APT Training 2023
— Developing fundamental network planning skills in regional communities to bridge the digital divide —

The ITU Association of Japan
International Cooperation Department

Since FY2017, the ITU Association of Japan has been conducting an Asia-Pacific Telecommunity (APT) training program[*1] as a human-resource development support program to teach network planning skills, in an effort to eliminate information disparity in urban and rural areas of developing countries, in the APT.

Over the eight days[*2], from October 11 to 20, 2023, we held a face-to-face training program for the first time in four years, since 2018. This year, the training was held approximately one month earlier than most years, so there was only about one month—less than usual—to recruit participants, but with the help of the APT administration, nine trainees were selected from the APT. One was selected from each of Laos, Maldives, Mongolia, Nepal, Palau, Philippines, Sri Lanka, Thailand, and Tuvalu. The trainees stayed at the Hotel Sunroute Plaza Shinjuku, near the south exit of Shinjuku Station in Tokyo, and the training was held in a meeting room on the fourth floor of a building next to the hotel.

In an effort to eliminate information disparity in urban and rural areas of developing countries, trainees gained skills to analyze the state of communication networks in their countries, to use basic network design methods for eliminating information disparity, and to apply those methods designing a communications network optimized for their region. The trainees were given to several tasks. Before the training, each trainee had to submit a country report analyzing the state and issues with communication networks in their own country. Then, at the end of the training period, they had to select an under-populated area in their own country, study what would be the best type of network for that area using the network design skills they had learned, and submit an action plan summarizing the results of their study.

The training proceeded with lectures and drills for practice. Mr. Takayoshi Hamano, formerly of NTT, conducted the "Network Planning" lectures and drills, regarding technical skills for overcoming digital disparity. To complement this, "Optical Fiber" lectures were given by Mr. Kazuhide Nakajima, who is from NTT.

The schedule for the eight-day training program was as follows.

- Day 1 AM Orientation , Opening ceremony
            PM Presentation of trainee country reports, Welcome reception.
- Day 2 AM Presentation of Japan country report
            PM Lectures by Mr. Hamano, Mr. Nakajima.
- Day 3 Visit to Kanagawa Institute of Technology
- Day 4 to Day 6 Practice with various drills
- Day 7 Create an action plan
- Day 8 AM Presentation of action plans by trainees, closing ceremony, farewell lunch meeting

A detailed description of each day follows.

The first day began with an orientation, providing guidance regarding the training program. This included an overview of the schedule and the area surrounding Shinjuku station. An ice-breaker was then held to help diffuse any tension, in which trainees introduced themselves to each other in pairs. An opening ceremony was held in the afternoon, with an opening greeting by Mr. Yujiro Hayashi from the Ministry of Internal Affairs and Communications (MIC) (Figure 1). This was followed by presentations of country reports,

■ **Figure 1: Group photo from the opening ceremony**

■ Figure 2: Country report presentation

■ Figure 4: Group photo from Kanagawa Institute of Technology

which trainees were required to prepare beforehand (Figure 2). The trainees presented the state of telecommunications in their countries, including issues such as the digital divide, with local data such as the various regions, population, geography and the available equipment and facilities.

Through the presentations and Q&A sessions afterward, participants shared the state of the telecommunications environment in their countries with the lecturers and other participants. A welcome reception was held after presentation of the country reports, helping to build closer relations among the trainees and with the lecturers and secretary staff. In the morning on Day 2, the ITU-AJ Secretary General, Kazuhiko Tanaka, gave a presentation on the state of mobile communications in Japan as a country report for Japan. In the afternoon, Mr. Hamano gave a lecture on network planning and wireless technology, which trainees would work on starting on Day 4 (Figure 3). Finally, Mr. Nakajima from NTT gave a lecture on optical fiber, providing the trainees with details of optical fiber technology.

On Day 3, trainees visited Kanagawa Institute of technology, so they could see

an advanced technology research facility in Japan (Figure 4). In the morning, trainees learned about smart-house technology in a lecture by Kanagawa Institute of Technology Professor Masao Isshiki. In the afternoon, they visited the university's smart-house experimental building, and learned how smart-house technology is actually being used through explanation and demonstration (Figure 5). This was followed by tours of various other university facilities.

From Day 4 to Day 6, trainees studied basic network design methods through practice and discussion, using drills created from different types of geographic data on each of the three days.

During the mornings, the lecturer would explain the drills, and individual students would think about a network plan for that geography. In the afternoon, trainees divided into three groups to

discuss the network plan for the geography in that drill. This discussion was repeated two or three times, rearranging the groups, to derive the best network plan. Finally, a representative from each group presented their best network plan, and the lecturer gave comments regarding the presentations to evaluate them (Figure 6, 7).

Day 7 was for creating presentation materials regarding the action plan. The trainees selected a region in their country, considered concrete aspects of this area

■ Figure 6: Group discussion for a drill

■ Figure 3: Network planning lecture by Mr. Hamano

■ Figure 5: Tour of smart house test facility at Kanagawa Institute of Technology

■ Figure 7: Presentation after group discussion for a drill

such as population, geography and available facilities, investigated an optimal network plan for eliminating the digital divide, and prepared the materials.

On the last day of the training, trainees presented their action plan (Figure 8). The lecturer and other trainees held Q&As about the presented action plans, which led to lively discussion. After presentation of the action plans there was a closing ceremony, where ITU-AJ General Secretary, Mr. Tanaka, presented each trainee with a certificate for completing the training (Figure 9). This was concluded with each trainee giving their comments regarding the training program. After the ceremony, a farewell luncheon was held at a Japanese restaurant, where they enjoyed a soba and mini-donburi lunch.

It has been four years since training was held in-person, so we gave consideration to having a training environment that would encourage active discussion among participants. One effort was to provide drink and snack catering in the training room, to encourage more active communication among trainees and with lecturers and secretary staff. The trainees gathered there during each break and it became a good communication tool. A second effort was to prepare large printed maps showing the regions for each of the drill problems, so that the network plan could be drawn directly on the map. This also encouraged discussion. We arranged the desks into the three groups for group discussions, so that trainees could sit around the map while discussing the problem. We also rearranged group members for several discussions so everyone could hear a range of opinions when studying network plans, to help create more-comprehensive network plans. Each day we had a representative from each group present their network plan, but we also tried to ensure that everyone had a chance to give a presentation. As a result of these efforts, we received action plan reports from all of the trainees on the final day.

Because telecommunications technology advances so quickly, we want to consider selection of lecture content and locations to visit so that participants are exposed to the latest technologies. Although the basic concepts of designing and building communication networks do not change much, we also want to ensure that the content of drills are reviewed appropriately, according to the latest trends in communication technology, so that we can offer a more meaningful training program.

In conclusion, we would like to offer sincere thanks to everyone at the APT and MIC for their guidance and cooperation in offering this training program, to Mr. Hamano for his efforts preparing lecture materials and guiding the trainees, to Mr. Nakajima from NTT for his lecture, to Prof. Isshiki and to all others from Kanagawa Institute of Technology for their help with the lecture and facility visit.

■ **Figure 8: Action plan presentation**

■ **Figure 9: Presenting completion certificates**