

Free Discussion

Chairperson (Mr. Hiroto Oda)

We heard case study presentations from four cities, an activity report from a volunteer group, and a report from the United Nations Centre for Human Settlements. Now, we will move on to free discussion. Please feel free to ask questions or present your opinions.

Mr. Kuniharu Kawahara (FUKUOKA)

I am Kuniharu Kawahara of the Waterworks Bureau of Fukuoka City. I would like to present a few examples regarding effective water use and water conservation in the waterworks industry of Fukuoka City.

Fukuoka City, with its population of 1.3 million and area of 337km², is located in the middle of Fukuoka Plain surrounded by mountains in three directions, and faces Hakata Bay. All the rivers that run through the city are ranked as small to medium sized rivers, thus resulting in a deficient water source for Fukuoka City.

The Magarifuchi Dam in the upper stream of the Muromi River was completed according to its planned service population of 120,000 and designed maximum daily supply of 15,000m³; the waterworks facilities that draw water from the dam started supplying water in March 1923.

Since then, Fukuoka City has conducted expansion work 18times. Currently, we boast five water treatment plants with a capacity totaling 704,800m³, thanks to 7 dams and the Chikugo River water intake project, which receives water through the Fukuoka District Waterworks Agency from the Chikugo Barrage located south of the city. However, the memory of the 1978 severe water shortage caused by an unusually small amount of precipitation is still fresh in our minds. Based on this experience, we established the "Fukuoka City Municipal Ordinance on Water Saving" in February 1979. Its purpose is to secure a reliable water supply as well as to implement various measures to promote a "water conservation conscious city" by promoting effective and efficient water resource utilization and enhanced awareness about water conservation.

Concerning efficient water use, we have concentrated on early detection and repair of leaks since the launch the first project in 1966 for leak prevention. We also have succeeded in preventing secondary damage such as cave-ins in the roads. Also, as a measure to utilize water efficiently, since 1993 the Fukuoka City Waterworks Bureau has taken the responsibility of temporarily fixing water leaks created by natural causes even at locations between the distribution pipe and residents' water meters. The bureau also replaces such damaged pipes with new ones if the resident owner files an application for it, even though the service pipes that fork out of distribution pipes are considered to be the private property of the resident owner.

Also from the experience of the 1978 water shortage, in 1981 we started the operation of the Water Distribution Control Center for the fair and smooth distribution of tap water throughout the city service area. I will touch upon this just briefly since a tour of this facility is scheduled for tomorrow afternoon. The purpose of this facility is to achieve a well-balanced water supply by adjusting the water pressure according to the fluctuating demand per 21 distribution blocks within the city. Thanks to the Water Distribution Control Center, we now can better control the water flow by water circulation among treatment plants. Additionally, we are now able to find and repair damage at the early stage by detecting abnormal water pressure drops and flow increases by monitoring the pressure gauge and flow meter, both installed in the distribution pipes. Further, the motor valves enable us to control unnecessary water pressure thus resulting in leakage prevention.

The distribution pipes deteriorate and become damaged with age, resulting in leaks or the production of muddy water due to corrosion. To prevent such problems and secure a reliable supply of water, in 1965, we launched a project for maintenance and construction of distribution pipes and conducted the systematic replacement of old distribution pipes.

Thanks to these measures combined, water leaks have been drastically reduced, achieving a 97.1% effective water ratio in 1998.

As for water conservation, measures taken include the promotion of water conservation equipment such as water-saving plugs and water-conservation toilets, as well as the promotion of a system for reusing reclaimed wastewater and utilizing treated sewage water. Another measure is the progressive water cost system in which the unit price of water per liter increases according to the increase in the amount of water used. We consider this effective in terms of water conservation.

These are measures we take to promote a "water conservation conscious city" in Fukuoka City, where the water resource is very limited. This concludes my presentation. Thank you very much.

Chairperson (Mr. Hiroto Oda)

Thank you very much Mr. Kawahara. His report was on the current situation of Fukuoka's waterworks. Is there anybody else who would like to speak? Your opinions would be appreciated.

Mr. Lee Soon-Hyung (PUSAN)

I am Lee Soon-Hyung from Pusan City. Pusan is a metropolitan city with a population of 4 million and an area of 750km². As for water treatment, we have a total capacity of 2.5 million m³; the actual average amount of water treated per day is about 1.5 million m³. The amount of water supplied per capita is 380 liters a day, which causes no problem.

There are three large-scale water treatment plants. However, the biggest problem with Pusan City is the poor quality of raw water. Pusan takes its water from the downstream end of a 525km-long river. With some domestic wastewater from upstream, as well as agricultural, livestock farming, and industrial wastewater flowing into the river, the water quality at the intake point is very bad. For example, the water quality five years ago exceeded the limits of the upper level water quality as a water source for tap water, with a BOD of 6-7mg/liter. Due to this deterioration of raw water quality, Pusan has planned and constructed advanced water treatment plants. Ten years ago, Pusan introduced an ozone treatment plant, the first of its kind in Korea; and five years ago, a granular activated carbon treatment plant. Now, we can boast about our advanced water treatment plants, and maintain the quality of purified water within the safety standards. However, residents still distrust the raw water quality, and less than 40% of them use tap water for drinking. So our biggest future task is securing clean raw water. We are in the process of coming up with measures for it. One such idea is to build a dam in the upper stream of the river where the water is cleaner and get water from it using long conveyance pipes. This is the overall situation of Pusan's waterworks. Thank you very much.

Chairperson (Mr. Hiroto Oda)

Thank you very much. Pusan City reported on the current situation of its waterworks and the problem caused by the deterioration of the raw water quality.

Now, I would like to invite Mr. Yonekawa of the UN Department of Economic and Social Affairs. He has participated in these city summit meetings since the very beginning. I would like to ask him to speak of his impressions and opinions of the city summit meetings and working level conferences of the past.

Mr. Yoshinobu Yonekawa (UN DEPARTMENT of ECONOMIC and SOCIAL AFFAIRS)

Thank you for your kind introduction, Mr. Chairman. First of all, I would like to express my gratitude to the staff members of the city summit secretariat for allowing my participation since the very first summit meeting.

At the last meeting, I told of my impression that each summit meeting was different from the previous ones. Yet a network has developed among the member countries and regions, along with a common theme. What I would like to mention particularly, is that the influence is spreading. Here, we had a very meaningful discussion today. The results of this meeting will not end here, but will have an influence even once we adjourn.

One such example was mentioned this morning by Mr. Murakami, Executive Director of International Affairs for Fukuoka City. By moving from exchanges to cooperation, wherein participants not only exchange information and opinions, but also implement specific activities and technical cooperation, the effect is evident. This has already begun.

I believe it was through Habitat, that cooperation with the issue of waste disposal started in the environmental field. This is one of the fruitful results of the summit meetings. I hope for the further development of the city summit with the inclusion of actual cooperation.

Now, I would like to introduce one of the activities that has utilized the network developed here. We held a workshop on technical cooperation in Bangkok, this May, together with Bangkok City, UN headquarters, ESCAP, and the UN Centre for Regional Development in Nagoya. Its theme was the financial crisis in Asia. We discussed how local governments, in addition to central governments, can address grave social problems caused by an economic crisis. And what triggered this co-sponsoring between Bangkok and the UN was this Asian-Pacific City Summit. I met a person from Bangkok at the meeting and we then invited several other participating cities. We had very active discussions with participants from Fukuoka and Pusan, too.

The special session of the UN General Assembly is scheduled to be held in Geneva in June, 2000. It will follow up the World Summit for Social Development held in 1995. We are currently preparing the report for it, and are considering the inclusion of the Bangkok conference results. This is only one of the byproducts of this summit. I hope that you will continue to invite me to the summit meetings in the future.

I understand that the 4th city summit is scheduled for May 2000 in Pusan. I think it will be beneficial if you can take into consideration the existence of this case in Bangkok in preparation for the next summit.

Chairperson (Mr. Hiroto Oda)

Thank you, Mr. Yonekawa. He suggested that we should not limit the fruitful results of this summit meeting within the framework of the meetings but expand upon them, such as by developing networks and moving from simple exchanges to technical cooperation.

Mr. Hj. Mohmad Asari Daud (KUALA LUMPUR)

My name is Asari from Kuala Lumpur. I would like to just give a brief introduction of demand management in our country. I think in the ADB report it quoted that, generally, in Malaysia unaccounted-for water comes to 36%. Despite having 100% metering, that means all the premises are metered, we still have a high level of unaccounted-for water. This probably is due to old pipes made of asbestos cement installed in the 1960s and 1970s, which have been found to leak badly. The AC pipe was chosen in the past due to its cost because, at that time, the policy of the government was to supply clean water to as many areas as possible to have a high coverage. So now we are actually embarking on changing the pipes gradually in order to tackle the problem of unaccounted-for water.

Besides that, we are also changing piping points and connections to reduce leakage.

And one more issue that I would like to get feedback from, especially from agencies

such as the United Nations Habitat, DESA, and also JICA, is about training. I have experienced very good hands-on training in 1993 offered by the Swedish government. They conducted hands-on training for water treatment and also rehabilitation of water treatment plants. This has been found to have a very great impact on improving water quality in the country. So we have actually found out that some of the installations, especially in the treatment processes, were not being done in the past, or had not been done properly, or were unable to treat new problems which were impurities. So through that hands-on training that I was getting at that time, we were able to solve a lot of problems.

I would also like to thank JICA. In 1996, if I'm not mistaken, Mr. Miyazawa was with me throughout the country to go for hands-on training and upgrading of treatment plants, to look into the design aspect of treatment plants once operation has started. After construction, we assessed the design. So this is actually what I would see as collaboration and technology transfers that a country like Malaysia could benefit from and I look forward to such collaboration. Thank you very much.

Chairperson (Mr. Hiroto Oda)

Thank you very much, Mr. Asari.

Ms. Keiko Yamamoto (JICA)

I would like to report about JICA training activities. The Japan International Cooperation Agency or the Japanese ODA had focused mainly on building facilities in the waterworks sector. However, for several years now, we have had introspective talks that suggest that the completion of a certain facility does not always mean that the project itself is complete. From past experience, maintenance of the facilities has not been successful after the transfer of such facilities. Based on such thoughts, we have decided to concentrate our efforts on training. One example is the establishment of a training center in Bangkok and the cooperation we offered. We have had a 5-year collaboration with Indonesia. We are currently assisting Cairo, Egypt with a training center there. The newest addition is Ho Chi Minh City. It started as a technical cooperation towards a training center in the Construction College, which is under the Ministry of Construction.

JICA is now offering its assistance in the direction of technical transfer through such training centers in order to strengthen maintenance and management systems. Among them exists NWTTI in Thailand. Those who received training there are now involved in regional cooperation programs that send them to give training, offer cooperation in neighboring countries, or accept trainees.

I will tell you something that you might find interesting. Japanese staff members at the Thai training center left there at the end of August. But before they left, in addition to the training at the center, they visited treatment plants in small to medium-sized cities in

rural areas to conduct some pilot projects. They analyzed the problems of the treatment process and, together with the staff there they drew up improvement measures and carried them out. In Thailand, we conduct a three-stage training program: instruction in the classroom, hands-on training in a simulated situation, and problem solving with the application of knowledge in actual settings.

We also invite many trainees to Japan. However, we have to wait for the evaluation from each country on how those trainees are doing before we know the results of the training. This concludes my report. Thank you.

Chairperson (Mr. Hiroto Oda)

Thank you, Ms. Yamamoto. Is there anybody else who wishes to speak?

Mr. Jiang Xiong Cheng (DALIAN)

I would like to introduce the situation of the water supply in Dalian. Before I start my report, I would like to take this opportunity to express my appreciation to the chairman and all the staff members involved.

Dalian City is a new city that has developed in the past 100 years. It has a service population of 2.2 million, seven administrative districts, and an area of 200km². Dalian has been steadily developing as a new type of city from the 1980s, but especially since the implementation of the open policy of the Chinese government, the speed of urbanization has increased. In order to meet the water demand, the city has focused its efforts on water conservation and conveyance work. Dalian's water supply started in 1879, and now has a history of 120 years of service. We have nine dams, nine water treatment plants, water pipes totaling a length of 3.380km, and a supply capacity of 1.2 million m³. The actual daily supply reaches 900,000m³. Dalian suffers from water shortages due to the relatively small amount of precipitation that amounts to less than 600mm a year. Its rainfall per capita comes to 1/4 of that of the national average of China, and it is one of the cities that suffers the most severe water shortages.

In our water supply system, there is a considerable amount of old water pipes and pumps that need to be replaced. The work needed amounts to a task that is quite significant. In addressing the problems of water resources and facility deterioration, the government established clear regulations regarding the development of the city. One of them is water source development. Through the water conveyance work, which required 17 years and an investment of over three billion yuan, 1 million m³ of water conveyance was achieved from 150km away at the Bi Liu He Dam. It was completed in 1997, and is able to convey water to Dalian, making the city's supply capacity increase to 1.2 million m³.

The next issue is water conservation. Since Dalian lacks sufficient water, we have

set a goal to promote a “water conservation conscious city.” A UN meeting on water conservation was held in Dalian in 1993, and Dalian protocol was announced. Since then, various rules and regulations have been established, and the diffusion of water purifiers and water conservation measures were pushed rather forcibly. Consequently, water consumption of the city is now in balance with city development. We succeeded in curbing the water demand effectively.

The city is now concentrating its effort on environmental protection. Our Bo Xi Lai 4th water treatment plant was recognized by Habitat this year. In the past few years, city development has been quite significant with the greenery area reaching over 8 million m². We have also succeeded in utilizing the finite water resource of Dalian City more efficiently and scientifically. Some actions taken have been the relocation of environment-polluting industries with large water consumption, the protection of water source areas and the establishment of laws and regulations, and the implementation of measures for the relocation of residents in water source areas. Our duty is to secure a safe and adequate supply of water for the city to meet the water demand of the city’s development. We in Dalian City are determined to carry out our duty concerning water supply based on the spirit of this conference, and contribute to the development of a contemporary city. This concludes my report. Thank you very much.

Chairperson (Mr. Hiroto Oda)

Thank you very much. We’ve just heard about the current water supply situation in Dalian City.

Now, we have reached our time limit for this session. I would like to conclude the session for free discussion.

Next, we will have a summary of this conference by Ms. Yamamoto of the Japan International Cooperation Agency. But before that, we will have a 15-minute recess. The conference will resume with the summary in 15minutes. Thank you.

Meeting Summary

Ms. Keiko Yamamoto
JICA Development Specialist
Japan International Cooperation Agency

Chairperson (Mr. Hiroto Oda)

I would like to resume the conference now. I would like to summon Ms. Yamamoto of the Japan International Cooperation Agency to summarize today’s conference. Please refer to the handout distributed to you for her resume. Ms. Yamamoto, please.

Ms. Keiko Yamamoto (JICA)

Thank you for your introduction, Mr. Chairman. I am Keiko Yamamoto of JICA. I am involved with technical advice and surveys for the waterworks sector among JICA activities. First of all, I am glad that all of you could make a long trip to attend this important meeting. You had a very meaningful discussion, indeed. Now, since I have been asked to, I would like to summarize today's content.



This was a working level conference under the theme of the "Supply of Safe, Clean Water to the City," and I believe the actual discussion was very much to the point and fruitful.

My first impression was that the countermeasures each city developed are pretty similar even though the actual problems and economic situations in each city vary. I think all the representatives gained some insights and useful information.

The first representative started with an explanation of Singapore's uniqueness as an island country, resulting in major problems related to water sources. They cannot secure enough water within their own country and so receive half of their water from the neighboring country of Malaysia. Under such a situation, they are forced to expand the water catchment area to unprotected areas in addition to protected areas, so now they are concentrating their efforts on improving the inferior water quality through high level treatments in order to supply the residents with safe water. Furthermore, they work on maintaining water quality by relocating premises. I also got the impression that they spare no effort in the field of education on water conservation and efficient water utilization.

The second presentation, from Shanghai City, on fuzzy control was also very interesting. It was difficult to assure stable water quality because of the big variation in the quality of raw water. This caused a great burden on the workers, and in one case a large amount of chemicals were used. Based on this experience, they introduced fuzzy control in the dosing of chemicals to stabilize turbidity in consideration of factors such as raw water turbidity, pH value, water temperature, and volume. They were able to achieve successful controls. This presentation must have been quite interesting to all those who are here. Their work also resulted in a reduction in the amount of chemicals used and has proven to have an economic impact. It was impressive that they are certain that this method can be applied at other water treatment facilities.

The third presentation was from Kitakyushu City. In contrast to Fukuoka City, Kitakyushu is blessed with water sources. Not only do their water sources vary in kind, but also their water quality is still so good that some of the water is treated using the slow filtration method. Their concern was to address measures suitable for each water source, since some are clean enough that only chlorination is applied, while other sources are

quickly deteriorating in quality. But what I found particularly interesting was their use of the Pneumatic Water Pump to mix the layers of the reservoir to prevent algae propagation. As seen in the inquiry by Dalian City, the technology of the Pneumatic Water Pump is easily transferred. It is widely used in Japan. It is known to be very economical, and can work even in large reservoirs to mix layers of water, prevent the propagation of algae, and break the anaerobic state at the bottom of reservoirs. I hope information such as this can be transferred and spread to other cities faced with similar problems.

Another interesting episode in water quality control was that water service workers do the controlling for tap water quality. As told by Ms. Kawaguchi of the NGO, the best results in water quality conservation can be achieved through the cooperation of NGOs and residents. It really was a good example.

The next presentation was from Ho Chi Minh City. I had the impression that they are currently at the stage of improving facilities, and will be moving onto water quality control. Also in the process of privatization, expansion and improvement using private funding, it is important to determine who is responsible for water quality. Each municipality must acquire the ability to supervise and monitor the private sector with respect to water quality. I think that such technical cooperation can be achieved as a result of this summit.

Throughout the conference, reports have been made about the problem of how to address the increasing amount of contaminants in a limited water source, as well as enhance treatment technology to get better quality water. However, as Professor Utsumi said in his keynote speech, there will be a limit to that kind of effort. Considering that 60,000 new chemicals are created everyday, only 50-60 of them are subjected to water quality testing. It is impossible to address every new chemical relying solely on technology. So it might seem a long way, but water source protection will become the focus of our efforts.

The report from the United Nations Centre for Human Settlements (Habitat) gave me the feeling that water conservation and water quality protection will become main issues in the future. Especially regarding water conservation, various cases were presented today. Some can be put into practice right away, while others need further discussion or modification after application. And new methods will also be developed. However, one thing is certain in the course of water conservation and water quality protection: cooperation from residents, NGOs, and NPOs is absolutely essential.

Although I feel that I could have clarified matters more, this concludes my summary.

Thank you for your attention.

Chairperson (Mr. Hiroto Oda)

Thank you very much, Ms. Yamamoto.

Secretary-General's Summary

Chairperson (Mr. Hiroto Oda)

Next, we will hear from the Secretary General of the Asian-Pacific City Summit. He will explain about what he will report concerning the content of today's working level conference to the 4th Asian-Pacific City Summit that is to be held in Pusan next year.

Mr. Hiroshi Murakami (FUKUOKA)

Thank you very much for your cooperation, everyone. It has been a very meaningful 3rd Working Level Conference today. I, again, would like to express my gratitude.

Especially to those four cities that kindly presented their cases, the information you provided with detailed data was very interesting and useful. Thank you.

Also, all of you here had active opinion exchanges to deepen these discussions, thus making this conference successful. I would like to extend my appreciation to you, too.

Professor Utsumi of Kyushu University Graduate School, Mr. Yonekawa, Programme Coordinator of the UN Department of Economic and Social Affairs, Mr. Alabaster, the Human Settlement Officer of the United Nations Centre for Human Settlements, Ms. Yamamoto of Japan International Cooperation Agency, and Ms. Kawaguchi, Director of the volunteer group "Hakata-Yumematsubara no kai" -all of you have provided very useful information and advice from different viewpoints. The success of this conference could not have been achieved without your assistance.

It was a full day conference, however, some of you might feel that you have not had enough discussion time. There is still a reception scheduled for later today, as well as fieldwork for tomorrow. We have allocated time for opinion exchanges, so please take advantage of these opportunities.

As mentioned by the chairman, the 4th Asian-Pacific City Summit is scheduled for May 13-15, 2000, in Pusan, Korea. During the coffee break, the staff members of the 4th Asian-Pacific City Summit Secretariat Office distributed the related documents and a souvenir to you. I hope that the mayor of your city and other representatives can participate in the coming conference in Pusan, Korea next May.

We have to report the content of today's conference at the 4th Asian-Pacific City Summit. Although I ask you to leave the details to us, I would like to have your support on the following three items.

First of all, we had a successful conference with 37 participants representing 18 cities from 10 countries and regions. We had presentations from four cities: Singapore, Shanghai, Kitakyushu, and Ho Chi Minh. Through these presentations, we were able to deepen our understanding of each city and have active opinion and information exchanges.

Secondly, we had participants from Kyushu University, the United Nations, the

Japan International Cooperation Agency, and a citizens volunteer group, and received valuable advice from different viewpoints, thus making the conference even more significant.

Finally, although the situation with the "Supply of Safe, Clean Water to the City" might differ significantly in each city, we have all come to the same conclusion that human resource development and networking between cities are essential in addressing the matter. Also, we all are to try to actively utilize the results of the conference at the municipal level.

This is what I would like to report to the 4th City Summit regarding this Working Level Conference. Do I have your support? (Applause)

Thank you very much. Since I have your consent, this will be what I report.

Chairperson (Mr. Hiroto Oda)

Thank you very much. This concludes the Asian-Pacific City Summit 3rd Working Level Conference. I hope for the continuation of information exchanges between cities regarding waterworks-exchanges which this conference has triggered.

I am very grateful for the cooperation you extended throughout the conference since early this morning. We have arranged a tour of the Water Quality Control Laboratory, Water Distribution Control Center, and water treatment plants of the Fukuoka City Waterworks Bureau for tomorrow and the following day. Thank you.