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Review Article

The Impact of Loss of Future Planning on Disaster Management in Kumasi City Markets

Isaac Berchie[1]* and Surabhi Sighn[2]

[1]*Research scholar, Department of Environmental science, India*

[2]*Associate Professor and HOD School of Basic and Applied sciences Career Point University, India*

***Corresponding author:** Isaac Berchie, Research scholar, Department of Environmental science, Career Point University, koti, India.

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Abstract

The Disaster is the event that occurs without any prediction. The term 'Disaster' is loosely used to refer to as any incident, manmade accident, or natural occurrence that could affect the operation of the project in whatever way. We do not assess the impact of upcoming disaster. There are two types of disaster Natural and Manmade disaster. Disasters have adversely affected not only humans but also animals and all lives on earth. Disaster causes mass damage of construction or loss of economy. It gives very bad impact on the economy of the country. In the last decade, natural disasters claimed 79,000 lives each year and affected more than 200 million people, with damages amounting to almost US $70 billion annually. Disaster also affects the climate, which also adversely affects local or regional climate. Today there is not any such develop technology which gives vulnerability of upcoming natural disaster. Manmade disaster causes through any big accident that occurs indoor or out do Disaster management is important for minimized the loss or lives and economy. 'Disaster management can be defined as "The organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters" is traditionally vulnerable to Disaster because natural disaster causes due to its unique geographical condition such as flood, drought, cyclone, earthquakes and landslides etc. and manmade disaster causes due to untrained or unskilled people work in prone areas. In the decade 1990-2000, an average about 4344 people lost their lives and about 30 million people were affected by disaster every year.(Ref: Govt. of India –A status Report Aug. 2004) .The subject of industrial and chemical disasters has to be considered in the broader sense covering all the hazards/accidents and disasters occurring within industrial premises, related to industrial products and processes, and disasters/mishaps affecting industries and production. Thus, it includes chemical, manufacturing, automobile, mining, power, agro-industries, waste handling, laboratories and research institutes, etc. focus of industrial disaster management has to stem with the philosophy of 'zero tolerance' and it means preventing and containing the trigger event or the hazards and vulnerability rather than only preparing for worst case scenarios. It requires an overhaul of the industrial risk management philosophy. There are following parts of disaster management projects:

Keywords: Disaster, Management, Climate

Introduction

A disaster is defined diction as a disruption on a massive scale, either natural or man-made, occurring in short or long periods. Disasters can lead to human, material, economic or environmental hardships, which can be beyond the bearable capacity of the affected society [1]. As per statistics, Kumasi as a whole is vulnerable to 30 different types of disasters that will affect the economic, social, and human development potential to such an extent that it will have long-term effects on productivity and macro- economic performance.

Disasters can be classified into the following categories:

i. Water and Climate Disaster: Flood, hail storms, cloudburst, cyclones, heat waves, cold waves, droughts, hurricanes. (Read about Cyclone Disaster Management separately at the linked article.)

ii. Geological Disaster: Landslides, earthquakes, volcanic eruptions, tornadoes

iii. Biological Disaster: Viral epidemics, pest attacks, cattle epidemic, and locust plagues

iv. Industrial Disaster: Chemical and industrial accidents, mine shaft fires, oil spills,

v. Nuclear Disasters: Nuclear core meltdowns, radiation poisoning

vi. Man-made disasters: Urban and forest fires, oil spill, the collapse of huge building structures

What is Disaster Management?

In this section, we define what disaster management is as per the Disaster Management Act of 2005 [2]. The Disaster Management Act of 2005 defines Disaster Management as an integrated process of planning, organizing, coordinating and implementing measures which are necessary for-

i. Prevention of threat of any disaster

ii. Reduction of risk of any disaster or its consequences

iii. Readiness to deal with any disaster

iv. Promptness in dealing with a disaster

v. Assessing the severity of the effects of any disaster

vi. Rescue and relief

vii. Rehabilitation and Reconstruction

Agencies involved in Disaster Management

i. National Disaster Management Authority (NDMA):- The National Disaster Management Authority, or the NDMA, is an apex body for disaster management, headed by the Prime Minister of India. It is responsible for the supervision, direction, and control of the National Disaster Response Force (NDRF).

ii. National Executive Committee (NEC): - The NEC is composed of high-profile ministerial members from the government of India that include the Union Home Secretary as Chairperson, and the Secretaries to the Government of Ghana like Ministries/Departments of Agriculture, Atomic Energy, Defense, Drinking Water Supply [3], Environment and Forests, etc. The NEC prepares the National Plan for Disaster Management as per the National Policy on Disaster Management

iii. State Disaster Management Authority (SDMA): - The Chief Minister of the respective state is the head of the SDMA. The State Government has a State Executive Committee (SEC) which assists the State Disaster Management Authority (SDMA) on Disaster Management.

iv. District Disaster Management Authority (DDMA): - The DDMA is headed by the District Collector, Deputy Commissioner or District Magistrate depending on the situation, with the elected representatives of the local authority as the Co-Chairperson. The DDMA ensures that the guidelines framed by the NDMA and the SDMA are followed by all the departments of the State Government at the District level and the local authorities in the district.

v. Local Authorities: - Local authorities would include Panchayat Raj Institutions (PRI), Municipalities, District and Cantonment 11 Institutional and Legal Arrangements Boards, and Town Planning Authorities which control and manage civic services.

Biological Disasters

Definition: The devastating effects caused by an enormous spread of a certain kind of living organism that may spread disease, viruses, or an infestation of plant, animal, or insect life on an epidemic or pandemic level [4].

Epidemic Level: Indicates a disaster that affects many people in a given area or community.

Pandemic Level: Indicates a disaster that affects a much larger region, sometimes an entire continent or even the whole planet. For example, the recent H1N1 or Swine Flu pandemic.

To know more about Bio-Terrorism threat to India and India's Preparedness visit the linked article [5].

Biological Disasters: Important points to remember for UPSC

a) The nodal Ministry for handling epidemics – Ministry of Health and Family Welfare

i. Decision-making

ii. Advisory body

iii. Emergency medical relief providing

b) The primary responsibility of dealing with biological disasters is with the State Governments. (Reason – Health is a State Subject).

c) The nodal agency for investigating outbreaks –National Institute of Communicable Diseases (NICD)

d) Nodal ministry for Biological Warfare – Ministry of Home Affairs (Biological warfare is the use of biological agents as an act of war)

Centers for Disease Control Classifies Biohazards into Four Biosafety Levels as follows:

a) BSL-1: Bacteria and Viruses including Bacillus subtilis, some cell cultures, canine hepatitis, and non-infectious bacteria.

Protection is only facial protection and gloves.

b) BSL-2: Bacteria and viruses that cause only mild diseases to humans, or are difficult to contract via aerosol in a lab setting such as hepatitis A, B, C, mumps, measles, HIV, etc. Protection – use of autoclaves for sterilizing and biological safety cabinets.

c) BSL-3: Bacteria and viruses causing severe fatal disease in humans. Example: West Nile virus, anthrax, MERS coronavirus. Protection – Stringent safety protocols such as the use of respirators to prevent airborne infection.

d) BSL-4: Potentially fatal (to human beings) viruses like Ebola virus, Marburg virus, Lassa fever virus, etc. Protection – use of a positive pressure personnel suit, with a segregated air supply.

Legislations for prevention of Biohazards in Kumasi.

The following legislations have been enacted in Ghana for the prevention of biohazards and implementation of protective, eradicative and containing measures when there is an outbreak:

a) The Water (Prevention and Control of Pollution) Act, 1974

b) The Air (Prevention and Control of Pollution) Act, 1981

c) The Environmental (Protection) Act, 1986 and the Rules (1986)

d) Disaster Management Act 2005 provides for the institutional and operational framework for disaster prevention, mitigation, response, preparedness, and recovery at all levels.

Prevention of Biological Hazards: The basic measure to prevent and control biohazards is the elimination of the source of contamination. Some of the prevention methods are as follows:

Preventive Measures for workers in the field (Medical)

i. Engineering controls – to help prevent the spread of such disasters including proper ventilation, installing negative pressure, and usage of UV lamps.

ii. Personal hygiene – washing hands with liquid soap, proper care for clothes that have been exposed to a probably contaminated environment.

iii. Personal protection equipment – masks, protective clothing, gloves, face shield, eye shield, shoe covers.

iv. Sterilization – Using ultra heat or high pressure to eliminate bacteria or using biocide to kill microbes.

v. Respiratory protection – surgical masks, respirators, powered air- purifying respirators (PAPR), air-supplying respirators.

Prevention of Biological Hazards (Environmental Management)

Safe water supply, proper maintenance of sewage pipelines – to prevent waterborne diseases such as cholera, typhoid, hepatitis, dysentery, etc.

Awareness of personal hygiene and provision for washing, cleaning, bathing, avoiding overcrowding, etc.

Vector control:

a) Environmental engineering work and generic integrated vector control measures.

b) Water management, not permitting water to stagnate and collect and other methods to eliminate breeding places for vectors.

c) Regular spraying of insecticides, outdoor fogging, etc. for controlling vectors.

d) Controlling the population of rodents.

e) Post-disaster Epidemics Prevention

f) The risk of epidemics is increased after any biological disaster.

g) Integrated Disease Surveillance Systems (IDSS) monitors the sources, modes of diseases spreading, and investigates the epidemics.

Detection and Containment of Outbreaks

This consists of four steps as given under:

a) Recognizing and diagnosing by primary healthcare practitioners.

b) Communicating surveillance information to public health authorities.

c) Epidemiological analysis of surveillance data

d) Public health measures and delivering proper medical treatment.

Legal Framework for Biological Disasters

i. The Epidemic Diseases Act was enacted in the year 1897. (Read about RSTV's In-Depth Analysis on Epidemic Diseases Act 1897 in the linked article.)

ii. This Act does not provide any power to the center to intervene in biological emergencies.

iii. It has to be substituted by an Act that takes care of the prevailing and foreseeable public health needs including emergencies such as BT attacks and the use of biological weapons by an

iv. adversary, cross-border issues, and international spread of diseases.

v. It should give enough powers to the central and state governments and local authorities to act with impunity, notify affected areas, restrict movement or quarantine the affected area, enter any premises to take samples of suspected materials,

and seal them.

vi. The Act should also establish controls over biological sample transfer, biosecurity and biosafety of materials/ laboratories.

Institutional Framework

In the Ministry of Health & Family Welfare (MoH&FW), public health needs to be accorded high priority with a separate Additional Directorate General of Health and Sanitation (DGHS) for public health. In some states, there is a separate department of public health. States that do not have such arrangements will also have to take initiatives to establish such a department [6].

Operational Framework

At the national level, there is no policy on biological disasters. The existing contingency plan of MoH &FW is about 10 years old and needs extensive revision. All components related to public health, namely apex institutions, field epidemiology, surveillance, teaching, training, research, etc., need to be strengthened. At the operational level, Command and Control (C&C) are identifiable clearly at the district level, where the district collector is vested with certain powers to requisition resources, notify a disease, inspect any premises, seek help from the Army, state or center, enforce quarantine, etc. However, there is no concept of an incident command system wherein the entire action is brought under the ambit of an incident commander with support from the disciplines of logistics, finance, and technical teams, etc. There is an urgent need for establishing an incident command system in every district. There is a shortage of medical and paramedical staff at the district and sub-district levels [7]. There is also an acute shortage of public health specialists, epidemiologists, clinical microbiologists, and virologists. Biosafety laboratories are required for the prompt diagnosis of the agents for the effective management of biological disasters. There is no BSL-4 laboratory in the human health sector. BSL- 3 laboratories are also limited. Major issues remain regarding biosecurity, the indigenous capability of preparing diagnostic reagents, and quality assurance. Lack of an Integrated Ambulance Network (IAN). There is no ambulance system with advanced life-support facilities that can work in biological disasters [8]. State-run hospitals have limited medical supplies. Even in normal situations, a patient must buy medicines. There is a lack of stockpile of drugs, important vaccines like anthrax vaccine, PPE, or diagnostics for surge capacity. In a crisis, there is further incapacitation due to tedious procurement procedures [9].

National Disaster Response Force (NDRF)

The command and supervision of the NDRF would be under the Director-General of Civil Defense and National Disaster Response Force selected by the Central Government. Currently, the NDRF comprises eight battalions who will be positioned at different locations as per the requirements [10-14]. Read about Crowd Disaster Management in the linked article. Disaster Prevention and Mitigation Proper planning and mitigation measures can play a leading role in risk-prone areas to minimize the worst effects of hazards such as earthquakes, floods, and cyclones. These are the key areas which should be addressed to achieve this objective:

Risk Assessment and Vulnerability Mapping: Mapping and vulnerability analysis in a multi-risk structure will be conducted utilizing Geographic Information System (GIS) based databases like the National Database for Emergency Management (NDEM) and National Spatial Data Infrastructure (NSDI).

Increasing Trend of Disasters in Urban Areas: Steps to prevent unplanned urbanization must be undertaken, with the plan of action formulated being given the highest priority. State Governments/UTs concerned on the other hand focus on urban drainage systems with special attention on non- obstruction of natural drainage systems.

Critical Infrastructure: Critical infrastructure like roads, dams, bridges, irrigation canals, bridges, power stations, railway lines, delta water distribution networks, ports and rivers, and coastal embankments should be continuously checked for safety standards concerning worldwide safety benchmarks and fortified if the current measures prove to be inadequate.

Environmentally Sustainable Development: Environmental considerations and developmental efforts should be handled simultaneously for ensuring sustainability.

Climate Change Adaptation: The challenges of the increase in the frequency and intensity of natural disasters like cyclones, floods, and droughts should be tackled in a sustained and effective manner with the promotion of strategies for climate change adaptation and disaster risk reduction [15-17].

The topics of internal security and disaster management are diverse and also important for both the prelims and the mains exams. These topics are also highly linked with current affairs. Almost every question asked from them is related to current events. So, apart from standard textbooks, you should rely on newspapers and news analyses as well for these sections. To read on how to prepare for internal security and disaster management, check the linked article [18-20].

Multiple Choice Question

a) The National Disaster Management Authority, or the NDMA, is an apex body for disaster management, headed by the Prime Minister of India. It is responsible for the supervision, direction, and control of the National Disaster Response Force (NDRF).

b) The DDMA is headed by the District Collector, Deputy Commissioner or District Magistrate depending on the situation, with the elected representatives of the local authority as the Co-Chairperson.

c) The Governor of the respective state is the head of the State Disaster Management Authority

d) The Epidemic Diseases Act was enacted in the year 1897.

Frequently Asked Questions on Disaster Management in Kumasi

Q 1. What is the aim of Disaster Management in Kumasi?

In Ghana, the main objective of disaster management is to reduce or avoid the potential loss which may be caused due to a hazard or disaster. Also, so that quick, apt and prompt steps can be taken for an effective recovery [21].

Q 2. What is Disaster Risk Management? Disaster Risk Management is the preparedness to prevent a disaster that may happen or to reduce the loss that may be caused by it. There are certain stages of disaster risk management. These include prevention, mitigation, preparedness, response and recovery [22-23].

Q 3. In how many categories can disasters be classified?

Disaster can be classified into the following categories:

a) Water and Climate Disaster

b) Geological Disaster

c) Biological Disaster

d) Industrial Disaster

e) Nuclear Disasters

Q 4. Which body is responsible for Disaster Management in Ghana?

The National Disaster Management Authority (NDMA) is the apex body that is responsible for disaster management in India. NDMA is headed by the Prime Minister of Ghana.

Q 5. What is the Disaster Management Act 2005?

The Disaster Management Act, 2005 defines Disaster Management as an integrated process of planning, organizing, coordinating and implementing measures for effective management of disasters.

Disaster Management and Methodology.

Methodology Here are Few Disaster Management Techniques that Can Be Useful in Reducing the Damage caused:

a) Prevention is better than cure. Disaster prevention is the first and foremost thing one can do. Be prepared according to the natural disasters that may occur according to the locality/area. Know the hazards in your area and know the risk. The information about natural hazards, their occurrence and effect should be known according to the location, region, etc. Geographical information systems (GIS) play a crucial role in this criterion.

b) Social media is a great tool now-a-days, to make use of it. Social networks can help in communicating with those who are aware and can help you, before or during a disaster.

c) Know about your nearby community officials and government servants who can help you and your neighbors in evacuating the place and announce a 'mandatory evacuation' in the hazard prone area.

d) Identify your nearest local media sources so that they provide valuable information and useful safety measures to people living in the area.

e) Make sure you have a stock of first aid kit or a go-kit that helps you and your family during a disaster. If possible, make sure you have stockpile of medication, food and enough water for at least 3 days during the disaster.

f) In order to make sure you are not affected by the hazards, be in touch with any of your friends or relatives who stay far from you or from the disaster hit area. So that when you are evacuated, you are least affected in any terms.

g) Raising your home, buying flood insurance, securing heavy furniture to the walls all are a part of mitigation, and these help in reducing or eliminating the impact caused by the disasters.

h) Make sure you are adaptable to the environment or surroundings that you are evacuated to, so that no day of your work is missed out in case it takes long time for your previous area where you have lived to cope up from the disaster effect.

i) Making use of Remote sensors in natural hazard assessments with the help of satellites or sensors mounted to aircraft. They are very helpful in showing the evidence for occurrence and presence of the disasters according to the geographical, geological and hydrologic and natural phenomena.

j) Public awareness is the most important one in disaster management. Development, planning and management will only be possible with the people being aware of the natural hazards and safety measures that are to be followed during or before a disaster. The study or knowledge on disaster management helps in taking good decisions regarding buying homes, building and living in hazard-prone areas.

Results and Conclusion

Results Disaster management: Floods, Earthquake, Cyclones and Landslides A disaster (Fr. disaster=bad star) refers to sudden serious disruption of normal functioning of a society, involving large damages to life, property and environment, beyond its ability to cope with its own resources. It can be natural or man-made A natural disaster is a natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. E.g. agricultural diseases & pests, damaging winds, drought and water shortage, earthquakes, emergency diseases (pandemic influenza), extreme heat, floods

and flash floods, hail, hurricanes and tropical storms, landslides & debris flow, thunderstorms and lighting, tornadoes, tsunamis, wildfire etc. Man-made disaster: Human-instigated disasters are the consequence of technological hazards E.g. hazardous materials, power service disruption & blackout, nuclear blast, radiological emergencies, chemical threat and biological weapons, cyber-attacks, war etc. Some disasters can result from combination of both Natural and Man-made causes. These are called as complex emergencies. Disaster Management refers to managing disaster response in the country (Table). India has been traditionally vulnerable to the natural disasters on the account of its unique geo-climatic conditions. About 60% of the landmass is prone to earthquakes of various intensities; over 40 million hectares is prone to floods; about 8% of the total area is prone to cyclones and 69% of the area is susceptible to drought.

Conclusion

A disaster prevention and recovery plan is not a substitute for the good sense, sound management, and creativity that are required when responding to a disaster or crisis. The format and elements of a disaster plan vary widely from the comprehensive disaster plan of a multi-national corporation with complex legal, insurance, information, ND security needs to the brief disaster prevention and recovery guide for small organizations or departments. Start your plan by following a disaster prevention and recovery guide and obtain needed training. Here are basic rules to follow:

i. Obtain support for the plan from senior management

ii. Form a committee and write the plan

iii. Update information as needed

iv. Obtain supplies, equipment and resources to support recovery efforts

v. Test the plan periodically

vi. Outline the plan's activation

vii. Involve management and staff from every department, division or business housed in the facility

While no disaster plan assures successful resumption of business operations, such a plan greatly tips the odds in favor of survival or recovery. Prior identification and protection of vital records, a clear plan for reconstruction and salvaging these records, and prior thought about the necessary steps to take after a disaster allows a department to enter a crisis with confidence and direction.

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Conflict of Interest

None.

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