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**Col (Dr) Ram Athavale recaps on ways to improve initial operational response to CBRN incidents**

NDRF mock drill ahead of the 2010 Commonwealth Games.



Brazilian CBRN teams conduct bio-response drill.

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**CBRN incidents are on the rise and there is a need for clear understanding of threats, vulnerabilities and modus operandi for prevention and response. Managing CBRN incidents, both prevention and response, is a multi-agency affair seeking fine coordination and clear understanding of roles and jurisdictions. Any response needs to be speedy and coordinated to avert casualties and prevent escalation.**

**C**BRN crisis prevention and consequence management should be based on the following four focus areas, with each area integrating training and research.

**1 Preparedness and Prevention.** Prevention entails legislation and actions by the nation to prevent proliferation of WMD, foresee terror actions by sound intelligence, and enforcement and oversight of safety and security norms for CBRN material. This should be followed

by synergised action by law enforcement agencies.

Preparedness means adequately preparing our intelligence, anti-terror forces, skilled CBRN response teams and the public to deal with CBRN incidents (terrorist or accidental) and at the same time prepare for the aftermath.

**2 Detection and Surveillance.** Crisis prevention relies on real-time detection of a crisis and negating it. It depends on the national intelligence, enforcement and oversight agencies and police/special forces to do so. Early detection is also essential for ensuring a prompt response to a CBRN incident and to help prevent escalation.

**3 Response.** Response to an incident, especially a CBRN incident, consists of two aspects. First, the armed or special-force response to the incident to contain and neutralise the threat, prevent further release, and catch and neutralise the

perpetrators. Second, the relief or rehab response to prevent spread of damage and minimise casualties.

Various departments of administration and municipal agencies will all need to coordinate efforts for successful consequence management of CBRN incidents. Entire cities or districts may have to be quarantined or evacuated to prevent spread of contagion.

**4 Mitigation.** Preparedness to mitigate the public health consequences of CBRN incidents depends on the coordinated activities of well-trained health-care and public health personnel throughout the country, who have access to up-to-the-minute emergency information. Use of latest technology for disaster relief, antidotes, drugs and shelters are the needs of the hour.

**Refining and improving response**

In an intentional CBRN incident it is obvious that rapid and focused response ➤

**Practice**

**makes perfect**



Drill response to a gas tanker accident.

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## RESPONSE

can reduce injury to people, damage to assets and disruption to operations. But no two venues, buildings or situations share the same vulnerabilities and usage patterns. We therefore need to study the many aspects of CBRN event threats, vulnerabilities, response plans and programmes, supporting communications infrastructure, as well as the economics involved in preparing for a possible CBRN event.

To effectively identify a threat and respond to a build-up situation, there is a need for essential deliberate actions to be taken as proactive measures. Realistic and holistic threat analysis and vulnerability assessment (TAVA) will lead to maximising and optimising value of networked threat detection, existing infrastructure operations, security systems and personnel resources.

### Mapping of risk areas and assets

Identification of high-risk C, B and R&N facilities, industries and factories, warehouses and logistic areas handling hazmat, toxic waste dumps and research institutions is the first step.

**Risk zoning:** plotting these high risk areas and developing the cluster pattern will help in plotting risk zones for optimal deployment of response teams and effective response. Type of agents, gases, and material and its risk or hazard values must be added to the zoning chart for focused response. Meteorological study of risk zones is a must to ascertain likely contamination spread patterns and downwind hazard assessments.

**Specialist CBRN response units:** availability, equipping, capabilities, effectiveness timings, routes to each risk zone with traffic management, alternate routes and access control.

**Identifying private agencies:** paramedics, NGOs, volunteer organisations and a database of all available CBRN equipment with various agencies and response teams – public and private – is essential for optimal use and sharing during the crisis. Based on threat evaluation and mapping, incident strategies, objectives and response tactics should be developed in an incident action plan.

**Control personnel and resources:** preparation of the venue, site preparedness, and setting up an Incident Command Centre will also involve decisions being taken at the lowest appropriate level, with co-ordination at the highest necessary level.



NDRF conducts CBRN mock drill with Railway Police at Vadodara.

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### Timely and accurate information:

Information flow to all stakeholders is of paramount importance for optimal response. Suitable detection and early warning means networked to a command and control station is essential as is use of robotics – drones and unmanned ground vehicles (UGVs) – for surveillance and early warning.

Formal communications must be established and maintained to share information, support the chain of command, and ensure unity of command while identifying and requesting appropriate resources to accomplish the objectives. Appropriate data management systems working to develop a common operating picture are required.

### Learning from training

Plans and response mechanisms need to be validated by conducting realistic table top exercises (TTE) and mock drills simulating CBRN incidents. Comprehensive and common equipping and adequately trained manpower for CBRN security depends on such exercises to provide realistic training to stakeholders. The more practice, the better response.

Policies, regulations and SOPs for practicing immediate mitigation techniques must be laid down for all stakeholders. Lessons learnt from earlier drills should be reviewed and procedures honed to enhance capabilities.

It is important for all teams and stakeholders to be on the same page. Coordination of expertise and resources of all stakeholders and response agencies need to be done for optimal effect on site. NGOs, volunteer teams and private agencies (paramedics, ambulances, disaster relief) should be co-opted onto the planning.

A controlled and structured exit and evacuation plan from the affected area through pre-identified holding spaces, secure exits, transportation logistics and

isolation of victims call depends on meticulous planning and effective crowd control measures. While livesaving measures are of utmost importance, mitigation techniques such as damage assessment, mass decontamination and detoxification, clean-up, disposal and rehabilitation are areas of focus. Casualty decontamination is an often neglected area as CBRN is a rare occurrence and these aspects make such incidents differ from non-CBRN ones.

### Early detection

Early detection of and response to CBRN terrorism are crucial. Without special preparation at the local and state levels, a large-scale biological or chemical attack could overwhelm the local and perhaps national infrastructure. Large numbers of patients, including both infected persons and the worried well would seek medical attention, with a corresponding surge for medical supplies, diagnostic tests, and hospital beds. Crowd dynamics and psychosocial reactions – paranoia and anger – need to be studied and prepared for.

Response to a CBRN incident is time-critical and demands special expertise. Newer threats are emerging at a fast pace. CBRN response teams need to constantly upgrade their skills and knowledge. Contingency planning and sound logistics are needed to support response plans. In this battle against CBRN threats, we need to be optimally prepared at all times. ■■

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