

WELCOME SESSION IN KYOTO

Good morning, Ladies and Gentlemen. I would like to extend to all of you my hearty welcome to Kyoto.

My name is MUGURUMA, Professor of Kyoto University, Department of Architectural Engineering. May I introduce to you Professor YAMADA from Kyoto University, Department of Civil Engineering. Professor YAMADA and I will serve as the chairmen of this Welcome Session and Keynote Lecture, which is scheduled after the Welcome Session.

In Kyoto, we have very tight schedules. Only fifteen minutes are allowed for this Welcome Session. So, I would like to have your cooperation.

In this Welcome Session, we have one speaker, Dr. Takuji KOBORI, Professor Emeritus of Kyoto University.

He is the President of Organizing Committee, Science Council of Japan, and National Delegate of Japan. He has organized the Special Theme Sessions as the chairman of Coordinating Committee.

WELCOME ADDRESS

DR. TAKUJI KOBORI
Professor Emeritus of Kyoto University

Thank you Professor Muguruma and Professor Yamada.

Distinguished Guests,
Fellow Participants,
Ladies and Gentlemen,
Welcome to Kyoto.

It is now twenty eight years since the Second World Conference on Earthquake Engineering was held in this city, Kyoto, and it is my great pleasure to greet all of you here, this morning.

During this twenty eight years, the earthquake engineering has made an amazing progress in the world, as you know, and thanks to this advanced technology, Japan has been able to build high rise buildings and long spanned large bridges.

However, during the twenty eight years, many earthquakes have occurred. In Japan, the major ones are the Niigata Earthquake in 1964, the Tokachi-oki Earthquake in 1968, the Miyagiken-oki Earthquake in 1978 and Nihonkai-chubu Earthquake in 1983. In other countries, the large earthquakes, to name a few, which unfortunately inflicted heavy damages are the San Fernando Earthquake, California, in 1971, and the Mexico City Earthquake in 1985.

I can say that the lessons learned from these earthquakes, and the fruits of past studies in this field have brought about the progress of earthquake engineering in the world. The results of these lessons are reflected precisely in the aseismic design of various types of structures that you can see today. The thinking towards earthquake resistance technology has currently propagated throughout the world and is playing an important role for the betterment of structural safety. And now, the expectations of our society towards earthquake engineering do not only stop at enlarging the scale of structures, but are escalating, from earthquake observation on to earthquake prediction, from the safety of structural framework on to preservation of building function. What this means is that the society looks upon us to provide a higher technology and

widely diversified application of earthquake engineering.

Under the circumstances, in the next ten years, and with the 21st century in front of us, what do you think is the future direction in which the earthquake engineering should be developed? And how should the fruits of these researches be utilized? Well, sessions have been planned to discuss special subjects here in Kyoto from today.

On the 9th Conference, I am happy to note that with each additional conference, the number of participants have increased significantly. However, without being distracted by the increased attendance, our conference planning board has prepared a place aimed at discussing subjects of substantial quality according to my proposal presented at the first Steering Committee.

So I believe that Special Theme Sessions in Kyoto should provide intense exchange of fruitful discussions, and should make contribution to the future directions in the earthquake engineering.

Incidentally, have you noticed that there are a number of "five storied pagodas" here in Kyoto? They are structures built of wood, with five layers of roofs on the exterior, and contain a long slender post in the middle of the structure. From the past, it has been well known that they have outstanding resistance against earthquakes. The late Prof. Tanabashi pointed out this in his excellent lecture at the 2nd WCEE twenty eight years ago. The reason for this is because, in my opinion, they possess three elements to resist earthquakes. The three elements, if described by applying human character would be; the first, "toughness" or you might say the strength needed for restoration against earthquake forces. The second is "suppleness" or the splendid flexibility to maintain its shape, and the third is, "refinement" or the deep tolerance that possesses internal damping for absorbing the earthquake energy. I think that it is especially meaningful that the sessions of the 9WCEE will discuss new developments regarding the future of the earthquake engineering, in this city of Kyoto where the "five storied pagodas" still stand. We have now arrived at the age that, while we still must learn from the traditional technology established by our pioneers, we should also move forward and positively apply, even in the field of general civil engineering, the advanced technology developed by the latest electronics engineering.

There may be some of you present here, who may remember that I had proposed the "active seismic response control structure" about thirty years ago. And now, by practical application of advanced technology, my proposal at the time is being realized in the form of the Dynamic Intelligent Building.

The details will be discussed during the "E" session which is one of the Special Theme Sessions today.

At this point, I wish to refer to young engineer in Meiji Era (about one hundred years ago), named Sakuro Tanabe, who proposed the "Biwako Sosui" (the Biwa Lake Waterway) during his student days, and later applied his concept to actual construction. I mentioned this because, just as the young engineer Tanabe made his proposal come true in the past, at the present time when the possibility of the "active seismic response control structure" has been theoretically proposed, I sincerely wish to see it realized, hand in hand with fellow researchers of overseas.

Kyoto is about to greet the hottest season throughout the year, which is from now to about the time of the "DAI MONJI" bon-fire festival. I look forward to and anticipate your fruitful discussions and lively exchange of opinions, along with your enjoyment of the traditional ancient capital of Japan, Kyoto, during this 9th World Conference on Earthquake Engineering.

I hope you all enjoy this occasion.

With this I close my welcome address. Thank you very much for your kind attention.

Thank you very much Professor KOBORI. I would like to express our appreciations to your welcome address.