Reports in the 8th Civil Engineering Conference in the Asian Region

The 8 th Civil Engineering Conference in the Asian Region (CECAR8) prepared by JSCE (Japan Society of Civil Engineers) was held in Ikebukuro, Tokyo, on April 16-19, 2019. The CECAR is a major activity of ACECC (The Asian Civil Engineering Coordinating Council) held on a triennial basis and started in 1998. The researchers and engineers in academia, government and industry took part in the CECAR8 from all over the Asian countries.

In the CECAR8, various problems regarding civil engineering were discussed and reported. Especially, Innovative construction technologies, Bridge design, Concrete materials, Sustainable concrete and Application of local mineral admixtures were the session themes in the field of concrete engineering (Table.1).

Tuesday, April 16, 2019						
10:00 - 11:30	Opening Ceremony					
11:30 - 12:30	Plenary Session 1					
12:30 - 14:00		Lu	nch			
ROOM	Akebono	Yuzuru	Fuji-1	Fuji-2		
14:00 - 15:30	TS6-15-1: Transforming Civil Engineering Education and Practice to Achieve the United Nations Sustainable Development Goals: Where We Are Chair: William E. Kelty (ASCE)	TS7-3: Environmally Sound Management of Construction and Demoitiion Waste (CDW): Challenges (CDW): Cha	TS6-8-1: Innovative Construction Technologies and Management in Infrastructure Projects Chair-Akira Kashida (Kajima Corp.)	TS6-14-1: Transdisciplinary Approach for Disaster Risk Reduction by Scientific Knowledge-Dasad Decision-Making -Four Years of Activity of TC21 and Activity of TC21 and Activity of TC21 and Statement from the Members for Future DRR- Chair: Kuniyoshi Takeuchi (University of Yamanashi)		
15:30 - 16:00	Coffee Break					
16:00 - 17:30	TSB-15-2: Transforming Civil Engineering Education and Practice to Achieve the United Nations the United Nations Sustainable Development Goals: Next Steps Chair: William E. Kelly (ASCE)	TS3-1: Applications of Geosynthetics for Various Civil Engineering Disciplines Chair: Chivan W. Heiseh (National Pingtung University of Science and Technology)	TS6-6-2: Innovative Construction Tachnologies and Management in Infrastructure Projects Chair: Akira Ocka (Taisei Corp.)	TSB-14-2: Tranadisciplinary Approach for Disaster Risk Reduction by Scientific Norwfedge-based Decision-Making - Four Years of Activity of TC21 and Statement from the DRR - Chair: Kunyoshi Takeuchi (University of Yamanashi)		
17:30 - 18:00	Coffee Break					
18:00 - 19:30	ACECC Presidential Meeting & Dinner					

Table.1 Session tables

Tuesday, April 16, 2019 Opening Ceremony Plenary Session 1						
						Lunch
Fuji-3	Sakura	Asakaze	Hatsukaze	Shunyo		
TS4-3: How to Utilize Big Data for Transportation Planning and Management Chair: Akimasa Fujiwara (Hiroshima University)	TS6-12: Productivity Improvements in the Field of Construction by ICT Chair: Nobuyoshi Yabuki (Osaka University)	TS2-2: Development of Quality Port Infrastructure Through the Establishment of the National Technical Regulations and Standards Chair: Osamu Kiyomiya (Waseda University)	Hold	TS2-7: Wave and Tide Observation and Analysis Chairs. Hiroyasu Kawai (Port and Airport Research Institute), Wen-Son Chiang (National Chang Kung University)		
		Coffee Break				
TS6-6: INFRA BIM Chair: Sang-Ho Lee (Yonsei University)	TS3-2: Experiences and Challenges in Construction and Management of Underground Infrastructures Chair: Shinichi Akutagawa (Robe University)	Hold	Hold	TS2-1: Coastal Fonsion in Asian Countries- Monitoring, Evaluation and Prediction Techniques Foward Coastal Protection and Adaptation Strategies- Chair: Yoshimitsu Tajima (The University of Tokyo)		
	1000-	Coffee Break				
	ACECC Pr	esidential Meetin	g & Dinner			

ROOM	Wednesday, April 17, 2019						
NUOUN	Akebono	Yuzuru	Fuji-1	Fuji-2			
9:00 - 10:30	TS4-1: Civil Engineering Heritage: Preservation, Reuse and Social Significance Chair: Masaaki Okada (Kindai University)	TS6-9: Introduction of Users' Viewpoints in Post Appraisal of ODA Infrastructure Project Chairs: Tsunemi Watanabe (Kochi University of Technology), Hai Luong Nguyen (University of Transport and Communications)	TS6-8-3: Innovative Construction Technologies and Management in Infrastructure Projects Chairs: Akira Kashida (Kajima Corp.)	TS4-6: Quality and Resilient Infrastructure in Asia: How Can Investment Gap Be Bridged? TS6-3: Comparative Study of Quality Infrastructure in Europe, the United States and Asia and Civil Engineer's Contribution			
10:30 -		Coffee Break	1	TS6-7			
11:00 - 12:30	Hold	TS2-5-1: Recent Water- Related Natural Disasters in Asian Region Chairs: Hitoshi Tanaka (Tohoku University), II Won Seo (Seoul National University)	Hold	Infrastructure Development and Economic Growth Chairs: Koki Hirota (Saitama University), Tamon Ueda (Hokkaido University)			
12:30 -		Lunch	1				
12:30 - 14:00 - 15:30	TS1-1: Advanced Concept and Implementation of Seismic Design Methods for Resillence Against Internee Earthquake Sock Territoria (Telyo), Dong Sock Territoria Advanced Institute of Science and Technology)	Lunch T52-5-2: Recent Water- Related Natural Disasters in Asian Region Chairs: Hitoshi Tanaka (Tohoku University), II Won Seo (Seoul National University)	Hold				
14:00 -	Advanced Concept and Implementation of Seismic Design Methods for Resilience Against Intense Earthquake Chairs: Riki Honda (The University of Tokyo), Dong Soo Kim (Korea Advanced Institute of Science and	TS2-5-2: Recent Water- Related Natural Disasters in Asian Region Chairs: Hitoshi Tanaka (Tohoku University), II Won Seo (Seoul National	Hold				
14:00 - 15:30	Advanced Concept and Implementation of Seismic Design Methods for Resilience Against Intense Earthquake Chairs: Riki Honda (The University of Tokyo), Dong Soo Kim (Korea Advanced Institute of Science and	TS2-5-2: Recent Water- Related Natural Disasters in Asian Region Chairs: Hitoshi Tanaka (Tohoku University), II Won Seo (Seoul National University)	Hold				
14:00 - 15:30 15:30 -	Advanced Concept and Implementation of Seismic Design Methods for Resilience Against Intense Earthquake Chairs: Riki Honda (The University of Tokyo), Dong Soo Kim (Korea Advanced Institute of Science and	TS2-5-2: Recent Water- Related Natural Disasters in Asian Region Chairs: Hitoshi Tanaka (Tohoku University), II Won Seo (Seoul National University) Coffee Br	Hold reak ssion 2				
14:00 - 15:30 15:30 - 16:00 -	Advanced Concept and Implementation of Seismic Design Methods for Resilience Against Intense Earthquake Chairs: Riki Honda (The University of Tokyo), Dong Soo Kim (Korea Advanced Institute of Science and	TS2-5-2: Recent Water- Related Natural Disasters in Asian Region Chairs: Hitoshi Tanaka (Tohoku University), II Won Seo (Seoul National University) Coffee Br Plenary Ses	Hold reak ision 2 Ceremony				

17:00 -		ACECC Awards Ceremony					
17:30 -		Coffe Break					
18:30 -		Buffet Dinner					
Thursday, April 40, 0040							
Thursday, April 18, 2019 9:30 - 10:30 Plenary Session 3							
	0 - 10:30 Plenary Session 3 0 - 11:00 Coffee Break						
ROOI	м	Akebono	Yuzuru	Fuji-1			
11:00 - 1		TS7-2: Climate Change Adaptation Measures in Water-related Issues Chair: Tomohito Yamada (Hokkaido University)	TS5-1: Sustainable and Eco-friendly Concrete by Effective Application of Local Mineral Admixtures Chair: Tetsuya Ishida (The University of Tokyo)	TS2-4: Integrated Risk Management for Sediment Related Disasters Chair: Shinj Yamaguchi (National Institute for Land and Infrastructure Management, MLIT)			
12:30 - 1	4:00	Lunch					
14:00 - 1	5:30	TST-4; Role of Civit Engineering in Mitigation of Climate Change Chair: Minoru Yoneda (Kyoto University)	TS5-2: Wood Utilization in Civil Engineering Chairs: Tadashi Hara (Kochi University), Rihong Zhang (Ningbo University)				
15:30 -1	6:00						
16:00 -1	7:00	Closing Ceremony					

			April 17, 20			
Fuji-3	Sakura		sakaze	Hatsuka		Shunyo
TS2-6:	TS4-4:	GS-		GS-1 & GS		TS2-3-1:
Water and Disasters-	ITS-based Solutions		truction	Bridge Desig	n	Development of t
Toward Building	for Urban	Engin	eering and	Chair: Yuta Y	amada	Northern Sea
Resilient Society under	Transportation in Asia	Mana	gement	(Nihon Unive	rtsity)	Route and Its Future Tasks
Climate Change- Chairs: Toshio Koike	Pacific Countries Chair: Shunsuke	Chair: Yoshinori Fukubayashi				Chair: Natsuhiko
Chairs: Toshio Koike (International Centre	Chair: Shunsuke Kamiio (The University	Fukubayashi (University of				Otsuka (Hokkaido
for Water Hazard and	of Tokyo)	Mivaz				University)
for Water Hazard and Risk Management,			.anl)			Griveralty)
PWRI), Maximo L.						
Carvajal (Department						
of Public Works and		1				
Highways, the		1				
Philippines)		1				
		Coffee	Break			I
TS4-7:	TS6-16:			GS-1 & GS	5.0	TS2-3-2:
	IS6-16: Women in Civil	03-0	5-2 & GS-3:		-0-3	
The Keys of Success in Promoting Regional	Women in Civil Engineering	Monit	oring & -Scale Tests	Structural Members		Development of t Northern Sea
Revitalization	Chair: Yoh Sasaki	in Geotechnical &		Members Chair: Hikaru		Boute and Its
Chairs: Shinva	(Waseda University)		technical &			Future Tasks
Hanaoka (Tokyo	(waseda University)		eering	Nakamura (N University)	agoya	Chair: Natsuhiko
Institute of			eening Moonkyung	University)		Otsuka (Hokkaide
Institute of Technology), Rubel			: Moonkyung g (Korea			University)
Das (Nippon Koei Co.,		Institu	ite of			Criverally)
Ltd.)		Cone	te of truction			
/		Engin	eering)			
		1				
		1				
		1				
		1				
			nch			
	TS6-4:	Hold		GS-1 & GS		Hold
	Developing a More	1		Concrete Ma	terials	
	Relevant Program for			and Pavemer	nt	
	Civil Engineering			Chair: Kolluri	4 V.L.	
	Education			Subramaniar		
	Chairs: Hironori Kato			(Indian Institu	ute of	
	(The University of	1		Technology		
	Tokyo), Le Binh Phan	1		Hyderabad)		
	(Vietnam-Japan University)	1				
	University)	1				1
				1		
		Coffee	Break			
			e Break Session 2			
	Ple	nary	Session 2	inv		
	Ple	nary Awar	Session 2 ds Ceremo	ny		
	Ple ACECC	nary Awar Coffe	Session 2 ds Ceremo Break	ny		
	Ple ACECC	nary Awar Coffe	Session 2 ds Ceremo	iny		
	Ple ACECC	Awar Coffe Buffet	Session 2 rds Ceremo Break Dinner			
	Ple ACECC I Thurs	Awar Coffe Buffet	Session 2 rds Ceremo Break Dinner pril 18, 201			
	Ple ACECC I Thurs Ple	Awar Coffe Buffet day, A nary S	Session 2 rds Ceremo Break Dinner			
Sakura	Ple ACECC I Thurs Ple	Awar Coffe Buffet day, A nary S	Session 2 ds Ceremo Break Dinner pril 18, 201 Session 3 Break	9		Shumo
Sakura	Ple ACECC I Thurs Ple (Asakaze	Awar Coffe Buffet day, A nary S	Session 2 rds Ceremo Break Dinner pril 18, 201 Session 3 e Break Hatsu	9		Shunyo
TS6-5:	Ple ACECC I Thurs Ple (Asakaze (GS-2:	Awar Coffe Buffet day, A nary S Coffee	Session 2 rds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1:	9 Jkaze	GS-0	5-3:
TS6-5: Enhancing Citizens'	Ple ACECC I Thurs Ple GS-2: Environmental Syst	Awar Coffe Buffet day, A nary S Coffee	Session 2 rds Ceremo Break Dinner pril 18, 201 Session 3 e Break Hatsu GS-4-1: Infrastructure	9 Jkaze	Applic	5-3: ation of ICRT/AI in
TS6-5: Enhancing Citizens' Understanding on	Pie ACECC I Thurs Pie (Asakaze GS-2: Environmental Syst and Engineering	Awar Coffe Buffet day, A nary S Coffee	Session 2 rds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager	9 Jkaze	Applic Civil E	5-3: ation of ICRT/AI in
TS6-5: Enhancing Citizens' Understanding on Importance of	Ple ACECC I I Thurs Ple G C GS-2: Environmental Syst and Engineering Chairs: Akiyuki Kaw	ams	Session 2 ds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia	9 Jkaze Planning nent ki Sasaki	Applic Civil E Chair:	5-3: ation of ICRT/AI in ngineering Kazuyoshi
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on	Pie ACECC I Thurs Pie GS-2: Environmental Syst and Engineering Chairs: Akiyuki Kaw (The University of T	asaki byyo),	Session 2 ds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unit	9 Jkaze Planning ment ki Sasaki versity),	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health	Pie ACECC Thurs Pie GS-2: Environmental Syst and Engineering Chairs: Akyuki Kaw (The University of T	asaki byyo),	Session 2 ds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure chairs: Kunia (Waseda Uni) Arnab Jana (I	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair:	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report	Pie ACECC I Thurs Pie GS-2: Ervirormental Syst and Engineering Chairs: Akiyuki Kaw (The University of T Jirwoo Lee (The H Kong Polytechnic	asaki byyo),	Session 2 dds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unii Armab Jana (I) Institute of Te	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report Chairs: Mitsuyasu Iwana	Pie ACECC I Thurs Pie GS-2: Ervirormental Syst and Engineering Chairs: Akiyuki Kaw (The University of T Jirwoo Lee (The H Kong Polytechnic	asaki byyo),	Session 2 ds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure chairs: Kunia (Waseda Uni) Arnab Jana (I	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report Chairs: Mitsuyasu Iwana Tokvo Institute of	Pie ACECC I Thurs Pie GS-2: Ervirormental Syst and Engineering Chairs: Akiyuki Kaw (The University of T Jirwoo Lee (The H Kong Polytechnic	asaki byyo),	Session 2 dds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unii Armab Jana (I) Institute of Te	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report Chairs: Mitsuyasu Iwana (Tokyo Institute of Technology),	Pie ACECC I Thurs Pie GS-2: Ervirormental Syst and Engineering Chairs: Akiyuki Kaw (The University of T Jirwoo Lee (The H Kong Polytechnic	anary : Awar Coffe Buffet day, A nary : Coffee ems asaki okyo),	Session 2 dds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unii Armab Jana (I) Institute of Te	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report Chairs: Mitsuyasu Iwana (Tokyo Institute of Technology), Thomas W. Smith, III	Pie ACECC I Thurs Pie GS-2: Ervirormental Syst and Engineering Chairs: Akiyuki Kaw (The University of T Jirwoo Lee (The H Kong Polytechnic	anary : Awar Coffe Buffet day, A nary : Coffee ems asaki okyo),	Session 2 dds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unii Armab Jana (I) Institute of Te	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
Sakura TS6-5: Enhancing on Importance of Infrastructure Health Report Chairs: Mituyasu kon Tokyo Institute of Technology). Thomas W. Smith, III (ASCE)	Pie ACECC I Thurs Pie GS-2: Ervirormental Syst and Engineering Chairs: Akiyuki Kaw (The University of T Jirwoo Lee (The H Kong Polytechnic	anary : Awar Coffe Buffet day, A nary : Coffee ems asaki okyo),	Session 2 dds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unii Armab Jana (I) Institute of Te	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report Chairs: Mitsuyasu Iwana Tokyo Institute of Technology), Thomas W. Smith, III	Pie ACECC I Thurs Pie GS-2: Ervirormental Syst and Engineering Chairs: Akiyuki Kaw (The University of T Jirwoo Lee (The H Kong Polytechnic	anary : Awar Coffe Buffet day, A nary : Coffee ems asaki okyo),	Session 2 dds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unii Armab Jana (I) Institute of Te	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report Chairs: Mitsuyasu Iwana Tokyo Institute of Technology), Thomas W. Smith, III	Pie ACECC I Thurs Pie GS-2: Ervirormental Syst and Engineering Chairs: Akiyuki Kaw (The University of T Jirwoo Lee (The H Kong Polytechnic	anary : Awar Coffe Buffet day, A nary : Coffee ems asaki okyo),	Session 2 dds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unii Armab Jana (I) Institute of Te	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report Chairs: Mitsuyasu Iwana Tokyo Institute of Technology), Thomas W. Smith, III	Pie ACECC I Thurs Pie GS-2: Ervirormental Syst and Engineering Chairs: Akiyuki Kaw (The University of T Jirwoo Lee (The H Kong Polytechnic	nary ; Awar Coffe Buffet day, A nary ; Coffee sms asaki okyo), ng	Session 2 ds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructura and Manager Chairs: Kunia (Waseda Unit Arnab Jana (I Institute of Te Bombay)	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya	5-3: ation of ICRT/AI in ngineering Kazuyoshi ama (Ritsumeikan
TS6-5: Enhancing Citizens' Understanding on importance of infrastructure Based on Infrastructure Health Report Chairs: Mitsuyasu Iwana Chairs: Mitsuyasu Iwana Chairs: Mitsuyasu Iwana Chayo Institute of Technology). Technology, Technology, Thomas W. Smith, III (ASCE)	Pie AcCECC Thurs Pie GS-2: Environmental Syster GS-2: Environmental Syster GS-2: Environmental Syster and Engineering Chairra: Akiyuki Karo (The University of T Jimwoo Lee (The H Kong Polytechnic University)	nary ; Awar Coffe Buffet day, A nary ; Coffee sms asaki okyo), ng	Session 2 ds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure (Wased Linin (Wased Linin (Wased Linin Armab Jane) (Institute of Te Bombay)	9 Jkaze Planning ment ki Sasaki versity), ndian	Applic Civil E Chair: Tateya Univer	3-3: ation of ICRT/AI in ngineering Kazuyoshi uma (Ritsumeikan sity)
TS6-5: Enhancing Citizens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report Chairs: Mituyasu kord Technology). Thomas W. Smith, III (ASCE)	Pie ACECC Thurs Pile G Asakaze GS-2: Environmental Syst and Engineering Chairs: Akyak Kak (The University of The Kong Polytechnic University)	A anary : Awar Coffe Buffet day, A nary : Coffee ems asaki okyo), ng	Session 2 ds Ceremo Break Dinner pril 18, 201 Session 3 Break Hatsu GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unit Arnab Jana () Institute of Te Bombay)	9 Jkaze Planning nent ki Sasaki ki Sasaki ndian nchinology,	Applic Civil E Chair: Tateya Univer	3-3: ation of ICRT/Al in ngineering Kazuyoshi uma (Ritsumeikan sify)
TS6-5: Erhancing Citzens' Understanding on Importance of Infrastructure Based on Infrastructure Health Report Chairs Maryasu kanan Chairs Maryasu kanan Chairs Maryasu kanan Chairs Maryasu kanan Technology). Technology). TS6-13: Study of Failure for Your	Pie AcCECC Thurs Pie GS-2: Environmental System and Engineering Chairs: Akyuki Kan (The University of T Jimoro Lee (The Hi Kong Polytechnic University)	A and the second	Session 2 dis Ceremo Break Dinner pril 18, 201 Session 3 Break Hats: GS-4-1: Infrastructure diverses Chairs: Kunia (Wased uhin) Arnab Jana (I Institute of Te Bombay)	9 Ikaze Planning nent ki Sasaki versity), nchnology, Planning	GS-6 ICRT//	3-3: ation of ICRT/AI in ngineering Kazuyoshi mra (Ritsumeikan sity) 3-4: AI in Civil
TS6.5.1 Enhancing Citizens' Industriation on Importance of Infrastructure Based on Infrastructure Read Report Cracyo Institute of Technology). Thomas W. Smith, III (ASCE) TS6-12: Study of Failure for Your Citi Engineers	Pie ACECC Thurs Pile G GS-2: Environmental Syst and Engineering Chairs: Akyuki Kaw (The University of T Jarwoo Lee (The H Kong Polytechnic University) GS-7: g Hydrology, Hydraul Coastal Engineering	nary : Awar Coffe Buffet day, A nary : Coffee ems asaki okyo), mg	Chairs Kuraban Construction	9 Jkaze Planning nent K Sasaki kraity, nent Planning nent	GS-6 GS-6 ICRT// Engine	5-3: ation of ICRT/AI in ngineering Kazuyoshi markatikan sity) 5-4: AI in Civil sering &
TS6-5: Enhancing Citizens' Understanding on Importance of Inifiastructure Based on Inifiastructure Health Report Chairs Mauyasu Mau Hardongy). Toomas W. Smith, III (ASCE) TS6-13: Study of Failure for Your Civil Engineers Chair, Hiromas Iwai	Pie AcCECC Thurs Pie GS-2: Environmental System and Engineering Chairs: Akiyaki Karo (The University of T Jimkoo Lee (The H Koop Polytechnic University) GS-7: gS-7: gS-7: Hydrology, Hydraul Coastal Engineering Chairs: Tesuya Ike	Coffe Buffet day, A nary s Coffe ams aski askyo), ng	Session 2 ds Ceremo Break Dinner pril 18, 201 Session 3 Break Hats: GS-4-1: Infrastructure and Manager Chaire: Kunia (Wased Lhin) (Wased Lhin) Institute of Te Bombay)	9 Planning ment ki Sasaki veraity), ndian chnology, Planning ment ki Sasaki	GS-0 ICRT// Engine Const	3-3: ation of ICRT/AI in ngineering Kazuyoshi mra (Ritsumeikan sity) 3-4: Al in Civil sering & sering &
TS6.5.C Enhancing Citizens' Enhancing Citizens' Importanzidge on Imparture State of the Report Instatructure Read on Instatructure Read Report Dark Magnetic State Technology, Thomas W. Smith, III (ASCE) TS6-13: Study of Failure for You Cell Engineers Chair, Hiromas Iwai Chair, Hiromas Iwai	Pie AcCECC Pie G GS-2: Environmental Syst and Engineering Chairs: Akyuki Kaw (The University of The Kong Polytechnic University) GS-7: g Hydrology, Hydraul Coastal Engineerin Chairs: Tetuya Ike	Aurary ? Avarar Coffe Buffet day, A nary ? Coffee ems asaki okyo), ng Luu c, and 3 a_ Lun	Chairs: Kunia (Waseda Units Kunia) (Context Context Co	9 Jkaze Planning nent Ki Sasaki ki Sasaki reraity), chnology, Planning nent ki Sasaki reraity),	GS-6 ICRT// Engine Chair: Tateya Univer	3-3: attion of ICRT/AI in ngineering Kazuyoshi mar(Rtsumeikan sity) 3-4: AI in Civil sering & ruction Safety Satoshi Kubota
TS6-5: Enhancing Citizens' Understanding on Importance of Inifiastructure Based on Inifiastructure Health Report Chairs Mauyasu Mau Hardongy). Toomas W. Smith, III (ASCE) TS6-13: Study of Failure for Your Civil Engineers Chair, Hiromas Iwai	Pie AcCECC Thurs Pie GS-2: Environmental System and Engineering Chairs: Akiyaki Karo (The University of T Jimkoo Lee (The H Kong Polytechnic mi University) GS-7: g Hydrology, Hydrauli Coastat Engineering Shieh (National Che	Aurary ? Avarar Coffe Buffet day, A nary ? Coffee ems asaki okyo), ng Luu c, and 3 a_ Lun	Session 2 dis Ceremo Break Dinner pril 18, 201 Session 3 Break Hats: GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unih Arnab Jana (I Infrastructure Chairs: Kunia (Waseda Unih Arnab Jana (I Infrastructure Chairs: Kunia (Manager	9 Planning ment ki Sasaki veraity), ndian kPlanning ment ki Sasaki veraity), ndian	GS-6 ICRT// Engine Chair: Tateya Univer	3-3: ation of ICRT/AI in ngineering Kazuyoshi mra (Ritsumeikan sity) 3-4: Al in Civil sering & sering &
TS6-5: Enhancing Olitzens' Importanding on Infrastructure Based on Infrastructure Based on Infrastructure Health Report Draits (Margues Margues) Technology). Thomas W. Smith, III ASCE) TS6-13: Study of Failure for You Cell Engineers Chair, Thromas Iwa Informas Iwa Informas Iwa	Pie AcCECC Pie G GS-2: Environmental Syst and Engineering Chairs: Akyuki Kaw (The University of The Kong Polytechnic University) GS-7: g Hydrology, Hydraul Coastal Engineerin Chairs: Tetuya Ike	Aurary ? Avarar Coffe Buffet day, A nary ? Coffee ems asaki okyo), ng Luu c, and 3 a_ Lun	Chairs: Kunia (Wased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager)	9 Planning ment ki Sasaki veraity), ndian kPlanning ment ki Sasaki veraity), ndian	GS-6 ICRT// Engine Chair: Tateya Univer	3-3: attion of ICTI/AI in ngineering Kazuyoshi mar (Ritsumeikan sity) 3-4: AI in Civil sering & ruction Safety Satoshi Kubota
TS6-5: Enhancing Olitzens' Importanding on Infrastructure Based on Infrastructure Based on Infrastructure Health Report Draits (Margues Margues) Technology). Thomas W. Smith, III ASCE) TS6-13: Study of Failure for You Cell Engineers Chair, Thromas Iwa Informas Iwa Informas Iwa	Pie AcCECC Thurs Pie GS-2: Environmental System and Engineering Chairs: Akiyaki Karo (The University of T Jimkoo Lee (The H Kong Polytechnic mi University) GS-7: g Hydrology, Hydrauli Coastat Engineering Shieh (National Che	Aurary ? Avarar Coffe Buffet day, A nary ? Coffee ems asaki okyo), ng Luu c, and 3 a_ Lun	Session 2 dis Ceremo Break Dinner pril 18, 201 Session 3 Break Hats: GS-4-1: Infrastructure and Manager Chairs: Kunia (Waseda Unih Arnab Jana (I Infrastructure Chairs: Kunia (Waseda Unih Arnab Jana (I Infrastructure Chairs: Kunia (Manager	9 Planning ment ki Sasaki veraity), ndian kPlanning ment ki Sasaki veraity), ndian	GS-6 ICRT// Engine Chair: Tateya Univer	3-3: attion of ICRT/AI in ngineering Kazuyoshi mar(Rtsumeikan sity) 3-4: AI in Civil sering & ruction Safety Satoshi Kubota
TS6-5: Enhancing Olitzens' Importanding on Infrastructure Based on Infrastructure Based on Infrastructure Health Report Draits (Margues Margues) Technology). Thomas W. Smith, III ASCE) TS6-13: Study of Failure for You Cell Engineers Chair, Thromas Iwa Informas Iwa Informas Iwa	Pie AcCECC Thurs Pie GS-2: Environmental System and Engineering Chairs: Akiyaki Karo (The University of T Jimkoo Lee (The H Kong Polytechnic mi University) GS-7: g Hydrology, Hydrauli Coastat Engineering Shieh (National Che	Aurary ? Avarar Coffe Buffet day, A nary ? Coffee ems asaki okyo), ng Luu c, and 3 a_ Lun	Chairs: Kunia (Wased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager)	9 Planning ment ki Sasaki veraity), ndian kPlanning ment ki Sasaki veraity), ndian	GS-6 ICRT// Engine Chair: Tateya Univer	3-3: attion of ICRT/AI in ngineering Kazuyoshi mar(Rtsumeikan sity) 3-4: AI in Civil sering & ruction Safety Satoshi Kubota
TS6-5: Enhancing Olitzens' Importanding on Infrastructure Based on Infrastructure Based on Infrastructure Health Report Draits (Margues Margues) Technology). Thomas W. Smith, III ASCE) TS6-13: Study of Failure for You Cell Engineers Chair, Thromas Iwa Informas Iwa Informas Iwa	Pie AcCECC Thurs Pie GS-2: Environmental System and Engineering Chairs: Akiyaki Karo (The University of T Jimkoo Lee (The H Kong Polytechnic mi University) GS-7: g Hydrology, Hydrauli Coastat Engineering Shieh (National Che	Aurary ? Avarar Coffe Buffet day, A nary ? Coffee ems asaki okyo), ng Luu c, and 3 a_ Lun	Chairs: Kunia (Wased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager)	9 Planning ment ki Sasaki veraity), ndian kPlanning ment ki Sasaki veraity), ndian	GS-6 ICRT// Engine Chair: Tateya Univer	3-3: attion of ICTI/AI in ngineering Kazuyoshi mar (Ritsumeikan sity) 3-4: AI in Civil sering & ruction Safety Satoshi Kubota
TS6-5: inhancing Olitzens' indentanding on Indentanding on Indentation of the Indentation of the Ind	Pie AcCECC Thurs Pie GS-2: Environmental System and Engineering Chairs: Akiyaki Karo (The University of T Jimkoo Lee (The H Kong Polytechnic mi University) GS-7: g Hydrology, Hydrauli Coastat Engineering Shieh (National Che	Aurary ? Avarar Coffe Buffet day, A nary ? Coffee ems asaki okyo), ng Luu c, and 3 a_ Lun	Chairs: Kunia (Wased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager)	9 Planning ment ki Sasaki veraity), ndian kPlanning ment ki Sasaki veraity), ndian	GS-6 ICRT// Engine Chair: Tateya Univer	3-3: attion of ICTI/AI in ngineering Kazuyoshi mar (Ritsumeikan sity) 3-4: AI in Civil sering & ruction Safety Satoshi Kubota
TS6-5: inhancing Olitzens' indentanding on Indentanding on Indentation of the Indentation of the Ind	Pie AcCECC Thurs Pie GS-2: Environmental System and Engineering Chairs: Akiyaki Karo (The University of T Jimkoo Lee (The H Kong Polytechnic mi University) GS-7: g Hydrology, Hydrauli Coastat Engineering Shieh (National Che	Aurary ? Avarar Coffe Buffet day, A nary ? Coffee ems asaki okyo), ng Luu c, and 3 a_ Lun	Chairs: Kunia (Wased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager)	9 Planning ment ki Sasaki veraity), ndian kPlanning ment ki Sasaki veraity), ndian	GS-6 ICRT// Engine Chair: Tateya Univer	3-3: attion of ICTI/AI in ngineering Kazuyoshi mar (Ritsumeikan sity) 3-4: AI in Civil sering & ruction Safety Satoshi Kubota
TS6-5: inhancing Olitzens' indentanding on Indentanding on Indentation of the Indentation of the Ind	Pie AcCECC Thurs Pie GS-2: Environmental System and Engineering Chairs: Akiyaki Karo (The University of T Jimkoo Lee (The H Kong Polytechnic mi University) GS-7: g Hydrology, Hydrauli Coastat Engineering Shieh (National Che	Aurary ? Avarar Coffe Buffet day, A nary ? Coffee ems asaki okyo), ng Luu c, and 3 a_ Lun	Chairs: Kunia (Wased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager) Chairs: Kunia (Mased and Manager)	9 Planning ment ki Sasaki veraity), ndian kPlanning ment ki Sasaki veraity), ndian	GS-6 ICRT// Engine Chair: Tateya Univer	3-3: attion of ICTI/AI in ngineering Kazuyoshi mar (Ritsumeikan sity) 3-4: AI in Civil sering & ruction Safety Satoshi Kubota

In the session TS5-1 "Sustainable and Eco-friendly Concrete by Effective Application of Local Mineral Admixtures", Prof. Tetsuya Ishida (The Univ. of Tokyo) was a chair of this session as the member of JSCE Concrete committee. Total seven presenters came from Thailand, Sri-Lanka, India, Vietnam and Japan presented the application and utilization of mineral admixture in each country as titles in Table.2 (Photo.1).

Presenter	Affiliation	Title
Somnuk Tangtermsirikul	Sirindhorn International	Potential utilizations of off-standard fly ashes
	Institute of Technoogy,	
	Thammasat University	
S. M. A. Nanayakkara	University of Moratuwa	Application of fly ash and bottom ash from coal fired thermal

Table.2 Presentations overview in TS5-1

		power plants in Sri Lanka
Takafumi Noguchi	The University of Tokyo	High-volume utilization of supplementary cementitious materials in concrete buildings toward sustainability
Kolluru V.L. Subramaniam	Indian Institute of	Efficient production of alkali-activated geopolymers from
	Technology Hyderabad	low-calcium fly ash
Shingo Asamoto	Saitama University	Application of mineral admixtures in hot weather conditions
Nguyen Hoang Giang	National University of Civil	Current situation on the utilization of industrial by-products
	Engineering	for construction in Vietnam
Tetsuya Ishida	The University of Tokyo	Multiphase model for predicting temperature dependent
		Pozzolanic reaction of low-calcium fly ash in cement systems



Photo.1 Presentation situations in TS5-1

After the presentation, panel discussion was opened with all presenters (Photo.2). First discussion topic was "utilizations of the fly ash".

For this theme, Prof. Subramaniam answered that qualities of the fly ash were assured by blending the classified materials obtained from several locations in India.

Prof. Nanayakkara mentioned that fly ash was produced by only one coal power station in Sri Lanka to and the quality control was based on European standard with appropriate modification. He also mentioned that the application of fly ash has been largely increased in cement industry but bottom ash was not utilized to be open dumped. That is a big issue in Sri Lanka because the amount of fly ash expecting the application to infrastructures in civil engineering fields was small in Sri-Lanka.

Prof. Nguyen explained that although American standards and Japanese standards were referred popularly, quality control was one of the most difficult issue in Vietnam because there are over 20 coal power stations and would be 57 stations in 2030.

Prof. Tangtermsirikul mentioned that constant quality of fly ash in Thailand is normally achieved by

blending the coal before burning to obtain fly ash. There are many standards and guidelines for fly ash and use of fly ash in the world, however there are still no or limited standards and guidelines for bottom ash and use of bottom ash. Owing to successful promotion and efforts of fly ash application in Thailand, the amount of fly ash is currently not enough for use in cement and concrete application.

The second discussion theme was "How should we collaborate for sustainable and ecofriendly concrete among Asian countries?".

For this theme, Prof. Noguchi pointed out that compatibility of the materials is important because properties of the local material are greatly different in each country. Moreover, he suggested that specifications and standards could be changed based on the material properties and required performance, and this change should cooperate in the concrete industries.

Prof. Ishida mentioned that variable discussions would be needed in each country because the fly ash was local material and the properties were different essentially. He proposed to have a continuous fruitful discussion such as today's session through joint seminar to improve Asian concrete technology.

Finally, Prof. Tangtermsirikul introduced a successful record construction of a 12,000 m³ single-pour mass concrete foundation project using concrete containing 60 % of the total binder content replaced by fly ash in Thailand and the advantage of using high volume fly ash in mass concrete over blast furnace slag.



Photo.2 Situations of the panel discussion