

**Draft Summary of
the Site Survey of Ha-Meem Garment Factory Fire (Dhaka)
and the Meetings with Building Fire Experts/Organizations in Bangladesh**

**Collaborative Academic Research for Urban Building Fire Disaster Mitigation
in Asian Mega Cities: Bangladesh and Japan.**

The Japanese research team consisted of Professor Shinichi Sugahara, Dr. Sanjib Barua(TUS); Dr. Hideki Yoshioka(BRI), performed the site-survey of the recent fire spot of Ha-Meem Garment Factory (Dhaka), and also met the key persons of concerned institutions related to the Urban Building design and disaster mitigation in Bangladesh, during their research visit from January 3rd ~ 6th, 2011. The brief summary of the site-survey and meetings (Draft) are noted below for ready reference of its academic exercises and necessary follow-up for the research study.

● **January 5th, 2011/ Site Survey**

Venue: Ha-Meem Garment Factory, Dhaka.

Members: Mr. Md. Akhtaruzzaman, Mr. Shaidul Alam (FSCD); Mr. Md. Ali Mondal, Mr. Md. Masudur Rahman (Ha-Meem Group); Prof. Shinichi Sugahara, Dr. Sanjib Barua (TUS); Dr. Hideki Yoshioka (BRI).

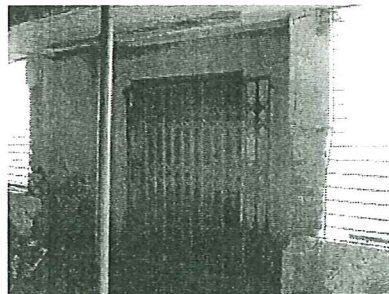
Summary: The information on Ha-Meem Garment Factory Fire, obtained by the research team members through the site-survey, together with the kind help of directors of Ha-Meem Group and officers of FSCD, can be summarized below as of now.

- The big fire at Ha-Meem Garment Factory happened around lunch time of 14th of December, 2010. The total number of casualties is twenty-eight.
- Within the deaths of twenty-eight, three people died of suffocation on the 10th floor, and the rest of twenty-five people died because they failed in successfully jumped from the 10th floor to the ground outside.
- When the fire broke out, approximately 450 people were on the 11th floor, and almost all of them successfully evacuated through the staircases reaching the ground floor. Three staircases were unlocked and useable, but the rest of three were locked.
- Fire started on the 10th floor due to the electric short circuit, and spread both horizontally and vertically. Fire vertically spread to the 11th floor through the windows located at the wall on both floors (Picture 1), as well as through the cargo duct (Picture 2).

- Even though connections to the risers existed on the fire affected floors, fire service used their own fire-hoses connected from the fire-vehicle through the staircase. Water was supplied not from the reservoir located on rooftop, but from the one located in the basement.
- Automatic sprinkler system was not installed, instead smoke detectors were placed there, which functioned properly, resulting that some personnel noticed the outbreak of fire.
- The area was not properly compartmentalized from the viewpoint of fire containment after the outbreak. Large area of basic plan, which is 63m x 83m, has no fire compartmentation (Picture 3), and once fire starts, it will horizontally spread on the same floor quickly. And from another viewpoint of vertical fire compartmentation, there were no fire doors at all six staircases, and only collapsible gates (Picture 4), resulting the smoke vertical movement through the staircases easily.
- As of the current information collected so far, with regard to the finish materials installed on the 10th and 11th floors, not so much combustibles were used. There is no ceiling on 11th floor, instead only the roof exits, and the roof consists of galvalium, glass wool, and aluminum sheets, from outside to inside. Due to the flame and smoke produced from the fire, some portion of aluminum sheets were broken (Picture 5), and also some glass wool became sooted and unpositioned (Picture 6).
- After the fire broke out, some factory workers getting irritated at the situation not improved, came even to the point of violence against the fire service officers. This is why both police and army were called to properly manage the situation so that fire service could efficiently focus on the fire fighting operations.



Picture 1



Picture 2



Picture 3



Picture 4



Picture 5



Picture 6

● **Janury 6th, 2011/ Meeting 1** (courtesy)

Venue: AIUB

Members: VC Prof. Carmen Lamagna (AIUB); Prof. Shinichi Sugahara, Dr. Sanjib Barua (TUS); Dr. Hideki Yoshioka (BRI).

Prof. Carmen Lamagna, Vice-Chancellor of AIUB, Dr. Tafazzal Hossain, Vive President of Academic Affaires and the research team members had a courtesy meeting at AIUB. Prof. Sugahara explained the purpose of this visit and also expressed sincere appreciation to Prof. Lamagna for her support, and also to Dr. Sanjib for his coordination in spite of his heath condition. Prof. Lamagna expressed her sincere thanks to the research team for the active involvement and also requested the continuation of academic research collaboration in the field of fire, material engineering applied to buildings in both countries, which was sincerely agreed by the team members headed by Prof. Sugahara. In addition, Prof. Lamagna informed that her university would have a plan of constructing new buildings and requested the research team that academic advice would be supplied especially from the view point of material and fire protection engineering for buildings. Dr. Sanjib mentioned his own idea of expanding the academic research activities regarding urban building disaster mitigation, which is collaboratively performed in both countries.

● **Janury 6th, 2011/ Meeting 2** (academic)

Venue: BUET

Members: Prof. M. Feroze Ahmed, Prof. Md. Hossain Ali, Prof. Ahmed Ansary (BUET); Major Motiur Rahman, Mr. Bharat Chandra Biswas (FSCD); Prof. Shinichi Sugahara, Dr. Sanjib Barua (TUS); Dr. Hideki Yoshioka (BRI).

Prof. Sugahara explained the purpose of this visit and also expressed sincere appreciation to experts in Bangladesh for their support regarding Ha-Meem Factory site-survey. Prof. Feroze Ahmed expressed the involvement of the research team with the research of urban building fire disaster mitigation in Dhaka, and also stressed the scarcity of real experts involving the updating of Bangladesh National Building Code (BNBC). Dr. Yoshioka made a presentation of his own recommendations for mitigating the casualties caused by urban building fires in Dhaka, referring to recent famous real fires, and also introduced the overview of his latest fire research activities in BRI. Prof. Feroze Ahmed requested Prof. Sugahara and Dr. Yoshioka to definitely continue

their academic support for updating BNBC including site-surveys of fires, holding seminars, and information exchange etc., with the coordination of Dr. Sanjib.

January 6th, 2011/ Meeting 3 (administrative)

Venue: Vicinity of Dhaka Airport

Members: Prof. Anwar Hossain, Prof. Tafazzal Hossain (AIUB); Prof. Shinichi Sugahara, Dr. Sanjib Barua (TUS); Dr. Hideki Yoshioka (BRI).

Prof. Sugahara explained the purpose of this visit and also expressed sincere appreciation to experts in Bangladesh for their support regarding the collaborative research activities. Prof. Anwar Hossain sincerely requested Prof. Sugahara to make MOU, memorandum of understanding, regarding the collaborative research specifically upon Urban Building Fire Disaster Mitigation in Asian Mega Cities including both Bangladesh and Japan, led by Prof. Sugahara in Japan side, with the key coordination of Dr. Sanjib. Prof. Sugahara expressed his sincere appreciation for the proposal made by Prof. Anwar Hossain, and also informed that he would positively discuss it with his colleagues in TUS after coming back to Japan, with some expansion to synthesize total land safety performances aiming at reducing environmental burden and promoting global sustainability.