WaQuAC-NET Newsletter Water Quality Asian Cooperation Network **Vol.49**

https://www.waquac.net/english/index.html **For Safe Water, Do Network** **July 12, 2021**

Member Interview Ms. Nan Study Abroad at Tohoku University from

The interviewee is Ms. Khodseewong Sirapat, who is studying as an international student in the doctoral course at Tohoku University. She is from Khon Kaen, Thailand. In the interview, I called her by a nickname, Ms. Nan, after Thai customs. (Yamamoto)

Ms. Nan

1. Childhood and family

Question (Yamamoto)**:** Thank you for joining the WaQuAC-Net interview. First, please tell me about your childhood and family.

Answer (Nan): I was born in Khon Kaen, northeastern Thailand. My parents were also born there. I have a younger sister. She graduated from the Faculty of Law, Khon Kaen University last year and is working at a law firm. We are like good friends and I am keeping in touch with her frequently on the LINE.

Q: How was your childhood?

A: I was rather active and playing outside. When I was a university student, there was a great flood in Khon Kaen area. I worked voluntary with the student community to provide clothes and foods to the people suffered from.

2. From Khon Kaen University to Tohoku University

Q: What did you study at khon Kaen University?

A: I studied public health and the environment at the undergraduate, and in the master course, I studied the eutrophication of the large Nong Khod Lake in Khon Kaen under Professor Ishibashi. Also, I joined the collaborative project for improving community water supply. (See page 9)

Q: What motivated you to study at Tohoku University in Japan?

A: Professor Ishibashi introduced the facilities of the Sendai Waterworks Bureau and told me that the Japanese waterworks supply is very clean water. In addition, Professor Nishimura, the current my adviser, came to Khon Kaen and gave a comment on water supply situation in Thailand. And then, I wanted to study in Japan if I had the opportunity. Fortunately, I could come to Japan in 2019.

Q: Did your parents agree to go to Sendai?

A: My parents were worried at first because I had never left Khon Kaen, but after I decided to go, they supported me.

Q: What is your major in Tohoku University?

With Professor Nishimura and his students (Ms. Nan in the back center)

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A: I am studying under Professor Nishimura at the Ecological Engineering Laboratory, School of Engineering, Tohoku University.
My research is the coagulation mechanism and sedimentation to remove picophytoplankton.
Q: You are collecting data using the experimental equipment, aren't you? Do you have any prospects for the result?
A: I have still not enough data.
Q: How long is the doctor course?
A: Since it is 3 years, my research must be completed in September 2022.
Q: You still have time to experiment.
A: I think so.

3. Daily life in Japan

Q: I want to ask you about your daily life in Japan.
A: Most of the time, I go to the lab and do experiments.
Sometimes, I participate in Karate practice near Kawauchi campus. Also, I often go to the castle.

Karate practice with Ishibashi-sensei

Q: It's Aoba Castle. It seems to be a nice place. I want to go.
A: Yes, it's very good place. I go to central shopping place too.
Q: Have you ever had some difficulties in Japan?
A: At the beginning to live in Sendai, I had a hard time due to differences in language and culture, but now I'm used to it. However, it is still difficult to understand each other in Japanese.
Q: What do you feel about the difference between Japan and Thailand?
A: The weather in Japan is cooler than Thailand and Thai foods are much spicier.
Q: You experienced snow at Sendai! Are you all right to get snow?
A: I gradually trained to withstand the cold.
Q: Nan san, do you cook at home?
A: In my case, I was in a university dormitory at first, so I didn't have to cook by myself, so I recently left the dormitory and rented an apartment, but I buy food at a convenience store.

Ms. Nan in the snow

Q: Really, convenient stores are convenient! Don't you cook Thai food?
A: In Japan, it is difficult to get Thai seasonings, so I don't cook.
Q: I'm making "pakuchi" at my vegetable garden, so please visit my home in Chiba.
How about Japanese food?
A: I cannot eat raw fish, so I cannot eat sushi too, but norimaki, baked egg on the rice, and takoyaki are okay.
Q: Do you feel any other difference?
A: Thai people believe in Buddhism and there are many temples, and in the morning, monks walk the city for "Dhutanga", but in Japan I don't see any monks in the city.
Q: Yes, Japanese monks do not do Dhutanga. So, I think you can see them at a temple.
What are the good points of Japan?
A: The Japanese are very kind. Even if I don't understand the Japanese language, someone help me in various ways in the town and in the laboratory, too. I also think that the Japanese work style is very good.
Q: But, long working hours in Japan is a big problem!
A: I mean that it is very good to concentrate on the work without talking during the work.
Q: I see.

4. In the future

Q: What are you planning to do after completing the doctor course and returning to Khon Kaen next year?

A: I want to return to Khon Kaen University to continue my research and teach students. I also want to participate in the project to improve community water supply.

Q: Last question, you couldn't travel all over Japan because of the COVID-19 Pandemic, but where do you want to go when Corona is over?

A: I want to visit and observe the advanced water treatment facility in Chiba.

Q: Please come to my house too.

Thank you very much for pleasant time while you are busy with experiments today. I hope that you will do your best to obtain a Ph.D and contribute to the development of water supply in Khon Kaen.

(Interview by Ms. Yamamoto)

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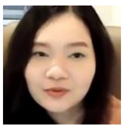
WaQuAC-Net 6th ZOOM Webinar under collaboration of MWA

Introduction of Anti Salinity Tools "AnSaT" of MWA

* Date and time: 28 April 2021, 17:00 to 18:00 Japan, 15:00 to 16:00 Thailand
* Presenter: Mr. Somsak Passananon, Ms. Orapa Prechawat (Water Resource and Environment Department, MWA)
* MC: Ms. Nichapat Noppakool
  Mr. Thatsit Sakulpong (Q&A),
  (M-WIT, MWA)

Ms. Orapa, Mr. Somsak, Mr. Thatsit



(left) Ms. Nichapat

This was the third webinar operated in English. The subject "AnSaT" is the tool against sea water intrusion into the river used as water source of Metropolitan Waterworks Authority (MWA) Thailand. MWA has gotten International Innovation Award 2020 by developing AnSaT.

Greetings from Ms. Nisapas Wongpat, MWA Assistant Governor

1. Participants: 26 persons, 10 countries

Mr. CHENDA Pharith (Cambodia), Mr. Sandeep Pandharkar (India), Ms. Indrastuti (Indonesia), Dr. Mari Asami, Mr. Jin IGARASHI, Mr. OZAKI Noboru, Mr. Takeshi Tsuji, Mr. Tohru MIYAGAKI, Mr. Kubota Hiroshi, Ms. Ohno Yukiko, Mr. Tomoyuki Yamada, Dr, Yasuko Kamegai. Mr. Yoshinobu ONO (Japan), Mr. Christopher Gitonga Gideon Kamuruana (Kenya), Ms. Phaimany SENGPHOUVONG (Laos), Ms. Ei Khaing Mon (Myanmar), Ms. Marie Grace UMUHOZA (Rwanda), Mr. Kenichi Umeyama, Ms. Narumon Praphasamut, Ms. Nanphasorn Singdam, Ms. Wasana Watanakul, Ms. Chaweepan, Surawut Nimtim, Kittirat Wongin, Suntharee Passananon (Thailand), Ms. Huynh Thi Mau Thin (Vietnam)
(Alphabet order of country name)

2. Staff

Mrs. Nisapas Wongpat, Mr. Nipon Leelaruji,
Mr. Supawoot Tripasai, Ms. Thitinan Wiboonsarin,
Ms. Ratchaneekorn (MWA)
Mr. Hiroshi Sasayama, Ms. Mina Yariuchi,
Ms. Keiko Yamamoto (WaQuAC-Net)

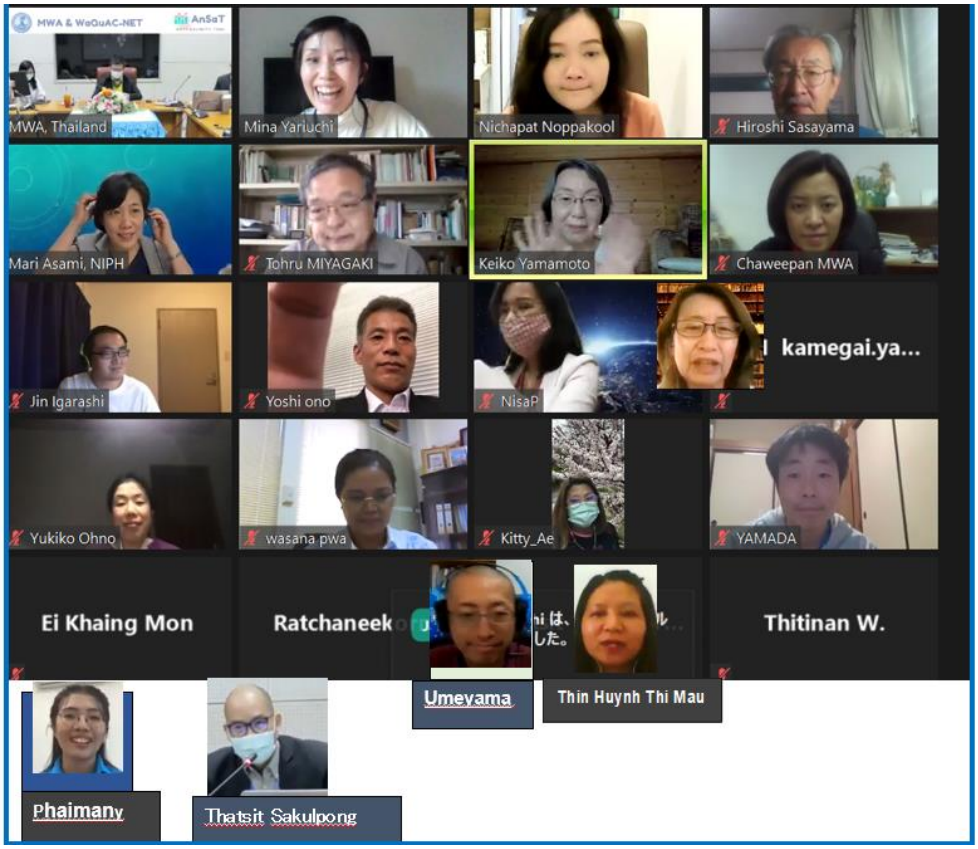
3. Outline of presentation

The presentation was shown with the slideshow (https://www.waquac.net/pdf/data/data_20210505.pdf).

MWA is a water utility belonging to the national government and supplying 6 million cubic meter of water a day to about 12 million people in the capital and two neighboring provinces.

MWA has two raw water sources, Mae Khlong dam and Chao Phraya River. These two sources are not connected. Raw water from Chao Phraya River is 73% of total amount and pumped up to raw water canal connecting to three treatment plants. Over the years, there has been severe drought in Thailand. It is needed to limit water consumption. Royal Irrigation Department (RID) limited water flow from dams during drying season under drought. Then river did not have enough amount of water to push down salt water which intruded into Chao Phraya River from gulf of Thailand. Then water quality at the intake pumping station was affected by salt water even though Sam Lae intake located 96km far from the river mouth. About 8 million people are affected by salt water intrusion because the conventional treatment process cannot remove salinity.

MWA has begun planning short term, medium term and long-term solution against the salt water problem. Now medium and long-term solution are still under planning. Short term solution was already established. It reduces the impact of salt water contamination at the intake. MWA developed two methods to solve salt water



Participants/Presenters (not everyone)

intrusion. In the past, water level of Royal Thai Navy Headquarter, which was located at 50km downstream of Sam Lae pumping station, was used to predict the timing of the highest salinity. But it was not so accurate. Then Anti Salinity Tool, AnSaT, was developed. It can tell you the time of the highest salinity in three days automatically, which uses real time data of water quality and water level at the pumping station and raw water canal. Water level forecast data at the pumping station, sent from Hydrographic Department in Thailand, is compared with actual water level. In parallel, water management data of main dams is sent from RID, and using a model developed by Thailand's National Electronics and Computer Technology Center, the salinity change at the pumping station for seven days in advance is predicted. Such information is used for making decision whether to reduce or stop pumping at the intake to avoid salt water intrusion. AnSaT shows data and forecast in three parts as yesterday, today and tomorrow. Then you can reduce intake amount of raw water accordingly during higher salinity. In the critical case, MWA stops pumping and RID opens the flood gate to push salt water back to the downstream. It is called as “water hammer of Chao Phraya River flow operation”. This operation can repel salt water 17km, as maximum, down from the pumping station within 2 hours. These two methods can reduce the impact of salt water intrusion. Customer can get clean water continuously and check water quality on MWA’s WEB.

MWA aims to solve saltwater problem without any advanced treatment technology which costs higher than now. Keeping water charge is good to customers.

4. Q&A

Q: During saltwater intrusion, how long do you reduce or stop intake? Then how much production amount is reduced? How much capacity of distribution reservoir do you have to keep water for people's consumption?

A: We stop pumping raw water less than 2 hours. It doesn’t cause any effect to customers’ consumption. And we must keep raw water in the raw water canal. For that, 2 hours is the limit. If salt water intrusion is very long, we inform customers to prepare storage of clean water with many media.

Q: How much concentration of salinity or chloride concentration in tap water at maximum level?

A: It is lower than WHO guideline value. So, it is acceptable in terms of safety and taste.

Q: Projection by machine learning sounds so interesting. I suppose that it is necessary to use enough past record for making the projection of salinity concentration by machine learning. How long period of data do you use for this system?

A: We have got data from many organizations for long years.

Q: It is assumed that salt water intrusion will get more severe in the long term. Do you have any plan to mitigate the impact of salinity intrusion? For example, protecting water source through negotiation with upstream water users, or introduce water saving tools to consumers and so on?

A: It is a long- term solution by not only MWA but the national government. It’ll be a big project by the government and other organizations.

Q: Last year, how often did it happen to stop supply water to people?

A: We only stop the pumping of raw water 5 to 7 times a year but we didn’t stop supplying water to customers.

Q: Is it possible to apply this AnSaT system for other substance in water? For example, if turbidity increased, stop pumping raw water like

that.

A: This system forecasts only water level and salinity. For turbidity as suggested, we can remove it well at treatment plants even when raw water turbidity is more than 1,000NTU.

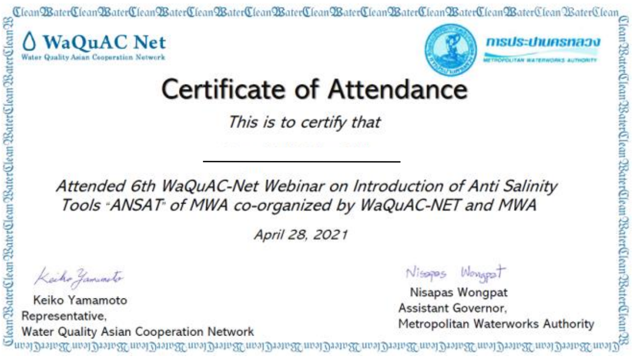
Q: Are there any possibilities to introduce a salt water weir or an arm for salt water intrusion? In Japan, many big rivers had introduced a big weir (barrier) at the downstream of intake points.

A: It is not the project by MWA because it will affect many people along the river. MWA has already shared this idea with the ministry.

Q: Do you have a special team for controlling salinity water in MWA and Other organizations?

A: We have a special committee team consisting of MWA, Provincial Waterworks Authority, RID and association from Thai government. Water resources is a big issue. So, we have the partnership among these organizations.

After the webinar, WaQuAC-Net provided the certificates as below to participants who requested it.



WaQuAC Net
Water Quality Asian Cooperation Network

Certificate of Attendance

This is to certify that

Attended 6th WaQuAC-Net Webinar on Introduction of Anti Salinity Tools -ANSAT- of MWA co-organized by WaQuAC-NET and MWA

April 28, 2021

Keiko Yamamoto
Representative,
Water Quality Asian Cooperation Network

Nisapas Wongpat
Assistant Governor,
Metropolitan Waterworks Authority

(Reported by Mr. Sasayama, Water Supply GLP judge)

Report of Special Lecture

"Miracle of Phnom Penh and the Road to Water Supply Improvement"

presented by the Minister of Cambodia, H.E. Ek Sonn Chan

Courtesy to H.E. Ek Sonn Chan

Kumamoto Studies Special Lecture of Kumamoto Prefectural University, "The Miracle of Phnom Penh and the Road to Water Supply Improvement" presented by the Minister of Cambodia was held on 25th May 2021.

This special lecture was planned for the students of the Kumamoto Prefectural University, and the Minister H.E. Ek Sonn Chan was invited as a lecturer. As the General Director of the Phnom Penh Water Supply Authority (PPWSA), he was the driving force behind "the Miracle of Phnom Penh", which has achieved a drinkable water supply in 15 years from the post-civil war situation. (After retiring from the General Director in 2012, he became Secretary of State, Ministry of Industry and Handcraft, and is now the Minister Delegate Attached to Prime Minister.)

Main contents of the lecture

The minister explained the efforts since he was appointed as the General Director of PPWSA in 1993.

・Staged facility rehabilitation/expansion with the support of development partners including Japan.
・Especially Japan's technical cooperation
・ Five elements contributing the Miracle of Phnom Penh.

1) Turning around of the management by appointing young, dynamic and educated staff,
2) Promoting operational efficiency such as the improvement of water bill collection and the reduction of non-revenue water,
3) Improving staff's capacity and motivation,
4) Improving customer's satisfaction by ensuring transparency and accountability,
5) Support for water supply services to the poor.

Finally, comparing the key performance indicators of PPWSA such as the number of connections, water bill collection rate and non-revenue water rate before and after the reform, he emphasized that it contributed to the improvement of the lives of Phnom Penh people above all.

In the lecture, Professor Tanaka of Kumamoto Prefectural University, the overall moderator, intermittently paused the minister's lecture at key points and summarized the points. So, with his help even students unfamiliar with English technical term of water supply understood easily. After that, the Minister answered the questions from students and other participants.

Impressions

As the Minister was accustomed to make presentations and lectures, the lecture was energetic and easy to understand in spite of online. I felt that it was a very valuable opportunity for Japanese students to directly listen to the lecture from the key person of developing country. They raised the questions such as the minister's philosophy on life and approach toward work. He looked glad to answer the questions, which are not usually asked by people related to water supply and development sectors.

The lecture was mainly for Japanese students, so its contents seemed to focus on the support from Japan. Even WaQuAC-Net members, many have been involved in the projects at PPWSA. I myself also participated in the technical cooperation project (2003-2006). The minister also mentioned about it along with the importance of human resource development. In fact, this project's activities led to the establishment of WaQuAC-Net. I recall my days there.

You can see the lecture on the Web. (https://www.youtube.com/watch?v=fD7AGvzMiNY)

(Reported by Ms. Yariuchi, WaQuAC-NET Office)

Introduction of new members

- Anootnara T. Kuster（Thailand）
- Hitoshi Sugano (Japan)
- Tomoyuki Yamada (Japan)
- Toru Miyagaki （Japan）
- Takashi Kondo (Japan)
- Tomohiro Minami (Japan)
- Taeko Miyashita (Japan)

We welcome new members anytime. Please contact us!

WaQuAC-Net 7th Webinar Report

Current Situation of Small Water Utilities in Rural Areas of Three Countries

- Date and time: 21st May 2021, from 10:00 (Rwanda), 15:00 (Thailand), 17:00 (Japan)
- MC: Dr. Yasuko Kamegai
- Presenters (See Table 1)

WaQuAC-Net held the 7th Webinar titled "Current situation of small water utilities in rural area" by five presenters from three countries: Rwanda, Thailand and Japan. It was an interesting topic so that the number of participants was more than 40 members which was the record of the WaQuAC-Net webinar. Moreover, the participants joined from varied countries, such as Kenya, Indonesia, India, Nepal, Pakistan, Myanmar, Cambodia as well as the presenters' countries. The presentation titles and presenters' information are shown below, Table 1.

We were careful about time management because the participants attended from different countries with different times. All the presenters kindly managed well, and we kept time as scheduled. We thought that the participants were not satisfied perfectly because the discussion time was not enough due to time constraints. It seems a bit busy to have three presentations in a 1.5 hours program.

We, organizers of the Webinar, are very happy to welcome such many presences of participants worldwide and now think over how to improve the program and implementation method for the benefit of all potential participants.

*Presentation materials are posted on the website; data_20210521.pdf (waquac.net)

Mr. Vincent

The first presenter was Mr. Vincent from Rwanda who was the first presenter from African country for the WaQuAC-Net seminar. Many participants were from Asian countries, so the situation in African countries was not known well. He started the presentation from the explanation of general background for better understanding of the participant, and it helped us to grasp the outline very much. It was surprising for me that they set water tariffs differently depending on water sources. He summarized

Table 1 The presentation titles and presenters' information

Title	Presenter	Occupation
Rural Water Services and Infrastructure Management in Rwanda	Mr. Vincent de Paul MUGWANEZA	Director of Rural Water and Sanitation Services/ WASAC
Current situation of community water supply in Khon Kaen region and collaborative project with PWA (Provincial Waterworks Authority), Khon Kaen University and 10th Regional Office of Environment	Dr. Rittirong Junggoth	Professor, Khon Kaen University
	Mr. Mongkol Thananawanukul	Environmentalist Senior Professional Level, Ministry of Natural Resources and Environment
	Ms. Wasana Watanakul	Director of RTC2, Provincial Waterworks Authority
	Supported by Dr. Yoshinobu Ishibashi	
Small water supply systems in Japan	Dr. Mari Asami	Chief Senior Researcher, National Institute of Public Health

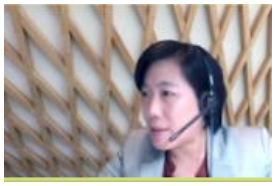
the countermeasures against the issues, and it was very good for easy understanding.

Next program was made by three presenters from Thailand to explain the case of collaboration of three organizations; Khon Kaen University, Ministry of Natural Resources and Environment and PWA (Provincial Waterworks Authority).

Mr. Mongkol, Ms. Wasana, Dr. Rittirong

Speaking of the water quality as an index of performance in Thailand, the water supplied in urban areas mostly meet the national standards, but that in rural areas cannot meet well. It indicates the difficulty of the O&M properly in rural water supply. In order to overcome such a situation, the three organizations have started to assist the rural water supplier, for instance, the 10th Regional Office of Ministry of Natural Resources and Environment provides technical assistance in water quality analysis and training programs of water quality management, PWA training center assists the human resource development of O&M staff members. Khon Kaen University reviewed water supply system with students, analyzed data, created operation manuals and provided trainings.

It must be a good practice. We can imagine the successful good cooperation of three organizations from the good teamwork of three presenters. Dr. Ishibashi who is the ex-professor of Khon Kaen University contributed to the success of the project. We hope COVID-19 pandemic will end soon, and they will be able to start their work as before for further progress.



Dr. Asami

The final presenter was Dr. Asami who has studied the problems of small-scale water supply in Japan. Such problems are rarely known in the urban area, but very serious in some rural areas, especially in depopulating areas. The merging of small utilities with large utilities is said to be one of the solutions. But it is difficult to get the consent from villagers. She explained the merging does not affect the tariff so much. I think that it is an unexpected calculation for many people. On the other hand, she also explained about the new technologies for improving quality of water in small scale supply. These are interesting and we hope to hear in detail.

According to the post-webinar questionnaire, the score of satisfaction is 4.4 out of 5 on average. There are many favorable comments for the presentations among countries at once. There are also the comments for improving the webinar, such as, to increase the discussion and Q&A time, to deepen the theme more.

We received the opinions and ideas for the next program, and we will make the better based on your suggestions. Thank you.

COVID-19 pandemic has changed the world in many senses, but it is one of the advantages to become able to hold web meetings with friends around the world.

I would like to say thank you again to all presenters and staff of this program.

(Reported by Dr. Kamegai)

Presenters and participants (Some are not shown here)

* After the webinar, WaQuAC-Net provided the “Certificates of Attendance” to participants who requested it.

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Next Activity

Jul 17: 8th Webinar, Small water supply in Japan (in Japanese)
Aug: Friendship party in online (in English)
Sep: 9th Webinar collaboration with MWA (in English)
Sep15: Newsletter vol.50 (in Japanese)
Oct 15: Newsletter vol.50 (in English)