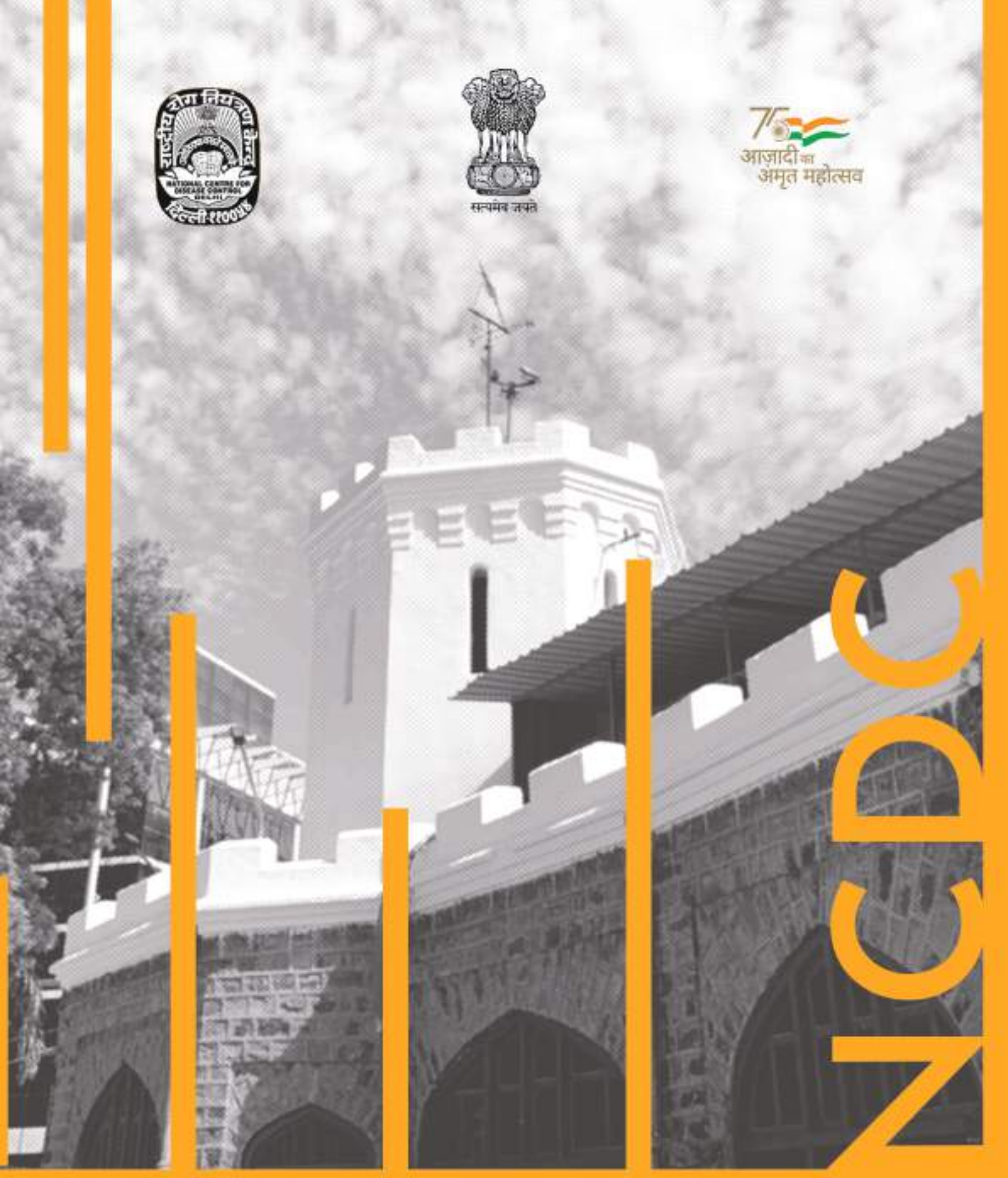

DISASTER MANAGEMENT PLAN

National Centre for Disease Control, Delhi

Directorate General of Health Services
Ministry of Health & Family Welfare
Government of India

"The Disaster Management Plan for National Centre Disease Control (NCDC) has been prepared in adherence to the 'Disaster Management Act 2005' with inputs from various stakeholders and in consultation with the Delhi Disaster Management Authority (DDMA) of the Central District Delhi as per the National Disaster Management Authority (NDMA) guidelines."

स्वास्थ्य एवं
परिवार कल्याण मंत्रालय
MINISTRY OF
HEALTH AND
FAMILY WELFARE
सत्यमेव जयते

Our Guiding Force

Shri Mansukh Mandaviya

Hon'ble Minister Minister of Health and Family Welfare & Minister of Chemicals and Fertilizers.

Dr. Bharati Pravin Pawar

Hon'ble Minister Minister of State (H&FW)

Shri. Rajesh Bhushan

Secretary (H&FW)

Prof. (Dr.) Atul Goel
(DGHS)

National Centre for Disease Control (NCDC),Delhi

FOREWORD

From the Director's Desk

Ever since I had the privilege of joining the National Centre for Disease Control(NCDC) as the twenty-third Director, I am overwhelmed with the support I have received from my colleagues at this Institute as well as from the officials at the DGHS and MoHFW. This is my absolute privilege that under my leadership this strategic and important task of preparing the "Disaster Management Plan for the National Centre for Disease Control (NCDC) Campus" has been sanctioned and completed in record time.

I wish to congratulate my team for their determination and hard work as well as the support received from the WHO Emergency Team, which has led to the development of such a comprehensive Disaster Management (DM) Plan. I am sure the plan will be showcased in the times to come as one of the "timely and substantially" produced documents during the celebration of the 75th year of Indian Independence, that showcases our resilience.

After the COVID-19 pandemic, all the institutions of national importance are being requested to take a leap in strategic, holistic planning and preparedness approach. I am delighted that NCDC, has been able to keep that vision in mind and thus safeguard its staff, visitors and the infrastructure of this important and historical institution by maintaining the delicate balance between DM planning and conserving the heritage of the NCDC.

The plan has evolved by incorporating the inputs from various stakeholders in adherence to the "Disaster Management Act 2005". I also appreciate the effort and dedication shown by the I-Design Studio team for this complex yet important task being completed in a timely manner.

Dr Sujeet Kumar Singh

Director, NCDC

FOREWORD

World Health Organization India

Message from Dr Roderico H. Ofrin

WHO Country Representative to India

Institutions must be resilient to remain functional during emergencies to deliver uninterrupted services to the community. This can be achieved through planning and adopting a risk-analysis approach. An institution-specific disaster management (DM) plan that integrates all aspects of preparedness and response strategies to respond to various threats and hazards is a key document.

Given its heritage and critical functional value, National Centre for Disease Control (NCDC) is undoubtedly one of India's foremost public health and disease surveillance institutions. Apart from housing heritage buildings and a public health museum, the NCDC campus in Delhi hosts several labs, technical resources and invaluable human resources that are all critical to the functioning of the public health system of India.

The NCDC disaster management plan thus strategically focuses on both functionality and continuation of services to deal effectively with public health emergencies and disasters.

Investing in safeguarding the interests of NCDC to provide a safe environment for the staff and visitors at this institution of national importance is imperative. This timely gesture also salutes the resilience of India as it completes 75 years of Independence.

I applaud the precision and timing that have led to the successful completion of DM planning. It will provide guidance to other similar institutions of strategic importance on their path to resilience, especially now as the world learns to live with COVID-19.

I congratulate the NCDC leadership and staff for the success of this project and look forward to this plan being implemented and periodically practiced in the form of mock drills and preparedness exercises. I reiterate WHO's commitment and support to strengthening emergency preparedness and response throughout the country and contributing to building a more resilient India.

WHO Representative to India

ABBREVIATION

CBRNE	Chemical, Biological, Radiological, Nuclear and Explosives
DDMP	Delhi Disaster Management Plan
DM ACT	Disaster Management Act
DMC	Disaster Management Committee
DAC	Disaster Advisory Committee
DMP	Disaster Management Plan
DGHS	Director General of Health Services
ERP	Emergency Response Protocol
GoI	Government of India
GoC	Government of Canada
HRVC	Hazard Risk, Vulnerability and Capacity
IAP	Incident Action Plan
IRT	Incident Response Team
LPG	Liquefied petroleum gas
MoHFW	Ministry of Health and Family Welfare
MCM	Mass Casualty Management
NBC	National Building Code
NCDC	National Centre for Disease Control
NDMA	National Disaster Management Authority
NDMP	National Disaster Management Plan
NPDM	National Policy on Disaster Management
NCE	National Centre of Excellence
NEOC	National Emergency Operational Centre
NDRF	National Disaster Response Force
PHEOC	Public Health Emergency Operating Centre
SHOC	Strategic Health Operating Centre
SOP	Standard Operating Procedure
UNDRR	United Nations Disaster Risk Reduction
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNISDR	United Nations International Strategy for Destruction Reduction
USGS	United States Geological Survey
WHO	World Health Organization

GLOSSARY

Capacity: The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals (UNISDR).

CBRNE Event: It refers to the uncontrolled release of chemicals, biological agents or radioactive contamination into the environment or explosions that cause widespread damage. CBRNE events can be caused by accidents or by terrorist acts. (Emergencies and Disaster, GoC)

Disaster Management: The organization, planning and application of measures preparing for, responding to and recovering from disasters. (UNDRR)

Disaster: A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. (UNISDR)

Earthquake Hazard: This includes surface faulting, ground shaking, landslide, liquefaction, tectonic deformation, and tsunamis. (USGS)

Fire Hazard: The hazard can start due to human activities or natural causes. Forest fires can start from either natural causes or human activity or a combination of both. The most common fires are residential and non-residential structural fires caused usually by human activities. Most industrial and chemical fires are triggered by human activity. They are sometimes caused by human errors, faulty designs, or mechanical failures. Fire can also be the secondary effect of a disaster like an earthquake. Secondary fires after a disaster like earthquakes constitute a substantial and heavy risk. Damage to natural gas systems during an earthquake can lead to major fires and explosions. Damages to electrical systems during a disaster can ignite major fires. (NDMP,2009)

Flood hazard: The hazard occurs most commonly from heavy rainfall when natural watercourses cannot convey excess water. It can also result from other phenomena, particularly in coastal areas, by a storm surge associated with a tropical cyclone, a tsunami or a high tide. Dam failure, triggered by an earthquake, for instance, will lead to flooding of the downstream area, even in dry weather conditions. Various climatic and non-climatic processes can result in different types of floods: riverine floods, flash floods, urban floods, glacial lake outburst floods and coastal floods. (UNISDR)

Group-Specific Vulnerability: Specific Vulnerability: Specific group vulnerability refers to physically, mentally, or socially disadvantaged persons who may be unable to meet their basic needs and may therefore require specific assistance. Persons exposed to and/or displaced by conflict or natural hazards may also be considered vulnerable. Vulnerable groups may experience a higher risk of poverty and/or social exclusion. (UNHCR).

Hazard: Hazard is a dangerous phenomenon, substance, human activity, or condition 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. India, due to its, physiographic and climatic conditions is one of the most disaster-prone areas of the World. (National Disaster Management Plan (NDMP, 2019)

Heat Wave: A Heatwave is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the summer season in the North-Western parts of India. Heat waves typically occur between March and June, and in some rare cases even extend till July. The extreme temperatures and resultant atmospheric conditions adversely affect people living in these regions as they cause physiological stress, sometimes resulting in death. (NDMA)

Intellectual Property: This refers to creations of the mind, such as inventions; literary and artistic works; designs; symbols, names and images used in commerce. (World Intellectual Property Organization)

Lightning: A natural hazard, lethal and destructive on short time scales and with an important climatic effect on longer time scales is referred to as lightning. It is accompanied by severe weather, hail and flash flooding that often entail significant economic losses. (IoPscience)

Non-Structural Measures: Measures that do not involve physical construction and use knowledge, practice or agreement to reduce disaster risks and impacts, in particular through policies and laws, public awareness raising, training and education. (UNDRR)

Physical Vulnerability: This is determined by aspects such as population density levels, remoteness of a settlement, the site, design and materials used for critical infrastructure and housing. (UNISDR)

Risk: The probability of harmful consequences, or expected losses (deaths, injuries, property, economic activity disrupted or environmental damage) resulting from interactions between natural or human-induced hazards and vulnerable conditions. (UNESCO)

Structural Measures: Measures include any physical construction to reduce or avoid possible impacts of hazards, or the application of engineering techniques or technology to achieve hazard resistance and resilience in structures or systems. (UNDRR)

Urban Flooding: Urban flooding due to rapid urbanization and hap-hazard development has led to catchments which increase the flood peaks from 1.8 to 8 times and flood volumes by up to 6 times. Consequently, flooding occurs very quickly due to faster flow times, sometimes in a matter of minutes. (Urban Floods, NDMP 2019)

Vulnerability: The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards". (UNISDR 2009)

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CHAPTER - 1 : INTRODUCTION

"I envisage NCDC as an institution that imparts national and regional leadership in the area of public health by building upon the lessons learned from each crisis and emerge to be a more resilient organization".

Dr. Sujeet Kumar Singh (Director, NCDC, Delhi)

1.1 OVERVIEW OF THE ORGANISATION

The National Centre for Disease Control (NCDC), formerly the National Institute of Communicable Diseases (NICD) India, had its origin as the Central Malaria Bureau, established at Kasauli (Himachal Pradesh) in 1909 and following expansion was renamed in 1927 as the "Malaria Survey of India". The organization was then shifted to Delhi in 1938 and was called the "Malaria Institute of India (MII)". In view of the drastic reduction achieved in the incidence of malaria under the National Malaria Eradication Programme (NMEP), the Government of India (GoI) decided to reorganize and expand the activities of the institute to cover other communicable diseases, thus in 1963 the erstwhile MII was renamed as National Institute of Communicable Diseases (NICD) to shoulder these additional responsibilities. Further in the year 2009, NICD was transformed into National Centre for Disease Control (NCDC) with a larger mandate of controlling emerging and re-emerging diseases.

Figure 1: Location of National Centre for Disease Control, Delhi.

The Institute was then established to function as a National Centre of Excellence (NCE) for the control of communicable diseases. The function of the institute includes areas of training and research by using a multi-disciplinary and integrated approach. The institute in addition was expected to provide expertise to the States and Union Territories (UTs) on rapid health assessment and laboratory-based diagnostic services.

1.2 VISION OF NCDC

Providing evidence-based technical inputs for policy formulation, programme implementation, research and development, and academics and training in matters of public health, health care including emergency preparedness & response and medical education to the government for achieving the highest possible standard of health for the people of India.

1.3 MANDATE OF NCDC

NCDC is a premier scientific research body of the nation, which since its inception has assisted the nation in overcoming any epidemiological challenges. The centre has been a central technical agency working across the nation to mitigate the arrival of new pathogens in the country, while continuously researching the existing floating pathogens within, and further providing training to the nation's healthcare workforce in combating any epidemiological threats.

Figure 2: Mandate of National Centre for Disease Control

1.4 NEED OF A PLAN FOR DISASTER MANAGEMENT PLAN FOR NCDC

NCDC is an institute of national importance for public health, disease surveillance, lab, and research on health-related issues under the Ministry of Health and Family Welfare (MoHFW), Government of India (GoI). The NCDC campus covers an approximate area of 15.35 acres, which includes the former official residence of the commander-in-chief of the Indian Army and now host the administrative block, library, biosafety level (BSL) labs, and other departments. It is a classic example of the fusion of old heritage building blocks – restored along with new buildings/research blocks. The NCDC campus hosts the SHOC / PHEOC for public health emergencies and has the mandate to build national capacity for medical management of chemical emergencies.

Each institution is vulnerable to certain hazards, which when coincides with risk can increase the vulnerability. The past experiences of being affected by disaster and the damage in losses incurred therein with the help of scientific methodology and disaster risk management practices aid a better planning process that intercepts early warning signals along with mitigation measures to enhance the readiness of the organization. This can be achieved through disaster management planning. The institutions with disaster management plans tend to perform better due to factored-in and incorporated resilience in their staff, system and structures.

NCDC's experience of prior disasters and their aftermath has reiterated the necessity of planning and capacity building, to deal with them effectively. Sustainability in Disaster management plan (DMP) cannot be achieved

until and unless disaster mitigation and risk reduction are built into the development process. Investments in mitigation are more cost-effective than expenditures on relief and rehabilitation. Preparedness, prevention, and mitigation contribute to lasting improvement in safety and are essential to be integrated into the DMP. Disaster response alone is not sufficient as it yields only temporary results and at a very high cost. Emphasis must be on disaster prevention, mitigation, and preparedness, which will help in achieving the objective of vulnerability reduction. The ultimate goal of DMP is to strengthen resilience and resistivity to deal with disastrous situations potentially.

As per the DM act and the guidelines of NDMA every institution/ ministry must have a DMP in place. The proposed NDMP complies with the NPDM of 2009 and thus confirms the provisions of the DM Act making it mandatory for the Government of India (GOI) and various central ministries/institutions to have appropriate DM plans. While the national plan will pertain to the disaster management for the whole of the country, the hazard-specific nodal ministries and departments notified by the GoI will prepare detailed DM plans specific to the hazard assigned in liveliness locally. As per Section 37 of the DM Act, every ministry and department of the GoI, including the hazard-specific nodal ministries, shall prepare a comprehensive DMP detailing how each of them will contribute to the national efforts in the domains of disaster prevention, preparedness, response, and recovery.

Preparing a DM plan for NCDC will be “future-proofing” the Campus through preparedness, mitigation strategies, and responsive measures which in turn will help in dealing with the possible hazards. The plan adheres to NDMA guidelines and references to the latest National Building Codes 2019 (NBC) and is in line with the District Disaster Management Plan.

Any DM Plan needs to be sustainable and adaptive to the climate change perspective, to be disaster resilient infrastructure and also look into the angle of rainwater harvesting, climate resilience, energy efficiency along with the eco-friendly approach, and service-related planning for a future course. Thus, this plan has been developed from the viewpoint of sustainability, climate change perspective, and resilience by looking into alternate energy routes and conservation and enhancing flora and fauna species while planning and responding to an emergency. The qualitative suggestions will be part of the recommendations.

The NCDC is an institution of national and historical importance, which plays a critical role in undertaking investigations of disease outbreaks from all over the country, with time their services are expanding, and so are their infrastructural needs. To reduce the vulnerability of the NCDC staff and other resources, it is important to have a “Disaster Management Plan”. The institutional DMP is a practical guide of preventive steps and actions responding to potential and actual disasters, which in turn enhances the resilience of the institution.

India celebrates its 75th year of independence this year, the NDRF has been mandated to carry out mock drills at 75 locations across the country at sites of national heritage value under the “Azadi Ka Amrit Mahotsav” celebrations. The NCDC campus was also chosen for the drill, given its heritage value as well as its being an institution of national importance. A full-scale multi-hazard mock drill was organized on NCDC Campus with technical support from WHO (India).

The objectives of the mock drill were to highlight the roles and responsibilities of the concerned stakeholders, to enhance coordination and synergize efforts of various emergency support functions and to find gaps in the resources, manpower, equipment, and communication systems to prepare while responding to fire, earthquake and CBRN emergencies.

A full-scale planning and coordination meeting along with a detailed tabletop exercise was conducted on the 6th of June in presence of stakeholders from Delhi district administration, Delhi fire services, police department, traffic police, DDMA, civil defense, CATS ambulance services, hospitals, and health department, along with the 8th battalion of the NDRF, representatives from the WHO (India), and departmental heads of NCDC.

It was the first of its kind drill on the NCDC campus in the last 40 years. A mega mock drill was conducted the following day with the multi-hazard scenario involving an earthquake of a severe intensity leading to

fire and chemical leakage within the campus. The drill focused on important aspects like the initiation of a "house response mechanism", "activation of the institutional disaster management plan", "calling for help", "coordination between different stakeholder agencies", "setting up incident response system", "evacuation of casualties", "triage, pre-hospital care", "the responsibility of various departments", "activation of the EOC at the district level, MCM", "first aid and providing of psychosocial care", "decontamination of the victims" and shifting them to designated hospitals through various injects and variations in the exercise to plan and prepare as well as understand the mechanism of response.

The key lesson learned from this exercise was that NCDC needs an "Institutional Disaster Management Plan". The drill has instigated an urgent need to prepare a Disaster Management Plan for NCDC. The learning from this exercise will help in improving the emergency response mechanisms within the institute as well as will serve other capacity-building programs.

1.5 AIM OF THE DM PLAN

The aim of the DMP for NCDC is to provide flexible, good practice steps, and advice to those responsible for implementing the disaster management plan. The DMP complements preparedness, mitigation (structural and non-structural), response, evacuation and recovery planning by forming a central disaster management committee for an effective action and SOP's in place to act up in the case of "**all-hazards**" events.

It is to ensure that the safety of NCDC staff, employees and visitors are maintained during an emergency/ specific disaster situation and immediate measures will be taken to reduce the chances of developing any secondary emergencies. Prior planning with a clear vision helps in reducing any risk due to hazards and helps in protecting people, vital information and resources available at the institution. It's important to improve the efficiency of NCDC as an institution if an emergency strikes by strengthening its preparedness, mitigation (structural and non-structural) and response strategies.

1.6 OBJECTIVES OF THE PLAN

- To prepare and plan a step-by-step approach to deal with any emergency/crisis.
- To document and suggest mitigation measures, such as structural and non-structural mitigation measures that can be done to ensure safety.
- To prepare a plan for staff/ teams/ committees responsible for the management of emergencies, their roles, functions and chain of command.
- To identify and explain a plan activation protocol for different emergencies.
- To present a plan for organization's protocol for capacity building (training and retraining) of staff in various aspects of emergency management.

1.7 DETAILS OF THE CAMPUS

The Institute consists of "heritage blocks" as well as new building blocks. There are three historical structures present on campus. The campus is undergoing a major redevelopment process where infrastructure /laboratories are being strengthened through new modern buildings, and procurement of modern equipment to make the diagnostic services modernized, including induction of diagnostic support services. The proposal also envisages the creation of newer centers, newer divisions and up scaling of the existing ones to cope with the ever-increasing horizon and magnitude of emerging public health emergencies.

NCDC has the only library in the country, which has early literature in the field of Malaria and other vector-borne diseases prevalent in the country. "An archival book on Entomology, published as early as 1745, is the oldest book available in NCDC library". Therefore, we need to understand the national, strategic as well as structural importance of NCDC while planning from a DM perspective.

Figure. 3 LAYOUT PLAN OF NCDC CAMPUS

E1	EXISTING BLOCKS	A	DRY LAB	R1	TYPE - II RESIDENCE
E2	EXISTING BLOCKS	A1	AUDITORIUM	R2	TYPE - IV RESIDENCE
E3	HERITAGE BLOCKS	A2	ADMIN BLOCK	R3	TYPE - V DIRECTOR'S RESIDENCE
L1	WETLAB	A3	NVBDC BLOCK	R4	SECURITY
L2	WETLAB (BSL - 3)	G	GUEST HOUSE	S	SERVICES
L3	WET LAB	PG	HOSTEL	F1	FUTURE TYPE - II

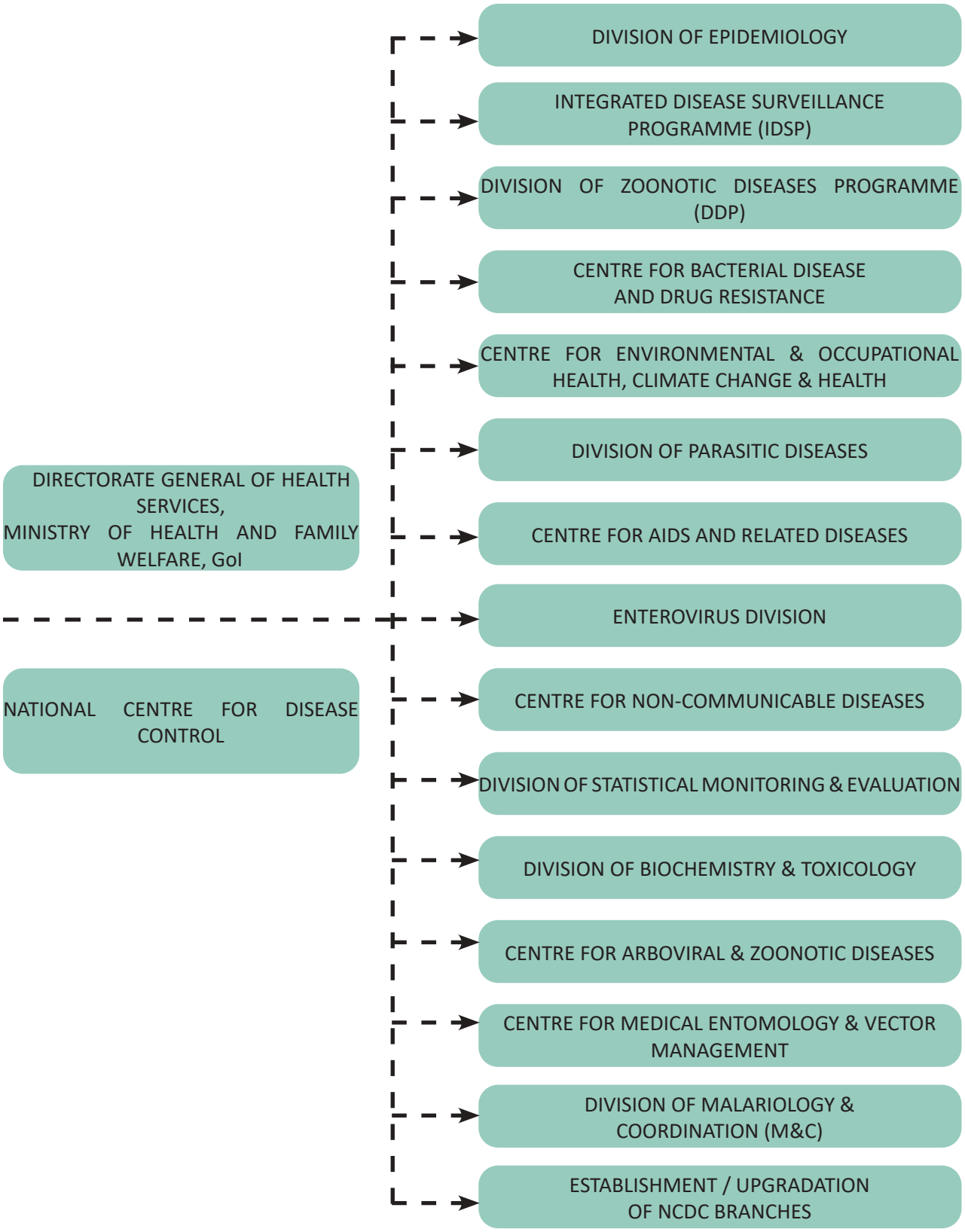
1.8 ORGANIZATIONAL STRUCTURE OF NCDC

The NCDC functions under the administrative guidance of the DGHS, Ministry of Health and Family Welfare (MoHFW) GoI. The Director, an officer of the Public Health sub-cadre of Central Health Service, is the administrative and technical head of the Institute.

The NCDC, Delhi has 58 Group A officials comprising of officers from Central Health Services and Non-Medical Scientists, 10 Group B Gazetted officials, 111 Group B Non-Gazetted officials, 137 Group C officials and about 37 contractual consultants / support staff. The existing eight NCDC branches have 81 officials.

S.NO.	NAME OF THE DEPARTMENT	STAFF STRENGTH
1	Centre for AIDS and Related Diseases	23
2	Integrated Disease Surveillance Programme	39
3	Division of Epidemiology	47 (including EIS Officers)
4	Centre for Medical Entomology and Vector Management	17
5	Division of Parasitic Diseases	18
6	Upgradation Cell	71 (including 65 NSL & NBCC staff)
7	Centre for Bacterial Disease & Drug Resistance	31
8	Centre for Arboviral and Zoonotic Disease	36
9	Centre for Environmental & Occupational Health, Climate Change &Health	18
10	Budget Cell	12
11	Enterovirus	25
12	SM&EC/PBA	09
13	MICRO & RV LAB	20
14	Vital Hepatitis & Bio Tech	62
15	Microbiology (TB Lab)	05
16	NCD and Biochemistry Division	11
17	NPMU-NCDC Cell (Establishment & Strengthening of NCDC Branches)	05
18	Division of Zoonotic Disease Programme	15
19	NCDC Security Staff	25 (including 20 Security Guards)
20	Store	10
21	PRC	06
22	Establishment	09
23	General Section	13
24	MT Cell	08
25	CSR	03
26	Accounts	09
27	Library	07
28	CPWD (Civil)	05
29	Admin	02
30	Parliament Cell & Guest House	07
31	CPWD (Electrical)	15
32	Telephone Exchange	02
33	Director Office	10
34	Housekeeping staff	43
35	PAO	23
36	CPWD (Horticulture)	03

1.8.1 ORGANOGRAM



1.8.2 WHO COLLABORATING CENTRE

NCDC is recognized as a WHO Collaborating Centre for Epidemiology & Training, WHO Collaborating Centre for Rabies Epidemiology, and Referral Centre for Poliomyelitis for South East Asian countries, and National Referral Centre for Viral Hepatitis & AIDS.

CHAPTER 2: HAZARD, RISK, VULNERABILITY AND CAPACITY ASSESSMENT (HRVCA)

"I think completing the DM planning for our institute is the biggest salute to the nation that NCDC can provide under the ongoing "Azadi Ka Amrit Mahotsav" which celebrates 75 years of India's independence."

Dr. Sudhir Kumar Jain (Advisor, NCDC)

2.1 HAZARD ASSESSMENT

The first step of hazard assessment is hazard identification, which is also considered a preliminary step to understanding the threat present.

2.1.1 HAZARD IDENTIFICATION

Hazard identification helps in planning and preparing for the impact of hazards in advance. Hazard identification can be done through the following steps:

- Making an account and collecting information about hazards present and likely to occur in the future.
- Conducting a ground survey for hazard identification.
- Reviewing the literature and records of damages and casualties by previous disasters to understand the level of impact.
- Prioritizing the planning process based on the severity and likelihood (frequency) of hazards.

Figure 4: Steps to Hazard Identification

The Central District region accounts for earthquakes as a key natural hazard and chemical/industrial fire, urban flooding/water logging, hostile emergency and collapse of structures as man-made hazards. The NCDC campus is located in the central district of Delhi thus the above-mentioned hazards can be possibly witnessed by the institution.

2.1.1a NATURAL HAZARDS

- **Earthquake:** Delhi is located in seismic zone IV, based on the Earthquake Seismological Mapping of India. Central Delhi lies in a moderate to high earthquake hazard area according to DDMP. The NCDC is situated in the central Delhi area, therefore organization can be prone to the impact of earthquake hazards.
- **Flood:** Settlements near the riverbed of the Yamuna river are prone to a high risk of flooding compared to areas that are distant from the river in the central district. There is a possibility of urban flooding as urbanization, construction sites and haphazard development have led to water catchments, increasing the flood peaks and volumes in the vicinity.
- **Wind storm:** In recent years, Delhi has been a witness to dry windstorms and intense winds up to 100 kmph speed leading to the uprooting of trees and falling of electricity poles. The NCDC campus has many old trees which are vulnerable to fall/damage during such storms.
- **Lightning:** There is a steep increase in the frequency of thunderstorms in Delhi the over past few years. Thunderstorms coupled up with heavy showers have led to celestial lightning in Delhi, emerging as a threat. The NCDC campus can be prone to lightning to some extent.

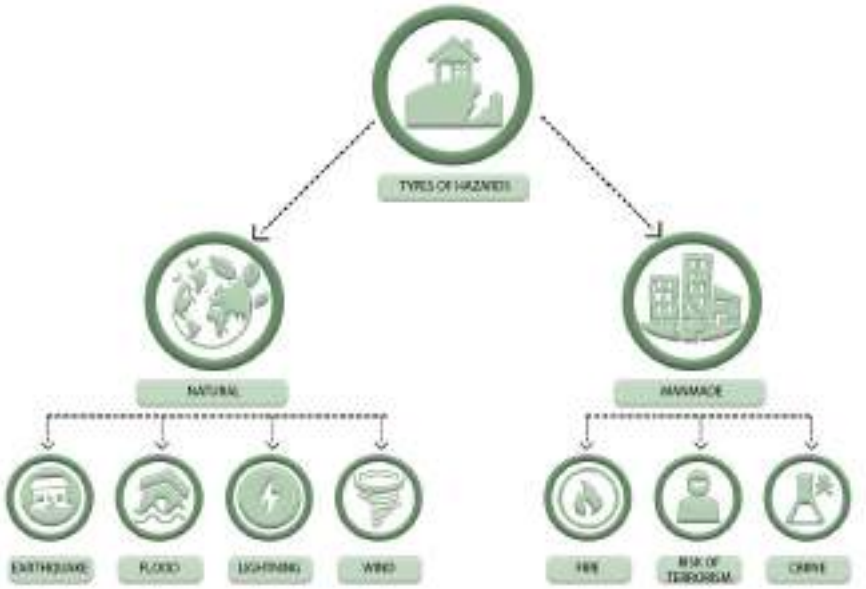


Figure 5: Different types of Hazards

2.1.1b MAN MADE HAZARDS

- Fire: Fire accidents are the most common disasters in Delhi city. These have been a high risk and damage potential. They are caused mostly by non – maintenance and carelessness in the handling of electrical appliances, fuels, hazardous chemicals etc. Increased usage of electricity, LPG and hazardous chemicals has resulted in an increase in the fire hazard potential. Fire incidents pose risk to NCDC institutional infrastructure, staff personnel and intellectual property.
- **CBRNE hazard:** Handling chemicals are a part of day-to-day work in NCDC laboratories for research work hence there can be possibilities of chemical spillage that can lead to an occupational hazard.
- **Risk of Terrorism:** NCDC can be prone to terrorism due to its location in central Delhi area and urban locality.
- **Building/ Structure Collapse:** Though NCDC is fairly a new campus and still in the construction phase, there are a few old historical protected structures present on site as well. Any damage leading to building collapse can be of high risk to NCDC staff . This risk increases during earthquakes and monsoon time.

2.2 RISK ASSESSMENT

RISK	HAZARD	VULNERABILITY	CAPACITY	
			PREVENTION	RESPONSE
HIGH	Earthquake	All buildings/blocks, NCDC staff, visitors, resources: • Specimen in museum collected over more than 100 years and from different parts of world, • Literature, • Equipment's used R&D, intellectual property within the infrastructure.	• New building as per bye-laws. • Heritage buildings are being maintained. • Evacuation plans are present. • Assembly areas for gathering have been identified.	• Details of emergency numbers are available and placed in building lobbies. • Job cards are allocated for the NCDC staff. • First-Aid Room present. • Public Address system present at the reception of each building.
	Fire	High risk and damage potential in all buildings	• Fire extinguishers present. • Fire Hydrants present. • Sprinklers are installed all over the building. • Fire mock drill was conducted.	• Fire hose, Evacuation plan
	Electric Short Circuits	Staff : Officers and technical, lab equipment's, intellectual in library and old heritage building. Exposure: It was mentioned that cables and wires are under repair (there is need for a proper arrangement as campus is under construction. They have to look for the provision of wires hanging around heritage building).	• First-aid Room present. • Fire extinguishers present. • Fire hydrants present. • Sprinklers are installed all over the building as per building bye-laws.	• Fire Alarm and sensors present. • Public address system present at the reception of each building.
	Combustible material/ Heating appliances	Combustible material / heating appliances	• Proper electrical safety measures	• Prevent overloading • Regular electrical maintenance.

RISK	HAZARD	VULNERABILITY	CAPACITY	
			PREVENTION	RESPONSE
	Combustible material/ Heating appliances	Combustible material / heating appliances	• Proper electrical safety measures	• Prevent overloading • Regular electrical maintenance.
MEDIUM	CBRNE hazards	Everyone in the NCDC campus	Have to build capacities at campus through trainings and mock drills.	Alarm system / PA system at each building reception area.
LOW	Flood/water logging	Functions and movement of staff during monsoon season or at the time of heavy rain	• Sewage treatment plant present. • Storm water drainage system to channel water from logging. • Rain water harvesting pits are present. • Sufficient green area for percolation of rain water.	• Public address system present at reception of each building. • Storm water system active and periodically maintained.
	Risk of Terrorism	Staff, intellectual property and resources etc.	Gates are guarded properly by Ex army service man • Cyber security/ mail + courier.	• Public address system present at reception of each building.
	Windstorm	Entire NCDC campus and Staff	• Maintenance and repair of broken glasses of windows and door is done regularly. • Trees and shrubs pruning is done regularly. • And mock drill for reiteration	• Evacuation plans of building are present and mounted at each relevant area.
	Lightning	Buildings, staff, pets/animals and vegetation	• Sufficient covered space present. • Adequate earthing pits to be created and maintained regularly • lightning protection system to be installed and used	• Public address system present at reception of each building.

"The disaster management plan of NCDC has been developed as a result of a detailed hazard, risk, vulnerability and capacity exercise and consultation process so that the institution owns the plan and makes the best efforts to institutionalize it. It is a good example of an efficient planning document."

Dr. Shikha Vardhan (Joint Director & Head Establishment and Strengthening, NCDC Branches)

2.3 CAPACITY AND COPING MECHANISM

Capacity assessment of the NCDC as an organization to reduce the risk of hazards can be strengthen through the process of hazard, risk, vulnerability and capacity assessment (HRVC):

Figure 6: Key issues within the capacity assessment

Whilst analyzing the capacities at the institutional level, organizational level and individual level, there is a need to correlate the present institutional arrangements of NCDC with its nearby hospitals, public buildings, residential complexes and educational institutions to understand ground strengths and local network strengths.

Capacity assessment is the ability that helps in reducing the impact of the disaster, and consists of an effective institutional arrangement, and knowledge of the event and its causes and consequences. The accountability of activities and the ways to lead these activities will help in the enhancement of the capacity of the community and the institution to deal with such hazards. Training, periodic mock drills, sensitization and other awareness initiatives form a major part of this exercise for all staff cadres.

The following are the capacities installed in the NCDC Campus:

EQUIPMENT / FACILITY CAPACITY	SKILL CAPACITY
1. Fire extinguishers	All staff
2. Communication System (At reception in every block)	Fire hydrant maintenance team

EQUIPMENT / FACILITY CAPACITY		SKILL CAPACITY
3.	Fire hydrant	Fire fighter/ Fire operator
4.	Fire alarm	Electrician/Fire team
5.	Power backup	Electrician
6.	Elevators	Security guards
7.	Ramps	Elevator operator
8.	Laboratory	Maintenance/cleaning team
9.	First-Aid Room	First aid responders
10.	CCTV Surveillance	Security officer
11.	Monitoring room	Scientist
12.	Sprinklers & water tanks	Pump operator

2.4 VULNERABILITY ASSESSMENT

Vulnerability is the state of increased susceptibility to hazards & their consequences by the virtue of physical, social, economic and environmental factors.

Physical Vulnerability, refers to the ability of the built environment to withstand the impacts. Proper maintenance and replacement of damaged façade component/civil structure that is found to increase the severity of incident should be done from time to time. There should be a proper landing in front of exit gates; so that there is no hindrance while evacuating from the building. Gathering space should be wide, open, clear and anti-slip so that smooth movement of people and services is maintained at the time of evacuation.

Vulnerability of intellectual property, resources such as specimens of mosquitoes and other reptiles; old/historic documents in the library, and other research-related documents in infrastructure are identified as vulnerable intellectual property which will cause direct loss to the institution, in case of their exposure to a possible hazard. Due to any emergency, the working of the institution can be interrupted which will bring indirect economic loss to the institution.

Vulnerable groups, specially-abled people are considered specific vulnerabilities for NCDC campus that will be needing assistance in case of any emergency. Passages should be specially-abled friendly so that ease of movement is maintained in case of emergency. From ramp to restroom disability inclusiveness is key for all hazard inclusive preparedness.

Figure 7: Vulnerability assessment

2.5 STRUCTURAL AND NON-STRUCTURAL MEASURES

2.5.1 STRUCTURAL MEASURES

LOCATION	CONSTRUCTION TYPE	OBSERVATIONS
Heritage Blocks	Stone masonry work-historical construction techniques	• Ground floor with terrace. • Terrace holds solar panels on metal fabrication work, visible cables seen running on facades, seepage in certain areas. • Retrofitting techniques are very much important to re-strengthen an old and weak construction.
Laboratory - 1 Laboratory - 2 Laboratory - 3	RCC frame work structure	Under-construction building, adhering to building codes and bye laws. Structural safety certificates to be obtain.
Epidemiology & disease control complex	RCC frame work structure	Working office for NCDC developed considering building bye laws, fire safety measures, Structural safety certificates to be obtain.
Auditorium & Library	RCC frame work structure and fly ash bricks	Under-construction building, mostly adhering to building codes and bye laws. Structural safety certificates to be obtained.
Admin Block	RCC frame work structure and metal fabrication on façade	Administration block and director's room, museum with rare specimens, built considering building bye laws, fire safety measures, and Structural safety certificates to be obtained.
NVBDCP BLOCK	RCC frame work structure and metal fabrication on façade	Working office for NVBDCP built considering building bye laws, fire safety measures and Structural safety certificates to be obtained.
Guest House	RCC frame work structure	Residential Guesthouse built considering building bye laws and codes, Structural safety certificates to be obtained.
PG Hostel	RCC frame work structure	Residential hostel built considering building by laws and codes, Pending structural safety certificates. To check- Mess/canteen under construction, gas pipe lines /fuel storage as per building guidelines and norms
Type – II Residence	RCC frame work structure	Under-construction building, adhering to building codes and bye laws.
Type – IV Residence	RCC frame work structure	Under-construction building, adhering to building codes and bye laws.
Type - V Director's Residence	RCC frame work structure	Under-construction building, adhering to building codes and bye laws.

LOCATION	CONSTRUCTION TYPE	OBSERVATIONS
SECURITY	RCC frame work structure	Under-construction building, adhering to building codes and bye laws.
Services - STP, ETP, WTP, DG set, Cooling tower, Chiller plant		In construction process
Basement	RCC frame work structure	Adhering to building codes and bye laws.
Temple	RCC frame work structure	Well maintained structure
Tansformer - 1 Transformer - 2 Grid station		Proposed

CATEGORY	SUB-CATEGORY	STRUCTURAL ELEMENT	OBSERVATIONS
Architectural finishes inside buildings	Openings	• Doors and windows • Large-panel glass panes with frames (as windows or infill walling material) • Other partitions	Admin block
	False ceilings	Directly stuck to or hung from roof	Admin block, epidemiology & disease control complex, NVBDCP block, heritage blocks
Appendages to buildings	Vertical projections	• Stacks, • Parapets, water tanks (small) • Hoardings anchored on roof tops • Disk/antennas communication towers • Solar panels anchored on rooftop	Heritage building has solar panels anchored on rooftop causing additional permanents weight the structure
	Horizontal projections	• Sunshades • Canopies	NVBDCP block
	Exterior or interior facade	Facade elements • Pasted on surface • Bolted to surfaces • Hung with anchors from structure	Admin block, NVBDCP block, L3 lab, Dry lab
	Exterior structural glazing systems	Regularly maintained	Admin block
Consumer goods inside buildings	Furniture and minor items	• Storage shelves • Multi-level material stacks	All the buildings have unanchored storage cabinets. Especially library where the book resources are kept in cabinets are not anchored properly. Museum area also have unanchored cabinets & multi levels stacks

CATEGORY	SUB-CATEGORY	STRUCTURAL ELEMENT	OBSERVATIONS
Consumer goods inside building	Appliances	Refrigerators , machines, gas cylinders , TVs , diesel generators , water pumps (small) , window ACs , wall mounted ACs	L-3 labs has stored equipment in corridors Heritage blocks has AC unit anchored to windows
Services and utilities	From within and from outside to inside the building	• Water supply pipelines • Electricity cables & wires • Gas pipelines • Sewage pipelines • Telecommunication cables • Rainwater stacks • Elevators • Fire hydrant systems • Air conditioning ducts	Heritage block , PG hostel block, NVBDCP block
	Inside the building	Pipes carrying pressurized fluids Fire hydrant piping system Other fluid pipe systems	NVBDCP block, L3 lab, L1 lab
	Storage vessels and water heaters	Flat bottom containers and vessels Structurally supported vessels	
	Mechanical equipment	Boiler and furnaces General manufacturing and process machinery HVAC equipment	Heritage block, admin block, NVBDCP block, PG hostel block, Guest house.

2.5.2 NON-STRUCTURAL MEASURES

- Land use planning: NCDC Campus complies with land use map and planning. Land use planning as per Delhi bye-laws and codes.
- Capacity building and awareness generation: NCDC compliances with developing safe structures and infrastructure facilities. Binding to new constructions and retrofitting of old ones.
- Fixing of mobile objects with wall clamps like holders, fixers for cupboards mementos and other display items must not be kept overhead and must be in protected glass enclosures or stand.
- Loose wiring, joints, pipes at edges and junctions must be regularly maintained.
- Electrical overload must be avoided at all outlets adhering to the standard usage practices.
- Habitual and behavioral practices of raising a concern on maintenance matters and alarm/signal during anything unusual must be institutionalized through a reporting system.

CHAPTER - 3 : ROLE & RESPONSIBILITIES

"This compilation of DM priorities will certainly be the guiding light for our institution to respond in the most effective manner in case of any disaster."

Dr. Arti Bahl (Additional Director, NCDC)

This chapter is essentially a prelude to the detailed responsibility framework for realizing disaster risk reduction.

- ROLE OF AN INDIVIDUAL WITHIN A DEPARTMENT
- ROLE OF A DEPARTMENT WITHIN AN ORGANIZATION
- ROLE OF AN ORGANIZATION WITHIN THE COMMUNITY

3.1 JOB ALLOCATION CARDS

3.1.1 INCIDENT COMMANDER: REPORTING AREA : INCIDENT COMMAND POST IN CHARGE OF INCIDENT MANAGEMENT:

- Incident Commander (IC) of the NCDC would activate the emergency support functions and IRS.
- Incident Commander (IC) must report to the Emergency Operation Center (EOC) where technical experts and section chiefs shall join him. He shall remain in the contact of EOC to know the updated status of the incident.
- Overall supervision of an incident.
- Ensure the formation of IRTs.
- Ensure that a reasonable amount of impress fund is sanctioned clearly delineating the procedure for emergency procurement if required.
- Appoint /deploy, terminate and demobilize related IRT as and when required.
- Situation status like number of people and the area affected etc to be collected/studied.
- Availability and procurement of resources to be monitored.
- Requirement of facilities like incident response protocol, staging area, incident base, camp, relief camp, etc monitored.
- Availability and requirements of the Communication system to be monitored.
- Future weather behavior from IMD in case of weather-related disaster/ otherwise continuous communication flow from the control room to access and disseminated.
- Establish immediate priorities, including search & rescue and relief distribution strategies.
- Any other information required for a response from all available sources to analyse the situation.
- Decide overall incident objectives and priorities and ensure that ERP is prepared by the IRS and

implemented accordingly.

- Coordinate with the government for mobilization of resources etc. as and when required.
- Supervise overall command, control & coordination of response & other activities.
- Mobilize experts by assigning them roles.
- Ensure proper coordination between all sections of the IRTs, and agencies working in the response activities and make sure that all conflicts are resolved.
- Ensure that computerized and web-based IT solutions are used for planning, resource mobilization and deployment of trained incident response team IRT members.
- Authorize release of information to the media by information and media officer (focal point).
- Ensure that the record of resources mobilized from outside is maintained so that prompt payment can be made for hired resources.
- Determine incident response strategies based on the available information and resources.
- Identify, mobilize and allocate critical resources according to established priorities.
- Establish an appropriate IRS based on the span of control and scale of the incident.

3.1.2 DEPUTY INCIDENT COMMANDER (DIC)

- DIC will assist the Incident Commander in all the emergency related support functions under the authority of IRS.
- The DIC acts as second in command and he/she will be the key person in respective situation of unavailability of IC.

3.1.3 INFORMATION & MEDIA OFFICER – REPORTING AREA: REPORTING OFFICER

- Stay separate from the command post, but close enough to have access to information.
- An area for media relations and press/media briefings must be established.
- Information displays and press hand-outs may be required.
- Data analysis and gathering analysis is regarding incident command operation.
- Responsible for developing alternatives preparation of incident action plan.
- Prepare and release information about the incident to the media agencies and others with the approval of IC.
- Note down decisions taken and directions issued in case of sudden disasters when the incident response team has not been fully activated and hand it over to the person responsible for its activation for incorporation in the incident response protocol.
- Ask for additional personnel support depending on the scale of the incident and workload.
- Monitor and review various media reports regarding the incident that may be useful for incident planning.
- Organize meetings as directed by the IRC or when required. Coordinate to collect weather information and disseminate it to all concerned; otherwise in any other case be in contact with the control room.

3.1.4 LIAISON OFFICER –REPORTING AREA : REPORTING OFFICER

- Incidents that are multi-jurisdictional, or have several agencies involved, may require the establishment of the Liaison Officer position on the Command Staff.
- Liaison with the following agencies:
- -The Police, fire services, NDRF, district disaster management authority, the district administration.
- -The Ambulance Services.
- -The nearby Medical Services, hospitals in the network/ area.
- -Blood Banks or other ancillary medical services in the area, other response agencies.
- -Maintain a list of concerned line departments.
- -Agencies (CBOs, NGOs, etc.) and their representatives at various locations.
- Carry out liaison with all concerned agencies.

- Monitor operations to identify current or potential inter-agency problems.
- Participate in planning meetings and provide information on responses by participating agencies.
- Ask for personnel support if required.
- Keep the IC informed about the arrivals of all the government and non-government agencies and their resources.
- Help in organizing briefing sessions of all governmental and non-governmental agencies with the IRS.

3.1.5 SAFETY OFFICER-REPORTING AREA: REPORTING OFFICER

- Recommend measures for assuring safety of responders and to assess or anticipate hazardous and unsafe situations and review it regularly.
- Ask for assistants and assign responsibilities as required.
- Participate in planning meetings for preparation of incident action plan.
- Review the incident action plan for safety implications.
- Obtain details of accidents that have occurred within the incident if required or as directed by IC and inform the appropriate authorities.
- Review and approve the site safety plan, as and when required.

3.1.6 CHIEF OPERATION OFFICER-REPORTING AREA: REPORTING OFFICER

- The operations chief is overall in-charge of all activities and supervises the functioning and operation of the following areas:
- Ancillary services-laboratory services; hostel; museum; library; offices.
- Human services-psychological support social work support.
- Business continuity operation.

3.1.7 PLANNING SECTION OFFICER-REPORTING AREA: REPORTING OFFICER

- Planning section chief shall be responsible for performing following duties:Collection, evaluation, dissemination and use of information about the development of Incident and status of resources. Information is required to understand the current situation and to prepare alternative strategies and control operations.
- Supervise preparation of Incident action plan (IAP).
- Provide input to incident commander and operation chief in preparation of IAP.
- Reassign out of service personnel already on site to other positions as appropriate.
- Determine need for any specialized resources in support of the incident.
- Establish information requirements and reporting schedules for planning section unit (e.g. resources, situation unit).
- Compile and display incident status information.

a) Resource unit

- Check all resources and maintain the status of resources.
- Prepare an inventory list.
- Establish check-in function at incident locations.
- Prepare organization assignment list & organization chart.
- Maintain & post the current status and location of all resources.
- Maintain master list of all resources checked in at the incident.

b) Medical unit

- To develop medical response plan.

- To plan and undertake First aid and triage on site.
- Respond to requests for medical side and transportation for injured & medical supplies.

c) Demobilization unit

- Developing incident demobilization plan.
- Reviewing incident resource records.
- Monitoring ongoing operation section resource needs.
- Identifying surplus resources and probable release time.
- Developing incident check out for all units.

e) Documentation unit

- Arranging for complete documentation of proceedings at the incident site.
- Maintaining record of what happened and what actions were taken.

f) Food unit

- Supply needs for the entire incident including camps and staging areas.
- Determine food & water requirements.
- Determine method of feeding to best fit each facility or situation.
- Obtain necessary equipment & supplies and establish working facilities.
- Maintain an inventory of food, water and other supplies.

g) Technical Specialist (subject matter expert)

- Arrange consultants and laboratory technicians.
- Depute staff to the save the assets.
- Depute a senior laboratory technician to keep all the required material for processing the specimens like the stains, media and reagents for various biochemical tests ready.

3.1.8 LOGISTICS CHIEF-REPORTING AREA: REPORTING OFFICER

- The logistics chief is in charge of all support services of the NCDC and responsible:
- To provide facilities and services in case of emergency.
- Assign work locations & tasks to section personnel.
- Participate in preparation of IAP.
- Identify service and support requirements for planned and expected operations.
- Supervises the following areas:

a) Communication unit

- Prepare and implement incident communication plan and and message relay mechanism .
- Establish Incident communication centre & message centre, tested and working .

b) Support unit

- Support out of service resources.
- Transportation of personnel, supplies, food & equipment.
- Fueling, service, maintenance and repair of vehicles and other ground support equipment.
- Implementing traffic plan for the campus.

c) Service unit

- Primarily responsible for the layout and activation of incident facilities e.g. base, camps,ICP.
- Provides rest and sanitation facilities for incident personnel
- Manage base and camp operations (to provide security and general maintenance).

d) Finance unit

- Finance Officer is responsible for the allocation of emergency funds and facilitating emergency purchases when needed in the course of the disaster.

3.1.9 SECURITY SERVICES/GUARD-REPORTING AREA: REPORTING OFFICER

- Is responsible for maintaining order and safety within and outside the NCDC Campus.
- Allocate personnel to direct traffic so that ambulances are guaranteed free access within the campus. Maintain circular and obstruction-free traffic flow within and near the premises.
- Allocate personnel to protect the key installations of the campus.
- If the security personnel are not efficient to handle the situation, request help from the police.
- Appoint additional security staff to the buildings.
- Designates a separate waiting area on the campus.
- Makes sure that on no account public is permitted inside the Campus during the emergency.
- Help to ensure the comfort and needs of the affected population.
- Help relatives in victim identification.
- Make initiatives in crowd management.
- Restrict media personnel from entering the affected area during an emergency.
- Help in the transportation of patients in and out of the campus.

3.1.10 SECURITY AND FIRE OFFICER-REPORTING AREA: REPORTING OFFICER

- Activating and alerting all the security staff within the NCDC campus and mobilizing them to areas like the main gate, emergency department, etc. where they are needed most.
- Perform all security and safety-related duties for the building as well as people.

3.1.11 RECEPTION /FRONT OFFICE / CALL CENTRE

- Quick registration of all victims during an emergency.
- Set up an information centre.
- Assign one front office executive to aid with the movement of staff, if required

MAINTENANCE

- To be on standby in their room if there is a trip due to a sudden increase in the electrical load. To reset immediately.
- Maintain full operation of all facilities and working of instruments and equipment.
- Help setting up triage and field treatment area if required.

WASTE MANAGEMENT DEPARTMENT

- To support the departments with equipment if necessary.
- Ensure proper biomedical waste management during emergencies.

MATERIALS MANAGEMENT

- Be prepared to supply all departments with needed supplies.
- Manager Materials will designate staff to supply runners or volunteers to deliver supplies.
- Have an up-to-date list of suppliers who can quickly supply extra materials.
- To ensure smooth distribution of materials.
- Maintain proper recording of materials/ drugs used during the disaster.

HOUSEKEEPING AND SUPPORT STAFF

- The housekeeping supervisor arranges staff for transportation of affected staff.
- To assist facilities in bringing down equipment, etc.
- To arrange for material supply to the departments due to an increase in demand, if required.
- To send housekeepers to the ward to clear departments as soon as possible, if necessary.
- To assist security in clearing pathways.

These roles and responsibilities are not comprehensive and are for suggestive purposes only, they may vary and other functions may be added as per real-time analysis of the incident.

CHAPTER - 4 : INSTITUTIONAL ARRANGEMENT FOR DISASTER MANAGEMENT

"The disaster management plan of NCDC is aimed to improve the emergency response mechanisms within the institute and will also serve as a learning lesson for another capacity-building program. The plan has been curated also keeping the sustainability, climate resilience and all hazards preparedness approach in mind".

Dr. Meera Dhuria (Joint Director, NCDC)

4.1 INCIDENT RESPONSE SYSTEM (IRS)

The Incident Response System (IRS) is an effective mechanism for reducing ad-hoc measures in response. It envisages a composite team with various sections to attend to all the possible response requirements. The IRS designates officers to perform various duties and get them trained in their respective roles.

4.1.1 FORMATION OF THE DISASTER MANAGEMENT COMMITTEE (DM COMMITTEE)

The Director, NCDC, Delhi has constituted a DMC for addressing the issues pertaining to the DM plan of the NCDC. The following are the members of the committee.

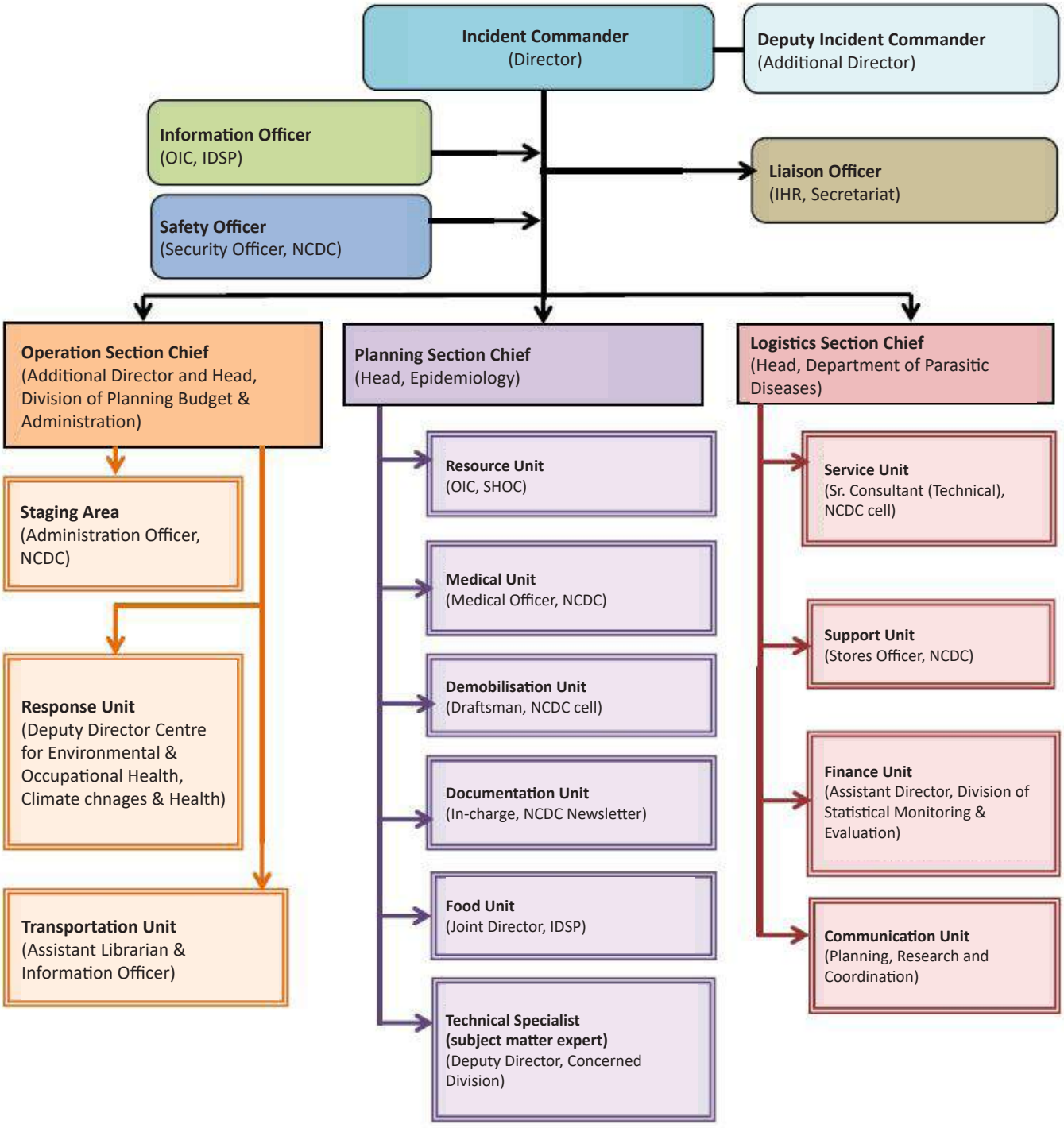
Role (DM Committee)	Concerned Authority
Incident Commander	Director
Deputy Incident Commander	Additional Director
Information and Media Officer	IOC, IDSP
Safety Officer	Security Officer, NCDC
Liaison Officer	IHR Secretariat
Operation section Chief	Additional Director and Head, Division of Planning Budget & Administration
Planning section Chief	Head, Epidemiology
Logistics section Chief	Head, Department of Parasite

4.1.2 DISASTER ADVISORY COMMITTEE (DAC)

- The Disaster Advisory Committee shall be responsible to coordinate, contact and communicate to respond in case of an emergency. The committee should get the security/safety audit periodically.
- Along with theDAC members, following are the potential suggestions:
- The NCDC campus nominee
- The nearby community/ RWAs
- CATS, Police station, Fire services, Civil Defence
- Voluntary organizations (one/ two)
- Medical student volunteers if any
- WHO (World Health Organization)

Both committees should meet regularly (preferably quarterly or bi-annually) to assess preparedness and incorporate any appropriate measures for better operationalization of the plan. The members of each committee are responsible for the dissemination of the requisite information within their sphere of action. Information regarding the public address system and the organizational hierarchy chart of the IRS should be available throughout the campus.

4.2 INCIDENT RESPONSE SYSTEM-NCDC



4.2.1 ESTABLISHMENT OF CONTROL ROOM/ COMMAND AREA (AS A PART OF PHEOC PROPOSED)

- SITE FOR AREA – 5th floor, Epidemiology & disease control complex.
- DESIGNATED PERSON – Joint Director, NCDC.

The command center of NCDC campus has designated staff under the incident response command to ensure good external and internal network during an emergency.
It has also collected details of the contact number of district medical officers, district administration, police, fire services nearby hospitals, private hospital etc and have assumed responsibility to ensure coordination with all stakeholders during a mass causality incident or any disaster.

4.2.2 FORMATION AND ACTIVATION OF INCIDENT RESPONSE SYSTEM

The formation of IRS is very important for the NCDC campus during any emergency. The members take their specific roles assigned to them during an emergency. Once the information of an emergency/ crisis incident has reached the emergency control room, based on the level of emergency the Disaster Management plan should be activated.

Termination of Alert and debriefing – When normalcy returns, the emergency alert should be discontinued. The Incident Commander is authorized to notify the heads of the departments that the emergency alert has been terminated. For each emergency situation and response, documentation and a review report should be formed.

Prerequisite for activation of alert for emergencies/disasters:
• Emergency control room activation and activation of DM mechanism.
• Mobile communication through institutional alert system/fire alarm system/Draft Incident action plan (IAP).
• Display of information - IRS chart and emergency contact numbers/ Do's and Don'ts.
• MCP – manual call point also called as Fire Alarm Box is a square metal plate (red in colour fixed on the wall) in various locations having a small lever in the centre. The lever needs to be pulled down to alert the fire control room.
• PUBLIC ANNOUNCEMENT SYSTEM – devices for this are installed in all common congregations and announcement goes from the emergency room or control room.
• CODE RED – is a group paging system upon calling the telephone operator whereby the message will be flashed to concerned people.
• GROUP SMS – through mobile (GSM facility) to all staff of the organization.

4.3 SERVICES AVAILABLE WITHIN NCDC CAMPUS

"All the infrastructure of NCDC has been mapped; building and flow specific evacuations plan have been detailed in order to enhance the culture of safety within the organization through the disaster management plan"

Mr. Jagdish Chandra Bhatt (Draftsman, NCDC Cell)

Services are required for ensuring operational preparedness of the organization to incorporate risk communication as well as continuity planning.

INSTITUTIONAL COMMUNICATION

SERVICES	PRESENT STATUS
Linkage with EOC (emergency operation centre) / Control room alternate means of communication, if telephone fails	Yes, Public Address system at reception of each Building.
Contact details of all employees, registry to be maintained regularly	NCDC Administration maintains staff list.

GENERATORS

SERVICES	PRESENT STATUS
Nos.	04
Source of fuel	Diesel
Availability of spare batteries	Yes
Periodicity of checking generators by administration	Yes, on daily Basis

BIO-MEDICAL WASTE MANAGEMENT

SERVICES	PRESENT STATUS
Disposal method – own system / outsourced	Bio-medical waste disposed on daily basis using outsource agency.

WATER SUPPLY

SERVICES	PRESENT STATUS
Source	02 underground tanks
Capacity	1.5 Lakhs liters
Alternative supply source	Delhi Jal Board

ELECTRICITY SUPPLY

SERVICES	PRESENT STATUS
Source	2 sub-station
Capacity	(3.25 Megawatt)
Proposed	6 Megawatt grid proposed.

WAITING AREA

SERVICES	PRESENT STATUS
Campus waiting area	Near campus gate area, Identified, not marked
Location of waiting area needs to be identified	In planning stage
Each building entrance area	Yes in each building.

STAGING AREA- TEMPORARY LOCATION OF AVAILABLE EMERGENCY RESPONSE RESOURCES

SERVICES	PRESENT STATUS
Location of Staging area needs to be identified	Green area between L1 & Heritage building
To be demarcated on campus site	In planning stage

CCTV MONITORING CELL

SERVICES	PRESENT STATUS
CCTV monitoring cell should be active	CCTV monitoring room in ground floor of each building.

MEDICAL ROOM

SERVICES	PRESENT STATUS
A medical room/ clinic should be well stocked and available (in heritage building near Seminar room).	First-Aid Room Present
Ambulance parking space	In planning

SPECIAL SECRETARIAT

SERVICES	PRESENT STATUS
Special secretariat should be created to tackle emergencies.	EOC

INTERNET CONNECTIVITY

SERVICES	PRESENT STATUS
Internet connectivity should be monitored.	EOC
Cyber security- regular maintenance	Secured

DISASTER MANAGEMENT COMMITTEE

SERVICES	PRESENT STATUS
Composition periodicity of meetings action taken	Recommended monthly

MOCK DRILLS

SERVICES	PRESENT STATUS
Fire mock drills conducted	Annual basis
Periodicity	At 3 month (proposed)
Last drill held	6th June 2022
Identification of weaknesses/gaps for improvement	Details of identified gap is mentioned in recommendations.

MEDIA MANAGEMENT

SERVICES	PRESENT STATUS
Information Focal Point (PRO)	Media and Information cell (under IDSP).

CROWD MANAGEMENT

SERVICES	PRESENT STATUS
The procedure for handling of attendants identification of space, needs to be chalked out by the Disaster Management Committee	Security Officer

PSYCHOLOGICAL RESPONSE TEAM

SERVICES	PRESENT STATUS
To provide mental health support to the staff	Medical officer/ psychological counselor

"Recurrent practice and adequate preparedness through periodic mock drills are the keys to saving lives. A plan is a living document, practicing and updating it periodically makes it dynamic"

Mr. Aditya Pratap Singh
(Deputy Commandant of 8th battalion NDRF)

4.4 COMMUNITY LINKAGES

Approach linkages with nearby facilities- hospitals with a plan of mobilization of specialists, hospital support staff, and referral, number of bed availability to the referring hospital for emergency use, must be tested in.

Pvt. health facilities/ government health facilities	Medical unit in-charge of DM Committee to initiate the process of networking with nearby facilities.
If so, what collaboration/cooperation is available?	To reserve beds for staff.

Sr. No.	Types of drills	Frequency of drills	Who must attend	Log of drills (mark issues)
1	Earthquake safety	6 months	All staff	Log book
2	Fire safety	6 months	All staff	Log book
3	All Hazard Drill	Annually	All staff	Log book/ Drill report
4	Fire and any other equipment maintenance	3 months	Security management, utility manager	Must report to Facility manager and maintain a log book.
5	Lift security management	3 months	Security Management, Utility manager	Must report to Facility manager and maintain a log book.
6	Water management	3 months	Security management, utility manager	Must report to Facility Manager and maintain a log book.
7	Safety kit check	6 months	Security management, facility manager and volunteers	Log book

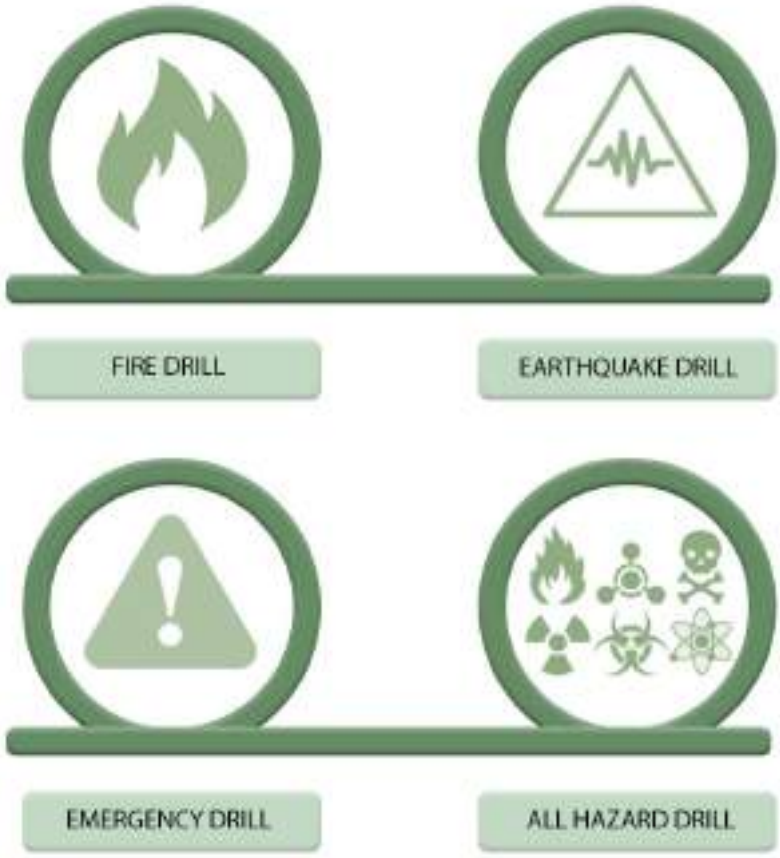


Figure 8: Types of Drills

CHAPTER - 5 : ACTION PLAN

"NCDC is the premier public health institute within the country given its national and heritage value the disaster management plan will make the institution more resilient and also set an example for other institutions."

Dr. Tran Minh Nhu Nguyen (Team lead, Health Security and Emergencies, WHO India)

5.1 EVACUATION PROCEDURES

Evacuation is the process of moving staff from an at-risk location to a safer holding area or alternate location within the NCDC campus facility, another building, or a facility converted for staff care.

The evacuation plan is a planning document that augments and incorporates the fundamental principles of all-hazards emergency management. This comprehensive plan provides a concept of operations for evacuation functions and incident management, staff roles and responsibilities, and provides overall guidance to enable evacuation regardless of the hazard or incident type.

5.1.1 NEED FOR EVACUATION

The following are cases/scenarios for which emergency evacuation is necessarily implemented:

- Fire
- Explosion
- Bomb threats
- Release of hazardous chemical substances, in quantities or toxicity, which shall affect human health
- Extreme weather events
- Earthquake

5.1.1.1 THE EVACUATION PLAN PROCEDURE

- Mitigation measures, preparedness activities, response actions, and recovery strategies.
- NCDC campus capabilities to establish response efforts when the institutional mechanism can no longer support staff and infrastructure.
- Strategies for managing the following during an emergency evacuation: communication, resources and assets, safety and security, staff responsibilities, utility management, clinical and support activities.
- Staff movement requirements and strategies include transportation planning, inter-agency coordination.
- IRS adaptation to support evacuation processes.

5.1.1.2 BASIC PROCEDURES FOR EVACUATION

- Plan activation and incident management as per the displayed floor wise evacuation

plan.

- Evacuation logistics.
- Communications.
- Safety considerations and personal protective equipment.
- Facility shutdown, recovery, resumption of operations, and repatriation considerations.
- Support including Job Action Sheets, documentation forms, and reporting documents.
- Sequencing of rooms to be mentioned in the evacuation plan.

5.1.1.3 EMERGENCY NOTIFICATION

- The building occupants are notified of emergency through the use of the following:
- Word of mouth or call from colleague.
- Fire alarm/ other pre-designated alarm.
- Mass messaging service.
- Loudspeakers

"An institution of NCDC stature is institutionalizing DM planning within its campus is a good and positive step not only for the district but is also setting an example for its peer institutions."

Mr. Harish Mathur (D.P.O., Delhi Disaster Management Authority)

5.2 DOS AND DON'TS FOR EVACUATION

Do's	Don'ts
Whenever you hear the building alarm or are informed of a general building emergency, leave the building immediately, in an orderly fashion, don't use elevators use alternatives such as fire exits.	Do not panic in an emergency situation, take a moment to think before you act, follow the floor wise evacuation plan.
Exit immediately if the fire is out of control. Inform others.	Do not ignore the alarm.
Follow the floor evacuation diagram/ map besides elevator for quickest evacuation route.	Do not use elevators in case of fire and after an earthquake situation.
Proceed to the designated emergency assembly point of your area. If the designated assembly point/area is unsafe or blocked due to the emergency, proceed to the alternate assembly point.	Do not go back for your possessions.
Report to your work area representative to check the assembly points, to evacuated safely; also report any knowledge of missing persons.	Don't go to any emergency scene with assumptions and without proper equipment and training.
Do follow the directions of your safety officials. Kindly assist those who require assistance.	Don't pay attention to the rumors and don't spread rumors.

5.3 THE CAMPUS FIRE TENDER ROUTE:

LEGEND :-

- FIRE TENDER MOVEMENT
- MAIN ENTRY
- EXIT
- RESIDENTIAL ENTRY
- SERVICE ENTRY
- ASSEMBLY AREA / EVACUATION AREA
- HERITAGE BUILDING
- NEW BUILDING
- PARKING AREA
- GREEN AREA
- PAVING
- INTERNAL ROAD
- EXTERNAL ROAD

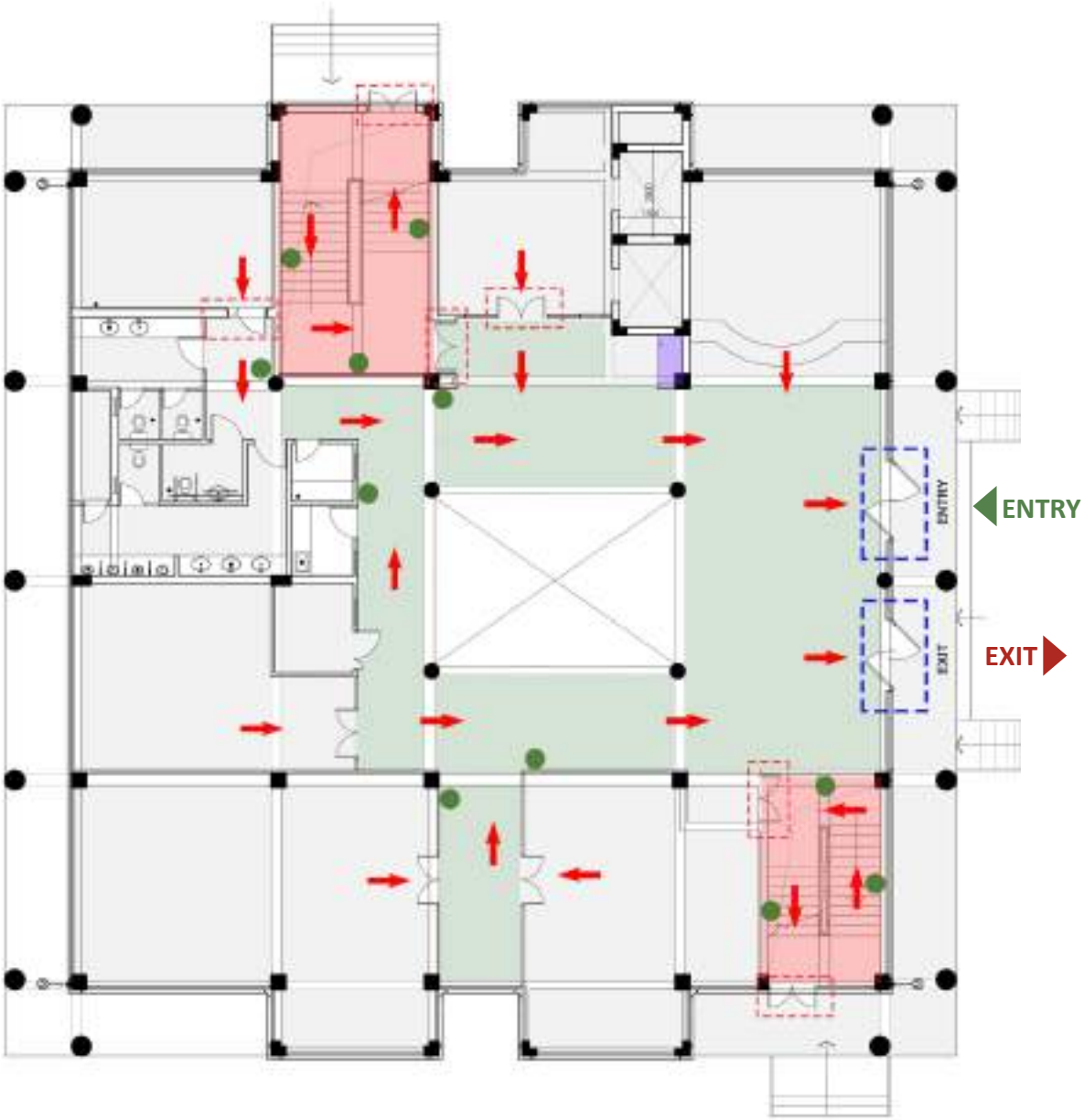
5.4 THE CAMPUS EVACUATION PLAN:

LEGEND :-

- FIRE TENDER MOVEMENT
- MAIN ENTRY
- EXIT
- RESIDENTIAL ENTRY
- SERVICE ENTRY
- ASSEMBLY AREA EVACUATION AREA
- HERITAGE BUILDING
- NEW BUILDING
- PARKING AREA
- GREEN AREA
- PAVING
- INTERNAL ROAD
- EXTERNAL ROAD

5.5 BUILDING WISE EVACUATION PLAN:

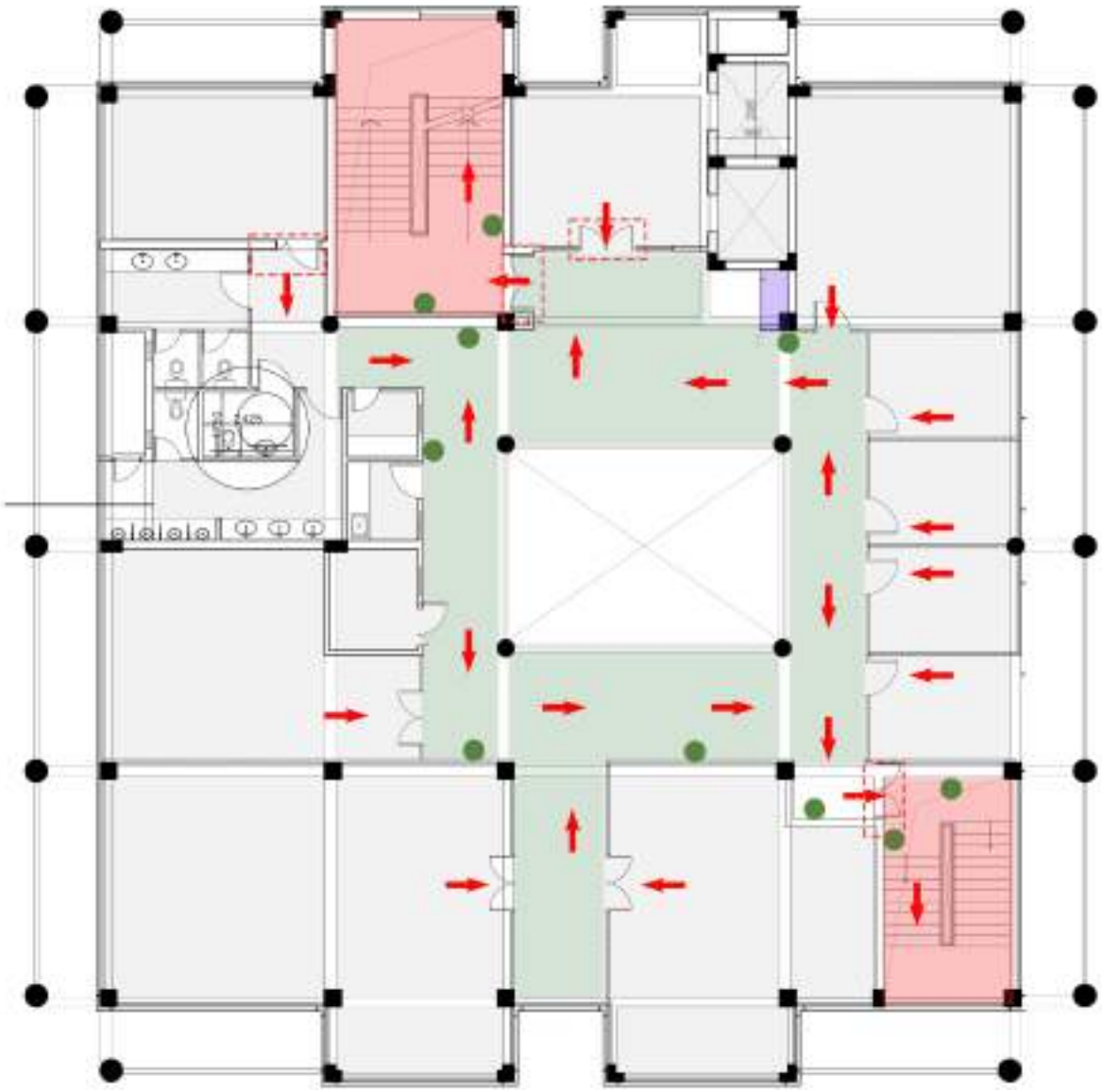
ADMIN BLOCK (G+3):
GROUND FLOOR



FIRE EXIT SIGNAGE
FIRE EXIT ARROW
FIRE EXIT DOOR
ENTRY/EXIT
FIRE EXIT STAIRCASE
FIRE HOSE CABINET

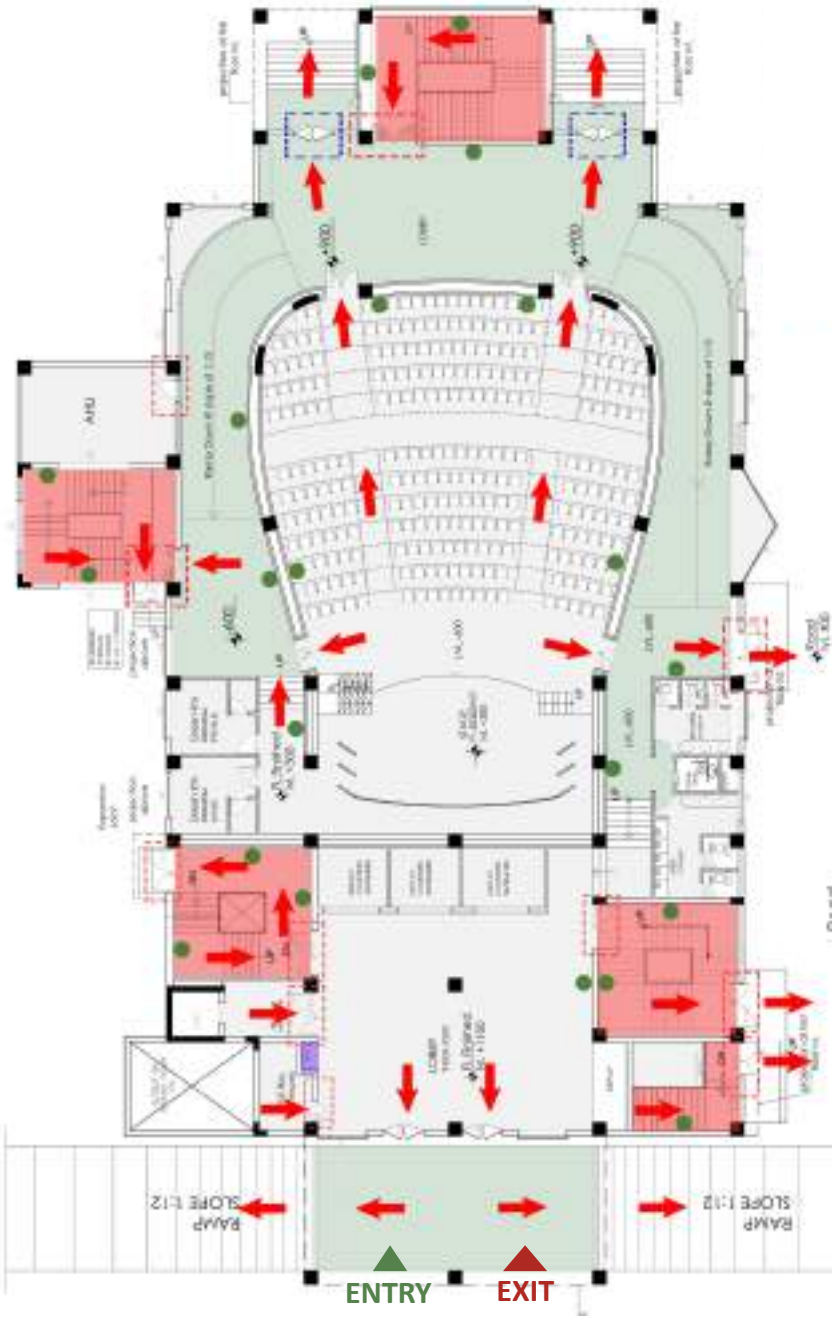
ADMIN BLOCK (G+3):

TYPICAL FLOOR



AUDITORIUM BLOCK (G+3):

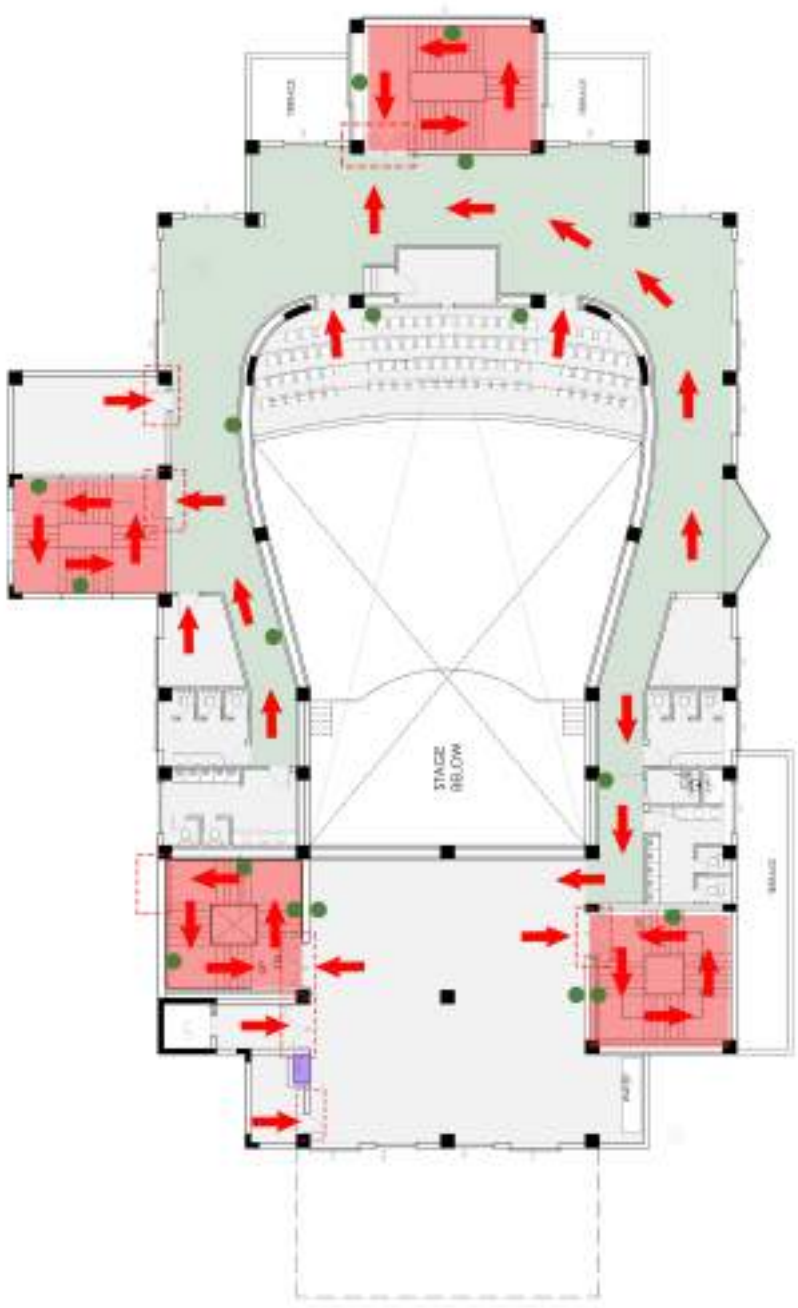
GROUND FLOOR



- FIRE EXIT SIGNAGE
- FIRE EXIT ARROW
- FIRE EXIT DOOR
- ENTRY/EXIT
- FIRE EXIT STAIRCASE
- FIRE HOSE CABINET

AUDITORIUM BLOCK (G+3):

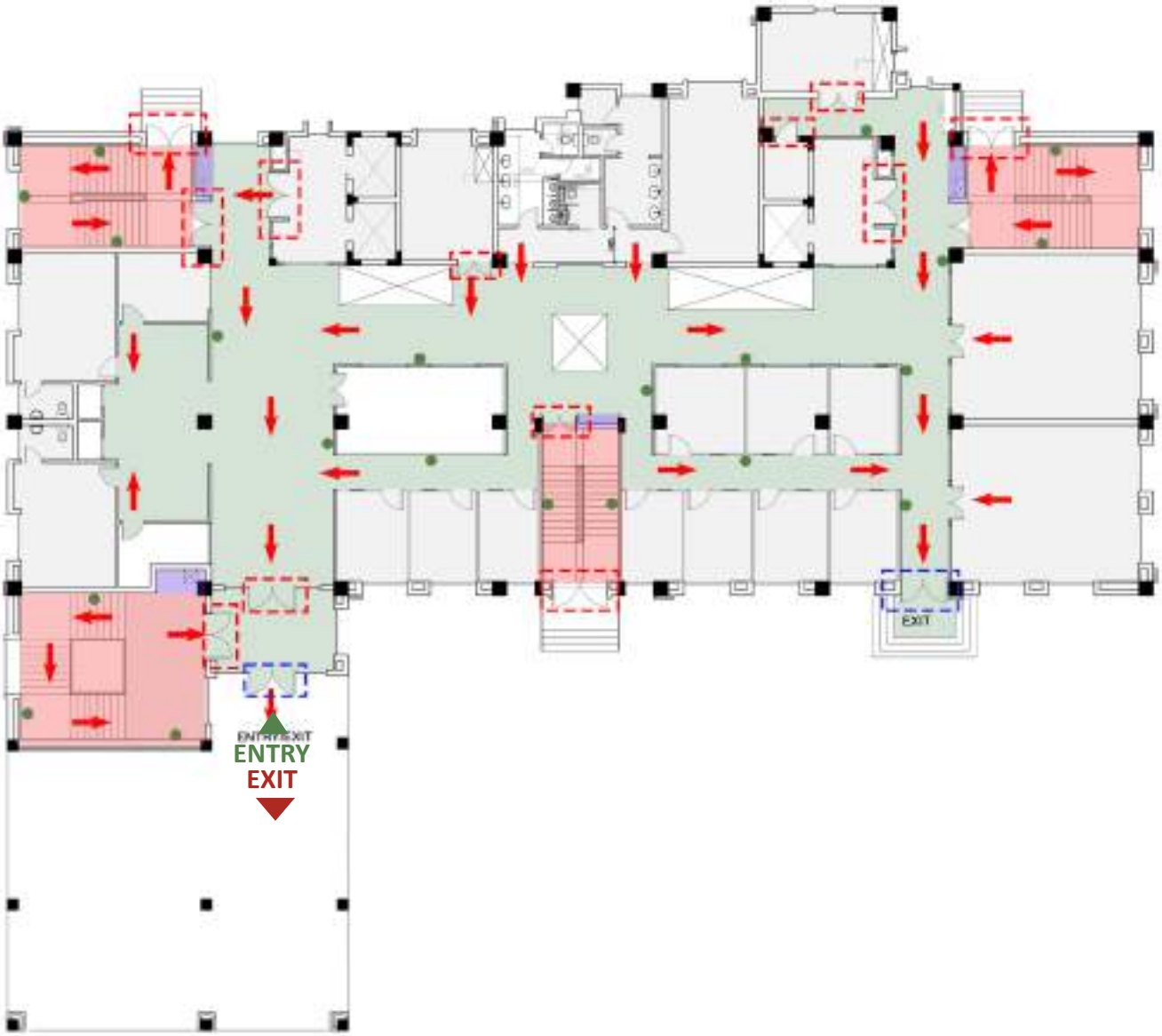
FIRST FLOOR



FIRE EXIT SIGNAGE
FIRE EXIT ARROW
FIRE EXIT DOOR
ENTRY/EXIT
FIRE EXIT STAIRCASE
FIRE HOSE CABINET

DRY LAB BLOCK (G+5):

GROUND FLOOR



DRY LAB BLOCK (G+5):

FIRST FLOOR

FIRE EXIT SIGNAGE
FIRE EXIT ARROW
FIRE EXIT DOOR
ENTRY/EXIT
FIRE EXIT STAIRCASE
FIRE HOSE CABINET

DRY LAB BLOCK (G+5):

SECOND FLOOR

DRY LAB BLOCK (G+5):

THIRD FLOOR

DRY LAB BLOCK (G+5):

FOURTH-FLOOR

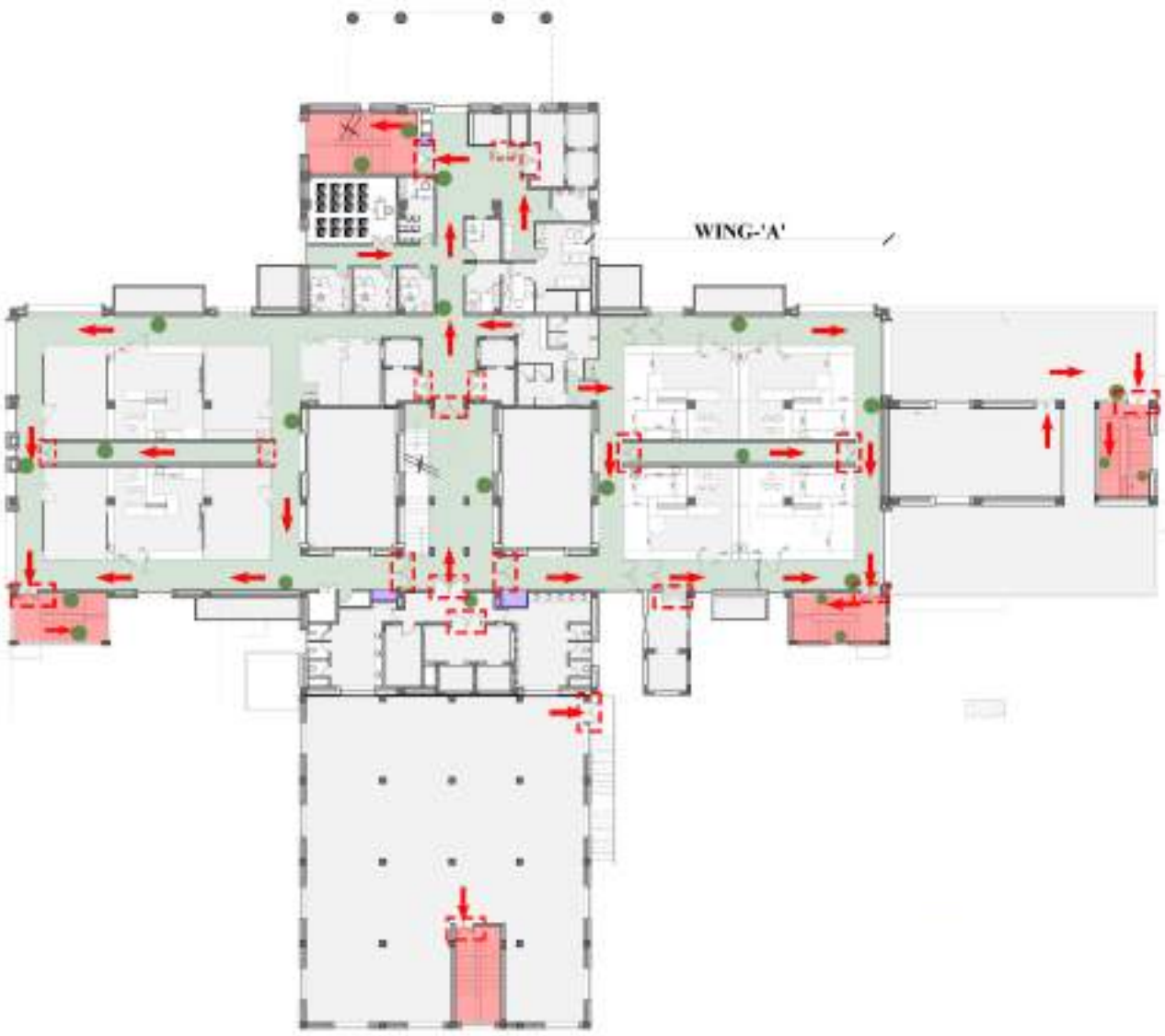
FIRE EXIT SIGNAGE
FIRE EXIT ARROW
FIRE EXIT DOOR
ENTRY/EXIT
FIRE EXIT STAIRCASE
FIRE HOSE CABINET

L BLOCK (G+5):

GROUND FLOOR

L BLOCK (G+5):

TYPICAL FLOOR



FIRE EXIT SIGNAGE
FIRE EXIT ARROW
FIRE EXIT DOOR
ENTRY/EXIT
FIRE EXIT STAIRCASE
FIRE HOSE CABINET

L1 LAB BLOCK (G+4):

GROUND FLOOR

NCVBDC BLOCK (G+5):

GROUND FLOOR

PG HOSTEL BLOCK (G+7):

GROUND FLOOR

GUEST HOUSE (G+3):

GROUND FLOOR

FIRE EXIT SIGNAGE
FIRE EXIT ARROW
FIRE EXIT DOOR
ENTRY/EXIT
FIRE EXIT STAIRCASE
FIRE HOSE CABINET

GUEST HOUSE (G+3):

TYPICAL FLOOR (1,2,3)

TYPE IV (S+6)-V (G+6):

GROUND FLOOR

TYPE IV (S+6)-V (G+6) :

TYPICAL FLOOR (1,2,3,4,5)

FIRE EXIT SIGNAGE
FIRE EXIT ARROW
FIRE EXIT DOOR
ENTRY/EXIT
FIRE EXIT STAIRCASE
FIRE HOSE CABINET

TYPE II (G+5)–EXISTING AND PROPOSED BUILDING

GROUND FLOOR

FIRE EXIT SIGNAGE
FIRE EXIT ARROW
FIRE EXIT DOOR
ENTRY/EXIT
FIRE EXIT STAIRCASE
FIRE HOSE CABINET

5.6 INCIDENT RESPONSE TIMELINE

Incident response timeline is the essence in case of handling multiple patients at any given time and especially during a mass casualty. Scenarios, prioritizing task for managing such scenario is suggestive of this guiding tool. (T-Time of receiving the first casualty during any mass casualty incident).

T-0 – SAVING ONESELF/ INITIATION OF RESPONSE

T + 30 MINS – IMMEDIATE ACTIONS

- Situation analysis as per alert received.
- Establish communication with DM/ Disaster EOC (emergency operation centre).
- Activate DM plan.
- Alert DDMA.

T + 1 HOUR – IMMEDIATE ACTIONS

- Alert nearby government and private facilities for readiness in case of support like Parmanand Hospital, Police station, Delhi University.
- Mobilize resources from other government facilities.
- Alert vendors for emergency consumables.
- Alert all trained volunteer for optimal support.
- Alert the designated media spokesperson liaison officer to address the media and communication with suitable public if need be.
- Seek adequate police protection and security at NCDC campus.

T + 2 HOURS – IMMEDIATE ACTIONS

- Ensuring traffic control as per protocol to allow for timely transportation of affected people.
- Managing crowd at the campus to allow uninterrupted and effective response.
- Preparedness of laboratory and other supply related departments.
- Technicians to follow up on supply according to contingency agreement.
- Contingency agreement to be activated for drinking water, food and medical consumables.
- Evacuation of the premises.

T + 4 HOURS – IMMEDIATE ACTIONS

- Involvement of volunteers and the community.

T + 5 HOURS – IMMEDIATE ACTIONS

- Management of information and media.

T + 12 HOURS – IMMEDIATE ACTIONS

- Bio-Medical waste management.
- Management of human remains with support from district administration.
- Proper information management.

REVIEW MEETING OF DISASTER MANAGEMENT COMMITTEE

- Review meeting with response team leaders designated in the emergency response system (IRS).
- Resource mobilizing activated as per need expressed in review meeting.
- Documentation of cases managed, lesson learnt and futuristic planning.
- Review the inventory list including essential drugs kit.
- Revision of Disaster Management plan.

5.7 DO'S & DONT'S FOR MAN-MADE & NATURAL HAZARDS

(a) EARTHQUAKE

Do's	Don'ts
Stay inside. "DROP, COVER and HOLD"	Do not move around or try to outrun the situation.
Stay under the lintel of any door.	Do not use electrical appliances.
Hide under a strong desk or table, and cover your head and neck.	Do not go near any live wires or debris.
Move to an assembly area, open area away from all structure, especially building, bridges, trees and overhead power lines.	If outdoors, do not go into a building until it is inspected and deemed safe.
If needed, locate your emergency kit.	Do not use elevators.
Follow instruction of trained personnel.	Do not stay near tall structure. Most earthquake-related casualties result from collapsing walls, flying glass, and falling objects.
Make earthquake resistant new constructions.	Do not ignore cracking in building structure and inform the maintainance team.
Falling objects must be given additional fixing so that they don't fall while shaking and cause harm.	Do not touch any debris or fallen objects.
Move away from all glass and breakable objects.	Do not drive vehicle in the campus. Don't try to come out of the vehicle and pull over at a open area only.
Check all power connections before switching them ON.	Do not use matches, candles, or any flame, broken gas lines and fire don't mix.
Stay out of damaged buildings.	Do not walk on broken stairs and steps.
Listen to the radio or watch local TV for emergency information and additional safety instructions.	Do not spread and/ or believe in rumours.
Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.	Do not drive around the damaged areas as rescue and relief operations need roads for mobility.
• Practice Drop, Cover, Hold drills regularly. • Practice evacuation drills regularly. • Ensure that exit routes are marked and fire fighting equipments are working properly all time.	

(b) FLOODS

Do's	Don'ts
Ensure safety - Turn off power and gas connection; be alert for gas leaks.	Do not panic.
Have an emergency kit ready (including warm clothing, valuables, personal papers) with basic medicines and first aid etc.	Do not get into water of unknown depth and current.
Drink preferably boiled water and keep your food covered.	Do not drive through flooded areas.

Use sandbags to seal entry points around doors and vents. Also seal windows if the water is likely to rise.	Do not use electrical appliances, which have been in floodwater.
Respond quickly - Evacuate from low-lying areas and move to higher places.	Do not eat food that has come into contact with flood water.
Turn off the main power supply.	Do not walk/swim through flowing water.
Watch your step - Stay away from sewerage lines, gutters, sharp objects and debris.	Do not use electrical equipment while standing on wet floors, especially concrete.
Listen to local news via radio, television for latest updates.	Do not get electrocuted - Stay away from electric poles and fallen power lines to avoid electrocution.
Keep your documents and valuables in water-proof bags.	Do not spread and/ or believe in rumours.
• Keep drains clean - Do not litter waste, plastic bags, plastic bottles in drains. Ensure regular maintenance of drains. • Be aware of campus surroundings and waterlogging areas. • Survival is key - Prepare an emergency kit with essential items for safety and survival.	

(c) THUNDER & LIGHTNING

Do's	**Don'ts**
Keep monitoring local media for updates and warning instructions. Use your battery- operated Radio for updates from local officials.	Do not take shelter near/under trees.
Stay indoors.	Avoid contact with electrical equipment or cords.
Unplug all electronic equipments.	Do not go close to TV mast, pipes or vertical metal fixtures.
If outdoors, get off bicycles, motorcycles or other vehicles. Crouch down with feet together and head down to make yourself a smaller target.	Do not lie on concrete floors and do not lean against concrete walls.
Keep doors and windows closed.	Do not touch plumbing and metal pipes. Do not use running water.
An important lightning safety guide is the 30-30 rule. After you see lightning, start counting to 30. If you hear thunder before you reach 30, go indoors. Suspend activities for at least 30 minutes after the last clap of thunder.	Cut down or trim trees that may be in danger of falling on your home.
Always keep the lightning insulation system/ earthing working to avoid damage to electrical equipment.	Do not use metallic objects; stay away from power/ telephone lines.
Consider buying surge protectors, lightning rods, or a lightning protection system to protect premises, appliances, and electronic devices.	Do not lie down or place your hands on the ground.
Stay away from windows and doors; stay off verandas.	Do not stand in a crowd. Spread out; Stay clear of waterbodies.
If outdoors, Get inside a building. Stay away from structures with tin roofs/metal sheets.	Watch out for fallen power lines and trees. Report them immediately.

Remove rotting trees/broken branches that could fall and cause injury or damage.	Do not use corded telephones. Use your battery operated radio for news updates.

(d) STORM / STRONG WINDS

Do's	Don'ts
During a storm, remain in your vehicle until help arrives or the storm passes.	Do not take shelter under canopies.
If in a vehicle during a storm, remain inside, without touching metal from inside, keep windows up and park vehicle away from trees and power lines.	Do not stand near tall structures.
Have an emergency kit ready (including warm clothing, valuables, personal papers) with basic medicines and first aid etc.	Do not go close to Falg or TV mast, pipes or vertical metal fixtures.
Secure outside objects that could blow away and cause damage.	Do not keep unwanted loose objects on rooftop.
Remove dead woods, dying trees and broken branches that could fall and cause injury or damage.	Do not take shelter near/under trees.
Listen to radio, watch TV or read newspapers for weather updates and warnings.	Do not go outdoors while the storm is in progress.
Keep some extra batteries for transistors.	Do not use corded telephones. Use your battery operated radio for news updates.
Stay away from storm-damaged areas.	Do not rub your eyes in order to prevent eye infection.
Stay away from structures with tin roofs/metal sheets.	Do not lean against concrete walls.
Animals to safer areas.	Do not allow your animals to congregate under trees.

(e) FIRE

Do's	Don'ts
Get your premises fire audited; check for loose electric connections to be closed.	Do not store combustible material near loose electric wires.
Raise alarm and dial 101 for fire service.	Do not open hot doors.
If trapped lay down/sit near the floor; curtail entry of smoke into the room; look for exit; breathe through wet cloth.	Do not block emergency doors.
Learn at least two escape routes and ensure they are free from obstacles.	Do not dispose lighted cigarette ends carelessly.
Remain calm, unplug all electrical appliances.	Do not hide under desk or table.
If clothes catch fire, stop, drop and roll.	Do not remove burnt clothing (unless it comes off easily).
Keep fire extinguishers at your place and regularly re-fill them.	Do not use elevators. Use staircase.
Guide firemen to water sources i.e. fire hose cabinets etc.	Do not park your vehicles close to fire hydrants/ underground static water tanks.

Give way to fire engines to enable them to reach the spot quickly.	Never stand up during a fire always crawl low under the smoke and try to keep your mouth covered.
On arrival of the fire service, help them to help you.	Do not plug too many electrical appliances in one socket.
If you can leave the room, close the door behind you - this will slow down the progress of the fire.	Do not shout or run. This tends to cause panic to others .
Stay close to the floor if smoke permeates your location.	Do not secure open fire and smoke check doors as they limit the spread of fire and smoke when in closed position.
Raise alarm and dial 101 for fire service.	Do not panic; Stay calm.
Ensure that exit routes are marked and firefighting equipment is working properly in office premises.	Do not tempted to clutter the stairs, corridors and lobbies as they are your escape routes.
Before opening a door, check it for heat. Use the back of your hand to test the temperature at the top of the door, the knob and the frame before opening. If it is hot, do not open.	Do not stop for collecting your belongings.

(f) CBRNE

Do's	**Don'ts**
Evacuate quickly through the designated escape route.	Do not panic.
Keep a wet piece of cloth on your face while evacuating.	Do not spread or believe in rumours.
Close all the doors and windows tightly.	Do not consume uncovered food/ water, etc.
Follow instructions by a trained personnel.	Dispose off unused chemicals properly. Improper disposal is harmful as it may contaminate the local water supply.
Change into fresh clothes after reaching a safe place/ shelter, and wash hands properly.	Do not smoke or light fire in the identified hazardous areas.
Provide accurate information to government officials.	Do not use water from contaminated source of water.
Sensitise authorities about the exact requirement of protective equipment for dealing with the hazard present.	Do not mix chemicals. Some combinations, such as ammonia and bleach, can create toxic gases.
Identify safe shelters along with safe and easy access routes.	Do not go near affected area.
Once you are at a safe location, inform Emergency Services (Police, Hospital, etc.).	Do not walk on contaminated surface.
If you are out in the open, cover your face and body with a wet cloth.	Do not come in contact with affected area.
If you are unable to evacuate, close all the doors and windows tightly.	Do not let smoke enter into premises.
Use a respiration mask for protection.	Do not go outside without face mask.
Keep distance and avoid direct contact with the affected person.	Do not go to crowded areas.

Always report unattended objects within the campus.	Do not stand in a crowd. Spread out; Stay clear of waterbodies.
Participate in capacity building programmes organized by the NCDC staff.	Do not avoid any unattended objects in premises.
Seek medical attention if you are sick; keep a stock of your regular prescribed medicines.	

(g) RISK OF TERRORISM

Do's	**Don'ts**
Remain calm and ensure your safety.	Do not provoke the attacker or perform any act which gives rise to chaos.
Follow the advice of local emergency officials.	Do not go outside unless instructed.
Listen to radio or television for news and instructions.	Do not spread or believe in rumours.
Secure any important documents, materials and passwords.	Don't touch any suspected items and report them immediately to the authority.

CHAPTER - 6 : PREPAREDNESS MEASURES

"Every organization needs to prepare their disaster management plan as per the actual risk profile and their vulnerability. Communication, coordination, and capacity building are the three key pillars of institutional resilience."

Dr. Saurabh Dalal (NPO, Emergency, Risk and Crisis Management, WHO India)

Planning is one of the key elements in the "Preparedness Cycle". Preparedness measures illustrates the way the plans are continuously evaluated and improved through a round of planning, organizing, training, equipping, exercising, evaluating and taking corrective actions to mitigate risk. (NDMA).

6.1 GENERAL PREPAREDNESS AND MITIGATION MEASURES

- Floor-wise evacuation plans must be prepared for all buildings.
- There should be signage at stairways and exits.
- The floor maps should direct proper information of safer routes, and safer locations. (Details of the floor-wise maps are mentioned above).
- All issues regarding maintenance or complaints of electrical short circuits/ mechanical failure/ spillage of material/ damage to the infrastructure or blockages of exits need to be addressed by the maintenance team or responsible officer on an utmost urgent basis.
- It is the responsibility of each and every one working in the premises of NCDC to switch off and unplug devices in their respective room/ place of charge to prevent fire due to short circuit or fault in electronic appliances/machinery. These small acts can save us from initiation of any minor fire or sparks.
- Measures should be taken for proper dealing and placing of chemicals. Items/things should be arranged from heavy to light in weight to prevent any harm from dropping of heavy items.
- Whenever the fire alarms/strobes are activated, occupants must evacuate the building and reassemble at your designated assembly point.
- Occupants on floors above the ground floor must use emergency exit stairwells to leave the building.
- Elevators must not be used in any case for emergency evacuation.

6.1.1 FIRE RELATED PREPAREDNESS

- Ensure all exit routes are clear of obstructions.
- Make sure exit routes should be more than one.
- Ensure signage is in place and regularly maintained.
- Fire detection and alarm system are maintained and checked twice a year.
- Combustible stores are far from the source of fire ignition.
- Smoke barriers are provided and in adequate numbers.
- Check and maintain fresh air ducts and proper ventilation in the basement.
- Ensure doors and windows are made of fire-resistant material.
- Maintain first aid particularly to fire burns/ smoke effect.
- Firefighting equipment and appliances are regularly maintained and refilled.

- Provide fire safety training to staff.
- Ensure emergency escape lighting is in place.
- Maintain a regular check on the age of electrical wiring.
- Maintain a regular on Electrical MCB.
- All main and alternative, as well as fire exits, should be kept open for escape at all times.
- Ensure a trained operator is handling DG equipment's and the maintenance room all the time.
- An annual maintenance contract to licensed service contractor for regular servicing of the DG sets and electrical equipment present on campus.

a) FIRE ALARMS

- Every building must have a fire alarm system that is always working.
- Each bell or horn, manual alarm station, and smoke or heat detector must work.
- The alarm stations must be red, and may not be covered or blocked by furniture, drapes, etc.
- Smoke detectors are required in every room and are recommended in the corridors and stairs.
- Fire alarms must be working properly and audible from every part of the building.

b) FIRE HYDRANT

- Fire hydrants must be installed and strategically located.
- Fire hydrants must be checked every six months and proper functioning must be ensured.
- There should be no obstruction/barrier in front of Fire hydrants.
- Fire hydrants should be easily accessible.

c) ELECTRICAL SHOCK RELATED MEASURE

- Don't plug too many electric appliances in one socket.
- Circuit and switchboard overload should be avoided at any junction within the campus.
- Regular electrical maintenance and survey of high voltage appliances and switchboard needs to be carried out at regular intervals.

d) FIRE EXTINGUISHER

- A fire extinguisher is required to be within every 75 feet of area.
- Fire extinguishers must be checked annually by a licensed service contractor.
- Fire extinguishers should not be hung higher than 5 feet from the floor to the top of the extinguisher.
- Extinguishers are classified as "A", "B", or "C". Type "A" is required for ordinary (wood, paper, some plastics, etc.) hazards. Type "B" is required for liquid (grease, paint, some plastics, etc.) hazards. Type "C" is required for electrical hazards.
- Multi-purpose ("ABC") extinguishers are available for combined hazards and are the type recommended.
- CO2 type fire extinguisher is required to be installed in areas where computer or other technical appliances are kept.
- Other extinguishers like (Water, CO2) and AFFF (Aqueous Film Forming Foam) shall also be kept ready at strategic location with consultation of Fire Officer.

e) EXITS

- There must be at least two exits from every area.
- Exits must be accessible without the use of any key.
- Exits must be marked with illuminated exit signs that are working.

- A horizontal exist shall be equipped with at least one fire/smoke door with fire resistance,of self-closing type. Further, it is required to have direct connectivity to the fire escape staircase for evacuation.
- Doors in horizontal exits shall be open at all times from both sides.
- Storage, furniture, trash, etc. are not allowed in corridors or stairways.
- Fire doors to stairways and storage rooms must close and latch automatically.
- Fire doors should be free from any obstructions.
- The walls and ceilings of corridors and stairs must be solid. Any holes or other damage must be repaired.
- Exits may not be hidden by draperies, furniture, etc.
- Exit doors must open outwardly.
- Exit doors shall not hinder the exit passage.
- Overhead or sliding doors shall not be installed.
- Exits must lead to refugee area, street, or roof.
- Exit door shall not open immediately upon a flight of stairs.
- Mirrors shall not be placed in exit ways or exit doors to avoid confusion regarding the direction of exit.
- Exit routes and corridors should be kept clear.
- All main and alternative as well as fire exits should be kept open for escape at all times.

6.1.2 EARTHQUAKE HAZARD PREPAREDNESS

- Safe location for evacuation must be identified.
- First - aid box must be prepared and placed strategically.
- Assign assembly area in the compound and develop a rule of performing a headcount of staff every time there is an evacuation.
- Any material potential of blocking exits must be removed.
- Regularly conduct a walkthrough of your entire facility to identify heavy pieces of equipment, furniture or object that are vulnerable to falling or gliding.
- Regularly conduct walkthrough of the facility to identify vulnerable gas, water and electrical lines (for example damage to non-structural walls could rupture water lines and cause a power outage). Regularly conduct mock drills and make an evacuation plan.
- Label and map all utility shut off locations.
- Check to ensure whether the design and construction of the facility meet the seismic codes.
- If seismic safety codes are not met, determine what needs to be done to retrofit the facility.
- Ensure that the dos and don'ts of actions are in place in all the floors and lobbies.
- Ensure that large, heavy items are away from doorways and exit routes.
- Store heavy items and any hazardous/ flammable materials on lower shelves.
- Keep the chemicals separate to avoid the instigation of a new hazard at the time of an emergency.
- Secure heavy machinery to the wall fasten or mount them in the facility especially in laboratories, offices and hallways.
- Install anchor bolts and restraining straps on heavy pieces of equipment, furniture, tanks and other objects.
- As a part of the non-structural mitigation measures, install wall restraints on taller items, including furniture, bookcase, filing cabinets and self-mounted equipment refrigerators, freezers, photocopies and others.
- Secure art work on walls with closed hooks.

6.1.3 FLOOD AND STORM PREPAREDNESS

- Establish measures to fortify facility supplies including plywood for windows, sandbags for flooding should be kept in mind.
- Develop shelter-in-place plans because many times transportation during evacuation of

vulnerable staff is risky.

- Identify the safest areas of building for sheltering-in-place.
- Ensure efficient resources are available in the identified shelter in place for at least 7 days including emergency power, enough portable water to last 7 days, an adequate supply of food& extra stocks of medication.
- Identify evacuation routes with alternatives routes, create maps of these routes and hence well disseminated\Conduct periodic exercises and drills based on the existing action plans, disaster management plan, and evacuation plan.
- Establish emergency transportation arrangements and disseminate.

6.1.4 CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR AND EXPLOSIVES (CBRNE) EMERGENCY PREPAREDNESS

- CBRN medical preparedness include demarcation of triage/ resuscitation/ decontamination/ transporting impacted victims to designated CBRN hospitals/ re-triaging constantly and only moving the dead when it is affecting the response.
- Have an access to specialist for appropriate treatment of exposed victims.
- Both theoretical and practical training with periodic refresher training should be done.
- Maintain adequate stock of personal protective equipment.
- Analyses risk and train people to check preparedness.

6.2 HUMAN RESOURCES DATA UPDATING

- Data regarding the human resources in the building must be regularly updated.
- Their newly appointed staff members must be trained and made aware of the plans.
- Regular trainings of safety teams must be carried out.

6.3 SAFETY AND SECURITY OF DOCUMENTS

The following steps should be taken well in advance for prevention or loss of any essential document at campus record room :-

- The record room should be demarked in the building for storage of old files, records and documents.
- All the important documents should be scanned and digitized and a copy of it can be kept at some alternate safe place.
- There should be regular disposal of files as per the existing government guidelines.
- All the departments and offices should have back-up of their necessary respective data in PCs/Laptops.
- Security of files/ documents/ PCs/ lap tops and use of pen drives should be elaborate.
- Regular check by department / section heads is recommended.
- Training regarding Dos and Don’ts is recommended.

6.4 PREPAREDNESS MEASURES FOR MASS CASUALTY INCIDENTS

6.4.1 COMMUNICATION

- Appoint a public information spokesperson to coordinate communication with the public, the media and health authorities.
- Designate a space for press conferences (outside the immediate proximity of the emergency department, triage/waiting areas and the command center).
- Draft brief key messages for target audiences (e.g. staff, public) in preparation for the most likely disaster scenarios.
- Ensure that all communications to the public, media, staff (in general) and health authorities are approved by the incident commander or DM committee.
- Establish streamlined mechanisms of information exchange between administration, department/

unit heads and facility staff.
- Brief NCDC staff on their roles and responsibilities.
- Establish mechanisms for the appropriate and timely collection, processing and reporting of information to supervisory stakeholders (e.g. the government, health authorities.
- Ensure the availability of reliable and sustainable primary and backup communication systems (e.g. satellite phones, mobile devices, landlines, Internet connections, two-way radios, unlisted numbers), as well as access to an updated contact list.

6.4.2 SAFETY AND SECURITY

- Appoint a NCDC security team responsible for safety and security activities.
- Prioritize security needs in collaboration with the NCDC authorities.
- Identify areas where increased vulnerability is anticipated (e.g. entry/exits, food/water access points, labs, library and auditorium).
- Ensure the early control of facility access point(s), triage site(s) and other areas of traffic and parking.
- Establish a reliable mode of identifying authorized NCDC personnel and visitors.
- Ensure that security measures required for safe and efficient institutional evacuation are clearly defined.
- Ensure that the rules for engagement in crowd control are clearly defined.
- Solicit frequent input from the NCDC security team with a view to identify potential safety and security challenges and constraints, including gaps in the management of hazardous materials and the prevention and control of situation.
- Identify information insecurity risks. Implement procedures to ensure the secure collection, storage and reporting of confidential information.
- Define the threshold and procedures for integrating local law enforcement and military in the NCDC security operations.
- Establish an area for radioactive, biological and chemical decontamination and isolation.

6.5 CONTINUITY OF ESSENTIAL SERVICES

- List all NCDC services, ranking them in order of priority.
- Identify and maintain the essential services within the NCDC campus, i.e. those that need to be available at all times in any circumstances.
- Identify the resources needed to ensure the continuity of essential institutional services, in particular research and lab works.
- Ensure the existence of a systematic and deployable evacuation plan that seeks to safeguard the continuity of the working of institution.
- Coordinate with the health authorities, neighboring hospitals and private practitioners on defining the roles and responsibilities of each member of the local health-care network to ensure the continuous provision of essential medical services throughout the community.
- Ensure the availability of appropriate back-up arrangements for services of the institution.
- Anticipate the impact of the most likely disaster events on NCDC supplies of food and water. Take action to ensure the availability of adequate supplies.
- Ensure contingency mechanisms for the collection and disposal of human, hazardous and other waste.

6.6 LOGISTIC AND SUPPLY MANAGEMENT

- Develop and maintain an updated inventory of all equipment, supplies and medicines; establish a short term-alert mechanism.
- Estimate the consumption of essential supplies, (e.g. amount used per week) using the most likely disaster scenarios.
- Assess the quality of contingency items prior to purchase; request quality certification if available.

- Establish contingency agreements (e.g. memoranda of understanding, mutual aid agreements) with vendors to ensure the procurement and prompt delivery of equipment, supplies and other resources in times of shortage.
- Identify physical space within the NCDC for the storage and stockpiling of additional supplies, taking ease of access, security, temperature, ventilation, light exposure, and humidity level into consideration.
- Ensure an uninterrupted cold chain for essential items requiring refrigeration.
- Ensure that a mechanism exists for the prompt maintenance and repair of equipment required for essential services. Postpone all nonessential services when necessary.
- Coordinate a contingency transportation strategy with pre-hospital networks and transportation services to ensure that immediate response is given.

6.7 POST DISASTER RECOVERY PLAN

- Appoint a disaster recovery officer responsible for overseeing institutional recovery operations.
- Determine essential criteria and processes for incident demobilization and system recovery.
- In case of damage to NCDC building, ensure that a comprehensive structural integrity and safety assessment is performed.
- If evacuation is required, determine the time and resources needed to complete repairs and replacements before the facility can be reopened.
- Organize a team of NCDC staff to carry out a post-action campus inventory assessment; team members should include staff who are familiar with the location and inventory of equipment and supplies.
- Consider including equipment vendors to assess the status of equipments that may need to be repaired or replaced.
- Provide a post-action report to administration, emergency managers and appropriate stakeholders that includes an incident summary, a response assessment, and an expenses report.
- Organize professionally conducted debriefing for staff within 24–72 hours after the occurrence of the event.
- Emergency incident to assist with coping and recovery, provide access to mental health resources and improve work performance.
- Establish a post-disaster employee recovery assistance Programme according to staff needs, for example, counseling and family support services.
- Show appropriate recognition of the services provided by staff, volunteers, external personnel and donors during disaster response and recovery.
- Learn and update the plan from lessons learnt and addressing the gap observed during drills and after handling real disaster scenarios.
- Plan for using more energy efficient electrical appliances, adhere to newer safety and standards for making NCDC campus eco-friendlier by gradually taking the action to reduce the carbon footprint.
- Ensure proper working of rainwater harvesting pits and solar panels within NCDC campus.
- Appoint a disaster recovery officer responsible for overseeing institutional recovery operations.
- Determine essential criteria and processes for incident demobilization and system recovery.

6.8 BUSINESS CONTINUITY PLANNING

- Workspace recovery.
- Cyber resilience.
- Data backup, Replication and recovery.
- Communication and notifications.
- To have a backup structure which could be put in place within 72 hours, in case of dissolution of NCDC campus in event of any disaster.

ANNEXURE I - EMERGENCY CONTACT DETAILS

EMERGENCY CONTACT DETAILS

100	101	102
POLICE	FIRE	AMBULANCE

112

NATIONAL EMERGENCY NUMBER

DISASTER MANAGEMENT SERVICES : 108	WOMEN HELPLINE : 1091
DISASTER MANAGEMENT (NDMA) : 1078, 011-26701728	ANTI POISON (DELHI) : 1066
NDRF HELPLINE NO. : 011- 24363260; 97110 77372	LPG LEAK HELPLINE : 1906
ROAD ACCIDENT EMERGENCY SERVICE : 1073	ELECTRICITY BSES : 19123
WATER SUPPLY DJB : 1916 , 1-800-117-118	CYBER CRIME HELPLINE : 155620

SANT PARMANAND HOSPITAL 18, SHAM NATH MARG, CIVIL LINES, NEW DELHI, DELHI 110054	011 -2399 4401
SUSHRUTA TRAUMA CENTRE CIVIL LINES, DELHI 110054	011 -2390 6000
HINDU RAO HOSPITAL GANDHI SQUARE, MALKAGANJ, DELHI, 110007	011 - 2391 9476
ARUNA ASAF ALI HOSPITAL 5, RAJPUR RD, POLICE LINES, CIVIL LINES, DELHI 110054	011 -2396 5532 011- 2383 1524

FIRE STATION MAURICE NAGAR	011 2384 2505
FIRE STATION NOVELTY	011 2397 5553

Emergency contact within NCDC
Sh. Jagdish Chandra Bhatt - +91 90130 56729

Emergency contact within NCDC
Sh. Thomas +91 96505 17755

Fire fighter within NCDC
Sh. Anurag Sharma +91 98182 30685

Electrical person within NCDC
Sh. Pradeep Kumar +91 74173 35283
Sh. Sumit Kumar +91 96433 80165

Security within NCDC
Sh. Prakash Doval 011 - 23971875

ANNEXURE II: Details of Incident Response System (IRS)

S. No.	Job Card Allocation	Concerned Authority
1	Incident Commander	Director
2	Deputy Incident Commander	Joint Director
3	Information Officer	OIC, IDSP
4	Safety Officer	Security officer, NCDC
5	Liaison Officer	IHR, Secretariat
S	Operation section In-charge	Additional Director and Head, Division of Planning Budget & Administration
7	Planning Section In-charge	Head, Epidemiology
8	Logistics Section In-charge	Head, Department of Parasite
9	Staging Area	Administrative Officer, NCDC
10	Response Branch	Deputy Director Centre for Environmental & Occupational Health, Climate Change& Health
11	Transportation Branch	Assistant Librarian & Information Officer
12	Resource Unit	OIC, SHOC
13	Medical Unit	Medical Officer, NCDC
14	Demobilisation Unit	Draftsman, NCDC Cell
15	Documentation Unit	In-charge, NCDC Newsletter
16	Food Unit	Joint Director, IDSP
17	Technical Specialist	Deputy Director, Concerned Division
18	Service Branch	Sr. Consultant Technical, NCDC Cell
19	Support Branch	Stores Officer, NCDC
20	Finance Branch	Assistant Director, Division of Statistical Monitoring & Evaluation
21	Communication Branch	Planning, Research and Coordination

Disclaimer: *This plan is a dynamic and ever-evolving document. This is for reference purposes only. IDesign team is not a response agency hence is not involved in response and is not liable to respond to any emergency arising at NCDC. The NCDC is the custodian of the plan and takes responsibility of revisiting, updating and practicing the plan at regular intervals. This is an exercise for promoting safety and readiness to deal efficiently with all*

ANNEXURE III: EMERGENCY RESPONSE FACILITIES MAP IN CENTRAL DELHI DISTRICT

Facility map of central Delhi district showing nearest police station, fire stations, hospitals etc. to NCDC campus.

LEGEND

SDM OFFICE

FIRE STATION

HOSPITAL

POLICE STATION

ANNEXURE IV: BUILDING MAINTENANCE CHECKLIST

BUILDING MAINTENANCE CHECK LIST	NAME	Check off, date and sign per week, month, quarter, semi & annually. BCR - Building Code Requirement FCR - Fire Code Requirement
BUILDING NAME: NCDC, Civil Lines, New Delhi		
WEEKLY CHECKS		

SITE		1st	2nd	3rd	4th	5th	COMMENTS
1	Check walkway surfaces, patch and repair	√		√		√	Repair immediately for safety
2	Remove and dispose of all fallen tree limbs, dead shrubs, etc	√	√	√	√	√	Remove on weekly basis, for safety
BUILDING EXTERIOR		**1st**	**2nd**	**3rd**	**4th**	**5th**	**COMMENTS**
1	Replace broken window glass as needed		√		√		Repair work done in every 2-3 months
2	Remove any blockage of walk ways and keep fire exits clear			√			Daily Basis
3	Remove any materials against wall that are an eye sore				√		Daily Basis
BUILDING INTERIOR		**1st**	**2nd**	**3rd**	**4th**	**5th**	**COMMENTS**
Remove all rubbish, boxes, debris and combustibles from following locations :							
1	Paths of exit		√				Immediate cleaning
2	Doorways	√					Immediate cleaning
3	Stairs				√		Immediate cleaning
4	Under stairs			√			Immediate cleaning
5	Utility rooms				√		Immediate cleaning
6	Around flue and chimneys	√					monthly cleaning
7	Around heat-producing equipment			√			monthly cleaning is done
8	Electrical panel areas (3’ min)		√				monthly cleaning is done
WEEKLY CHECKS							
ELECTRICAL EQUIPMENT		**1st**	**2nd**	**3rd**	**4th**	**5th**	**COMMENTS**
1	Repair or replace frayed wires immediately			√			Saturday or Sunday (Varies)
2	Repair or replace non-functioning switches, receptacles & outlets		√				weekly repairing/replacing is done
3	Replace burned out light bulbs			√			weekly repairing/replacing is done

4	Remove all damaged extension cords	√	√	√	√	√	weekly repairing/replacing is done
PLUMBING		**1st**	**2nd**	**3rd**	**4th**	**5th**	**COMMENTS**
1	Repair leaking faucets and fixtures	√	√	√	√	√	weekly repairing/replacing is done
MONTHLY CHECKS **DATE: (29/06/22)**							
SITE		**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**
1	Remove excess bush adjacent to building walls & electrical equipment		√				Daily Basis
2	Trim and prune shrubs and trees	√					Daily Basis
3	Service lawn mowers & other equipment			√			Monthly
4	Check split system AC units, clear of debris, no damage, etc.					√	Centralized AC/ Damage is taken care on immediate basis
BUILDING INTERIOR		**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**
1	Check floors for broken tiles or torn carpet						√ (Heritage building is managed by CPWD)
2	Check exterior doors for proper operation and locking						√ (Heritage building is managed by CPWD)
MECHANICAL EQUIPMENT		**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**
1	Clean all washable window AC unit filters				√		√ (Heritage building is managed by CPWD)
2	Check /hot water heater for any fuel or water leaks.			√			Immediate action
QUARTERLY CHECKS **DATE: (29/06/22)**							
SITE		**1st**	**2nd**	**3rd**	**4th**	**COMMENTS**	
1	Check and service playground equipment and insure its safety		√			X (There is no playground on site)	
2	Clean all site drains.			√		STP is not working at the moment due to ongoing construction (Monthly Check)	

3	Reseed worn lawn areas		√	√		On monthly basis
4	Fertilize lawn	√		√		On monthly basis
BUILDING EXTERIOR		**1st**	**2nd**	**3rd**	**4th**	**COMMENTS**
1	Clean split system AC units, Flush dirt from cooling fins	√			√	every 3 monthly check
ROOF		**1st**	**2nd**	**3rd**	**4th**	**COMMENTS**
1	Inspect and repair roofing material		√	√		every 3 monthly check
QUARTERLY CHECKS (continued) **DATE: (dd/mm/yy)**						
BUILDING INTERIOR		**1st**	**2nd**	**3rd**	**4th**	**COMMENTS**
1	Clean windows, blinds, draperies, etc.		√		√	Interior : Daily and Exterior : once in 3 Months
2	Check and lube all door locks and adjust closers as needed	√		√		Daily Basis
MECHANICAL EQUIPMENT		**1st**	**2nd**	**3rd**	**4th**	**COMMENTS**
1	Flush window AC unit coils with water to remove dust, dirt &debri.		√			Immediately on the need Basis
2	Check motorized dampers for hot water heaters			√		X
3	Check & cleanout openings, doors, etc., for air leakage and corrosion	√				Immerdiate action
ELECTRICAL EQUIPMENT		**1st**	**2nd**	**3rd**	**4th**	**COMMENTS**
1	Test emergency lighting system.					Weekly Test
2	Test all exit lights					Daily Test

3	Insure space in front of electrical panels is clear.	√				Daily Test
SEMI & ANNUAL CHECKS **DATE: (dd/mm/yy)**						
	SITE	**S1**	**S2**	**A**	**COMMENTS**	
1	Repair potholes & restripe if necessary			√	Immediate action	
2	Repair and/or paint fences.				X	
3	Paint walkway markings				X (no markings on walkway)	
	BUILDING EXTERIOR	**S1**	**S2**	**A**	**COMMENTS**	
1	Wash windows		√		Quarterly basis	
2	Replace cracked or missing putty or caulk at windows & doors			√	Quarterly basis or Immediate action as/need	
3	Scrape, prime and paint building exterior and trim as needed			√	Quarterly basis or Immediate action as/need	
4	Wash accumulated dirt from building surfaces.			√	Quarterly basis or Immediate action as/need	
5	Lubricate exterior door hinges and hardware			√	Quarterly basis or Immediate action as/need	
6	Inspect exterior walls for loose mortar, lintel failures and structural cracks	√			Immediate action	
	ROOF	**S1**	**S2**	**A**	**COMMENTS**	
1	Clean roof valleys		√		Weekly (Sat & Sunday)	
2	Clean and test roof drains		√		Weekly (Sat & Sunday)	
3	Clean and secure gutters		√		Weekly (Sat & Sunday)	
4	Clean and secure downspouts		√		Weekly (Sat & Sunday)	
5	Inspect and repair metal flashings		√		Weekly (Sat & Sunday)	

6	Inspect and recaulk stone or clay tile copings		√		Weekly (Sat & Sunday)
SEMI & ANNUAL CHECKS (continued) DATE: 29/06/22)					
MECHANICAL EQUIPMENT		**S1**	**S2**	**A**	**COMMENTS**
1	Service all pumps per manufacturer's instruction manuals		√		Weekly (Sat & Sunday)
2	Service all air-conditioning equipment		√		Weekly (Sat & Sunday)
3	Service all ventilating equipment		√		Weekly (Sat & Sunday)
4	Pump out septic tanks. Date last cleaned:				X
PLUMBING		**S1**	**S2**	**A**	**COMMENTS**
1	Service well pump and water storage tank	√			Daily Basis
2	Inspect and clean out grease traps			√	Weekly (Sat & Sunday)

√ SITE	**D (Daily)**	**W (weekly)**	**M (Monthly)**	**Q (Quarterly)**	**S (Semi Annually)**	**A (Annually)**	**COMMENTS**
Remove and dispose of all fallen tree limbs, dead shrubs, etc.		√					Immediate action
Remove brush and weed growth adjacent to building walls and electrical equipment				√			Immediate action
Reseed worn lawn areas			√				Immediate action as/need
Fertilize lawn	√						
Trim and prune shrubs and trees	√						

Clean all site drains			√				STP is not working at the moment due to ongoing construction (Monthly Check)
Repair potholes in parking lots and driveways. Restripe if necessary	√						
Check and service playground equipment and insure its safety			√				X (There is no playground on site)
Service lawnmowers				√			No idea
Patch and repair walkway surfaces		√					No walkways on site
Paint walkway markings			√				No marking on walkways
Repair and paint fences.					√		N/A
BUILDING EXTERIOR							
Wash windows				√			
Replace cracked or missing putty at windows		√					Immediate action
Replace broken window glass as needed				√			
Scrape and paint building exterior and trim				√			
Wash accumulated dirt on building surfaces				√			
Touch up paint on building exterior			√				No paint on exterior surface
BUILDING EXTERIOR							
Lubricate exterior door hinges and hardware		√					Daily Basis
Inspect exterior walls for loose mortar, lintel failures and structural cracks				√			Immediate action

ROOF							
Clean roof valleys		√					
Clean and test roof drains		√					
Clean and secure gutters		√					
Clean and secure downspouts		√					
Perform necessary roof repairs		√					
Inspect and repair metal flashings		√					
Inspect and recaulk stone or clay tile copings		√					
BUILDING INTERIOR							
Clean windows, blinds, draperies, etc.	√						
Check floors for broken tiles or torn carpet		√					Immediate action in case of any damage)
Remove all rubbish, boxes, debris and combustibles from:							
Paths of exit	√						No debris is present
Doorways		√					No debris is present
Stairs							No debris is present
Under stairs	√						
Utility rooms	√						
Around flue and chimneys		√					No debris is present
Around heat-producing equipment		√					
Electrical panel areas		√					No debris is present

MECHANICAL EQUIPMENT							
Service all pumps per manufacturer's instruction manuals		√					
Service all air-conditioning equipment		√					
Service all ventilating equipment		√					
Check hot water heater for any fuel or water leaks				√			No water heater is present
Check openings or motorized dampers which provide combustion air to hot water heaters				√			No water heater is present
Check cleanout openings, doors, etc., for air leakage and corrosion					√		Immediate action
Pump out septic tanks							N/A
Date last cleaned					√		
ELECTRICAL EQUIPMENT							
Replace burned out light bulbs							Immediate action
Test emergency lighting system		√					
Test all exit lights	√						
Insure space in front of electrical panels is clear	√						
Repair or replace non-functioning switches, receptacles and outlets immediately							Immediate action
Replace frayed wiring immediately							Immediate action

PLUMBING							
Service well pump and water storage tank	√						
Inspect and clean out grease traps.		√					
Repair or replace broken fixtures					√		Immediately as/requirement
Replace washers or packing on leaking faucets, etc.			√				Immediately as/requirement

MECHANICAL SYSTEMS CHECK LIST	D (Daily)	W (weekly)	M (Monthly)	Q (Quarterly)	S (Semi Annually)	A (Annually)	COMMENTS
Clean hot water heater and piping internally. swab tubes with neutral oil as directed by the manufacturer's operating instructions			√				No water heater is present
Clean water side of steam. use pressurized water jet and scrapers to remove any scale as directed by the manufacturer's operating instructions					√		Not required
Fill tubes with water as required or annually				√			
Clean control box of all dust as required or annually			√				
Check operation of combustion air louvers which supply air to room		√					
Test water quality for ph, hardness, and corrosive compounds. chemically treat as required or monthly	√						Daily

Clean strainers as required or annually					√		
Test low water cutoff annually				√			
Check high steam pressure limit control			√				
Check low water level limit control			√				
Check pressure relief			√				
Valve					√		
AIR HANDLERS							
Lubricate and grease all bearings, motors and fans			√				
Adjust all V-belts for proper tension. replace all worn belts		√					
Check and clean air filters. replace as needed		√					
Clean and adjust controls which operate valves and motorized dampers		√					
HEAT PUMPS							
Check all control valves for proper operation							No heat pumps present
Inspect air filters and replace as required by the manufacturer							No heat pumps present
Oil and lubricate motors							No heat pumps present
Inspect, adjust, calibrate, and clean temperature control items							No heat pumps present
Inspect heat exchangers							No heat pumps present

Clean finned pipe surfaces							No heat pumps present
Inspect coil casings for rust; clean and pain as required							No heat pumps present
Inspect heating coil tubes							No heat pumps present
Inspect heating coil mountings and tighten any loose bolts.							No heat pumps present
STEAM AND HOT WATER PIPING							
Open steam traps; replace worn or inoperative parts							NA
Replace valves and valve seats that are worn							NA
Inspect and repair any breaks in pipe insulation							NA
Inspect pipe hangers for tightness							NA
Inspect for steam and water leaks at valves and piping			X				
Test steam traps for by-passing			X				
Inspect for corrosion			X				
OIL TANK							
Clean oil strainer			X				
Clean sludge from tank						X	

BURNERS							
Clean oil strainers					X		
Check draft regulators for free movement				X			
Inspect induced draft fan and forced draft fan for alignment and wear on bearings				X			
Test combustion efficiency				X			

SITE AND GROUNDS	GOOD	REPAIR/REPLACE	COMMENTS
Are there ramps and provisions for the physically handicapped?	√		
Are there designated parking spaces for the physically handicapped?			Not yet
Has soil sunk or elevated?		√	
Is there standing water near or against the building after a rainfall?	√		
Are retaining walls leaning or in need of repair?			Under construction
Are fences deteriorated?			Not applicable
Do fence gates operate properly?		√	
Building exterior - foundation		√	
Do foundation walls show the following signs of decay or settlement?	√		
Large cracks			No
Visible separation between top of foundation wall and building frame	√		No
Loose, cracked, or broken blocks, bricks or stones			Under construction
Soft or flaking mortar or concrete			Under construction
Foundation movement			NA
Water leaks		√	
Stains or discoloration		√	
Bulging or bowing		√	

Are interior basement or crawl spaces foundation walls damp?		√	
Are there mushroom growths, mold stains, or mildew odors in basement or crawl space?		√	
Are there insect tubes visible along the foundation walls?			No
BUILDING EXTERIOR – MASONRY WALLS			
Does exterior masonry visible?		√	
Cracks in walls			Building is under construction
Cracks over doors or windows		√	Immediate repair work is done
Loose bricks	√		
Cracked bricks	√		
Missing bricks	√		
Cracked, chipped, missing mortar		√	
Soft or flaking mortar		√	
White or gray stains	√		Good
Water penetration	√		Good
Moss or algae growth		√	Weekly
Split, brittle or missing caulking	√		
Are weep holes in retaining walls, under window sills, and other wall construction free of obstruction?		√	
Is wood molding and trim cracked, warped or rotted?	√		
Building exterior – frame walls		√	
Is there evidence of rot or deterioration of wood sills, walls or sidings?			No woodwork in frame wall is done
Is there evidence of water stains or water penetration into the wood?			No woodwork in frame wall is done
Are siding boards cracked or split?			No woodwork in frame wall is done
Are siding boards buckled?			No woodwork in frame wall is done
Are nails rusting excessively?			No woodwork in frame wall is done
Can a knife blade or a key be easily pushed into wood siding or structural wood member?			No woodwork in frame wall is done
Are exterior wood moldings cracked, missing, broken or separated from the building?			No woodwork in frame wall is done

Is there evidence of the following on visible structural wood members:			No woodwork in frame wall is done
Severe staining or discoloration			No woodwork in frame wall is done
Split or cracked wood			No woodwork in frame wall is done
Is there a written plan of safe egress for occupants from the building?			No woodwork in frame wall is done
Piles of sawdust			No woodwork in frame wall is done
Rot and deterioration			No woodwork in frame wall is done
Bee hives			No woodwork in frame wall is done
Bird nests			No woodwork in frame wall is done
Rodents			No woodwork in frame wall is done
Termites			No woodwork in frame wall is done
Is paint blistered or peeling?			No woodwork in frame wall is done
BUILDING EXTERIOR – ROOF, ALL TYPES			
Inspect all roofs for evidence of deterioration, weather damage, and water penetration. if roof is not accessible, use binoculars. check interior of building for evidence of water damage			Check
Are there gaps or holes around any roof penetrations, chimneys, or vents?		√	
Are there signs of movement in roofing material or flashing?	√		No
Are there dissimilar metals in contact?			N/A
Do metal components need painting?		√	
Is caulking missing, split or deteriorated at the following:			
Parapets		√	
Copings		√	
Flashings		√	
Soffits		√	
Vents or chimneys		√	

Skylights		√	
Other roof penetrations		√	
BUILDING EXTERIOR – ROOF ALL TYPES			
Are there any loose or broken glass panes in skylights?			N/A
Is there evidence of water seepage through soffits?			N/A
Does roof/attic have proper ventilation?			N/A
Does the roof hatch work?			N/A
Is anchorage for tv antenna secure?			N/A
Is antenna adequately grounded?			N/A
Is there lightning protection?			N/A
BUILDING EXTERIOR – BUILT-UP ROOF			
Are there blisters, bubbles, cracks, splits or open seams in roofing membrane?			N/A
Is roof pitted or worn?			N/A
Is there evidence of standing water or puddles?			
Does roof feel “squishy” under foot?			X
Can roofing felt material be seen?			X
Are gravel stops secure?	√		
Are gravel stops rusted or pitted?			No
Do expansion joints show evidence of separation or water penetration?			No
Is any vegetation growing through roofing?			No
Is roof over 15 years old?			N/A
BUILDING EXTERIOR – SHINGLE ROOF			
Are shingles loose, split, missing or broken?			No shingle roof on site
Are mineral granules thinned out?			No shingle roof on site
Are shingle edges curling or worn?			No shingle roof on site
Is there moss growth?			No shingle roof on site

Is roofing more than 20 years old? (think asbestos)			No shingle roof on site
BUILDING EXTERIOR – SLATE ROOF			
Are there broken, missing or loose slates?			No slate roof on site
Are slates worn?			No slate roof on site
Do slate fasteners appear broken or rusty?			No slate roof on site
Are ridge rolls loose, deteriorated or rusted?			No slate roof on site
Are there sections patched with asphalt?			No slate roof on site
EXTERIOR – METAL ROOF BUILDING			
Are metal roof sheets rusted?			No metal roof on site
Are there signs of holes, pitting or cracking?			No metal roof on site
Are there any open joints?			No metal roof on site
Are there any defective fasteners?			No metal roof on site
BUILDING EXTERIOR – DOORS AND WINDOWS			
Is trim around doors and windows split, loose or deteriorated?		√	
Is caulking around door and window frames and trim cracked or missing?		√	
BUILDING EXTERIOR – DOORS AND WINDOWS			
Are sills loose or deteriorated?		√	
Is window putty missing or cracked?		√	
Is there broken or cracked glass?		√	
Are stained glass windows bowed or warped?			No
Do doors and windows lock properly?	√		
Is hardware defective?		√	
Are doors and windows weather-stripped?	√		
Do doors and windows operate and seal properly?	√		
Are there holes or tears in screens?	√		

Are screens, shutters and other exterior window attachments secure?	√		
Has finish paint or varnish deteriorated?		√	
BUILDING EXTERIOR – PARAPET WALLS, COPINGS AND CHIMNEYS			
Are walls cracked?	√		
Are bricks loose or spalling?		√	
Do mortar joints require pointing?		√	
Is mortar joint under coping cracked or loose?	√		
Are coping stones or metal copings loose, broken or shifted?	√		
Is coping joint open, permitting water to enter?		√	
BUILDING EXTERIOR – PARAPET WALLS, COPINGS AND CHIMNEYS			
Is flashing missing, loose or damaged?			N/A
Is there evidence of moisture penetration?			
BUILDING EXTERIOR – PORCHES, STAIRS AND BALCONIES			
Do porches, stairs or balconies require painting?		√	
Is porch floor structure decayed, weak or cracked?	√		
Are stair treads loose or broken?	√		
Are column bases rotted or in need of repair?	√		
Are railings broken or weak?	√		
Are balusters broken, loose or missing?	√		
BUILDING EXTERIOR – GUTTERS AND DOWNSPOUTS			
Are there loose, rotted or missing gutters or downspouts?	√		
Are there holes in gutters or downspouts?		√	
Do gutter or downspout joints leak?		√	
Are gutters or downspouts pitted or rusted?		√	
Do gutters or downspouts require painting?		√	

Do gutters sag or lack pitch to downspouts?			
Is water running down face of building?		√	
BUILDING EXTERIOR – GUTTERS AND DOWNSPOUTS			
Do splash blocks or drains under downspouts divert water away from building?			
BUILDING EXTERIOR – ATTACHMENTS			
Are the following items in good condition and well secured to building ?			
Lattices	√		
Columns	√		
Flagpoles	√		
Cables and wires		√	
Weathervanes			
Towers			
Gargoyles and sculptures			
Canopies			
Balconies			
Signs, alarms and lights			
Ledges and projections			
Decorations and ornaments		√	
Meters			
Other			
BUILDING INTERIOR - FLOORS			
Are floor joists warped, cracked or sagging?		√	
Is floor joist blocking and bridging secure?			
Is there visible separation between floors and walls at the cove base?	√		
Do floors squeak or creak?	√		
Are floors “bouncy”?	√		
Are floors at entrances slip-resistant?	√		
Are masonry and tile floors cracked, broken or worn?		√	
Is wood flooring warped, separated or badly worn?	√		
Is carpeting loose, torn or badly worn?			No carpeting is used

BUILDING INTERIOR - WALLS			
Is there evidence of water staining?		√	
Are there cracks?		√	
Are surfaces peeling or dirty?		V	
Is wall finish buckled or loose?		√	
BUILDING INTERIOR - CEILINGS			
Is there evidence of water staining?		√	
Are there cracks?		√	
Are surfaces peeling or dirty?		√	
Is ceiling structure sagging or separating?		√	
Is ceiling tile grid secure?		√	
Are there damaged ceiling tiles?		√	
Are light fixtures secure?		√	
BUILDING INTERIOR – DOORS AND WINDOWS			
Are door jambs plumb?		√	
Do doors bind?	√		
Do doors have loose or missing hinges, knobs or locks?		√	
Is there evidence of condensation on or around windows?		√	
Is there evidence of mold, discoloration or deterioration around windows and doors?		√	
BUILDING INTERIOR - ATTICS			
Do rafters, floor joists and sheathing show signs of :			
Water stains or deterioration		√	
Warping		√	
Cracking			
Sagging	√		X
Is there evidence of water leaking into attic around any of the following			
ROOF PENETRATIONS:	√		
Vents	√		Not there
Ducts	√		Not there
Chimneys	√		Not there
Is attic floor insulated?			Not there

Are attic fans or vents operating?		√	
Is attic free of debris and unused combustible items?	√		
Are materials stored neatly and away from heat sources?	√		
BUILDING INTERIOR – CRAWL SPACE AND BASEMENT			
Is crawl space or basement damp, wet or water stained?		√	
Does water infiltrate through crawl space or basement walls or floor?		√	
Is crawl space or basement floor cracked or disintegrated?		√	
Are crawl space or basement walls insulated?		√	
Does crawl space have wall vents?	√		
Does dirt floor of crawl space have a vapor barrier?			N/A
MECHANICAL EQUIPMENT			
Are there water leaks at any of the following locations:			
Pipes		√	
Radiators			X
Hot water heater		√	
Pumps			
MECHANICAL EQUIPMENT			
Has the water heater been cleaned and serviced in the past 12 months?		√	
Is the water heater insulation cracked or missing?		√	
Is the water heater more than 35 years old?			No
Is the water heater room vented?			No
Is the water heater room supplied with combustion air?			No
Is the water heater room free of gas odors and foul air?			No
Is the water heater room free of stored materials?			No

Are there rooms used regularly which are only accessible by walking through the water heater room?			No
Is there an emergency shutdown switch for burner?			No
Are fan filters and grills clean?	√		
Are Exposed Pipes Adequately Insulated?	√		
Does air supply or return registers adjust air flow properly?	√		
Do kitchens and bathrooms have adequate ventilation?	√		
Do large assembly areas have adequate ventilation?	√		
PLUMBING			
Are there water leaks at any of the following locations?		√	
Bathroom fixtures	√		
Faucets		√	
Piping	√		
Do flush valves and faucets work properly?	√		
Are any drains or traps clogged?	√		
ELECTRICAL EQUIPMENT			
Are transformers, fans and other electrical equipment protected with adequate safety barriers?	√		
Is electrical equipment in proper working order?	√		
Do fuses or circuit breakers disconnect often?	√		
Is the amperage draw for any circuit beyond its capacity?	√		
Are there sufficient replacement fuses?	√		
Is building wiring in good condition?	√		
Are there any faulty electrical fixtures?		√	
Do wires on appliances and equipment show the following:			
Fraying	√		
Splits	√		
Bare wires		√	

Do electrical outlets, switches and junction boxes have cover plates?	√		
Do exterior electrical outlets and switches have protective covers?	√		
Do all switches operate properly?	√		Repair immediately as/need
Electrical equipment	Good	Repair/Replace	Comments
Do extension cords run under rugs or carpeting?	√		No
Do extension cords cause a tripping hazard?	√		No
Are extension cords warm or hot to the touch?	√		No
Are there outlets with 4 or more items plugged into them?	√		No
Are there any defective or shorted outlets?	√		No
Do outlets or switches feel hot to the touch?	√		No

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NCDC Campus Plan

LEGEND :-

- FIRE TENDER MOVEMENT
- MAIN ENTRY
- EXIT
- RESIDENTIAL ENTRY
- SERVICE ENTRY
- ASSEMBLY AREA EVACUATION AREA
- HERITAGE BUILDING
- NEW BUILDING
- PARKING AREA
- GREEN AREA
- PAVING
- INTERNAL ROAD
- EXTERNAL ROAD

LAUNCHING OF DISASTER MANAGEMENT PLAN FOR NCDC

On the occasion of 113th NCDC Annual Day on 29th July, 2022 "Disaster Management Plan for NCDC" was launched.

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