



JSCE Centennial Declaration

Transcending the Boundaries of Civil Engineering to Construct the Foundation for a Sustainable Society

Introduction

The birth of modern civil engineering technologies in Japan dates back to the early years of the Meiji period (1868–1912) and was spearheaded by foreign advisors hired by the government. These technologies soon achieved their first bloom under the leadership of Baron Koi Furuichi, the first president of JSCE, and other civil engineers returning to Japan after studying abroad. This history is given in the opening lines of the JSCE Centennial Declaration in order to emphasize that this Declaration represents our aim to return to our point of origin as individuals, before it is a Declaration of JSCE as an organization. JSCE was established 100 years ago in 1914. A half century later, Japan had advanced to hosting the Tokyo Olympics in 1964. During this period, Japan's civil engineering garnered numerous brilliant achievements, such as the completion of the Kurobe Dam, the Tokaido Shinkansen, and the Meishin Expressway, continue to support the nation and its activities today. Civil engineers take great pride in the individuals that contributed to this luminous history.

It is true that during the last 50 years, the environment surrounding civil engineering changed dramatically. Even after the Olympics, civil engineering flourished as it continued to support Japan's accelerated economic growth. But parallel to the economic growth, environmental degradation was proceeding inexorably. By the time of its 60th anniversary, JSCE was facing grave environmental problems. The 80th anniversary of JSCE coincided with the collapse of Japan's bubble economy that sent it searching for solutions to serious economic problems. Some 20 years later in 2011, Japan experienced the devastation caused by the Great East Japan Earthquake, which reawakened JSCE to the importance of ensuring the safety of society. Thus, during the second half of its century, JSCE faced a series of extremely difficult national problems that shook the very foundations—security, environment, economy (vitality), and society (living). Throughout this testing period, civil engineers made a valiant effort to overcome these difficulties. We are proud to say that civil engineering has continued to support Japan's industry and the life of the people, and has contributed to creating a prosperous country.

Unfortunately, society's view of civil engineering has not been favorable in recent years. In light of this problem, JSCE began to publish a number of declarations and codes of conduct toward the end of the 20th century. Among these was the Sendai Declaration. Responding to the public criticism of infrastructure development projects, the Sendai Declaration called for better planning and improved efficiency and transparency in infrastructure projects. Another declaration was issued in conjunction with the transition of JSCE to a public interest incorporated association and provided a valuable opportunity to reflect once again on the identity and status of JSCE. In contrast, the Centennial Declaration reviews the past

century and surveys the distant future. Its emphasis is on what civil engineering should aim to be as an organized entity and as a collection of professionals working in cooperation with the people. Based on this perspective, the Centennial Declaration consists mainly of passages extracted from “100-Year Vision on Civil Engineering and Society” which was compiled by JSCE focusing on what we consider to be ideals pursued by individuals committed to civil engineering.

During the 100 years of our existence, a great measure of affluence has been achieved in the Japanese economy and in the standard of living. However, during the same period, the problems that encompass civil engineering and society have become increasingly intractable and serious. These start with natural disasters and global environmental problems and extend to such issues as Japan’s declining birthrate and shrinking population, the anxiety that surrounds the elderly, and the collapse of local communities. Looking to the world, many countries remain under the yoke of poverty. What civil engineering considers to be of utmost importance is the education and training of human resources equipped to confront these problems with a true sense of responsibility. The fundamental mission of civil engineering is to stand shoulder to shoulder with the people in overcoming challenges that will remain with us into the future and to bring greater prosperity to people’s lives. To achieve this mission, we must exert our best effort to contribute to society. By doing so, we will be able to create a magnetic relation between “civil engineering and society” that will be a source of pride and inspiration for young people in any era. This is the goal that JSCE holds close to its heart.

JSCE Centennial Declaration

Understanding the Past 100 Years

1. The age of modern civil engineering technologies in Japan dawned in the early years of the Meiji period (1868–1912) under the guidance of foreign advisors and the leadership of civil engineers returning to Japan from studying abroad. In the early stages of development, these technologies centered on flood control, erosion control, harbor construction, and railroad construction. These formed the social infrastructure that supported Japan's industry and the life of the people. In later years and particularly after the middle of the Showa period (1926–89), sophisticated civil engineering technologies facilitated the proliferation and expansion of advanced social infrastructure to all parts of the country. Civil engineering takes pride in its past 100 years during which it has offered many benefits to the Japanese people.
2. While civil engineering projects were contributing to economic development and improved convenience, society struggled to cope with newly emerging environmental problems, including air and water pollution. In recent years, society has been turning its attention with increasing concern to climate change and other global environmental problems. No less urgent is the challenge of ensuring the safety of society, a problem brought home by the Great East Japan Earthquake and numerous other disasters that have extracted a heavy price on society. Civil engineering believes that the challenge facing contemporary society is that of overcoming these problems and maintaining the level of economic activity and the life of the people into the future.

Current State of Civil Engineering

3. Civil engineering today has yet to recover from the shock of the devastating tsunami triggered by the Great East Japan Earthquake and the catastrophic accident at the Fukushima Dai-Ichi Nuclear Power Plant. However, civil engineering remains aware of its heavy responsibility to society and is mindful of what it has accomplished in the past as well as the limits of technology. We are committed to contributing to society and winning the trust and confidence of society at all times.

Vision for the Future of Civil Engineering and Society

4. Civil engineering is clearly aware that our earth is limited, and is cognizant of the heavy responsibility that we bear at a time when humanity stands at a critical crossroads. Civil engineering sets the following as our ultimate goal: to transcend all boundaries in order to rethink the relationship between civil engineering and society and to construct a foundation for a sustainable society. Furthermore, civil engineering declares that we shall engage in resolving each one of the numerous challenges before society and shall make the greatest effort possible to create a sustainable society.

Directions in Civil Engineering for Creating a Sustainable Society

5. **Security:** We shall contribute to building safe cities and communities by reducing the damage caused to society by natural and other disasters. This will require the well-planned use of social infrastructure systems and better ways of designing and managing communities. We shall continuously enhance the security of social infrastructure systems, and shall transcend all boundaries in an effort to ensure that social infrastructure accidents do not claim victims.
6. **Environment:** We shall respect nature and contribute to preserving biodiversity, building a recycling-based society, and speeding the realization of a carbon-neutral society. We shall endeavor to eliminate all environmental problems originating in social infrastructure systems, and shall transcend all boundaries to create a new environment.

7. **Vitality:** We shall promote interaction and trading based on the use of social infrastructure systems and shall contribute to the role of Japan in continuously driving the global economy forward. We shall transcend all boundaries in our endeavors to create new industries from the domain of civil engineering for the benefit of society.
8. **Living:** We shall review the process of modernization in century-long units, carry forward the local spirit, culture, and traditions fostered by our predecessors, and shall contribute to the reconstruction and development of cities and regions with distinctive characters that fully reflect the values inherent to Japan and Asia. We shall transcend all boundaries in our endeavors to build the foundation of a society that gives expression to the unique characteristics of each region and locality and which gives meaning and purpose in life to all generations.

Measures for Achieving the Society Envisioned

9. To create the society envisioned, civil engineering shall fully utilize its comprehensive competencies and work toward achieving the goals identified in “100-Year Vision on Civil Engineering and Society.” These goals are set in such areas as security, the environment, transportation, energy, water supply and sewage, public landscapes, information, food, national land use and conservation, community design, international endeavors, engineering education, and public institutions. Civil engineering shall lead the way in implementing short-range measures in these fields, particularly in the speedy implementation of national and local policies, plans, and projects, and shall continuously endeavor to achieve long-range goals and initiatives.

Role of Civil Engineers

10. While striving to achieve the security and development of society, civil engineers shall point out and share the limitations of technology with the public. Civil engineers shall contribute to society by resolving public challenges from a comprehensive perspective based on broad interdisciplinary cooperation. To build the foundation for a sustainable society, civil engineers shall heighten their powers for imagining the future and shall fulfill their responsibility to convey the importance of having such visions to a wide range of the population.

Role of JSCE

11. Always mindful of the diversity of values that exists in society, JSCE shall concern itself with society’s choice of values. To achieve a sustainable future society where engineers and experts are respected and a diverse range of people come together to work in cooperation, JSCE shall continuously pursue academic and technological progress, and shall engage in the development of diverse human resources and the design of social institutions.

Afterword

In order to fundamentally rethink the future role and responsibility of civil engineering in a country that experienced the Great East Japan Earthquake, this Declaration, issued on the occasion of the 100th anniversary of the founding of JSCE, transcends the boundaries of civil engineering in order to review the relationship between civil engineering and society and presents a fresh vision on how civil engineering can rise above its current state. In line with the objectives of this Declaration, JSCE pledges to bring together all the powers of its members and its committees in making the utmost effort for contributing to the earth, humanity, and society.