

Elegance in Steel and Concrete

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73,000. What do you think this number is? This is the number of bridges in Japan. The typical lifespan of a bridge is around 50 years. However, many bridges in Japan were constructed all at once during a period of rapid economic growth. This means that a significant number of bridges are now in need of repair or replacement.

As of 2022, the Ministry of Land, Infrastructure, Transport, and Tourism has announced that 34% of bridges have exceeded 50 years since construction, and this percentage is projected to sharply rise to 59% by 2032. Some structures are experiencing significant damage due to their age.

Last year during summer vacation, I participated in a bridge inspection course and observed the condition of aging bridges. This is the Aioi Bridge, made of concrete. It exhibits an abnormal gap between the girders. Additionally, essential reinforcing steel, crucial for maintaining strength, is exposed and rusted.

In Japan, most bridges are managed by the local government. However, there is a significant shortage of civil engineers there. In fact, 5% of cities, 22% of towns, and 56% of villages do not have civil engineers for bridges.

While some may suggest utilizing technology for unmanned inspections, the government mandates local authorities to conduct “close visual inspections” which involve using a hammer, every five years. Therefore, unless we address the shortage of personnel in local governments, it will be impossible to sustain the bridges that are essential to our daily lives.

So, how can we increase the number of civil engineers? I believe it’s crucial to start by making people familiar with the charm of bridges. As I studied at Ishikawa Kosen, I found bridges to be incredibly fascinating. However, I think many people are still unaware of it. That’s why I’m going to introduce three allures of bridges. Firstly, each bridge is entirely unique. Bridges are a combination of different surroundings, structural designs, and materials, resulting in a one-of-a-kind structure. Just in terms of structural designs, there are six different types such as truss bridges and arch bridges. Consequently, no two bridges are the same. That’s why we develop a fondness for the bridges we take care of.

The second point is that bridges are connected to a wide variety of fields like history and the environment. The ‘Saigawa Bridge’ in my hometown is known for its exceptional durability. This is because it was constructed to accommodate tanks. Furthermore, for older bridges without existing blueprints, we estimate their construction era by examining the background in photographs and studying the distinctive features of bridges from different periods. In other words, being an engineer is a creative job that requires a broad knowledge of history.

The third aspect is that bridges, spanning borders, forge connections between people’s hearts. Constructing infrastructure like bridges and dams in other countries allows generations of people, both past and present, Japanese and otherwise, to

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establish mutual bonds. During my visit to the Kwai River Bridge in Thailand, constructed by the Japanese military during World War II, I could sense a connection to Japan even in a foreign land.

Today, it is taken for granted that we can safely cross rivers on bridges. However, bridges are indispensable for the secure movement of people. It's thanks to bridges that we can even supply water and electricity. I want to share the allure and significance of bridges with more people. Furthermore, I aspire to pursue a career in building and maintaining bridges, both domestically and internationally, in the future.

Thank you for listening.