



# Chhattisgarh Reduces Risks and Build Resilience



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## ABOUT THIS ISSUE

Chhattisgarh has been identified as one of the richest biodiversity habitats in India and has one of the most dense forest covers in the country. It is also the 10th largest state in terms of geographical area, the third largest in terms of forest area and has the second largest mineral reserves. These advantages has boosted the rapid growth and urbanization to holds the top rank in terms of development expenditure to GSDP ratio.

However, the state is exposed to multiple disaster and climate risks. This is evidenced by the increasing incidence of floods, drought, road accidents, fire, industrial accidents, man animal conflicts etc. with each passing year. Thus, it is important to protect the economic prosperity, ecological bounty and social diversity of this state from the ravages of disasters and emergencies.

This issue of *Southasiadisasters.net* is titled "Chhattisgarh Reduces Risks and Builds Resilience". It highlights the key lessons and experiences of various stakeholders (both government and non-government) in taking concerted actions to build the resilience of Chhattisgarh against the aforementioned risks. ■

- Brij Chauhan

## INTRODUCTION

# Safe Chhattisgarh: Risk and Resilience

At times of disasters, children are the most affected demographic group. Such disasters not only imperil children's lives but also expose them to the risk of separation from parents/caregivers, disruption of school education and intense psychological trauma. There is empirical and anecdotal evidence to suggest that children belonging to tribal and other marginalized and poor communities are worse hit by disasters.

The responsibility to equip and prepare adults as well as children to cope with the adverse impacts of disasters like pollution, contamination, thunder lightening or even drought is shared by the government, UN bodies, civil society and other stakeholders. Building resilient communities to reduce vulnerability is the need of the hour. Participation of children in building these communities is vital to ensure lives are protected. The state and UN agencies also share the responsibility of building an enabling and safe environment for children.

To address the needs of disaster mitigation of the state, in 2017-18 UNICEF Office for Chhattisgarh initiated a pilot project in collaboration Department of Disaster Management, Raipur District Administration and All India Disaster Mitigation Institute (AIDMI). The initiative addresses risk and needs of women and children in local level disaster management planning. This initiative was specifically designed to address risks to women and



children at local level in all phases of the disaster management cycle.

A lot of useful assessments including that of hospital safety, road safety, heatwave exposure as well as women and child centric hazard assessments were done to prepare a comprehensive and child centric disaster management plan. The entire exercise was conducted under the chairmanship and ownership of the district administration of Raipur.

While recognizing the risk of children and women in rapidly growing states like Chhattisgarh, UNICEF along with the government is also playing a significant role in the implementation of maternal and child health interventions with a focus on safety and preparedness.

This issue reflects disaster scenario of Chhattisgarh and consists of a veritable compilation of the experiences of UNICEF, Department of Disaster Management and AIDMI towards making Chhattisgarh a prepared and resilient state. ■

- Prasanta Dash, CFO, UNICEF, Raipur, Chhattisgarh

## School Safety Scenario, Chhattisgarh

In developing countries like India, schools are often located in vulnerable areas and lack the adequate preparedness to respond to any emergencies. In recent years, schools in India have witnessed many catastrophic incidents: a fire led to the deaths of over 400 people – about half of them students – at a school's prize giving ceremony in Dabwali Haryana in 1995. In 2001 a total of 31 teachers died and 95 were injured, 971 students perished and 1,051 were injured in the Bhuj Earthquake at Gujarat Formal education was disrupted due to widespread damage to physical infrastructure (NDMA, 2011). A fire explosion at the Lord Krishna School in Kumbakonam, Tamil Nadu took the lives of 94 children in 2004. In the 2004 South Asian tsunami thousands of students and teachers were killed, injured or otherwise affected. 15 children and 3 teachers died in a boat accident during a school picnic at Kerala in 2007.

At the global level, school safety was also identified as a priority of the Hyogo Framework for Action 2005-2015 (HFA) and its successor instrument – Sendai Framework for Disaster Risk Reduction (SFDRR)

2015-2030. The SFDRR identified "substantial reduction of disaster damage to critical infrastructure and disruption of basic services, including health and education facilities, through developing resilience" as among its main targets by 2030, which included children and youth as key actors for disaster risk reduction and for building resilience to communities.

School Safety is primarily focused on promoting a culture of disaster safety at school. Though India doesn't have any legitimate code for School Safety, it is of prime importance to develop emergency plans and conduct mock drills for various situations and hazards that persist in the region. Chhattisgarh has been considered as one of the backward states of India. Although Naxalism is a highly publicised issue of Chhattisgarh, the state faces different kinds of hazards which are seasonal in nature. Drought, flood, fire and Industrial pollution has become rampant in the state. Underlying vulnerabilities of people living in the state get exacerbated with these hazards. In the above given scenario children are more vulnerable to disasters. For this reason along with other significant issues school safety

has been a main concern for people of Chhattisgarh.

While working with All India Disaster Mitigation Institute (AIDMI) and UNICEF, Chhattisgarh in the formulation of District Disaster Management Plan for Raipur included school safety in community consultation; I came across many positive and negative things. Every village I visited had access to primary education facility within village boundary. Many schools have sufficient infrastructural facility and manpower to carry out the task of education. Students are satisfied with Mid-day meal provided during lunch. According to teachers, the mid-day meal programme brought a significant change in the nutritional status of children. It has also helped to improve the attendance of children at school. With limited resources at their disposal schools are performing well in Chhattisgarh state. But there are serious issues which are less visible in the policy making context. School safety is one of them.

Most of the surveyed schools lack proper drinking water facilities within the school premises. Kitchen made for Mid-Day Meal doesn't have fire safety measures (Fire extinguishers) in place which increases the probability of fire accidents. Most of the schools prepare midday meal with the help of *chulha* which exposes cooks to hazardous gases. Condition of WASH (Water, Sanitation and Hygiene) facilities can be drastically improved. Most of the schools visited during the survey had drinking water facility within the premises but contamination of ground water source made children



All photographs in this issue by AIDMI team.

vulnerable to the waterborne diseases. Road accidents especially in Raipur district has become cause for many injuries and deaths. Many of the schools are located near roads which could exacerbate the risk of school children. Some schools are situated near the water bodies (River, Lake) which have the potential to increase the risk of drowning. During rainy season these school faces flooding in their premises. Due to inundation of surrounding areas school become inaccessible to both students and teachers.

Many of the schools in rural areas, sub-urban areas and big cities are highly vulnerable to the effect of natural hazards and human-made hazards. Structural weakness of school infrastructure which includes cracks in the walls of the building,

leakages in the ceilings and dilapidated class rooms make student and teachers more vulnerable. These schools lack the adequate preparedness and safety measures. The distance from the basic and emergency services like fire brigade and health centres leaves many of the schools isolated from external assistance. In addition to these issues distance from homes becomes a major factor which prohibits many students from continuing their education. The internal resource available for planning and training is insufficient in many of the schools. No special resource allocation is kept for these purposes and in many of the cases the building maintenance is completely ignored. The schools are required to adopt a multi hazard approach to emergency planning.

In recent year's state of Chhattisgarh has experienced tremendous urbanization and economic growth. It is important to protect this prosperity from the ravages of disasters. Children and schools are perhaps one of the greatest assets of the state in its march towards development and growth. It is the need of the hour to mainstream school safety in the overall development narrative of the state. Since schools play a very important role in information dissemination, embedding disaster management in school curriculum can also help entire communities to cope with localized hazards. The first step towards this would be the capacity building of teachers, school children and education officers. ■

- Akshay Waghmare, (AIDMI Intern) M.A. Disaster Management, Tata Institute of Social Sciences (TISS), Mumbai

## RISK MAINSTREAMING

# Child Centred Disaster Risk Assessment

"Children are the world's most valuable resource and its best hope for the future."<sup>1</sup>

- John F. Kennedy

This quote by the John F. Kennedy certainly highlights the immense importance of children not only for any nation but also for the entire world. Although they are the hope for the future but on the other side of the coin these most vital resources are seldom considered as important stakeholders in disaster management policies and processes. Children get very negatively impacted by the disasters.<sup>2</sup> Disasters can affect the children physically as well as mentally very easily. Therefore, making children resilient would provide the concrete foundation for the future. The article tries to draw attention on the 'children' in the context of disaster risk reduction.

In the context of Chhattisgarh, as per census of 2011, the population of the children (0 to 6 years) is 3,661,689 which is 14.33% of total population. Chhattisgarh is a tribal state with the population of 7,822,902 which is 66%.<sup>3</sup> Children as an age group are considered as a vulnerable group and scheduled tribes are considered as the socially vulnerable group. Hence, the cumulative outcome adds up to the vulnerability. The administration has been working on the various schemes like Rising Raipur, Hariyar Raipur, Compassionate Raipur and Digital Raipur to improve the capital city in cleanliness, green environment and infrastructure development. Various schemes have different

objectives for it but it is striking that none of the schemes have mentioned children as a central subject for any scheme.

In the circumference of the child centred disaster risk assessment and reduction, it is vital to provide safe and child friendly infrastructure and environment as well. Infrastructure of schools and anganwadis should be safe enough to ensure healthy environment for their learning. Safe infrastructure will make schools resilient to the hazards like earthquake, flood and snake bites and healthy environment of the education will encompass various facilities like library, toilets, drinking water and proper mid day

1 Kennedy, John f. goodreads.com. goodreads.com. [Online] [Cited: September 10, 2017.] <https://www.goodreads.com/quotes/506105-children-are-the-world-s-most-valuable-resource-and-its-best>.

2 UNICEF. Child centred DRR. s.l. : UNICEF.

3 India, Government of. <http://www.census2011.co.in/census/state/chhattisgarh.html>. <http://www.census2011.co.in/census/state/chhattisgarh.html>. [Online] [Cited: September 10, 2017.]<http://www.census2011.co.in/census/state/chhattisgarh.html>.

meal. The scope of safe and healthy environment also extends to protect children from trafficking, sexual abuse, molestation and other criminal activities. In a post disaster situation, children are more vulnerable for such crimes. The disaster risk reduction of the children can be broadly seen from the perspective of health, education and water sanitation and hygiene facilities.

Disaster risk reduction of the child begins right from the health of the pregnant women. Intensive care of the pregnant women and Neonatal care of the child should be the primary focus of the risk reduction strategy. Particularly in the rural Chhattisgarh more focus on the health sector should be given. The community consultations which were carried out during the preparation of District disaster management plan of Raipur reveal that some of the villages lag in providing proper health care facilities from primary health centres. It should be noted that the work of *Mitanin* and Anganwadi workers is praiseworthy in promotion and propagation of the health awareness and services. Water, sanitation and hygiene (here onwards WASH) holds important place in the risk reduction for hazard like epidemics. It is noteworthy that most of the rural area in the Raipur district is dependent on the borewells and handpumps for drinking water.

It was also found that ground water in some villages has got contaminated by the industrial waste and chemicals. It has also lead to serious health issues among the locals, particularly children. Long term impacts of the same can be very dangerous on the health of children and future generation as well. To avoid such upcoming unseen treacherous impacts, immediate action is certainly required, community based water management planning and small scale water treatment plants can



benefit to reduce the risk of water scarcity as well as spread of epidemics. In the Tilda block of Raipur district it is seen that the primary and middle school get completely flooded in the monsoon, floods can certainly have the cascading effects like spread of diseases, snake bites and drowning. The important aspect of the infrastructural measures is that it should increase the accessibility of various facilities present in the school. There are schools with the toilet facilities but ramp is not provided which clearly denies access to the disabled student in the school. The students in the almost all the schools could identify flood and earthquake as a disaster but epidemics, man-animal conflicts, road accidents were missed out. It implies the need of mainstreaming the knowledge of disaster risk by putting it into course or syllabus.

The proper sanitary and hygiene methods are not only important for risk reduction of the individual but also for the people around him or her. Again, here, the Anganwadi worker and *Mitanins* have major contribution for the WASH activities and awareness as neonatal care (in the context of WASH) plays crucial role for reducing transfer of risk from mother to infants. Moreover WASH awareness also serves the purpose for creating proper sanitation and hygiene habits among girls, particularly during menstrual cycle. It is observed that the children are skilfully aware of basic sanitation and hygiene maintenance,

precisely the various steps of washing hands. During community consultation it is observed that there was no single lady teacher in some schools. Girls, during their menstrual cycle, may face difficulty while discussing any health issue with the male teacher. It is considered as a taboo to discuss such issues in openly in rural as well as the urban areas. A female teacher can be seen as a gateway to improve the inclusiveness of the girls in the schools, and hence it can help the capacity building of the children. Broadly, teachers should be trained in order to maximize the reach of WASH activities to the last child in the school.

It can be said that, to conclude, the way we insist upon mainstreaming of disaster risk reduction in development planning, same pressure should be exerted on keeping the children as a fulcrum of certain schemes. The scope of disaster risk assessment and disaster risk reduction should cover physical and social vulnerabilities. The anagnwadis and schools have covered crucial sectors for risk reduction like education, health, food security and WASH. Hence I would argue that the superstructure of capacity building and risk reduction lies on the bedrock of our social institutions and various schemes are the pillars for the same. ■

- **Suresh L. Borkar**, (AIDMI Intern)  
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# Emerging Disaster But Yet To Be Termed – Heat Wave

Heat Wave is an emerging hazard in the recent times. This needs immediate and effective attention or this can turn into a catastrophic event in future and can lead to huge losses. Heat wave according to general public does not possess high risk just because of sheer lack of knowledge. People in our country are facing this hazard from a long time but hasn't gain any significant attention as the losses are not as huge or catastrophic as compared to damages caused by flood, earthquake or any other hazards. Now to contradict my above line related to damages, I would like to let you know that Heat waves in India claim more lives than earthquakes, cyclones, etc. (Patil, 2017). Heat wave is considered to be a "silent disaster" as well as a slow onset disaster because it develops slowly and leads to death of human beings as well as animals.

Heat wave is not only a hazard but it is increasingly causing deaths and affecting the people but the question is what is actually a heat wave? What are its causes and who are vulnerable and why? What can be the future plans for mitigation? These are the points which will be discussed in this article.

We need to be more active in looking forward for the risk reduction for people who are vulnerable to heat waves as it is going to be there with us for a long time and by 2100 South Asia may not be the place for people to live due to the increase in temperatures every year. (Staedeter, 2017). It is anticipated that extreme heat waves will increase and become more

common worldwide because of increase in average global temperature. Since the start of the 21st century, this has increased by nearly a degree Centigrade. This weather pattern, coupled with the El-Nino effect, is increasing the temperatures in Asia. Further, high humidity upsurges the effects of the increased temperature being felt by human beings. Extreme heat can lead to dangerous, even deadly, consequences, including heat stress and heatstroke. (NDMA, 2016)

The image shows the increase in death tolls due to heat wave hazard. We can see an increasing trend in the number of deaths as the years have passed by. A heat wave is a period of abnormally high temperatures (more than the normal maximum temperature) that occurs during the summer season, with the resultant atmospheric conditions causing physiological stress, and sometimes death, among affected populations, according to the NDMA.

The Indian Meteorological Department uses several factors to quantify a heat wave:

- Warm weather conditions are not considered a heat wave unless the maximum temperature reaches 40°C in plain areas and 30°C in the hills.
- If the normal temperature in an area is less than 40°C, an increase of 5-6°C above 40°C constitutes a moderate heat wave while an increase of 7°C or more is a severe heat wave.
- When the normal temperature is more than 40°C, an increase of 4-5°C from this normal is considered a moderate heat wave, while an increase of 6°C or more is a severe heat wave.
- When the actual maximum temperature remains 45°C or more for two consecutive days, irrespective of normal maximum temperature, it is considered a heat wave.

In 2016, the NDMA prepared guidelines for state governments to formulate action plans for the

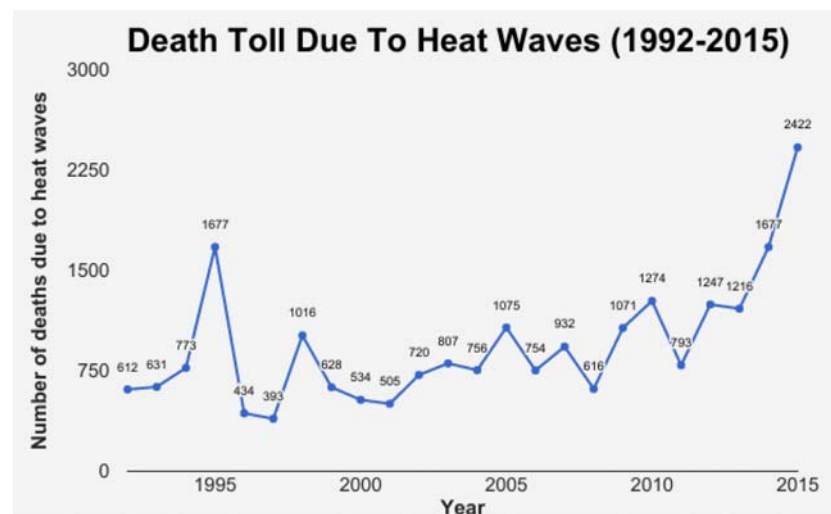
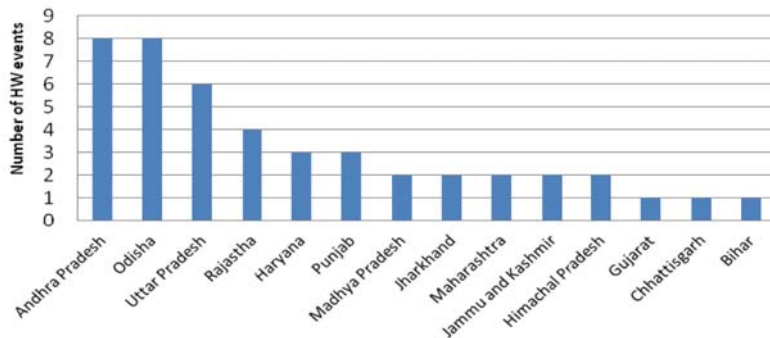


Figure 1. Death Toll due to Heat Wave (1992-2015)

Heat wave events between 2005-15



prevention and management of heat waves, outlining four key strategies: forecasting heat waves and enabling an early warning system; building capacity of healthcare professionals to deal with heat wave-related emergencies; community outreach through various media; and inter-agency cooperation as well as engagement with other civil society organizations in the region.

The table shows only one event of Heat Wave recorded in Chhattisgarh from 2005-2010 but its nearby states Odisha and Andhra Pradesh are the leading states for recorded events of Heat Wave and with the prevailing condition of Climate Change the risk certainly prevails in the state of Chhattisgarh as it comes between Andhra Pradesh and Odisha.

There are many reasons for this increase in climatic temperature. Some of these reasons can be Climate Change, Industrialisation, Deforestation and unplanned development. Leading to scenarios of heat island in the city and state of Chhattisgarh. Paved surfaces and concrete canyons absorb the Sun's ray and produce heat, in addition to that the chemicals emitted by cars, industrial facilities and even trees affect sunshine in different ways, often trapping it and creating more heat. The warm air rising from a city may collide with moist air from nearby water bodies, releasing precipitation downwind of the city.

The combination of exceptional heat stress and a predominantly rural population makes India vulnerable to heat waves. Vegetable vendors, auto repair mechanics, cab drivers, construction workers, police personnel, road side kiosk operators and mostly weaker sections of the society have to work in the extreme heat to make their ends meet and are extremely vulnerable to the adverse impacts of heat waves such as dehydration, heat and sun strokes, the NDMA guidelines say, "Therefore, it is not surprising that these workers, homeless people and the elderly constitute the majority of heat wave casualties in India."

There are severe health impacts of heat wave which in most cases are undetected. The majority of deaths due to Heat wave are caused because the symptoms are majorly

undetected which leads to deaths. The major effects are high fever, rashes, feeling overheated and weak, light-headedness and loss of consciousness.

Some Solutions to cope up with heat wave:

- Further research using sub-district level data to provide separate indices for urban and rural areas to enable more targeted geographical interventions.
- Deeper analysis of urban ward-level data to provide intra-city vulnerability patterns.
- Provision of public messaging (radio, TV), mobile phone-based text messages, automated phone calls and alerts.
- Promotion of traditional adaptation practices, such as staying indoors and wearing comfortable clothes.
- Popularization of simple design features such as shaded windows, underground water storage tanks and insulating housing materials.
- Provision of drinking water within housing premises and indoor toilets. ■

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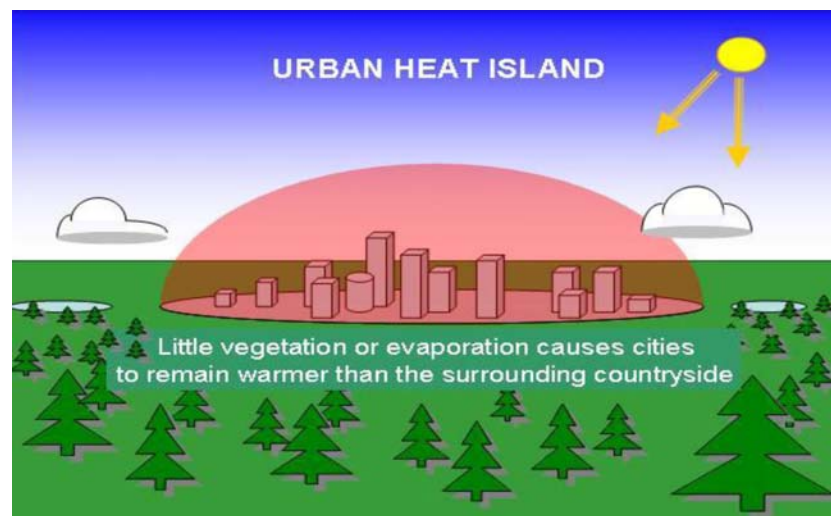


Figure 2. Urban Heat Island.

# Hospital Safety Scenario in Chhattisgarh

Disasters have a knack of bringing existing yet unnoticed vulnerabilities regarding social structures and infrastructural arrangements into the limelight. Hospitals too, cannot escape this idea and have undergone severe damage during the last two decades. There have been various incidents such as the Gujarat earthquake (2001), Indian Ocean tsunami (2004), Kashmir earthquake (2005), Civil Hospital collapse in Bhuj, AMRI Hospital fire in Kolkatta which have showed that disasters have a negative impact on health facilities and infrastructure along with population, livelihoods and the environment. Some of the key factors that are responsible for increasing vulnerability of hospitals to various disaster risks include:

- a) Nonexistence of a functioning Hospital Disaster Management Plan.
- b) Lack of preparedness and planning for responding to disasters.
- c) Complete lack or inadequacy of internal and external communication.
- d) Lack of networking and coordination amongst hospitals at various levels.
- e) Non-compliance or insufficiency of structural elements with regard to building codes and other safety norms and regulations. This would also include the non-structural elements.

All of this proves that there is a need to address structural as well as

operational resilience of hospitals in order to reduce the impact of disasters on hospitals, and increase resilience of infrastructure as well as safety of patients.<sup>1</sup>

Chhattisgarh consists of a decent health infrastructure comprising of medical and dental colleges, district and civil hospitals, primary and community health care centres, civil dispensaries and so on. Its hospitals are equipped with a wide range of facilities such as: Ophthalmology, Neurosurgery, Gynecology, Obstetrics, Radiology, Orthopedics, Pediatrics and so on. There is also a Field hospital of the Central Reserve Police Force (CRPF) which is supported with life sustaining equipments that has been set up in Dantewada region. It is an archetype 'battle field hospital' located deep within the Naxal hotbed for providing immediate aid to injured CRPF personnel as well as other security forces that are involved in undertaking anti-Maoist operations.<sup>2</sup>

It was also carried out in order to deal with the challenge of evacuating the injured men, especially in case of Improvised Explosive Device (IED) blasts. Following this, four more hospitals of the same kind were also set up in the areas of Bheji, Chintagufa, Basaguda and Chintalnar for providing necessary medication and adequate treatment to the *jawans* as and when required.<sup>3</sup> The following table provides an estimate about the state of hospitals and health infrastructure in Chhattisgarh:

However, all that glitters is not gold. Chhattisgarh still has a long way to go in order to tag its hospitals as totally 'safe' for its people. For instance, the Mecahara hospital faces **overcrowding** of patients due to its large catchment area and its holistic medical treatment. As a result, the number of patients hospitals receive in day mostly transcends their coping capacity and ability to provide quality treatment. In addition to this, there is lack of proportion between the doctors and the number of patients that they need to attend. In such a situation, if there is some untoward incident due to which certain critical hospital facilities have to be shut down temporarily and disaster strikes a certain location at the same time; then this becomes a major risk for the affected

**Table 1: Health Infrastructure in the State of Chhattisgarh<sup>4</sup>**

Medical Colleges	2
Dental Colleges	3
District Hospitals	16
Civil Hospitals	16
Community Health Centres	116
Primary Health Centres	517
Sub Health Centres	4692
Civil Dispensaries (Urban)	30
Health and Family Welfare Training Centre	1
District Training Centres	14
General Nursing Schools	4
ANM Training Centres	7
MPW Training Centres	3

1 <http://www.ndma.gov.in/images/guidelines/Guidelines-Hospital-Safety.pdf> (Accessed on 9/9/2017).

2 <https://www.security-risks.com/security-trends-south-asia/naxalism/crpf-field-hospital-in-chhattisgarh-4149.html> (Accessed on 9/9/2017).

3 <http://www.firstpost.com/india/crpf-sets-up-4-field-hospitals-in-maoist-heartland-of-bastar-2449540.html> (Accessed on 9/9/2017).



population and can aggravate the entire situation. Therefore, there is a need for quality medical treatments, holistic coverage from beginning to end and so on across all hospitals rather than just being concentrated on one.

The next issue is with regard to lack of **emergency response plans and standard operating procedure (SOP)**. The hospitals in Chhattisgarh have fared well in terms of structural safety and availability of various specialized facilities and equipments. Their staff members are well aware of their duties and have a set routine about their daily tasks. However, during the time of disasters/emergency/crisis, this normal routine will not be applicable due to the situational and context based differences that can arise along with various topographical challenges in providing safe and quality treatment. Therefore, there is a need for hazard specific and operational emergency response plans with properly specified tasks of each specialized department. Moreover, there is also a need for an SOP that can be uniformly applicable for all hospitals in Chhattisgarh and every hospital personnel should be trained and made aware for providing quality medical services in the best possible time as well as for prioritization of patients (especially during emergencies).

During normal situations, doctors make every attempt to save the life of those in danger. However, during a disaster or crisis, it is not possible to attend to every affected individual at the same time and provide similar levels of treatment to everyone. Therefore, there is also a need for conducting periodic **mock drills** that

can provide direction to the medical staff to act appropriately and quickly in emergency situations; as well as help in prioritizing them who require immediate attention. It is also necessary to recruit **specialized medical personnel** so that the environment of panic and chaos that exists during any disaster or crisis can be minimized to its optimum level and their specialized knowledge and skill sets can be utilized for saving and curing the maximum number of lives possible. Moreover, there is also a need for health-care centres and trained medical staff at the grassroot level in Chhattisgarh because, most of the rural areas either lack a health-care centre or lack trained medical staff. Even in urban areas, most of the government hospitals lack the necessary equipments, proper sanitation and hygiene facilities. According to an article in the Times of India (TOI), most of the so-called premier state-run health facilities and medical colleges have failed to qualify for the Kayakalp Award that is awarded based on levels of cleanliness, waste management, sanitation and hygiene, infection control, hospital support service and materials of promoting hygiene.<sup>5</sup>

Hospitals also need to maintain **proper coordination** with other agencies such as police, fire brigade, etc in order to fasten up the entire recovery process and to reach to the maximum number of affected as well as vulnerable population in least possible time. This should also be applicable in case of health care centres at the village level and those at the district and state level so that adequate facilities can be made available during any disaster or emergency. In addition to this,

hospitals should also maintain critical equipments in mobile form as well, so that they can be transported and utilized even when the incident site is far from the location of the concerned hospital and patient safety can be prioritized. There also needs to be proper **assessment** of equipments and **evacuation plans** that needs to be clearly tried, tested and disseminated amongst all concerned stakeholders. According to a report in the TOI, a 34-year old woman became seriously injured at the MRI section and sheer medical negligence on part of the staff was cited as the main reason behind this accident.<sup>6</sup> Moreover, on many occasions, staff members have been found to be in drunk/inebriated conditions while on duty. Therefore, there is also a need for **stringent rules** that needs to be implemented with no compromise.

Therefore, every hospital needs to have its safety plan wherein these loopholes are addressed and details of the plan is disseminated among all the stakeholders, along with proper review, re-evaluation and redevelopment according to the changing circumstances. In conclusion it can be suggested that every hospital personnel and each one of us should understand the relevance of safe hospitals and the significant role they can play in ensuring the well-being of individuals, especially during disaster situations. It is only when that realization will come then the plans or guidelines will actually be successful and materializes into reality. ■

- **Jyotirmoy Deb Goswami**,  
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4 <http://health.cg.gov.in/hinf.htm> (Accessed on 9/9/2017).

5 (Jaiswal, 2015). URL: <http://timesofindia.indiatimes.com/city/raipur/Chhattisgarhs-premier-govt-hospitals-fail-to-make-it-on-cleanliness-hygiene-list/articleshow/49197779.cms> (Accessed on 9/9/2017).

6 (Jaiswal, Chhattisgarh: Woman seriously injured after getting stuck in MRI machine, 2014). URL: <http://timesofindia.indiatimes.com/city/raipur/Chhattisgarh-Woman-seriously-injured-after-getting-stuck-in-MRI-machine/articleshow/42043632.cms> (Accessed on 9/9/2017).

# Stakeholder's Perspective

Preparation of District Disaster Management Plan, Raipur District, Chhattisgarh.



Mr. Nilesh Kshirsagar,  
CEO, Zila Parishar, Raipur  
District, Chhattisgarh

“Disaster is a major concern which can only be minimized by planning and coordination. Chhattisgarh government will leave no stone unturned to make Raipur a safer living place.”



Mr. Vishal Vasvani,  
Emergency Officer,  
UNICEF, Chhattisgarh

“Disasters also results in financial crisis. The money that should be used for advancing the wellbeing of people is used for relief and restoration in disaster affected areas.”



Mrs. Asha Shukla,  
Social Welfare  
Department, Raipur  
District, Chhattisgarh

“Providing help and support to vulnerable groups after any hazard is our top priority. We are here to serve the people in their needs, especially women and children.”

“Pollution should also be taken into consideration before it changes in to a major disaster and makes our city inhabitable.”



Mr. Prasanta Dash,  
CFO, UNICEF, Raipur,  
Chhattisgarh

“Civil Defence and voluntary organizations play an important role in disaster situation in the field of public awareness as well as in community capacity building in disaster situation. Civil Defence Raipur is bound to their duty to serve people in rescue, relief and rehabilitation.”



Mrs. Anima Kujur,  
District Commandant,  
Civil Defense,  
Raipur District, Chhattisgarh

“District Disaster Management Plan (DDMP) should be well planned, executable, and cover all possible hazards. With the implementation of new innovative ideas and schemes on sustainability disaster risk can be mitigated.”



Dr. R.K. Chandravanshi,  
Medical Officer, Raipur  
District, Chhattisgarh



**Mr. Ashok Kumar Pandey,**  
District Program Officer,  
Women and Child  
Department, Raipur District,  
Chhattisgarh

“In India, out of three disaster victims One is a child. The intensity and frequency of disasters is increasing every year. Children and women centred risk assessments should be put in focus to minimize the risks women and children may face.”



**Mr. Sanjay Verma,**  
Project Director, NHAI,  
Raipur, Chhattisgarh

“District Disaster Management Plan (DDMP) is a very good initiative towards safer Raipur. Public awareness is much needed to minimize the road accidents and other disasters.”



**Mr. Gurujit Singh,**  
Deputy Superintendent of  
Police, Raipur District,  
Chhattisgarh

“Improvement in training and enhancement in human resource management would amplify effective response process during a disaster.”

“In the end the success of the National Disaster Management Plan of Government of India rests on the quality of District Disaster Management Plans and their utilization. India is safe if its districts are safe.”



**Mr. Mihir R. Bhatt,**  
Director, All India Disaster  
Mitigation Institute

“There is a continuous increase in the volume of traffic every year with an increase in number of accidents too. Public awareness and participation towards traffic rules will minimize the risk. Road safety plan will be an added asset for various operations and guidelines to be executed by the Department.”



**Mr. Balam Hirwani,**  
Additional Supritendent Of  
Police, Police Department  
(Traffic), Raipur District,  
Chhattisgarh

“Raipur Municipal Corporation will leave no stone unturned to make it a better, safer and smarter city to live in. RMC is already working towards disaster mitigation through various awareness programmes such as fire safety campaign and open defecation program etc.”



**Mr. Anshul Sharma,**  
Asst. Engineer, Raipur  
Municipal Corporation,  
Chhattisgarh

# Hazard Vulnerability Capacity Assessment: Process and Outcome

An effective hazard, vulnerability and capacity assessment (HVCA) plays an important role for the successful preparation of any Disaster Management Plan. This holds true for the drafting process of the district disaster management plan (DDMP) of Raipur in the state of Chhattisgarh. Chhattisgarh is prone to disasters and escalating losses associated with them. Effective disaster mitigation is the foundation for effective disaster response and for reducing the degree of hazardous impacts on the communities. HVCA helps to evaluate the damage caused by a potential disasters and its impact. The resources available during disasters helps to reduce the vulnerabilities and increase the coping capacity of the communities.

This article, summarizes the process and outcomes of the Hazard

vulnerability and capacity assessment, responses of the community and administration, Identified disasters, its probabilities and consequences.

The aim of the HVCA was to identifying existing and expected hazards, Risk and vulnerabilities and the existing coping capacity of the communities. Assess the impact of existing disasters and its related manifestation on the communities particularly on the children and women, in terms of the basic services and the coping mechanism. Women centred and child centred risk assessment mainly focusing on food, protection, water and sanitation, health and education.

An HVCA was carried out at the community level, Gram panchayats, PHC's, Schools, Anganwadi and on the fields where the farmer's feel difficult to attend due to loss of their

wages in conditions when there is no rainfall. To conduct the HVCA, it was ensured that there was inclusive participation from all the local community member, of public health institutions, gram panchayats, Anganwadi sevika, Mitanin's (Accredited Social Health Activist), PHC workers, social workers, school teachers, Mid day Meal workers, workers of wash and sanitary departments, fishermen, farmers, persons with disabilities, widows and the elderly, SHGS and youth groups of villages in assessment from the outset. The topics were divided according to the local expertise. The elderly were assigned the history of disasters, the farmers were assigned questions related to drought and climate change with special emphasis on problems related to food security, women were focused on the daily work routine and on the seasonal calendar. The young and the school children



produce a map of showing community development achievements. Women's are usually the one who take care of the children, know about their land and the daily difficulties and obstacles they faced. The women started drawing a seasonal work calendar in order to pull their collective experiences. The group highlighted the need for water and sanitation. The approaches use for conducting HVCA was Participatory Rural Appraisal, focus group discussions, collecting official statistics, carrying out interviews, dialogue with local inhabitants and noting observations.



For conducting the HVCA of Raipur district, four blocks were selected which are prone to hazards and have a past history of disasters. These were Aarang Abhanpur, Tilda and Dharsiva of which the community consultation was conducted in 22 village and gram panchayats and 6 wards which are regularly affected by natural and man-made disasters. The major hazards identified in the areas are Floods, Drought, Fire, Heat waves, Road Accidents, Man Animal Conflicts, Pest attacks and Epidemics. The other important parameters for selecting these villages are lack of availability of basic resources, Inaccessibility and difficulty in reaching the areas, nearby major industries damaging crops due to release of contaminated water and its pollutants which leads to diseases such as respiratory problems, skin diseases, eye sight problems and stomach problems.

To conduct the HVCA the questionnaire was prepared keeping in mind the hazards, vulnerabilities and capacities of the district. The consultation was conducted in which hazards and vulnerability mapping was done in which history of the disasters, its impact on the People, Property and environment and its

impacts on children and women's was done. Village wise risk analysis was done related to different Hazards, its frequency of occurrence and early warning issued to the community. We analyzed various **disasters vulnerabilities** such as **Physical and institutional assessment which includes** house types, critical infrastructure, schools, hospitals, and Anganwadi, Public Health Centres (PHC), Public and school toilets, electricity and drainage and water supply system and essential facilities. **Social vulnerability** is linked to the level of development in terms of human development indicators and well-being of individuals and the communities.

The main focus was on household, health and sanitation, peace and conflict. It included variables measuring levels of literacy, the existence of peace and security, access to basic needs, social equity and gender based issues in the villages and public health issues, livelihood activities that is carried during the pre and the post disaster situation, the traditional knowledge and the political system. **Economic assessment** was done on the following parameters such as livelihood sources, assets, source of

income, financial systems, and markets.

**Environmental vulnerability** (land degradation, green coverage, water resources and land use) The key aspects of ecological vulnerability were extent of natural resource depletion and degradation, loss of resilience of the ecological systems, loss of biodiversity, exposure to toxic and hazardous pollutants.

The **Risk assessments** was done based on Child Centred Risk Assessment on different parameters such as food, water and sanitation, health and education. And their problems were identified on the basis of different age groups. Similarly the women centred assessments identified on different sectors such as Adolescents and girls, Pregnant, Lactating mothers, WWDs, Elderly, Widow and each of these sectors problems were identified on parameters such as Food. Water and sanitation, health and education, protection and health.

*"Food, shelter and clothing are the basic need of the people in which free irrigation facilities should also be included for farmers".*

*- Farmer, During Community Consultation, Raipur.*

"All this instruments such as nebulizer, electronic Blood pressure measuring instruments, are of no use for me, if I am not trained how to use it. I have approached the PHC worker also but she is also not aware of the electronic equipment's".

- Anganwadi Sevika, Raipur.

**Anganwadi Centres Assessment** was done village wise which focused on malnourished children each centre wise and to check whether everyone between the age of 0-5 years including disabled are always enrolled in the centre. Food supplies are always received even after disasters such as droughts and floods. History of any past damages due to disasters, whether the Anganwadi are located in the children friendly environments, regular trainings of the Anganwadi teachers, availability of necessary equipment's such as Weighing Machines, Nebulizers, ventilated kitchen rooms, electric fittings, tube lights and availability of necessary medicines, first aid kits, Nutritional charts for children, adolescence girls, lactating and pregnant women are maintained regularly. And take home ration is made available according to their feasibility.

**School assessments** were done on school children ration (SCR),

whether the kitchen is well equipped to Fire Safety & quality of midday meal facilities, inclusive Toilets, Portable Drinking Water, water and sanitation facilities Hand washing and School disaster management cells and Mock drills are conducted regularly. History of Disasters and accidents in the schools and First Aid Kits, Identity cards with blood groups, and regular health checkups.

**Resource and vulnerability mapping** of the villages was conducted by the villages by involvement of all the members who were visited in the consultation. A report was prepared on the inputs gained based on the data collection to analyze Disaster Hazards, Vulnerability, and Capacity of this Panchayat.

**The outputs gained from the community consultations**

- Identified locations which are prone to disasters have been incorporated in the plan.
- There is an emergent need of implementation of Early Warning Systems.
- There is a need for Emergency Preparedness Plans development.
- Trading Coping capacity of the communities are known which helped to incorporate in the Disaster Management plan.

- Need of training and capacity building of PHC and Anganwadi workers and availability of necessary equipment's.
- Knowledge of prevalent diseases exists which has helped updated the supply of medicines and immunization in the villages.

**Inputs received from the Community**

- There is an emergent need of save shelters, there is emergent need to link the government policies and programmes to link with DRR.
- Retrofitting and electric fittings of public institutions (Especially schools and Anganwadi
- Need of school Disaster Risk Reduction activities and mock drills
- Need of developing water and sanitation facilities
- People migrate to neighboring village in search of employment, which affects children education.

**Conclusion**

HVCA is a step towards fulfilling the requirement to reduce the exposure of people around the world to the risks caused by natural and man-made hazards. The process of assessing people's vulnerability and their capacities gives State/ District/ Village an opportunity to collect relevant information about impending risks before the event occurs. This will enable them to set up programmes to mitigate potential loss of life and property, as well as to improve the organizational systems, information flows and decision-making necessary to plan for both risk reduction and disaster response programmes. ■

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# Women Centred Disaster Risk Assessment



Any extreme climate or geophysical event can only be considered a disaster if it adversely affects a substantial part of society or environment or both. If there is flood on barren land and water surge on barren land where no one is living then it is not called a disaster because it not affecting the human life and societal development. Disasters have a negative impact on the development. Normal and daily life of the people is affected due to disasters and this will have indirect impact on the other things like on food intake, health, transportation etc. DRR considerations should be embedded into development planning.

If we are taking into account the gendered perspective then it is not new but there is a need to bring wider perspective regarding women issues at the centre and gender issues in focus. Impacts of disaster are much higher on women then on men. While working with AIDMI on District Disaster Management Plan

of Raipur District, I have observed certain things about women centred risks. In villages women are not even sharing their health problem with men like excess white discharge problem in women. In the village women are taking it as normally and ASHA worker are also not having any medicine for it. Excess white discharge among all age group of women also represents the weakness among women. Different disaster has different impact on the daily life of women and children.

In case of flood there is no separate shelter facility for women. Women are also facing problem in procurement of food at the time of flood in villages. Main reason behind that is not having proper transportation facility even in normal situation and if we are taking flood scenario then situation became worse. Ration shops are also closed and even if they are open proper ration is not available. At the time of flooding women it include elderly women, pregnant women,

adult women and disable women, lactating women they are only having rice, dal or biscuit. If pregnant women are not having enough nutritious food then it can affect the health of child it can also lead to malnutrition among children and in women and same in the case of lactating mothers. There are chances that it will lead to malnutrition.

Anganwadis' also get flooded in many places in village so the food stock that they have also gets affected this will have indirect affect on the ration that is given by government to pregnant women. Till now in villages women's are going for open defecation and at the time of flooding situation it will become worse like finding safe place for open defecation. While making food they are using Umbrella to cover the *chullas* so that they can make food. Sanitation and hygiene maintenance is another issue that women are facing at the time of flooding. In some villages sanitary pads are

hardly available and so during the time of floods it is very hard for them to get access to sanitary pads.

At the time of drought women are confronting increase in health diseases like skin rashes, skin infection, etc. Even though there is bore well near their house but water is contaminated due to percolation of sewage water or acidic water from factories through soil so sometime in the month of summer women have to go little but far to get water and it will take several rounds for them to get water for all day. It can also have psychological problem and lack of adequate water supply can also lead to malnutrition among women.

In some villages major problem that women are facing is not having access to hospitals and hospitals are far away from the village on the other side there is no transportation facility in village. In some village to get some private and public transport they have to travel 2-3 kms in case of emergency situation will get worse and there are no special

provisions of transportation facility for physically and mentally disabled women. Even though PHC near to their village but not all the facilities are available in PHC only nurse are available not even doctors.

Wages of women is still lower than men even though women are working same hour as men are working. The difference in wages among women and men represent the gender biasness. In some areas girls who are less than 18 years are working in factories because children's who are less than 18 are not allowed to work as child labor so girls are wearing *sarees* so that they look old. They are working in factories just for Rs 150/- to Rs. 250/-. The main reason is not availability of higher secondary school in village and if they want to go for higher studies then schools are far away from village, not having transportation facility like private bus, public bus, and personal bicycle. Not having access to education or not getting education will affect the other aspect of life like health, food security, awareness about current

issues or health related things like sanitation and hygiene. Working in such a small age will affect the health of girls.

The notion that men's are the bread owner of the house is still continues in villages. Women are not perceiving it as problem or something wrong in considering "men as bread owner" that is because they are socialize in such way. This represents that socialization of women, gender biasness. Women's are the one who always cook food in family in every situation this represent gender inequality.

The way people socialize and their surroundings have greater impact on how they perceive things like in villages. In India, patriarchy is so deeply entrenched that women are not only is the social status of women relegated to a lower position than men, but the risks faced by women are neglected too. ■

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