Asian Network of Major Cities (ANMC 21)
Flood and Storm Surge Control Training Report

In January, 2011, the ANMC 21 held a Flood and Storm Surge Control Training in Tokyo.

1. Purpose

The cities of Asia struggle with considerable damage from floods each year. This training session sought to use equipment and exercises to provide participants from each city with advanced examples drawn from Tokyo's accumulated knowledge and experience, thereby contributing to preparedness for the floods and high water levels that Asian cities face.

2. Organizers

International Affairs Division, Headquarters of the Governor of Tokyo
River Division, Bureau of Construction



3. Dates

January 25th (Tue.) to 27th (Thu.) 2011

4. Participants

4 participants from 2 cities (Bangkok, Singapore)

Mr. Vichai Somboon
(Chief of Project Management Sub-Division, Bangkok Department of Drainage and Sewerage)

Mr. Surart Jaroenchaisakul
(Chief of Main System Drainage Development, Sub-Division 3, Bangkok Department of Drainage and Sewerage)

Ms. Hua Chie Nan Dorinda
(Senior Engineer, Singapore Catchment and Waterways Department, PUB)

Ms. Loh Yee Wen
(Engineer, Singapore Catchment and Waterways Department, PUB)

5. Training Details

●Day 1

○Orientation Session

The orientation consisted of greetings from senior director of the River Division and Senior Director in charge of International Joint Projects, and a guidance speech by the senior staff of the River Division.

○Presentations by the Participants

Participants from Bangkok and Singapore each made 15-minute presentations on the flood control

issues faced by their cities. An animated question-and-answer session took place between Bangkok, Singapore, and Tokyo, enhancing each city's awareness of shared problems in preparation for the panels to follow.

Bangkok: With measures currently being taken to increase flood control around the Chao Praya River, the participants from Bangkok reported the following:
Although the north region of Thailand is prone to large-scale flood damage, major damage has not been seen in Bangkok in recent years due to the control measures of (1) levee installation and (2) lowered river levels.
An emergency response team is readied during times of flooding.
Weather and flooding problems are managed in unison.

Singapore: Participants from Singapore reported the following:
The low elevation of the region has resulted in urban water damage.
Despite urbanization, rainwater drainage systems have decreased flood areas.
Reinforcement of flood control is being carried out around a redevelopment plan.

○Tokyo's Flood and Storm Surge Control (Hard and Soft Countermeasures, Sewer Projects)

A panel was held about Tokyo's countermeasures in response to Floods and Storm Surges. The River Division discussed super levees and Flood Regulating Reservoirs, while the Bureau of Sewerage introduced sewer flood controls.

Participants from Bangkok asked questions about construction management and the connection to private businesses, stating that construction of levees integrated with the surrounding environment is an important issue to their city, and that they are interested in super levees that blend in with surroundings.

Participants from Singapore also showed a great interest in the Super levees, and asked numerous questions about the forecasting systems for floods.

Between panels, an explanation was given demonstrating the forecasting systems for floods, etc., and participants from each city showed great interest as they busily took notes while viewing the system displays.

●Day 2: Observation

(1) Sumida River Super Levee

Observation took place at the super levee described in the panel of the first day. Viewing the site, participants asked questions regarding maintenance and operation methods.

(2) Kanda River Ochanomizu Bypass

Observation was held at the Ochanomizu bypass, where water is divided under the street to prevent flooding. Participants asked about project details and maintenance methods.

(3) Meguro River Ebara Regulating Reservoir

Observation took place at a Regulating Reservoir situated under commercial land containing public housing and other facilities so as to make efficient use of land. Participants asked questions about operation methods during floods and monitoring during normal conditions. Observation of the structure, which evokes images of an archaeological site as it stretches four levels underground, proved to be a memorable experience.

(4) Kanda River/ Loop Road No. 7 Underground Regulating Reservoir

Observation took place at a Regulating Reservoir situated to reduce water damage around the lower reaches of the Kanda River. The reservoir is located some 40 meters below the highway, with tunnels of 12.5 meters in diameter and a total length of 4.5 kilometers, enabling the reservoir to drain water from the 3 rivers of the lower Kanda River area and greatly reduce water damage. After observed underground reservoir, an explanation was given about control room operation of water intake and drainage, and the monitoring system. The participants showed interest in the construction methods and planning scale.

●**Day 3:**

○**Observation**

(1) Ryogoku Pump Station


Observation took place at the Ryogoku Pump Station supervised by the Bureau of Sewerage, where part of the rainwater that falls in the Sumida and Koto wards is drained into the Sumida River in order to prevent flood damage. Participants viewed rainwater pumps capable of draining a 25 meter pool in approximately six seconds. Due to the problems experienced in Bangkok and Singapore with garbage clogging drainage pumps questions were centered around the filtration system allowing rainwater to flow in.

(2) Inner Koto River


Participants boarded a boat to observe the triangular Koto Delta area, which has been the source of many disasters due to sunken land elevations being generally below the high water level. The observation was a rare chance to view by boat examples of earthquake-reinforced riverbanks and installations to make the river more accessible to residents, as well as a lock gate showing the difference in water levels. The participants from Bangkok, where new installations are being made on the Chao Phraya river, viewed the river construction site and asked detailed questions about construction methods for river installations in Tokyo.

○**Closing Ceremony**

At the end of the ceremony, each participant was given a certificate of completion. A participant commented, “The networking achieved through the training was a great opportunity. I’d like to keep in touch with everyone who was involved in the training, and continue to gain knowledge about flood control.” Another remarked, “I was impressed with how quickly and directly the city staff was able to respond to our questions.”

6. Results

(1) Bangkok is improving flood control measures around the lower regions of the Chao Phraya River. Having shown great interest in installations blended in with the urban landscape, such as super levees and the terraces of the Inner Koto River, participants from Bangkok inquired about dispatching

technicians to further study these methods.

(2) Participants from Singapore, where strong rain causes water damage in urban areas, showed interest in Tokyo's forecasting systems for floods and drainage methods for urban areas.

(3)Over the three days of the training, participants from Bangkok, Singapore, and Tokyo increased their shared understanding of flood and storm surge control methods, and formed a network between the engineers of the participating cities.