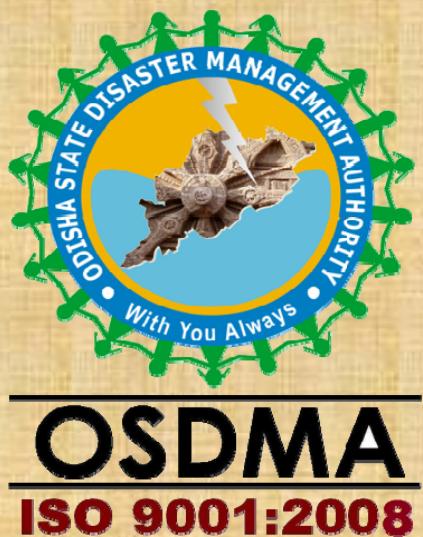


Cyclones and Disaster Preparedness



Dr. Kamal Lochan Mishra
Chief General Manager
Odisha State Disaster Management Authority

Discussion outline

- Cyclones and climate change : trends and future projections for India
- Cyclone preparedness and overall management in India
- lessons learnt
- Successful case study: Cyclone Phailin
- The way forward
- Role of media in disaster management

Indicators of climate Change with Increased Vulnerability

- Frequency and intensity of tropical cyclones increased due to erratic weather pattern
 - 2 very severe cyclonic storms in consecutive years
 - Cloud burst in Uttarakhand
 - July 2007- 26% excess rainfall
 - Floods in June and Sept.
 - Tornado type of wind disturbance in monsoon period
- Rains have become excessive and sudden, bringing in huge amount of water to the catchments in short periods
- Excessive rainfalls in short span of time result in flash flood type of phenomenon even in plains
- Rise in sea level will not only affect the coastal tracts but also the estuarine river systems
- Low elevation flat topography and diverse landscape of coastal areas will be the most vulnerable
- The vulnerability factor relating to landslide will increase with change in rainfall pattern.
- Coastal erosion is already a reality



Ramayapatna, Ganjam

TEMPORARY PROTECTED SITE NEAR PENTHA (Sea facing Embankment)



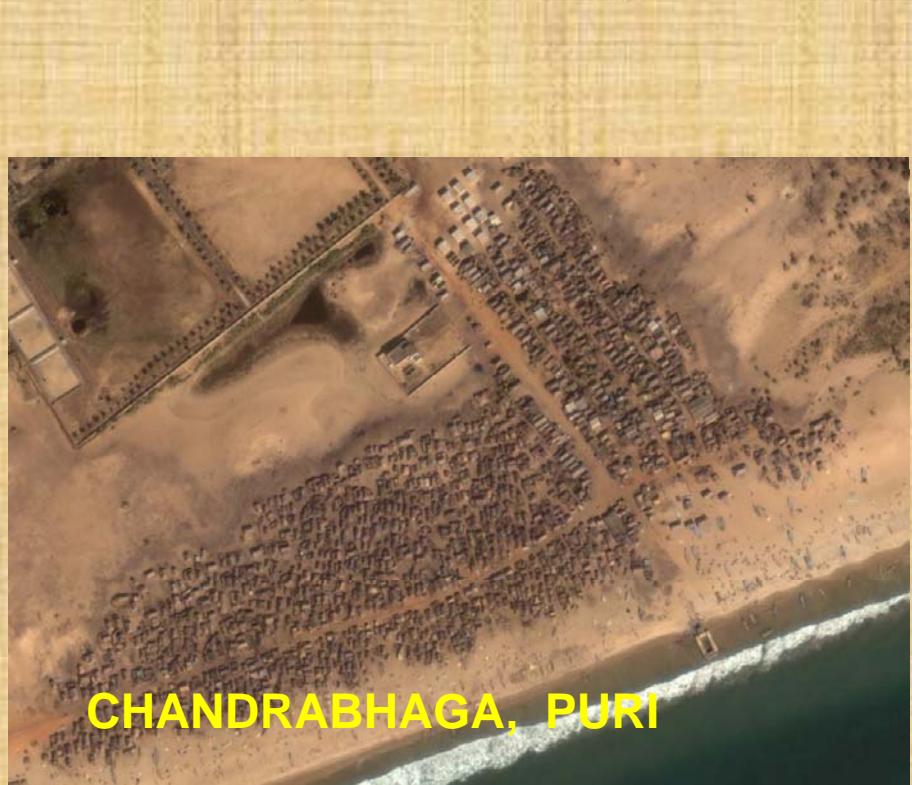
TEMPORARY PROTECTED SITE NEAR PENTHA
(Sea facing Embankment)

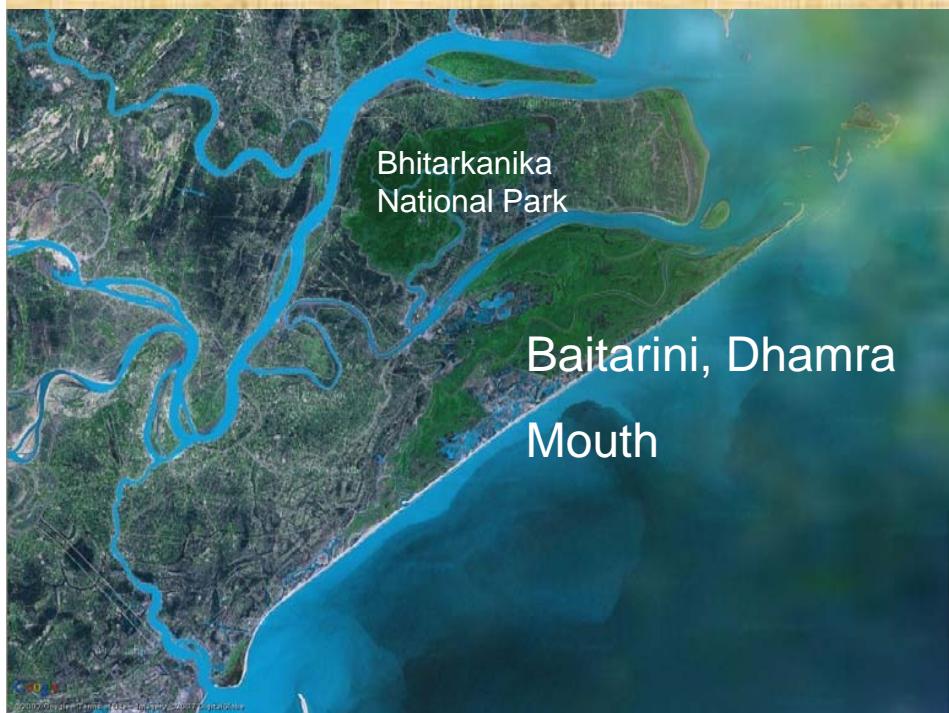
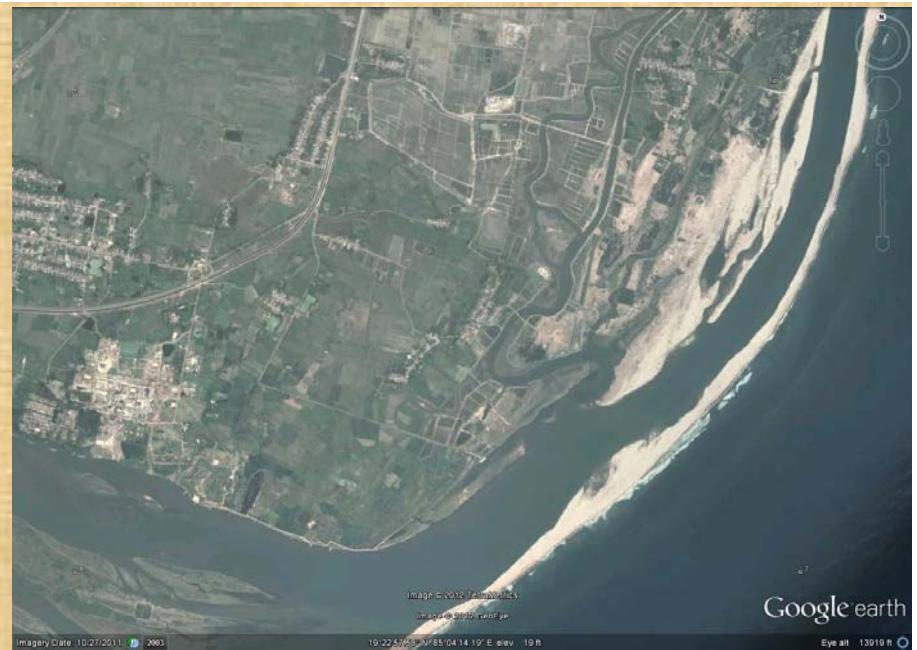




Gopalpur, Ganjam







DM framework

- Policy planning
 - National DM Act 2005
 - National DM Policy
- Institutional Mechanism
- National Level
 - Ministry of Home Affairs
 - National DM Authority
 - National Executive Committee
 - National Advisory Committee
- State Level
 - State DM Authority
 - State Executive Committee
 - State Advisory Committee
- District level
 - District DM Authority
 - Jointly headed by Collector and President Zilla Parishad
- DM Planning
 - DM plans at National State level
 - Departmental DM plans
 - DM plans at District, Block, Gram Panchayat and Village level

Lessons Learnt : Post super cyclone preparedness initiatives

- Multi-purpose cyclone and flood shelters
- Multi layer Communication system
- Specialized response forces
- Policy Planning initiatives
- Capacity building
- Community Based Disaster Management
- Application of technology in DM

Multipurpose cyclone and flood Shelters

Real Institution

- Robust buildings with pile foundation going up to 40 ft under ground
- Designed by IIT, Kharagpur
- Location decided by Grid Analysis technique
- Generator , drinking water facility
- Separate halls & toilet facilities for men and women
- Ground floor for domestic animals

Virtual Institution

- Managed by CSMMC (community based institution)
- 34 types emergency equipment provided
- Task force members for SAR and FA
- Used as community hubs for DM





Accessibility by Ramp



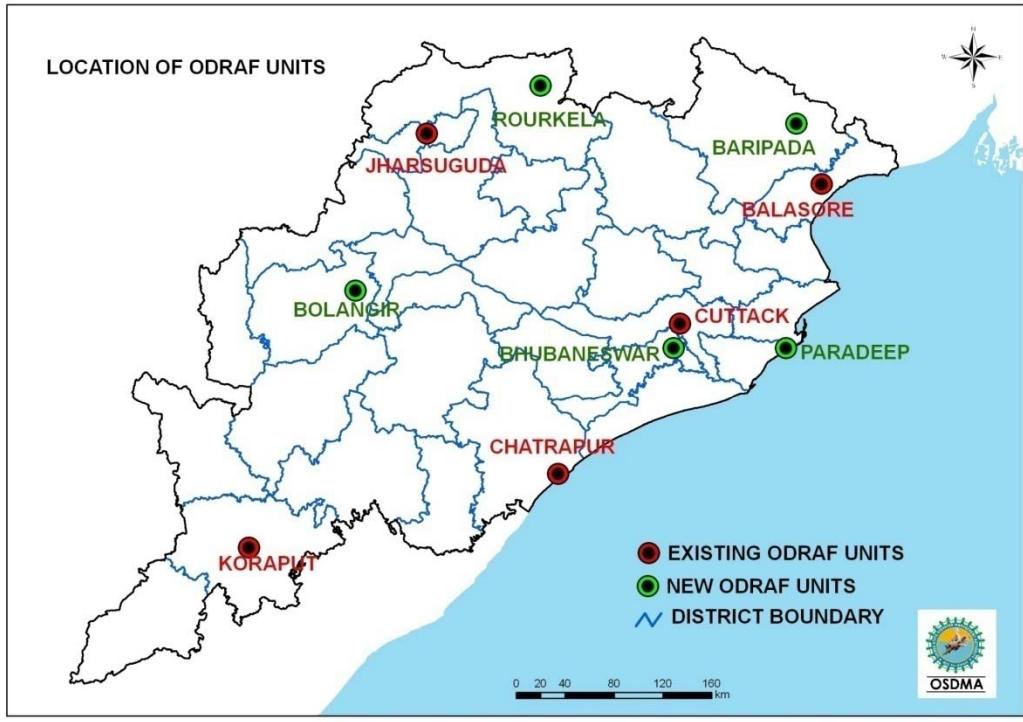
PWDs Equipment at shelter



Accessibility by ductile path



Accessibility Toilet



ODRAF

- 6th Battalion, OSAP, Cuttack
- 3rd Battalion, OSAP, Koraput
- 2nd Battalion, OSAP, Jharsuguda
- 8th Battalion, OSAP, Chatrapur
- APR, Balasore
- 7th Battalion, OSAP, Bhubaneswar
- APR, Paradeep
- Rourkela
- Baripada
- APR, Bolangir

- About 100 types of emergency equipment
- Constituted out of the State Police Forces
- Borne in the Police establishment
- Equipment, maintenance, running cost provided by OSDMA
- Deployment lies with OSDMA
- Capacity building taken up by OSDMA

Organisations strengthened with emergency equipment and training

- **10** ODRAF UNITS.
- **135** MULTIPURPOSE CYCLONE SHELTERS.
- **49** FLOOD SHELTERS.
- **65** REDCROSS CYCLONE SHELTERS.
- **100** FIRE STATIONS.
- **5** CIVIL DEFENSE UNITS
- 30 District EOCs
- State EOC
- Sub-divisional EOCs
- ODISHA FIRE SERVICE TRAINING INSTITUTE (OFSTI).
- BIJU PATTANAIK STATE POLICE ACADEMY (BPSPA).

Empowering Community: Capacity building

- DM plans at village, Block, District and State level
- Community Based Disaster Preparedness
- Disaster management institutional strengthening
- Multi stakeholder approach
- School Safety Programme
- Government Officials , PRI members , WSHG and Volunteers.
- Engineers , Architects, masons
- Volunteers on Search & Rescue and First Aid
- Mock Drills
- Awareness generation
- NGO coordination

Training to be strong

- Awareness level training



- Operational level training



- Mock drill





Super cyclone 1999 vs Phailin 2013

Parameters	Super cyclone	Phailin
Wind speed	252 kmph	200 kmph
Human Casualty	8900	21
Districts /people affected	14/ 1.90 crore	18/ 1.32 crore
Evacuation	NA	9,83,642 + 1,71,083
Road clearance	3-15 days	6-24 hours
Shelters	23	247+ 10,000 school buildings
Preparedness	Not a single chain saw	900 chain saws, 270 inflatable rubber boats, 1200 inflatable tower lights
Response	Only Govt. No CBDP	Multi-stakeholder approach & CBDP is the core DM concept

Milestones

- Mission Zero Casualty
- Pre-positioning of men, material and equipment at strategic locations in all affected districts
- Restoration of road communication within 12-24 hours of abatement of cyclone
- Restoration of electricity and water supply within 24-48 hours
- Provide relief to people during the above entire period of calamity till they return to their homes

10 front preparedness

1. Accurate early warning by IMD
2. Robust telecommunication system
3. Effective early warning communication
4. Continuous Govt. public interface through media
5. Prepositioning of men, material & equipment
6. Massive evacuation of people and livestock
7. Adequate preparedness at shelter level
8. CBOs and NGOs activated
9. Keeping power back up at essential services

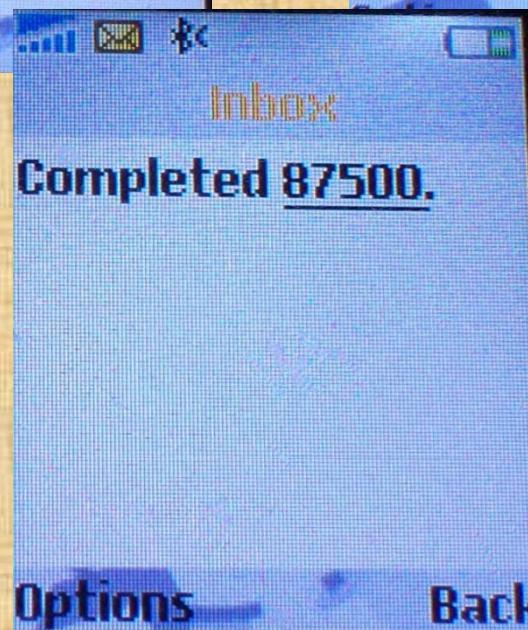
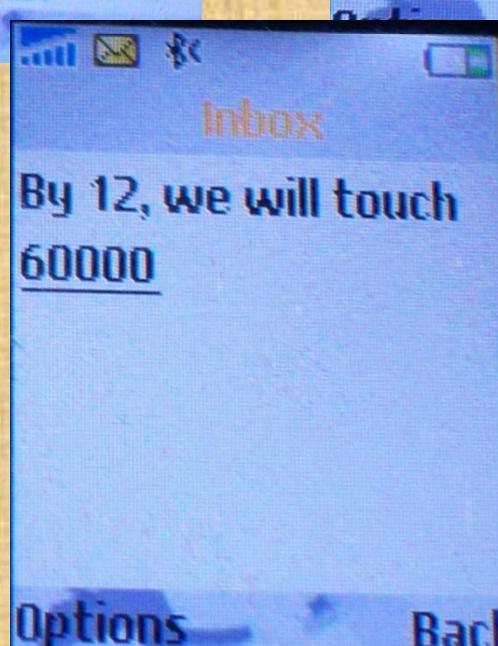
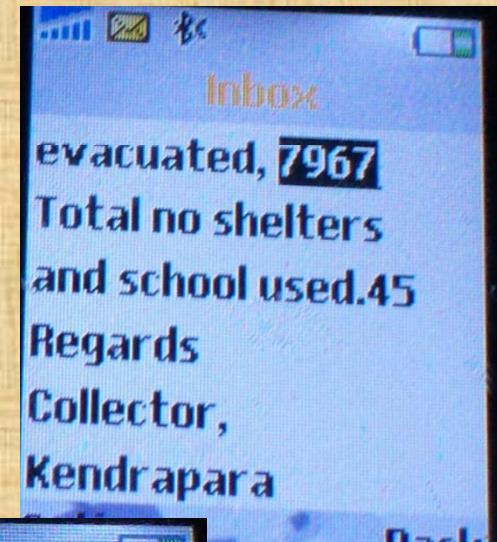
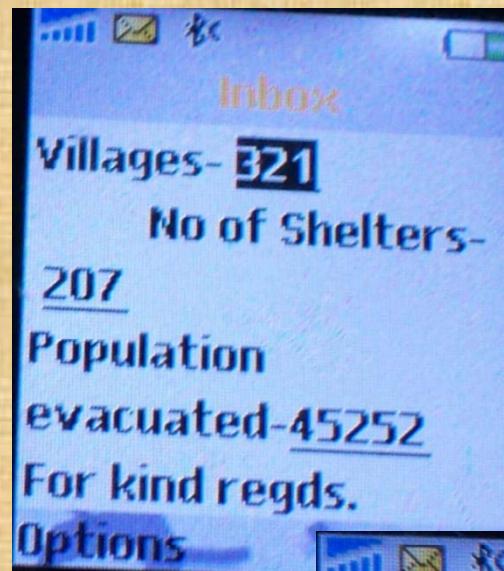
10. CONTINUOUS MONITORING

Preparing for combat

- Shelter level - Priming the equipment, utensils, generators and fuel
- Free kitchens opened
- Section 34 (C) of Disaster Management Act 2005 was promulgated empowering district Admn. to use force if required for evacuation
- Prepositioning of MEN, MATERIAL MACHINES
 - ODRAF, State Fire service, NDRF (located within State) personnel deployed with equipment in strategic locations
 - NDRF, Defence forces joined later and deployed
- Relief line clearance plans made- tracks assigned to teams
- 7 days food, fuel and relief materials prepositioned
- During the entire process of evacuation, shelter and post disaster stay, food and drinking water arrangement was made
- Satellite phones provided to the vulnerable districts as last line of communication

Monitoring Evacuation

by Addl. Chief Secretary & MD, OSDMA



Continuous Govt.-public interface

- Appeal by Hon'ble CM to the public not to panic and cooperate with administration.
- Warning communication provided to people on a continuous basis through AIR every 15 minutes
- Extensive media coverage by Government at all levels
- General public communicated through media by SRC to cooperate with Govt. for evacuation.
- Communication in the commonly used language



Early warning by
community members^{10 11 2013 16-20}



Evacuation process





Sheltering people and animals





- Preparation of food by shelter level volunteers
- Providing cooked food to the people through free kitchen
- Lighting the shelter for ease of operation





and then the cyclone hit us.



	Phailin and floods	Phase-II floods
Districts affected	18	13
Blocks affected	171	105
Gram Panchayats affected	2164	1517
Villages affected	18,374	10,722
ULB affected	44	19
Population affected	1,32,35,981	81,30,446
Population evacuated (cyclone+ flood)	9,83,642 + 1,71,083	1,91,310
Human casualties	21+23	15
Crop area Affected (hec)	11,00,501	2,50,023
crop loss is >50% (hec)	6,51,590	1,31,499
Loss of Livestock	1500+3002	271+1878
Houses Damaged	5,41,200	4,07,306



ODRAF in relief line clearance





NDRF in action





Civil Defense Volunteers





Community members in action





Responding to the cyclone



Role of Media in Disaster Management and DM Mechanism

- Media is the link between authorities and people
- Govt. decisions reach people through media earlier than the designated channel
- People believe the media on disaster news
- Govt.-Media-People is a two way mechanism of information dissemination
- Disaster Management Information System
 - Interface between DMIS and Media
- DMIS needs to be organic covering all stages of DM
- It should be cross cutting and sector specific
- It needs to be inter-disciplinary and multi-disciplinary
- Technical and human resources must be developed committed to address hazards

Media in mitigation....

- Adequate and timely information sharing
- Multi-stakeholder information dissemination
- Ease of access to information
- Dynamic flow of information for all stages of disaster management
- Sharing of historical data on DM
- Linking media to EOCs at different levels

Early warning

- National Govt.s have the sovereign right and responsibility to issue EW determined through scientific and other expert means
- Single authority for EW or people may act on incorrect or misleading information
- Information should be distributed using all available modes of communication
- Electronic and print media is the best platform for accomplishing the task

Ground Realities

- Information and decisions constitute news
- Media carries news
- People use the news for decision making
- All are human beings subject to-
 - human fallacies
 - human shortcomings
- Competition among the media to be first among equals
- Sensationalism sells
- Human beings in distress become emotionally weak and thus psychologically vulnerable
- It is human tendency to target somebody for his distress-even if it is by natural means

Communicating with the community

- State and District Emergency Operation Centre
- Multi layer communication
- Last Mile connectivity
- Close coordination with cell phone service providers
- Communication Core group formed
- Close user group for disaster communication
- Cell phone coverage of Tsunami prone villages
- Technology Leaders are kept in the loop for advice

The way forward

- Climate Change Adaptation (CCA) issues need to indicate identifiable and implementable things.
- CCA plans may address cross cutting issues
- Reconstructing resilience into the system
- Climate centric policy planning
- Well planned response protocol to save lives
- Platform for Govt.-media DM interface

*thank you
for your kind attention*