Research Assistance Symposium 2005
Urban Sustainability with Safe and Secure Architecture

Chairman Seya

The Research Assistance Symposium was held on July 20th in the Elizabeth Rose Conference Hall at the United Nations University. Following the address by Chairman Hiromichi Seya, Professor Toshio Ojima of the School of Science and Engineering at Waseda University, who is a trustee of the Foundation and served as the selection committee chairman for natural sciences area III, gave the opening remarks.
Afterwards, presentations were given on three subject areas by this year's research grant recipients and selection committee members also serving as panelists.
A panel discussion moderated by Selection Committee Chairman Ojima followed the presentations, during which participants discussed the implications of the themes established for this year's application guidelines and the direction of future research.

"Technology to Create Reliable Architecture"

Towards Reliable Architecture
Isao Sakamoto, Professor, Graduate School of Engineering, The University of Tokyo / Selection Committee Member

Research on architectural structures, materials, and fire prevention has been carried out focusing on fire safety, including those caused by natural disasters and catastrophic urban fires. This has certainly resulted in dramatic improvements in safety, but on the other hand the causes and types of accidents have also multiplied. What has become increasingly important is not only that structures are technologically "safe," but they also provide residents with peace of mind against accidents.

Quantifying the Excess Capacity Governing Building Safety
Masayoshi Nakashima, Professor, Disaster Prevention Research Institute, Kyoto University

In Japan, a country with frequent earthquakes, structures cannot be built without taking safety towards earthquakes into consideration. The protection of human life depends on whether a building can support its own weight or whether it collapses. Current earthquake resistant designs only promise structures will not collapse in earthquakes of a certain magnitude, and there is no requirement to clearly state how much excess capacity structures have to withstand excessive tremors. But when facing the reality of a massive earthquake, which will one day occur, calculating this excess capacity accurately becomes a duty Japanese society must fulfill towards the promise of protecting human life. A presentation on research that should be conducted in order to fulfill this duty, from the standpoint of structural experimentation was given.

The State of Upper Structures and Buildings Foundations in Urban Areas
Yoshihiro Kimura, Associate Professor, Faculty of Engineering, Nagasaki University

Building structures can be schematically categorized into the upper structure and the foundation, with the protection of human life as the basis for the upper structure. But in recent years, a building's capacity is beginning to be disclosed, with the preservation of its functionality and asset security brought into view. On the other hand, foundations, such as pillars, are designed based on the premise they will not disintegrate

before the upper structure, and in recent years are moving towards withstanding earthquakes by securing the ability to support the upper structures while allowing a certain amount of plastic deformation. A presentation on the state of upper structures and foundations in urban areas in recent years was given.

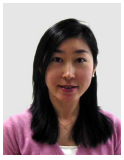
"On Sustainable Cities"

What"Sustainable" Means to Urban Engineering
Takeshi Koshizuka, Vice President, University of Tsukuba / Selection Committee Member

We conducted our selection this year based on the theme of "sustainable cities." There are many meanings to the term "sustainable," and the application pool was equally varied. Rather than relying on simply building more high-rises or compressing urban areas, we hope for more applications that carefully consider sustainability from the standpoint of architecture and urban engineering.

The Sustainability of Asian Cities and Urban Heritage
Shin Muramatsu, Associate Professor, Institute of Industrial Science, The University of Tokyo

It is likely for various problems to become obvious in cities in Asia, which continue to undergo rapid growth. There is a need to recognize the heritages and assets of these urban areas and instill the concept of sustaining a city and continuing to grow at a slower pace. We explored cities in Tokyo and introduced the approach of thorough research.



Considering Sustainable City Structures and Transportation from the Standpoint of Accessibility
Mizuki Kawabata, Associate Professor, Center for Spatial Information Science, The University of Tokyo

There has been an increase in sprawling cities caused by suburbanization and the use of vehicles has placed a heavy burden on the environment. With these conditions as a backdrop, an excessive reliance on automobiles and an accessibility divide along the lines of geography and means of transportation have developed as problems. We presented case studies on the accessibility divide in urban areas using spatial information systems and discussed sustainable urban structures and transportation from the standpoints of fairness in accessibility and curbing vehicular traffic.

Creating Sustainable Communities with Resident Participation
Dewancker Bart Julien, Associate Professor, Faculty of Environmental Engineering, The University of Kitakyushu

People of Japan have lived their lives surrounded by the blessing of the country's diverse natural environment, which was
created by a climate rich in variety. Through the period of high economic growth, people pursued improvements in their material standards of living and accelerated the transformation of a society characterized by mass production, consumption, and waste creation. So while people gained an affluent life on the one hand, they are also losing a rich natural environment in urban areas. A diverse group of people comprising the Kitakyushu Doukai Bay region, including local residents, nonprofit organizations, and specialists, has come together to regain what has been lost in the area's natural environment, and participate in activities to build a sustainable community through preserving and restoring nature.

"Climate Based Lifestyles and Architecture"

In Search of Lifestyles and Architecture Rooted in the Local Community

Toshio Ojima, Professor, School of Science and Engineering, Waseda University / Selection Committee Chairman

The uniform style of architecture and city planning seen throughout the country as a result of 20th century technology and civilization has become something that we need to rethink. It is becoming more important to rebuild a rich lifestyle and architecture rooted in the region and takes the local climate into consideration.

The Use of Wood Biomass in Architecture and Global Warming- How Japanese Architecture Will Incorporate Forest Resources

Shuichi Miura, Associate Professor, Department of Environmental Design, Tohoku University of Art and Design

The Japanese building industry is an extremely large consumer of wood materials and has a close relationship with, as well as a tremendous influence on, the forest environment.
Wood biomass energy has begun to penetrate the market primarily in Europe, and is continuing to be incorporated in architecture and regional use. The question of how architecture in our country will employ forest resources and biomass will have a significant effect on the national land planning of Japan and on global warming countermeasures. The future use of biomass in Japan, using the Tohoku area, a region rich in forest resources, as a model was discussed.