Demonstration of Rope Rescue Technique by NDRF

Demonstration of Evacuation Drill in a High Rise Building
Evacuating a Patient during a CBRN Mock Exercise

NDRF Responder in action during a CSSR Operation
Message from Director General

The second quarter of this year kept us busy responding to multiple challenges in the form of building collapse in Karnataka, collapse of an under construction flyover in Varanasi, U.P, Landslide incident in Kerala, Boat Capsize Incident in East Godavari, (A.P) and drowning cases in some parts of the country. Besides, in May & June, 2018, the unexpected development of flood situations in Assam and Tripura put normal life out of gear. The NDRF mobilized all its resources to assist the administration in the time of need and launched non-stop rescue and evacuation operations in challenging and diverse conditions to restore normalcy. The capability, commitment, and dedication of our men helped save 06 lives and evacuate 13,564 people in various calamities during this quarter.

For creating awareness on disaster management and improve our preparedness and response mechanism, NDRF conducted series of mock exercises on various emergencies like Rail Accidents, Floods, Tsunami, Earthquake, Chemical Emergency and Airport Emergency etc. with active participation of various agencies & stakeholders. We emphasized upon building capacity through our various outreach programs viz. Community Awareness Programms (CAP), exhibitions and sensitized more than 43,000 persons across the country during this quarter.

To enhance the mutual co-ordination among Central (NDRF) and State (SDRF) agencies, a national level conference on the capacity building of State Disaster Response Forces (SDRFs) was held in New Delhi. The conference was aimed to strengthen the response capabilities of SDRFs which was attended by DsG, ADsG of States and Union Territories and officials of NDMA, SDMA, MHA and other stakeholders.

I hope that we will continue in our endeavor to serve our countrymen for disaster response and avowed mission of making India resilient towards disasters.

Jai Hind!

Sanjay Kumar, IPS
Director General, NDRF
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DM act 2005 and National policy 2009 were a watershed moment in disaster management in India when we gravitated from relief centric approach to proactive prevention, mitigation and preparedness. The policy notes that while it is not possible to avoid natural hazards, adequate mitigation and disaster risk reduction measures can prevent the hazards from becoming major disasters. Unfortunately our society is still resistant to accepting the new policy. Despite occurrence of huge disasters in the last few decades we are still reluctant to acquire knowledge and skills to protect our society from imminent threats. We are still bluffling ourselves that disaster management is the responsibility of state alone. Yes, the state is responsible for safety of its populace but our communities must develop survival mechanisms to protect themselves.

The national policy suggests a multi-pronged approach for disaster risk reduction and mitigation consisting of followings:

I. Integrating risk reduction measures into all development projects.
II. Initiating mitigation projects in identified high priority areas through joint efforts of the central and state Governments.
III. Encouraging and assisting State level mitigation projects.
IV. Pay attention to indigenous knowledge on disaster and coping mechanism.
V. Giving due weightage to heritage protection.

In this way our national policy envisages involvement of all stake holders at all levels and integration of all efforts by Centre and State Governments. Here comes the role of the individual and community, which faces the direct impact of any disaster and at the same time acts as the first responder, before arrival of any assistance from Centre and State Governments.

When I had not joined the service, the role of an individual in disaster mitigation was beyond my comprehension. A common man might think that he/she is incapable of dealing with mega fury of nature such as earthquake, cyclone, landslide and flood etc. He starts blaming the government agencies for their slow pace of efforts during mitigation and preparedness phase but we forget the inert attitude of society towards mitigation during this pre disaster phase. Here I want to emphasize few concepts which are already known to all but due to the casual attitude of society towards disaster mitigation we find ourselves unprepared after any big disaster. The government is already doing a commendable work in capacity building through community awareness programs and it’s our turn now to learn and implement those concepts of safety and transfer them to the next generation.

Earthquakes - We have moved far ahead from the days of Latur and Bhuj earthquakes when there was almost no awareness campaign and the community had no idea about what to do and what not to do. Now our communities are aware of Do’s and Don’ts during earthquake but when a low intensity earthquake struck North India in Nov 2016. personally witnessed that in a multi storied building where I live, most of the people were running toward the lift. Everybody was in a hurry and in that chaos nobody applied the already practiced and rehearsed Duck, Cover and Hold theory. We are so careless that generally we don’t mark a “safe place” in our house and at time, no wooden table is available in a house which is big enough to hide beneath. Our houses are very unsafe in terms of safety against earthquake as we don’t realize that heavy decoration items in our house may turn into “Falling Objects”. Even the people living in earthquake zone IV and V don’t have tendency to store 2-3 days dry ration at already earmarked “Safe Place” such as a big and robust wooden table.
preferably in the corner of building, preparation of some sort of life saving kit (crank radio, multi tool kit, whistle, dry batteries, torch, match box/lighter and rope may be included) and medical kit for contingency of trapping under debris. Very few of us know about the earthquake zone they are residing in. Rapid urbanization has led to a situation where noncompliance with relevant building codes is very normal.

**Land slide** is a very common phenomenon in hilly regions, despite to this treats, traditional wooden houses are rapidly being replaced by RCC houses made up of ex-situ material. In our blind desire to modernize, we have neglected concept of leeward slopes, avalanche prone slopes, and waste water management etc. which may cause localized landslides. We have converted tourist places of hilly region into jungles of concrete. Sooner or later we will start demanding creation of some laws to prevent this unplanned & nonscientific construction and if government tries to frame some laws to prevent or demolish these structures then we will start a social media campaign and candle marches against that “draconian law” and this cycle would go on and on.

**Flood** - Most of the early civilizations like Indus valley or Mesopotamian civilization flourished on the banks of major rivers. This tradition still prevails and we have dense settlements near rivers. Almost 12% area i.e. 7.5 million hectare area is under flood threat but unfortunately community is not prepared. Generally Indians are not good swimmers; we still consider it a hobby rather a necessity. Moreover all swimmers are not rescuers. In short, percentage of good swimmers who can rescue others also, is very less even in flood prone areas. Apart from the population living in the flood plains of north-eastern states, population of other flood plains of country are not much skilled in making floating vessels of in-situ material or vessels made of household items. Government efforts are necessary but community must also play an important role in erecting embankments and maintenance of drainage system. Identification of safe places as temporary shelters for people and livestock needs efforts, knowledge and forthrightness. These places must be earmarked by community well in advance without waiting for the government to step in.

**Draught** - NDMP says that effective mitigation measures must prevent a draught from turning into a famine. We as a community must strive hard to conserve whatever resources we have and we must evolve ways and means to replenish them. Our faulty agricultural practices can be changed and modified by proper use of information technology. Building of community reservoir and its controlled use can be managed at village level. Usually we switch our basic farming skills to modified one like drip/sprinkle irrigation only when there is a water crisis. We can practice protective irrigation through micro irrigation crop management under draught conditions. Apart from this, few areas which lie in permanent arid or semi-arid region may adopt “Kibbutz” or some Indian version of it. Now let us think for a moment that how many of us stop our vehicles to close a roadside running tap

The IMD states about five draught situations:

I) ‘Draught Week’ when the rainfall is less than half of the normal.

II) ‘Agriculture Draught’ when four draught week occur consecutively during mid-June to September

III) ‘Seasonal Draught’ when seasonal rainfall is deficient by more than the standard deviation from the normal.

IV) ‘Draught Year’ when annual rainfall is deficient by 20% of normal or more and

V) ‘Severe Draught Year’ when annual rainfall is deficient by 25 to 40 % of normal or more.

VI Out of the above at least first two can be handled at community level.

**Cyclone** - After the super cyclone of Orissa in 1999 there has been considerable change in policy, up gradation in technology and creation of awareness amongst coastal people. Cyclones are unavoidable but they are predictable. We always point out the fault IMD but for the people of coastal area and especially whose bread and butter depends on sea, must listen to weather forecasts regularly. The communities of coastal areas must be aware of natural indicators of cyclones ex: abnormally big catch, catch of unusual species, restless cattle, gloomy sky, and continuous dog wailing at night,
attack of insects on cattle, frog calls, muddy smell or new leaves of tree falling to the ground.

**Tsunami** - In case of Tsunami chances of survival are feeble but loss of life to drowning and debris crushing “off the shore” can be reduced if we do not change the traditional construction pattern near sea shores.

**CBRN emergency** - In case of CBRN emergency knowledge and awareness always plays an important role in survival especially for those who reside near multiple hazard units which deal with harmful chemicals. Knowledge is antidote for fear in CBRN emergency. Chemicals are harmful when exposed, inhaled, ingested. Further contamination can be avoided by isolating victim and avoid to eat or drink open food and water source. Community can simply save life by covering body with cloth, closing windows & doors, moving upwind direction and taking shelter. Shelter (Community hall, Marriage hall) may be identified with basic facilities like drinking water and water storage facility for decontamination during various mock exercises which provide protection community during emergency. It is responsibility of MAH (Major accidental hazards) units to aware population living in the surrounding about general property of chemical which is being used in chemical industry as would help them in case of any accident.

**Fire** - Once fire broke out due to short circuit in a multi-story society where I live, fire started at the second floor and reached up to the tenth floor. Security personnel and volunteers initiated rescue work immediately. They rushed up to 10th floor to search fire extinguishers but they could not find a single filled fire extinguisher. Fire hydrants was used immediately without considering the fact that whether electricity has been cut or not. Luckily simultaneous efforts were being carried out and some body has already disconnected electric supply. That day I realized the level of unpreparedness towards that danger which is an essential part of our daily lives. Even after that incident, neither RWA took any initiative to fill those empty fire extinguishers nor did any resident lodge any formal complaint. Now who is to be blamed, community or Government?

Usually we don’t bother much about availability of fire extinguisher in offices, cars or home. Even if it is available nobody check its type or expiry date. Same is the case with LPG gas cylinder, nobody check its seal and expiry and put all issued cylinder at one place with all other inflammable items in kitchen. Thanks to social media for a viral video of a Delhi Fire Service officer acquainting a group of spectators that if properly applied, merely a bed sheet or blanket can blow out accidental fire from a gas cylinder. Installation of lightening conductor is not a very popular idea in residential buildings in India. Faulty cultivation habits like jhum cultivation and human errors during spring season are also responsible for forest fire mishaps which may be avoided. In Kinnaur there are wood houses. The locals build separate wooden store away from main house so that fodder and other essential ration may be kept safely.

A strong debate started among my friends when they saw a tool having a cutter and window breaker in the shape of key ring of worth approximately of Rs 800/-. In case of car fire accident when central locking system fails and all electronic functions stop immediately it is very effective tool to get out of electronically and mechanically jammed burning car. Everybody questioned how often your car caught fire but I want to ask that how many lives do we have to live? And don’t life of my family is worth of Rs 800/-?

**Avalanche** - One fine morning I was sitting in my room in Kinnaur. Suddenly I heard a loud voice. I presumed it to be the sound of an approaching chopper. Not only me but most of us thought that it is a low flying chopper. I came out and saw an avalanche. That day I was surprised that a small avalanche can generate such a loud voice. After few days of this event I saw a viral video in which J&K residents are facing a piece of a cloud entering slowly into a valley and there is chaos and panic that an avalanche is approaching. Everybody is panicking but nobody is running to safety, most of them are busy in making videos. Here my purpose to state these two events is that ITBP soldiers are trained to live in snow condition
and locals of J&K are used to live in conditions where avalanches are common phenomenon but still in both cases “the community” didn’t react professionally.

Distress signals - Hollywood movies are good source of information and learning as far as tactics and disaster management is concern. In some movies I heard a few words which were new to me. I started searching and I came to know an interesting term distress signals. A distress signal indicates that a person or group of people, ship, aircraft or other vehicle in threatened by serious and lot imminent danger & required immediate assistance. Use of distress signal in other circumstances may be against local or international law. An international disaster frequency is a radio frequency that is designated for emergency communication by integration agreement:

- Radio: - H.F- 2182 KHz
- VHF: - 156.8 MHz of channel 16
- May Day, Pan Pan, Pan Pan Medico in voice transmission and “SOS” on Morse.
- Emergency distress calls of Disaster ‘108’.

Few other ways to propagates distress signals are activation of a distress button on INMAR Set, igniting a red flare, emitting smoke preferably orange smoke, raising both arms slowly & repeatedly, an inverse flag. Mountain distress signals include three fires, pile of rock in triangle, three short whistles, three shots from fire arm, and three flashes of light.

To attract a helicopter in sight, one can raise both arm (forming a letter ‘Y’) to indicate “Yes I need help”, one arm up and one down (imitating letter N) for ‘No’, “I do not need help”. These are the tips which we don’t require in our routine life but if these are saved somewhere in our memory bank, it may save some valuable lives.

First aid - Now let us check our knowledge of first aid. There are a number of cases when victims could not survive as they didn’t get proper pre hospital treatment timely. For a common Indian there is no difference between clinical and biological death, it is merely “grace of God” and “miracles”. Bollywood movies regularly ignore procedure of CPR, they punch directly on the heart of protagonist and then after their main emphasis is on mouth to mouth respiration without using any thin physical barrier in between.

Incidentally I want to share a true story of one of the NDRF Medical First Responder instructor who told me that his 2 year old nephew swallowed an almond at his native place. In confusion nobody remembered to call the uncle of the infant who is a trained MFR. Parents of that infant rushed to the PHC where without giving any pre hospital treatment boy was shifted to district hospital. The infant died on the way. Had anybody called that NDRF instructor, life of infant could have been saved. There are hundreds of such examples where we ignore and don’t try to learn from our previous mistakes.

One very common medical emergency is heart attack. Usually in capacity building programs we inform the audiences that if you are driving or you are alone and you feel congestion in chest it may be myocardial infarction. Surprisingly for most of them it is still beyond their comprehension despite a lot of campaigning efforts by government. There are a number of examples of ignorance and unawareness in our day to day life for ex. Leather shoes are still panacea for epilepsy in Indian society. Hallucination due to drug overdose to my daughter was cured by her grandmother by leather shoe & red chilies. There are a number of old wrestlers in villages who cure dislocation & fracture and they have quite a good number of fan followers. Sugar is one of the most common disease in India but is it hypo or hyper? No answer, hence no pre-hospital treatment and so on.

Now time has come that we should aware ourselves and our family about first aid. You may find a number of videos uploaded by doctors themselves performing CPR, to spread awareness and these basic life saving techniques may be learnt without involvement of Government machineries.

Success Stories: When Lord Ram was planning to invade Lanka, his chief engineer Nal & Niel came and told to him that the only way to reach Lanka is to construct a bridge but we don’t have enough trained engineers for that purpose. Ram said that let it be done by community efforts. His army started forming a bridge. In between Lord Ram saw a little squirrel also lifting sand from shore and filling in the sea. Today in our society too we have examples
where a community or individual has challenged the odds and created success stories:

- Dashrath Manjhi carved a path 110 m long and 9.1 mtr wide through a hillock using only hammer and chisel.
- 15 year old Shyam Lal of Chattisgarh identified a spot in forest and kept digging for 27 years. Neither administration nor villagers helped him but still he dig a pond using a spade.
- Battling unrelated draught, Kerala women dug 180 wells to quench thirst.
- 363 Bishnois sacrificed their lives to save Khejri Trees and inspired one Gaura Devi to start Chipko Movement.
- The local Community is playing a vital role in afforestation of Ladakh region.
- Community efforts to prevent soil erosion by Vetiver grass plantation.
- Sonam Wangchuk of Ladakh came up with the idea of “Ice Stupa” to fight the acute water scarcity of the region.

The government is serious in promoting community awareness programs but it is observed that it is a very difficult for block, taluka, tehsil and village level officials to find audience to spread awareness programs. Nobody has time for such program but you will see the difference if there is shooting of a love scene of an ordinary Bollywood movie. So we as a community will have to reform our psyche from ignorant to knowledgeable and non-resilient to resilient. Concept of community radio may be promoted at least in villages so that indications of early warning signals from agencies as well as from nature must disseminate to the lowest level. Youth must attend NCC, NSS and SHG’s as they are a good way to capacity building.

During cloud burst in Ladakh region, most of the roads connecting Ladakh to rest of India were washed away; even air services were cancelled as practically there was no runway. State agencies were crippled as they were hit heavily by cloud burst. Army and paramilitary also suffered a lot of damage. In such scenario community had to play a very important role but unfortunately when air services resumed Indian tourist paid heavily to get away from that disaster hit area and on the other hand foreign tourists involved themselves happily in the rescue work. Among them many were first aid experts and those who were not, engaged themselves in general work using shovels and ice axe to clear debris. This shows an attitudinal difference between a mature and novice approach towards Disaster Management. Earth has its own mechanism for her survival but when she rejuvenates or recharges herself it will cost us heavily. So we need to develop our own mechanism for survival. Be prepared and be united, develop forthrightness to identify imminent danger to make a strong disaster resilient community. Being a society where helmet is used only to get rid of Challan and not for self-safety, all out efforts are required to reach that level where most backward and most uneducated may be able to do their best for survival during a disaster.

Conclusion-
Community is first responder in any emergency and disaster. With the shifting of paradigms from reactive emergency management to disaster risk reduction, there is need of more stress on proactive pre-disaster interventions, which are usually categorized as prevention, mitigation, and preparedness by community. While natural hazards may not be prevented, human-induced hazards such as those associated with industries, technological failures, pollution, and civil strife can be prevented. Prevention covers measures to provide permanent protection from disasters or reduce the intensity/frequency of a hazardous event so that it does not become a disaster.

Preparedness involves measures taken by community in anticipation of a disaster to ensure that appropriate and effective actions are taken during the emergency such as setting up the systems for early warning, public awareness, disaster and evacuation drills at local levels. Emergency responses are measures undertaken to ensure survival and prevent further deterioration of the situation. Loss of life and property can be minimized by educating community and work together to make community disaster resilient.
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Human trafficking is a burning problem of the universe. It is being treated as third largest illegal global trade after drugs and arms. Human trafficking is a violation of human rights. It also violates the right to health and health care, liberty and security of person, and the right to freedom from torture, violence, cruelty or degrading treatment. It is estimated that 300,000 to 450,000 people are trafficked within Asia each year, of which more than half take place in South Asia.

Though women and girls are trafficked for other purposes besides sexual exploitation, this remains the single largest category of exploitative trafficking crime throughout the world. The majority of victims are young girls and women from poor, illiterate families. For human traffickers India is a source, transit and destination. An estimated 9,000 girls are trafficked annually within South Asia from Nepal to India and from Bangladesh to Pakistan; a little over half of all girl sex workers in India are from Nepal or Bangladesh. Within India Assam is a source of human trafficking, whom were exported to comparatively richer northern states of India. The primary cause of the problem is considered as the livelihood problems in Assam, where the people were migrated from their age old occupation in search of alternative livelihood option due to disasters and fall in the prey of the lured person.

In Assam urban population standing at 12.9% of the total population of the state, a huge chunk of Assam’s population is based in the rural areas and of these people, a large number are living below the poverty line. The people are based on agriculture and it depends on the weather of the session. Last few decades Assam has witnessed large scale displacement of people for natural or manmade disasters. Due to disasters the people of the affected areas has been walkout in search of alternative livelihood option. The growing need for better livelihood options and employment has turned Assam into a fertile place for human traffickers and in the past few years, thousands of young men and women of the state have fallen prey to the designs of traffickers and have been exploited as cheap labour.

There are many supply side reasons for trafficking. The first reason is poverty. The primary reason for the increase in trafficking into the global menace it has become is the breakdown of traditional livelihood options. Industrialization and globalization has destroyed the viability of traditional livelihood especially in rural areas. The erosion of livelihood in the source areas and the availability of better livelihood opportunities in other areas initiate migration of poor people towards high-income areas.

Women and children form a large group of poor unskilled labour due to systematic gender and social discrimination against them. Internal and international movement of women into the labour market has exposed them to the vulnerability of sexual exploitation. Women and children amongst
migrants are coerced and deceived at the place of their origin, during movement and transit and at their destination. Another factor responsible for human trafficking is the lack of employment. This fact has turned Assam into a ripe hunting ground of bogus employment agents and human traffickers who lure the gullible youth with false promises of employment, only to turn them into victims of trafficking. The gender ratio of Assam is 954 females against 1000 males, where in overall India it is 940 against 1000 males according to 2011 census. This inequality results in the degrading status of women folk in the society. There is an increase in the instances of violence against women who are marginalized in the public domain, making them soft targets for human trafficking and other forms of sexual abuse. In fact, the human rights violation against women and children are more registered in areas that witness armed conflict and insurgency. Moreover, most of the victims of human trafficking are generally illiterate or semi-literate, which have little or no knowledge about the evils of human trafficking.

Assam has a literacy rate of 63.35%. Due to the lack of proper education and awareness on the issue, unscrupulous employment agents can easily coerce their victims by showing them false documents and certificates. Most important reason behind human trafficking is that Assam is severely affected by natural calamities which lead to large scale migration of the people to metropolises. Loss of agricultural land and other standing crops people were come out for alternative livelihood option and fall in the grabs of traffickers. A majority of the victims hail from the Char areas, Dhubri, Bongaigaon, Kokrajhar and Kamrup districts and the number increasing in areas like Lakhimpur, Dhemaji and other disaster prone areas. The average age of the victims is 12 to 22 years of age and they generally belong to poor families and have low levels of literacy.

“Trafficking is a complex development issue. It is an economic problem, as the vast majority of women seeking to escape poverty are lured into trafficking by the false promise of economic gain. Trafficking is a health problem, as trafficked women and children are most at risk from HIV infection. It is a gender problem, as unequal power relations reinforce women’s secondary status in society. Lastly, it is a legal problem, as its victims are stripped of their human rights and lack any access to redress for the crimes committed against them.” Human trafficking is a multi dimensional deep rooted phenomenon and its prevention is possible if it is tackled by keeping in consideration the legal, social and economic aspects related to it. Economic aspects like poverty, lack of opportunities, and breakdown of livelihood options are factors, which make people easily fall prey to the exploitation and trafficking. It is also important to deal with issues of gender, age, class and caste dimensions, which have very clear roles to play in defining vulnerabilities.

The first step in this connection is to empower women and make them understand their basic rights like political, social, legal and reproductive rights or rights of their body. The second step is to follow the modem concept of empowering women, i.e., sensitizing all sections of the society, which includes men too. Thirdly, all policies relating to the development and betterment of women must touch the grass root level, where the real peril prevails. There’s a popular saying, “Educate a man and you educate an individual, (whereas) educate a woman and you educate a family”. So, the fourth step would be to take necessary measures to enhance the educational facility for girls with infrastructure and gender sensitive curricula. The fifth and the most important step is to make the womenfolk realize their potentialities and feel proud to be women so that they can realize the worth of their existence as women, and can also participate with the male folk in any field of activity. Awareness generation, capacity buildings through proper training among the communities are some important work to prevent these types of illegal work.
The use of biological as well as chemical weapons for military purposes in warfare is as old as history itself, in fact it is older than the written word or as old as mankind. Throughout history many power during conflicts have strategically used these weapon. Several countries have used them in the last century. In recent years especially since the 11 Sept 2001 terrorist attack and Japanese subway attack, the subject of biological and chemical weapon has become common place but use of radiological fissile material cannot be rule out.

The history of radiological weaponry traced to 1940 from James Bryant content of the Manhattan project and science fiction story “Solution unsatisfactory”. This radioactive material can be used in various form or method, as gas warfare instrument the material would be inhaled. The amount necessary to cause death of a person inhales it is extremely small, one millionth of gram in a person’s body would be fatal. It cannot be detect by sense. It can be distributed in dust, smoke, from so finely powdered to permeate a standard gas mask filter large enough to be extremely damaging. In future radiological terrorism will be most disastrous form of terrorism.

Debate is going on about the damage that terrorist using such a weapon. Many experts believe that a dirty bomb that terrorist might reasonably be able to construct to harm more than few people. Few people causality would be a result of the initial explosion because alpha and beta emitting material needs to be inhaled to do damage to the human body. Gamma radiation emitting material can't deployed without wrapping in shielding material for dirty bomb that would makes transport by car or plane impossible without risky detection. Hence, a dirty bomb with radioactive material around on explosive device would be almost useless, unless said shielding was removed before detonation. Besides possibility of terrorist making a gas or aerosol that is radioactive is very unlikely because of the complex chemical reaction to achieve this goal.

On other hand, some believe that the fatalities and injuries might be in fact more severe by using some improvised technique. Terrorist might use radiological fissile material as radiological terrorism. There are different types or method of radiological terrorism like malicious use of radiological device and attack on nuclear facilities such as nuclear power plants by attempting spread of radioactive contamination in public domain and playing off public fear of reaction and dirty bomb. On analysing above situation following would be possible weapon used by non-state element or terrorism organisation.

A. Radiation Exposure Device (RED) RED is a device intended to cause harm by exposing people to radiation without spreading radioactive materials. An example of as unshielded or partially shielded radioactive materials placed in any type of container and in a location capable of causes a radiation exposure to one or more individuals. RED is also called “hidden source”.

Insp Sudhakar Shinde
B. Radioactive Dispersal Device (RDD) is a device that spreads intentionally, radioactive materials across an area with tent to cause, harm without a nuclear explosion occurring. RDD principally contamination, and denial of use of the contaminated large area, perhaps for many years. RDD explosion adds on immediate threats to human life and property. Few deaths may occur due to the radiation and radioactive materials. It can be used to create panic and casualties in densely populated areas. This could also render a great deal of contamination to important installation like research centre, parliament and secretarial useless for an extended period.

C. Improvised Nuclear Devices (IND) are theoretical illicit nuclear weapon brought, stolen or a weapon fabricated by terrorist group from illegally obtained fissile nuclear weapon material that produce a nuclear explosion. An IND could be brought or built from the components of stolen weapons. A successful detonation would be result in catastrophic loss of life. Terrorist could be use the threat of a successful nuclear detonation to blackmail or target government. It is possible that a terrorist organisation might be able to credibly threaten a nuclear detonation merely by demonstrating its possession of requisite nuclear weapon materials. Terrorist may use these RDD, RED and IND toll to gain international recognition. It does not appear that any terrorist organisation in Asia would deserve to causes massive casualties through the actual use of such weapon. Most difficult challenge for terrorist organisation would be most likely be obtaining the fissile material necessary to construct RED, RDD and IN D. But we cannot deny the possibility of possession of nuclear fissile material by any organisation. Any terrorist organisation might be capable of using these dirty bombs but timely intervention at any stage can be sufficient to avert catastrophic incident. In order to make this world safer place for living, need of hours is to create intergovernmental co-operation, control and management of nuclear facilities, establishment of early warning elements, timely detection, recovery and prompt preparedness and response to mitigate such emergencies.
Non structural measures to keep people away from flood waters. It contemplates the use of flood plains judiciously, simultaneously permitting vacating of the same for use by the river whenever the situation demands. This technique allows the use of flood plains by reducing the disaster dimension, while retaining its beneficial effects. Flood hazard and vulnerability to floods tend to increase over many areas, due to adverse changes of climatic, terrestrial, hydrological, and socio-economic systems. Therefore, increasing attention is being paid to upgrading flood protection systems. As sufficient flood protection cannot be reached in many vulnerable areas with the help of structural means only, further flood risk reduction via non-structural measures is often indispensable.

**FLOOD PLAIN ZONING**

It is natural for a river to overflow its banks in the event of heavy rainfall in its upper catchments and spill into the flood plains, which are its domain. Extensive and often unplanned use of flood plains by man disregarding the basic fact that it is part of the river leads to damage this is one of the main factors responsible for the flood damage reported from different parts of the country in spite of substantial investment in the flood sector in the past. The basic concept of flood plain zoning is to regulate land use in the flood plains in order to restrict the damage due to floods, while deriving maximum benefits from the same.

**FLOOD PROOFING**

Flood proofing measures help greatly in the mitigation of distress and provide immediate relief to the population in flood prone areas. It is essentially a combination of structural change and emergency action, not involving any evacuation. The techniques adopted consist of providing raised platforms for flood shelter for men and cattle raising the public utility installation especially the platforms for drinking water hand pumps and bore wells above flood level, promoting construction of double storey buildings wherein the first floor can be used for taking shelter during floods.

**FLOOD WARNING**

These are issued for different areas mostly by the Central water Commission/ Meteorological department and by the State Irrigation/ Flood Department. However, an effective Warning System is one that can release warning in advance, i.e. 72hrs, 48hrs and 24hrs. It can change the existing scenario substantially and render informed decision making in adopting proper measures towards disaster preparedness, mitigation, control, planning and management. This kind of advance warning can help the authorities for better flood preparedness and also effective flood mitigation. Therefore, initiatives have to be taken to modernize the operation of Flood Forecasting & Warning by adopting the state of art technology and integrating it into the forecast and warning dissemination process.

**REMOTE SENSING MONITORING**

One of the most effective methods of monitoring flood plains is through remote sensing. Of the various techniques available Indian Remote Sensing Satellite(IRS) is perhaps the most versatile. IRS and Land sat satellites are used to map, inventory and monitor earth features. The major sensing instrument in IRS is a multi-spectral scanning system that produces images of the earth in blue, green, red, and infrared wavelengths of spectrum. The products are black-and-white images, false colour composites and images in digital form that can be processed by computers.

**PUBLIC AWARENESS PROGRAMME**

To make floodplain occupants and or owners aware of identified flood hazards. To encourage individuals to take actions such as flood proofing...
and developing escape plans, to mitigate their flood potential. To make individuals aware of the existence and operation of flood warning plains. To encourage individuals to keep drainage ways clean and to report potential maintenance problems.

RESPONSE SYSTEM

Management and control of the adverse consequences of floods will require coordinated and effective response systems at all levels-national, state, district, local and community. Many of the components of response initiatives will remain the same for different types of disasters. These systems need to be developed considering the multi-hazard scenario of the region to optimally utilize available resources.

EVACUATION PLAN

Evacuation of human population and livestock is the only prescribed means to save them from the fury of floods. Evacuation of flood-affected communities can be one of the most difficult response operations, especially, when it involves large population. Evacuation needs to be carried out as a precautionary measure based on warning indicators, prior to impact, in order to protect flood-threatened persons from the full effects of the disasters. Evacuation may also be necessary after the area has been flooded in order to move persons from a flood-affected area to safer and better surroundings. For carrying out successful evacuation, the threat perception on the part of DM officials is essential. Continuous dialogue with stakeholders such as, early warning providers, transportation authorities, health-care authorities/personnel, food and essential commodity suppliers, civil societies, NGOs and last but not the least, the carrying out successful evacuation.

EMERGENCY RELIEF

Trained community level teams will assist in planning and setting up emergency shelters, distributing relief among the affected people, identifying missing people, and addressing the needs of education, health care, water supply and sanitation, food etc. of the affected community.
Members of these teams will be made aware of the specific requirement of the disaster-affected communities. It will be ensured by the concerned authorities that the stockpiling of the essential commodities has been carried out.

**RELIEF CAMPS**

The setting up of relief camps for the people whose houses have been damaged by floods and the provision of basic amenities in such camps involves complex logistics of mobilizing relief supplies, tents, water supply and sanitation systems, transport and communication systems, and medical supplies. The panchayat buildings in the villages in flood prone areas will be made flood proof as by raising their plinth level at least 0.6 m above the drainage/flood submergence line and making them at least double storey or constructing ring bunds around them.

**MEDICAL PREPAREDNESS**

Floods as a natural disaster have a high potential of precipitation the incidence of mass casualties. There is the risk of drowning and physical trauma along with the threat of diseases associated with contamination of water and the creation of mosquito breeding sites. Direct health effects of a flood may include drowning injuries like cuts sprains fractures electric shocks diarrhea vector and rodent borne diseases like malaria leptospirosis skin and eye infections and psychological stress. The indirect health consequences of floods are usually due to damage caused to health care infrastructure damage to crops and disruption of food supplies destruction of property causing lack of shelter that may lead to increased exposure disease vectors.

**CONCLUSION**

Non structural measures are more flexible than the structural measures. Hence, they are particularly useful in global adaptation strategies. Since uncertainty in assessment of impact of climate change is high, a high degree of flexibility of adaptation strategies is important and advantageous.
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Ld w e a e W H w d j k u d k m i s;
- f d l h vink d s n i k u Ld w d s v; k d o N k= m f p r d k Z l g h d j l d s r k d u l k u d e l s d e g k;
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tkx: d rk vHk; ku Vte
Awareness Cmpaign Team
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Emergency Alarm Team
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Evacuation Team
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- ßch h loh ek cpPJk d h xurh d juk rFk bld k fji=1/2Ld w v kink izalu d EM t o j ls o cpl o Vte d lsnskA

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First Aid Team
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- Ld w iflj ealSfj'dc pkJ fjyRk v Rk gkka v lx; j ls d k v w u gsk i kizkW d djua

Q k j Q oB/k Vte
Fire Fighting Team
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- Electric Main Supply dsckj seJk t kud k hj gks i rFk 'kM h 'kM d Short Circuit d h FLFr ea Main Supply d Wkt k ld k
- v ktx uhd sgk f r evk x; j ls d k v w u gsk i kizkW d djua

fnO klad sfy; s fo'kfk Vte
02G04

- v kink eALd w iflj eaje nJk w fnO klad fo'kfr j ls o kuA

ifogu izalk Vte
Vehicle Coordinator
'fkjd & 02 fl fu; j l' B' ku d snk= 04

- Ld w eami y Gk i Hh kKMs hamlud s; V o v kust klosy sJk=la rGk h pr Rk j j kuA
- fdl hv kink dsnJk lsl Nk=la v kink izalu d fefr d k slg; k v u djua

efHM; ki ffr
f lk

- efHM, kct fo'; asl sgy dsd lsl Nk=la v kink izalu d fefr sld i hHh uv i dsckj sefOrLr t x; kud k hj y sA
- v kink izalu t x: d r c<+kus sfy, i kaj j j Lohj j i E y yl v k l tr jh k (Simple Tips), Do's Don't Use djua

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- v kink eALd w iflj eaje nJk w d her hle lkuad sls gfr j j k k Fk v xo; d y k la d s v loko u d fsu; b r djua

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Building Collapse at Kodugodi, Bengaluru (Karnataka):
On 06th May, 2018, a single storey building collapsed due to blast of Gas Cylinder during refilling at Bapuji Circle, Kodugodi, Bengaluru Karnataka. Fire Service and Police engaged in the operations rescued three persons alive and evacuated them to hospital. However, one person was still trapped in the building and could not be evacuated by the rescue agencies. Local Police station, requested NDRF to assist in rescue work. On intimation, one NDRF team stationed at RRC location Bengaluru (Karnataka) for emergency response rushed to the site immediately. NDRF team made the access to the victim by cutting down the pillar. The prompt response of NDRF once again saved a precious life namely Salem 25 yrs. (male) from the debris. NDRF team provided First Aid and evacuated to hospital by ambulance.

Under Construction Flyover Collapsed in Varanasi, Uttar Pradesh:
On 15th May, 2018, after portion of an under construction flyover collapsed in Uttar Pradesh's Varanasi brought a huge slab of concrete down, crushing cars and a local bus under it. Many of those trapped are reported to be labourers who were working on the flyover. 07 teams of National Disaster Response Force (NDRF) rushed to the spot for rescue operations. During the operations, NDRF teams rescued 03 persons alive and retrieved 18 dead bodies from the debris.
On 20th May, 2018, the incessant rain triggered mudslide, raised the water level of Harora river, created flood like situations and left several people marooned. On requisition, a team of NDRF stationed at Regional Response Centre (RRC) Agartala, Tripura for emergency response joined the rescue operation with fire services and defence personnel at Chanderpur areas of Agartala city, District West Tripura and assisted in rescue and evacuation work. Just after tackling this flood situation, the persistent rains since 10th June raised water level of River Manu, breached an embankment and created unprecedented flood & inundation of low lying areas of North Tripura. The situation got deteriorated since 13th June as torrential rains, landslide and flash floods wreaked havoc inundating fresh areas rendering thousands homeless and damaging roads and crops in several parts of Tripura. On requisition, 11 teams of NDRF (02- Kolkata, W.B, 04-Ghaziabad, U.P and 05-Guwahati, Assam) immediately swung into action in the worst affected areas viz. Kailashahar town and Unakoti and carried out non-stop rescue operations under supervision of Sh. M.K Yadav Dy. Inspector General, NDRF. Besides, NDRF teams also provided relief materials and medical assistance simultaneously. Medical camps were also established by NDRF at various villages of Kailashahar town. The NDRF rescuers ensured last mile connectivity by their boats. During the operations, NDRF evacuated 9,858 persons to safer places.

ASSAM FLOODS: NDRF LAUNCHED RESCUE & EVACUATION OPERATIONS, OVER 3,000 PEOPLE EVACUATED

On the month of June, 2018, the Southwest Monsoon has covered most parts of Northeast India while the floods caused due to heavy rains created havoc. Incessant rain wreaked havoc in parts of the northeast, triggering flash floods and rendering thousands of people homeless in Assam, affected across few districts of the state viz. Karimganj, Lakhimpur and Hailakandi. NDRF was called to assist the administration on rescue and evacuation
work. NDRF promptly swung into action and left no stone unturned to bring normalcy in the worst affected areas of the state. Due to prompt and specialised response by NDRF nearly 3,396 people were evacuated and shifted to the safer places. Besides, NDRF teams also distributed medicines, drinking water and food to the needy people in the affected areas.

LANDSLIDE IN KERALA:

On 14th June, 2018, a contingent of NDRF carried out search operations at Kattipare Karinchalamala near Thamarassary in Culicat district of Kerala where many persons got missing in the landslide triggered by torrential rains. In the non-stop search operations that lasted for five days, NDRF team displayed high degree of passion, devotion and commitment to locate the victims relentlessly and retrieved 10 dead bodies. A total of 14 dead bodies were retrieved by all agencies.

BOAT CAPSIZE INCIDENT:

On 15th May, 2018, a boat carrying approx. 40 people sailed from Kondamodalu, was on its way to Rajamahendravaram got capsized due to gusty winds in Godavari River, near Manturu-Vill, Devipatnam- Mandal, East Godavari district (AP). 17 people managed to reach to the river bank themselves, however, 23 people were missing in the river. Fire, SDRF and Civil Police were continuously engaged in rescue work. On requisition of Collector and sub-collector of East Godavari, Andhra Pradesh, two teams of NDRF (01 each from Manglagiri and RRC Vizag) alongwith water rescue related equipment mobilized for vill- Manturu, Mandal-Devipatnam, Distt- East Godavari (Andhra Pradesh) and joined the Search
and Rescue operations with other agencies. Total 19 bodies retrieved by rescue agencies.

PROMPT RESPONSE OF NDRF SAVED TWO LIVES IN VARANASI:

During this quarter, a team of NDRF stationed at Rajghat for emergency response saved a lady namely Chunni Devi, aged 50 year, resident of Orphanage, Pandeypur, Varanasi who jumped from Rajghat Bridge in Ganga river and struggling for life. Alert team of NDRF immediately swung into action and rescued the lady alive. Besides, a 54 years old person namely Himmat Ram Purohit, resident of Jodhpur, Rajsthan was rescued at Dashaswmedha ghat by NDRF alert team from drowning. NDRF team also provided Pre Hospital Treatment (PHT) and further shifted them to the hospital. NDRF team deployed at Rajghat has saved many precious lives.
**FLOOD RESCUE:** During this quarter, mock exercise on flood rescue was organized by NDRF at Orward Pond, District Panchmahal, Vadodara (Gujarat), Jawahar Navodaya Vidyalaya, Golapara, (Assam), GEMS Cambridge International School, (Punjab) and Bahrampur Badh Chauki, Gorakhpur, Deoria (UP) which was attended by more than 1000 persons.

![Pre Hospital Care to the Victim during a Mock Demonstration](image1)

**RAIL ACCIDENT:** To enhance the coordination with the Indian Railways, and identify the gap in rail accident scenario, joint mock exercise on Rail accident scenarios was conducted by NDRF at Subrahmanya Road Ghat Section (Karnataka), Khambaliya Rly Stn, Rajkot & Gandhinagar (Gujarat), Rly Stn, Charali, Tinsukia (Assam), Phulera Railways Yard, Jaipur, (Rajasthan), Marshelling Yard Chennai (Tamilnadu), Malda Goods Yard (W.B), Marshalling Yard, Ernakullam (Kerala), Rly Stn Shahdol & Gosalpur (M.P), Rly Stn. Guntur (AP) and Rly Stn Sahdol (UP). More than 3500 persons of Railway, RPF, Railway Health Department and police actively participated in the mock exercise.

![Demonstration of Rescue Techniques by NDRF](image2)
CHEMICAL EMERGENCY: During the quarter, NDRF organised series of Joint Mock exercise on Chemical emergency at IOCL Bolting Plant, Gidha (Bihar), Jama Masjid Metro Stn (Delhi), NTPC, Simhadri Parawada, Mandal, Vizag, (Telengana), IOCL, Jatni, Khurda, Hotel Myfair, Puri, RBI Bhuwneshwar, NOCCI, Business Park, Balasore, NTPC Kaniha (Odisha), HPCL Pipeline, Pune (Maharashtra), IOCL Oil Depot, Patna, NTPC Kahalgaon, BPCL Bolting Plant, Fatuwa (Bihar), Tata Chemicals, Dwarka, Universal & Agri Oil Pvt. Ltd, Khurda (Gujarat), Nestele India Ltd., Una (H.P). More than 2500 officials from different departments of district, Industrial staff, NGO’s volunteers participated in various Mock Exercise.

EARTHQUAKE: Mock drill on earthquake disaster scenario were conducted by NDRF at various places of Assam, Arunachal Pradesh, Bihar, Gujarat, Delhi, Kerala, Meghalaya, Mizoram, Manipur, Nagaland, Odisha, Rajasthan, Tripura, Tamilnadu. The exercises were attended by over 15,000 persons.

GAS LEAKAGE: In order to sensitize the personal of Multi Accidental Hazards (MAH) units about the leakage of Chemical/Gas, mock exercises was conducted by NDRF at National Thermal Power Corporation at Bijpur & NTPC Shaktinagar, District- Sonbhadra, (U.P), NTPC Vindhya nagar, District Singrauli, (M.P), HPCL, Sawkuchi, Kamrup, (Assam). The exercises were attended by over 300 personal.
TSUNAMI: To test the preparedness at different levels and strengthen the capabilities of different stakeholders, the Odisha State Disaster Management Authority (OSDMA) conducted mock exercise on cyclone and flood management across the state on 19th June, 2018 with active participation of various stakeholders viz. IMD, EOC, SRC, ODRAF, Fire services and NDRF. Representatives from the block level, local voluntary organizations, PRI members also attended the drill. Besides, a mock demonstration on Tsunami was also conducted at VSSC, Thiruvananthapuram.

AIRPORT EMERGENCY: To enhance the preparedness of Airport Emergency Handlers (AEHs) to respond in case of CBRN emergency. NDRF conducted Mock exercise at Ahmedabad and Loknayak Jayprakash Airport Patna. The scenarios was simulated to fine tune the response mechanism in case of threats, arising out of usage of biological agent. NDRF team also imparted training on decontamination procedure. The exercise was attended by representatives of various stakeholders viz. Airport management, CISf, Custom, Immigration, SDMA.
HUMANITARIAN ASSISTANCE AND DISASTER RELIEF (HADR) EXERCISE-2018: NDRF participated in Annual joint HADR exercise-2018 - held at Kochi from 05-08 April, 2018. Seminar, Exhibition and skill demonstrations was carried out during the exercise. The event was inaugurated by Shri Pinarayi Vijayan, Hon Chief Minister of Kerala.

SCHOOL SAFETY PROGRAMME: To sensitize the school childrens about the steps to be taken during earthquake and other calamities, school safety programme were conducted by NDRF at various schools of Arunachal Pradesh, Assam, Bihar, Gujarat, Delhi, Jharkhand, Manipur, Odisha and Uttar Pradesh. Over 20,000 school children and teachers sensitised across the country.

SHRI AMAR NATH JI YATRA (SANJY-2018): 04 teams of NDRF comprising of nearly 150 personnel have been deployed at Shashnag, Pahalgaon (District- Anantnag) & Panchtarini, Baltal (Ganderbal) in connection with Shri Amar Nath Ji Yatra-for emergency response. During the deployment, teams shifted & escort 280 pilgrims from Sangam top to Panchtarani who got trapped on the way due to rain. NDRF teams also participated in the joint mock exercise on Earthquake and bus accident.
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31

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egkjk KV%& u-Mhv k; k; Q - jk k y ksd kls v kink kas ds cks k eat kud k jh nsd smmn; l segk KV%& su ak lkj i qks /k k Fkk Bk lst u in ds fo Hkx d k k; k k ft y k

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,umhvkj,Q }kjk vuaij jk d Mük r Fkk u'ý j k dsfokHù LFkukaj HèkÈ o cki j t u t kx; drk v fHk; ku dsnÉkku cjr h t kusoky h l k/ku; kar Fkk cpco ds mi k ksij Q K; ku fn; A ft l l sd g 4000 y ku s y Hù r br g x A
d ¡ y %x vcs z&ebZ el o s, u-Mhv kj , Q - } hjd jy ds d kj x m] d wj r Fkk Fk# ou Eki ge t u in lla e LFkùh u kj fj d k æ'k'kud v f/kd kj; k x ß I j d j h J a Buks ds d s Z led ksc M H scp k o d sr jh k k l q le h, oav U çd kj d h v kinkv lad sçfr t kx; d fd; kx; k t I e s y x Hz 700 y ku s y Hù r br g x A
e ßky ; %x , u-Mhv kj , Q - } hjk eßky ; ds l kmFk, o a oêV x kj ls fgy ] fj HÈs Z r Fkk oêV [ k k fgy t u in d s fokHù LFkukaj v kinkv bâkè d k ã e d s rgr LFkùh y ku k j N k=kar Fkk v l; k d lag s q k Z e ld k v k, ës u fd; k x; k t I e d g f ey kj j 3000 y ku s Hù us Hùk fy; kA
NDRF OBSERVED INTERNATIONAL DAY OF YOGA
On 21st June, 2018, a Yoga and Meditation Session was organised by NDRF at Nehru Park, New Delhi, all NDRF field formations to observe 4th International Yoga Day, performed Yoga Asanas & Pranayamas. NDRF also organised a free medical camp at Nehru Park, New Delhi, carried out medical health checkup and distributed medicines to the needy persons.

DIRECTOR GENERAL NDRF INAUGURATES NATIONAL LEVEL CONFERENCE ON CAPACITY BUILDING OF SDRF-2018
On 25th June, 2018, a National Level Conference on the Capacity Building of State Disaster Response Forces (SDRFs) was organized by National Disaster Response Force (NDRF) at Vigyan Bhawan, New Delhi to develop coordination between Central (NDRF) & State agency (SDRF). Director General,
NDRF, Sh. Sanjay Kumar inaugurated the conference in presence of DsG & ADsG of SDRF from all States as well as representatives of MHA, NDMA and other stakeholders. During the conference various agenda points viz. Manpower with the State/UT, Availability of Equipment & Tools with the SDRF, Availability of Training Infrastructure with SDRF, Expectations of SDRF from NDRF, Problem faced by SDRFs related to the training, Good Practices adopted by SDRF and way forward were discussed. The states represented current status of SDRF, steps being taken for strengthening of SDRF and shared good practices being adopted and challenges being faced by States were discussed.

**DEFEXPO INDIA-2018**: Two NDRF teams were deployed in DEFEXPO India -2018 at Thiruvadanahai and Kancheepuram District in Tamil Nadu w.e.f. 11-14 April,2018 for emergency response. During deployemt, NDRF team provided Pre Hospital treatment to an Indian Navy personnel named Sanjay Kumar who sustained minor injury during live demonstration.

**SWACHH BHARAT ABHIYAN**: To sensitize the community and spread the awareness about the sanitization, Swach Bharat Abhiyan was organized by NDRF across the country. Under the programme, cleanliness drives were organized by NDRF in their respective area of responsibility with full zeal and commitments.
Evacuating a Patient in CBRN Mock Exercise

NDRF Imparting Basic DM Training to School Childrens
Demosnstration of Evacuation Techniques in CBRN Scenarios

Sensitizing Students Through School Safety Programme