



ISSMGE Bulletin

Volume 5, Issue 1
February 2011

International Society for Soil Mechanics and Geotechnical Engineering

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Message to ISSMGE Members from Prof. Ikuo Towhata, Appointed Board Member of ISSMGE and Editor of ISSMGE Bulletin



On behalf of the editing team of the ISSMGE Bulletin, I would express my sincere thanks to readers who have been contributing to the publication of the magazine by submitting articles and sending opinions. Bulletin is a property of the entire ISSMGE family and is open to everybody who wants to submit articles that accord the mission of the society. Bulletin is not a peer-reviewed academic journal and is trying to help you write articles.

From 2011 on, the bulletin is going to be issued 6 times a year and increases the capacity of communication channel of the society. Upon this opportunity, I would like to appeal one important point to the individual members of ISSMGE. When I attended the GeoEng 2000 Conference in Melbourne, there was a heavy discussion on the current and future status of geotechnical engineers. What was impressive to me was the point that the income of geotechnical engineers is lower than that of structural engineers. It was therefore emphasized that the job status of geotechnical engineers had to be improved.

In my opinion, the situation of income comes from the structure of projects as schematically illustrated in Fig. 1. Construction projects originate from public demands and its initiative is taken by the government or big industries that are called "client" in this figure. The client develops the overall and fundamental ideas about the project and carries out the budget business. In this respect, the client has the biggest "power" over the entire project. People are able to see what the client is going to do, and the client wishes to show people its scope. Thus, there is a substantial interaction between people and the client.

After the client's activities, the leadership is given to a chief designer, who is possibly a general manager, and this person takes care of the engineering aspects in general. Although the chief engineer is expected to follow the idea of the client in most cases, possibly the chief engineer is as strong as or stronger than the client. The chief engineer is able to decide money allocation in more details. People are able to see what the chief engineer is trying to achieve.

Message to ISSMGE Members (continued)

Professor Ikuo Towhata

To date, most constructed structures stay above the ground surface. Therefore, structural engineers play major roles in the design of details of the planned structure. Structural engineers' idea is often illustrated and distributed among people, and people are able to understand the ongoing project. The structural design determines such details of design as the weight of the structure and other loads as well as the allowable displacement of the foundation that the geotechnical engineers have to cope with. Because most geotechnical structures are installed under the ground surface, people are not aware of their importance. The least visible job attracts the least public concern.

Figure 1 illustrates not only the flow of job as stated above but also the flow of money, starting from the client down to the geotechnical business. It is true that geotechnical engineers have been doing good jobs over decades on bearing capacity, deformation analysis, in-situ tests and so on so forth. We should note, however, that those good jobs were conducted to satisfy the requirements of clients and engineers of the higher ranks in Fig. 1, while people did not recognize the importance of soil improvement, reliable foundation, reinforced soil, mitigation of natural disasters, etc. Consequently, the most downstream side in Fig. 1 earns the least.

To change the situation, it is important to establish a more direct interaction between geotechnical engineering and people. The key issue is a direct proposal to people on what geotechnical engineering can do for the welfare of people. We should not propose the improvement of soil investigation technology, less expensive construction of pile foundation, and reliable slope stabilization measure directly to people because they do not understand them. We should propose what people can understand easily such as subway construction in a busy city that can mitigate traffic problems, an ecological water management facility, a supply of new energy resources, and protection of people's lives and properties from natural disasters.

In 2005, I was nominated to be the organizing chairman of 3rd International Young Geotechnical Engineer Conference in Osaka. A variety of activities took place for young participants from many countries of the world. Near the end of that event, I asked the participants to make an appeal to the world that was then called Osaka Manifesto. For your reference, I would quote it in what follows, where importance of a challenge towards the new horizon is described.

3rd iYGEC OSAKA MANIFESTO

The delegates who attended the Third International Young Geotechnical Engineers' Conference in Osaka, Japan, from September 12 to 16, 2005 (3rd iYGEC) wish to express their commitment to face the challenges of the 21st century, which are numerous and varied. Challenges such as the rapid increase in population, demands for further provision of infrastructure, major natural disasters, and the need to protect and improve our environment have strained resources and increased social problems. We recognize that the international geotechnical community plays a role in reducing the impact of such challenges, but consider that this contribution should be more widely acknowledged and can be further developed and enhanced.

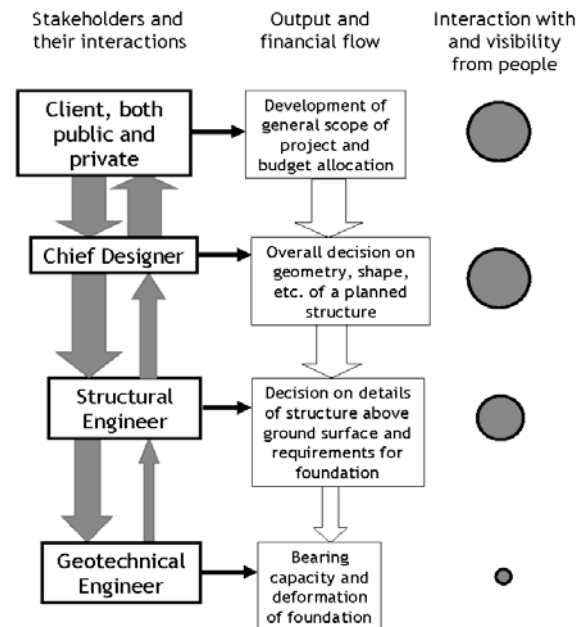


Figure 1. Conceptual structure of project and flow of money

Message to ISSMGE Members (continued)

Professor Ikuo Towhata

At the 3rd iYGEC discussions among delegates from six continents were centered on the themes of Environment and Disaster Prevention, Frontiers in Geotechnical Engineering and Engineering Practice. Despite the cultural variations and differing themes, several common objectives arose. These focused on knowledge transfer, our obligations to future generations and developing nations, and the issues of sustainable development and efficient use of natural resources. With these points in mind, the participants of the 3rd iYGEC present the following Appeals to the international geotechnical community:

- A. *Worldwide, the volume of information relevant to geotechnical engineers is enormous, and yet much of this information is out of reach or difficult to access, especially for those in developing nations. The following are suggested to resolve this situation:*
 - *Consolidate information into international databases - including journals, conference proceedings, past and present research, laboratory methods, data, practical guidelines, project experience, and government sponsored reports.*
 - *Reduce and ultimately remove the linguistic and financial barriers to obtaining this information.*
- B. *Promote interdisciplinary collaboration and improved communication between academics and practitioners.*
- C. *The quantity of site investigation, instrumentation, laboratory testing and experimental work is constantly being influenced by political and financial constraints. We should continue to resist this trend.*
- D. *Reach out to international, national and local media and policy-makers. Promote the important contribution of geotechnical engineering and raise the profile and standing of the profession in society.*
- E. *Provide developing nations with engineering assistance, support and solutions that are sustainable at the local level. Create research partnerships between developed and developing countries to solve regional problems in a locally achievable manner.*
- F. *Encourage the development of open-source engineering software applications, to be distributed via international databases.*
- G. *The knowledge and experience of our senior colleagues is invaluable. Experienced engineers should be encouraged to pass their knowledge to the next generation of engineers.*
- H. *Encourage every engineer to provide feedback from project experience to the geotechnical community.*

The realization of these goals will require continual oversight and support from an international body. In this context, we suggest that they be developed as a working group of the ISSMGE. Furthermore, to maintain the momentum of these efforts we encourage a program of regular iYGEC conferences, with sufficient time and scope within the framework of each conference to monitor and develop these Appeals.

I would introduce two ideas that have been developed in my geotechnical group at the University of Tokyo. Fig. 2 illustrates a huge island in Tokyo Harbor that is made of municipal solid waste (MSW) landfill. Because Tokyo has been expanding towards the sea throughout its history since the end of 16th Century, this island should be the downtown in near future. Although this landfill island is situated near the city center, there are engineering problems that are the ground subsidence and the protection of environment. It is, however, very possible that capable geotechnical engineers will solve those problems and offer a big space for the future development of the city (Towhata et al., 2010).

Message to ISSMGE Members (continued)

Professor Ikuo Towhata



Figure 2. Landfill island in Tokyo Harbour



Figure 3. Inexpensive early warning device for slope failure during heavy rainfall

The second idea concerns the early warning of slope failure during heavy rainfalls. There are many people who are living in front of potentially unstable slopes and do not know how to protect themselves from slope disasters during heavy rainfalls. To assist them, geotechnical engineers should develop an inexpensive technology for early warning and safe evacuation. Although construction of slope stabilization measure is the best solution to help people, the required cost always makes this option difficult. Relocation of the residence to a safer place is not acceptable in most cases because those people need to live in the present place for their daily life (farming and business activities). Fig. 3 shows a simple instrument for early warning that can detect minor (precursor) displacement / deformation of a slope during rainfall and send an evacuation message to local residents through internet. It is aimed to maintain its cost less than 300 US \$ (hopefully) and enable people to install it for themselves. For the validation of this low-cost warning equipment, many experiments have been performed in the laboratory and in the field.

To conclude my message to ISSMGE members, I would propose that everybody spend 15 minutes in Sunday afternoon on thinking what he/she can do for the welfare of people by using geotechnical knowledge, experience, and capability. When tens of thousands of geotechnical engineers thus spend a short time on every weekend, there will certainly be many great ideas and proposals. Consequently, people will start to recognize the importance of our discipline and respect geotechnical engineers. This movement within our society can be symbolized by a short remark of *“geotechnical engineering of the people, by the people, for the people.”* People’s recognition is the best way for our discipline to improve its status in the community.

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