



Initiatives to Enhance Human Resources at Tokyo Waterworks

(Aiming to Make Contributions within and outside Japan)

J. Akiyama*, T. Takahashi**

* Bureau of Waterworks, Tokyo Metropolitan Government, 5-38-23, Kyodo, Setagaya-Ku, Tokyo
akiyama-junko@waterworks.metro.tokyo.jp
** takahashi-takay@tssk.jp

Changes in the human resources foundation at Tokyo Waterworks

In Tokyo waterworks, rapid expansion of facilities started about 50 years ago in order to respond to the industrial development and population growth that arose from Japan's period of high economic growth. As a result, a number of these facilities are currently beginning to need renovation due to aging.

Meanwhile, Tokyo's population is predicted to decrease from the peak in 2025, which is feared to result in a worsening of Tokyo's fiscal situation and therefore require more efficient administrative operation.

There are around 3,500 staff who sustain the water supply serving the population of approximately 13 million. The large-scale retirement of the baby-boom generation means a drop in the number of highly-experienced veteran employees and an increase in younger employees (Figure 1). However, young employees often transfer to positions outside of the waterworks industry within a few years due to Tokyo's job promotion system.

Moreover, it is increasingly less common for staff to work directly on-site due to growing use of outsourcing. Experience with accidents is further on the decline due to improvements to pipe materials, advancements in leak prevention technology, and the automation of purification plant operation.

For this reason, there is crisis consciousness regarding how various waterworks techniques and know-how rooted in on-site experience will be passed along.

Within this changing context, Tokyo waterworks is working to strengthen its human resources foundation in order to maintain strong, tenacious waterworks services as a core essential utility.

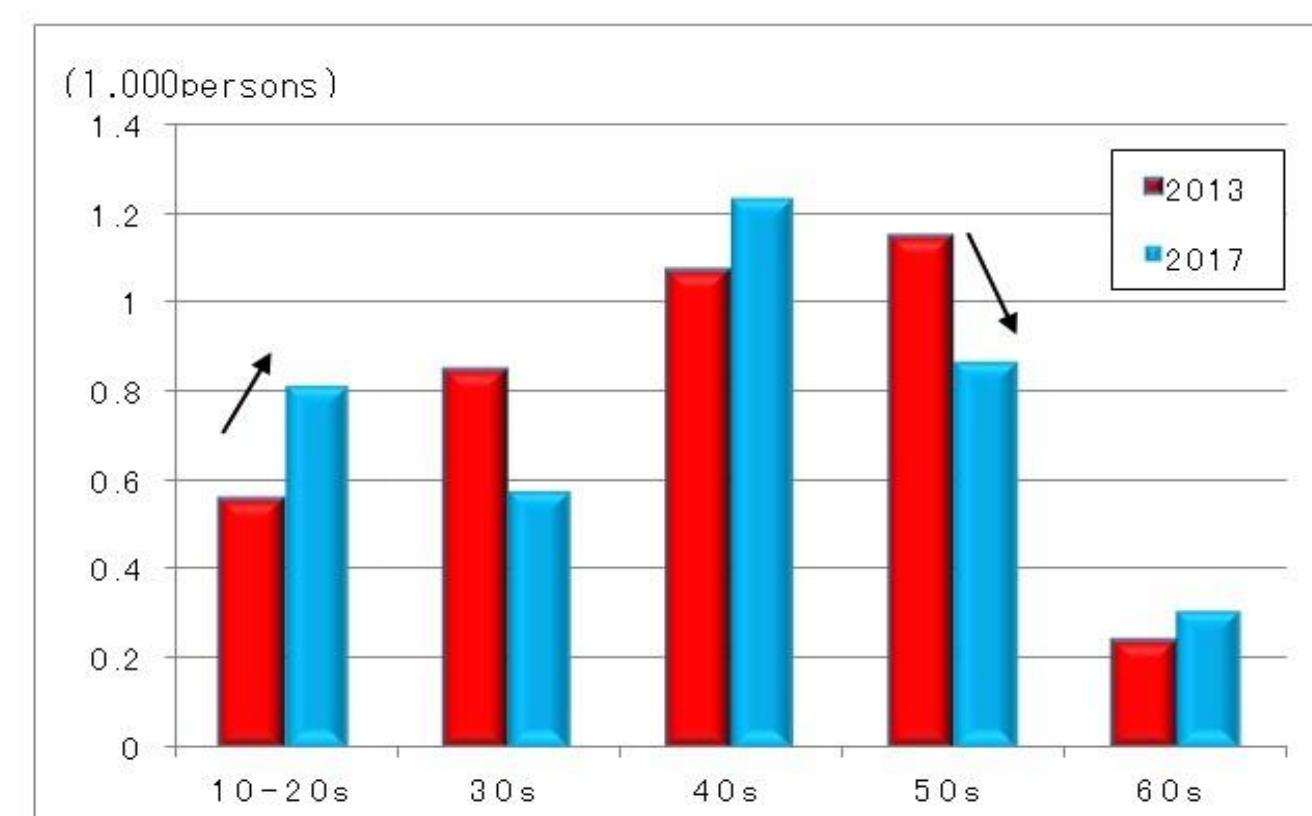


Figure 1: Age distribution of Bureau employees

Human resources development methods at the Bureau of Waterworks

This section introduces several distinctive methods of human resources development adopted by the Bureau in response to the crisis regarding the passing-down of waterworks techniques and know-how to the subsequent generations.

1. Use of training facilities

In 2005, the Bureau established the Training and Technical Development Center (TDC), which has the characteristics listed below. Being designed to achieve synergistic effects between training and development, these programs conduct human resources training in an effective manner and provide following opportunities:

- Off-JT opportunities throughout the year
- Practical opportunities to experience plumbing and repairing water leakage using the Practice Field (Figure 2)
- Opportunities for virtual experience while using the staff education and training system(Figure 3)

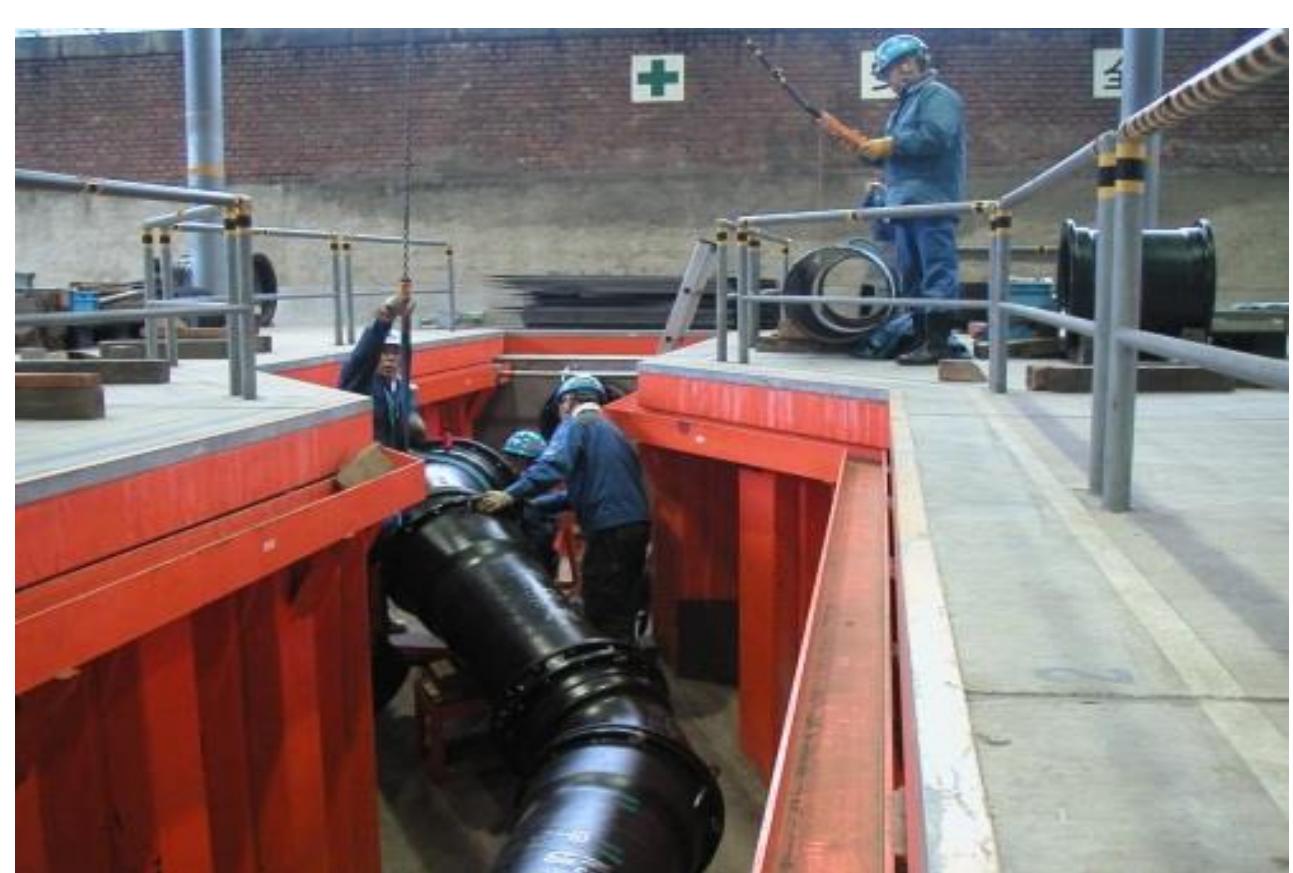


Figure 2: Large-diameter piping practice facility



Figure 3: Crisis management training

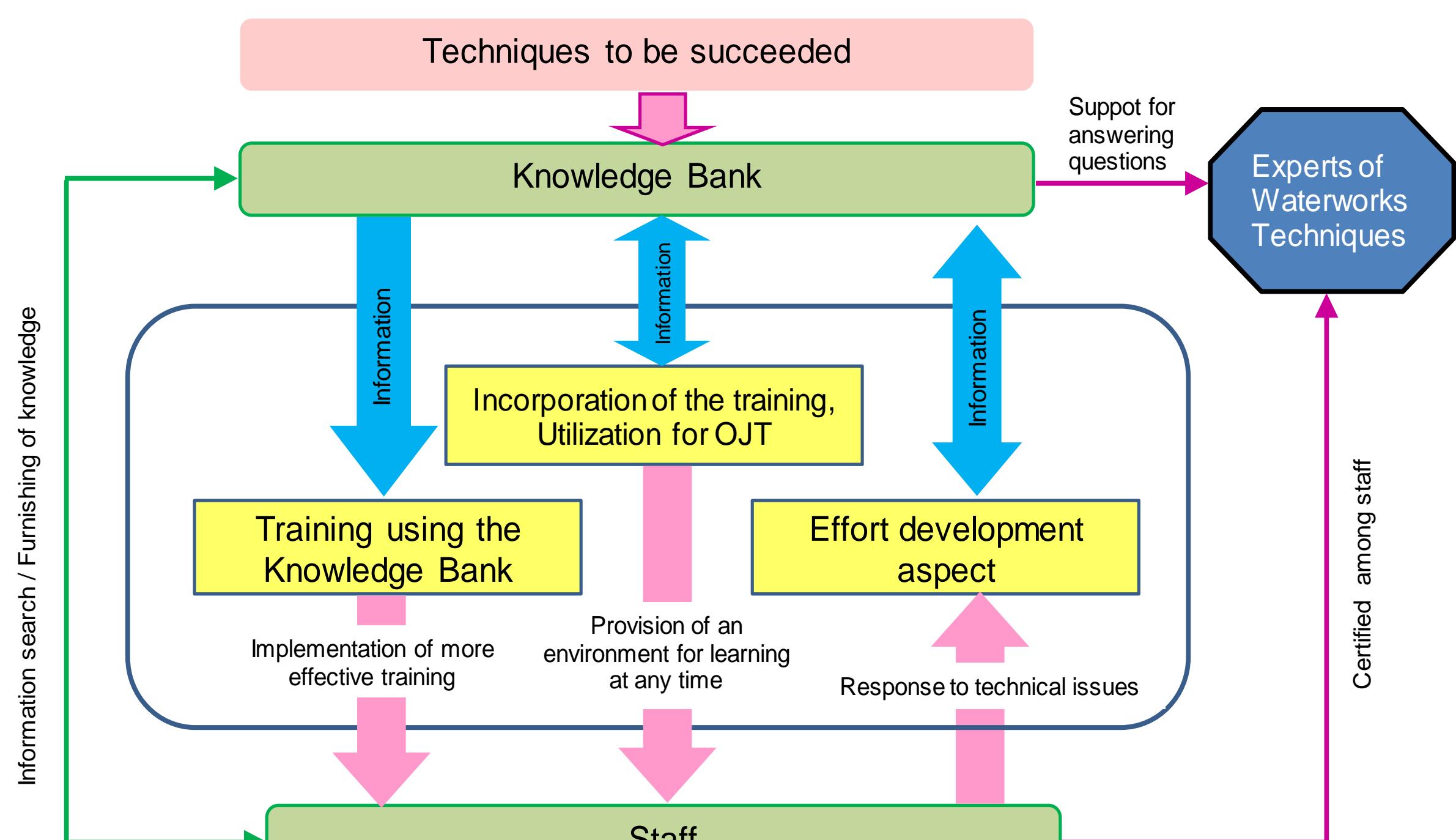


Figure 4: Utilizing Knowledge Bank and Expert of Waterworks Technique (Image)

2. Use of Knowledge Bank system

The Knowledge Bank, operated since 2007, is a database of tacit knowledge based on past experiences, stored in a visual format for use at any time. It is often used during OJT, allowing trainees to learn various lessons from past experiences at a variety of workplaces. (Figure 4)

3. Expert of Waterworks Techniques system

This system was started in 2008 to maintain technical skills based on rules of thumb from on-site experience.

Under this system, employees with advanced skills and rich experience are certified and registered in each technical field. These employees provide guidance and advice regarding problems that occur on-site and elsewhere. They also take part in discussion sessions, primarily aiming to improve practical skills in the field. (Figure 4)

The number of such registered staff has been steadily increasing, with 73 employees registered at present (FY 2017).

Using human resources (assets) to contribute to organizations in Japan and abroad

The "Tokyo Waterworks Management Plan 2016," a Bureau of Waterworks's vision document, states that human resources are to be used to contribute to the resolution of issues in Japan and abroad from the following three perspectives:

1. Human resources development: Receiving employees from various organizations in Japan and abroad to develop their skills through practical training while using TDC (Figure 5) . Employees of the Bureau are dispatched to various organizations in Japan and abroad to develop human resources there.

2. Project development: Working with private companies to provide materials and equipment, and a partner company, TSS Tokyo Water Co., Ltd., as a team on the core operations of the Bureau to promote projects of organizations in Japan and abroad (Figure 6). Effectively using technical know-how to provide consultation services regarding waterworks facility maintenance.

3. Information dissemination: Giving presentations on advanced technology at international conferences and elsewhere(Figure 7) ; developing data based on accumulated know-how regarding advanced technology such as water leakage prevention, then making this data open to the public



Figure 5: Trainees received from outside of Japan



Figure 6: Contract ceremony in an overseas project



Figure 7: Presentation at an international conference

Spiraling-up of human resource development

Through experience making contributions and disseminating information in Japan and abroad, employees can also obtain feedback on and accumulate various kinds of know-how, which will then lead to improvements in problem-solving skills in Tokyo waterworks as well as in skills to make further contributions. This will ultimately make it possible to build a solid human resources foundation.

Additionally, through mechanisms by which obtained skills are shared and universalized, it is possible to continuously implement the human resource development PDCA (plan-do-check-act) cycle and thereby continuously upgrade human resources.

Human resources development for the future

Human resources development is essential for waterworks organizations to sustain their operations into the future even if the business environment changes. Based on the "Tokyo Waterworks Management Plan 2016", the Bureau will move forward with the initiatives to secure and develop human resources that have flexible mindsets and expertise based on field experience. As one of the world's leading large-scale waterworks organizations, the Bureau will continue to make use of accumulated knowledge and know-how to resolve issues within the organization. The Bureau will also disseminate information to waterworks organizations in Japan and abroad that require useful human resources for the purpose of broadly contributing to the further development of waterworks services.

Bibliography

- Bureau of Waterworks, Tokyo Metropolitan Government (2016). "Tokyo Waterworks Management Plan 2016".
- Bureau of Waterworks, Tokyo Metropolitan Government (2017). "Working document for the 41st Study Group on Tokyo Waterworks Business Management."