

Future Design Applied in the Town of Yahaba in Iwate Prefecture

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Introduction

The waterworks of Yahaba in Iwate Prefecture, launched in 1966, now service 96% of the district's population. However, 50-plus years have passed since the facilities were built and they are deteriorating. So it is clear that significant future work will be required to replace them.

Despite their importance, waterworks are paradoxically the kind of infrastructure that people tend to take for granted. As long as they continue to benefit from water services, consumers are unlikely to consider upgrading and earthquake-proofing decrepit water pipes as a high-priority project. This renders it a difficult task to garner the understanding of the public required to raise waterworks fees, which should logically be the revenue source for pipe replacement projects.

In addition, amidst a socioeconomic environment where the nation's population is declining, it is important to create a scenario where people are aware of the crucial role that waterworks play in the local area – the goal being to ensure that waterworks are a service that everyone can continue to access into the future. To achieve this, residents should have a good grasp of the issues, including the question of how to pay for renovation work. They must not only agree on waterworks policy but also consider structures such as water pipes in terms of how many centuries they will last instead of how many years. It is not sufficient simply to optimize the current system: we also need to think about the interests of people who will be using waterworks in the future.

Waterworks Needs of the General Population

Based on the idea of multilayered participation [comprised of 1) public comment procedures, 2) outreach methodology, 3) questionnaire surveys, and 4) direct participation by consumers – for purposes of this paper called “waterworks supporters”], we employed outreach methodology to assess the needs of the silent majority.

Outreach involves going to the target audience in order to better communicate with them. Instead of a questionnaire with pre-devised questions, Yahaba opted to gather information from 1,000 individuals on their current needs. We received a total of 954 answers. Our results have clearly indicated that respondents wanted lower rates, but at the same time continued to demand safety of waterworks systems as well as good-tasting water.

The Waterworks Social Dilemma

From a financial perspective, it is natural for individual residents to want lower waterworks rates. If everyone thought this way, pressure would mount for lowering prices and the government would have no choice but to authorize a lower fee structure. The issue is that if the majority of individual residents were to consider only their own benefit, revenue sources would prove insufficient and projects to replace aging facilities would fail to move forward. This would mean a greater safety risk over the long term, which would in turn result in a greater financial burden. Paradoxically, the public benefit of waterworks safety would also be lost over the long term.

The “social dilemma” referred to here is as follows: actions that compromise public interest over the long term benefit individual interests in the short term (“uncooperative behavior”), while actions that compromise individual interests over the short term benefit public interests over the long term (“cooperative behavior”). One of the two must be chosen over the other (*Prescription for Social Dilemmas* by Satoshi Fujii, Springer, 2017).

Not only do needs for waterworks, as perceived by the general public, fail to consider the interests of future generations, but in fact the current generation is unwittingly choosing uncooperative behavior, which also means loss of profit for the waterworks sector at present.

“Waterworks Supporters” Workshop

Next, we look at the question of how we can solve this social dilemma by way of changing attitudes through a Waterworks Supporters Workshop. This workshop is an opportunity for people to directly participate in the formulation of policies that affect them. At the first workshop, the format was the same as for our outreach initiatives. People were asked to simply give their opinions, though no specific questions were asked. At this time we arrived at the same result as above. Respondents wanted lower rates but at the same time continued to demand safe waterworks and good-tasting water.

At Yahaba, in order to ensure that deliberations held during the workshops covered the important topics, the workshops featured hands-on activities including tours of water purification plants and tasting sessions. The goal is for attendees to truly get a sense of what the waterworks sector is all about. Workshops from that point onward involved deliberations focused mainly on audio-visual

material. Content was then recorded using facilitation graphics, which are utilized at subsequent workshops to make the deliberation process more visible.

Materials presented at workshops should be very specific and easy to understand. At Yahaba, in addition to information gained by asset management initiatives by utilizing the information for the assessment of the waterpipe project, they are trying to improve visibility on potential impact and risk factors. In thinking about the question of renovation of facilities, we considered the issue of whether preventive maintenance or corrective maintenance would be the optimal choice, as well as what risks would be present in the end.

As the deliberations progressed, the focus became how to maintain safety as well as customer peace of mind, and particularly establishing criteria for acceptable risk levels. Everyone agreed that the cost burden was justified due to the indispensability of waterworks. As more sessions were held, more “waterworks supporters” came to understand the situation to the effect that they even recommended an increase in waterworks fees. In other words, instead of putting short-term individual needs first, they decided on cooperative behavior to ensure long-term public benefit – thus solving the “social dilemma”.

Solving the Social Dilemma

There are two reasons why the “waterworks supporters” decided on the cooperative behavior route in contrast to the general population: 1) they had sufficient information needed to properly consider and make decisions on waterworks, and 2) they employed two-way communication between themselves and the waterworks sector.

Since the general population lacks the information required for decision-making, they naturally choose what is most beneficial to themselves. Because people who use waterworks simply assume that their water is safe without giving it much thought, they do not tend to make choices that would raise the cost burden, even if it means improving safety.

In contrast, because the “water supporters” employed two-way communication in free discussions utilizing hands-on learning techniques as well as visual materials, all of the participants decided on collaboration with the water and sewerage departments. In addition, water and sewerage department surveys had identified the highest priority issues as safety and replacement of decrepit pipes.

The public interest was chosen instead of lower water and sewerage charges, which would benefit the individuals instead of the public, thus resolving the dilemma.

These recommendations are the result of a significant change in awareness levels of our “waterworks supporters” brought about by their participation in the workshop. Serving as a reference for other municipalities, a proposal was made to add ¥200 to waterworks fees – without altering the essential fee structure – to serve as a future reserve fund.

Let’s take the replacement of the decrepit pipes as an example. Even supposing that people agree to an increase in waterworks rates as revenue to pay for the pipes to be replaced, and we are able to raise rates by ¥200, the reality is that these funds will only be sufficient to cover a few hundred meters of new pipes. This means that we are unable to solve the issues faced today. Even if the “waterworks supporters” have enough information to allow them to make decisions on waterworks, because deliberations are held in the context of current circumstances, the results do not necessarily reflect the issue of safety for future users.

Implementation of Future Design

Despite the fact that the short-sighted choices of current consumers can be potentially disadvantageous to future generations, these future generations are unable to negotiate for themselves given that they do not yet even exist. This is the reason for Future Design (FD). A major attribute of the FD approach is to create groups of people who will stand up for the benefit of future generations. That is, a set of imaginary future persons takes on the role of engaging with the people of the present in negotiations and decision-making. With the welfare of future generations in mind, this method works to overcome conflicts of interest between generations in the decision-making process.

Yahaba has implemented FD initiatives in policy formulation including the “Comprehensive Strategy on Community, People, and Job Creation” and the “Comprehensive Management Plan for Public Facilities”. During the workshop on “Comprehensive Strategy on Community, People, and Job Creation”, deliberations were held between a group of people acting on behalf of the interests of future generations – “imaginary future persons” – and the people of the present. The representatives of the current generation emphasized current issues and unmet needs, attempting to provide solutions

with ideas subject to current limitations. Meanwhile, the imaginary future persons offered long-term solutions and back-casting (“Future Design – Evidence and Insights from Participatory Deliberations” by Keishiro Hara and Tatsuyoshi Saijo, *Journal of Japan Society on Water Environment*, 2017, Vol. 40, Issue 4).

Approximately six months after project implementation, a series of interviews were held with the people who participated in this workshop as imaginary future persons, at which time these individuals noted that there was “no conflict” between themselves as imaginary future persons and their actual position as people of the present. In fact, it was clear that they were looking at social issues from both present and future points of view. In addition, they derived satisfaction from the fact that they were able to consider the issues as imaginary future persons. Therefore, even in their day-to-day lives, it was clear that they were now able to think naturally and effortlessly as people of the future (“Future Design” by Tatsuyoshi Saijo, *TRENDS IN THE SCIENCES*, February 2018).

Following the workshop on “Comprehensive Management Plan for Public Facilities”, the results of the workshop – a picture of Yahaba in 2060 – were used to help devise business strategies. Amidst deliberations on strategy formulation the “waterworks supporters” were given the role of imaginary future persons, deliberating on the structure of waterworks in Yahaba in the year 2060. A dramatic review of the waterworks fee structure was undertaken, with participants discussing how to secure funds for replacing waterpipes in 70-year cycles.

Not limiting the deliberations on waterpipe selection to topics such as cost, type of pipes, etc., people also gave opinions on issues such as pavement repair and road maintenance. Since these kinds of opinions had not been observed in the participants’ past experience or in ordinary workshops, these opinions are clearly derived from the creation of the imaginary future persons and the viewpoint of life in the future.

Conclusion

FD tends to focus on the technical aspect of creating a group of people of the present that would speak for the interests of future generations, who are unable to negotiate for themselves.

It should be noted that individuals who have experienced the role of imaginary future persons derive satisfaction from that role as they view themselves as *both* people of the present and people of the

future. This change in perspective remains with them as they go about their everyday lives following the conclusion of their role representing the people of the future.

Because services such as waterworks are extremely public in nature – due to the fact that they are essential to daily life – the government should not be able to make one-way determinations on criteria and future direction. Instead, policy governing these services should be developed according to a process. Since waterworks and other essential services play a critical part in the lives of residents, it is the residents who should shape them.

As can be observed in the example of the “waterworks supporters” of Yahaba, no matter how much information may have been available to them to consider the issues, because they are engaged in deliberations subject to the limitations of today’s socioeconomic circumstances, their results do not tend to serve future generations.

Meanwhile, deliberations held to devise business strategies – which included having people experience the role of imaginary future persons – served to further not only deliberations on waterworks but on community-building as a whole for the benefit of future generations.

Based on the experiences at Yahaba up to this point, a comprehensive plan to develop initiatives to increase the number of people acting as imaginary future persons – and to perpetuate such a program – must be devised using the FD framework. At the same time a “Future Strategy Department” of some kind must be established to provide recommendations from the perspective of future generations in the formulation of important policy. This is the key to sustainable community development. **JS**

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