REVENUE ADMINISTRATION,
DISASTER MANAGEMENT AND MITIGATION DEPARTMENT &
TAMIL NADU STATE DISASTER MANAGEMENT AGENCY

From
Dr. K. Satyagopal, I.A.S.,
Principal Secretary / Commissioner of Revenue Administration,
Chepauk, Chennai 600 005.

To
The District Collectors,
Chennai, Kancheepuram,Tiruvallur, Cuddalore,Villupuram,Nagapattinam, Thanjavur,Tiruvarur,Pudukottai, Ramanathapuram,Thoothukudi, Tirunelveli, Kanniyakumari Districts.

Lr.No. NC 1(4)/ 7337 /2016, dated: 29.10.2016.

Sir,

Sub: **Natural Calamities** –Preparedness Measures for Management of Tsunami - Instructions issued - regarding.

Ref:
1. This Office Circular Ref No. N.C. I(4)/5779/2016, dated 29.8.2016.
2. This Office Circular Ref. No. N.C.I(4)/ 5779/2016, dated 12.09.2016.
3. This Office Circular Ref. No. N.C.I(4)/ 5779/2016, dated 16.09.2016.
4. This Office Circular Ref. No. N.C.I(4)/ 5779/2016, dated 23.09.2016.
5. This Office Circular Ref. No. N.C.I(4)/ 5779/2016, dated 04.10.2016.
6. Guidelines of NDMA on Management of Cyclone.
7. This Office Circular Instructions on Cyclone Ref. No. N.C.I(4)/5779/2016, dated 25.10.2016.

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Tamil Nadu covers an area of 130, 058 sq km and has a coastline of about 1,076 kms (*inclusive of the Union Territory of Puducherry*), which is about 15% of the total coastline of India. More than 40% of the population associated with fishing lives within 1km of the coast and 50% of them live within 2km of the coast. The geographical setting of Tamil Nadu makes the state vulnerable to natural disasters such as cyclones, floods and earthquake-induced tsunami.

2) The un-precedented 2004 Indian Ocean Tsunami affected the whole the coast of Tamil Nadu in destroying much of the marine biology and severely damaging the ecosystem. Crops, settlements, trees, birds, fishes, wildlife, and properties were destroyed. Precious coral reefs and mangrove areas were crushed by the huge Tsunami waves that devastated South India. Power and communication were totally disrupted. The damage to the community was humongous and took several years to overcome the economic, social and psychological trauma.

Tsunami Warnings by INCOIS

The Indian National Centre for Ocean Information Services (INCOIS) provides round-the-clock monitoring and warning services for the coastal population on tsunamis, storm surges, and

high waves through the in-house Indian Tsunami Early Warning Centre (ITEWC). An earthquake with magnitude of 6.5 to 7.0 has lesser potential to generate Tsunami and earthquakes with magnitude of more than 7.1 can generate large tsunami.

Nature of Advisories issued by INCOIS

Real-time tsunami warnings are issued by INCOIS by first announcing the area of warning, alert and watch based on travel time together with an estimate of the height of the tsunami calculated on pre-run numerical models of tsunami propagations. Based on the hazard - *'warning', 'alert'* and *'watch'* are issued.

a) Area under Warning: Area that is within 60 minutes from the tsunami generic sources and wave height expected is more than 2 meters.

b) Area under Alert: Area within 60 minutes travel time of the tsunami and wave height is less than 2m and Area more than 60 minutes travel time of tsunami and the expected wave height is more than 2 m.

c) Area under Watch: Areas that are outside the 60 minutes travel time of tsunami and are kept under watch when the wave height is expected to be less than 2 m.

Based on the data from BPR and the tsunami wave buoy, if the passage of tsunami is not detected or even if it passes and the wave was insignificant and may not cause destruction even on a minor scale, the warning is cancelled and *"A Tsunami All Clear Bulletin"* is issued.

Any Tsunami originating in the Banda ache, Sumatra (***Andaman – Sunda****sub plate*) will take more than 60 minutes to reach Tamil Nadu. Hence, there will be about 1 Hour time for action. However, if Tsunami occurs in Andaman and Nicobar the time interval is very limited.

3) The District Collectors of coastal districts are hereby instructed to take the following preparedness measures in the event of a Tsunami Warning. The steps to be followed to mitigate the disaster due to tsunami are similar to those that are followed for that of Cyclones - hence the instructions to mitigate cyclonic effect disasters communicated in the reference 7th cited should also be followed. In addition any additional measures that may be required based on the past experience in the district should also be put in place.

- ✓ Tsunami awareness events may be observed at local community levels.
- ✓ Tsunami Mock Drills may also be conducted to educate the fisher folk.
- ✓ Posters/wall paintings to be in public places on the beach as well including museums, railway stations, cinema theatres on actions to be taken in case of tsunami warning.

- ✓ Identify adequate Relief Shelters well in advance.
- ✓ List of inventories viz., Inflatable motorised boats and search & rescue equipment that are required immediately after a tsunami to carry out search and rescue of people trapped in inundated areas, on tree tops and hanging on to structures to be kept ready.
- ✓ Village Disaster Management Task Force to be established for every coastal village with members who would

  a. frequently organize meetings to impart knowledge about tsunami,
  b. play a role in dissemination of the information on "tsunami alert" received either from the DDMA or any other responsible body.
  c. Train the villagers for quick evacuation and organize their stay in the tsunami shelters.
  d. Have members drawn from the panchayats, doctors and other volunteers.

- ✓ Formulate detailed Standard Operating Procedures (SOPs) for the dissemination of Tsunami Warning Bulletins specific to each level, viz. district, sub district and village/ community level.
- ✓ Emergency communications and warning protocols, systems, processes, and procedures are to be developed, periodically tested, and exercised to alert people likely to be affected by a tsunami.
- ✓ The communication systems and procedures established are to be regularly tested and exercised, especially at the level of villages and localities in risky areas to support the tsunami warning mechanism.
- ✓ Tsunami Alert, Watch and Advisory Bulletins received at the DEOCs should be disseminated through the fastest means to the people in the coastal areas likely to be affected.
- ✓ DEOC should be fully activated for managing the incident.
- ✓ Coastal Village community to be instructed to move immediately to higher places. Forcible Evacuation should also be resorted to.
- ✓ Quick Response Teams (QRTs), Search and Rescue Teams, Medical Teams and Para-Medical Teams shall be deployed.
- ✓ The services of Army, Navy, Air Force, Coast Guard and NDRF should be engaged by the district administration for search and rescue if necessary.
- ✓ Incident Command Teams shall be deployed.
- ✓ Meeting of DDMA to be convened to review the situations.
- ✓ Team for rapid assessment of damages shall be deployed.
- ✓ Line Departments / Agencies to begin the work of restoration of power, tele-communication systems, surface transport.
- ✓ Arrangement shall be made for supply of food material, drinking water for the inmates of the relief and also to the people affected.
- ✓ Establish and maintain an emergency public information capability that includes the following:
  - ✓ A central contact facility for the media ;

- ✓ A system for gathering, monitoring, and disseminating emergency warnings ;
- ✓ Pre-scripted information bulletins ; and
- ✓ A method to coordinate and rapidly disseminate information.

✓ Ensure judicious and innovative use and integration of all communication resources available, such as Public Address systems through digital bulletin boards, local radios, local cellular/mobile network, and state and private television networks for dissemination of warnings received at their EOC nodes to the people in the coastal areas.

✓ A system of colour coded flag warning signals to be formulated appropriate to local culture, traditions, sentiments and acceptance.

✓ Update the record of telephone numbers and mobile numbers of village centres, heads and local community leaders.

✓ The communication resources and methods are to be integrated into the village resource centre.

✓ As already instructed the Indian Red Cross Society, Civil Defence, NYKS, Home Guards, etc. shall be given specific responsibility as a part of community based multi-hazard preparedness.

4) The Do's and Don'ts for the General Public in case of a Tsunami Warning is enclosed herewith.

5) Moreover, Annual Communication Mock Drills may also be conducted regarding Tsunami Early Warning by INCOIS.

6) The District Collectors besides taking necessary action, in case Tsunami strikes, have to monitor the situation closely upto the end of post disaster phase. The Collectors should also send regular updates and shall not hesitate to escalate the problem to State level as and when the situation warrants by bringing it to the notice of Principal Secretary/ Commissioner of Revenue Administration so that assistance can be strengthened from the State level.

Yours faithfully,
Sd/-K.Satyagopal.,
Principal Secretary /
Commissioner of Revenue Administration.

For Principal Secretary /
Commissioner of Revenue Administration.

TSUNAMI

Do's & Don'ts

- You should find out if your home, school, workplace, or other frequently visited locations are in tsunami hazard areas along sea-shore.
- Know the height of your street above sea level and the distance of your street from the coast or other high-risk waters. (Local administration may put sign boards).
- Plan evacuation routes from your home, school, workplace, or any other place you could be where tsunamis present a risk.
- If your children's school is in an identified inundation zone, find out what the school evacuation plan is.
- Practice your evacuation routes.
- Use a Weather Radio or stay tuned to a local radio or television station to keep informed of local watches and warnings.
- Talk to your insurance agent. Homeowners' policies may not cover flooding from a tsunami. Ask the Insurance Agent about the benefits from Multi-Hazard Insurance Schemes.
- Discuss tsunamis with your family. Everyone should know what to do in a tsunami situation. Discussing tsunamis ahead of time will help reduce fear and save precious time in an

emergency. Review flood safety and preparedness measures with your family.

If you are in an area at risk from tsunamis

- You should find out if your home, school, workplace, or other frequently visited locations are in tsunami hazard areas.
- Know the height of your street above sea level and the distance of your street from the coast or other high-risk waters. (Local administration may put sign boards). Also find out the height above sea level and the distance from the coast of outbuildings that house animals, as well as pastures or corrals.
- Plan evacuation routes from your home, school, workplace, or any other place you could be where tsunamis present a risk. If possible, pick areas (30 meters) above sea level or go as far as 3 kilometres inland, away from the coastline. If you cannot get this high or far, go as high or far as you can. Every meter inland or upward may make a difference. You should be able to reach your safe location on foot within 15 minutes. After a disaster, roads may become blocked or unusable. Be prepared to evacuate by foot if necessary. Footpaths normally lead uphill and inland, while many roads parallel coastlines. Follow posted tsunami evacuation routes; these will lead to safety. Local emergency management

officials can advise you on the best route to safety and likely shelter locations.

- Find out if the plan requires you to pick your children up from school or from another location. Telephone lines during a tsunami watch or warning may be overloaded and routes to and from schools may be jammed.
- Practice your evacuation routes. Familiarity may save your life. Be able to follow your escape route at night and during inclement weather. Practicing your plan makes the appropriate response more of a reaction, requiring less thinking during an actual emergency situation.

If you are visiting an area at risk from tsunamis

- Check with the hotel or campground operators for tsunami evacuation information and find out what the warning system is for tsunamis. It is important to know designated escape routes before a warning is issued.
- One of the early warning signals of a tsunami is that the sea water recedes several meters, exposing fish on shallow waters or on the beaches. If you see the sea water receding, you must immediately leave the beach and go to higher ground far away from the beach.
- Protect Your Property
- You should avoid building or living in buildings within 200 meters of the high tide coastline.

- These areas are more likely to experience damage from tsunamis, strong winds, or coastal storms.
- Make a list of items to bring inside in the event of a tsunami.
- A list will help you remember anything that can be swept away by tsunami water.
- Elevate coastal homes.
- Most tsunami waves are less than 3 meters. Elevating your house will help reduce damage to your property from most tsunamis.
- Take precautions to prevent flooding.
- Have an engineer check your home and advise about ways to make it more resistant to tsunami water.
- There may be ways to divert waves away from your property. Improperly built walls could make your situation worse. Consult with a professional for advice.
- Ensure that any outbuildings, pastures, or corrals are protected in the same way as your home. When installing or changing fence lines, consider placing them in such a way that your animals are able to move to higher ground in the event of a tsunami.