

FOREWORD

Balance, this is one of the key issues for Engineering in general, but it is particularly the case with Earthquake Engineering. For a small example, the safety factor for failure of a given structure member or soil element is defined as the ratio of the resisting strength to the applied load. Both of the above are not simple to evaluate under complicated dynamic loading conditions by earthquake, however. When working in a small sub-field of research, for example, Geotechnical Engineering, while being isolated from other important sub-fields for Earthquake Engineering, one may try to upgrade as high as possible the methodology to estimate the so-called 'dynamic strength of soil'. However, the outcome could be a methodology which is too sophisticated when compared with large uncertainties in the applied load. When limiting further to a smaller field of Geotechnical Engineering, laboratory tests are not enough for the purpose of accurate evaluation of the strength of soil in situ. Rather, the current technical level of field geotechnical investigation is now a bottle-neck in further developments. This my personal view cited above is based on my personal experiences with a couple of earthquake resistant design of foundations of giant suspension bridges, huge artificial islands retaining large-diameter tunnel tubes or so.

Despite the above, the importance of pursuing good balance in Earthquake Engineering practice never means that it is the case with each research activity. Perhaps, it is not possible to keep good balance in the research activities of each individual researcher or even those of a single small research group, and it is not necessary. Rather, it is required for each researcher to develop unique methodology(ies) and technology(ies) which may not be balanced with the current state-of-the-art of Earthquake Engineering. Yet, the necessity and importance of each unique research can be recognized only by interacting with other sub-fields of Earthquake Engineering. The information, discussion, criticism and evaluation from researcher of other sub-fields are essential for keeping our researches meaningful, indeed.

The objectives of Society of engineers and researchers of Earthquake Engineering may include the development of well-balanced healthy Earthquake Engineering and the enhancement of stimulating interactions among its many different sub-fields. I believe that the above activities are essential, but not enough. We need some research centers for these particular purposes in the world. Indeed, ERS can be one of them, and has been so.



Fumio Tatsuoka
Professor