolution	➢ Psychometrics: Fortnight Questionnaire about psychological well-being, focus on mental-health and counseling ➢ Planned leave management system, ➢ Online grievance redressal mechanism
Law & Order	Riot Control Units	➢ AI for crowd strength ➢ Non-lethal microwaves, drone – withannouncement ➢ Non-Lethal technologies for Tear gas deliverywith camera number estimation, ➢ CCTV, acoustic ➢ Rovers for delivery of capsi spray,

Department Areas	Sub-Types of domains	Technological Infusion
		➢ Gesture identification- FRS. For Crowd emotional content
		➢ Robotics for robot penetration in aggressive crowds. /on driverless vehicles.
		➢ UAV for crowd control
		➢ Accoutrements – Camera on cap - Camera on button
		➢ Wireless whistle
		➢ Crowd – telecom numbers active – live tower dump with analysis
		➢ Army of drones – swarm drill
Band	Innovation in utilization	➢ App based service delivery of band for public consumption
Transport Department	FleetManagement Mechanical Engineering Bodywork Technician Auto Electrician	➢ Petrocard - digital ledger of petrol/diesel invehicles
Court LC Office		➢ Technologies and Applications*:- (*-Taken from Telengana Court Procedure SOP)[4] ➢ The vertical officer should master the following technological initiatives in knowledge and application, A. e-Court- To know the case status B. CCTNS- Furnishing the data related to served summons, disposal of cases regularly and accurately. C. ICJS : Interoperable Criminal Justice System) D. TSCOPS E. JRMS - To Know the Jail released accused details for tracking.

Department Areas	Sub-Types of domains	Technological Infusion
		F. 3rd Eye - Verification of Suspect'santecedents by field staff basing on "mobilenumber, vehicle information, driving license, Aadhar and voter ID and PAN Card."
		G. Enterprise search - Search to get the details of Crime, Criminals, Victim & Witnesses from CCTNS database.
		H. Court Calendar - All court prosecution cases are shown in this module on the basis of Current day, tomorrow and Week.
		I. Charge Sheet Status
Legal Advisor	Management Inspection and Investigation	➢ List of to do tasks, inspections with timelines and reminders
E-Governance Strategies of policing of a state (Rajasthan is being taken in this paper as anexample**)**	Long Term Vision of statePolice in Infrastructure and Network Management:	➢ Development of Enterprise Architecture for information technology in Police Department. ➢ Maintenance and continuous implementation of IT applications like CCTNS, ICJS, Police Portal,CCTNS Citizen Portal, Apps like RajCOP official, RajCOP citizen etc. ➢ Implementation of enterprise applications developed for all departments by DOIT, NIC and NCRB like ICJS, RajKaj, Paymanager, IFMS, Command and Control Centers, ERSS, iRAD etc.
		➢ Integration of CCTNS with other applications like ICJS, Prosecution, FSL, Jail, Court, Social Justice, Transport etc. for smooth flow of data between different application
		➢ Application of latest technologies in development, with introduction of coding standards and databases in line with the international standards and SOPs.
		➢ Development of App based applications for all kinds of desktop applications at present.
		➢ Develop an in-house capability to adapt new innovative technologies and gradually reduce dependency on private manpower.

Department Areas	Sub-Types of domains	Technological Infusion
		➢ Implementation of e-Governance Framework in Rajasthan Police, focusing on CCTNS along with other applications like Raj-Kaj, RAAS, RajDhara, e-SevaDwar etc.

➢ **DIGITAL TRANSFORMATION IN POLICE: THE CHANGE MANAGEMENT Strategies for maximizing gains for police personnel-**

The Police can take a leaf out of already existing support structures in digital ecosystem of Government of India for maximizing the gains to ambient working conditions of force as well as research in development of new applications.

- NATIONAL E-GOVERNANCE PLAN. Mission Mode Projects under NeGP-

  1. Central Mission Mode Projects

  2. Integrated Mission Mode Project

  3. State Mission Mode Projects

- DIGITAL BACKBONE (eg. BHARAT NET PROJECT For Fibre Optic Network)

- ATMANIRBHAR YOJNA

- PUBLIC DIGITAL PLATFORMS Eg- UPI,AADHAAR,DIGILOCKER

- OPEN NETWORK PLATFORMS LIKE ONDC

- MeITY's Proposed TECH REPOSITORY

- MeITY's NATIONAL STRATEGY ON BLOCK CHAIN

- MISSION KARAMYOGI/E-USTAD OF BPRD/OTHER TRAINING PORTALS

- GATISHAKTI PROGRAM

- BEST OUT OF CURRENT STACKS & TO PROPOSE NEW ONES

MyGov (E-Governance vector of Meity)	Data portal of GOI
E-Stack Mechanism	Cyber-Surakshit- Bharat program
Digital India Initiative	Digital Identity
Direct Benefit Transfer Promotion of Digital Payments – BHIM, UPI, Bharat QR, Aadhaar Payments	National Information Infrastructure (NII) pilot project
NCoG: National Centre of Geo-informatics	Common Services Centers (CSCs)
Jeevan Pramaan	e-Sushrut & Telemedicine
e-Office & e-mail Infrastructure	e-Hospital
e-Sign	Meghraj
Electronic Transaction Aggregation & Analysis Layer (eTaal)	Government eMarketplace (GeM)
UMANG (Unified Mobile App for New-Age Governance)	DigiLocker
Rapid Assessment Systems (RAS)	Digital Delivery of Services
e-Courts	eNAM

E Sampark	Soil Health Card
e-Vahan and e-Sarathi	e-Challan
eduroam	Virtual Classrooms
National Digital Literacy Mission (NDLM)/ Digital Saksharta Abhiyan (DISHA)	ED-TECH in policing E-Learning AR-VR-MR Trio
e-District	MyGov
Free & Open Source Software (FOSS)	eSangam: Service Delivery Gateway (NSDG)
State Data Centre	IVFRT: Immigration, Visa and Foreigner's Registration and Tracking
Open Government Data (OGD)	National Scholarships Portal

C.2.2 Technology Foresight for Gains to Society

"Technology is best when it brings people together"-

- Matt Mullenweg

➢ **VERTICAL 1 Cyber Crime: Annihilate the Cyber criminal - Single window approach**

Cyber Crime and making of a cyber-criminal with all attendant traits and modus operandi is a topic of separate dissertation, but this paper will like to take cognizance of inter-sectorial cohesions and collaborations needed to tackle cyber-crime and models to make ecosystem fraud proof.

The broader domains that demand coordination like:

1. Skill & Infrastructure Gap
2. Multi-Jurisdictional Collaboration
3. Adopting reactive approach
4. E-Evidence Management

Multi-Modal Interventions for better coordination in cybercrime control:

▪ There is a need to have a mechanism for better data sharing among banks and financial institutions regarding fraudulent activities in bank accounts;

▪ Inputs be sought from search engines, on how to limit the misuse of Search Engine Optimization.

▪ Banks have started sharing advisories through their Apps regarding installation of remote access apps. Issuing Alert or advisory to the concerned State on the basis of maximum frequency of calls originated from the mobile towers of hotspot region.

▪ Though there is a limit of maximum transaction of Rs. 10,000/- per day on e-wallets, fraudsters conduct financial frauds by operating a large number of e-wallets. Hence there is a need to monitor wallets and UPI ids, registered from the hub Regions.

▪ Asking for Data and compiling such data from all states, whereby these frauds have been done from hotspot area and then launching a mass exercise to catch these culprits. (Originally started by Cyberabad Commissionerate, it is being done on pan India basis by MIS of I4C Division, MHA).

▪ Considering special audit of mobile SIM retailers for breaking the

operational chain.

■ Coordination with intermediaries to conduct a monthly audit report about fake or suspected Ads being posted, which should be regularized & initiative to have Geo-tagging of Ads being posted are welcome.

■ Blocking and reverting the money transferred on special request of specially empowered representatives of police department, while full documentation can be done later.

■ Special provisions for seizure of property (movable and immovable) of these fraudsters be made through introduction of new statutory provisions, if required.

■ More frequent Interstate Coordination meetings between states, whereby officers of all ranks meet, share their experience and exchange data and actionable intelligence. Recent communication from I4C regarding this to Chief Secretaries is a welcome move.

■ Massive outreach & Awareness programs for CYBER HYGIENE- Regular media outreach by SACHET mechanism of RBI & similar interventions by I4C & state police are some examples which need to be augmented. Observance of Cyber awareness Month is another example.

Action anticipated from MEITY (Policy Interventions)

1. Invocation of UIDAI Act and its special Clause: The EC had initiated the exercise of linking Aadhar with EPIC (Electronic Elector's Photo Identity Card) in 2015.

But the exercise was suspended that year when SC till final judgment, restricted the use of Aadhar to PDS, Kerosene & LPG. In its final order in 2018, SC held that though Privacy is a fundamental right, it can be curtailed if either a specific law is in place to authorize collection of Aadhar or if interest of state is involved or test of proportionality is satisfied.

In the meantime, the MEITY has notified The Aadhaar Authentication for Good Governance (Social Welfare, Innovation & Knowledge) Rules 2020 on August 2020. The rule 3 of the aforesaid rules allow the request sent by concerned Ministry or entity to submit proposal to the Union Government which forwards it to UIDAI .The later will authenticate the proposal on the parameters of rules permitting authentication of Aadhaar *"in interest of good governance, preventing leakage of public funds, promoting ease of living of residents & enabling better access of service for them."* Once allowed, the downloading of e-EPIC cards shall be permissible & Aadhaar verification will be used for faster delivery of services such as change in address as well.[14]

Similar proposal should move from MHA to UIDAI for making Aadhar authentication must for SIM & PAN again, which was suspended earlier as it qualifies each clause of Rule-3 of above- mentioned rules.

2. Expand & clarify the mandate: Intermediary rules & Mandate to be complied with an iron fist:–

To smoothen the e-Evidence management in tackling cybercrime, the MEITY should come out with a mandate/executive order, similar to those as it has done to enable LEAs to garner information from ISP/

TSP in respect to normal crime, once the parameters of storage of relevant IPDR logs for internet & GPRS services are circulated by these mandatory orders. The intermediaries are not forthcoming with specific information, citing privacy/ encryption or other issues. Although recent Intermediary rules brought out by MEITY shall be enabling for LEAs, regular mandate orders after discussion with I4C would be appropriate.

PART-D
PROPAGATING BEST PRACTICES

"We are stuck with technology when what we really want is just stuff that works."

- Douglas Adams

- HACKATHONS
- CYBER DOMES
- ENGAGING THINK TANKS
- STATE SPECIFIC BEST PRACTICES

D.1 Hackathons

A hackathon (also known as a hack day, hack fest, datathon or code fest; a portmanteau of hacking marathon) is a design sprint-like event, in which computer programmers and others involved in software development, including graphic designers, interface designers, product managers, project managers, domain experts, and others, collaborate intensively on software projects.

The goal of a hackathon is to create a functioning software or hardware by the end of the event. Hackathons tend to have a specific focus, which can include the programming language used, the operating system, an application, an API, or the subject and the demographic group of the programmers. In other cases, there is no restriction on the type of software being created.

D.2 Cyber Dome

- Kerala Police Cyber dome is the technological research and development Centre of Kerala Police department. It brings together Government departments, Law Enforcement Agencies, Industry, academia, International Organisations and experts from public domain for collaborating on cyber security to enhance the capabilities of the State in dealing with cyber threats.

- It was created as the Centre of Excellence for Kerala Police, to combat emerging cyber threats. It is also the first Law Enforcement Agency in India certified with Information security management system, ISO 27001:2013.

What it does?

Cyber dome's focus areas include Cyber Intelligence, Cyber security, Incident Response, Cyber forensics, R&D, Training and Awareness creation. To achieve this, Cyber dome has many initiatives such as Virtual DOME, Social Media Analytics, Women Safety, Ransom ware School, Collaboration Centre and DOME community. In order to address the highly challenging and dynamic nature of cyber threats, apart from the Government stakeholders, Cyber dome works hand in hand with the IT fraternity in the public-private partnership model.

The Industry and the software companies provide their technical expertise and capabilities to assist the police in various fields of cyber security and technological augmentation for effective policing, such as developing new software, providing technical assistance etc.

D.3 Engaging think Tanks

1. **National Conference for Young Superintendent of Police and Police Exposition on CyberCrime- A BPR&D initiative in collaboration with-FICCI**

   The BPR&D is mandated to create an interface between technology developers (Industry, Academia and Govt. Technical Institutions) and representatives of Law Enforcement Agencies (LEAs) through expositions and demonstrations of latest technologies / gadgets related to police modernization. The Bureau organised National Conference for Young Superintendent of Police and Police Exposition on Cyber Crime – Research and Innovation and UAVs & Counter UAVs ' in 2019 at Gurgaon, Haryana.

   The objective of the Conference & Exposition was Cyber Crime – Research and Innovation and UAVs & Counter UAVs Solutions, with a view to creating awareness among Young Superintendents of Police form States, and Commandants from CAPFs.

   Renowned Non-Government Organizations & Non-Profit Organizations with vast experience in the theme of Cyber Crime and UAVs & Counter UAVs partnered with BPR&D.

2. **MP POLICE CIIS- (Cybercrime Investigation & Intelligence Summit)**

   It is a virtual / online seminar that has been envisaged exclusively for capacity building of the law enforcement agencies.

   CIIS aims to provide exclusive, practical training on Cybercrime related modules to the officials from Law Enforcement and Federal Intelligence agencies, who will be trained by senior law enforcement officials & cyber experts on topics that are critical to the success of effective intelligence gathering & policing. It is a collaborative exercise between:

   - **Madhya Pradesh Police**
   - **Madhya Pradesh Police Academy**
   - **One Non-Profit organization**
   - **One Technological(AI & Big Data) Company**
   - **UNICEF**

D.4 BPR&D's ROLE

- One of the objectives of BPR&D is 'To apply science and technology in the methods and techniques used by police'. In pursuance of which, on the recommendations of the DGsP/IGsP Conference- 2021 regarding Technology in Police, a committee under the chairmanship of IG (Trg) was constituted in the BPR&D with the Directors of all the Central Detective Training Institutes (CDTIs) as members. The Committee deliberated on vision and roadmap for using these technologies in crime

prevention, detection, investigation, and prosecution, besides other verticalsof policing.

- The Committee will also coordinate with the **Modernization Division** and **National Police Mission Division**, particularly Micro Mission −II (**Communication & Technology**) and Micro mission-III (**Proactive Policing & Visualizing Future Challenges**) to get access to the domain experts and on collating the various activities related to national police technology mission and propagating best practices.

Conclusion

"Technology is nothing. What's important is that you have faith in people, that they're basically good and smart — and if you give them tools, they'll do wonderful things with them, Tools are just tools. They either work, or they don't work."

- Steve Jobs

Almost every State LEA and CPOs has invested in technology – however, most are individual initiatives. Leading technological interventions emerging from State/CPO level need focused investment and standardization for country-wide adoption. Therefore, technology incubators for Police use are required at Centre level, where I4C of MHA & similar organizations can take the lead role. Capacity enhancement by way of introducing new model RRs in recruitment and incentives for tech-proficiency for in-service promotions is another way to draw focus in this regard.

Impending certainty of seamless, digitally empowering and remotely accessible policing, it's time to plan well & execute perfectly in the field of infusion of technology in policing. Although, crisis brings the best out of police forces of India, it is well advised to plan

ahead in this field which tests our ingenuity, focus, planning & cohesiveness.

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Recent Trends in Emerging Cybercrimes & Its Investigative Techniques by Using Digital Patrolling Empirical Models

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Abstract

Cybercrimes and Online threats are growing, and with this, the need to use various investigative techniques for their detection. However, cybercrime investigating agencies, especially in India, make use of traditional and obsolete techniques similar to the methods generally used in a conventional crime. With the advent of various tools of technology, there is a growing necessity for new methods of investigation, crime predictive techniques to possibly predict and prevent cybercrimes. There are various models where researchers have classified cybercrime data using crime predictive techniques and have successfully achieved an accuracy rate of 99%.

Keywords: *Cyberspace, cyber patrolling, osint, spiderfoot, cyber stalking, reverse image, meta data*

1. Introduction

Cybercrime is a crime that involves the use of computer devices and the Internet. It can be committed against an individual, a group of people, a government, or private organizations. Usually, it is intended to damage someone's reputation, cause physical or mental damage, and benefit from it, either monetarily or by spreading hate and terror, etc.

Investigation can be termed as the dawn of a criminal trial to combat cybercrimes. It usually commences with the First Information Report (FIR) registration, wherein the agencies concerned, investigate the truthfulness of the complaint or information received. However, the investigation procedure may often change with the nature of the offence committed, and hence, for offences like cybercrimes, which are both criminalized and penalized under the Indian Penal Code, 1860 (IPC) and the Information Technology Act, 2000 (IT Act), technological know-how becomes an important tool for the entire investigation process.

As per the statistics of the National Crime Records Bureau (NCRB), that prepared Crime in India Report-2021, the cybercrime rate considerably increased from 3.3 percent in 2019 to 3.7 per cent in 2020, throughout the nation. In 2019, 44,735 cases related to cybercrime were recorded. Now-a-days, cyber crimes may not be limited only to individual crimes, viz. Online Threatening, Identity

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Theft, Cyber stalking, Cyber bullying, Doxing, Catfishing, Swatting, Obscene postings, Human trafficking, Spreading ideologies, Sexual predation, Defamation, Deadly games, Online drug sales, Recruiting new members for anti-Govt operations, Nude Video calls scams, Fake Job opportunity frauds, Social media crimes etc., but also Organised crimes like Ransom ware/Malware Attacks are also carried out by these criminals.

Financial Frauds are another emerging category of crimes within the cybercrime area, where criminals are using all phishing techniques to get financially benefitted; below are some of the indicative frauds.
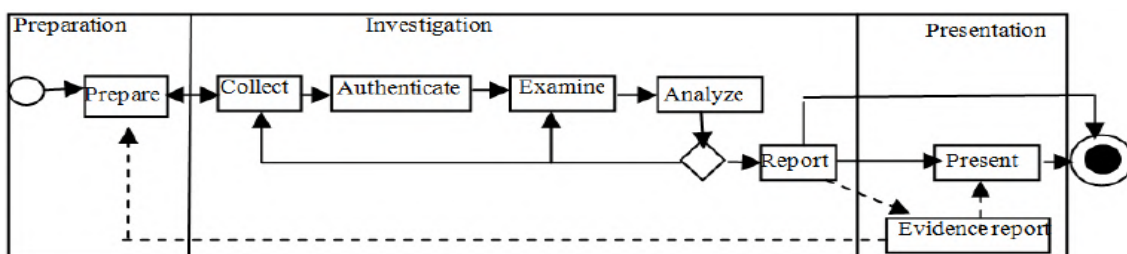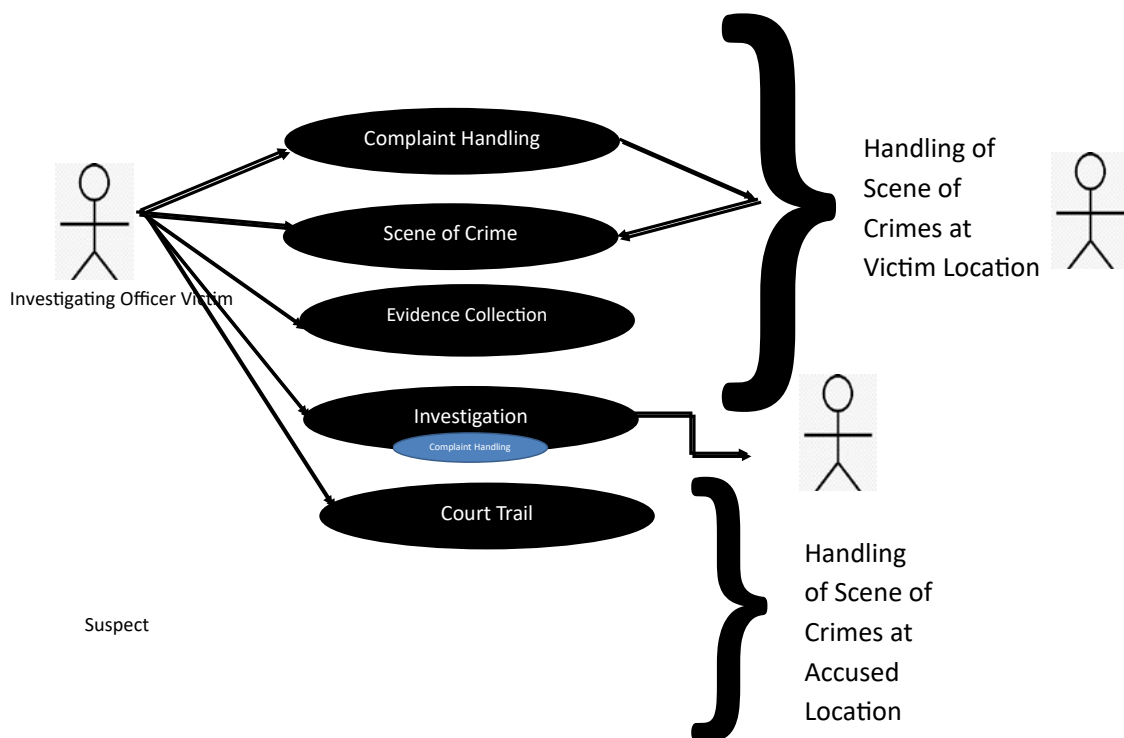
Sl. No	Fraud Name	Sl. No	Fraud Name
01	OTP/UPI/Google pay link fraud	10	OLX fraud
02	OTP Bypassing Frauds	11	Customer Care Fraud / Helpline Frauds
03	QR code scan Fraud	12	e-Commerce related/ Online shopping Frauds
04	Wallet KYC update fraud	13	Email Related Phishing Fraud
05	Job fraud	14	Sim swapping Frauds
06	Loan fraud	15	Matrimonial fraud / Gift Frauds
07	Porn Site scandal fraud	16	Lottery/prize Frauds
08	Remote access Driven Fraud	17	Social media Identity Theft Frauds
09	Covid Vaccine related Fraud	18	Other social engineering frauds

2. Present Investigative Models and their Limitations:

Before delving into the investigative techniques, one needs to understand the scope of cybercrimes. Cybercrimes are inclusive of all acts or commissions done with criminal intent in cyberspace. Cybercrimes, majorly in India, are reported under computer hacking, forgery, counterfeiting, publication, or transmission of pornographic or obscene content, and fraud. The IT Act, 2008 includes provisions for offences such as tampering with source code, deleting or altering data with malicious intent, and transmitting or publishing pornographic material. Nevertheless, cybercrimes are not limited to only these categories of offences. The investigating officers are commonly practicing the below indicative lawful techniques as well to combat them.

2.1 Cyber Crime Handling and Investigation Procedures:

In the present scenario, the Investigating officers and incident response experts generally take several careful steps to identify and extract possible evidence that may exist on a subject's computer system. The Investigation Officer has to take a lot of steps to investigate the cyber crimes which are depicted below:

Aim of Preservation and Analysis of Digital Evidence

(i) To extract the information from the suspect's digital media in a sterilized environment without losing the chain of custody

(ii) To prove in the court trials that the information gathered from the digital media of the accused /suspect is in its original form without any tampering.

(iii) Link the retrieved digital evidence with the crime scene and with the suspect.

Following are the recommended 16 steps in evidence processing method by the I.O. and the Forensic /Incident Response Team

Step 1: Shut down the computer

- Considerations must be given to volatile information

- Prevents remote access to machines and destruction of evidence (manual or anti-forensic software)

Step2: Document the Hardware Configuration of the System

- Note everything about the computer configuration before re-locating

Step 3: Transport the Computer System to A Secure Location

- Do not leave the computer unattended unless it is locked in a secure location

Step 4: Make BitStream Backups of Hard Disks and Floppy Disks

Step 5: Mathematically Authenticate Data on All Storage Devices

- Must be able to prove that you did not alter any of the evidence after the computer came into your possession.

Step 6: Document Date and Time of the System

Step 7: Forensic Expert may prepare the list of Key Search Words

Step 8: Examine the Windows Swap File

Step 9: Evaluate File Slack

The storage space between the end of a file and the end of the disk cluster is stored. It is also known as "file slack." This phenomenon occurs naturally as data rarely occupies precisely fixed storage locations, and the residual data appears when a smaller sized file is written into the same cluster where a larger file is located previously.

Step 10: Examine the Unallocated Space (Erased Files)

Step 11: Search Files, File Slack and Unallocated Space for Key Words

Step 12: Examined has to Document the File Names, Dates and Timestamp

Step 13: Identify File, Program and Storage Anomalies

Step 14: Evaluate Program Functionality

Step 15: Document Your Findings

Step 16: Retain Copies of Software Used

2.2 Cyber Crime Investigative Limitations:

Several user-anonymity and cross-border evidence collection, chain of custody and evidence authenticity obstacles may be encountered during cybercrime investigations and legal trials. The anonymity and pseudonymity create one such barrier that information and communication technology afford to cyber offenders. Anonymity enables individuals to engage in activities, without revealing their identity by the following techniques and tools.

- ✓ Fake Identity
- ✓ Usage of VPN
- ✓ Usage of Proxy
- ✓ Unrecognized Computer Devices
- ✓ Spoofing of MAC, IMEI, and IP addresses

3. Investigation of Cybercrimes through Crime predictive techniques

Research studies and examples suggest that predictive techniques used for policing are effective. One of the crime predictive approaches proposed by Scotland Yard is POLE. The POLE data model is a standard approach used in policing, investigation, and security use cases. Typical POLE use cases include:

- ➤ Day to Day Policing
- ➤ Counter-Terrorism and Extremism
- ➤ Identifying the Anti National Elements
- ➤ Border Security
- ➤ Women Child Protection
- ➤ Missing Persons
- ➤ Tracking of Organized Crime Offenders
- ➤ Crime Investigations
- ➤ Law and Order Violators and Protestors

➢ Fraud Investigation

➢ Customs and Excise

➢ Narcotics Wing

3.1 Role of Cyber Intelligence in Crime Patrolling

Cyber Intelligence – responsible for collecting the evidence information publicly available on the internet. OSINT era finds, collects, and correlates facts of the hobby from the full variety of information publicly available on the internet to create intelligence. This

includes Web search engines (Google, Bing, DuckDuckGo, Wolfram Alpha, Baidu, and AOL, etc.), Social media websites (Facebook, Twitter, Pinterest, Instagram, Qzone, Tumblr, etc.) chat and gaming forums, messaging systems (WhatsApp, Messenger, Telegram, WeChat, etc.), blogs, websites, Deep and Dark websites and other internet (surface and deep

internet) sources. Extraction of meaningful and relevant intelligence from publicly available data has unstructured facts and requires sophisticated storage and analysis. This analysis often leads to early indicators and warnings (I&W) for stopping crimes in the near future and it will help in predictive policing. Online Intelligence may start with Open Source Data, According to the NATO Open Source Intelligence Handbook, open-source data is broadly classified into four categories. Those are:

| Open Source Data (OSD) |
| Open Source Information (OSI) |
| Open Source Intelligence (OSINT) |
| Validated Open Source Intelligence (OSINT-V) |

1) **Open Source Data (OSD).** Data refers to the raw print, broadcast, oral debriefing, or any other form of information from a primary source. It can also be a photograph, an audio recording, a satellite image, or a letter written by an individual.

2) **Open Source Information (OSI).** OSI consists of any amount of raw data that can be compiled, usually through the process of editing, which may provide some amount of filtering and validation along with presentation management. OSI is generic information that is normally disseminated widely through newspapers, books, broadcasts, and general daily reports. For instance, a reporter taking the raw data and converting it into a readable article that may appear in print media or broadcast through electronic media.

3) **Open-Source Intelligence (OSINT).** The term "OSINT" refers to information that has been specifically sought out, narrowed down, distilled, and distributed to a small group of people, usually the commander and his/her staff, in order to answer a particular query. Most likely, it would be responding to priority intelligence requirements (PIR), specific orders or requests (SOR) in the event of a combat commander. In other words, OSINT generates intelligence by using the established technique of intelligence to a wide range of open sources of information.

4) **Validated OSINT (OSINT-V).** Information with a very high degree of certainty can be referred to as OSINT-V. Only an all-source intelligence expert with access to top-secret sources, whether employed by a government or a coalition staff, will be able to create it. It may also originate from a trustworthy open source whose veracity cannot be questioned. For example, a live video of an aircraft arriving at an airport that is broadcast over the media.

3.2 Benefits of OSINT

• OSINT plays a crucial role in the various intelligence spheres in the information era, and this cannot be understated. In the modern environment, OSINT has

several advantages. The crucial ones are as follows:

- **Less risky**: The new fuel for intelligence is open source data. When compared to other types of intelligence sources like deploying human sources on the ground to collect field information, spying satellites or GPS devices, especially in several foreign countries, using publicly available information—such as online websites, blogs, news feeds, social media platforms—has no risk.

- **Cost-effective:** When compared to other intelligence sources, gathering data from open sources is typically less expensive. For instance, it is expensive to gather information by using human labour or spying on satellites.

- **Ease of accessibility**: No matter where one is stationed, OSINT sources are always up-to-date and accessible. Anyone can employ OSINT sources in any intelligence setting; all one needs is the necessary skill-set and scraping tools of correctly harvesting and analysing OSINT. For instance, by examining activity on social media platforms and networking sites, police agencies might anticipate upcoming crimes and attacks. Examples of scenarios that can be forecast include trends in human trafficking and money laundering.

- **Legal issues:** Since OSINT data resources have already been made available on public domains, sharing them among various entities can be done without worrying about violating any copyright violation issues. It goes without saying that there are restrictions when distributing grey literature and the false positive rate is usually higher than with real sources.

- **Aiding financial investigators:** Financial investigators gain a lot of information by OSINT, which enables specialist law enforcement organisations to find tax violators and money launderers. Detective inspectors follow them for unreported income, will be able obtain valuable information by monitoring their social media accounts, personal blogs, RSS feeds, and lifestyles.

- **Fighting against online counterfeiting**: By identifying fake goods and services, OSINT techniques can help law enforcement shut down problematic websites or warn consumers not to do business with them. This is a significant benefit of OSINT, particularly when battling fake pharmaceutical and natural health items.

- **Maintaining national security and political stability:** This can be termed as a critical role of OSINT. It greatly helps the law enforcement officers to realise their people's attitudes and act promptly to avoid any future clashes. The Department should utilize OSINT in their future strategies, especially in domestic policies /schemes.

- **Sheer volume of data:** Using OSINT techniques, Law enforcement officers (LEOs) will be able to produce a massive amount of data that needs be analyzed to be considered of value. Many automated tools and data visualization products exist for this purpose.

- **Reliability of sources:** One needs remember that OSINT sources, mainly when used in the intelligence context, data need to be verified thoroughly by authentic sources before it can be taken as credible. Unfortunately, many agencies broadcast inaccurate information to

mislead the OSINT-gathering process.

- **Human efforts:** Though a good amount of OSINT scrapping and data visualization tools are available in the market, the tremendous volume of data is considered the most significant challenge for OSINT processing. Human efforts need to be incorporated to verify reliability and trustworthiness for applying accurate time tracking; they also need to compare it with some classified or authentic data to assure its reliability and relevance.

Legal Interpretation on Digital Evidence: The Indian Evidence Act, 1872

Admissibility of Electronic Records as Evidence as enshrined in Section 65B of The Act assumes a lot of significance. Any evidence taken from an electronic storage device in printouts or electronic media is valid only if its integrity has been maintained. There should be a certificate signed by a responsible person declaring the authenticity of the records taken from a system following all the necessary precautions.
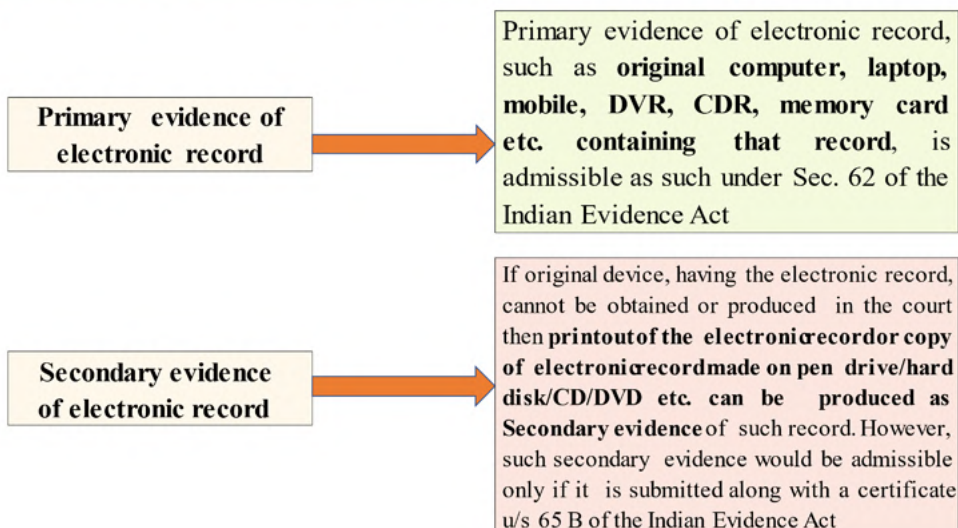
Timeline of 65B

✓ 65A and 65B are introduced to the Evidence Act under the Second Schedule to the IT Act.

✓ Section 5 of the Evidence Act provides that evidence can be given regarding only facts that are at issue or of relevance.

✓ Section 136 empowers a judge to decide on the admissibility of the evidence. Section 65A provides that the contents of electronic records may be proved in accordance with the provisions of Section 65B

✓ Section 65B provides that notwithstanding anything contained in the Evidence Act, any information contained in an electronic record (i.e., the contents of a document or communication printed on paper that has been stored, recorded and copied in optical or magnetic media produced by a computer ('computer output')), is deemed to be a document and is admissible in evidence without further proof of the original's production, provided that the conditions set out in Section 65B(2) to (5) are satisfied.

Uderstanding of Primary vs. Secondary Evidence

Primary evidence of electronic record → Primary evidence of electronic record, such as **original computer, laptop, mobile, DVR, CDR, memory card etc. containing that record**, is admissible as such under Sec. 62 of the Indian Evidence Act

Secondary evidence of electronic record → If original device, having the electronic record, cannot be obtained or produced in the court then **printout of the electronic record or copy of electronic record made on pen drive/hard disk/CD/DVD etc. can be produced as Secondary evidence** of such record. However, such secondary evidence would be admissible only if it is submitted along with a certificate u/s 65 B of the Indian Evidence Act

Certificate under Sec. 65 B of Indian Evidence Act (IE Act)

What is Certificate u/s 65 B of IE Act → It is a certificate issued for the purpose of authenticating secondary evidence of the electronic record such as printout, copy made on pen drive/hard disk/ CD etc.

Why certificate u/s 65 B of IE Act → Secondary evidence of electronic record is admissible only if it is accompanied by a certificate under Sec. 65 B of IE Act

Who can issue certificate u/s 65 B of IE Act → Owner or person incharge of the device containing the original electronic record. It is to be signed by the person occupying responsible official position in relation to the operation or management of relevant device.

Contents of Certificate u/s 65 B of IE Act →

I. **Description of the electronic record** (such as CCTV footage, CDR, E-mail, Mobile data etc.) **and the form in which it has been produced** such as (pen drive, hard disk, CD/DVD etc.)

II. **Particulars** of the device/computer, involved in the production of the electronic record, such as the **make, model, serial number, software/ operating system** etc. of the device

III. **Fulfilment of following conditions:** regarding usage of device/computer

a) the output was produced by the device/computer which was **regularly used** to store/process information

b) the device/computer was in **lawful control**

c) during the period, when electronic record was generated, the information was **regularly** fed into the device/ computer in the **ordinary course of activities**

d) during the period, when electronic record was generated, the device/ computer **was operating properly**

e) electronic record generated is **derived from the information fed** into the device/computer

Cyber Sexual Assault against Women – Vulnerability and Remedies

Rani Bindu[1]
Gurcharan Singh[2]

Abstract

Crimes against women and girls are taking on new shapes with the ever-increasing rate of Internet access globally, the wider use of digital technologies and other communication technology which has opened new avenues for gender violence. Online and technology-facilitated crime against women happens on different platforms and using a variety of tools like video games or other videoconferencing platforms. These crimes are often committed across multiple jurisdictions without considering the responsibility and liability of intermediaries and perpetrators. In this article various aspects of Cyber sexual assault against women vis a vis their vulnerability and subsequent remedies have been discussed.

Keywords: *Cyber Sexual Assault, Stalking, Bullying, Cybersex Trafficking, Virtual Rape, Morphing, Revenge Porn, IT Act, Counseling Centres.*

Introduction

In India, "Cyber sexual assault" against women has been a topic that a few have thought about and even fewer have concentrated on; due to which a growing number of victims have suffered vulnerability. Crimes against women and girls are taking on new shapes with the ever-increasing rates of Internet access globally and the wider use of digital technologies. New forms of violence have also emerged due to the rapid penetration of cyberspace. The growing prevalence of mobile devices, social media, and other communication technology has opened new avenues for gender violence, with widespread content and digital footprint magnifying the consequences for the victims at individual, community and the societal levels. Online and technology-facilitated crime against women happens on different platforms and with a variety of tools, such as social media networks, messengers/private messaging apps, e-mails, dating apps, forums, video games or videoconferencing platforms etc. The violence is often evident to the public and shared without limitation by multiple means, therefore, re-victimizing the victims constantly in the process. These crimes are often carried out across multiple jurisdictions without considering the responsibility and liability of intermediaries and the perpetrators. Cybercrimes against women that are happening online and via new technologies have a serious impact on women's lives, their families, physical and psychological health,

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livelihoods, reputation etc.

Major Cyber Crimes Against Women

Following are some of the major new-age Cyber sexual assault crimes specifically targeted against women apart from the gender-neutral category of crimes.

i) Cyber stalking

It is one of the most talked about and committed cybercrimes in the modern world. Stalking means stealthily pursuing the victim and following her movements across the Internet by posting messages or threatening on the bulletin boards accessed by the victim, entering the chat rooms used by the victim and by constantly bombarding the victim with emails, messages etc. The abuse and insults are commonly committed offences against women in the cyberspace, as reported by 63% of the respondents followed by rumormongering (59%), posting malicious comments/threats on social media sites (54%), trolling (50%), and attacks/abuse from the organized coordinated group (49%) as per the survey carried out by the renowned Cyber security firms like Norton by Symantec.

ii) Sextortion and Cyber Defamation

This is the one of the most common cybercrimes wherein the criminals are extorting money or sexual favours by blackmailing the victims. The extortionist threatens to share images, videos, or personal information about the victim unless the victim pays up or engages in more sexual acts. With the rapid penetration of smartphone users in India, i.e. above 70 crores, the cases of sextortion are rising in magnitude with each day.

iii) Morphing and Cyber Obscenity

'Morphing' means using a photograph of the victim from the personal pictures posted on the Internet or clicked by them and changing the contents using Software. There are many websites and web tools available for professional editing, but basic morphing can be easily done on free mobile apps available on the play store which are used to create obscene pictures of women where certain parts of the pictures are changed and superimposed by using another obscene picture. The obscene fake photograph is distributed on the internet and the harasser may also post messages using obscene language on their wall. Cyber obscenity can also be committed by hacking the profile of the female victim whereby the original photographs posted in the mentioned profile are morphed. Using the profile name and the morphed photographs, obscene messages are sent to the "friends" of the original profile owner and also made viral on the Internet.

iv) Cyber bullying and trolling

The two most under-researched issues in the field of Cybercrime in India are Gender-bullying and Trolling. India has the largest gender gap (46 per cent) when it comes to access to mobile phones and the Internet in South Asia. Approximately, 79% of Indian men have access to mobile phones in comparison to 43% of women. Out of these, only 24% of Indian women have access to smartphones and only 11% of women have Internet access as per an estimate. In the survey of Tier-1 Indian cities (where respondents are arguably more educated and better informed) conducted in 2017, 8 out of 10 individuals reported facing online harassment and 41 per cent of women reported facing

online sexual harassment.

v) Cybersex trafficking

In Cybersex trafficking cases, the victim is not in contact with the criminal and the criminal live-streams, films, or posts photos of the victim performing sexual/intimate acts from a central location. The material is sold online to sexual predators and buyers. This crime is mainly committed through blackmailing and coercing the victim.

vi) Girl Child Grooming

In cases of grooming a girl child for using her for cybersex or pornography, the criminal befriends her and wins her trust. Extensive research is done by the perpetrator about the child's background and family history in such cases and hence, it becomes very much easy for the offenders to create a bond with them. The offender starts manipulating the child to perform sexual acts after this, and once the child is entrapped, it is very difficult to get out of the vicious grip, due to fear and shame.

vii) Revenge Porn

In many cases, when a relationship between a man and woman gets estranged, the ex-boyfriend or the ex-husband may post or publish pictures or videos which are personal in nature and unauthorised circulate them to the targeted woman and other people without her consent. This is known as Revenge Porn. There is no express provision using this term under the Information Technology Act, 2008. Research suggests that, up to 90% of revenge porn victims are female. All this takes place with very little to no ramifications for the perpetrators. On the contrary, it promotes the culture of 'victim-blaming' and a lack of criminal reporting.

viii) Virtual rape

This is a violent type of cyber victimization, where the targeted woman is virtually raped without any physical contact. The criminal may post constant messages threatening rape and sexual assault or the targeted female may be mob attacked with such words inciting others to be a part of the whole harassment game. The victim becomes a hot topic for erotic discussions and vulgar name-calling, and it becomes extremely difficult for her to break the cycle of online sexual attacks. Now with the digital world coming up with virtual Avatars of self (Metaverse), the incidents of virtual rape and sexual harassment of woman victims are becoming even more pronounced.

Reasons for Vulnerability of Women in Cyberspace

The reasons for the vulnerability of women with respect to the cyberspace can be discussed under the following two segments: -

i) Legal Reasons

The IT Act, 2008 was basically formed to improve e-commerce. Hence, it covers commercial or economic crimes i.e., hacking, fraud, breach of confidentiality etc. but the drafters most probably did not give much thought to the protection of Internet users. Most of the cybercrimes, other than e-commerce-related crimes are being dealt with under Section 66 (Hacking), 67(publishing or transmitting obscene material in electronic form) and 72(breach of confidentiality) of the said Act. The IT Act does not have specific provisions to deal with crimes like Cyber defamation, email spoofing, cybersex

grooming, virtual rape, porn revenge, cyber stalking etc. Although, India was one of the very few countries to bring into force the IT Act in 2000 to combat cyber-crimes, issues regarding women still remain untouched in this Act. The said Act has termed certain offences such as hacking, and publishing of obscene materials on the net as punishable offences but the common crimes taking place in cyberspace against women as elaborated in the preceding discussion remain untouched in this Act. In Indian Penal Code, Criminal Procedure Code and the Indian Constitution, special protection to women has been provided. However, until recently there were no specific penal provisions protecting women specifically against Internet crimes. After the 2012 Delhi Gang Rape case, there was a huge demand for bringing out new reforms and penal provisions to ensure the protection of women against sexual crimes and their timely justice. The Criminal Law Amendment Act 2013 made amendments to the Indian Penal Code, where sections 354, 354 A, 354 B, 354 C & 354 D were incorporated. These sections are being used to handle pornography, morphing, defamation etc. in the present day. The dynamic nature of the Internet is one of the main reasons for the increase in Cybercrimes. Section 75 of the IT Act, 2008 deals with the offences or contraventions committed outside India, but it is silent about the jurisdiction of the crimes committed in cyberspace. The IT Act does not provide specific provisions for blocking cyber pornography from public access. The cases of cyber pornography are mainly covered under section 66 E and are a bailable offence. This is the main reason why the offenders are committing

pornography-related offences and dare to repeat them, since getting bail is easy. The long trial period and no provision of immediate time-bound relief to the victim, are also compounding factors. These legal lacunae embolden the criminals, who carry on with their activities without any fear of the law. A very big aspect of the IT Act due to which obscene content cannot be controlled on the internet is, with Section 67 which only penalizes transmission and publication and not viewing and downloading of obscene material. The main penal sections: Section 66 and Section 67 which are primarily used provisions for cybercrimes provide punishment of mere 3 years and thus, fail to act as a deterrent.

ii) Sociological reasons

Cyber sexual crimes against women are the manifestations of the underlying patriarchy and misogyny that is prevalent in the Indian society. It is because of this that a woman victim feels discouraged to seek justice if a crime is committed against her. Earlier, Crimes against women were limited to roads and places away from home where home was considered the most secure and safest place on earth. Now, the home is equally dangerous with criminals lurking everywhere and gaining access to private information through smart devices and digital platforms.

The majority of cybercrimes against women go unreported as the victim fears bringing a bad name to the family. The family members also discourage the victim from reporting the crime, if they come to know about it. There is a fear of continuous threat and blackmailing as well, as the criminal remains anonymous and does not come face to face with the

victim, most of the time. Many times, women victims fear that reporting the crime might make their family life even more difficult. They also question whether or not they will get the support of their family and friends and what impression they will make on the society. The victim often feels that she herself has committed some mistake and is responsible for the crime being committed against her. Due to these fears, women often fail to report the crimes motivating criminals to carry on with their nefarious activities.

Cyber Crime Against Women – Current Status of Reporting

The increasing rate of cyber-crime against women has led to constant fear and threat amongst women. The majority of cases of cybercrime go unreported, and a large number of reported cases are not registered as FIRs, and investigated. As per the data published by the National Crime Record Bureau in their publication, Crime in India, 2020(refer to table 9A.10 below), there were 10405 cases reported for Cyber Crime all over the country, whereas the national cybercrime portal received more than 600,000 complaints, including alleged crimes against women, out of which First Information Reports were registered in only 12,776 cases. The National Cyber Crime Reporting Portal (www.cybercrime. gov.in) enables the public to report incidents pertaining to all types of cybercrimes, with a special focus on cybercrimes against women and children. Cybercrime incidents reported on this portal, their conversion into FIRs and subsequent action thereon, are handled by the concerned State/UT Law Enforcement Agencies (LEAs) as per the provisions of the law. This data from the National Crime Records Bureau and the National Cyber Crime Reporting Portal indicates, there is a very low conversion of FIRs against the cases reported

at the National Portal, due to which, the majority of cases remain unattended and untraced, providing safe passage to the criminals to prevail in society and keep on committing such crimes to a much larger extent. Further, even after the existence of the National Cyber Crime Reporting portal since 2018, very few cases are reported by the women, which goes on to show that, they either have no faith in the Law Enforcement Agencies in dealing with such types of Crimes or the social factors come into play. The female victims of cybercrime find little help from concerned functionaries in providing immediate relief i.e., removing relevant online content to stop continuous victimization and shame. Most of the time, the police investigators are not interested in registering FIRs of cybercrimes against women, as the investigation is laborious and requires technical knowledge adequate training. They in fact, discourage the victim of cyber bullying, stalking, defamation, pornography etc. from taking legal recourse and advise them to switch off their devices and delete their accounts. There is no study conducted on why only about 2 per cent of complaints on the National Cyber Portal got converted into FIRs in 2020. It needs to be seen, whether the rest of the complaints were non-cognizable or the Police Officers used their discretion in not registering cases.

The data of NCRB for the year 2020 interestingly shows that, 6517 cases of cybercrime against women out of a total of 10405 were registered in five states i.e., Assam, Maharashtra, Karnataka, Tamil Nadu and Telangana, which works out to 63 per cent. In these states, the female literacy level is more which may have resulted in more awareness about legal rights. In the other twenty states and Union Territories, the number of cases registered is either nil or mostly in single-digit or double-digit. Considering the population of India, the number of digital devices being used,

and everyday instances of cybercrime being reported in newspapers and social media, the data showing a small number of cases registered under Cybercrime against women, itself is proof of women victim not getting legal aid and timely justice. There is no sound legal framework to stop the vicious cycle of continuous re-victimization of the woman who falls prey to Cyber sexual assault.

SL	State/UT	Cyber Blackmailing/ Threatening (Sec 506, 503, 384 IPC r/w IT Act)	Cyber Pornography/ Hosting/ Publishing Obscene Sexual Materials (Sec.67A/67B(Girl Child) of IT act r/w other IPC/SLL)	Cyber Stalking/ Cyber Bullying of Women (Sec.354D IPC r/w IT Act)	Defamation/ Morphing (Sec.469 IPC r/w IPC and Indecent Rep. of Women (P) Act & IT Act)	Fake Profile (IT Act r/w IPC/ SLL)	Other Crimes against Women	Total Cyber Crimes against Women
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
STATES:								
1	Andhra Pradesh	5	21	145	1	22	181	375
2	Arunachal Pradesh	0	0	0	0	0	1	1
3	Assam	2	211	1	0	182	675	1071
4	Bihar	0	3	11	2	4	27	47
5	Chhattisgarh	0	34	2	0	2	79	117
6	Goa	0	1	1	0	0	17	19
7	Gujarat	7	17	26	1	2	224	277
8	Haryana	1	64	19	1	16	121	222
9	Himachal Pradesh	0	31	7	0	7	7	52
10	Jharkhand	0	3	0	0	0	17	20
11	Karnataka	0	142	1	0	1	2715	2859
12	Kerala	0	113	14	1	5	113	246
13	Madhya Pradesh	6	52	28	2	2	184	274
14	Maharashtra	12	75	388	0	15	1142	1632
15	Manipur	0	3	3	0	0	20	26
16	Meghalaya	1	7	0	1	0	30	39
17	Mizoram	0	1	0	0	0	0	1
18	Nagaland	0	0	0	0	0	2	2
19	Odisha	1	292	0	220	13	34	560
20	Punjab	1	22	14	0	18	55	110
21	Rajasthan	3	24	12	1	3	195	238
22	Sikkim	0	0	0	0	0	0	0
23	Tamil Nadu	7	147	7	17	17	111	306
24	Telangana	19	11	100	1	14	504	649
25	Tripura	0	2	0	0	1	0	3
26	Uttar Pradesh	0	325	76	0	13	335	749
27	Uttarakhand	0	23	1	0	4	44	72
28	West Bengal	6	10	17	1	7	303	344

	TOTAL STATE(S)	71	1634	873	249	348	7136	10311
UNION TERRITORIES:								
29	A&N Islands	0	1	1	0	0	1	3
30	Chandigarh	0	1	1	0	0	8	10
31	D&N Haveli and Daman & Diu	0	0	0	0	0	3	3
32	Delhi	0	8	12	0	5	26	51
33	Jammu & Kashmir	3	10	0	2	1	9	25
34	Ladakh	0	0	0	0	0	0	0
35	Lakshadweep	0	1	0	0	0	1	2
36	Puducherry	0	0	0	0	0	0	0
	TOTAL UT(S)	3	21	14	2	6	48	94
	TOTAL ALL INDIA	74	1655	887	251	354	7184	10405

Conclusion and Recommendation

The major problem of cybercrime lies in the complex nature of crime and the persistence of the criminal. The Police, Judiciary and investigative agencies need to stay abreast with the latest developments in web-based applications, so that they can quickly identify the actual perpetrator and the action is taken against him to provide relief to the affected person/s. To mitigate the problem of an increasing number of cybercrimes against women, the following is suggested and recommended: -

a) Generate awareness in the society to empower women and children about the menace of such cybercrimes to keep them protected and safe.

b) Awareness of legal remedies of cybercrimes should be a part of regular coursework in educational institutions.

c) The Investigating Officers posted in the Cyber Cells and the Police Stations should be properly trained to deal with such types of crimes. The training should be held at regular intervals to update their knowledge and skills.

d) Police should have Cybercrime experts on their roll. It is high time to think of a separate cadre of cyber experts in Police as handling digital data and cyberspace is technical work, and requires expertise that a Police officer may not have.

e) The anonymity and the privacy of the victim should be ensured so that they feel confident in reporting the matter to the LEA.

f) The latest Cyber Crime Investigation Tools should be procured for each Cyber Cells for effective handling of cases.

g) Forensic Experts should also be empowered for effective handling of the Digital evidence, and provide quick opinions to the LEA.

h) Development of Standard Operating Procedure for Investigation of Cyber Crime against Women and sharing of best practices amongst all SPOs/CPOs.

i) Establishment of Rehabilitation and Counseling Centres for the victims of Cyber Crimes.

j) Speed up the information-seeking mechanism from the Service Providers situated abroad, for providing timely information.

k) Strengthening of the Indian Response System like CERT-for speedy take-down and removal of the concerned objectionable content from cyberspace.

l) The majority of Cybercrimes need to be made non-bailable offences. A comprehensive data protection regime needs to be incorporated into the law to make it effective. The government should work towards bilateral cooperation with other countries for exchanging information on Cyber Law.

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Changing Strategy & Tactics of Left Wing Extremism in India

Ambar Kishor Jha*

Left Wing Extremism (LWE) has been a threat to the internal security from past five decades. Inspite of recent achievements by the security forces in the hinterland, a long way still has to be covered in eradication of the extremist violence. There are pockets in states like Chhattisgarh, Andhra Pradesh, Jharkhand, Odisha, Telangana and Bihar where extremist are still dominating. They have survived due to their changing tactics and Modus Operandi from time to time. Their movement can be broadly divided in three phases.

I[st] Phase

The initial phase of Left Wing Extremism was inspired by tactics adopted by Mao Zedong, (former Chairman of Communist Party of China) and the cultural revolution of China. It started from the state of West Bengal and Andhra Pradesh as a peasant movement, in which labourers started seizing land from the landlords. In 1967, peasants spontaneously revolted against the landlords in Naxalbari village in Darjeeling district in West Bengal. In the South India, the most prominent one was at Sri Kakulam district in Andhra Pradesh through a peasant uprising in which farmers retaliated against the killing of two villagers by landlords. In this case, the farmers took arms and seized land, property, and food grains from the landlords.

Due to their beginning in India from Naxalbari village, Left Wing Extremists are also known as Naxals. This struggle between the landlords and farmers led to consolidation of guerrilla squad of Naxals to fight against the State and landlords in the hinter land. They used indigenous bows and arrows and other handmade weapons to fight the Police. In these battles, the causalities were high from both sides. There were other localized uprising in some parts of Bihar, Uttar Pradesh, but all such revolts started subsiding with the death of Charu Majumdar who is considered as "Father of Left Wing Extremist Movement" in India. This phase lasted nearly for a decade.

IInd Phase

After the decline of I[st] phase, the Naxal movement did not completely fade away, but it got scattered in different parts of the country. The movement fractured into more than 40 separate small groups which used this time to re-mobilize and consolidate. Naxals formed the Communist Party of India (Marxist Leninist) CPI (ML) on 22nd April, 1980, which was led by Kondapalli Sitharamaiah of Andhra Pradesh. Although the main base was in Andhra Pradesh, they slowly and steadily developed politico organization structure in many other parts of the country. They started procuring arms and giving military training to their cadre.

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The money which they got from extortion and contribution from their sympathizers was used to train their men in military tactics and running a well-structured secret organization.

Initially, the movement started with tribals in hinter lands but soon it was taken over by well-educated intellectuals, academicians and students having sympathy with the cause. They started attacking Police, kidnapping Civil Servants, Political leaders and also collecting extortions. CPI (ML) did not believe in parliamentary democracy and they wanted to capture the political power from lawfully elected government through armed struggle. They made a structured party system of local guerrilla squads, armed special guerrilla squads to achieve their goal. In the year 2000, Naxal formed their first large military formation as Peoples Liberation Guerrilla Army (PGLA).

IIIrd Phase

Till the early 2000, the movement remained largely out of public attention. The Naxals secretly mobilized the local Guerilla squads for violent response to economic condition of local population. In the North India, Maoists Communist Centre (MCC) came together and in the South India, Peoples War Groups (PWG) emerged as a major splinter group of this movement. They started attacking public and state properties including Police stations and outposts. By the beginning of this century, an estimated number of 3,000 Naxals were active, mostly in eastern part of the country.

The most watershed movement was in year 2004 when PWG and MCC merged to form a joint group named CPI (Maoists). This resulted in a formidable organization which has ideology and armed cadre. Soon they expanded their area to control natural resources like coal, precious mineral, timber and other forest products. They started extorting to procure weapons, explosives and develop their research & development capability to produce Improvised Explosive Devices (IEDs). This proved as the most potent weapon of the Naxals against the State machinery. Between 2004 – 2015, some estimation suggested that they were extorting around 150 crore rupees annually from contractors, businessman and industrialists.

Present Scenario

On 08th November, 2016, the Government announced demonetization of currency note in denominations of Rs. 500 and Rs. 1000. The move was aimed to curb corruption, black money and elimination of counterfeit currency used in terror funding. This affected Naxal's finance in a very adverse way. They lost most of the extortion money stored in jungles and the source of extortion also became scarce. This broke the back bone of the Naxal movement. It badly affected their new recruitment as they had a shortage of essential goods for the underground cadres (Dalam Members) in the Jungle.

In the year 2020, the world was overwhelmed by Covid-19 Pandemic. This also impacted the Naxals adversely. The main reason was due to lockdown, Naxals supply chain was disrupted. Their cadre were not able to do inter/intra state movements and with less access to medical supplies their morale was also very down. This affected their tactical abilities also. Naxals were not able to carry out large attacks in their annual Tactical Counter Offensive Campaign (TCOC). With hundreds of their cadres affected with Covid-19, and due to less access of public health and vaccination, the Naxals were forced to concentrate more on developing aerial weapons than fighting pitch battles. In an open letter, Naxals even criticized government decision of Lockdown which shows their frustration due to disruption in their supply chain. Their cadre usually procured

essentials from the local village markets in remote area. These markets were banned during the lockdown, and this forced Naxals to target public distribution system which was primarily meant for villagers. This tarnished the Naxals images among villagers.

Due to movement restriction between district boundaries and state boundaries, their operational capabilities were on hold. This led to loss in tactical momentum. The only big attack they were successful in organizing recently, was in the month of April, 2021 in which 22 jawans of CRPF were martyred while fighting with Naxals in Bijapur (Chhattisgarh). Their capability to inflict heavy casualty to security forces dwindled further and the number of security related expenditure (SRE) was reduced to only 70 by July, 2021.Maoists related incidents in 2020 dipped by nearly half due to Covid-19 situation. With security forces recent success in the state of Maharashtra in which a Central committee member was killed, further reduced their morale. This shows their depleting power and operational capability. As per MHA Annual Report 2020-21, there has been an overall 41% reduction in violent incidents (1,136 to 665) and 54% reduction (397 to 183) in LWE related deaths in 2020 as compared to 2013.

This improvement was largely due to more deployment of security forces in the hinter land and developmental activities in remote villages. Despite Naxals' desperate attempt to revive the insurgency along the inter-state border of Chhattisgarh, Andhra Pradesh and Odisha, forces have done fairly well in countering them on the field. The influence of Naxals is gradually decreasing in most of the parts of the country except in the Bastar region of Chhattisgarh. They would not able to dominate or hold their area for long. In the recent years they have lost most of their influence in Bihar, Jharkhand, West Bengal and Maharashtra.

Chhattisgarh Scenario

If we see the trends of Naxal violence in Chhattisgarh in the year 2022, 17 Maoists were killed as compared to 4 Police personnel till middle of this year. There has been an increase in the killing of civilians by the Maoists by branding them as Police informers. This shows their frustration and loss of faith by villagers in the Naxal ideology. This year, 23 civilians were killed by the Maoists, which includes 6 government employees also. There has been an increase in camp attack and IED blast incidents. Nearly, 17 IED blasts were reported till July 2022 from the beginning of the year, whereas, 93 IEDs were recovered by the security forces. The morale of the Naxals in the Chhattisgarh state has gone very low. There were more than 300 surrenders by Maoists and 175 Maoists were apprehended by security forces, and above 30 Arms were recovered during this time. They have also recently resorted to arson as a new tool of violence to create confusion in security forces.

Developments in Weaponry used by Maoists

Maoists have always tried to mobilize the younger generation who has a romantic illusion about the Maoists ideology and their way of clinching the power through armed rebellion against the government. In recent times, they had changed their tactics to be more relevant so that the movement can be alive for a longer duration till they reach their ideological goal. The recent development of weaponry in the Maoists armoury is the Barrel Grenade Launcher (BGL) which can inflict heavy casualty on the security forces. The specialty of this weapon is that it gives the Naxals an edge to prolong their struggle and inflict harm to police without coming in contact.

Barrel Grenade Launcher

Over a period, the Maoists have developed technologies by improvising rocketry and developing Barrel Grenade Launchers (BGL). BGL was first used by the first PLGA Battalion under the command of Madvi Hidma in 2017. It had limited capability of travelling up to 200 meters with small pay load. This gave Maoists the required boost. They started using it often, and it proved to be highly successful in combat. Two major incidents in which the Maoists inflicted serious casualties on the forces and proved the worth of BGL was first in Minpa of Sukma district in March 2020 and second in Tekalgudyam, Bijapur district in April 2021. Now, it is a common phenomenon in Chhattisgarh, whenever a new camp is established, a BGL attack is imminent.

In year 2022, two major attacks on newly established Potaktakpalli camp in February and Elmagunda in March, proved that BGL has become the most preferred weapon by Naxals. In 8 camps attacks by the Maoists this year in Chhattisgarh, BGL was used. As per unconfirmed reports, they have 3,500 BGLs and a capability of producing 300-400 shells of BGLs per month. Maoists are continuously researching and trying to develop high trajectory and highly accurate BGLs. They have also developed delay mechanism in the BGL shell which enables it to explode in air causing huge sound and multiple splinter injuries. This is one of the most potent weapons developed by them indigenously. It is a simple low tech technology with outstanding results.

BGL is classified as per the capability of their shell to inflict damage and size of the shell. They are classified in 03 groups i.e. small, medium and large shells.

Small Shell: - It is usually half a kg with 5 fins. Its body length is usually 13 cm & fuse length is 7 cm.

Medium Shell:-It is approximately 900 Grams with 6 fins tail unit & 13 cm body length and 8 cm fuse length.

Large Shell: - It is usually 19 cm long body length & 7 cm fuse length, its weight is approximately 1.8 kg and its tail unit has 6 fins. In another variant, long shell has 32 cm body length and 8 cm fuse length and large tail unit of 28 cm with 6 fins and weighed around 3.5 kg.

Maoists using local grenade launcher to target Police camps

Mechanism: - Its works on the simple mechanism like Rifle Grenade. Initially the safety pin is removed and the shell is loaded in the muzzle of the launcher. When the trigger is pressed, the thrust of the gas released from the HD Cartridge propels the shell. When the shell hits the hard surface, a spark is produced and it ignites the safety fuse and activates the detonator which results in an explosion. The small items which were packed in the cylinder like nails, ball bearing travel at high speed as projectiles and cause damage wherever they hit.

Pipe Launchers

Naxals have also developed improvised mortars through which they fire the latest developed BGL shells. There are two types of shells which are fired from it; the exploding shell and the incendiary shell.
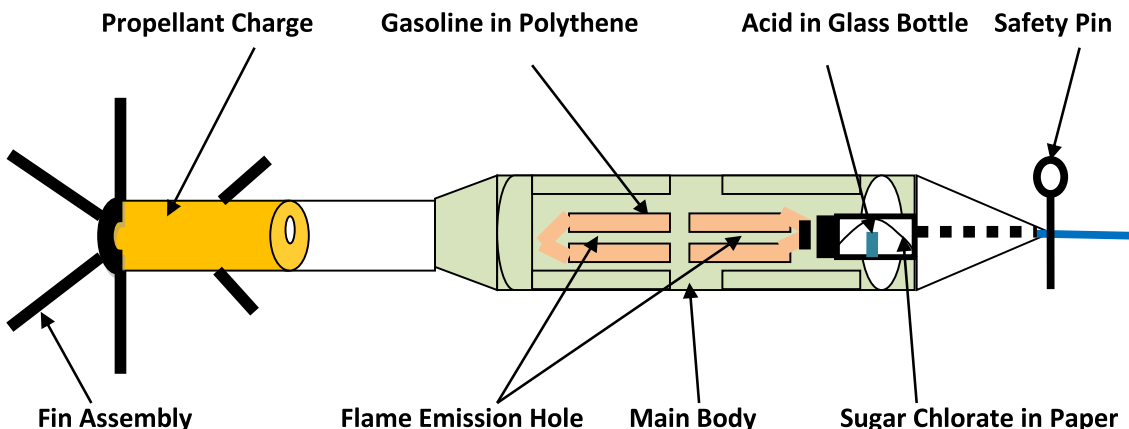
Exploding Shell

These shells explode on hitting a hard surface. These shells have three main parts:

i. Fuse assembly: It contains Safety Pin, Striker with spring, Aluminum Stud, Safety fuse.

ii. Main body: It contains Nut, Iron cylinder, Knotted Cordtex, Ball bearings, and rusted Iron pieces.

iii. Fin assembly (usually with 6 fins).

Incendiary Shell

This shell has been developed by Naxals to produce incendiary effect on exploding chemical like Sulphuric Acid, Potassium Chlorate and Gasoline. It is used to target fuel dumps, tents and other material which catch fire quickly.

Propellant Charge   Gasoline in Polythene   Acid in Glass Bottle   Safety Pin

Fin Assembly   Flame Emission Hole   Main Body   Sugar Chlorate in Paper

(Schematic diagram of shell for understanding)

Latest Trends in Use of IEDs

As security forces have upgraded their training, Maoists are also changing their tactics especially in the use of IEDs. They are frequently changing the type of IEDs as per the requirement of the terrain. They minutely observe the behaviour of security forces, operational duty and place the IED accordingly, which can inflict maximum damage.

DIRECTIONAL PIPES -They require low explosive and can be easily placed at places in which Police and Paramilitary forces

are doing road opening and patrol duty. It usually contains ball bearing, nails and other projectiles.

HUMAN EFFIGIES WITH DUMMY GUNS -This type of technique was used by Naxals in the Sukma district in which a dummy placed with a fake gun to mislead the patrolling party and when the troops try to remove their dummy, an IED was blasted through mechanical action.

Communication

Naxals use Very High Frequency (VHF) and subsequently High Frequency (HF) for communication. As per latest inputs, they have migrated to satellite phones and other covert specialized applications to communicate securely without being detected by the security forces. In future, they might procure sophisticated communication devices from enemy countries. They also use social media for luring the youth to join their ranks and do propaganda warfare against the Government.

Conclusion

The Maoists are relying more and more on IEDs. In future, they might use commercial of-the-self (COTS) drones to drop ammunitions and use small, remote- controlled airborne devices to carry out attack on the forces. The success of the security forces in Jharkhand, in which they have recovered more than 1200 IEDs, shows that Maoists are adding more and more IEDs and BGLs to their arsenal for fighting a prolonged battle. They are already experimenting with improvised drones for keeping an eye on security forces' movements. They might carry out small team operations to harm police/political leadership in the urban area. Police and Paramilitary forces of the nation fighting with this menace must upgrade their understanding of strategy and tactics and improve training to address this growing challenge in an effective way.

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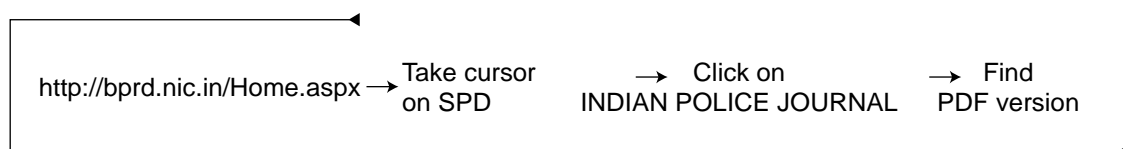
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