

## 「JSCE-PII Joint Seminar-Research, Specifications and Applications of Blast Furnace Slag and Fly Ash Blended Cement Concrete」

The Joint Seminar between JSCE and PII (the Institution of Engineers Indonesia – PERSATUAN INSINYUR INDONESIA) was held at Sepuluh Nopember Institute of Technology (ITS), Surabaya, Indonesia on February 25, 2019. This has been another joint seminar with the engineers and researchers from Indonesian side, just two years after the last one that was held at Hasanuddin University, Makassar, Indonesia in 2017. The presenters and their presentation titles of this seminar are shown in Table-1.

The title of the joint seminar is *Research, Specifications and Applications of Blast Furnace Slag and Fly Ash Blended Cement Concrete*. It was determined according to the current conditions and demand of the industries in the field of cement, concrete, and constructions, after discussing with researchers and engineers from Indonesia. At present, the application of supplementary cementing materials (SCM) in cement and concrete, for example, blast furnace slag (BFS) and fly ash (FA), is still very limited in Indonesia. FA is still regarded as a toxic materials and its utilization in any construction needs strict review and special approval from the government. For BFS, in spite that civil engineers have started to use it in concrete in recent years, the lack of technical specifications and practical experience impacts the quality of construction as well as the following management and maintenance, having become a critical obstacle against a wider application. In addition, with a fast economic growth, the discharge amounts of FA and BFS in Indonesia are increasing by years, resulting in a big burden for economy and severe environment pollution. Facing to the above problems and challenges, it was determined to introduce the recent conditions of research, specification, and applications of BFS and FA in Japan. We hope that, through this joint seminar, Indonesian researchers and engineers start to pay attentions on Japanese technologies and specifications in the utilization of BFS and FA. Therefore, in the future, the utilization in Indonesia can be strengthened and improved.

In the seminar, four presenters from Japan made their presentations. Prof. Ishida, the University of Tokyo, introduced the recent research advance of SCMs blended concrete from various aspects, for example, their chemical composition, shrinkage and cracking of concrete at early age, long time durability, and performance assessment using numerical simulation. Dr. Owaki, Taisei Corporation, introduced the recent development and application of concrete containing high-volume mineral admixture, in which the total replacement ratio of SCMs in cement is higher than 70%. Dr. Oshima, Public Works Research Institute, introduced the properties of concrete structures from the viewpoint of durability and maintenance, such as quality control and durability of road bridges. Dr. Luan, Saitama University, introduced the JSCE Standard specifications for Concrete Structures, and some technical recommendations for FA and BFS that were published at Concrete Library of JSCE, for example, the categories of FA and BFS in JIS, their utilization in massive concrete for thermal crack control, and durability design for chloride attack and carbonation. In addition to the presentations from Japan, Dr. Ekaputri from ITS introduced the regulation and application of FA and BFS in Indonesia, for example, FA characterization, development of geopolymers, self-healing concrete using FA and BFS, and so on.

The joint seminar gained a lot of attentions from Indonesia. More than 100 listeners from universities, institutes, and construction companies in Surabaya attended the seminar. They expressed their interest in the research and application advance of FA and BFS in Japan. In the Q&A session, they asked a lot of questions ranging from material compositions, practical construction work, quality control, and durability. The presenters had a warm discussion with the audience. It can be said that the joint seminar is successful. More and deeper technical communications are expected between JSCE and PII in the future.



Photo-1 Prof. Ishida is presenting



Photo-2 Dr. Ekaputri is presenting



Photo-3 The audience are listening



Photo-4 Presenters and ITS organizers

Table-1 Speakers and their presentation titles

Presentation	Speaker
Multi-chemo-physical approach to performance assessment of structural concrete with SCMs	Prof. Tetsuya Ishida (the University of Tokyo)
Indonesian FLY ASH and GGBFS: the regulation and application	Dr. Januarti Jaya Ekaputri (ITS, Indonesia)
Application of concrete containing high-volume mineral admixtures in Japan	Dr. Eiji Owaki (Taisei Corporation)
Durability of road bridges and quality control	Dr. Yoshinobu Oshima (Public Works Research Institute)
Introduction of JSCE specifications and technical recommendations for blast furnace slag and fly ash blended concrete	Dr. Yao Luan (Saitama University)