

MUNICIPAL CORPORATION OF GREATER MUMBAI

The weather forecast for the 26th July 2005 received from the I.M.D. at 13.00 hrs. on the same day had predicted “Rather Heavy to Heavy Rain Accompanied by Strong Gusty Winds Likely in City & Suburbs” in the next 24 hours, which was also the prediction for the last few days. Around 11.30 hrs. on the 26th July 2005, moderate rains started which gradually became stronger and around 14.30 hrs. The rainfall intensity became really very high so much so that between 14.30 hrs and 17.30 hrs, the suburban areas of Mumbai witnessed a record rainfall of 380 mm. The statistics below very clearly show how heavy and unprecedented the rainfall pattern was over those fateful 24 hrs. Between 0830 hrs on 26/7/2005 to 0830 hrs on 27/7/2005. During the same period, the rainfall reported by Vihar lake site was 1049 mms.

Rain Fall

| Date | Time | Rain Fall (m.m) | | High Tide | |
|-----------------|----------------------------------|-----------------|--------------|-------------------|----------------------------------|
| | | Colaba | Santacruz | High | Time |
| 26.07.05 | 0830 to 1130 hrs | 0.0 | 0.9 | | |
| 26.07.05 | 1130 to 1430 hrs | 7.0 | 18.4 | | |
| 26.07.05 | 1430 to 1730 hrs | 26.5 | 380.0 | 4.48 Meter | 15.50 hrs |
| 26.07.05 | 1730 to 2030 hrs | 6.6 | 267.6 | | |
| 26.07.05 | 2030 to 2330 hrs | Nil | 101.0 | | |
| 26.07.05 | 2330 to 0830 hrs (27.07.05) | 33.3 | 176.3 | 3.82 Meter | 4.42 hrs (on 27/08/05) |
| | Total Rainfall in one day | 73.4 | 944.2 | | |
| 27.07.05 | 08:30 To 28/07 08:30 am | 31.3 | 19.0 | | |

- The weather forecast of the I.M.D for the 26th July 2005 had been dully intimated to all the Assistant Commissioners of Wards and the other concerned authorities as well as control rooms by SMS and on telephone, for more vigil and for keeping their machinery on high alert. But the intensity of rains in suburban Mumbai after 1430 hrs on 26/07/05 exceeded all expectations.

- From 1430 hrs. Onwards, complaints started pouring in from several suburban areas. Concerned Assistant Commissioners of wards were intimated immediately, as the flow of flooding complaints increased Additional Municipal Commissioner (WS) in charge of the Disaster Control Room stationed himself in the control room from 1445 hrs. onwards and started monitoring the situation and interacting with various other authorities including W.Rly, C.Rly, BEST, Mumbai Police and the Municipal Commissioner who was busy in a meeting of the Crisis Management Committee at Mantralaya.
- Municipal Commissioner immediately rushed to the Corporation Control Room at about 1530 hrs. and started personally monitoring the situation by issuing instructions to various authorities.
- Following things were immediately done:
 1. The BEST was informed about 1630 hrs. to arrange buses for evacuate 1.5 lac commuters stranded at Churchgate and C.S.T. Stations. Accordingly the BEST arranged 138 no. of buses (52 from Churchgate & 86 from C.S.T.) by 1700 hrs. on which facilitated disposal of stranded commuters from Churchgate to Mahim and C.S.T. to Sion. Asst. Commissioner A Ward and D.M.C. (Z-I) were deputed for supervising the arrangement of stranded people on Churchgate and C.S.T. stations. Constantly announcements were made from both platforms regarding this arrangement.
 2. Arrangements were also made for some commuters to stay back near these two railway stations at the Govt. Law College (for Churchgate railway station) and 2 MCGM schools in Borabazar, A Ward (for C.S.T. railway station). 300 no. of commuters availed themselves of the shelter provided at the Govt. Law College and 900 no. of commuters, at the municipal schools in A Ward.

3. In view of non-stop rains and high tide of 4.48 meter at 15.50 hrs, Search and Rescue teams were kept on high alert and divided into two groups. One group was kept at Dadar Fire Station and the 2nd at Bandra Fire Station.
 4. Around 1500 hrs. information was received from citizens that water levels, at Dahisar Shri Krishana Nagar, LBS Road Kurla, Andheri were increasing and school children were stranded in a school at Daulat Nagar and several passengers were marooned in BEST buses. S&R teams were immediately rushed to Kurla near Kalpana Theater LBS Road and Air India Colony near Kalina for rescue a Fire Brigade teams were dispatched to Andheri and Dahisar schools for the rescue of school children. Around 1900 hrs on 26/07/05, approximately 300 school children were rescued from Daulat Nagar Municipal School.
 5. Municipal Commissioner also contacted Secretary (R&R) in the night of 26/27 July 2005 for Navy Boats and Divers for rescue operations in Kurla area. He himself contacted Flag Officer of Indian Navy and sought help of Boats and Divers from them. He also contacted Amby Valley authorities to send their rescuers for rescue operations at LBS Road area as the water level of Mithi river was increasing rapidly.
- Due to heavy rains at Raigad, Thane and Konkan region, Dahisar River, Poiser River were soon flowing to their fullest capacity. Marol, Kurla nalla, Karshed nala, Somayya nalla and Mogra nalla were also flooded.
 - Due to flooding of Mithi River in view of very heavy rain and overflow from Vihar lake the flood water levels were high and hence Western Express Highway at Kalanagar Junction up to Milan Subway and sections of highway near R.C.F. Head Quarter Chembur, Suman Nagar, Chembur, New Air India Colony, Old Air India Colony, Indian Airlines Colony were water logged.

- Due to heavy rains in the Western and Eastern suburbs, electric supply was disrupted at various places around 2000 hrs. In some areas, power was cut off to avoid short circuit and electrocution.
- Energy and BEST Control Room were contacted and asked to attend to the breakdowns.
- The unexpected torrential rains caught working Mumbaikars totally off guard. What made the matters worse was the failure of the communication system which went on a blink. The mobiles would not function and many telephones went dead.
- As water began to rise steadily in the suburban areas and Mithi River flooded the surrounding areas, vehicular traffic almost came to a standstill. It was a scary site when cars started floating and passengers of some double decker buses had to leave the lower deck go to the higher deck and take refuge on the roof of buses to save themselves from drowning. Some were not so lucky. Human being, animals, cars and other vehicles were swept along by the strong currents.
- The water also rose to alarming heights in slums as well as residential colonies giving rise to panicky situation and calls for help from various quarters. Total breakdown in communication system including choking of important roads interfered with rescue operations.
- Amidst all this, the MCGM Disaster Management Cell was working non-stop, coordinating with various agencies such as state Govt. control room, Navy, BEST, the affected ward offices and all the key officials necessary for coping up with the situation.
- The Search & Rescue Teams that were pressed into service around 2000 hrs. on 26/07/05 to rescue the stranded passengers, at Kurla near Kalpana theater in around 140 BEST Buses and other vehicles, managed to reach their destination despite

heavy rains and serious traffic problems and rescued 3700 persons / passengers on 27/7/2005.

- Search and Rescue team of MCGM and Teams of Indian Navy and Ambby Valley were pressed in to service around 1100 hrs on 27/07/05 to rescue the stranded persons/passengers at Air India Colony, Old Air India Colony, Kailaswadi and Indira Nagar of H/E ward, managed to reach their destination despite of heavy rain, water logging and traffic problems and rescued 350 persons/passengers.
- The torrential rains led to several instances of landslide on the 26th and 27th of July 2005. The Worst landslide took place at Saki Naka where total 112 huts were destroyed in the landslide and 83 lives perished in the landslide. Unfortunately help could not reach the site for 18 hours due to water logging up to 7 ft. Continuous rains, lack of electricity and slowing down of the transport of machinery to the affected area hampered the relief work to a great extent.
- On 28/07/05 another unfortunate incident added to the misery of the Juhu, Nehru Nagar slum dwellers. There was total darkness in the area due to lack of electric supply and a rumor of Tsunami lead to a stampede which resulted in about 19 deaths and injury to 17 persons.
- The heavy rains on the 26th of July 2005 led to a number of mishaps and accidents in the city which affected hundred of persons. The details are as follows:

| Types of Disasters | No. of deaths | No. of injured | Reported from | Date of Reporting |
|--|--|----------------|---|--|
| Landslide 1.Surya Nagar, Bhandup 2.Sakinaka | 04 81 | 7 | Rajawadi Hospital -----“----- | 27/07/05 27/07/05 27/07/05 |
| Wall Collapse 1. King Georje School, Marol 2. Bhatwadi, Ghatkopar 3. Malad 4. Sahar 5. Andheri area 6. Sakinaka | 08 02 11 12 | 01 2 | Fire Brigade Control Rajawadi Hospital M.S., Bhagwati Hospital Cooper Hospital -----“----- | 27/07/05 27/07/05 27/07/05 27/05/05 27/05/05 |
| Drowning 1. Bhatwadi, Ghatkopar 2. Pantnagar, Ghatkopar 3. Antop Hill 4. Malad 5. Thakur Complex, Kandivali 6. Mithi River area 7. Meghwadi | 01 01 03 01 05 31 7 1 | | Rajawadi Hospital -----“----- Dean, LTMG M.S.Bhagwati Hospital Chief M.S. Chief M.S. (V.N. Desai) Cooper Hospital | 27/07/05 27/07/05 27/07/05 27/07/05 27/07/05 28/07/05 27/07/05 |
| Snake Bite 1. Antop Hill 2. Borivali | | 01 04 | Dean, LTMG M.S., Bhagwati Hospital | 27/07/05 27/07/05 |
| Electrocution 1. Antop Hill 2. Bhim Nagar, Kandivali 3. Andheri Area | 04 03 3 | | Dean, LTMG Chief M.S. Cooper Hospital | 27/07/05 27/07/05 27/07/05 |
| Tsunami Stamped Bursting of Powai Lake | 19 03 | 17 03 | Cooper Hospital V.N. Desai Hospital | 28/07/05 28/07/05 |
| Total | 203 | 35 | | |

- These accidents led to a total number of 488 Calls being received by the Fire Brigade between 26/07/05 to 01/08/05 which were promptly attended. The break of these calls is as under: -

| Fire Call | Tree Collapse | Land Sliding | Flooding | Compound Wall Collapse | Building / House collapse | Gas Leakage | Short Circuit |
|-----------|---------------|--------------|----------|------------------------|---------------------------|-------------|---------------|
| 228 | 199 | 04 | 06 | 18 | 22 | 02 | 09 |

➤ The MCGM made all possible efforts to reach out to the families affected by the flash floods and tried to evacuate them make arrangements for their shelter and food. The details in these regard are as follows:-

Statement Showing the Persons Affected and Arrangement is made

| Ward | Location | No. of Persons affected | Shifted to | whether food/ Water arranged | Remarks |
|------|--|--------------------------------|--|------------------------------|--|
| F/N | Panchsheel Nagar, Anik Agar | 22(families) (22x4=88) | Sardar Nagar School, Sion Koliwada | Yes | Still 88 people staying in temporary shelter. Food & water arrangement made by NGO. 54 more families have requested for shelter. |
| H/E | KunchiKurve Nagar | | | | Nil |
| H/E | Air India Colony | 1500 families (1500x4=6000) | | | Food, water, milk and medical aid arranged made by MCGM. |
| H/E | Indira Nagar, Azad Nagar, Jambul Pada, Kailas Wadi, Milan Nagar, Dhobil Chawl, Miranda Chawll, Phule Nagar, Netaji Nagar, Yogi Ashram, Shastri Nagar | 6500 | | | Food, water, milk and medical aid arranged made by MCGM. |
| K/E | Saug Baug | 125 | Building Constructed Slum Redevelopment Scheme | Yes | Still 125 people staying in temporary shelter. Food & water arrangement made by MCGM |
| K/E | Mahakali Nagar, Ganesh Pada | 1500 | Local Buildings | Yes | Still 1500 people staying in temporary shelter. Food & water |

| Ward | Location | No. of Persons affected | Shifted to | whether food/ Water arranged | Remarks |
|------|---|-------------------------|---|------------------------------|--|
| | | | | | arrangement made by MCGM |
| K/W | Some locations of Veera Desai Road | 550 | No shifting | Yes | Left the place. |
| P/N | Walnai Area | 4500 | Rehablilated in local Municipal School | Yes | Left the place. |
| R/S | Poisar, Vihar Tekadi, Dhahanukar Wadi, Irani Wadi, Lalji Pada, Ganwesh Naghar | 1760 | Local Buildings | | |
| R/N | Shiv Bandar Road Gavthan Pada, Pragati Nagar | 100 | Paridas Hall Dahisar East | | Left the shelter |
| L | Krantinagar, Jari Mari Road | 2500 | Bail Bazar Municipal School | Yes | 1100 people staying in temporary shelter. Food arrangement made by |
| L | Kurla area | 1000 | L Ward Office | | Left the place. |
| L | Rahul Nagar | 450 | Shifted to Somayya Hospital | Yes | Still 450 people staying in temporary shelter. Food & water arrangement made by NGO. |
| N | Varsha Nagar | 100 | Samaj Mandir Hall, Local Munl. School | | Still 100 people staying in temporary shelter. Food & water arrangement made by NGO. |
| S | Pathan Wadi, Moraji Nagar Phule Nagar, BEST Nagar | 200 | Milind Vidyalay Samaj Mandir at filter pada | Yes | |
| | Total | 25373 | | | |

Around 15000 ship & goats perished in the rising flood waters inside and around the Deonar Abettair in the night of 26/07/05. In a massive operation launched on the 27th & 28th July 2005, the Municipal Corporation authorities expeditiously disposed of around 15000 carcasses working, round the clock.

- There are a large number of “Tabelas” in P/S, P/N wards where more than 1200 buffaloes tied by metal chains, met with a watery grave in the night of 26/07/05 as the sudden rise prevented their escape. The removal / disposal of these carcasses was undertaken on war footing under the supervision of the concerned Assistant Commissioners P/S, once the water level went down and the road was free for vehicle movement between 28/07/05 and 30/07/05. 46 dumpers, 2 cranes, 19 JCBs of MCGM as well as 41 dumpers, 6 cranes and 5 JCBs obtained from pvt. Sources were used for this purpose. RTO supported the operation by requisitioning 19 cranes along with cane operators. Ward wise details of buffaloes carcasses disposed of are as follows:

| Ward | Total Death Buffaloes | Total Buffaloes removed |
|-----------|-----------------------|-------------------------|
| G/N | 27 | 27 |
| H/East | 10 | 10 |
| H/West | 10 | 10 |
| K/East | 41 | 41 |
| K/West | 106 | 106 |
| P/South | 1016 | 1016 |
| P/North | 38 | 38 |
| R/South | 0 | 0 |
| R/North | 7 | 7 |
| R/Central | 25 | 25 |
| L | 16 | 16 |
| M/East | 6 | 6 |
| M/West | 5 | 5 |
| N | 0 | 0 |
| S | 0 | 0 |
| T | 0 | 0 |
| Total | 1307 | 1307 |

- **Power Supply:** Reliance Energy / BEST/ MSEB had shut down power supply in some areas on the 26th July 2005 to avoid short circuits. Once the water receded, it was difficult to restart power supply immediately because of damages to some electrical installations, switch boxes and transformers. However, with constant follow up, power supply was restored in 80% areas by the 28th July 2005. In other areas, electricity was restored gradually, over the next few days. Finally power supply situation in the entire city became normal from the 3rd August 2005 onwards.

- **Submerging of Sewage Pumping Stations due to unprecedented floods on the 26th July 2005:** The flood water level on main roads in the suburban area reached up to 5 to 6 feet and in a few places it was even 9 to 10 feet. This serious situation resulted in submergence of many pumping stations of sewerage network of Mumbai. Because of excessive runoff in the surrounding areas of these pumping stations, the water entered into the dry wells of the pumping stations. The pumps were required to be closed by putting the electric supply off. Not only the dry wells but the rain water entered the LT/HT switchgear panel rooms with level reaching up to 2/3 ft. Step by step all the precautions were taken to avoid any damage due to flash over to sparking etc. in the electrical panel. The supply was cut off at all the places submerged in the floodwater.

| Pumping Station | Water level above pump floor | Equipment Submerged |
|-----------------|------------------------------|---|
| Versova (New) | 5 feet | All pumps, motors, panels up to 3' level. |
| Versova (Old) | 5 feet | ----- do----- |

| | | |
|------------|--------|--|
| Goregaon | 3 feet | Pump, motors, incoming transformer upto 3' level |
| Malad | 3 feet | HT & LT panels, pump, Motors |
| Kherwadi | 4 feet | ----- do----- |
| Sakinaka | 4 feet | ----- do----- |
| Jai Bharat | 8 feet | ----- do----- |

In addition to this, the offices at Versova and Ghatkopar were also affected by floodwater causing damage to the office records, furniture, computers and various articles in the offices. The workshop machinery at Versova and Ghatkopar was submerged in 5 to 6 feet deep water level.

Immediately after the receding of floodwater, restoration programme was taken up at all the pumping stations. The first step was dewatering operation. This was arranged departmentally by taking help of Hydraulic Engineer's maintenance sections. The dewatering at Versova and Malad Pumping Stations was started at 08:00 am on 28/07/05.

Similarly, dewatering works were taken up at all other locations, as per the availability of dewatering pumps. The work of reconditioning / refurbishing of all electrical motors, switchgear panels, pumps, valves and other equipments and restarting pumping at all places was a huge task and it was not possible to manage all this departmentally. Therefore, it was necessary to take the outside agency's help to attend to some of the activities. Accordingly arrangements were made and the works were allotted and started simultaneously. The staff was made to work day-and-night at all levels to speed up this restoration programme.

The above efforts met with first success at Versova at 11:30 pm on 31/07/05, when the first pump could be started. Subsequently we could start pumps at other pumping stations by managing all the activities constantly. The staff worked very hard and round the clock to get back to normalcy in the shortest time.

The present status of working pumps, at the flooded pumping stations, is as under:

| Name of Pumping Station | Status | Remarks |
|-------------------------|--|--|
| Versova New | 3 pumps in operation | Normal |
| Versova Old | 2 Pumps in operation | Normal |
| Goregaon | 4 pumps in operation | 1 pump less |
| Malad | 1 pump in operation | 2 pumps less. Over flow arrangement into the side by nallah. |
| Kherwadi | Refurbishing works is in progress and will be completed with 4 to 5 days | A stand –by p.s. for rainy season, not operated under normal conditions. |
| Jaibharat / Khar | 2 pumps in operation | Working properly |
| Bandra Kurla Complex | 2 pumps | Working properly |

- **Water Supply:** The heavy rains on 26th July, 2005 also led to some breakdowns / damages to the Municipal water supply infrastructure which are summarised as follows:-

Pumping Stations :

- 1) Deonar pumping station : Entire pumping station, including the pumps, motors & control panel, etc, was submerged in flood water. The same was thoroughly overhauled departmentally & put into service from 29.07.2005.
- 2) Chunabhatti pumping station : Entire pumping station, including the pumps, motors & control panel, etc, was submerged in flood water. The same was thoroughly overhauled departmentally & put into service from 29.07.2005.
- 3) Shiv Tekdi pumping station : Entire pumping station, including the pumps, motors & control panel, etc, was submerged in flood water. The same was thoroughly overhauled departmentally & put into service from 28.07.2005.

A) Pipelines :

1. 600 mm dia pipeline of about 25 RMtr along Aarey Road, near picnic spot, Goregaon, collapsed due to washing out of the road. The same was realigned & repaired departmentally on 28.07.2005.
2. 300 mm dia pipeline of about 15 RMtr at Thakur complex, Kandivali, collapsed due to washing out of the road. The same was repaired departmentally on 27.07.2005.
3. The Hydraulic Engineer's department made all out efforts to make normal water supply to Mumbai, during the above period, including operating all the treatment plants, pumping stations, etc. Due to flooding of suction tanks & failure of electric supply, consumers of some areas could not get water thereat, though it was available. The additional Chlorine dose was also given at all reservoirs, as safety measures.

Besides regular water supply to Thane & Bhivandi was also maintained. Thane, Kalyan-Dombivali & Bhivandi were permitted to fetch water by tankers for their emergency needs.

- **Alum** for Bhandup Complex was managed from the existing stock & also, the contractor managed to send two to three tankers of liquid alum per day, during the above period.
 - The total no. of **water tankers** employed from 26th July 2005 to 6th August 2005, averaged 30 tankers with a maximum of 62 tankers and they made 631 nos of trips. These tankers mostly supplied water in the flooded areas of Kurla & Kalina, etc.
- After the traffic jam cleared on the arterial roads on the 28th July 2005, the corporation immediately got down to the task of dealing with the aftermath of

heavy rains. The basic objective was to restore hygienic conditions in the city and minimise the risk of water / vector borne diseases. To achieve this, MCGM launched a massive operation to clear the garbage and discarded waste material in the city and also embarked upon a major health drive based on the strategy of disinfection of affected areas and reaching out to the affected citizens who required medical assistance.

A) Solid Waste Management: To clear the innumerable heaps of garbage and discarded material lying every where in the city following the flash floods, 77 JCB, 314 Dumpers and 511 Compactors were deployed by MCGM with the help of some members of the building industry, and the Transport Commissioner.

| | |
|--|-------------------|
| 29/07/2005 to 30/07/2005 (0600 to 0600 – 24 hrs) | 08771 tons Lifted |
| 30/07/2005 to 31/07/2005 (0600 to 0600 – 24 hrs) | 08963 tons Lifted |
| 31/07/2005 to 01/08/2005 (0600 to 0600 – 24 hrs) | 11558 tons Lifted |
| 01/08/2005 to 02/08/2005 (0600 to 0600 – 24hrs) | 10870 tons Lifted |
| 02/08/2005 to 03/08/2005 (0600 to 0600 – 24hrs) | 11647 tons Lifted |
| 03/08/2005 to 04/08/2005 (0600 to 0600 – 24hrs) | 12215 tons Lifted |
| 04/08/2005 to 05/08/2005 (0600 to 0600 – 24hrs) | 11241 tons Lifted |
| 05/08/2005 to 06/08/2005 (0600 to 0600 – 24hrs) | 11899 tons Lifted |
| 06/08/2005 to 07/08/2005 (0600 to 0600 – 24hrs) | 10708 tons Lifted |
| 07/08/2005 to 08/08/2005 (0600 to 0600 – 24hrs) | 09846 tons Lifted |
| 08/08/2005 to 09/08/2005 (0600 to 0600 – 24hrs) | 10806 tons Lifted |
| 09/08/2005 to 10/08/2005 (0600 to 0600 – 24hrs) | 10539 tons Lifted |
| 10/08/2005 to 11/08/2005 (0600 to 0600 – 24hrs) | 11119 tons Lifted |
| 11/08/2005 to 12/08/2005 (0600 to 0600 – 24hrs) | 10302 tons Lifted |
| 12/08/2005 to 13/08/2005 (0600 to 0600 – 24hrs) | 11105 tons Lifted |
| 13/08/2005 to 14/08/2005 (0600 to 0600 – 24hrs) | 10880 tons Lifted |
| 14/08/2005 to 15/08/2005 (0600 to 0600 – 24hrs) | 10329 tons Lifted |
| 15/08/2005 to 16/08/2005 (0600 to 0600 _ 24hrs) | 10594 tons Lifted |
| 16/08/2005 to 17/08/2005 (0600 to 0600 _ 24hrs) | 09768 tons Lifted |
| 17/08/2005 to 18/08/2005 (0600 to 0600) _ 24hrs) | 09813 tons Lifted |
| 18/08/2005 to 19/08/2005 (0600 to 0600) _ 24hrs) | 10276 tons Lifted |
| 19/08/2005 to 20/08/2005 (0600 to 0600 – 24hrs) | 10276 tons Lifted |

| | |
|---|-----------------------------|
| 20/08/2005 to 21/08/2005 (0600 to 0600 – 24hrs) | 10466 tons Lifted |
| 21/08/2005 to 22/08/2005 (0600 to 0600 – 24hrs) | 9917 tons Lifted |
| 22/08/2005 to 23/08/2005 (0600 to 0600 – 24hrs) | 1076 tons Lifted |
| 23/08/2005 to 24/08/2005 (0600 to 0600 – 24hrs) | 10654 tons Lifted |
| 24/08/2005 to 25/08/2005 (0600 to 0600 – 24hrs) | 11717 tons Lifted |
| 25/08/2005 to 26/08/2005 (0600 to 0600 – 24hrs) | 10779 tons Lifted |
| 26/08/2005 to 27/08/2005 (0600 to 0600 – 24hrs) | 10646 tons Lifted |
| 27/08/2005 to 28/08/2005 (0600 to 0600 – 24hrs) | 11521 tons Lifted |
| 28/08/2005 to 29/08/2005 (0600 to 0600 – 24hrs) | 9678 tons Lifted |
| 29/08/2005 to 30/08/2005 (0600 to 0600 – 24hrs) | 10136 tons Lifted |
| 30/08/2005 to 31/08/2005 (0600 to 0600 – 24hrs) | 10685 tons Lifted |
| 31/08/2005 to 01/09/2005 (0600 to 0600 – 24hrs) | 10780 tons Lifted |
| 01/09/2005 to 02/09/2005 (0600 to 0600 – 24hrs) | 10476 tons Lifted |
| 02/09/2005 to 03/09/2005 (0600 to 0600 – 24hrs) | 8071 tons Lifted |
| 04/09/2005 to 05/09/2005 (0600 to 0600 – 24hrs) | 10090 tons Lifted |
| 05/09/2005 to 06/09/2005 (0600 to 0600 – 24hrs) | 10255 tons Lifted |
| 06/09/2005 to 07/09/2005 (0600 to 0600 – 24hrs) | 9797 tons Lifted |
| 07/09/2005 to 08/09/2005 (0600 to 0600 – 24hrs) | 8136 tons Lifted |
| 08/09/2005 to 09/09/2005 (0600 to 0600 – 24hrs) | 10178 tons Lifted |
| 09/09/2005 to 10/09/2005 (0600 to 0600 – 24hrs) | 9649 tons Lifted |
| 10/09/2005 to 11/09/2005 (0600 to 0600 – 24hrs) | 9446 tons Lifted |
| 11/09/2005 to 12/09/2005 (0600 to 0600 – 24hrs) | 9587 tons Lifted |
| Total garbage lifted | 4,56,165 tons Lifted |

B) Health measures undertaken: Because of the severe rains and the fact that people had walked extensively through flood waters, risk of epidemics of water-borne diseases such as gastroenteritis, hepatitis and also of leptospirosis was high. MCGM implemented several preventive and therapeutic measures to minimise these risks.

➤ Preventive measures

- ¶ Several Preventive measures to minimise risk of infection from all possible source were undertaken. Extensive spraying of disinfectants and insecticides

was undertaken to control pests, and minimise flies and mosquitoes. In addition, water purification tablets and prophylactic medications were also distributed.

| | |
|--|---|
| Disinfection of open spaces and waste collection areas | Over 23 metric tons of bleaching powder disinfectant and over 800 kilos of carbophenol powder were sprayed to disinfect public spaces |
| Larval mosquito control measures | Vector detection activities were resumed in less than 48 hours after the deluge |
| Adult mosquito control measures | Insecticide was sprayed and fogging operations completed in all identified 1174 vulnerable locations immediately after the deluge |
| Fly control measures | Fly menace was also effectively controlled by removing garbage from the 29th July to the 30th August 2005 on a war footing. |

¶ Vigorous application of disease prevention methods played a significant role in minimising the emergence of severe outbreaks of water borne and vector-borne diseases such as gastroenteritis, hepatitis.

➤ Treatment measures

¶ In view of the fact that lacs of people had to wade through dirty waters on the 26th and 27th of July 2005 there were apprehensions of major outbreak of leptospirosis which requires early diagnosis and treatment in all suspected cases, for reducing the risk of mortality.

¶ MCGM therefore decided to provide comprehensive healthcare services through 133 odd specially constituted medical teams that have treated over 3,69,426 patients virtually at their door steps.

| | |
|---|--|
| <p>Health camps to provide medical care and therapy</p> | <p>To avoid any outbreaks or epidemics, the staff of all the medical colleges i.e. K.E.M, Sion & Nair Hospitals along with Peripheral Hospitals, Health post staff of public health department, medical officers of J.J. Hospital conducted medical camps and outreach programs in the affected areas. More than 133 medical teams were deployed in affected areas, which took healthcare directly to communities and provided medical assistance to more than 3.69 lakh patients between the 2nd August and the 7th September 2005.</p> <p>In addition to the MCGM Mobile Medical Teams, and Dorab Tata Trust has also deployed mobile clinics to make healthcare available in severely affected areas from the 3rd August 2005 onwards.</p> <p>Essential medicines like paracetamol, doxycycline, septran and chloroquine have so far been distributed free of cost to all the patients throughout the city. Additionally, efforts are underway to provide emergency supplies to affected people through other organisations such as Dorabjee Tata Trust, Nirmala Niketan and UNICEF</p> |
| <p>Hospitals to provide</p> | <p>Between 29th July 2005 and 12th September 2005, MCGM</p> |

| | |
|---|--|
| intensive therapy to worst affected | admitted 20029 patients in its hospitals with deluge related diseases (gastroenteritis, enteric fever, malarial hepatitis and suspected leptospirosis) and successfully treated more than 98% of these with only 247 cases of mortality. |
| Collaboration with private, governmental organisations and NGOs to extend additional care | MCGM is working closely with doctors from multiple agencies to make healthcare available in the most affected areas. In Kurla and Kalina, MCGM has been working with doctors from Tata Power, local NGOs and volunteer organisations to provide care since the 2nd August 2005 |

➤ Creation of adequate drug reserves and admitting capacity in public health institutions

¶ MCGM has collaborated with the State Government and several other institutions to make additional doctors and admission capacity available to the people affected by the crisis. In addition, significant drug reserves have been created to manage the post-flood complications

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| Additional physicians to manage increases in patient load | Government of Maharashtra has arranged for an additional 31 doctors from Government Medical Colleges in Aurangabad, Pune and Dhule. In addition 40 doctors from 6 private colleges/hospitals are also assisting MCGM doctors at wards and peripheral hospitals. |
| Additional admission capacity to manage seriously affected patients | Over 4,500 beds have been made available to admit patients of water / vector borne diseases – 2,200 beds at the Municipal hospitals, 2000 beds at ESIS hospitals and 300 beds at government hospitals |

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| Creation of adequate drug and medication buffers | MCGM, with help from the Government of Maharashtra, has created a central stock of essential medicines like doxycycline, septran, paracetamol, chloroquine and chlorine tablets exclusively for relief operations. In addition to this, field officers have been authorized to directly purchase necessary medicines. |
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➤ **Coordination with NGOs:** A large numbers of NGO's, and members of community have come forward to offer help in various ways. It has strengthened the hands of Municipal Corporation as well as the Government. Times Foundation organised a meeting where a large number of NGO's offered their help to the Government and M.C.G.M.

The Assistant Commissioners of respective wards along with their staff members, volunteers and NGO workers immersed themselves in rescue and relief work for thousands of affected people in their localities to supply, food packets, water bottles, water tankers, clothes, temporary shelters and medical help.

The Municipal Commissioner conducted a meeting of NGO's which was attended by UNICEF representative from Delhi as well as Mumbai. Issues of health, education, shelter and rehabilitation came up for discussion during this Meeting.

It was decided to allot different zones for field work. Coordination role was assigned to TISS & Apnalaya (Wards: L, M/East, M/West) (Areas: Kurla to Powai, Govandi, Mankhurd, Chembur), Yuvak Pratishthan & CRY (Wards- N,S,T) (Aread: Ghatkopar, Vikhroli, Bhandup, Mulund), Nirmala Niketan

(Wards: H/East, H/West, K/East, K/West, P/North, P/South, R/North, R/South, R/Central) (Areas: Bandra, Andheri, Jogeshwari, Malad, Goregaon, Kandivali, Borivali), CRY & Sneha (Wards: G/North, F/North, F/South) (Area: Dharavi, Wadala) whereas TIMES FOUNDATION and UNICEF were requested to form support system at the higher level for decision / policy making.

Health Situation: In all 1174 areas, localities were identified for disinfection measures insecticides were sprayed on all 1174 locations. Fogging was also done in 1174 places. To avoid any focal outbreaks or epidemic, the staff of all the medical colleges mainly K.E.M., Sion & Nair Hospitals along with Peripheral Hospitals, Health post staff of public health department, medical officers of school health and J.J. Hospital conducted medical checkups and treated patients in the affected areas.