



## Capacity Development of Off-Site Respondents

GSDMA  
November, 2013

### First responders – Roles and Responsibilities

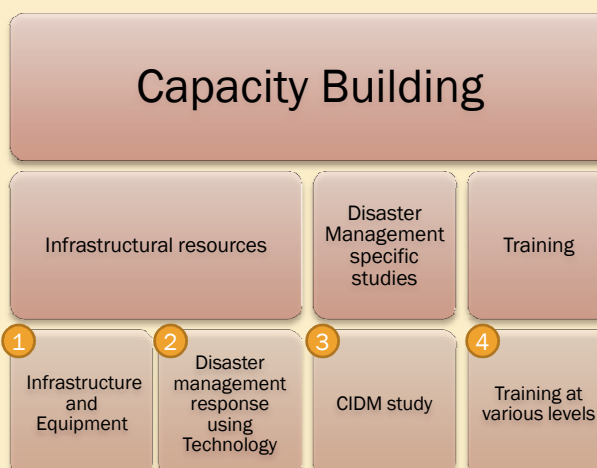
- ✘ First Responder is a person who is responsible for going immediately to the scene of an accident or emergency to provide assistance. The first responders usually include
  - + **Fire Personnel**
  - + **Police**
  - + **Emergency Medical Personnel**
  - + **DRF**
- ✘ The role of the first responder is to survey the scene, **save lives**, make sure it's safe, request more help if needed and minimize further loss of life or damage to property if possible
- ✘ Has a basic understanding of stress response and methods to ensure personal well-being
- ✘ Providing emergency medical care of simple and multiple system trauma



## Enhancing Response Capabilities in Gujarat

### Building up resources to deal with disasters

- Traditionally the role of the Government was of an ex-poste reaction to Disasters.
- Now the entire paradigm of Disaster Management has shifted from adhoc response to preparedness planning and mitigation
- With a view to enhance the disaster management capabilities GSDMA has undertaken various capacity building measures including
  - Developing infrastructure,
  - Effective use of technology for better disaster response,
  - Disaster specific studies
  - Manpower capacity building through training at all levels



## ① Infrastructure and Equipment

### 1) Infrastructure – Building and Civil Structures

#### Gujarat Institute of Disaster Management



- + Gujarat Institute of Disaster Management (GIDM) established on 26th January 2004 by GoG for human resource development (HRD) for disaster management in the state
- + GIDM to provide both classroom and field training at new campus

#### ERCs



- + State Emergency Operation Centre, District Emergency Operation Centre, Taluka Emergency Operation Centre and Emergency Response Centre are already constructed or under construction
- + State Emergency Operations Centre (“SEOC”) planned as a state’s central command and control facility responsible for carrying out the principles of emergency preparedness and disaster management functions at a strategic level

## 1) Infrastructure – Building and Civil Structures

### Establishment of ERCs and Mini ERCs



- + ERCs under construction at Gandhinagar, Surat, Rajkot, Vadodara and Gandhidham
- + Mini ERCs at Industrial Clusters of Hazira, Vapi, Ankleshwar and Dahej will handle emergencies
- + Conduct Offsite Emergency Exercises under LCG/DCG
- + Undertake Safety Awareness Programmes and Training Programs on industrial safety, health, fire fighting, first aid, safe transportation of hazardous goods etc.
- + Mini ERCs to be constructed in PPP model - Capex Funding – 40% Centre, 40% State and 20% Industry; and Opex funding shall be taken care by the Industry



Capacity Development of Offsite Respondents

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## 1) Infrastructure – Disaster management and response Equipments

- ✘ Procurement completed\*
  - + Multifunctional Rescue Vehicle with Crane (MFRV)
  - + Urban Search and Rescue (USAR) Container
  - + Medical Mass Casualty Container (MMCC)
  - + High Capacity Pumps
  - + Water Tankers
  - + Foam Nurers
  - + Emergency Rescue Vehicles
  - + Small pickup Trucks
  - + Command Vehicles
  - + Water Mist Equipment
  - + Hook Arm Trucks
  - + Emergency Lighting
  - + Portable Inflatable Emergency Lighting System
- ✘ Procurement underway
  - + Hydraulic Platform
  - + Turntable Ladder

\* Refer the Appendix for details of the equipment procured



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## 2) Disaster management response using Technology

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- A. **ICT Infrastructure** - State wide network of EOCs recommended by Expert committee formed after 2001 Earthquake. The proposed communication network is expected to facilitate effective disaster response by maintaining continuous communication between EOCs, ERCs and ERVs
- B. **HFSDSS** - Leverages the of effective technology tools including IT based Decision Support System (DSS). It helps decision makers to improve their performances and make better decisions without needing to solve complex problems while reducing human resources and time.
- C. **SDRN** - A comprehensive database of disaster management related inventory is very essential for an organized response
- D. **Oil and Gas Pipeline** - GIS Based Oil and Gas Pipeline Network for state of Gujarat
- E. **CAMEO Suite** - A Customized CAMEO suite for Gujarat to aid in planning and response (based on available data) has been developed on a pilot basis

## A) ICT Infrastructure - State wide network of EOCs

- ✘ An expert committee constituted after 2001 by GSDMA recommended development of state wide network of EOC
- ✘ The proposed communication network is expected to facilitate effective disaster response by maintaining continuous communication between
  - + The Emergency Operations Centers ("EOC") at State, District & Taluka level
  - + Emergency Response Centers ("ERC")
  - + Command centers specifically set-up at disaster sites using specially designed Emergency Response Vehicles ("ERV") or portable emergency communication systems



SEOC Building at Gandhinagar

**The State Emergency Operations Centre (SEOC) , District Emergency Operations Centers (DEOC) are completed and Emergency Response Centers (ERC) have almost been completed while the work on Taluka Emergency Operations Centre (TEOC) is under progress**



## A) Foolproof Communication with multiple levels of Redundancy

- ✘ Resilient Foolproof Communication should be able absorb disaster impact and not fail. It should recover / revive quickly in case of break-down under extreme conditions
  - + Satellite technology is much more reliable than terrestrial technology
  - + Emergency Rescue Vehicles (ERVs) and portable systems can be quickly installed in 2-4 hours after a major disaster.
  - + VSAT will serve as the primary communication medium till normal connectivity can be restored.
- ✘ Levels of Redundancy
  - + GSWAN network
  - + MPLS-VPN ,Internet and Telephone network
  - + Satellite Phones
  - + VSAT network connected through links at SEOC, DEOC, ERVs and portable backpacks



Emergency Response Vehicle (ERV)



VSAT Backpack

**During a major disaster, communication can be quickly restored by Satellite technology which is more reliable than terrestrial technology. VSAT infrastructure through ERVs and portable systems can be set up in 2-4 hours after a major disaster.**



## B) Infrastructure – Hospital Fire Safety Decision Support System

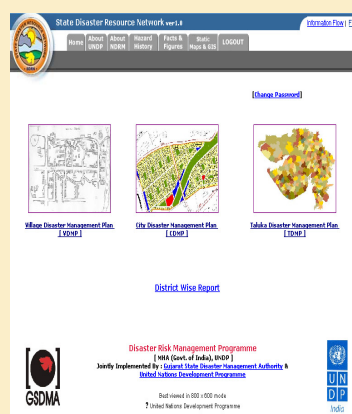


- + Leverages the of effective technology tools including IT based Decision Support System (DSS).
- + DSS supports the decision makers to improve their performances and make better decisions without needing to solve complex problems while reducing human resources and time
- + Combines available risk information with advanced web technology of Geographic Information System (GIS) and Decision Support System (DSS)
- + GSDMA has decided to establish IT based Hospital Fire Safety Decision Support System (HFSDSS) on pilot basis at Civil Hospital Gandhinagar and Civil hospital Sola, Ahmedabad



## C) State Disaster Resource Network

- ✦ SDRN is a comprehensive database of disaster management related inventory is very essential for an organised response.
- ✦ Available on the Gujarat State Wide Area Network [GSWAN], state owned intranet governed by IT department of GOG. Also available through GSDMA website
- ✦ SDRN Database is organized in 3 layers – District, Taluka and Village and covers hazards with intensities, Information on Past Disasters, Sector wise (Demography, Habitation, Livelihood, Infrastructure etc.) detailed Information and Resource Inventory
- ✦ Information of 226 talukas, 150+ ULBs and 18000+ villages has been entered into the system and training has been imparted to all District and Taluka Officials
- ✦ SDRN has been used extensively during the Surat and Vadodara Floods in 2005 and 2006 and during Cyclone Phet in 2010

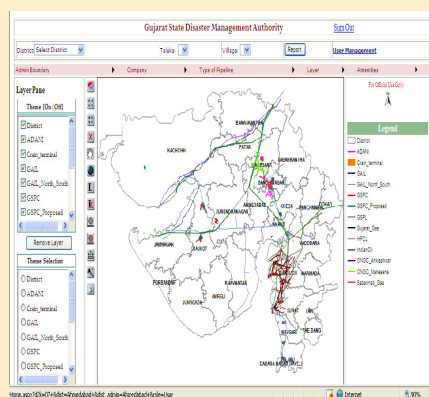


SDRN : Plan Selection Page



## D) Oil and Gas Pipeline

- ✘ GSDMA has taken an initiative to develop GIS Mapping for Petroleum transfer pipelines Network.
- ✘ GSDMA has built an online mapping tool which shows the pipeline network using GIS technology along with other important public infrastructure such as hospitals, roads, water bodies etc.
- ✘ Data has been collected from all the major oil and gas public and private companies such as Cairn, Adani, IOCL, BPCL, GAIL, Reliance etc.
- ✘ The pipeline network currently mapped is more than 17,000 kms of oil and gas pipelines.

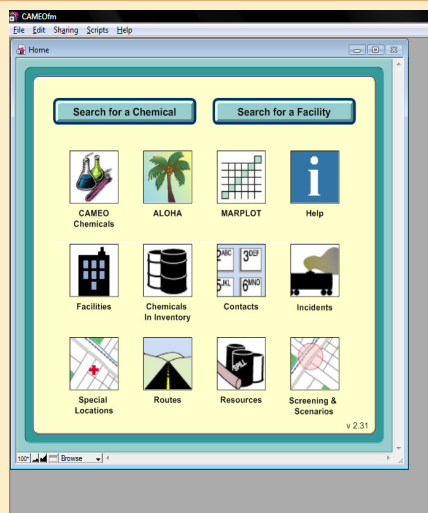


Oil and Gas Pipeline Network



## E) CAMEOfm Software Suite

- ✘ It is a GIS based planning and decision support system to manage chemical emergencies
- ✘ Developed by the USEPA and NOAA, approved by the UNEP, used by several counties (districts) in US in responding to actual emergencies.
- ✘ Chemical facilities can submit identification information, employee contact information, and information such as storage amounts, storage conditions, and locations for chemicals stored or used at the facility.
- ✘ This program can also be used to navigate between ALOHA, MARPLOT, and CAMEO Chemicals.

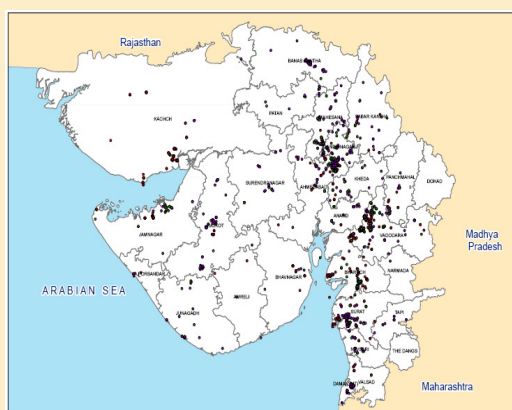




### 3 Disaster Management specific studies

#### 3) Disaster Management specific studies – CIDM study

- + First time a comprehensive database of 1700 industries having 3000+ chemicals prepared with lat-long of industries
- + First time quantified exposure to population, schools, medical facilities, response assets, railway, transmission lines, forests, water bodies (Only 6 district) was undertaken
- + 4500 pages of tables and 300 page atlas



**Customized CAMEO suit for Gujarat to aid in planning and response**

## 4 Capability Building through Training at various levels

### 4) GSDMA has undertaken Training at various levels

#### × Training programs for Government officials

- + GIDM has conducted over 230 training programs and trained more than 6000 Government officials from various departments, Panchayati Raj officers and other stakeholders till date
- + On an average 30 programs conducted and more than 750 personnel trained every year

#### × Intensive trainings

- + Community response mechanism strengthened through emergency first aid & SAR trainings and mock drills
- + 13 state battalions have been trained in search and rescue
- + Collaborative institute with NDRF in Vadodara district to train reserve forces of all state disaster response forces in western India
- + DPOs Training

#### × Training of fire and emergency personnel

- + GSDMA in collaboration with major municipal corporations has organised training programs for Fire and Emergency personnel of the state, covering almost the entire state.

## Way Forward

### Way forward for Enhancing Response Capabilities

1. Establishing IRS and IRT
2. PPP to Enhance Response Capability
  - + Expanding the existing DPMC model to all vulnerable Districts
3. Establish Hierarchical Hazmat Response System
4. Leveraging Technology to enhance effectiveness of Response
5. Focusing on Responder Safety, Health, Training
6. Training and Capacity Building for First Responders

## 1. Establishing IRS

- ✘ Establishing Incident Response System (IRS) provides the following advantages
  - + Government is in the leadership role in response
  - + Unified and clear chain of command
  - + Integration of private and public assets
  - + Clear and coordinated communication
  - + Accountability and transparency through documentation



## 2. PPP to Enhance Response Capability

- ✘ **Combine industries' technical expertise with government's authority**
- ✘ **Augment budgetary resources**
- ✘ **Achieve stakeholder participation**
- ✘ **Recommended PPP models**
  - + Mutual aid (MARGs) among large MAH
  - + Establishment of Mini ERCs
  - + Network to Respond to Road Emergencies (similar to CHEMTREK in the US. In Gujarat Chlorine Transportation Emergency network by AMAI - Gujarat Chapter.)
  - + Mutual aid and joint mock drills between neighbouring districts, railways, ports, airports, defence installations, nuclear power plants etc.
  - + Industry personnel in LERT (Local Emergency Response Team)



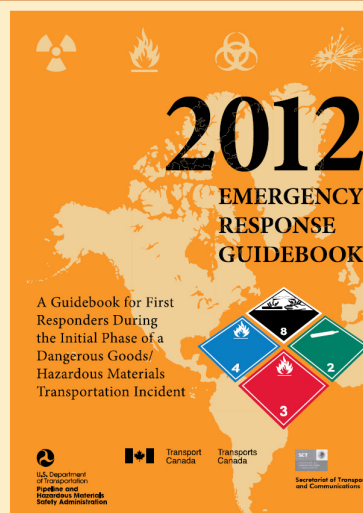
### 3. Establish Hierarchical HAZMAT Response System

- × **Local Emergency Response Team (LERT)**
  - + To deal with common (90%) of emergencies expected
  - + All types of chemical emergencies
  - + At least one LERT per LCG
- × **Regional Response Teams (RRTs)**
  - + Attached to the five ERCs
  - + with HAZMAT Vans
- × **State Emergency Response Team (SERT)**
  - + Under the control of Disaster Management Authority / State Government
  - + Highest level of capability



### 4. Leveraging Technology to Create Situational Awareness for effective response

- × **GIS Based Database and Software System (CAMEO suit)**
  - + Web-based application to register HAZCHEM
  - + GIS database
- × **Emergency Response Guidebook (2012) for first responders**
- × **Fail proof communication**



## 5. Focus on Responder Safety, Health, Training

- ✘ Most neglected area in India
- ✘ Responder protection is a must for effective response
- ✘ Create standards for
  - + HAZMAT team composition
  - + Training
  - + equipment, supplies, and PPE (Personal Protective Equipment)
  - + hot zone entry/exit requirements
  - + Live monitoring
  - + Track training credentials of the responders



## 6. Training and Capacity Building

- ✘ **Training, standardization and improved communication can improve DM with even existing resources**
- ✘ **A training and capacity development plan should be developed for**
  - + Ordinary first responders
  - + Specialist HAZMAT responders, Control room staff
  - + Planners and regulatory agencies
  - + Industries





Thank You

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