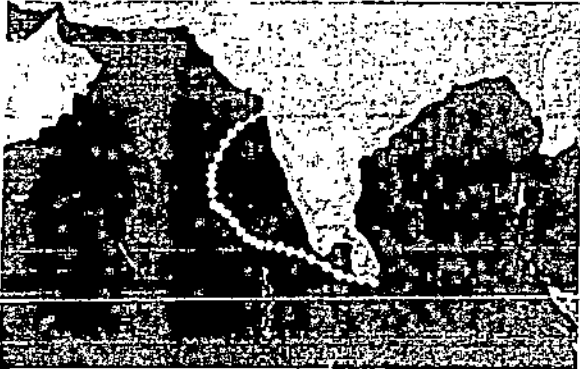


REPORT ON IMPACT OF CYCLONE OCKHI IN TAMIL NADU

---S. Jalaja, Spl. Rapporteur, NHRC



(Ref en.wikipedia.com)

About the Cyclone

Cyclone Ockhi is considered to be the most intense tropical cyclone to transverse the Arabian Sea since 2015. In its entire course of 2538 km, Cyclone Ockhi left a trail of massive destruction in Sri Lanka, Lakshadweep, South India and Maldives, as it strengthened from a depression to a mature cyclone.

According to media reports the origins of Ockhi can be traced back to an area of low pressure that formed on the Gulf of Thailand on November 21, 2017. While traversing the southern part of the Bay of Bengal, favorable conditions enabled it to consolidate into a deep depression. As a deep depression, it reportedly caused damage to property and life in Sri Lanka on November 29. Due to moisture and warmer temperatures between Sri Lanka and Kanyakumari in mainland India, it intensified into a cyclonic storm on November 30, 2017.

While near Kanyakumari, cyclone Ockhi intensified and changed its path and headed towards Lakshadweep in the Arabian Sea. However, it caused severe damages to structures and property and also claiming the lives of at least 218 people in the Southern parts of Tamil Nadu and Kerala in India. Ockhi had landfall in Lakshadweep on December 2. It crossed south coast of Gujarat between Surat and Dahanu on 6th Dec. The cyclone dissipated over the sea before hitting the Gujarat coast. Nevertheless, it caused heavy rains along the western coast of India, particularly in Maharashtra and Gujarat.

Ockhi battered the coastal areas of the southern states of Tamil Nadu and Kerala flooding farmlands and causing extensive damage and destruction to thousands of

homes, power lines and other infrastructure. Educational institutions remained closed in the districts.

According to Government officials 33,000 people in Kerala and 2,800 in Tamil Nadu were stated to have been affected by the cyclone. Initial reports showed that 76 bodies were recovered and another 144 were reported missing. 1,687 houses had been damaged completely while 2,814 houses suffered partial damage.

Multiple rescue operations were conducted across Tamil Nadu, Kerala and Lakshadweep. The Indian Navy and Coast Guard searched for stranded fishermen in coastal areas. More than 400 people were rescued and evacuated; a few dead bodies were found.

State Government Assistance

Tamil Nadu Government announced an ex-gratia relief of Rs.20 lakh to the families of those who died due to the cyclone. Families of missing persons, once confirmed would also be provided assistance. Compensation was also provided for huts/houses fully or partially damaged as well as for property destroyed.

According to the state government, the cyclone, which hit Kanyakumari district had damaged a total of 3,623 hectares of horticulture crops (less than that reported by district administration), mainly affecting 1,900 hectares of banana plantations. As per reports the State Government, therefore, announced 'livelihood assistance' ranging from Rs 48,500 to Rs 63,500 per hectare for horticulture farmers of Kanyakumari district. Input subsidy covering banana saplings, fertilizers and other inputs would be provided at Rs 35,000 per hectare under normal cultivation method and Rs 50,000 for tissue plantation method. The government will provide a subsidy of Rs 50,000 towards rubber plantation, and an input subsidy of Rs 28,000 per hectare for cultivation of clove, as clove plantation to the extent of 43 hectares was reportedly damaged due to the cyclone.

Tamil Nadu reportedly sought a central relief package of Rs 9,300 crore for rehabilitation efforts in the state, which faced the monsoon fury. Tamil Nadu also demanded assistance in the areas of power and communication network, among others. The state sought provision of 1,500 high frequency wireless sets with 90 per cent central assistance, besides setting up of control rooms in coastal areas. It

also wanted a dedicated satellite radio channel to be set up to issue regular weather updates for fishermen in Tamil, according to a government release.

Visit to districts

With the approval of the Commission I visited Kanyakumari, Thoothukudi, Tirunelveli and Ramnathapuram districts in Tamil Nadu from 21-26 January, 2018. In all four districts I had review meetings with District Collector, SP and other senior officials.

1. Kanyakumari district

Kanyakumari, reportedly has the highest density of fisher folk in India. Among the districts visited Kanyakumari was the worst hit. Cyclone Ockhi left a massive trail of destruction in Kanyakumari district. Torrential overnight rains accompanied by squalls lashed the district, uprooting trees and electric poles, disrupting normal life. 36 deaths were reported; 141 were reported as missing, with more than 4,000 power lines damaged Kanyakumari district was largely powerless after Cyclone Ockhi.

Kanyakumari district

Total area of the district:	: 6823 sq. Km
population	::Rs.30.72 lalchs
Length of coastal Area	: 45 km
No.of taluks	04
No. of affected Taluks:	04
Total No. of villages	: 188
No. affected	: 188
No of people dead	: 36
No.wounded	:77
No Missing	:141
Agr.crop damage	: 537.658Hec.
Horti.crop damage:	:5467.52 Ha

Kanyakumari district is the southernmost district in Tamil Nadu state and mainland India. It stands second in terms of population density among the districts of Tamil Nadu and the second most urbanized district. The district has sea on three sides.

Action taken

In Kanyakumari district I had a meeting with the District Collector, SP and other senior officials. It was stated by District Collector, Kanyakumari that IMD in their early warning issued on 29-11-2017 cautioned of very heavy rainfall and heavy wind likely to affect southern coastal districts of Tamil Nadu. Accordingly Instructions were issued to all concerned. By 2.30 pm the same day fishermen in the coastal areas were advised not to venture into the sea. Information was also provided to Whats-App groups, Fishermen cooperatives etc. Power supply was shut down at 11pm to prevent any untoward incident. General public were also cautioned. Parish priests of local churches were passed on the information. All educational institutions were closed.

District administration pointed out that fishermen west of Kanyakumari go for deep sea fishing and return to the shore only after 15-45 days. No message about formation of depression/ cyclone was received from IMD before 29-11-2017. Warnings therefore, obviously did not reach these fishermen.

Efforts taken for search and rescue mission of fishermen

Indian Coast Guard deployed 18 ships, 03 Dronier Aircraft, and 03 helicopters for search and rescue operation. Maritime System of International Safety Net was activated through Marine Resource Center, Mumbai, by which all merchant vessels transiting between Kanyakumari to Gujarat would look out for vessels adrift with survivors or bodies and report.

Indian Navy deployed 11 ships, 03 Aircrafts and 02 Helicopters for Search and Rescue (SAR) operations. Indian Air Force deployed 04 Aircraft. Long Range Maritime Reconnaissance P 81 aircraft sorties were undertaken by Indian Navy over islands of Maldives to locate stranded Tamil Nadu and Kerala fishermen, post Ockhi Cyclone:

Extent of damage

As mentioned, among all districts in Tamil Nadu, Kanyakumari was the most affected, All four Taluks in the district comprising 188 villages were affected. 36 deaths (21 fishermen and 15 others) were reported from the district; 77 were wounded; 141 were missing. 1096 families lost their houses fully; 5990 partially lost their houses. 411 properties (personal) belongings were lost.

Agricultural crop damage was reported in 537.658 Ha and horticulture crops in 5467.52 Ha.

Assistance provided Details of ex-gratia and other payments to the families of those who died or were missing are given in Table- below. According to District Collector Kanyakumari, Rs.20/- lakhs each were paid to the families of fishermen who lost their lives (Rs 12/-lakhs from Tamil Nadu Fishermen Welfare Board, Rs.04 lakhs from State Disaster Relief Fund, Rs.2 lakhs from Group Insurance Scheme, and Rs 02 lakhs from Tamil Nadu chief Minister's Public Relief Fund). Rs 10/-lakhs (Rs.04 lakhs from State Disaster Relief Fund and Rs.06 lakhs from Tamil Nadu Chief Minister's Public Relief Fund) were paid to the families of those other than fishermen, who died in the cyclone due to house collapse, tree fall, accidents etc. As regards 141 fishermen reported as missing, as per Government orders (GO No.4 of Animal Husbandry, Dairy and Fisheries Dept. dated 12-01-2018) a committee has been formed for extending ex-gratia assistance of Rs.20lakhs to the next of kin of missing fishermen due to Ockhi Cyclone. After due inquiry and verification, the Committee recommended *that all 141 fishermen were indeed missing in the cyclone*. Their details have been published in the gazette in Tamil and English languages. After screening objections, if any , their cases would be finalized.

Payment of ex-gratia / other assistance in Kanyakumari district

Death		injury		Hut damage		Loss of cattle	Property lost	Relief to Missing flys
F	O	F	O	F	P			
21	15	20	09	109	599	7655	411	234

				6	0			
Rate Rs.4.20 lakhs each	Rs.10/- lakhs each	Rs.50,000/- each-20	Rs 12,700 each for 07; Rs 4300 for 02	54.80 lakhs	2.45 crores	Varying rates	Rs. 3800/- each	Rs 5000/- each
Total Rs 4.2 cr	Rs 15.00 lakhs	Rs.10 lakhs	Rs 97,500			Rs 24.42 lakhs-	TotalRs.15.62 lakhs	Total Rs. 11.70 lakhs

Apart from relief to missing fishermen families, in 31 cases compensation to the tune of 1.27 lakh was paid for equipment damaged; Rs.5000/- was sanctioned as livelihood assistance to each of the evacuated families. Families of missing fishermen also were provided the same assistance.. Family relief for 30778 fishermen amounting to Rs 15.38 crores was paid. Food allowance of Rs Rs.2000/- per person was granted to 1568 returned fishermen. Apart from these measures, 4857 affected farmers were paid compensation of Rs77.78 lakhs for agricultural crops and 26442 affected farmers for horticultural crops to the tune of Rs.9.37 crores.

Evacuation

District administration reported that on 30-11-2017, 825 persons living in low lying areas were evacuated and put up in 10 relief camps. On 1-12-2017, 1566 affected people were evacuated to **19 relief camps**. Essential items like food, milk clothing and medical assistance were provided to them. As per Go Ms. No.380, 10 kg rice, 01 liter kerosene, 01 sari and one dhoti and eligible amounts were issued to affected families.

Employment

It was announced by the State Government that one of the family members of the fishermen who lost their life during Ochki cyclone will be provided a Government job., on the basis of their qualification. Applications have accordingly been collected and are being processed as per procedural norms.

Education

Action is being taken to provide educational assistance to children of families of victims.

Health care

29 medical teams of Kanyakumari district, along with 15 mobile teams, were mobilized to provide medical assistance to the affected persons. 1535 health camps were organized in different areas and 63383 persons were treated. No out-break of communicable diseases was reported.

ICDS

92 ICDS centers were damaged due to cyclone.

Community Support

It was stated that first responders have been identified in the affected villages. Village Level Disaster Management Committees are formed to build community capacity. One remarkable aspect of the life of fishing communities is the support they provide each other even in daily life. This has, to a great extent enabled them to face the cyclone fury.

Field visit

In Kanyakumari district I visited Neerodi fishing village. With around 5000 houses and a population of 17,000, the colony is thickly populated. In this village, 05 bodies of fishermen were recovered and 36 fishermen were reported missing (30 confirmed). The village is yet to recover from their shock. In the houses of those who lost their lives or reported missing, photographs of those who died/missing were prominently displayed.

I visited homes of some of the fishermen who lost their life in the cyclone. Alexander 55 had gone to Kochi and from there he went along with others for fishing. He left behind his widow, 06 girls and 01 boy. 04 girls are married and 02 remain to be married. One girl is attending college and the other is waiting to get married. His second daughter is separated from her husband and is also living with the family. One of the family has been promised a Government job.

Late Alexander was earning around Rs 2000/-per week. The house in which they were living is owned by them. It had three small rooms. The tin roof of the house was leaking. The family belonged to BPL category. They had an LPG connection. It was confirmed that ex-gratia payment of Rs.20.00 lakhs was received by the widow in her account.

Crespin 38 was reported missing. I spoke to Ambika his widow. She stated that her husband had gone to Thengapattinam which was 8km away. She came to know that he had gone for deep sea fishing. She has two small children Jijo in class 1V and Leena in class-4 .Both are studying in English medium schools. Her mother and brother (disabled) also are staying with them. The house is owned by them.

Antony 38 too was a victim of Ockhi Cyclone. Thangarani, his wife, stated that she has two small girls She stays with her mother who also has 04 of her own children staying with her. Her husband had gone for fishing to Neendakarai, in Kollam district, Kerala. 06 persons went in a boat, but only 04 returned .They saw the remaining two fishermen die, being swallowed by waves.

The family has no house of their own. The house had three rooms. The family had no ration cards. Children attend the nearby church school. Thanarani has studied up to 8th class and has been offered a job by the Government.

Irudai Dasa 57 also perished in the cyclone. I spoke to his widow Anthaiamma. Her both daughters are married. Her husband had gone to Vizhinjam in Kerala from where his body was recovered.

The house where they stay is owned by them. But it had no roof. Polythene sheets were used instead. She gets old age pension. Relatives are helping them to tide over the difficulty. She confirmed of receiving Rs.20/- lakhs sanctioned as ex-gratia. Marriage debt of her daughters will be redeemed with the money received. Her elder daughter is expected to get a government job.

I spoke to some of the assembled villagers. *They pointed out that had the warnings been given in time many lives could have been saved.* Regarding basic facilities in the colony they stated that although pipe water supply is available, it is available only once in two days.-that too 8-9 buckets only. A Government -aided

school is available nearby. Most of the people are getting pension, but some cases are left out.

I also spoke to a group of women. Emotionally disturbed, they were very much concerned about the safety of their husbands and sons who were still venturing out to the sea. They also aired their fears about what the future holds for their children.

2. Thoothukudi district

Thoothukudi district is situated in the south-eastern corner of Tamil Nadu. It is bounded on the north by the districts of Tirunelveli, Virudhunagar, and Ramanathapuram, on the east and southeast by the Gulf of Mannar and on the west and southwest by Tirunelveli district.

Thoothukudi (Tutucorin) district

Total area of the district:	: 4621sq. Km
population	:Rs. lakhs
Length of coastal Area	: km
No.of taluks	: 09
No. of affected Taluks:	: 01
Total No. of villages	: 480
No. affected	: 01
No of people dead	: 02
No.wounded	: 03
No Missing	:03
Houses fully damaged	:19
No.of partly damaged houses	:155
Agri/ Horti.crop damage:	Not reported

I visited Thoothukudi district on 23-1-2018. In the district I had a meeting with District Collector, SP and other Officials in which the situation arising out of the aftermath of Cyclone Ockhi was reviewed:

Action taken

It was reported by the district administration that forecast bulletin from IMD was received on 29-11-2017 at 12.20 pm. It was communicated to Fisheries, Fire & Rescue departments, coastal fishing hamlet presidents, Fishermen cooperative societies, church authorities and all others through emails, whats-app VHF sets. Information on call centers was given to the public through the media.. Fishermen were advised not to venture out into the sea. Those who were out for fishing were instructed to return. Deployment plan of the police was activated. All educational institutions remained closed. Dos and Don'ts were also communicated to the public.

36 vulnerable locations were identified in the district according to degree of their vulnerability. 13 inter-Departmental teams were formed for vulnerable and highly vulnerable areas. 35 mobile teams were formed. Apart from 52 PHC level Medical Teams, 12 block-level medical rapid response teams were formed. 154 shelters/relief centers were identified which consist of schools, colleges, multi-purpose evacuation centers etc. Rescue operations included keeping ready rescue shelters, evacuation routes, protection gears and equipment, keeping sufficient stock of food materials/medicines/medical equipment/clothes, arranging accommodation facilities for SDRF and other rescue agencies etc

Loss of life/Damages 02 fishermen namely Tiru Jude and Keniston lost their lives; three fishermen were reported missing namely Tiru Raveendran, Joseph and Maria Bharath. The bereaved families were provided with ex-gratia assistance of Rs.20 lakhs each. It was stated that none of the fishermen fishing crafts from Thuthukudi district had ventured into the sea after getting the warnings. 47 fishermen and 07 fishing crafts which went to the sea before warnings were issued were searched and rescued. Total damages (mostly roads and public buildings) were quantified by the administration at Rs.5.64 crores Agriculture/horticulture crop damage was estimated at 65.98 lakhs.

Evacuation

Due to release of 24,000 cusec of water from Tamirabarani river and consequent flooding due to heavy rainfall at Tirunelveli on account of Ockhi Cyclone, people from Punnakayal village had to be evacuated on 1-12-2017. 345 evacuees and

118 were accommodated in this camp on 2-12-2017. on 3-12-17 respectively . They were accommodated in a relief shelter in the same village. This was the only relief shelter opened during the cyclone in the district.

Field visit

In Thoothukudi district I visited Meenavar colony. This colony has about 220 houses out of which 25 are pucca houses. Almost all fishermen work in mechanized boats. They earn about 1000-2000/- a week, sometimes more. Due to dispute between owners of motor boats and country boats about fishing rights in the sea waters, mechanized boat owners were said to be on strike since October, 2017. Hence the fishermen have to either work in country boats where they get paid less or go to Kerala coast for work in motor boats, which go deep into the sea. This issue is stated to be pending in the court.

The first home visit made was that of Tiru Jude, who lost his life while gone for fishing during the Ockhi Cyclone. His son Bharat 18 who had accompanied him was reported missing. Some of the fishermen in the colony said that he too was perished in the tidal waves, as witnessed by them. There was no official confirmation. Jude was earning Rs.1000/- per day when he went out for 3-4 days a week. He was able to make on the average RS.9000/- per month..But due to strike by motor boat owners he and other fishermen were forced to go to Kollam, in Kerala. 16 of them went in a boat.

It was stated that The family belongs to BPL category. The elder son is working in an ice plant. With his income they were managing daily affairs now. He has been promised a job by the state government. Two of his younger brothers go to school. It was mentioned that education has been made free for them. They have a ration card and they were getting one month's free ration announced by the state Government. The entire family was living in one room. *No housing scheme has been taken up for the colony.*

It was confirmed that his widow received Rs.20/-laks sanctioned as ex-gratia by the state Government. But relief for the missing boy is yet to be given. Assistant Collector who accompanied me stated that a taluk-level committee was formed as per Government orders to inquire into the cases of missing fishermen, after which objections will be invited through gazette notification.

The second home I visited was that of Raveendran who is still reported as missing. He had gone to the sea with other fishermen. No information about his survival. He was the sole bread winner of the family. I met his wife Virjit and two grown up daughters who were unmarried. Virjit stated that her husband was the only bread winner of the family. He was working as a laborer in a mechanized boat and was getting Rs.800/- per day when work was available. Meenakshi 23 is 10th pass and stays at home. Reshmi 21 has a B.Com degree. She is now working for a private company, thanks to the efforts of district administration. They are surviving with the income (Rs 7000/- per month) she receives now. Besides her children her parents also stay with her. I met her mother (64). They had received RS:5000/- sanctioned by the Government to families of those who were reported missing to tide over immediate difficulties. Their home looked better than that of others in the locality. They were getting free ration for one month announced by the state government. Virjit wanted jobs for her daughters.

The third house I visited was that of Kinston 43, who too lost his life when gone out for fishing. He is survived by his widow Jayanti (32) and two young children Manisha 13 and a boy aged 04. They live in a rented house. They received Rs 20/- lakhs announced by the Government as ex-gratia, but it had to be shared with the family of his first wife. They were paid Rs.5 lakhs. Their share is put in fixed deposit. The family also received one month's free ration.

The next house belonged to Joseph 60 who is still reported to be missing. His wife Sahya Mary 54 is living in a rented house with two rooms. She has one daughter and son each. Both are settled. But her daughter with two children is separated from her husband and was living in a near-by house. They have received only Rs 5000/- announced as immediate relief for families of missing persons.

I met Jagan 43 a survivor. He has sailed in a boat along with 16 others. The boat tilted in heavy rain and wind. Out of 16 only three survived. The three clutched on to a floating fiber boat. He and two others thus miraculously escaped in the raging cyclone. He saw Bharath disappearing into the sea with his own eyes. He was admitted in a hospital in Trivandrum for 8 days. He had to be in hospital even after he returned home. He is still traumatized. His wife Subhadra and two school going children (boy 6th class, girl 3rd). They received only free ration from Government. Church and others came forward to help the family. He suffers from post traumatic

syndrome and that he will not be in a position to return to the sea at least for 2-3 months. He is expecting to get an assistance of rs.50,000/-each from the State and Central Governments.

I spoke to some of the residents who had assembled . About basic facilities they stated that most of them live in temporary houses. They get water supplied by the Municipal Corporation once a week. On other days they draw water from a bore well. It was confirmed that they do get their ration and social security pension . Power supply is normal. Some women have informally formed SHGs. Fisheries Department has sponsored Fishery Societies wherein if women are able to mobilize Rs 1500 own their own, the government contributes Rs.3000/-.However most women are not able to save Rs.1500/ in order to claim the Government share. A sum of Rs.5000/- is provided to fishermen families during the lean months of June and July.

3. Tirunelveli district

Tirunelveli is the second-largest district in Tamil Nadu. The district is located in the southern part of Tamil Nadu. It borders Virudhunagar District to the north, Thiruvananthapuram, Kollam, Pathanamthitta and Idukki districts of Kerala to the west, Kanyakumari District to the south and Thoothukudi District to the east.

Tirunelveli district

Total area of the district:	: 6823 sq. Km
population	:Rs.30.72 lakhs
Length of coastal Area	: 45 km
No. of taluks	: 15
No. of affected Taluks:	:04
Total No. of villages	:619
No. affected	:05
No. of fully lost houses	:38
No.of partially lost houses	:102

I visited Tirunelveli district on 25-1-2018. I had a review meeting with the District Collector, SP and other senior officials.

It was reported by the district administration that forecast bulletin from IMD was received on 29-11-2017 at 12.50 pm. It was communicated to Fisheries, Fire & Rescue and all line departments, coastal fishing hamlet presidents, Fishermen cooperative societies, church authorities and all others concerned, through emails, whats-app VHF sets. Dos and Don'ts were also communicated to the public. Information on call centers was given to the public through the media. Deployment plan of the police was activated. All educational institutions remained closed

Fishermen were advised not to venture out into the sea. Those who were out for fishing instructed to return. It was claimed that none of the fishermen /fishing crafts from Tirunelveli district had ventured into the sea after getting the warnings. and that timely warning helped to avoid huge loss of life.

125 locations were identified as vulnerable out of which 11 are highly vulnerable. 15 Inter-Departmental zonal teams were formed for very highly vulnerable and vulnerable locations; 59 Mobile teams consisting of line dept officials were formed; 19 block level medical rapid assessment teams were formed; damage assessment teams were also formed; deployment plan for police personnel activated; maps were prepared for vulnerable places; separate What's-app groups were created; first responders for all vulnerable were identified, including women responders.

261 rescue shelters/relief centers identified, including schools/colleges/multi-purpose evacuation centers. Rescue operations included keeping ready rescue shelters, evacuation routes, protection gears and equipment, keeping sufficient stock of food materials/medicines/medical equipment/clothes, accommodation facilities for SDRF and other rescue agencies etc

Evacuation

Due to release of 10481 cusec of water from Papanasam dam into Tamirabarani river and consequent flooding due to heavy rainfall at Tirunelveli on account of Ockhi Cyclone, people from nearby habitations were accommodated in three camps at Ovary-88 persons (Radhapuram taluk), Chettikulam (Radhapuram taluk)

16

107 evacuees and Papakudi (Cheran Mahadevi taluk)-120 evacuees, Karuthapillayur-(Ambai taluk)-30 evacuees, Mangammal salai(Tenkasi taluk) 72 persons -Total 417. 05 static Medical camps were organized. 02 Mobile units also were functional.

Human loss/damages

As already mentioned district administration claimed that since cyclone warning was communicated immediately without any delay, all fishermen and fishing vessels which were in the sea returned to the shore. Hence no casualty or major boat damages occurred in Tirunelveli district. Only fishing nets were damaged due to heavy wind and tidal action. Although *there were no human or cattle loss and no one was wounded or missing*, hut damage was reported at Rs.6.08 lakhs. 38 houses were fully damaged and 102 partly damaged. Area of crop loss estimated was 130.59 ha; Apart from this 43 roads, 02 major bridges, 15 public buildings were damaged. One transformer and 318 electric poles were also damaged. 79 trees had fallen. 350 fishing nets were also damaged in the cyclone.

Community support

Services of volunteers from NYC, NCC and RCS were utilized during the relief operations.

Field visit

Since there were no casualties or missing persons and the fishermen habitations were in far away locations I did not visit any fishermen families.

Out of 488 plantations in the district, all except two mango, are banana plantations. In Tirunelveli district I visited a banana plantation owned by N. Meera Sahib destroyed in the cyclone. He owns a plot of 05 acres of plantation out of which banana trees in 01 acre were completely destroyed. A loss of around 1 1/2 lakhs was reported against which government paid only Rs 4725/- which was credited into his account. Under Prime Ministers Crop Insurance Scheme he received Rs,2920/- only. He stated that no farmer in the area is willing to join Prime Minister's Crop Insurance Scheme, as for availing insurance, total area needs to be declared as affected. Perhaps he was not aware that under the new scheme conditions have been made more liberal. It was stated by the Sub Collector that

every month a Farmers' Meet is organized in the Sub division. More awareness could be created among the farmers about the new scheme through that forum.

I also saw the damage caused to the bridge across Nambiar at Anakarai which was constructed in 2009. It was 200ft long and connected the local population on one side with the Panchayat office, PHC and school across the river. It got completely sunk due to heavy flooding during the cyclone. According to locals water rose to a level of 20ft. It was a low level bridge constructed with funds from DRDA. Now an estimate of Rs.2 crore is prepared to construct a high-level bridge with pile foundation. It is being sent to the government for approval.

4. Ramnathapuram

Ramanathapuram is one of the coastal districts of Tamil Nadu, bounded on the north by Sivagangai and Puthukottai districts, on the east and south by the Bay of Bengal and on the west by Thoothukudi and Virudunagar districts.

Fifty four years ago the human settlement of Dhanushkodi, a flourishing town then, was obliterated in a severe cyclonic storm. Train No. 653 Pamban-Danushkodi with 100 passengers and five railway staff got submerged killing all; Over 200 people in Danushkodi were killed by tidal waves. and about 1,500 to 2,000 people died in the cyclone.

Table-1 Basic information

Total area of the district:	: 4175 sq. Km
Length of coastal Area	: 271 km
Marine Fishing villages	: 78
Fishermen population	: 124387
fish production	: 87,508 tons
No. of mechanized boats	: 2861;
country boats	: 8403
Jatties	: 04
landing centers	: 17
Fishing crafts total	: 2803,
boats (valloms)	: 7882

I visited Ramanathapuram district on 22-1-2018. Although originally reported as cyclone affected, the impact of the cyclone was the least in Ramanathapuram. Of the 08 Taluks in the district, five, namely Ramanathapuram, Rameswaram, Kilakarai, Tiruvandanai, and kadaladi are in the coastal areas. Although the cyclone inflicted no major damages in the district, during NE Monsoon period one death was reported. 07 huts were fully damaged and 21 huts partially damaged. A sum of Rs. 1,21,100/- was disbursed to the affected families as ex-gratia. 02 mechanized boats and 12 country crafts were damaged. Total value of damage was worked out at Rs. 11.75 lakhs. Educational and ICDS facilities were functional in coastal areas. Health facilities were not affected. No special activities like employment generation were reportedly taken up as distress relief.

Cyclone preparedness

Ramanathapuram is considered to be a vulnerable district as far as cyclones are concerned. It is prone to cyclonic storms and floods every year during the North-East Monsoon from October.

On a review of cyclone preparedness in the district, it is seen that a Disaster Management Plan has been put in place under which rainfall data is carefully monitored. 23 Multi-purpose evacuation shelters have been constructed in selected vulnerable areas which have sufficient space to shelter affected people from coastal areas. In addition, 36 schools and 91 *kalyanamandapams* are also kept ready for use. Once shifted to these shelters evacuees could be provided food, first aid and other medical facilities. Official teams which consist of Inter-Departmental teams, Zonal teams and search and rescue teams have been formed to oversee relief operations. An inventory of heavy duty pumps, suction machines, Súper suckers, JCBs is maintained.

The plan also envisages community support by enlisting volunteers from different organizations like Nehru Yuvak Kendras, NCC, RCS etc. Selected men and women from the villages who are experts in handling situations are included as first reporters. A Mock-drill exercise was conducted in November, 2017.

Health contingency plan

A contingency plan on health care has also been prepared by the Department of Public Health and Preventive Medicine, Paramakudi. The plan covers a population of 616546, including the urban population. The administrative area includes 04 taluks, 06 blocks, 04 town panchayats, 261 village panchayats, 01 municipality and 987 villages. Out of these 14 coastal villages with a population of 24731 are

included in Paramakudi Health District Unit. The plan is to be implemented through 27 PHCs + 02 urban PHCs, 132 Sub centers, 04 Govt. hospitals. 39 risk areas have been identified. 15 relief camp sites and 03 cyclone shelters have also been identified. The plan also covers identification of risk groups which include patients with communicable diseases, transportation, collection of water samples, chlorination of water sources disinfection of the areas, disposal of solid wastes, hygiene in food establishments, awareness building, coordination of departments concerned etc. Readiness for treatment of injured due to house collapse, those hit by moving/flying objects, rescue of drowning victims and treatment for shock victims.

It has made provision for adequate stock of medicines, drugs, vaccines, disinfectants chemicals fuels as well as equipment required. Procurement procedures have been laid out. Medical team as well as monitoring teams have been indicated.

Field visit

In the district I visited one of the Multi-purpose Community hall named as Disaster Risk Reduction Center constructed in 2014-15 at a cost of Rs 2.46 crores under disaster management. It is a two story building with each floor having a kitchen, store, a set of separate toilets for men and women. 4 rooms are available in the first floor. Both floors have large halls for accommodating people evacuated. A shelter for domestic animals is available. Water is pumped from a bore well and stored in a huge tank. It was learned that the local BDO maintains the building.

The building was found to be in disuse. A plan ought to be made for utilizing it during other seasons. It could be rented out for various government/business functions during off season.

I had a detailed discussion with the District Collector, regarding disaster management in the district. He stated that as the district falls in the rain shadow area of Sri Lanka, there was no impact of cyclone Ockhi. He stated that a Disaster Management Plan is already prepared for the district.

Observations by experts

Some of the lessons learned in handling Cyclone Ockhi will be useful in dealing with such calamities in future. In the aftermath of OCKHI cyclone many valuable observations and suggestions have been made by experts and others who are involved in this field. Some of the important ones are summarized below:-

- According to the National Disaster Management Authority (NDMA), 76 percent of India's coastline is prone to cyclones of varying degrees. To add to this, a third

of the country's population – or 32 crore people – live in coastal states. A report by World Health Organization (WHO) 2016 mentions that 12 crore Indians are already exposed to coastal floods and cyclones each year.

- **Cyclone warning**

A news report in The Hindu dated 20-12- 2017 quoting some experts in the area of disaster management pointed out that Tamil Nadu State Disaster Management Authority issued a cyclone warning on the evening of November 29, a little before the cyclone hit. Experts were of view that *this was too late* as fishermen in Kanyakumari, who venture deep into the sea, had already gone to the sea the previous day for fishing. They further pointed out that even a week earlier, the ocean had showed signs of a building cyclonic storm, and *had the IMD followed the patterns, it could have issued a forecast well in advance*. Even the warning issued on 29 November by the fisheries department merely said that the seas are rough and winds will blow at 70km/h. *This is not a good enough warning*. By 30 November, the cyclone had already devastated Kanyakumari.

The Met department needs to become more people-friendly and learn to issue jargon-free advisories. The state government needs to improve its communication systems so that Met warnings reach the public on time and are issued in precise and clear terms.

- **Rescue operations**

A symposium held in Chennai in wake of cyclone Ockhi by People's Parliament for Unity and Development pointed out that *Ships and helicopters went quite late for rescue operations, and were inadequate in number*. The Coast Guard and Indian Navy went searching for fishermen, but they *did not go beyond 60 nautical miles*. Many fishermen, however, were present in deep seas, much beyond this limit. The fishermen had informed the rescue teams of this fact, but they did not go beyond their jurisdiction for rescuing.

- **Protection for fishermen**

It has been pointed out that *even after the disaster, fishing hands set out without minimal safety gear such as life jacket and life belt*. They ought to be provided with necessary protection gears.

State government also ought to equip fishermen with battery-operated radio sets so that AIR and TV channels can put out bulletins to reach them 100 km off shore

• Development of a marine equivalent of the Indian Territorial Army

Since they have a specialized knowledge of the sea, fishermen should be recruited more into the Coast Guard and Navy, to ensure that they can provide not only coastal security but also aid in rescue and relief operations. Hence the suggestions for the development of a *marine equivalent of the Indian Territorial Army*. Like the TA, this force would be an auxiliary voluntary outfit, whose membership would be drawn directly from members of fishing and coastal communities. The invaluable experience and expertise of these individuals would complement efforts of the Indian Navy and Coast Guard.

• Role of Central Government

Since such disasters have a national dimension, It should be the primary role and responsibility of the Union in a Federal set-up to deal with such disasters, pressing into action the Defense forces and the allied Coastal Guard.

Suggestions and Recommendations

By the time I visited the districts the initial turmoil following the cyclone had settled. In the beginning there were protests, especially in Kanyakumari about the alleged delay in warning issued by the IMD, slowness in rescue operations in the sea, the quantum of relief announced etc. Once the relief operations were put in place, the rescue operations speeded up and a generous package announced by the state Government, these protests died down slowly. Moreover, both Prime Minister and the Defense Minister visited cyclone hit areas of Tamil Nadu and Kerala. *All four District Collectors (especially Kanyakumari) and their team have done commendable work in bringing back the districts to normalcy in the quickest possible time, using scarce resources available at that point of time.*

1. Early warning

Fishermen and their family members whom I met expressed their anguish and concern that had the warning from NDMA come in time, many precious lives could have been saved. According to NDMA they had issued a warning on 29th November itself, and bulletins were issued every three hours. *It was a rare storm which developed from deep depression to lethal cyclonic storm in only six hours.* District Collectors of the four districts had confirmed that they received the

24

cyclone warning by the noon on 29-11-2017. In Thoothukudi and Tirunelveli fishermen returned to the shore in time. In Tirunelveli there were no casualties. The casualties in Thoothukudi were those fishermen who had gone to the Kerala side for deep sea fishing in motor boats. On the contrary, in Kanyakumari district 36 persons lost their life and 141 were missing in the cyclone. It is possible that the fishermen in Thoothukudi and Tirunelveli were in country boats due to *hartal* by Motor boats and hence were not deep into the sea. On the other hand the fishermen in Kanyakumari, being close to Kerala *were possibly using mechanized boats went deep into the sea hence were not aware of the warnings..* Therefore, there appears to be a need for developing /perfecting early warning systems by adopting latest technologies both at the central and state levels.

2. Providing Livelihood Options

Given the limited quantity of fish in near shore waters, many fishermen venture into in to the deep-sea where it is difficult to track them during cyclonic storms.. The strategy should be to decongest the fishing zone and improve skills of fishermen to take up other jobs. A more sustainable model that could replace the tradition of too many persons vying for limited resources needs be developed so that "this social segment is pulled out of perpetual penury".

3. Status of fishermen families

Fishermen were found living in crowded colonies, without proper housing, drinking water facilities etc. None of them own any land. Only a few had ownership of houses. Living conditions were poor with hardly any privacy as family members were huddled together in 2-3 room tenements. There is need for ensuring basic facilities to fishermen families in the quickest possible time.

4. Utilization of ex-gratia assistance

Tamil Nadu government has sanctioned Rs.20/-lakh per families of fishermen who lost their lives..There is need to guide the families to properly invest the amounts suitably so that the relief provided is not frittered away.

5. Unemployment

Unemployment is a serious problem among the youth. Present generation of fishermen families strive to give good education to their children. Once educated, they may be reluctant to take up traditional occupations.. It is necessary for the Fisheries Department to chalk out a plan for the educated youth

with the help of NGOs, Church and social organizations. Training could be organized in useful trades with assistance from corporate houses under their CSR .

Fish processing industries ought to be encouraged to be set up in coastal areas to provide back up support to fishermen. Other livelihood options also need to be provided to fishing communities.

6. Status of women I found the women folk in a state of sorrow, anguish and despair after losing their husbands or family members reported missing. There is need to organize them into efficient SHG groups with the help of reputed NGOs as to provide back up support to their families, to be economically independent and provide support to their communities.

The way forward It has been pointed out that there is sufficient scientific evidence that ocean temperatures will continue to rise in the coming decades due to climate change and violent cyclones will be more frequent. The economic losses will also be greater because more assets are being created in India's coastal cities. It therefore follows that there ought to be better preparedness on the part of both Central and State governments in timely prediction of natural calamities and minimizing the loss of life and property of fishing communities. The Disaster Management Plans developed ought to be utilized in other times too for better delivery of services. A comprehensive plan for making fishing sustainable at the same time improving the livelihoods of fishing communities need to be worked out without any delay.

Note; I wish to record my grateful thanks to District Collectors, SPs and their team members for their hospitality and assistance/ support provided to me during the visits.
