

Review article

COVID-19 pandemic and disaster preparedness in the context of public health laws and policies

M.Z.M. Nomani¹ Rehana Parveen²

Abstract

Background: The Integrated Disease Surveillance Project (IDSP), 2004 addresses disaster preparedness, disease surveillance, disease data to respond to epidemics. The 12th Five Year Plan envisages disease surveillance for district-level laboratories and epidemic-centric diagnostic centers in consultation with the National Informatics Centers (NIC) and Indian Space Research Organization (ISRO). **Objectives:** These health policies need a critical appraisal in the COVID-19 pandemic and disaster preparedness in India's system. The Ministry of Health and Family Welfare (MoH&FW) and Indian Council of Medical Research (ICMR) pandemic cum disaster mitigation strategy analysed from risk mitigation to public health emergency in disaster management. The three-tier network labs and diagnostic centers, disease surveillance and disaster preparedness examined critically in the context of *Disaster Management Act (DMA)*, 2005. **Methodology:** The methodology of the study derives from European disaster management response to the COVID-19 pandemic. The World Health Organization (WHO) India Chapter and National Institute of Disaster Management (NIDM) disaster management strategies utilized as model for the epidemic and pandemic control. The SIR epidemiological model for the COVID-19 mortality applied in the emergency paradigm of health care system in COVID-19 pandemic. **Results:** COVID-19 pandemic and disaster preparedness in India revolves around the *Indian Penal Code (IPC)*, 1860 and *Epidemic Diseases Act (EDA)*, 1897 *Disaster Management Act (DMA)*, 2005, and *Epidemic Diseases (Amendment) Ordinance*, 2020. The sordid and wise experiences for the Disaster Management and COVID-19 pandemic culminate into 5 Ps Disaster Management adopted by India.⁵ It spells out the proof of concept with social experiment, proactive approach, people management, partnership, preparation, and collaboration. **Conclusion:** The National Disaster Management Authority (NDMA) assumes a pivotal role in controlling the infection and spread of the COVID-19 pandemic under the WHO Guideline of the disaster management cycle having a multi-component approach. The COVID-19 pandemic and disaster preparedness in India's health system moved from risk mitigation to public health emergency in disaster management.



Keywords: COVID-19 Pandemic; Disaster Preparedness; Disease Surveillance; Epidemic Mitigation; Disaster Management.


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Introduction

The COVID-19 pandemic in India was recognized as a disaster under *Disaster Management Act*, 2005, besides the clamping *Epidemic Disease Act*, 1897, during the national lockdown period. The lessons learned while applying the disaster law and epidemic control

legislation shreds of evidence robust containment strategy. The WHO attempted to understand the concept in the disaster management cycle having a multi- component approach. These components envisage mitigation, preparedness, response, and recovery. It takes a broader perspective of the restoring

1. M.Z.M. Nomani, Professor, Faculty of Law, Aligarh Muslim University, Aligarh-202001(U.P./India), E-mail: zafarnomani@rediffmail.com;  <http://orcid.org/0000-0003-3886-6590>.
2. Rehana Parveen, Assistant Professor, College of Law, Prince Sultan University, Riyadh (K.S.A.) (K.S.A.), E-mail: rparveen@psu.edu.sa  Orcid: <http://orcid.org/0000-0002-3546-4177>

Correspondence: M.Z.M. Nomani, Professor, Faculty of Law, Aligarh Muslim University, Aligarh-202001(U.P./India), E-mail: zafarnomani@rediffmail.com;  <http://orcid.org/0000-0003-3886-6590>.

and recovery of physical, psychological, and social health in pandemic situations.¹ In tandem with the pandemic's progression, the government, constituted numerous committees to delineate policy, formulate plans, and strategize operations. The Integrated Disease Surveillance Project (IDSP), 2004 addresses epidemic responses to disaster preparedness, disease surveillance, disease data. The 12th Five Year Plan envisages disease surveillance and preparedness for district-level laboratories and epidemic-centric diagnostic centers.² The National Informatics Centers (NIC) and Indian Space Research Organization (ISRO) undertake surveillance through information technology at the country's district level. The Ministry of Health and Family Welfare (MoH&FW) established a Network of Laboratories to managing endemic and natural calamities.³ Indian Council of Medical Research (ICMR) provides for three-tier network labs and diagnostic centers. Because of the COVID-19 pandemic, the National Disaster Management Authority (NDMA) assumes a pivotal role in controlling the infection and spread of disease.⁴ The unprecedented clamping of *Disaster Management Act*, 2005 to manage the COVID-19 pandemic in India needs a constitutional and legal examination from the public health administration. The public health system's goals and legal apparatus of disaster preparedness and management share the core values of good governance, responsive administration, and accountability right-based system.

Material & Method

The material and method of the study derive from European disaster management in response to the COVID-19 pandemic. The sordid and wise experiences for the Disaster Management and COVID-19 pandemic culminate into 5 Ps Disaster Management adopted by India.⁵ It spells out the proof of concept with social experiment, proactive approach, people management, partnership, preparation, and collaboration. The containment methodology applied SIR epidemiological model for the COVID -19 mortality in Morocco offers reliable results in disaster preparedness.⁶ The policy approach towards disaster responses and lessons reflects novel strategies for containing the spread of COVID-19.⁷ The adoption of disaster management strategies discerns slowing down of the contagious character of diseases beyond medical responses and outcomes. India promulgated *Disaster Management Act (DMA)*, 2005 in combating COVID-19 pandemic trading beyond the law's legislative intent.⁸ The legal pragmatism and

administrative expediency incorporate Short, medium, and long-term disease surveillance and preparedness strategies.⁹ The novel coronavirus disease crisis reoriented the humanitarian emergency paradigm and changed our understanding of disaster management in several ways.¹⁰ However, the experiences' flip side entails perpetual damage to the business, investment, and economic transformation besides the massive casualty.¹¹ The paper dwells on the short, medium, and long-term strategies of mainstreaming COVID-19 pandemic and disaster management into development planning. The mainstreaming of COVID-19 pandemic and disaster management into international and national health planning became imperative. The World Health Organization (WHO) India Chapter and National Institute of Disaster Management (NIDM) engaged in honing disaster management strategies beyond the pale of natural calamity to epidemic and pandemic. The emergency paradigm of disaster management encompasses good governance, responsive administration, and accountability health care system in COVID-19 pandemic.¹²

Results

COVID-19 Pandemic & Disaster Management: The COVID-19 pandemic and disaster management is underpinned in the holistic framework of Integrated Disease Surveillance Project (IDSP), 2004 to detect and respond to disease and epidemics.¹³ The Lok Sabha's *Public Accounts Committee's (PAC) 102nd Report*, 2017-18 represents a stock-taking exercise of disease surveillance data [10]. The Indian Council of Medical Research (ICMR) provides a three-tier network for managing epidemics and natural.¹⁴ In the present circumstances, the 5 Ps of Disaster Management adopted an inventive Pandemic process with Social Experiment, Proactive Approach, People Management, Partnership, Preparation and Collaboration (Figure-1).

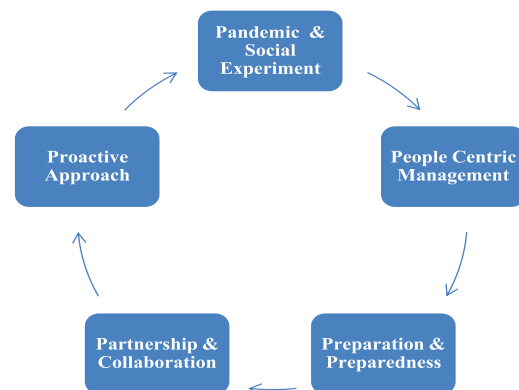


Figure-1

The disaster preparedness with the COVID-19 pandemic begins with a modest social experiment of social distancing for 1.3 billion Indian populations. The national wide lockdown and voluntary confinement is a unique social experiment in understanding disaster preparedness.¹⁵ It requires a proactive approach towards quarantine law enforcement and citizen's entitlement and migrant labours. COVID-19 adversely affected the physical health due to stress and solitariness of People. Therefore lighting of lamp helped in distressing and saving of the power demand (Figure-2). The containment strategy through the innovative medical system and digital empowerment also helped track

the COVID-19 disease, medical aid, and preparation. The progress in surveillance and laboratories had a potential impact on the is institutional overhauling under the common law-oriented quarantine rule and Sections 6, 10, 38, and 72 of the *DMA*, 2005.¹⁶

Role of Disaster Management Organs: The success of disaster management strategy depends on the effectiveness of the institutions to work in tandem with the pandemic's progression. The groups were empowered in various ministries and agencies with a specific goal and target. These groups were assigned to identify the problem and provide practical solutions besides delineating policy formulation and operations.

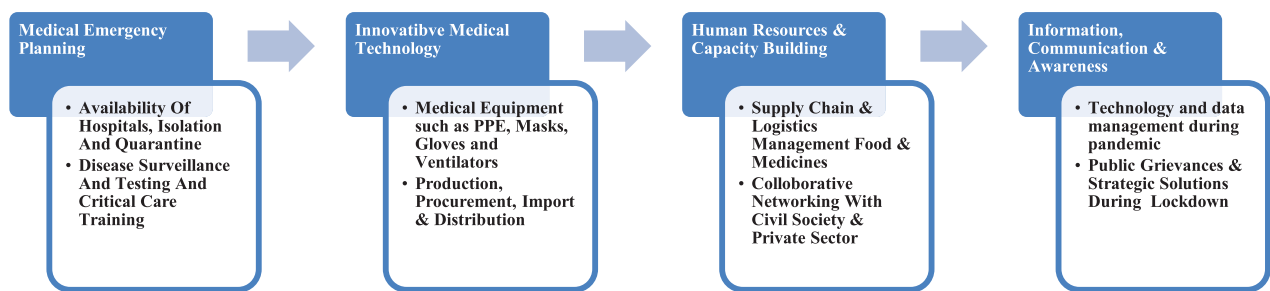


Figure-2

These agencies' goalpost revolves around medical emergency planning and preparedness in making Hospitals, Isolation, and Quarantine centers available to the patients. Disease surveillance and diagnostic and critical care also demand switching over to the innovative medical technologies production and procurement.¹⁷ The need for human resources, capacity building, and collaboration with civil society is *sine quo non* for people's health and welfare.

Disaster Management Strategies: The disaster management strategies encompass a slew of measures in short, medium and long-term plans and actions. The short-term process is primarily relief driven approach with an emphasis on the dissemination of COVID-19 pandemic. The medium-term strategy is targeted towards socio-economic recovery and welfare approach. The long-term initiatives are diagnostic and prognostic remedies and economical to offset the slowdown of the lockdown period (Figure-3).

It employs a top-down and bottom-up approach by strengthening district-level surveillance. Effective dissemination of relief and rehabilitation among the vulnerable during the lockdown deserves priority. The combination of Districts and local self-government institutions for Risk communication and economic recovery is also necessary. The long

term strategy envisages indigenous research and development of the vaccine and medicine to heal the COVID-19 disease.¹⁸ The socio-economic recovery and ergonomic protection are also necessary for health as well as economic growth.¹⁹ A micro insights of the COVID-19 at Aligarh Muslim University recorded 71.9% recovery rate against the than national average of 56% during in the initial stage of pandemic in March 2020.²⁰

Discussion

There is no doubt that the nature of disasters is undergoing metamorphosis despite sophisticated prediction and warning systems. But the application of *Disaster Management Act*, 2005 surprised many on the ground of its legal basis for natural and human-made disasters. India adopted the criminalization of the epidemic approach in controlling the COVID-19 pandemic.²¹ It applies classical *Indian Penal Code*, 1860 and *Epidemic Diseases Act*, 1897 *Epidemic Diseases (Amendment) Ordinance*, 2020.²² The novelty application is entirely innovative to epidemic and pandemic without the rehabilitative and relief packages.

Changing Dimensions of Disaster: The COVID-19 pandemic is a paradigm shift in health emergency preparedness and disaster management strategies. It

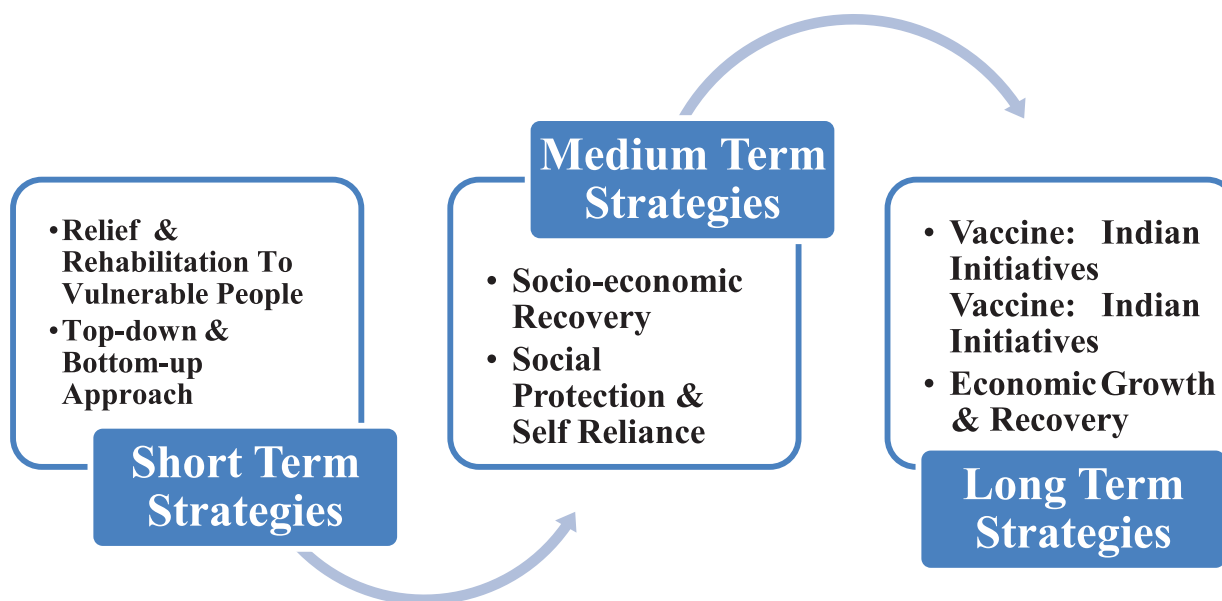


Figure-3

has dangerous portent beyond any geographic area of earthquake, flood, and cyclone. The epidemics of bird flu, ebola, influenza and dengue in India²³ limited to specific territorial confines juxtaposed to the transmission and virulence of COVID-19.²⁴ The outbreak in the past never resulted in complete global lockdown, travel ban, and mobility to mitigate the impacts of contagion. Indian society is cohesive, and dwellings are dense; therefore, physical distancing is a remote possibility. Hygiene and sanitation widely depend on the availability of water and toilets, which remain highly scarce.²⁵ The COVID-19 pandemic, therefore, has accentuated numerous hot spots and red zones in urban as well as rural India. The poverty and joblessness of workers and migrant labour²⁶ did not afford long-term lockdown and economic slowdown and slump. Therefore, it is not surprising to see the concurrent health emergency and monetary and fiscal crises for a stable economy.²⁷ The disaster management law has a myopic term of reference to natural calamities. The *Constitution of India*, 1950 has also not visualized the health emergency, good governance and, responsive administration to deal a pandemic of catastrophic nature like COVID-19.²⁸

Natural Calamities & Health: Article 12 of the *International Covenant on Economic, Social, and Cultural Rights (ICESCR)* provides the right to the enjoyment of the highest attainable standard of physical and mental health.²⁹ The right to health is widely recognized in international human rights law and supported by the catena of cases. The human rights to health mean physical, mental, and spiritual health.

Access to medical services, sanitation, food, housing, healthy working conditions, and the environment is inclusive to the concept of the right to health.³⁰ The Supreme Court in *Vincent Panikulangara v. Union of India*,³¹ observed that the ‘maintenance and improvement of public health deserve top priority and indispensable to individual, community, and society.’ Article 47 of the *Constitution of India*, 1950, recognizes nutrition security, the standard of living, and improvement of public health as the paramount principle of governance.³² In *Consumer Education and Resource Centre v. Union of India*, the Supreme Court envisaged that ‘the right to health and medical care’ metaphor in the vocabulary of fundamental and human rights.³³ The judicial interventions under Article 21 of the *Constitution of India*, 1950 witnessed a streak of health entitlements in normal and epidemic-pandemic situations. The concerned State Governments promptly responded to the problem and undertook Good governance, responsive administration, and coordination should be non-negotiable in a process driven by transparency and accountability. The scheme of ‘establishing a network of labs for managing epidemics and natural calamities, of Indian Council of Medical Research (ICMR) provides for a three-tier network of 160 labs. It has ten regional laboratories, 30 State-level laboratories, 120 medical college laboratories, and 82 Viral Research and Diagnostic Laboratories (VRDL) to cater to health consumers.³⁴ The Committee had recommended setting up surveillance at existing 21 points of entries (PoEs) at the national entry-level. The 30 health units at PoEs (21 airports, two ports,

and seven ground crossings) (PoEs) strengthened with disease surveillance, diagnostic services, and quarantine facilitation.³⁵

Disaster Preparedness & Epidemic Control: Disaster preparedness for epidemic control requires the inclusion of biological disasters under public health governance.³⁶ The disaster relates to the disturbance to society having widespread human, economic and ecological imbalances exceeding community to cope by its resources. The clinical conditions the laboratory capacity, strengthening surveillance, contact tracing using artificial Intelligence and technology applications applied as

disaster preparedness strategy.³⁷

The Indian *DMA*, 2005 perceives disaster as ‘a catastrophe, mishap, calamity or grave occurrence associated with the physical, geological and metrological factors. The epidemic and biological disaster, and therefore epidemic, can be better managed from a perspective of disaster management needs trauma management, infection control measures, and medical treatment, including anti-microbial drugs and vaccines. That is why the WHO attempted to understand the disaster management cycle concept with a multi-component approach (Figure-4).³⁸



Figure-4

These components envisage mitigation, preparedness, response, and recovery. It takes a broader perspective of the restoring and recovery of physical, psychological, and social health in pandemic situations. Therefore the healthcare system should target risk mitigation in public health emergency response from a perspective of disaster management.³⁹

The *DMA*, 2005 deal with the COVID-19 pandemic by the National Disaster Management Authority (NDMA). DMA’s application, 2005 in the wake of the COVID-19 epidemic obliquely justified by the Ministry of Health & Family Welfare in Public Accounts Committee of Lok Sabha Secretariat New Delhi in its 102nd Report (2017-18) and National Centre for Disease Control (NCDC). Both adopt a comprehensive protocol for disease surveillance, biological disaster, and epidemic preparedness.⁴⁰ The imperatives of Public Health Administration envisaged under draft *Public Health Bill*, 2009 and *Public Health (Prevention, Control and Management of Epidemics, Bio-Terrorism and Disasters) Bill*,

2017 to ignored in the spectrum of the disaster management strategies.⁴¹ The disaster preparedness and attitudinal shift study works as bulwark provided it is backed by the robust data management and implementation of public health laws and policies pandemic situations.⁴²

Conclusion

The COVID-19 pandemic is considered beyond the ‘coping capacity of the community and nothing short of a biological disaster. The disaster preparedness in India needs enactments epidemics-pandemic control and public health legislations besides *DMA*, 2005. The overdoses of the *EDA*, 1897 will boomerang the health right and equity in public health emergencies. One remains optimistic with the slew of legal initiatives under *DMA*, 2005, but the horrendous proportion of epidemic requires mobilization of medical resources and emergency preparedness with passion and innovation. The Indian disease preparedness needs to be re-invented in the WHO Guideline’s cyclical framework of the disaster

management cycle. The disaster risk mitigation, public preparedness, healthcare response, physical, psychological, and social recovery from COVID-19 pandemic. Health is the paramount concern during the COVID-19 pandemic, as evidenced in the streak of judicial understanding of the public health administration and governance. Therefore a proactive approach to the disaster management cycle can lead to recovery and therapeutics in realizing health rights and justice.

Recommendation:

The paper analyses the COVID-19 pandemic and disaster preparedness in India's system from risk mitigation to public health emergency in disaster management by recommending following measures:

- The experiences of the application of *Disaster Management Act, 2005* remains successful in natural calamities but its effectiveness in controlling the COVID-19 pandemic reveals that the centralized disaster management breeds federal crisis and health governance.
- The *Integrated Disease Surveillance Project (IDSP), 2004*; the *National Disaster Management Guidelines on the Biological Disasters, 2008* and *National Disaster Management Policy, 2009* synchronized at the national, state, and district level.

➤ The 'epidemic-pandemic and disaster preparedness under Sections 2(d) and (e) of the *Disaster Management Act, 2005* should incorporate compensatory provisions of section 12 of the *Disaster Management Act, 2005* in public health laws and policies.

➤ The public health laws and policies in COVID-19 pandemic calls for the mainstreaming of disaster law with humanitarian settings by the slew of enactments of *National Health Bill, 2009* and *Public Health (Prevention, Control and Management of Epidemics, Bio-Terrorism and Disasters) Bill, 2017*.

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Contribution of Authors:

M.Z.M. Nomani: Formulation of Research methodology, analysis of material and methods, interpretation of statutes for the manuscript.

Rehana Parveen: Preparation of the research design, formulation of interpretative skills and development of literature for the manuscript.

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