



The Evolving Role Of Police In Disaster Management: Insights From The Smart Policing Era

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Abstract: Police work in today's setting can also be considered to be very active because obviously police officers are no longer confined in enforcing laws and maintaining law and order to prevent riots but are also tasked with handling crisis and disaster situations. Another factor that has shifted the training and equipping of the police personnel in demeanor to disasters has been the incorporation of "SMART" policing that incorporates technology, big data and community-based policing practices. In essence, this research paper aims at identifying the factors involved in police work in term of disaster management, the impact of the application of the SMART principles and the need to enhance police readiness based on the lessons drawn and new situations arising in relation to natural and anthropogenic disasters.

Index Terms - Police work, law enforcement, crisis management, disaster management, SMART policing, technology in policing, big data analytics, community-based policing, police training and equipping, police readiness.

1. INTRODUCTION

The natural disasters and human induced disasters have become frequent and severe hence posing high risk which puts pressure on the law enforcement agencies that are supposed to manage these disasters. In this regard, the idea of "SMART" (Gtc, 2017) which is Specific, Measurable, Achievable, Relevant and Time-bound policing has been introduced in order to develop a more effective model for the police departments in managing the disaster occurrence. SMART policing can be described as a strategy of policing that makes use of data and technology as well as community relations to enhance efficiency of the policing system (Shinde & Patil, 2019).

Furthermore, the definition of SMART policing will input strategic technologies, application of knowledge of the result of data collection, and involve and cooperate with the community and other stakeholders. This approach aims at enabling the police employees to acquire proper skills and acquire proper tools and knowledge in disaster management and enable them to work closely with the communities they serve.

India being a large country with diversified geographical regions and socio-economic profile is sensitive to variety of natural as well as man-made disasters. Some of them include floods and cyclones, earthquakes and industrial disasters, these are some of the challenges that give a hard time when it comes to the issues of safety and security of the public. In recent years, the concept of 'SMART' policing has been identified as a potential

strategy to build capacity within law enforcement agencies for planning, managing and recovering from disaster spaces. This approach focuses on the efficient use of technology, evidence-based solutions, and partnerships with stakeholders in order to enhance the understanding of the operational environment, manage resources as effectively as possible and develop effective cooperation with various stakeholders.

The Indian government has come up with elaborate disaster management systems in effort to mitigate the losses incurred in disaster events, but it is crucial to note that the threats faced over the years by the country are becoming more complex and frequent, making it critical for the government to keep on developing new strategies. This paper aims to understand how SMART policing can transform the paradigms of disaster management in Indian scenario. It also examines the strengths, weaknesses, and potential for future development of this strategy together with the way in which it boosts preparedness, response and recovery as well as maintaining the security of individuals in the course of disasters.

2.THE EVOLVING ROLE OF POLICE IN DISASTER MANAGEMENT

The previous role of police in disaster management was majorly related to enforcement of law and order, ensuring security and helping in the evacuation of the public. Nonetheless, since the nature and effects of catastrophes have changed, the functions of a police officer have taken a new and broader scope. (Blumberg et al., 2019). Disaster response and management has evolved to one that needs integration of different government sectors, the private sector and non-governmental organizations. With these advances, police officers have been charged with a more proactive and decisive role within this collaborative system and are involved in both disaster response and leadership roles. An essential area in which police played a crucial role in disaster management is in the aspect of preparedness and planning for calamities. Law enforcement agencies are often called on to create and manage crisis management plans that entail the integration of other emergency responders, infrastructural support entities, and other administrators in the case of disaster encounters. In addition, the police personnel have actively participated in the post-disaster situations in areas like search, rescue, relief, or dispensing order among the affected populace.

This paper thus seeks to underscore the fact that the Police force in India has other tasks over and besides the traditional policing duties especially during disasters. They are the eye and ear of the community or country involved; playing a central role in safeguarding citizens and property, leadership in search and rescue operations and enforcement of law and order during disasters. Nonetheless, growing and frequent catastrophe, changing the population's demands, and expectations dictate the transition from reactive to proactive and digital solutions. This is where the concept of SMART policing gets relevant and changes the role of police concerning disaster management in India.

Historically, role of police in disaster management has been more or less confined to supporting the response planning and activity law enforcement in the aftermath of the disaster. Important as this approach was, it was accompanied by the issues of coordination, resource management and meeting the needs of the large variety of affected communities.

The involvement of SMART policing principles is a revolutionary change, which enhances favourably-tipped, quantitative, and people-oriented disaster management. This involves:

- **Leveraging Technology for Enhanced Preparedness:** The last strategy involves using GIS and indicator systems, data mining for risk factors and preparing for quick response as and when danger signals are OBSERVED.
- **Improving Situational Awareness and Coordination:** The use of drones, body-worn cameras and integrated communication system for the purpose of providing real time awareness of the situation, sharing of information and coordinating effort among the involved players.

- **Empowering Communities through Technology:** Creating smartphone applications for providing information about disaster and application of technologies for discussion of community members and organizing the process of response to disasters.

This emerging role necessitates not only technological updates but also the change in attitude and, to some extent, organization's approaches. This implies that police personnel should be sensitized on best practices and provided with right tools to master these technologies, and handle data, and interact with the society in a different and more cordial manner.

Yet, inclusion of the SMART policing in the Indian context has its own set of problems. Issues that have to be considered include closing the digital gap and protecting data from hacking, as well as the issue of equality in possessing technologies. Furthermore, for enhancing implementation, there should be development of the collaboration between agencies, establishment of trust with communities, and effectiveness in use of technology.

With these factors and while practicing SMART policing the Indian police force can go a long way in making the nation stronger and more prepared to face disasters. Sustained commitment to technology, human resource development and community-based activities will be needed in order to facilitate enhanced and people-oriented approaches in disaster management.

3.THE IMPACT OF SMART POLICING ON DISASTER MANAGEMENT

The implementation of SMART policing principle has influenced the way the police officers handle and control disasters. The strategic integration of technology, data-driven strategies, and community engagement has enabled police departments to enhance their disaster response capabilities in several ways: The strategic integration of technology, data-driven strategies, and community engagement has enabled police departments to enhance their disaster response capabilities in several ways:

First, an application of highly sophisticated technologies like real time data analysis, the use of predictive analytics, as well as geographical information system mapping has enabled the police to read disaster threats given their dynamic nature. These technological tools would also prove beneficial to the police in their attempts to target areas of frequent incidents, allocate manpower and resource more efficiently, and coordinate with other agencies which are involved in facilitating disaster management.

Second, the systems driven effort that is characteristic to SMART policing has made it possible for the police to be more informed in terms of decision making specifically on disaster management. Police can also use data collected and data trend analysis on previous disasters to improve the police training, resources applied to disasters and other areas of disaster preparedness.

Third, the focus in SMART policing towards the stakeholders involved in policing was well illustrated in the disaster management. Through integration and building a positive police community relation, the police can explore the feelings and the needs of the citizens and the other stakeholders to note the extent at which they are vulnerable to disasters and thereby come up with better and suitable approaches in case of disaster. (Shinde & Patil, 2019)

4. CHALLENGES AND CONSIDERATIONS

Although the implementation of the SMART policing principles has introduced a new dimension in the involvement of police for management of disasters, there are various factors that need to be taken into consideration to improve on the efficiency of this practice.

This brings a new challenge of constant training/capacity building for the Polices as they may not be well verse with the use of the newer forms. There are specific skills needed in the management of disasters, including those regarding who is in charge, handling of communication systems and distribution of resources. In order to implement SMART policing approach, its is imperative that would be police officers be trained and equipped to handle the incidents in the event of disaster.

Furthermore, the general observation made here is that the appropriate application of SMART policing in the management of disasters depends on the availability, adequacy and efficiency of financial and technological support. To upgrade smart systems and to acquire software tools, data analytical tools, communication networks and various applications taking many a times' help of other government departments and private players could be costly affair.

Last but not the least; the engagement and collaboration with other stakeholders in policing for disaster events and situations include the police, other emergency responders, government departments, and civil society organizations are also critical to the success of the SMART policing. As earlier discussed, outlining of roles, responsibilities, and communication plans for disasters ensures central coordination of disaster responses.

Concisely, police has been more important part in Smart Policing period in relation to disaster management. Thanks to such areas as IA, IT, and CS, police departments can improve various aspects of their functioning in preparing for and responding to acts of terrorism, as well as the recovery phase, which in turn strengthens the resilient communities which police departments are a part of. (Shinde & Patil, 2019)

5. A FRAMEWORK FOR SMART POLICING IN DISASTER MANAGEMENT

Disaster management can benefit from the concept of SMART policing because of its focus on the proper utilisation of technology, intelligence, and the engagement of the communities. Here's a proposed framework:

5.1 PHASE 1: PREPAREDNESS

- **Risk Assessment and Vulnerability Mapping:** Incident analysis using Geographic Information Systems and analysing the data to come up with high risk areas and infrastructures as well as vulnerable people.
- **Predictive Modelling:** Create probabilistic architecture using the past experience, the meteorological conditions, the conditions on the social networks and to predict probable disasters and resources needed.
- **Community Engagement and Education:** Engage in awareness creation, capacity building and simulation exercises among members of the public to encourage them to take up precautions necessary for the prevention of disasters.
- **Resource Management and Deployment:** Establish the system of constant identification of resources which will include employees and volunteers, materials, and equipment's, and relief items, so as to allow proper utilisation and deployment in the occurrence of another disaster.

5.2 PHASE 2: RESPONSE

- **Early Warning and Communication:** Use of applications, short messaging services and social networks to pass appropriate and relevant information, such as evacuation and safety measures to the community.
- **Situational Awareness and Coordination:** Use drones, surveillance cameras, and sensor networks for live monitoring of incidents and for successful coordination of different organizations involved in an incident.
- **Search and Rescue Operations:** Use of specialized equipment including thermal imaging cameras and search-and-rescue robots with a view of identifying and pulling out trapped victims in disaster-stricken zones.
- **Traffic Management and Crowd Control:** The following strategies should be done: Use of automatic traffic lights and barriers and having people on the ground who will wave people and direct traffic to allow way for the emergency cars.

5.3 PHASE 3: RECOVERY

- **Damage Assessment and Needs Analysis:** Capture and map areas affected by disasters using drone and satellite imagery so as to understand the affected areas' level of damage and direct the efforts and resources accordingly.
- **Relief Distribution and Support:** Set up depots and employ powerful communication mechanisms as a means of identifying and documenting the necessary supplies like food, water and medical relief items and take them to the appropriate regions.
- **Community Rebuilding and Rehabilitation:** Cooperate with communities as much as possible in order to facilitate and provide recovery support for a longer period through rebuilding structures, the economy as well as offering mental health support.

6. KEY CONSIDERATIONS FOR IMPLEMENTATION

- **Data Privacy and Security:** Pursue high levels of data security and share information about how data are collected, processed, used, and shared to catch the public's attention.
- **Interoperability and Collaboration:** Build up effective communication with other groups of interested, such as police, civil protection services, and NGOs; and opening up effective mechanisms of sharing the data.
- **Training and Capacity Building:** Conduct programs that would increase awareness of police personnel on the best practices to follow in case of a disaster as well as the impact of information technology and community relations.
- **Continuous Evaluation and Improvement:** SMART policing measures for disaster management: Conduct periodic evaluations to determine if such initiatives are effective and if there is any need for a change.

With the implementation of this framework coupled with assessment of the above key considerations, the SMART policing can help transform advance disaster preparedness, response and recovery to support safer and resilient societies.

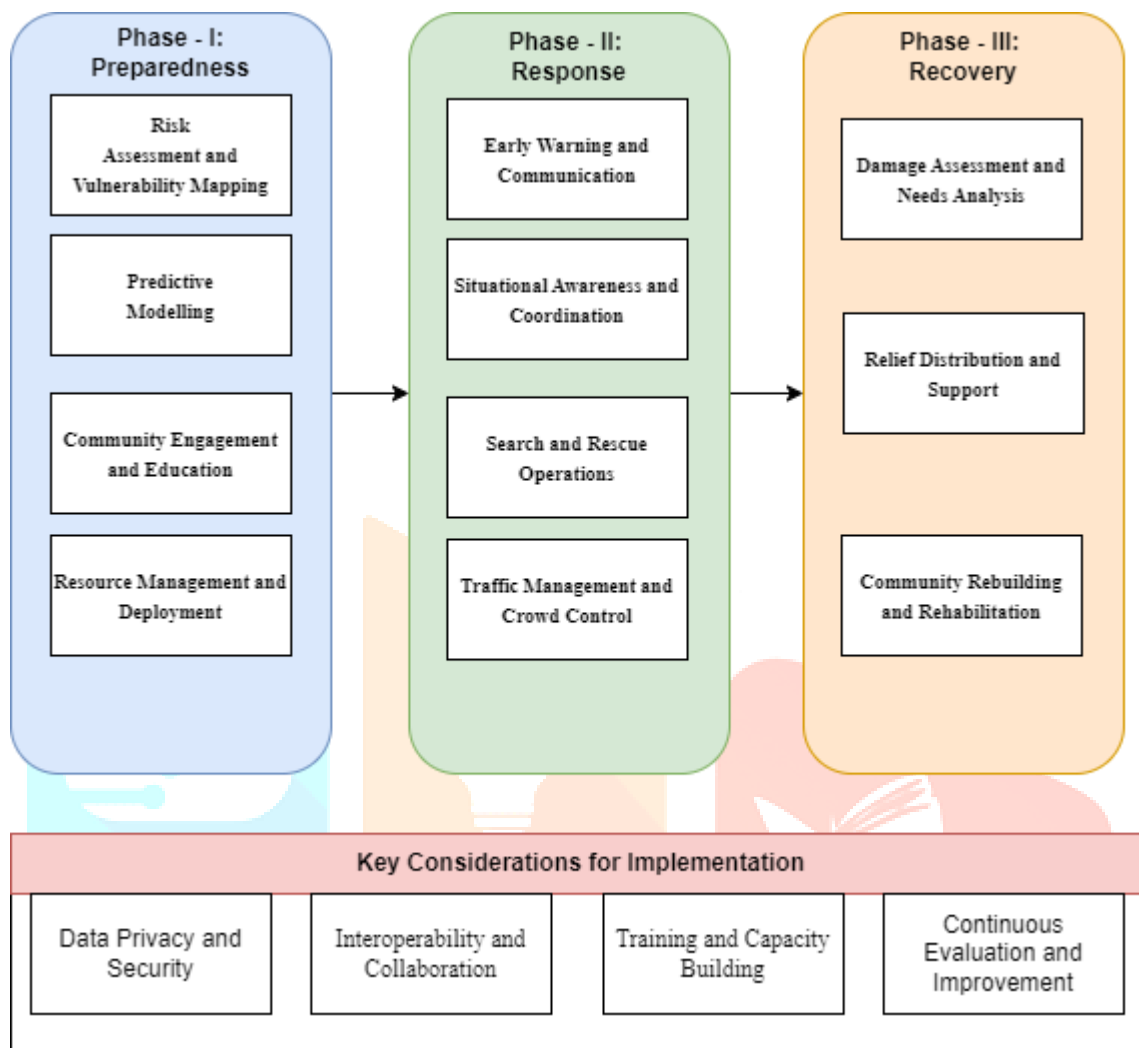


Figure 1: A Framework for SMART Policing in Disaster Management

7. SMART POLICING IN THE INDIAN CONTEXT

The use of SMART policing concept is still emerging everywhere but when it is being practiced in India it has its prospects and risks.

Below are the most important features of SMART Policing in India:

Several initiatives highlight the adoption of SMART policing principles in India:

- **Modernization of Police Forces:** Indian government have been keen on modernization of police forces with measures such as establishing of SMART police stations (S. T. undefined, 2014) (P. T. undefined, 2014). Most of these stations are supposed to be friendly to citizen and is supposed to involve technology and is supposed to address issues of service delivery.
- **Emphasis on Technology:** There is a new trend in adopting technology as part of the police force. This involves employing crime ATM, GIS mapping, and analyses, employing centre of gravity applications, applying predictive crime Mathematics, and developing mobile applications for the citizen-interface and reporting (Shenoy et al., 2021).

- **Community Policing Initiatives:** There is agreement that efforts to rebuild the relationship between police and civilians are necessary; therefore, several programs are being pursued to achieve this end. This can involve such as awareness creation programs, campaigns, consortiums to fight a particular safety challenge within a particular region.

8. CHALLENGES AND CONCERNS

Despite the progress, several challenges need to be addressed:

- **Digital Divide and Accessibility:** It came across certain limitations in implementing SMART policing; there is an unequal distribution of internet connection hence limiting access to smart policing initiative, and considerable differences in people's technologically perceptive skills in India.
- **Privacy and Data Security:** Technology as employed in policing leads to issues of contention in regard to data protection and abuse of information. Therefore, it is immensely important to develop effective and strict measures against data protection and to increase the transparency of data management processes.
- **Police Accountability and Transparency:** Police modernisation should be complemented with measures for increasing police accountability and openness. This also encompasses premises for resolving complaints, conducting audits independently as well as handling possible biases in using artificial intelligence in decision making.

9. SUSTAINABILITY OF SMART POLING APPROACHES IN DISASTER AFFECTED AREAS

The confusion due to lack of clear and concise concept of 'Disaster' can be solved by SMART policing approach that serves as an effective tool for improving preparedness and responsiveness of the police forces in disaster related incidents. Key elements include:

The use of modern technological tools like data and analytical tools, surveillance cameras, and communication networks provides enhanced ways of understanding the event's status, distribution and organization of resources and coordinating efforts done by different agencies involved in event management. Such systems as the predictive analytics and other artificial intelligence related systems serve the function of risk profiling of such areas, risk anticipation as well as deployment of organizational resources when necessary. (Lopresti & Shekhar, 2021).

The use of community and shared decision-making can be especially effective in disaster situations, since the police have to act with the community in order to evaluate their requirements, manage the distribution of resources, and provide and share information. Through trust and partnership with the citizens the police can effectively employ local knowledge, coordinate resource, and increase the general capacities within the affected area.

For SMART policing to become long-lasting in the disaster zones, it is pointed out by (Lopresti & Shekhar, 2021) and (Qian, 2021) that a robust infrastructure, well-defined protocol, pro-active decision-making models, and inter-agency partnership should be considered. Failure and special consideration of weak social and community capability, disaster response plans, testing of such plans, speaking and exercising with partners, and building redundancy, can all help ensure the sustainability of SMART policing over the longer term in the face of disaster scenarios.

10. POTENTIAL FUTURE DEVELOPMENT OF SMART POLICING FOR INDIAN DISASTER MANAGEMENT:

- **Enhanced Predictive Capabilities for Disaster Preparedness:** Through analytical abilities and artificial intelligence, police forces need to build better strategies of disaster takeover. This entails examination of past activities, weather conditions, social media data for weakness and then preparing to cover them.
- **Integration of Emerging Technologies:** Knowing and applying new technologies such as aerial platforms, unmanned systems, and IoT devices can significantly improve the awareness of the disaster, help to speed up operations, and deliver aid to the affected population in the most effective way possible.
- **Strengthening Cross-Agency Collaboration and Data Sharing:** Communication and data transfer between police departments, disaster management organizations, and all the other related entities have to be well-coordinated to respond to disaster-related occurrences effectively. Building
- **Community Resilience through Technology-Enabled Engagement:** The establishment of mobile applications and online platforms for education, passing early warning signs, and mobilizing the population may increase its participation in disaster management. Addressing Ethical Considerations and Ensuring
- **Responsible Technology Use:** As more and more policing strategies move to the SMART approach, an explicit set of ethical standards needs to be defined and implemented, data management should be transparent, and possible bias of algorithms used in decision processes should be countered to ensure the public and citizens trust the fairness of the actions taken.

In conclusion, adopting these future directions will enable SMART policing to be significantly instrumental in enhancing the level of disaster preparedness in India and foster the development of resilient society.

11. LOOKING AHEAD

Since the principle of SMART can be effectively applied to policing, it has the ingredient to positively revolutionize the ways policing is done in India as well as boost safety and security in the country. However, its successful application poses certain challenges that have to do with the local context, the question of digital divide, the matters of data protection, and the primacy of community on the background of technological progress.

The increase in the use of public surveillance and the challenges that come with it together with the rise in the call for social justice necessitate an inter-disciplinary approach to tackling the ethical and technical complications that come with the implementation of intelligent infrastructure. Such modern tools as applications for the communication of citizens and the police can significantly alter conventional approaches to the public service delivery, governance, and participation in public life, yet the application has to be tailor-made and properly controlled with reference to the demands and the demographic characteristics of the communities in question (Elphick et al., 2021) . Digital accountability tools present the opportunity to enable the citizens and enhance participation of the police in delivering its mandate thus why there is need for systematic analysis and appreciation of the general role of the police.

12. CONCLUSION

It can also be seen that due to the shift towards SMART policing, the intervention of police has become important in context of disaster management. The technological management and the use of data together with engagement of communities has been used strategically to improve the capacity of the police departments in disaster response, threat prediction, as well as formulation of effective and efficient strategies. The application of SMART policing in the Indian perspective offers a number of possibilities, however it is crucial to consider certain issues connected with the digital divide, peculiarities of data protection, police responsibilities in the course of catastrophe management.

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