

# Disaster Risk Reduction in Andhra Pradesh



Photo: AIDMI.

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# Disaster Risk Reduction in Andhra Pradesh

Andhra Pradesh has always been a leader among all the Indian states in reducing the disaster and climate risks faced by its citizens. Other Indian states have followed in its steps. Let us look at some of the recent initiatives in Andhra Pradesh which indicate an emerging trend in India.

First, Andhra Pradesh is piloting Public Private Partnership (PPP) in Disaster Risk Reduction (DRR) in the cities of Vijayawada and Vishakhapatnam. These two cities are engines of economic growth for Andhra Pradesh and this is a welcome pilot initiative to protect the growth and prosperity of these cities from risk. This initiative must be closely watched, and lessons be drawn to share with other states and coastal cities so that PPP in DRR at state level becomes a wide scale reality in India in next three to five years. So that India's economic growth in coastal cities is protected. This pilot can lead to larger things such as improved collaboration between various institutes and agencies, establishment of Centre for excellence and an urban observatory system that facilitates sharing of best practices of PPP.

Second, Andhra Pradesh is investing in the "Last mile" of Early Warning Systems (EWS), which is a key to rapid response and reduction in loss of life and livelihood in India. Most of the times, the loss and damage attributed to disasters is caused because of the disruption of the last mile of early warning mechanisms.

Comprehensive and concentrated efforts for implementation of policies until the last mile is reached is a must. Coverage of most vulnerable citizens of Andhra

Pradesh especially physically challenged, dalits, children and women is the top priority. Andhra Pradesh established lightening alert system, mass messaging system and EWS dissemination system for hazard-location specific warnings to its citizens. These systems are a welcome addition. What is needed now is the preparedness audit to ensure that the systems are ready to respond.

Third, Andhra Pradesh is building capacities of its school to be centres of disaster risk reduction (DRR) in the communities that surround the schools. Andhra Pradesh has made collaborative effort with UNICEF, Education Department and the Andhra Pradesh state disaster management authority (APSDMA) for school safety which is unfolding with success. Addressing schools of four coastal districts covering 39000 school children exposed to high risk of cyclone, floods and tsunami is the focus of this initiative. Capacity building of teachers, students and officials is ongoing and driving the message of behavioural transformation to all is underway.

Fourth, far more attention is given to sub national processes in Andhra Pradesh than any other states in India.

For tacking emergencies and risk mitigation in an effective manner, SEOC, 13 DEOC, EWDS, Lightning alert and monitoring systems are set up. In addition, ADR and APSDRF are established for more than 3.3 million vulnerable citizens. This is one of the largest coverage of citizens. More than 50 national, state, regional and village level programmes in 2017-2018 aimed at building these capacities at sub-

national level. Coverage of 11,900 stakeholders is estimated. Capacity building tool and online platform for integrating capacity building at state level has been developed. Establishment of Andhra Pradesh Disaster Research Centre with Geospatial Laboratory and Chemical Emergency Management Platform are also under way.

Fifth, preparedness against tsunami is also on the Andhra Pradesh agenda. Although, the risk of tsunamis is not that great in Andhra Pradesh, it is prudent to be prepared against such a threat because the loss of life and property from a tsunami can be huge. Since the 2004 Indian Ocean tsunami, Andhra Pradesh has taken systematic steps to be prepared for possible tsunami on its coast. One of the best ways to do is to conduct mock drills on the coast and that is what Andhra Pradesh is doing.

These mock drills provide an opportunity to the authorities to test their preparedness and response time. NDMA and Indian National Centre for Ocean Information Services are taking lead to synchronise information exchange, operational process flow, and multi stakeholder coordination. In the end, what matters is the quality of individuals who lead these preparedness processes. More investment of money and power in such individuals, from Andhra Pradesh and India, is the key to the tsunami preparedness in the east coast.

By taking the aforementioned measures, Andhra Pradesh has not only built the resilience of its citizens but has also offered lessons for other Indian states to emulate. ■

- Mihir R. Bhatt

# Public—Private—Partnership in Disaster Management Vijayawada City, Andhra Pradesh



Photo: AIDMI.

**Introduction**  
Traditionally, in India the private sector and business houses have been supporting post-disaster activities. The areas and nature of activities have been predominantly governed by business interests and philanthropic considerations. Public policies governing investment of private sector through Corporates Sector Responsibility (CSR) initiatives have been a major incentive for post disaster investments by private sector. Many corporate agencies and media houses have worked through local authorities and NGOs or local organisations to provide immediate support to the affected communities by providing relief materials. They have during the early or midterm recovery phase undertaken village based activities like construction or repairing of permanent social infrastructure (drinking water facilities, Schools, Anganwadi, Community centers); individual

housing besides supporting livelihood generation through skill building. Associations such as CII, ASSOCHAM, HCC, FICCI, through organisation of conferences, exhibitions and workshops, have promoted awareness and learning. Businesses have also started addressing disaster risk through the channel of Business Continuity Planning.

### **Need for Public Private Participation in Disaster Risk Reduction**

In general businesses are vital actors in the societies in which they operate. They act as employers, producers of goods and services, operators of critical infrastructure, consumers of public and other private sector services, taxpayers, and many more. Disruption in business activity can lead to major economic losses and can significantly impact the long-term growth of national/regional/local economies.

Disasters can damage exposed and vulnerable factories, offices and other facilities and resources, interrupting and paralysing output and business processes. But disaster risk does not stop at the factory gate. Businesses depend on infrastructure and urban systems run by utilities and the public sector. Critical infrastructures such as transportation, communications, and power infrastructures are particularly vulnerable to shocks and disturbances as they are highly interconnected and interdependent. Hence, one failure can have a domino effect and lead to failures throughout the chain affecting various sectors and locations. Damage to transport and energy networks, ports and airports or to neighbourhoods where employees live interrupts business and imposes additional costs. When business is interrupted, skilled workers may leave, market share may be lost to competitors, relationships with key

suppliers and partners may be severed and confidence and reputation may be eroded.

However there is need to further strengthen these practices in the region through integrating disaster risk information into investment decisions; building public-private risk governance and disclosing disaster risks and costs on business balance sheets. Companies are beginning to move in this direction, identifying disaster hot spots in their supply chains, reporting on risk reduction measures and forging partnerships local with municipal governments.

**Private Sector Involvement in Disaster Risk Reduction in Andhra Pradesh:** At present, many of the private companies are collaborating with Government in the areas of Energy, Waste Management, Education, Health & Water and Sanitation etc. Such collaboration needs to be replicated in fast growing urban areas particularly in Smart City projects. In view of the declaration of Visakhapatnam and Amaravathi as Smart cities in the State, there are huge opportunities. These cities are growing very fast, even in somewhat unplanned manner undermining the principle of ecology and environment making them unsustainable and vulnerable. Therefore, there are ample opportunities for private sector in not only contribution in developmental projects but incorporate DRR and CCA for sustainability and building resilience to people and infrastructure in partnership with the government.

**Vijayawada Municipal Corporation support and encouragement in PPP engagement in the city:**

**City Risk Profile:**

- Vulnerable divisions: Krishna floods prone to 8 divisions, Budameru floods prone to 17

and Rock slides prone to 10 divisions in Vijayawada City.

- Zone-III Earthquake likely impact in the range of 5 to 6.9 on Richter scale.
- 5 Steep hills in the city rick pose to population.
- 33 cyclones passed on to the district with a range of 100 to 150 km.
- High temperature and heat waves [46-49 degrees] in every summer season.
- High concentrations of emissions in the ambient environment [CO, NOX, SOX, PM].
- Low lying area and inadequate drain system.
- Impending health hazards due to high automobile emissions.

**The project is being funded by UNDP-USAID with the objectives of the project:**

- To reduce disaster risk in urban areas by enhancing institutional Andhra Pradesh cities to integrate climate risk reduction measures in development programs as well as to undertake mitigation activities based on scientific analyses, and
- To enhance community resilience in Andhra Pradesh cities and manage climate risk in urban areas by enhancing the preparedness.

The hydro-meteorological hazards such as heavy rains, floods, storm surge, heat waves have enormous impacts on socio-economic systems endangering human lives, disrupting livelihood systems, and derailing the process of social and economic development. In recent decades, climate variability and climate change have compounded the severity of risks in urban areas, as it is expected to alter the frequency and complexity of climate hazards. The project aims to enhance the resilience of institutions and city dwellers and to promote adaptation

to climate change and manage climate risks.

**Since 2014, VMC is being implemented through GOI-UNDP Disaster Management Project in the City and the following core interventions have been completed under the project:**

- City Disaster Management Plan [CDMP] - Prepared.
- Hazard Risk & Vulnerability Assessment [HRVA] - Study conducted.
- Capacity building of stakeholders to key officers and community [Training].
- Strengthening Early Warning system- EWS [based on Early Warning System recommendations] - Study conducted.
- Sector plan to mainstream Disaster Risk Reduction [Mainstreaming] - Prepared.
- Knowledge Management on Disaster Risk Reduction and Climate Change Adaptation.

Vijayawada climate is very much dependent on the geography with a river flowing through it, the Indrakeeladri hills on the west and the Budameru river in the North, the Northern, North-western and South-western parts of city are covered by range of hills. Moreover, overall the climate of the city is tropical with hot summer, humid and moderate winter. The city receives good amount of rainfall from South-West & North-East Monsoon.

**Consultation Workshop on PPP**

In the month of August 2017, a half day consultation meeting was organized by VMC-UNDP by involving key Public and Private agencies based in Vijayawada City and Krishna District in particular, aimed to sensitize the risk, vulnerability and hazard profile of Vijayawada city, status of Disaster Management initiatives in the city and further discussions on DRR

initiatives, best practices and interventions for building resilience practices by firms/agencies and possible areas of collaboration in the city viz., Education, Training, Early Warning, Mitigation and Adaptation issues, etc. The workshop has not only sensitized the PPP on the importance of DRR and but identified and understood the areas of intervention/s for building resilience of Vijayawada City by minimizing impact of natural and human induced disasters.

#### **Institute /Agencies for Collaboration**

- Establishment of Centre of Excellence at Krishna University, Machilipatnam-Understanding risk through Education & Training by establishment under chairmanship of Prof. S.Ramakrishna Rao, MSc. Ph.D, Vice-Chancellor, Krishna University, Machilipatnam, Government of Andhra Pradesh.
- Establishment of Urban Observatory System at CCC-VMC by involving E-Centric Solutions Private Ltd-Strengthening city governance system by establishment of Urban Observatory System at Command Control Center [CCC] Vijayawada Municipal Corporation; Addressing Urban issues, Public Private Partnership, Early Warning System, urban risk reduction and climate change adaptation issues - developing city risk index and building resilience under chairmanship of Shri J. Nivas, IAS., Commissioner, Vijayawada Municipal Corporation.
- Partnership with Jawaharlal Nehru Technological University, Hyderabad for establishment of Early Warning System for Landslide, rock slide and urban floods, etc. under leadership of Dr. K.Lakshmanarao and Dr.

D.Srinivasa Rao of JNTU, specialist in Urban floods and Early warning system, Government of Telangana.

#### **Potential areas for Interventions**

The following areas have been identified for engagement of players in Disaster Risk Reduction and Climate Adaptation:

- **Establishment of Centre of Excellence (COE) in Disaster Management at Krishna University, Machilipatnam** - This Center (COE) can have tie ups with NASA, ISRO, IMD & ANDHRA PRADESH State Remote Sensing Agency for developing real time hazard measures and share them with city and district administrations for preparedness and building strong response. The Centre also promotes research work on local risk/hazards to focus on urban floods, heat waves and storm surge etc. in coastal/cities in the state of Andhra Pradesh (1<sup>st</sup> Priority of SFDRR).
- **Urban Observatory System (UOS) based at VMC:** The primary objective of the UOS is to establish a platform for Public and Private Partnership [PPP] to work on urban issues, strengthening Andhra Pradesh's cities for better governance, establishment of early warning systems. Such PPPs can help in leveraging the role of private stakeholders in managing risk and building urban resilience. The UOS has also facilitated knowledge management and sharing of best practices with municipal corporations and town administrations in the state along with a host of other private and philanthropic entities such as Reliance Foundation, TATA Trusts, Apollo Hospitals, IT Association, Hyderabad and Local NGOs, etc. (2<sup>nd</sup> Priority of SFDRR).

- **Jawaharlal Nehru Technology University, Hyderabad - Centre of Excellence of Disaster Management Unit:** This center has been working on a pilot project to monitor landslides and rockslides and issue early warnings for the same. The center is working in the vulnerable hill areas of Andhra Pradesh to issue early warnings against landslides to the local communities residing there (pilot project for EWS).
- **Waste Management and Minimization** in Partnership with Andhra Pradesh Pollution Control Board, Vijayawada The initial discussions were held with the Pollution Control Board officials on the proposal for reduction of risk that arises due to heavy downpour and inundation due to heavy rains and floods in the city. Since the topography is mostly flat, the low lying areas and vulnerable location of the city will be central to the efforts of reducing water logging and controlling contamination.

**Budget Proposed:** UNDP allocated budget Rs. 15 lakh for Vijayawada city to initiate PPP engagement with key potential players in the city, based on the expression of interest by firms/agencies the fund will be used for DRR and CCA initiatives by the Vijayawada Municipal Corporation. The potential initiatives to be finalized after final consultation meeting with TERI and The Energy and Resource Institute with VMC in presence of USAID, the team will be visiting city during 2<sup>nd</sup> week of May 2018. The required technical support will extend by TERI and IIHS-Indian Institute of Human Settlement, Bangalore. ■

- **Mr. J. Nivas**, IAS, Commissioner, and **Mr. Sattar S. Abdul**, Project Officer, Disaster Management Vijayawada Municipal Corporation, GOI-UNDP DM Project, Vijayawada

# Tsunami Mock Drill in Andhra Pradesh

Tsunamis have caused damage locally in all ocean basins. There have been more than 2,000 tsunamis observed over the past 4,000 years, 1,100 of which have been confirmed by scientific research. For confirmed tsunamis, the distribution by source region shows 73% have occurred in the Pacific Ocean, 16% in the Mediterranean and Black Sea, 6% in the Caribbean Sea and Atlantic Ocean, and 5% in the Indian Ocean. Of these, 84% of the tsunamis were triggered by earthquakes, and 14% by earthquake-generated landslides.

Finally, more than 99% of all casualties have been caused by local or regional tsunamis that have impacted shores within minutes to several hours, highlighting national and local preparedness as the key important activities for mitigating losses due to tsunamis.

The 2004 Indian Ocean tsunami, which killed about 230,000 people in 14 countries with nearly 170,000 estimated in northern Sumatra, Indonesia alone, highlighted the fact that tsunamis can (and will) occur in all ocean basins, and can happen at any time. In the aftermath, under the auspices of the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific, and Cultural Organization

(UNESCO), three new Intergovernmental Coordination Groups (ICG) for tsunami warning and mitigation systems were established in the Indian Ocean (ICG/IOTWS), the Caribbean and adjacent regions (ICG/CARIBE EWS), and the North-eastern Atlantic, the Mediterranean and connected seas (ICG/NEAMTWS). These have been developed based on experience from the oldest system, ICG/PTWS established in 1965.

Tsunamis are unique from other hazards because of their fast-onset and non-predictable character; we do not know when the next tsunami will hit or where, and when it does happen, the hazard impacts us with little notice and therefore little time to prepare. This puts a tremendous responsibility on countries to prepare ahead of time through planning, development of agreed-upon standard operating procedures, and practice through exercises.

The National Disaster Management Authority and Indian National Centre for Ocean Information Services (INCOIS) jointly conducted the Multi-State Tsunami Mega Mock Exercise on November 24, 2017 in the eastern coast of India (in the States of Andhra Pradesh, Odisha, Tamil Nadu and West Bengal). To

synchronize information exchange and operations process flow, multi-stakeholder coordination meetings and table top exercises were organised at National Level and State level in advance of the mock exercise.

INCOIS issued the mock bulletins in line with the scenarios generated by NDMA and all the Concerned State/UT and District level officials responded to the bulletins within the predefined response times. The respective States activated their State Emergency Operation Centers and District Emergency Operation Centers States and the event was continuously monitored till the situation was declared as 'normal'. People from the preannounced villages were evacuated and accommodated at cyclone shelters or available community infrastructure. Approximately 1,53,712 people were evacuated to safe places during the mock drill, and it was observed as excellent participation compared to the previous tsunami mock exercises.

The drill provided an opportunity to the State and District disaster management authorities to test their Standard Operating Procedures and to enhance coordination between emergency support function departments.

The Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) has decided to organise an Indian Ocean Wave Exercise (IOWave18) on September 4-5, 2018. The scheduled international exercise will further enhance the tsunami preparedness efforts of India to achieve disaster resilience in coastal communities. ■

- **Mr. Faisal Iliyash**, Disaster Management Expert, APDRP, Guntur, Andhra Pradesh



Source: <https://www.deccanchronicle.com/nation/current-affairs/251117/mock-drills-held-in-view-of-tsunami-warning-in-andhra-pradesh.html>

# Disaster Risk Reduction at Sub National Level: A Case of Andhra Pradesh

Andhra Pradesh is exposed to cyclones, storm surges, floods, heat waves and droughts. The coastline of Andhra Pradesh is 974 km long exposing population in 9 districts to the hazards of nature. About 44 percent of the state is vulnerable to tropical storms and related hazards, when cyclones develop in the pre-monsoon (April to May) and post-monsoon seasons (October to December). Every two to three years, a moderate to severe intensity cyclone could be expected to make landfall in Andhra Pradesh. The incidence of cyclones seems to have increased in the past decades, to the extent that severe cyclones have become a common event occurring every two to three years, repeatedly and severely affecting the state's economy while challenging its financial and institutional resources.

Almost 29 million people are vulnerable to cyclones and their effects in coastal Andhra Pradesh, out of which, 3.3 million belong to communities located within five km of the seashore. The deadliest cyclone in the last twenty years took place in November 1977 killing about 10,000 people. A severe cyclonic storm had hit the coast in May 1990 leading to a death toll of 817 and a loss of Rs 2,137 crores to the state. In the cyclone of May 1979, more than 700 people lost their lives. In 2010, seven people were killed in the coastal districts when Cyclone *Laila* made a landfall near Bapatala in Guntur district on May 20 before monsoon. Harvested paddy in Krishna, Guntur and West and East Godavari districts was damaged badly, leaving farmers distraught.



Source: [http://www.apsdma.ap.gov.in/index.php?/view-mock\\_exercises](http://www.apsdma.ap.gov.in/index.php?/view-mock_exercises).

More than one cyclone in the same season is not unusual for Andhra Pradesh. In 1996, the state experienced a severe cyclonic storm in November, which left 1,077 people dead. The state had suffered a loss of Rs 6,129.25 crores. In December, one more severe cyclone hit the state. The death toll this time was 27.

Drought is a major threat in Rayalaseema region and Prakasam district, but with change in weather patterns, many more interior areas of the coastal belt are also experiencing drought situations. In the recent past, drought situation was declared in 245 mandals of 7 districts of the state in 2016. Heat wave during the years 2014, 2015 and 2016 have caused major fatalities in the state.

Under the provisions of the Disaster Management Act 2005, the Andhra Pradesh Disaster Management Rules

were notified and came to effect on 1<sup>st</sup> of August, 2007. In pursuance of it, Andhra Pradesh State Disaster Management Authority (APSDMA) was constituted in 2007 under the Chairmanship of the Chief Minister to mitigate, manage and reduce disaster risk and make a disaster resilient Andhra Pradesh.

For tackling emergency in an efficient manner, a state-of-the-art State Emergency Operation Centre (SEOC), 13 District Emergency Operations Centers (DEOCs), Early Warning Dissemination System, Lightning Alert and Monitoring Systems, Atmospheric Research Division (ARD) at APSDMA and Andhra Pradesh State Disaster Response Force (APSDRF) were established. Various programmes and projects were also implemented to strengthen disaster risk governance and to make Andhra Pradesh disaster resilient.

In addition to the above innovative programmes, the department has conducted more than 50 National, State, Regional, District and Village level programmes during year of 2017-2018 covering more than 11,900

participants. The programmes ranged from trainings, mockdrills and exercises to meetings, conferences and workshops throughout the state on various topics so as to build the capacity of

the state to mitigate and manage disasters. ■

**- Mr. Ashwin Lingaiah,**  
Capacity Building Officer, APSDMA,  
Guntur, Andhra Pradesh

**The following provide a glimpse of some of the innovative initiatives taken up by APSDMA:**

<b>Lightning Alert System</b>	The state-of-the-art lightening alerting system set up in the SEOC has a detailed operating procedure to monitor effectively and warn in advance regarding thunderstorms and lightening. Once a lightening has happened, within 5 minutes an e-mail notification is received which initiates the in-depth observation and close monitoring of the activity through a visualization tool on screen. Real-time text messages are sent to the mobile phones in the identified lightening locations through the system.
<b>Early Warning Dissemination Systems</b>	Under this project, advance warning alerts are to be given to the public who are residing in the areas that are likely to be affected by disasters. Electronic equipment's like routers, servers, digital mobile radios, work stations, satellite phones, electronic sirens etc. are being installed in SEOC, DEOCs and MEOCs.
<b>Mass Messaging System</b>	SMS and Voice Alerts are sent to all people living in an area likely to be effected by disaster. This is called LBAS (Location Based Alert System).
<b>District Emergency Operation Centre (DEOC)</b>	District Emergency Operation Centers are established in nine coastal Districts of Andhra Pradesh. The DEOCs will work under the direct supervision of the SEOC for all works related to disaster management.
<b>Mandal Emergency Operation Centre (MEOC)</b>	MEOCs are being established in all the 77 Mandals of nine coastal districts. At each MEOC 30 meter tower will be erected to house the DMR Antenna.
<b>Mass Alerting Facilities</b>	Multi Purpose Cyclone Shelter: There are 138 MPSCS which house the alert sirens on top of the building. These sirens are used to fore warn the nearby population of any impending disaster. The public will take shelter inside the MPSCS during hazard situations. Fish Landing Centers (FLC): 16 numbers of FLC have been identified and each FLC has 30 meter tower for DMR connectivity. Through DMR, fixed station communication can be established with analog VHF sets being used by fisherman in high seas. Tourist Locations: Ten number of tourist location (sea beaches) have been identified for early warning dissemination. Alert sirens are installed at these places to fore warn the tourist about any hazards.
<b>Establishment of Andhra Pradesh Disaster Research Centre with Geospatial Laboratory</b>	The APDRC is designed to act as the centralized facility in Andhra Pradesh to carry out all disaster management related Geo-spatial services in the State. The back bone of the APDRC would be advanced Geo-spatial functionalities and analytical capabilities.
<b>Capacity Building Tool</b>	The APSDMA has developed an online platform for integrating capacity building initiative in the state. The web based capacity building tool aggregates and compiles training programs/workshops/courses offered by state level agencies as well as national level agencies.
<b>Chemical Emergency Management Platform</b>	A platform for MAH Units, Response Forces and State Dept. to monitor, assess and compile the information regarding hazardous Chemicals used in specific industries and to have a holistic workable database of the same.



# Disaster Management Planning in Andhra Pradesh

India, with its unique geographical position, is vulnerable to various natural hazards and disaster management is a very critical aspect for governments at all levels. In the aftermath of severe disaster experiences of Odisha Super Cyclone, Bhuj Earthquake; and more particularly, the 2004 Tsunami, Government of India in 2005 enacted the Disaster Management Act (DM Act). It provided a guideline on disaster management and general

standards to be followed by every district and state around the country, including the framework for the DDMP's preparation.

The State of Andhra Pradesh is located in the Southern peninsula of India, with a wide variety of physiographic features ranging from high hills, plains and coastal and deltaic environment. This wide natural and environmental scene has made Andhra Pradesh a multi hazard

prone state, exposed to many natural and human made hazards. Andhra Pradesh is specially affected by cyclones due to storms with high surges along with high wind speeds. To a lower extent, it's prone to tsunamis and torrential rainfall and high winds, which facilitate the occurrence of floods in some areas, causing immense loss of life, assets and livelihood. Several manmade disasters (including chemical industrial disasters) have also

**Salient Features of Disaster Management Plan**



occurred in Andhra Pradesh, which has posed the state to additional vulnerabilities.

Action is required not only from actors at the national level. As importantly, the districts & states have to work towards disaster resilience building and the local community must be aware of the hazards it is prone to, the potential impacts it is exposed to, and how to mitigate, prevent, and deal with natural disasters. As per Section 31 of the Disaster Management Act, 2005 (DM Act), Disaster Management Authority (DMA) at each level in the country shall prepare District Disaster Management Plans (DDMPs), City Disaster Management Plans (CDMPs) and Departmental Disaster Management Plan (DMPs) which is to be approved by State Disaster Management Authority (SDMA). It is to be reviewed and updated annually. The DM Act further provides that DDMP shall, inter-alia, include areas in the district vulnerable to different forms of disasters; measures to be taken for prevention, mitigation, capacity-building and preparedness. The DDMP shall also include response plans and procedures, in the event of a disaster providing for allocation of responsibilities to the Departments of the Government at all levels for prompt response to disaster and relief thereof; procurement of essential resources; establishment of communication links; and the dissemination of information to the public to respond to any threatening disaster situation or disaster' (NDMA).

Government of Andhra Pradesh established State Disaster Management Authority (SDMA) in 2007 and promulgated DM Rules and also constituted DDMA's and SEC at State level. The Government has initiated various Capacity Building and mitigation measures with the help of International agencies and

multi lateral organizations like World Bank.

United Nation Development Programme (UNDP) with Government of Andhra Pradesh and Andhra Pradesh State Disaster Management Authority took up initiative in partnership of All India Disaster Mitigation Institute (AIDMI) for formulation of 13 District Disaster Management Plans, 11 City Disaster Management Plans and 17 Departmental Disaster Management.

For the development of the disaster management plan, it was important to differentiate a natural phenomenon from a disaster: "A physical event, such as an earthquake, that does not affect human beings is a natural phenomenon, but not a natural hazard. A hazardous event that causes unacceptably large numbers of fatalities and/or overwhelming property damage is a natural disaster". The spectrum between a natural phenomenon and a natural disaster was mapped and which was connected to the socio and economic systems within a region. The lower the development indicators, the more vulnerable it is. Therefore, the Disaster Management plan covers all account for tangible and intangible, structural and non-structural elements at all level, linking disaster risk reduction to the development plans and projects. This has helped to address the vulnerabilities in its all forms and ensure that the district/city/department is resilient to natural disasters. Besides that, in order to prepare the DMPs proper focused was given to engage the local actors through participatory.

The following are the essential components of DMPs, which were encompassed in the formulation process:

1. As the entire project is premised upon making DMPs through inclusive, community-centred and

responsive to the needs of vulnerable groups, the DMPs make sure the inclusion of the concerns of the marginalised groups, in particular women, dalits, children, minorities and other disadvantaged groups and their vulnerabilities.

2. Appropriate measures are needed to be taken, for prevention and mitigation of disaster, by the departments at state level, at the district level and at local authorities.
3. The capacity building and preparedness measures are required to be taken by the Departments at state level, at the district level and at local authorities.
4. The response plans and procedures in the event of a disaster, providing for- allocation of responsibilities to the Departments; prompt response to disasters and relief thereof; procurement of essential resources; establishment of communication links and dissemination of information to the public.
5. Strengthening early warning system for different disasters.
6. Inclusion of key Flagship Programmes/development schemes into the DMP such as employment generation schemes, micro irrigation projects that could increase the agricultural output, Skill Development Initiative Scheme, Women and Child Development Schemes, Schemes for Disabled and old aged people, etc.
7. Linkages of DMP with Development Plan.
8. Environmental aspects such as climatic conditions, eco-systems etc. should also be looked at and included into the plans. ■

- Mr. Nagendra Biyani,

Joint Director, Municipal Administration and Urban Development Department, Hyderabad, Government of Andhra Pradesh

# Implementing School Safety and Hygiene (SUCCESS)

The Indian state of Andhra Pradesh (especially its coastal districts) is extremely fragile and vulnerable to hazards like recurring cyclones, storm surges, floods and droughts. In the past 42 years, there may not have been a single year in which the state did not experience any hazard. These hazards have become disasters due to their adverse impacts on child survival, growth and development and child protection. Children are physically and emotionally vulnerable compared to the adverse impacts of disasters than adults. Due to their vulnerabilities, they need special protection and support in times of disasters and emergencies. The best way to reduce children's vulnerabilities is to prepare them with knowledge and skills to protect themselves and other children.

In this context, the combination of Disaster Risk Reduction (DRR) with school safety is considered to offer an effective strategic intervention. DRR is a systematic approach to identifying, assessing and reducing risks of all kinds associated with disasters. Thus, DRR activities focus largely on preparedness, prevention and mitigation. School safety aims to empower and enable children to mitigate the adverse impacts of disasters and strengthen the resilience of their schools.

The SUCCESS programme was initiated in Andhra Pradesh for the first time in April 2016 in collaboration and support with UNICEF. It was a pilot program for a period of 12 months (1 year). The program was implemented by five network partners of CADME through the Department of Education, Government of Andhra Pradesh and funded by UNICEF Andhra Pradesh. The program was initiated in 300 government schools in 16 mandals (Blocks) in 4 coastal districts namely Nellore, Prakasam, East Godavari



Photo: AIDMI.

and Srikakulam in Andhra Pradesh, covering about 39,000 children. The key achievements of the program include:

- Ensuring that 39000 school children are equipped with knowledge on school safety and hygiene measures.
- Bring school safety and hygiene measures to 60% schools in the project area.
- Trained 1200 man power on comprehensive school safety and hygiene measures in project districts.

### The major stages of the program consists of the following interventions:

1. Orientation and exposure for the core team & Officials from education Department.
2. Training and orientation of core group members of project staff
3. Identification of vulnerable and disaster prone schools.
4. Sensitization of personnel from education dept. & identification FPT & HMS.
5. Orientation and awareness creation among school children.
6. Formation & strengthening of School Disaster Management Committees.
7. Consultations at District level with Officials of line Departments.
8. Hazard hunt-identification of risks and vulnerabilities and development of School safety Plan.

9. Training and orientation for stakeholders and service providers at community levels.
10. Awareness generation through celebration of special events.
11. Review and monitoring.

This project was conceived with the underlying belief that the enormous capacity and resources of the education department and line departments as well as village level stakeholders can deliver better results with small but critical interventions. Forming and strengthening of core committee for implementing comprehensive school safety program at various levels would increase the education department attention on school safety and provides a space / opportunity to drive the key messages of behavioural transformation to a large number of people on community resilience as well. Under the program, children play leading roles in their schools and communities to reduce the negative impacts of disasters, through meaningful participation to promote a culture of safety and resilience. The program was implemented through an integrated approach using a DRR and School safety framework. ■

- Mr. Guru Dutt, Convener,  
Coastal Area Disaster Mitigation  
Efforts, Andhra Pradesh

## Reaching Last Mile: A case

A safe and secure environment can be achieved through comprehensive and concentrated efforts and efficient implementation of policies and projects until the last mile.

As a team member of the All India Disaster Mitigation Institute (AIDMI), I got an opportunity to evaluate the effectiveness, efficiency, impact and sustainability of the school safety and hygiene program titled 'Strategic Support in Comprehensive Coastal Environment for Education Department of Andhra Pradesh in Implementing School Safety and Hygiene (SUCCESS)'.<sup>1</sup>

Andhra Pradesh, especially its coastal districts, is extremely vulnerable to recurring natural disasters such as cyclones, storm surges, floods and droughts. Since past 42 years, the state has been experiencing a natural disaster, every single year.

Children, particularly those with physical disabilities, are the worst victims of catastrophic events, which in extreme cases can adversely affect

a child's survival, growth, development, health and safety. Because of this vulnerabilities, they require special protection and support in times of natural disasters. One way to reduce these vulnerabilities is to build the capacity of children with knowledge and skills to protect themselves.

The program was implemented by five network partners of CADME, covering 39,000 children in 300 government schools spread over 16 mandals (Blocks) across four coastal districts of Andhra Pradesh: Nellore, Prakasam, East Godavari and Srikakulam.

Seven team members from AIDMI with support from District coordinators of NGOs/CADME visited the sampled schools from 10 to 18 November 2017 to collect the data.

The team encountered few issues such as gathering the correct data and information because of a recent out-of-the-program rotation among government authorities and teachers in Andhra Pradesh, who had been

trained by or had participated in the program. Many of current officials, therefore only had limited acknowledgement of the program. However, the evaluation team took this opportunity to sensitize the current officials and teachers or headmasters about SUCCESS Program.

The way local NGOs and their field coordinators had involved students in activities, made them understand such technical concepts, and implemented this program is quite laudable. Students are well aware and know the basic concept and seriousness of school safety and their existing risk now. This capacities acquired by the students through this programme are making them and the communities they live in resilient and prepared for any future disaster.

Overall, the SUCCESS project has been largely successful in achieving its stated goals. Reaching last mile will now ensure the effectiveness and sustainability of the positive outcomes achieved. ■

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