



World Health  
Organization  
India

# National Consultative Workshop on “Public Health Management of Chemical Emergencies”

30th June - 1st July, 2022  
Bhopal, MP



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Azadi Ka  
Amrit Mahotsav

# **National Consultative Workshop on “Public Health Management of Chemical Emergencies”**

## **Organized by:**

**National Centre for Disease Control, Delhi,  
Directorate General of Health Services,  
Ministry of health and Family Welfare, &  
World Health Organization**

# NOTE ON THE PROCEEDINGS

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A consultative workshop on “Public Health Management of Chemical Emergencies” was organized by the National Centre for Disease Control (NCDC), Delhi in collaboration with World Health Organization, Country Office for India at Bhopal on 30 June-1 July 2022 (Annexure -I).

The participants were representatives from the National Disaster Management Authority (NDMA), State Disaster Management Authorities (SDMAs), National Institute of Disaster Management (NIDM), Public Health experts and other officials engaged in the management of chemical emergencies, the First Responder Groups, such as officials from SDRF, experts from research organizations such as, DRDE, ICMR-NIO, Medical Institutes & Health care facilities, and the officers and regulators from the local administration. A total of 56 participants attended the program.

# DAY 1

## INAUGURAL SESSION

The chief guest of the program was Dr. Sanjay Goyal, IAS, Principal Revenue Commissioner, Madhya Pradesh. At the advent, the program started with the welcome address by Dr. Sujeet Kumar Singh, Director, NCDC. Welcoming the guests and the participants, Dr. Sujeet Singh, briefly highlighted the issues and challenges related to chemical emergency preparedness, managing crisis, capacity building, its public health hazards, risk mapping, system strengthening, and coordination mechanism.

The welcome address and opening remarks were followed by the floral welcome of the dignitaries on the dais including Dr. Sanjay Goyal along with Dr. Sujeet Kumar Singh, Dr. Surya Parkash, Head, CBRN, NIDM, Shri. Basant Kurre, Director, Gas Relief & Rehabilitation Department, Bhopal and Dr. Arti Bahl, Additional Director, NCDC.

Dr. Roderico H. Ofrin, WHO Representative India, through a prerecorded video message, expressed his appreciation for mainstreaming the issue of chemical emergencies and organizing the National level workshop. He emphasized an all-hazard approach for disaster resilient member States through reduction of disaster risk, loss in lives, livelihood, and health for protecting the interests of the population at large. He further added that chemical emergencies are one of the real threats and it needs to be mitigated with better preparedness and timely response.



**Dr. Arti Bahl**, Additional Director and Head of the Department of Epidemiology, NCDC, outlined the objectives of the workshop. She explained the expected outcomes from the workshop and also the way forward through multi-stakeholder approaches.

**Dr. Surya Parkash**, Head, CBRN NIDM, explained the importance of non-health specializations in disaster management, particularly in chemical emergencies. He also shared his experiences, as a Faculty of the National Institute of Disaster Management about the Bhopal gas tragedy.

**Dr. Sanjay Goyal** praised the idea of choosing Bhopal for conducting such a first of its kind National level multi-stakeholder consultative workshop aimed at the prevention, preparedness and management of CBRN threats. He opined that the damage caused as an aftermath of a chemical accident, can be even more devastating than the direct damage due to the chemical itself; and needs to be taken care of with utmost sincerity. Dr. Goyal also outlined a few other points, such as the role of health & non-health stakeholders, the need for integrated, holistic & linked approaches in dealing with CBRN threats. He also affirmed the willingness of the State of Madhya Pradesh to support deliberations on structural and non-structural activities in mitigation and preparedness, capacity building and other relevant initiatives for disaster resilient health systems.

The inaugural session was followed by a vote of thanks by Dr. Meera Dhuria, Joint Director & HOD Centre for Non-Communicable Diseases & Biochemistry Division, NCDC.

After the inaugural session, NDRF, India displayed the types of equipment used by first responders to CBRN threats. During the exhibition, the NDRF team explained to the participants about salient features, applications, specifications, components, and the technical details of the instruments. Informative leaflets and brochures having basic details of equipment were also displayed.



# DAY 1

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## TECHNICAL SESSION -1

**Chair-** Dr. Sujeet Kumar Singh, Director, NCDC and  
Dr. Sudhir Kumar Jain, Advisor, NCDC

The first technical session kicked off with deliberation by **Dr. Meera Dhuria**, who introduced the participants to the history, mandate and functions of NCDC. She also mentioned International Health Regulation (IHR) 2005 and different core capacities which require strengthening under IHR. She emphasized the need for coordination and collaboration between different stakeholders.

**Dr. Anisur Rahman**, Health Information Management Officer, WHO Country Office India, presented details about WHO's response to chemical emergencies. He discussed the background, burden, and WHO's mandate on chemical emergencies, and shared brief details on newer initiatives by WHO on preparedness and response to chemical emergencies.

**Dr. Surya Parkash**, Head, CBRN, NIDM, presented details about the chemical disasters' management in India, and other preparedness aspects like Institutional Framework and Hazard analysis tool. He discussed chemical emergencies, including the magnitude of the problems, historical aspects of chemical accidents, causes and effects of CBRN disasters with a special focus on chemical emergencies. He concluded by informing the participants on emergency planning, preparedness and response rules, action plans for industrial disaster management, Hazard, Vulnerability, Capacity and Risk (HVCR) analysis, spatial analysis and hazard risk processes.

**Dr. D. K. Satpathy**, former HOD, Forensic Medicine, GMC Bhopal, presented details and shared his experiences of the Bhopal gas tragedy of 1984. He also opined that the tragedy was a man-made disaster and enlisted several causes, which were potentially preventable. He summarized the role played by non-health sectors in response activities during the Bhopal gas tragedy.

**Shri. K. K. Dubey**, Deputy Secretary, Gas Rahat Bhopal, spoke on the Bhopal gas tragedy and the lessons learned during the last 38 years while rendering welfare measures to the victims and their family members. He further mentioned that over 5,00,000 people were exposed to methyl isocyanate (MIC) gas, a highly toxic chemical that was released from the Union Carbide India Limited (UCIL) pesticide plant in Bhopal, on the night of 2–3 December 1984. He shared his experience while dealing with welfare initiatives for victims, including relief and rehabilitation measures, medical management, immediate and long-term compensation provided.

**Mr. Abhishek Sharma**, Senior Research Officer, NDMA, discussed the status of chemical disaster risk and threats in India. He also spoke about the importance of risk mapping of chemical industries and the early identification of chemical disasters. He introduced participants to the Geographical Information System (GIS) database of NDMA which has multiple layers, one of which is on chemical hazards. He also added that the chemical hazards information system also gives details of wind direction and has various additional layers, such as the infrastructure layer, population layer, and others.

## **TECHNICAL SESSION -2**

**Chair-** Prof. Surya Parkash, Head CBRN, NIDM and  
Dr. Saurabh Dalal, NPO, WHO Country Office for India

The 2nd technical session was opened with the deliberation by Shri SS. Solanki, Divisional Commandant, Disaster Management & Home Guard, SDRF Bhopal, who spoke about the importance of preparedness in CBRN and SDRF's response mechanism for CBRN emergencies. He discussed the mandate of the State Command Center at Bhopal and described the institute's workflow of receiving information of disaster, ensuring immediate action, monitoring the rescue work, reporting to the senior officers and establishing coordination with various departments. Shri. Solanki also talked about the Disaster Warning & Response System (DWRS), a mobile application developed by NDRF envisaged to collect and disseminate timely and meaningful warning information of potential extreme events or disasters.

**Dr. B. N. Acharya**, DRDE Gwalior explained the organization's mandate focusing on R&D in Detection, Protection, Decontamination Technologies, Contemporary Test Protocols and profiling of and technological innovations in Antidote production for Chemical and Biological Warfare Agents. After the presentation, the idea of setting up an exhibition hall/ museum of the equipment at NCDC, Delhi was floated so that it can help the MoHFW colleagues and other relevant key stakeholders to understand its applications, uses and allied benefits.

**Dr. Santasabuj Das**, MD, Director In-charge, ICMR-National Institute of Occupational Health, Ahmedabad presented on chemical emergency preparedness at the workplace. He discussed the institute's mandate to promote & maintain the highest degree of health and well-being of workers in all occupations. In addition to capacity building and training activities, Dr. Das discussed ICMR-NIOH's role in disaster preparedness for industries which includes industry-specific risk assessment and mapping for possible chemical disasters, preparation of emergency response plans for the industry, and its aid in service delivery.

### **TECHNICAL SESSION - 3**

**Chair-** Dr. Himanshu Chauhan, Joint Director (IDSP), NCDC and  
Dr. Amit Murari, Sr. Medical Officer, NDRF, 8th Battalion

Dr. S. Senthilkumaran, Emergency and Critical care Physician, Manian Medical Center, Erode presented case scenarios of an event of a chemical leak from a container. He deliberated on prehospital EMS response to chemical incidents and shared details about various hazardous substances, including chemicals; and emphasized on the emergency medical response plans based on a syndromic approach. He also gave a brief outline of Advanced Hazmat Life Support (AHLs) and the importance of training physicians under this course for optimizing the skilled workforce that caters to health emergency management.

**Dr. Raghendra Kumar Vidua**, AIIMS Bhopal, discussed about the Poison Information Centres (PIC), its operations, the role of PIC in chemical emergencies and its expansion plan. The PIC aims at providing swift, free and authentic information to the concerned physicians on various aspects of different poisons including medical management, toxicological advice, toxicovigilance and prevention of poisoning incidences. He shared encouraging statistics on its utilization over a period wherein the Centre has supported the management of many life-threatening poisoning cases. He also introduced POISINDEX, an evidence-based resource system, and other toxicological information sources which help to identify, manage and treat toxicological exposures.

**Dr. Sujata Arya**, APHO Delhi, spoke on chemical emergencies: preparedness and response at PoE (airports), She informed that DGCA is the regulatory authority for chemical emergencies for airports in India. She briefed about the SOPs for importation of chemicals and the IATA-Dangerous goods regulatory manual in the context of chemical and other hazardous substances. She also described briefly about cargo handling of dangerous goods at Delhi airport. She concluded by giving examples of chemical accidents at Delhi and Cochin airports in 2010 & 2011 respectively.

**Dr. S. Senthilnathan**, Port Health Officer, Chennai supplemented Dr. Sujata's deliberation by adding some recent examples of chemical accidents in ports during his tenure while working at Cochin port. He also presented formulas to estimate the impact of chemical disasters based on the population at the station which should be considered during the formulation of the local disaster management plan.

**Dr. Narendra Nath Jena**, Director, Institute of Emergency Medicine, Sr. Consultant & Head Dept. of A & EM, MMHRC, Madurai, presented on essentials of chemical Toxicology/Medical management, Clinical toxicology, need for toxicology & training to responders and institutional service providers, National Symposium in clinical toxicology, etc. He narrated the importance of preventing deaths by poisoning and voiced the need of a super-specialty branch of clinical toxicology. He discussed the disease burden of poisoning and brought to notice, the importance of primary care and essential emergency care in the treatment of acute poisoning.

He also expressed willingness to collaborate with NCDC on preparing training modules on toxicology along the lines of PG Diploma and other fellowship courses. He further warranted that such a course would add strength to India's mitigation and response measures to chemical emergencies. Dr. Jena pointed out that the existing service delivery mechanism of the public health system of the country doesn't have a provision to include a specific training plan on chemical emergencies, which makes the country susceptible to any such unfortunate event in the future on the scale of mitigation and response. He sought the attention of policymakers to delve into mainstream chemical emergencies within the existing disaster management priorities of the Government of India.

### **TECHNICAL SESSION - 3 CONTD.**

**Chair-** Dr. Narendra Nath Jena, Director, Institute of Emergency Medicine, Sr. Consultant & Head Dept. of A & EM, MMHRC, Madurai and Dr. Swati Goyal, GovT. Medical College & Hamidia Hospital, Bhopal

**Mr. Nisarg Dave**, Director (Disaster Management) at Gujarat Institute of Disaster Management spoke about the need for training programs and capacity-building activities for government officials, members of Panchayat Raj institutions, industry officials and others in different aspects of disaster management.

**Mr. M. R. Dwibedy**, CGM (H, S&E), Indian Oil Corporation Limited shared about emergency preparedness and response measures at IOCL viz. automatic detection systems during emergencies. He mentioned various prevention and infrastructural capacities available at IOCL to mitigate disasters.

In continuation, **Dr. Sandeep Sharma**, GM H, S&E Indian Oil Corporation Limited, mentioned about undertaking regular audits and conducting mock drills in industrial setup to keep the operations updated about the possible risks, disasters, and mitigation measures.

**Dr. Rajesh Gupta**, EIS Officer, NCDC, shared a case study based on an outbreak of acute neurological illness in the Eluru district of Andhra Pradesh in December 2020. He presented a series of activities that had followed during the outbreak investigation. He emphasized on translating learnings from field investigation into recommendations for strengthening water surveillance, provision of safe and potable water after effective water treatment and intensified testing of drinking water supply in a post-disaster situation for chemical and biological contaminants.

## **TECHNICAL SESSION - 4**

**Chair-** Dr. Senthilnathan, Port Health Officer, Chennai and  
Shri. Abhishek Sharma, Senior Research Officer, NDMA

The session started with a presentation by **Dr. Rajiv Sharma**, Public Health Specialist and Lead EM, CDC-India on “Public Health Preparedness and Response: Capabilities for Chemical Emergencies”. He reflected on the poison centers in the United States and quoted a few success stories from published literature. He highlighted the Public Health surveillance of chemicals and toxins in America through the CDC-led American Association of Poison Control Centers (AAPCC) using the National Poison Data System (NPDS) dashboard. Quoting the strategies under WHO’s framework for Health emergency and disaster risk management, he emphasized the need for improving national surveillance capacity for identifying early markers and skilled HR capacity building in Chemical Preparedness and Response. Extending willingness to support technical consultations on the development of poison centers within the centers of excellence in India. He added about the toxicological outbreak investigation models prepared by CDC, which can be used for capacity building at the national level.

**Dr. A. Ramesh Kumar** from Solid & Hazardous Waste Management Division, NEERI, Nagpur, a WHO collaborating center for water and sanitation in India, outlined the importance of scientific research and technological solutions for environmental problems. Giving real-life examples, he called for concerted attention to the environmental impact of chemical disasters and their solutions such as bioremediation of contaminated sites.

He presented various innovations and research activities being undertaken in NEERI, including modeling-based chemical risk assessment software. Highlighting the importance of epidemiological studies in industrial areas and Public Awareness through IEC and BCC activities, he suggested possible action points at the policy level which may include capacity building at different levels and better coordination between relevant stakeholders.

**Dr. Asit Patra**, Deputy Director, DMI Bhopal delivered a session on risk management and medical preparedness during Chemical disasters. Dr. Patra focused on Chemical emergencies outside the process industries, such as liquid Chlorine storage in water treatment plants, LPG storage in bottling plants, bulk storage of LPG cylinders in godowns, pressurized pipeline carrying Natural Gas, road tankers carrying hazardous chemicals, storage of explosive materials (fireworks, etc.) in urban areas, fire situations in congested city markets, high rise buildings, hospitals, subways, etc. He underlined the need for cohesive functioning at local/district levels and the development of dedicated medical response teams for chemical emergencies.

**Dr. Saurabh Dalal** presented a case study on the chemical leak of 2-chloro, 5-chloromethyl pyridine reported at Tughlakabad Inland Container Depot (ICD) in Southeast District of Delhi on May 6, 2017. He highlighted how inappropriate chemical spill management and poor risk communication caused further damage. He emphasized that disaster preparedness training, ensuring appropriate measures for chemical neutralization and practice of timely risk communication is necessary for striving towards making the community disaster resilient. He expressed scope for exploring the possibility of establishing a WHO collaborating center on Chemical Emergency management.

# DAY 2

## INAUGURAL SESSION

The Chief guest for the second day of the workshop, **Dr. Sudham Khade**, Health Commissioner of Madhya Pradesh.

**Dr. Sujeet Kumar Singh**, Director, NCDC gave introductory remarks and outlined the objectives and the outcomes expected from the workshop. He further expressed his pleasure and thanked the Health Commissioner for his enthusiastic cooperation in setting up a new NCDC branch at Bhopal. He also expressed his willingness and put forth a proposal for setting up a toxicological center or a poison center in Bhopal as an outcome of this workshop. **Dr. Arvind Rai**, Advisor NCDC, expressed his views on functions of NCDC in Bhopal, including deep insights into the futuristic approaches to be taken up to deal with all aspects of public health, including CBRNE. He also shared his experiences of the COVID - 19 response activities by NCDC in Bhopal.

**Dr. Sudam P Khade** appreciated NCDC for its contribution during the Covid-19 pandemic. He further highlighted the importance of health security due to various hazards and warranted that such information should also percolate to the community and household level as well. He suggested a way forward around the following activities:

- Integration of CBRN emergency within IDSP.
- Training and capacity building of doctors in hospitals on the management of chemical emergencies.
- Sensitization, awareness building & mainstreaming of the problem from administrative levels
- Expansion of the program from CBRN for inclusion of food security-related issues.

The Chief guest also agreed upon aiding NCDC through the allocation of supplementary land and other required resources for setting up and expansion of the new NCDC campus at Bhopal.



## TECHNICAL SESSION - 5

**Chair-** Dr. Senthilnathan, Port Health Officer, Chennai, and  
Mr. Abhishek Sharma, Senior Research Officer, NDMA

**Mr. Jayant Raushan**, Department of Chemicals and Petrochemicals (DCPC), ESI, from the Ministry of Chemicals and Fertilizers, shared that the Ministry is in the process of finalizing draft Chemicals (Management and Safety) Rules with the core objective to ensure a high level of protection for human health and the environment. He also highlighted the details of several Committees and Units under the Ministry with the mandate of chemical emergencies. He introduced the WISER app meant for chemical emergency management and voiced its potential in capacity building.

**Dr. Kapil Kumar Verma**, faculty at ESIC, Indore, made a presentation on occupational safety in chemical industries. He informed that ESI has a network of about 156 hospitals all over India and besides providing treatment, they also set up health camps at various factory locations for screening of occupational hazards. He expressed concern about workers handling the hazardous materials with respect to lack of PPE kits and lack of training for industrial workers on personal protection against chemicals and other hazardous materials. He also recommended that the educational curriculum of doctors should have a chapter on occupational diseases and occupational safety.

**Dr. Himanshu Chauhan**, Joint Director, NCDC, briefed about the mandates of IDSP and the importance of coordination mechanisms between various stakeholders during an outbreak. He also gave a demo of IDSP operations and shared the implementation status of the IHIP portal in India. He acknowledged that IDSP/ IHIP system can be utilized including an event alert system for chemical emergencies as well.

# MOCK DRILL

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A mock drill on chlorine gas leak was conducted at the workshop venue by the 11th Battalion of NDRF, wherein they demonstrated the step by step procedure to be followed for management and mitigation of an event of chemical leak.



# WAY FORWARD

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All the participants and the organizers had a round table discussion on the outcomes of the workshop, further deliberations, and the way forward. Based on the discussions during the technical sessions of the workshop, a list of recommendations was put forth and agreed upon by the participants.



The participants also committed on behalf of their organization to extend all possible support to implementation of the action points enumerated below:

- A panel of the expert working group at the national level shall be formed for chemical emergency preparedness and response involving experts from various government organizations and non-government organizations, such as WHO.
- Curriculum on public health management of chemical emergencies shall be prepared. Several models shall be created based on the inputs of various stakeholders. Before rolling out a technical course-based curriculum, a pilot project shall be implemented for further refinement of the course contents and modules. NCDC suggested that the target audience can be IDSP staff such as the Rapid response teams, POE officers, EIS officers, PG students, etc.
- NIDM suggested that “Public Health Management” of chemical emergencies can be expanded to “crisis and disaster management” of chemical emergencies, which can involve multiple non-health sector stakeholders as well for the training.

- Content and the level of training of the expanded training program shall be finalized based on the type of training according to the audience.
- The panel also recommended the execution of IT-enabled simulation exercises and tabletop exercises on chemical emergencies.
- Intensification of risk communication messages, IEC training and public awareness as key aspects of chemical emergency preparedness and prevention at the community and individual level shall be taken up.
- Further up-gradation of hazard and vulnerability mapping and formation of Risk Atlas shall be taken up by NDMA leading to the strengthening of resource mapping and resource networking for Chemical Emergencies.
- The possibilities of sharing data of the 1800 MHA units and the AAPDA MITRA scheme of NDMA to various stakeholders and the states for validation shall be explored.
- Measures shall be taken to create more interest in the subject of chemical emergencies and to bring in other relevant stakeholders, such as industry representatives, district crisis groups, agencies dealing with radio nuclear emergencies, etc. together for the purpose.
- Measures will be taken to expand the Expert Working Group on chemical emergencies to include, experts in the fields of Radio Nuclear emergencies, Biomedical Waste Management, etc. Experts from other SAARC countries of the respective fields may also be looped in under this activity.

# LIGHTS, CAMERA, CAPTURE - INAUGURAL DAY



# LIGHTS, CAMERA, CAPTURE - EXPERTS DELIBERATE





**National Consultative Workshop on  
"Public Health Management of Chemical Emergencies"  
30th June - 1st July, 2022 | Bhopal**

# ANNEXURE -1

## AGENDA

### National Consultation on Public health management of Chemical Emergencies

Date: 30 June -1 July 2022

Venue: Emperor Hall, Noor-Us- Sabah, Bhopal, M.P

#### DAY 1: 30 JUNE,2022

<i>Time</i>	<i>Session</i>	<i>Speaker</i>
9:30 to 10:30 am	<i>Inaugural session</i>	All dignitaries, GoI, State Govt., WHO
10:30– 11:00 am	<i>High Tea</i>	
<b>Technical Session I</b>	Rapporteur – Dr. Sudarshan & Dr. Rajesh Gupta	<u>Chair</u> - Dr. Sujeet Kumar Singh, Director, NCDC <u>Co-chair</u> -Dr. Sudhir Kumar Jain, Advisor, NCDC
11:00- 11:10 am	<i>IHR and chemical events</i>	Dr. Meera Dhuria, NCDC
11:10- 11:20 am	<i>Newer initiatives on chemical emergency management by WHO</i>	Dr. Anisur Rahman, WHO
11:20- 11:40 am	<i>Chemical Disasters Management in India Institutional Framework and Hazard Analysis</i>	Dr Surya Parkash, Head, CBRN NIDM
11:40 an- 12:00 pm	<i>Experience sharing: Bhopal gas tragedy 1984</i>	Shri D K Satpathy former HOD, Forensic Medicine, GMC Bhopal
12:00- 12.20pm	<i>Chemical Weapon convention and chemical terrorism</i>	Dr. Vimlesh Kumar Bind, NACWC
12:20- 12:40 pm	<i>Bhopal Gas tragedy: Lessons learnt during last 38 years</i>	Dr. K. K. Dubey, Dy. Secy., Gas Rahat & ME
12:40- 01:00 pm	<i>Risk Mapping of chemical industries and Identification of Chemical Disaster</i>	Mr. Abhishek Sharma, Senior Research Officer, NDMA
01:00- 02:00 pm	<i>Lunch</i>	
<b>Technical Session II</b>	Rapporteur – Dr. Raju Thapa & Dr. Rajesh Gupta	<u>Chair</u> - Prof. Surya Parkash, Head CBRN, NIDM <u>Co-chair</u> - Dr. Saurabh Dalal, WHO
02:00- 02:30 pm	<i>SDRF Response Mechanism for CBRNE Emergencies</i>	Shri S. Solanki, DIG SDRF Bhopal
02:30- 03:00 pm	<i>Preparedness and mitigation for Chemical Emergencies: Role of DRDE</i>	Dr. B N Acharya, DRDE Gwalior
03:00- 03:15 pm	Laboratory capacity in India to manage Chemical Emergencies	Dr. Santasabuj Das, ICMR-NIOH Ahmedabad

# ANNEXURE -1

## AGENDA CONTD.

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**DAY 1: 30 JUNE,2022**

<i>Time</i>	<i>Session</i>	<i>Speaker</i>
03:15- 03:30 pm	<i>Tea Break</i>	
<b>Technical Session III</b>	Rapporteur – Dr. Sudarshan & Dr. Rajesh Gupta	<i>Chair- Dr. Narendra Nath Jena, Director, Institute of Emergency Medicine and Dr. Swati Goyal, Government Medical College and Hamidia Hospital, Bhopal.</i>
03:30- 03:45 pm	Prehospital EMS response to chemical incidents do's and don't	Dr. S Senthilkumaran, Manian Medical Center, Erode
03:45- 04:00 pm	Background and role of Poison Information centres during chemical emergencies	Dr. Raghvendra Kumar Vidua, AIIMS Bhopal
04:00- 04:15 pm	<i>Tughlakabad Gas Leak: case study</i>	Dr. Saurabh Dalal, WHO
04:15- 04:30 pm	Chemical emergencies: Preparedness and Response at PoE	Dr. S. Senthilnathan and Dr. Sujata Arya
04:30- 04:45 pm	<i>Chemical (Installations) Handling/On-site plan</i>	Dr. Sandeep Sharma, IOCL
04:45 - 05:00 pm	<i>Essentials of Chemical Toxicology /Medical Management</i>	Dr. Narendra Jena, Sub expert group
05:00- 05:15 pm	<i>ELURU Outbreak investigation</i>	Dr. Rajesh Gupta, ESI Officer NCDC
05:15- 05:30 pm	<i>Long term effect of Chemical disasters /Industrial toxicology</i>	Dr. Vinay Kumar Khanna CSRI Lucknow

# ANNEXURE -1

## AGENDA CONTD.

**DAY 2: 1 JULY,2022**

<i>Time</i>	<i>Session</i>	<i>Speaker</i>
<b>Technical Session IV</b>	Rapporteur – Dr. Raju Thapa & Dr. Sudarshan	<u>Chair</u> - Dr. S. Senthilnathan, Port Health Officer, Chennai <u>Co-Chair</u> - Shri. Abhishek Sharma, Senior Research
09:30-09:40 am	<i>Recap of session on Day 1</i>	Dr. Meera Dhuria, NCDC
09:40-10:00 am	<i>Capacity development in Chemical Preparedness: experience</i>	Dr. Rajeev Sharma CDC India
10:00-10:20 am	<i>Occupational health training related to Chemical Emergencies</i>	Dr. Ramesh Kumar, NEERI
10:20-10:40 am	<i>Response to Chemical Emergencies/Disaster/Impact of Chemical accident Scenario</i>	Sh. Jayant Raushan, DCPC ESI representative
10:40-11:00 am	<i>Chemical disaster, risk management and medical preparedness</i>	Dr. Asit Patra, DMI Bhopal
11:00-11:15 am	<b>Tea Break</b>	
<b>Technical Session V</b>	Rapporteur – Dr. Raju Thapa & Dr. Rajesh Gupta	<u>Chair</u> - Dr. S. Senthilnathan, Port Health Officer, Chennai <u>Co-chair</u> - Shri. Abhishek Sharma, Senior Research
11:15am -12:15pm	<i>Surveillance and reporting – Dr. Himanshu Chauhan</i>	Dr Surya Parkash & Dr S K Jain
12:15-12:45 pm	<i>Presentations</i>	-
12:45-01:00 pm	<i>Action plan for capacity building related to public health emergency response to</i>	Dr Sujeet Kumar Singh, Director, NCDC
01:00-01:30 pm	<i>Planning for Expert Group Meeting</i>	-
1:30-1:40 pm	<i>Closing remarks</i>	Dr. S K Singh & Dr. Arvind Rai, Advisor, NCDC
01:30-02:30 pm	<b>Lunch</b>	