



CIVIL ENGINEERING CONFERENCE IN THE ASIAN REGION (CECAR7)

WAIKIKI, OAHU, HAWAII | AUGUST 30 – SEPTEMBER 2, 2016

**Ho-'omalalama: Building a Sustainable Infrastructure in the Asia Pacific Region*

**Ho-'omalalama is a Hawaiian term that means to brighten, illuminate, enlighten, or inform.*



Courtesy Kevin McCarthy



Hilton Hawaiian Village Waikiki Beach Resort

www.cecarr7.org

International Conference on Civil Engineering in The Asian Region - CECAR 7 2016
Waikiki, Oahu, Hawaii | August 30 – September 2, 2016
Hilton Hawaiian Village Waikiki Beach Resort
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I. CECAR 7 2016 Steering Committee

Conference Chairs

Udai P. Singh, D.Engr., BCEEM, PMP
Environmental Consultant

Albert T. Yeung, Ph.D., PE Professor
University of Hong Kong

David G. Leverenz, P.E
Transportation Consultant

Jon M. Young, PE, LEED AP
Executive Director
Hawaii Asphalt Paving Industry

Gary Chock, S.E., D.CE
President, Martin & Chock, Inc.

ASCE Staff

Meggan Maughan-Brown, CAE, CMP,
Aff.M.ASCE
Director, Global Programs

Jennifer Scafer, Aff.M.ASCE
Administrator of Global Programs

Leanne Shroeder, Manager,
Conference & Meeting Services

Shingai Marandure, Coordinator,
Conference & Meeting Services

Kelly Jarvis, Registrar,
Conferences & Meetings

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Committee Chairs Report

Compiled by Udai P. Singh, D.Engr., BCEEM, PMP
Conference Chair

The 7th Civil Engineering Conference in the Asian Region (CECAR 7) was conducted successfully at the Hilton Hawaiian Village, Oahu, Hawaii from 30th August through 2nd September, 2016. The theme of CECAR 7 was “Ho-‘omalamalama: Building A Sustainable Infrastructure In The Asia Pacific Region”. Ho-‘omalamalama is a Hawaiian term that means to brighten, illuminate, enlighten, or inform. CECAR 7 enlightened conference participants and others on strides made in sustainable civil engineering infrastructure applicable to the Asia Pacific Region. Approximately 400 people from 30 countries attended the conference.

Over 400 abstracts were received by the conference steering committee from ACECC Technical Committees and researchers/practitioners from about 30 countries. Of these, the final conference program included approximately 250 technical papers for presentation. In addition, the conference included six technical keynote addresses (two on each morning) given at plenary sessions by eminent experts in diverse areas of civil engineering from Bangladesh, Hong Kong, Japan, Korea, Taiwan, and USA. The keynote speaker from Hawaii, USA had to cancel his presentation at the last minute as he had to coordinate transportation planning activities for the state of Hawaii in preparation for a hurricane rapidly approaching the Hawaiian islands. U.S. Congresswoman Tulsi Gabbard gave the welcome keynote address at the opening plenary on 31st August. The Kyoto Declaration from WECC 2015 was also presented at the opening plenary. Moreover, the President of each member society was given an opportunity to briefly address the attendees.

A Proceedings of the conference was published. The CD-ROM was given out to attendees at the conference. In addition, the Proceedings will be maintained online at the ACECC website until the next CECAR. Papers and sessions were organized into seven broad-based technical tracks in the conference program and Proceedings: Environmental & Water Resources, Transportation, Infrastructure Management, Geotechnical, Natural Disasters, Structural, and Sustainability. Moderators selected from all member societies chaired the technical sessions. In addition to the podium sessions, poster sessions were held, primarily during breaks and lunch hours.

Two workshops were held on 30th August: (1) Engineering Ethics Workshop: Discussion of Case Studies, and (2) Natural Hazards Risk and Management Workshop. Three technical tours were conducted on 30th August and 2nd September: (1) Honolulu Rail Project Tour, (2) Hawaiian Aquaponic Farm Tour, and (3) Nu‘Uanu Watershed Tour. An Awards Dinner, whose program included networking, local cuisine, presentation of ACECC awards, and local cultural entertainment, on the evening of 1st September was appreciated by all attendees.

The closing plenary on 2nd September started with a keynote motivational address given by Ms. Annabel Chotzen on “Put Your Dreams To Work”. Annabel took us on a journey of achieving our most heart-felt goals and dreams. Her powerful true-life stories were interwoven in a tapestry of success

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principles and the Hawaiian spiritual concepts helped us visualize, energize and reach for what we want most in our life. This was followed by the closing ceremony where the leadership of ACECC was passed on from ASCE to JSCE.

I have received positive feedback from many attendees at CECAR 7. Many of us came to Hawaii with our families and enjoyed the beautiful and magical settings of the islands. It was a team effort that made CECAR7 professionally productive and socially enjoyable. I will present a more detailed report, including finances, on CECAR 7 at the next PCM/ECM.

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II. Conference Program

a. Schedule at a Glance

<u>Monday, August 29</u>	
12:30 - 4:00 p.m.	Registration hours
<u>Tuesday, August 30</u>	
7:00 a.m. - 7:30 p.m.	Registration hours
9:00 a.m. - 5:00 p.m.	Workshop/Special Session
9:00 a.m. - 12:30 p.m.	Workshop/Special Session
1:30 - 5:00 p.m.	Workshop/Special Session
1:00 - 5:00 p.m.	Exhibit Hall set up
1:30 - 5:00 p.m.	Technical Tours
1:30 - 5:00 p.m.	Social Tours on own
<u>Wednesday, August 31</u>	
7:00 a.m. - 5:30 p.m.	Registration hours
8:00 - 10:00 a.m.	Opening Plenary Session
10:00 a.m. - 5:30 p.m.	Exhibit Hall Hours
10:00 - 10:45 a.m.	Poster Session #1 & Networking Break in Exhibit Hall
10:45 a.m. - 12:45 p.m.	Concurrent Technical Sessions
12:45 - 1:45 p.m.	Poster Session #1 and Lunch
1:45 - 3:15 p.m.	Concurrent Technical Sessions
<u>Thursday, September 1</u>	
7:00 a.m. - 5:00 p.m.	Registration hours
8:00 - 9:00 a.m.	Plenary Session
9:00 a.m. - 4:00 p.m.	Exhibit Hall hours
9:00 - 10:30 a.m.	Concurrent Technical Sessions
10:30 - 11:15 a.m.	Poster Session #2 and Networking Break in Exhibit Hall
11:15 a.m. - 12:45 p.m.	Concurrent Technical Sessions
12:45 - 1:45 p.m.	Poster Session #2 and Lunch
1:45 - 3:15 p.m.	Concurrent Technical Sessions
3:15 - 4:00 p.m.	Poster Session #2 and Networking Break in Exhibit Hall
4:00 - 5:30 p.m.	Concurrent Technical Sessions
4:00 - 6:30 p.m.	Exhibit Hall Breakdown
6:30 - 9:00 p.m.	Awards Dinner
<u>Friday, September 2</u>	
7:30 a.m. - 12:00 p.m.	Registration hours
8:00 - 9:00 a.m.	Plenary Session
9:00 - 9:30 a.m.	Morning Networking Break
9:30 - 11:00 a.m.	Concurrent Technical Sessions
11:15 - 12:00 p.m.	Closing Keynote Session
12:00 - 12:30 p.m.	Closing Ceremony
1:30 - 5:00 p.m.	Technical Tours

b. Committee Meeting Schedule

Monday, August 29, 2016

9:00 – 11:30 20th Technical Coordinating Committee Meeting

13:00 – 15:15 25th Planning Committee Meeting

Tuesday, August 30, 2016

8:30 – 12:30 32nd Executive Committee Meeting

c. Conference Important Dates

May 30, 2016	Registration Opened
July 12, 2016	Early Bird Registration Deadline
August 2, 2016	Hotel Registration Deadline
August 9, 2016	Advance Registration Deadline
August 30, 2016	Conference Started

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III. Registration

Category	Budgeted	Actual	Budget/Actual	EB Pricing	EB Reg	ADV Pricing	ADV Reg	ONS Pricing	ONS Reg
Full Registration									
ACECC (incl. ASCE) Member	66	101	+50	\$595	80	\$695	90	\$795	102
Non-Member	15	32	+19	\$695	17	\$795	21	\$895	34
Full Time Student									
Member	18	35	+18	\$265	32	\$265	34	\$265	36
Non-Member									
Speaker									
Member	195	169	-26	\$495	169	\$595	167	\$695	169
Moderator									
Member/ Non Member	6	5	-1	\$495	5	\$595	4	\$695	5
Daily									
Daily Member	0	23	+26	\$395	6	\$545	6	\$595	22
Daily Non Member	0	6	+6	\$395	0	\$495	0	\$595	6
Complimentary									
Member	76	12	-75	\$0	9	\$0	9	\$0	11
Non-Member									
Exhibitor Full Registration									
Member	0	0	+0	\$0	0	\$0	0	\$0	0
Non-Member									
Exhibitor Extra Staff									
Member	0	0	+0	\$250	0	\$250	0	\$250	0
Non-Member									
Exhibitor Booth Staff									
Member	0	0	+0	\$0	0	\$0	0	\$0	0
Non-Member									
Late Fee									
Session Only									
Member	0	0	+0	\$0	0	\$0	0	\$0	0
Non-Member									
Municipal (Agency)									
Member	0	0	+0	\$0	0	\$0	0	\$0	0
Non-Member									
Staff									
Member	0	5	+5	\$0	5	\$0	5	\$0	5
Non Member									
Other									
Guest	0	0	+0	\$0	0	\$0	0	\$0	0
Younger Member	0	0	+0	\$0	0	\$0	0	\$0	0
Sustaining Corporate Member	0	0	+0	\$0	0	\$0	0	\$0	0
Cooperating Organizations	0	0	+0	\$595	0	\$695	0	\$795	0
Retired Life Members	0	0	+0	\$0	0	\$0	0	\$0	0
Exhibit Hall (Only)	0	0	+0	\$0	0	\$0	0	\$0	0
Sponsor Full - Member	0	0	+1	\$0	0	\$0	0	\$0	0
Event Purchase Only	0	2	N/A	varies	0	varies	0	varies	2
Press Pass	0	0	N/A	\$0.00	0	\$0.00	0	\$0.00	0
Totals	376	390	+23		323		336		392
FREs		10.67		N/A	2	N/A	2	N/A	12

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Evaluation/Recommendation/Comments: Registration pricing was set to break even based on 300 attendees. Member pricing was determined by ACECC society membership.

IV. Hotel/Facility

Hotel & Conference Venue

Hilton Hawaiian Village Waikiki Beach Resort
 2005 Kalia Road
 Honolulu, HI 96815
 Tel: (808) 949-4321

Hotel Final Pick Up Report

Day	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	TOTAL
Dates	Aug 27	Aug 28	Aug 29	Aug 30	Aug 31	Sept 1	Sept 2	Sept 3	Sept 4	Sept 5	
Single/Double	0	0	54	104	104	104	79	10	0	0	455
Staff	0	0	4	4	4	4	4	0	0	0	20
Original Total Block	0	0	54	104	154	154	104	34	0	0	604
Revised Total Block	0	0	54	104	104	104	79	10	0	0	455
Actual	7	31	57	73	74	69	41	9	2	1	395
% of Actual Block	N/A	N/A	115%	75%	51%	47%	42%	32%	N/A	N/A	86%
Regular Room Rate (Single)	\$239	\$239	\$239	\$239	\$239	\$239	\$239	\$239	\$239	\$239	455
# of Rooms	0	0	54	104	154	154	104	34	0	0	
Regular Room Rate (Outside of Block)	0	0	1	1	1	0	0	0	0	0	3
# of Rooms	0	0	1	1	1	0	0	0	0	0	
Staff Rate	\$119.50	\$119.50	\$119.50	\$119.50	\$119.50	\$119.50	\$119.50	\$119.50	\$119.50	\$119.50	20
# of Rooms	0	0	4	4	4	4	4	0	0	0	

Evaluation/Recommendation/Comments: ASCE exercised the option to release a portion of the room block back to the Hilton to avoid possible attrition charges. Based on the revised hotel block the group picked up 86% of the contracted rooms, meeting the 80% contractual obligation and avoiding attrition fees.

V. City

The city of Waikiki, Oahu, Hawaii was selected due to its location and proximity to a majority of the audience.

Airport

Honolulu International Airport

300 Rodgers Boulevard
Honolulu, HI 96819

Airport Code: HNL

Available Transportation

Travelers could choose from various transportation services. Taxi, shuttle, trolley, bus or private vehicles from Honolulu International Airport to Waikiki, Oahu. The Resort is just 8 miles from Honolulu International Airport.

SpeediShuttle

The only authorized on demand shuttle service provider at the Honolulu airport and has greeters stationed throughout the terminals. Shared Ride starting at \$15.48.

The Waikiki Trolley

“The Bus” public bus transportation routes to all parts of Oahu. A (1) day “all line” trolley pass is \$45.00.

Charley’s Taxi

Provides general taxi service and is located at the Hilton Hawaiian Village. They offer several different options for transportation to and from the airport as well as around Honolulu. A “flat rate” to the airport is \$29.00 one-way.

Evaluation/Recommendations:

The city was very accommodating to travelers and attendees with easy access to the resort from the airport via taxi or shuttle bus. Local restaurants, shopping, and entertainment venues were within walking distance.

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VI. Sponsorships

Silver Level						
<u>Number of Sponsors Allotted @ Level</u>			1	<u>Item/Event</u>		10%
<u>Date Confirmed</u>	<u>LEVEL</u>	<u>COMPANY</u>	<u>PLEDGED</u>	<u>RECD</u>	HART Rail Tour	
	Silver	CH2M	\$2,500	\$2,500		
<u>Total Sponsors Budgeted</u>		\$10,000				

Recognition Benefits	Platinum	Gold	Silver	Bronze	Copper
	\$25,000	\$10,000	\$5,000	\$2,500	\$1500
Full Conference Registration					
Exhibit Booth					
Podium Recognition at Plenary			x		
Attendee List Pre-and Post Conference			x		
Logo/Name & Link in Conference					
Marketing Emails	Logo	Logo	Logo	Name	Name
Recognition in Conference Program	Logo	Logo	Logo	Logo	Name
Recognition on Conference Signage	Logo	Logo	Logo	Logo	Name
Recognition on the Conference Website	Logo	Logo	Logo	Logo	Name

Evaluation/Recommendation/Comments:

A large number of academics make up the attendance of the conference limiting the potential sponsorship dollars interested in supporting the conference. This was anticipated

VII. Program

a. Plenary Sessions

Title: Opening Plenary Session & Technical Plenary Session

Date: Wednesday, August 31, 2016

Time: 8:00 – 10:00 a.m.

(Room Set: Theatre Style)

Attendance: 178

Description: Plenary Welcome Address & Keynotes

U.S. Congresswoman Tulsi Gabbard commenced with the Opening Plenary Welcome Address. The Welcome Address was followed by Keynote speeches by Dr. Sung Woo Lee, President of KSCE, S. Korea. and Prof. Dr. Munaz Ahmed Noor, Vice Chancellor, Islamic University of Technology.

Plenary Speaker: Tulsi Gabbard rating: 8.15

Keynote Speaker: Dr. Sung Woo Lee rating: 7.92

Keynote Speaker: Prof. Dr. Munaz Ahmed Noor rating: 7.83

Title: Closing Plenary Session

Date: Friday, September 2, 2016

Time: 11:15 – 12:00 p.m.

Attendance: 86

Description: Annabel Chotzen used powerful true-life stories interwoven in a tapestry of success principles and the Hawaiian spiritual concepts to help you visualize, energize and reach for what you want most in your life. She provided powerful tools that engineers can use to communicate more effectively, create solutions to challenging problems, and resolve conflict quickly.

Overall Closing Plenary Satisfaction: 8.16

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b. Technical Program Grid

Date	Time	Track	Session Title	Attendees	Attendees per time block
Wednesday, August 31	10:45 – 12:45 p.m.	A	1A: Environmental & Water Resources	26	165
		B	1B: Transportation	24	
		C	1C: Infrastructure Management	35	
		D	1D: Natural Disaster	30	
		E	1E: Geotechnical	20	
		F	1F: Structural	30	
	1:45 – 3:15 p.m.	A	2A: Innovative Technologies in Water Resources	20	93
		B	2B: Rail Transit Projects in Honolulu, Japan and Thailand	21	
		C	2C: Geohazards	18	
		D	2D: Energy Efficient Solutions for Sustainable Facilities	16	
		E	2E: Bridge Design	18	
	4:00 – 5:30 p.m.	A	3A: Challenges in Water Management	20	98
		B	3B: Corrosion of Structural Elements	20	
		C	3C: Towards the Reduction of Infrastructure Lifecycle Cost	18	
		D	3D: Foundations	20	
E		3E: Performance-Based Engineering for Natural Hazards	20		

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Date	Time	Track	Session Title	Attendees	Attendees per time block
Thursday, September 1	9:00 – 10:30 a.m.	A	4A: Challenges in Water Supply	12	110
		B	4B: Transportation Planning	15	
		C	4C: Outstanding Hawaii Civil Engineering Projects	28	
		D	4D: Recycled Materials	15	
		E	4E: Transdisciplinary Approach to Build Resilient Society	40	
	11:15 a.m. – 12:45 p.m.	A	5A: Waste Management	16	98
		B	5B: Rail Design and Operation	20	
		C	5C: Construction Best Practices	20	
		D	5D: Critical Success Factors in Construction	12	
		E	5E: Structural Dynamics	30	
	1:45 – 3:15 p.m.	A	6A: Storm water and Wastewater Systems	19	94
		B	6B: Traffic Management	15	
		C	6C: Earthquake Engineering I	12	
		D	6D: Geomaterials	18	
		E	6E: Disaster Management	30	
	4:00 – 5:30 p.m.	A	7A: Watershed, River and Flood Management	16	106
		B	7B: Pavement Preservation	30	
		C	7C: Special Topics in Civil Engineering	20	
		D	7D: Education	20	
		E	7E: Geotechnical Earthquake Engineering	20	

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Date	Time	Track	Session Title	Attendees	Attendees per time block
Friday, September 2	9:30 – 11:00 a.m.	A	8A: Hydraulics	15	68
		B	8B: Earthquake Engineering II	15	
		C	8C: Infrastructure Asset Management	18	
		D	8D: Engineered Materials	8	
		E	8E: Tunneling	12	

WEDNESDAY, AUGUST 31 POSTER SESSION #1	THURSDAY, SEPTEMBER 1 POSTER SESSION #2
CO2 Emission Estimation Reduction Impacts by Promoting Hybrid Cars Based on Time Sharing of Driving Modes from Probe Vehicles, <i>Napon Srisakda (Graduate School of Science and Technology, Nihon University, Japan), Atsushi Fukuda, Tetsuhiro Ishizaka</i>	Estimation of Quantile Using Regional Scaling Model and Index Flood Method, <i>Younghun Jung (Yonsei University, South Korea), Hyunjun Ahn, Hanbeen Kim, Jun-Haeng Heo</i>
Experimental Study for Neutralization and Revegetation from Acid Soil Based on the MICP <i>Toshiro Hata, (Toyama Prefectural University, Japan), Mizuki Sakai, Masanori Hatakeyama</i>	Estimate of the Initial Rock Stress by Performing a Comprehensive Evaluation using the Results of Several Techniques, <i>Kozo Onishi, Naoki Nishizaka, Yoshihiko Ishikawa, Toshinori Nayuki (Obayashi Corporation, Japan), Tatsuya Tanaka, Kenichi Ando, Taishi Oouchi, Takatoshi Ito</i>
Full Scale Model Tests on the Detection of Hidden Deteriorations of Reinforced Soil Walls, <i>Tomohiro Fujita (Toyama Prefectural University, Japan), Hiroaki Miyatake</i>	Rapid Evaluation and Assessment Program (REAP) as an Innovative Pre-Disaster Preparedness and Post-Disaster Response Tool for Essential Facilities – NAVFAC Case Studies, <i>David B. Swanson (Reid Middleton, Inc., Mukilteo, WA, USA), Lance K. Lum, Erik S. Bishop, Bradley A. Martin, Kenny O'Neil</i>
Dynamic Centrifuge Model Test on Irrigation Dam and Its Numerical Simulations, <i>Seiichi Sato (Nippon Koei Co.,Ltd., Japan), Sokkheang Sreng, Yuta Koyama, Koji Kobayashi, Yasunori Shiraishi</i>	Inspection Method for Internal State of Quay Wall Under Water Using Acoustic Device, <i>Norihito Kishi (C.E. Research Institute, Sapporo / Hokkaido, Japan), Kazuya Yamaguchi, Akira Asada, Kei Fujisawa, Hideaki Yokohama</i>
Application of Statistical Tests for Cleaning Matched Dedicated Short Range Communications Probe Data, <i>Jinhwan Jang (Korea Institute of Civil Engineering and Building Technology, South Korea)</i>	Design Data Generation System using Three-Dimensional Polyline for Progress Control of Working Form, <i>Shigenori Tanaka (Kansai University, Osaka, Japan), Kenji Nakamura, Ryuichi Imai, Satoshi Kubota, Jun Sakurai</i>
Bivariate Frequency Analysis Using Archimedean Copula and Nonstationary Gumbel Distribution with Inference Function for Margin Method, <i>Younghun Jung (Yonsei University, South Korea), Kyungwon Joo, Jinseok Jung, Jun-Haeng Heo</i>	Dynamic Buckling Behaviors of Circular Tube Piles on Centrifuge Tests, <i>Tenshiro Goto, Moeko Matoba (Tohoku University, Sendai, Japan), Yoshihiro Kimura</i>
Recent Earthquake Disaster in Kumamoto, Japan, <i>Yoshihiro Katsuhama (Nippon Koei Co., Ltd., Japan), Yoshiki Yamamoto</i>	Overview on Carbon Dioxide Uptake and Its Impact of Portland Cements Using Carbonation Curing, <i>Jeong Gook Jang (Korea Advanced Institute of Science and Technology, Daejeon, south Korea), H.K. Lee</i>
Concrete Use Mechanical Anchors Engineering Properties, <i>Chiwan Wayne Hsieh (National Pingtung University of Science and Technology, Taiwan), Jen-Han Wu, Yung-Chung Chen</i>	Development of Decision Making Criteria to Improve Road Maintenance Efficiency, <i>Koonnamas Punthutaecha (Department of Rural Roads, Bangkok, Thailand), Koson Janmonta, Wit Ratanachot, Punthutaecha Taruga</i>
Design Data Generation System using Three-Dimensional Polyline for Progress Control of Working Form, <i>Shigenori Tanaka (Osaka University of Economics, Japan), Kenji Nakamura, Ryuichi Imai, Satoshi Kubota, Jun Sakurai</i>	Research Concerning Estimation of Location Related to Traffic Events and Extraction of Public Opinions Related to Road Projects Using Microblogs, <i>Ryuichi Imai, Kenji Nakamura (Osaka University of Economics, Osaka, Japan), Shigenori Tanaka, Yuki Fujimoto</i>
Characteristics of Bus Operations and Fuel Consumption on Long Steep Grades, <i>Grace Po-chun Chen, William Ta-chun Lin, Amy Yi-Chin Hu (THI Consultants, Inc., Taiwan), Yi-cheng Chang, Yu-wen Yang, Jason Cheng-wei Su</i>	Best Practice Design of a Large-span Silo Roof with Shell and Tension Beam Structures - <i>Ahmad Nazari, (Bisbane, Australia)</i>
Modeling Vehicle Road Accident with Excess Zero Data of Johor Federal Road – Route Kluang-A/Hitam-B/Pahat, <i>Joewono Prasetyo (Universiti Tun Hussein Onn, Malaysia), Wan Zahidah Musa, Wahid Razzaly, Kamarudin Ambak, Basil David Daniel</i>	Effect of Methane Sampling Time on Average Flux under Rice Cultivation - <i>Nadar Hussain Khokhar and Jae-Woo Park (Hanyang University, Seoul, Korea)</i>
Public Private Partnership in Thailand Highways - A Case Study on an Extension of Donmuang Tollway Project - <i>Pruethipong Singhatiraj (Ministry of Transports, Bangkok, Thailand), Chatchai Chuangching and Boonkua Janbanjong</i>	Ultimate Seismic Capacity of Steel Moment Resisting Frame by Scaled Test - <i>Sachi Furukawa (Tohoku University, Japan), Yuma Murata, Yoshihiro Kimura</i>
Three-dimensional Analysis of Laterally Loaded Barrette Foundation using Plaxis 3D - <i>Belkacem Moussai (USTHB University, Aliers, Algeria) and Djamilia Behloul</i>	Development of Deterioration Prediction Model for Porous Asphalt Pavements Considering Pot-Holes - <i>Akihiro Tanaka, MA (Osaka University), Yota Yamada, Daijiro Mizutani, Kengo Obama, Kiyoyuki Kaito</i>



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Courtesy Kevin McCarthy



MONDAY, AUGUST 29, 2016

12:30 – 4:00 p.m. Registration (*Palace Lounge*)

TUESDAY, AUGUST 30, 2016

8:00 a.m. – 5:00 p.m. Registration (*Palace Lounge*)

9:00 a.m. – 12:30 p.m. Engineering Ethics Workshop
(*Honolulu Suite 1*)

1:00 – 5:00 p.m. Exhibit Hall Set Up (*Palace Lounge*)

1:30 – 5:00 p.m. Natural Hazards Risk & Management
Workshop (*Honolulu Suite 1*)

1:30 – 5:00 p.m. Technical Tours

1:30 – 5:00 p.m. Social Tours on Own

WEDNESDAY, AUGUST 31, 2016

7:00 a.m. – 5:30 p.m. Registration (*Palace Lounge*)

8:00 – 10:00 a.m. Opening Plenary Session
(*Tapa Ballroom 1*)

10:00 a.m. – 5:30 p.m. Exhibit Hall Hours (*Palace Lounge*)

10:00 – 10:45 a.m. Poster Session #1 and Networking
Break in Exhibit Hall
(*Palace Lounge*)

10:45 a.m. – 12:45 p.m. Technical Session 1

12:45 – 1:45 p.m. Poster Session #1 Cont. and
Lunch (*Tapa Ballroom 2*)

1:45 – 3:15 p.m. Technical Session 2

3:15 – 4:00 p.m. Poster Session #1 and
Networking Break in Exhibit Hall
(*Palace Lounge*)

4:00 – 5:30 p.m. Technical Session 3

THURSDAY, SEPTEMBER 1, 2016

7:30 a.m. – 5:30 p.m. Registration (*Palace Lounge*)

8:00 – 9:00 a.m. Plenary Session (*Tapa Ballroom 1*)

9:00 a.m. – 4:00 p.m. Exhibit Hall Hours (*Palace Lounge*)

9:00 – 10:30 a.m. Technical Session 4

10:30 – 11:15 a.m. Poster Session #2 and Networking
Break in Exhibit Hall
(*Palace Lounge*)

11:15 a.m. – 12:45 p.m. Technical Session 5

12:45 – 1:45 p.m. Poster Session #2 and Lunch
(*Tapa Ballroom 2*)

1:45 – 3:15 p.m. Technical Session 6

3:15 – 4:00 p.m. Poster Session #2 and Networking
Break in Exhibit Hall (*Palace Lounge*)

4:00 – 5:30 p.m. Technical Session 7

6:00 – 9:00 p.m. Awards Dinner (*The Great Lawn*)

FRIDAY, SEPTEMBER 2, 2016

7:30 a.m. – 12:30 p.m. Registration (*Palace Lounge*)

8:00 – 9:00 a.m. Plenary Session (*Tapa Ballroom 1*)

9:00 – 9:30 a.m. Morning Networking Break
(*Palace Lounge*)

9:30 – 11:00 a.m. Technical Session 8

11:15 – 12:30 p.m. Closing Plenary Session
(*Tapa Ballroom 1*)

1:30 – 5:00 p.m. Technical Tours

1:30 – 5:00 p.m. Social Tours on Own

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WELCOME TO CECAR7 AND HAWAII

Aloha!

On behalf of the American Society of Civil Engineers (ASCE) and the Asian Civil Engineering Coordinating Council (ACECC), I would like to welcome all of you to the beautiful island of Oahu, Hawaii and the 7th Civil Engineering Conference in the Asian Region (CECAR 7).

Civil engineers throughout the world regularly face challenges in building infrastructure in our quest for sustainable solutions to quality of life issues. CECAR 7 will be true to its theme of Ho‘omalalama and will enlighten conference participants and others on strides made in sustainable civil engineering infrastructure applicable to the Asia Pacific Region. As a participant in this conference, you will participate in knowledge dissemination in research as well as practice areas.

ACECC could not have selected a better venue with this conference theme. Native Hawaiians have been conducting sustainable practices in water management, food production, and several other areas for centuries before Hawaii became a tourism paradise. Your host, ASCE, is a global leader in the area of sustainable practices in civil engineering infrastructure.

You will have an opportunity to attend presentations on strides made on a wide variety of topics in this area in the US and all other member societies of ACECC. We will learn from each other and apply this knowledge to our jobs and societies when we get back home.

Our conference technical program has approximately 250 papers from more than 30 countries, including concurrent sessions on topics covering natural disasters, infrastructure management, sustainability, environmental & water resources, structural, transportation, and geotechnical engineering. Poster sessions and exhibits are scheduled during the morning and afternoon breaks and the lunch hour on Wednesday and Thursday.

U.S. Congresswoman Tulsi Gabbard will give the welcome keynote address at the opening plenary, and Ms. Annabel Chotzen will give a motivational keynote presentation on “Put Your Dreams To Work” at the closing plenary session. Six technical keynote addresses (two on each day) will be given at plenary sessions by eminent experts in diverse areas of civil engineering from Bangladesh, Korea, Japan, Hong Kong, Taiwan, and the USA.

Prior to the conference opening, you have a choice of 2 technical workshops and a technical field tour on Tuesday. In addition, you can opt to go on one of the other 2 technical field tours on Friday afternoon.

Attendees will have access to tremendous keynote speakers, a multitude of diverse and interesting technical sessions and workshops, technical tours on the island, social and networking events, and the opportunity to interact with your colleagues on an international level. Come and share your knowledge, insights, and experiences with your fellow professionals while having fun networking in a magical setting.

I look forward to seeing and interacting with you at CECAR7 in Hawaii.

Mahalo!

Udai P. Singh,
CECAR7 Conference Chair

CONFERENCE STEERING COMMITTEE



CHAIR
Udai P. Singh
Consultant,
Moraga, CA

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Hawaii Asphalt Paving
Industry, Honolulu, HI



Meggan Maughan-Brown
ASCE, Reston, VA

WHO IS ACECC?

ACECC was established in 1999 with the aim of promoting the acquisition and transfer of civil engineering knowledge for advancing the design and construction practices that ultimately improve the quality of life of all citizens from ACECC member countries. ACECC is currently comprised of member societies from 13 countries (Australia, Bangladesh, India, Indonesia, Japan, S. Korea, Mongolia, Pakistan, Philippines, Nepal, Taiwan, USA, and Vietnam) and in the near future hopes to add societies from other Asian countries.



TUESDAY, AUGUST 30, 2016

**ENGINEERING ETHICS WORKSHOP:
DISCUSSION OF CASE STUDIES****9:00 a.m. – 12:30 p.m. (Honolulu Suite #1)****Workshop Presenters:** **Steve Starrett**, Ph.D., P.E., D.WRE, F.ASCE, F.EWRI, Associate Professor, Kansas State University; **Dr. Carlos Bertha**, Ph.D., U.S. Air Force Academy

Engineers around the world face engineering ethical dilemmas routinely in their roles as consultants, government representatives, designers, builders, contractors, supervisors, inspectors, and leaders. The goals of this workshop are: to stimulate engineers' commitment to high ethical standards, to discuss some challenging case studies, to increase participants' understanding of how best to pursue solutions in difficult situations, and to enable knowledge to be conveyed between participants. This workshop will study numerous case studies of real situations that engineers faced, present philosophical background needed to better approach solutions to ethical challenges, and provide opportunities for small group discussions. The ASCE Code of Ethics will also be presented and discussed.

This is a ticketed event, tickets may be purchased at the Registration Desk.**Onsite Registration: \$170****NATURAL HAZARDS RISK AND
MANAGEMENT WORKSHOP****1:30 – 5:00 p.m. (Honolulu Suite #1)****Workshop Presenter:** **Vilas Mujumdar**, P.E., S.E., Consulting Engineer, Vienna, VA, USA

This workshop will cover various natural hazards including earthquakes, hurricanes, and floods, as well as their probabilities and impacts on the community as a risk. The workshop will focus on addressing the multi-hazard engineering risk problem from the total community standpoint. It will include engineering systems, and socio-economic systems as components of a combined community system. Interdependence of various systems will be discussed as well as the response and management considerations. Emphasis

will be given on developing *resilience* in the community with specific considerations for the infrastructure systems. Resilience definitions, resilience determinants, and resilience development, including capacity building, will also be covered. The workshop is designed to challenge the engineering community to think about natural hazard risk reduction through a prism of developing *community resilience* based on complex systems nature.

This is a ticketed event, tickets may be purchased at the Registration Desk.**Onsite Registration: \$170****TECHNICAL TOURS****T3: HONOLULU RAIL TRANSIT PROJECT TOUR****1:30 – 5:00 p.m.****Presented by:** HART

The Honolulu Authority for Rapid Transportation (HART) is constructing what will ultimately be a 20-mile, \$5.2 billion elevated transit system. This tour will follow construction of much of the initial segment from Kapolei to Aloha Stadium, set to open in 2018. The tour will culminate in an in depth briefing on the project at the Maintenance and Storage Facility and will include a short tour of that facility. The tour will depart from Hilton Hawaiian Village promptly at 1:30 PM and return to the hotel around 5:00 PM.

Required dress code: Attendees must wear fully closed shoes. Hard hats, if required, will be provided by HART.For more information about the project, see www.honolulutransit.org.

Transportation to the tour site will be provided from the Hilton Hawaiian Village. Bus will depart promptly at 1:30 p.m. from the Tapa Tower pick up/drop off located on Kalia Road.

This is a ticketed event, tickets may be purchased at the Registration Desk.**Onsite Registration: \$50**THIS TOUR
SPONSORED BY:

WEDNESDAY, AUGUST 31, 2016



Opening Plenary Welcome Address

U.S. Congresswoman Tulsi Gabbard

Rep. Tulsi Gabbard represents Hawaii's

2nd Congressional District in the United States House of Representatives. She is serving on the Armed Services Committee and its Subcommittee on Sea Power & Protection Powers and Subcommittee on Oversight & Investigations. Congresswoman Tulsi Gabbard also serves on the Committee on Foreign Affairs and its Subcommittee on Asia and the Pacific. She is one of the first two female combat veterans, first Hindu, and first female of Samoan ancestry to ever serve as a member of the U.S. Congress.



Plenary Session Keynote Address

Dr. Sung Woo Lee, President of KSCE, S. Korea

"Innovative

Applications of Fiber Composites and Large-scale 3D Printer on Civil Structures"

During his career, Dr. Sung Woo Lee has served as the Dean of College of Engineering, and more recently the President of Kookmin University from 2008 to 2012. His primary focus of research has been structural analysis, experiments and maintenance of bridge and port structures. In more recent years, Dr. Lee's research turned to fiber reinforced composite bridge structures, an area in which his expertise is now internationally recognized.

Currently, Dr. Lee also has interest on the development of large-scale 3D printer and its application to civil structures. Dr. Lee is currently serving as the president of the Korean Society of Civil Engineers (KSCE) and he is a member of the National Academy of Engineering of Korea (NAEK). He is also a member of the American Society of Civil Engineers (ASCE).

OPENING PLENARY SESSION

8:00 – 10:00 a.m. (*Tapa Ballroom - Salon 1*)

Poster Session #1 and Networking Break in Exhibit Hall

10:00 – 10:45 a.m. (*Palace Lounge*)

TECHNICAL SESSION 1

10:45 a.m. – 12:45 p.m.

Poster Session #1 Continued and Lunch

12:45 – 1:45 p.m. (*Tapa Ballroom - Salon 2*)

TECHNICAL SESSION 2

1:45 – 3:15 p.m.

Poster Session #1 and Networking Break in Exhibit Hall

3:15 – 4:00 p.m. (*Palace Lounge*)

TECHNICAL SESSION 3

4:00 – 5:30 p.m.



Plenary Session Keynote Address

Prof. Dr. Munaz Ahmed Noor, Vice Chancellor, Islamic University of Technology

"Bangladesh Towards a Sustainable Flood Management and Resilience Future"

Prof. Dr. Munaz Ahmed Noor joined Islamic University of Technology (IUT) as Vice-Chancellor on April 1, 2016; Prior to joining he was the Pro-Vice-Chancellor of the National University. He is a Professor of the Civil Engineering Department at Bangladesh University of Engineering and Technology (BUET). He received his BS degree in Civil Engineering and M. Sc. degree in Structural Engineering from Bangladesh University of Engineering and Technology (BUET), Dhaka. He was awarded the University Gold Medal for best academic performance for both of the degrees. He was also awarded the Presidential Gold Medal for standing first in combined merit list in HSC. He was then awarded a scholarship by Asian Development Bank and received his PhD in Civil Engineering from University to Tokyo, Japan in 2000.

His main research interests are in concrete technology, urban safety, climate change, earthquake engineering and disaster risk management. He contributed to and conducted many seminars and short courses on Earthquake Engineering and concrete technology in Bangladesh. He contributed a chapter to the book titled "Climate Change and Growth in Asia", by Edward Elgar Publishing. He edited "Earthquake Resistant Design Manual" on behalf of Bangladesh Earthquake Society where he was elected Vice President. He is the author of the popular book "Designing with Grade 500 Steel" published from UPL. He is the editor of the monthly magazine "Beyond Building". He is also the author of many national and international journal and conference papers.

THURSDAY, SEPTEMBER 1, 2016



Plenary Session Keynote Address

Professor Masahiko Isobe, President, Kochi University of Technology

“2011 Great East Japan Earthquake Tsunami and Future Nankai Trough Earthquake Tsunami - Experience and Preparation”

Masahiko Isobe graduated from the Department of Civil Engineering at the The University of Tokyo in 1975 and obtained a Doctorate of Engineering degree from the same university in 1981.

He played a key role in reestablishing a system of prevention and reduction of disasters due to tsunamis after the Great East Japan Earthquake in 2011.

Professor Isobe will introduce the lessons learned from the Great East Japan Earthquake Tsunami and the concept and process of recovery to date. He will also share how experience will help prepare for Nankai Earthquake Tsunami which is expected to occur in 30 years.



Plenary Session Keynote Address

Dr. John L. Endicott, AECOM Fellow, Hong Kong

“Regionally Based Systematic Approach to Stabilization Of Slopes and Current Methods Of Evaluation of Slope Stability”

Dr. Endicott is an AECOM Fellow in recognition for his expertise when working in ground engineering for over 40 years. Since 1975 he has been located in Hong Kong and working around South East Asia where he is well known for all aspects of geotechnical engineering. He has worked on several contracts for Government from establishing regulations, for developing a register of over 55,000 man-made slopes and retaining walls, quantified risk assessment, as well as regional studies of natural hillslopes and slope stabilization measures. Dr. Endicott’s experience is broadly based. It includes involvement with many underground railway projects, many road tunnels and water tunnels, deep foundations, reclamation to form new land including the nearly 3,000 acre site for the Hong Kong Airport. His responsibilities extend throughout the S.E.Asia and Pacific Region. He has been an Expert Witness in several high profile cases. This lecture will describe the steps taken in Hong Kong in conducting a systematic approach to landslip mitigation that resulted in reducing the annualized fatalities to less than one, and some of the current techniques for evaluation of stability of natural terrain and potential for debris flow.

PLENARY SESSION

8:00 – 9:00 a.m.

(Tapa Ballroom - Salon 1)

TECHNICAL SESSION 4

9:00 – 10:30 a.m.

Poster Session #2 and Networking Break in Exhibit Hall

10:30 – 11:15 ta.m.

(Palace Lounge)

TECHNICAL SESSION 5

11:15 a.m. – 12:45 p.m.

Poster Session #2 (Continued) and Lunch

12:45 – 1:45 p.m.

(Tapa Ballroom Salon 2)

TECHNICAL SESSION 6

1:45 – 3:15 p.m.

Poster Session #2 (Continued) and Networking Break

3:15 – 4:00 p.m. *(Palace Lounge)*

TECHNICAL SESSION 7

4:00 – 5:30 p.m.



THURSDAY, SEPTEMBER 1, 2016

AWARDS DINNER

6:30 – 9:00 p.m.*(Hilton Hawaiian Village - Great Lawn)*

Join the leaders of ACECC in celebrating the achievements of the night's honorees as they present the following awards.

The ACECC Civil Engineering Award shall be granted to a project that contributed a remarkable advancement of civil engineering and development in Asia, honoring and recognizing the efforts made by all those engineers who worked for the project.

The award ceremony will take place under the stars on the scenic Great Lawn of the Hilton Hawaiian Village. Enjoy the breathtaking view and warm summer breezes from the Duke Kahanamoku Lagoon. Guests will be treated to a performance of traditional Hawaiian music, fire dancing and the beautiful Hula dance. This is an evening not to be missed!

Advance ticket purchase was required for this event. We apologize, onsite ticket purchase is not available for this event.



2016 ACECC ACHIEVEMENT AWARDS

Dr. Yukihiro Sumiyoshi

Counselor, Japan Bridge Bearing Assoc., Ex-Chair, Central Consultant Inc., Japan

Dr. Tai Sik Lee

President, Korea Institute of Civil Engineering and Building Technology – KICT, South Korea

Dr. Za-Chieh Moh

Chairman and CEO, MAA Group Consulting Engineers, Taiwan

OUTSTANDING PROJECT AWARD

Yi Sun-sin Bridge

Daelim Industrial Co., Ltd., South Korea

PROJECT AWARDS

The Construction of Yamate Tunnel on the Central Circular Route

Metropolitan Expressway Co., Ltd., Japan

National Freeway No. 1 Widening Project from Wugu to Yangmei

Taiwan Area National Expressway Engineering Bureau, Taiwan

Development of North Kalibaru Container Terminal Phase I Port of Tanjung Priok

New Priok Port Project Phase I PR. PP (Persero) Tbk., Indonesia

Lai Chau Hydropower Project

Electricity of Vietnam, Vietnam

FRIDAY, SEPTEMBER 2, 2016



**Plenary Session
Keynote Address**

**Professor Liang-Jenq
Leu, National Tawaiwan
University**

**“Educating The Future
Civil Engineers For A Sustainable
World: An Integration Of Cornerstone,
Keystone, And Capstone Courses On
Engineering Design At The National
Taiwan University”**

Dr. Liang-Jenq Leu is Professor and Chairman of the Department of Civil Engineering at the National Taiwan University. Dr. Leu earned his Bachelor and Master’s degrees from the Department of Civil Engineering of National Taiwan University in 1987 and 1989, respectively. He joined the faculty of National Taiwan University shortly after receiving his PhD from Cornell University in 1994. His area of research includes optimal design of structures, structural health monitoring, earthquake resistant design, and simulation of architectural physics for green buildings.



**Plenary Session
Keynote Address**

**Mr. Edwin H. Sniffen,
P.E., Deputy Director,
Hawaii Department Of
Transportation**

**“Transportation Engineering
Challenges And Solutions, With A
Focus On Highways In Hawaii”**

Mr. Sniffen oversees improvements and maintenance of approximately 2,500 lane miles of state highways across the Hawaiian islands. Mr. Sniffen is a Professional Civil Engineer and received his B.S. in Civil Engineering from Santa Clara University.

PLENARY SESSION

8:00 – 9:30 a.m. *(Tapa Ballroom - Salon 1)*

Networking Break

9:00 – 9:30 a.m. *(Palace Lounge)*

TECHNICAL SESSION 8

9:30 – 11:00 a.m.

CLOSING PLENARY SESSION

11:15 – 12:00 p.m.

CLOSING CEREMONY

12:00 – 12:30 p.m.



**Closing Plenary
Keynote Address**

Annabel Chotzen

**“Put Your Dreams
To Work”**

In this life-changing motivational presentation, Annabel will take you on a journey of achieving your most heart-felt goals and dreams. Annabel’s powerful true-life stories are interwoven in a tapestry of success principles, and the Hawaiian spiritual concepts help you visualize, energize, and reach for what you want most in your life.

Annabel has a Master’s degree from Harvard University and a Bachelor’s degree from Bennington College. Annabel has been an Adjunct Professor of Business Communications, Public Speaking and Professional Development at the University of Hawaii, Hawaii Pacific University, and Chaminade University. She loves living in Hawaii, swimming in the ocean, and playing cello with the Oahu Civic Orchestra.

FRIDAY, SEPTEMBER 2, 2016

TECHNICAL TOURS

T4: HAWAIIAN AQUAPONIC FARM TOUR

1:30 – 5:00 p.m.

Presented by: Kunia Country Farms



Imagine growing food without relying on the soil, or adding water, or even using power. Welcome to the world of aquaponics - a cross between aquaculture

(raising fish) and hydroponics (water-based farming). Located at the historic Kunia Camp, Kunia Country Farms provides locally grown produce without utilizing the island's natural resources. Fish in large tanks provide the nutrients necessary for crops to mature. The long rows of plant roots absorb the nutrients and clean water is returned to the fish, beginning the process over again. Started 5 years ago, the farm is one of the island's largest suppliers of leafy green vegetables.

Continue your tour next door at Oahu's first tasting room and distillery, Manulele Distillers. Heirloom sugarcanes originally brought to the islands by the early Polynesians are hand crafted into one of the world's finest pure cane rums. Learn about the history behind the sugar canes, the fermentation process, distilling, and barreling before ending the tour in the tasting room. For those not of drinking age, step up to the juice bar and sample the differences in flavor of individual varieties of sugar cane.

The tour will last approximately two hours. Visit www.kuniacountryfarms.com and www.kohanarum.com for more information.

Required dress code: Dress code is casual and comfortable – shorts and t-shirts acceptable. Covered shoes required (Comfortable walking shoes are suggested) – NO slippers, sandals, open-toed shoes, or high heels. Depending on weather conditions – rain jacket, poncho, or umbrella may be necessary. Sunscreen is recommended.

Transportation to the tour site will be provided from the Hilton Hawaiian Village. Bus will depart promptly at 1:30 p.m. from the Tapa Tower pick up/drop off located on Kalia Road.

This is a ticketed event, purchase tickets at the registration desk.

Onsite Registration: \$75

T6: NU'UANU WATERSHED TOUR

1:30 – 5:00 p.m.

Presented by: Honolulu Board of Water Supply

Experience the outdoors and learn the important role watershed areas play in our island's water cycle. Set sights on panoramic valley views, wind borne clouds that move across mountaintops, and forests that reach toward the skies. Nu'uuanu Reservoir #4 is a historic site that holds a rich heritage of ancient Hawaiian legends. Since this is a walking tour, participants should wear appropriate shoes and feel comfortable walking up to two miles.

- Learn how the water cycle is related to weather and climate
- Learn about the events (including warfare and land control), people (including Kamehameha, Kekuhaupio, Kalaniopuu, Kiwalao, Keoua, Keawemauhili, Kahekili, Kalanikupule, Davies, and Young), and ideas (including foreign advisors, weaponry, and strategies) that led to the unification of the Hawaiian Islands
- Discover why recycling and conservation of resources are important

Transportation to the tour site will be provided from the Hilton Hawaiian Village.

Required dress code: Dress code is casual and comfortable – shorts and t-shirts acceptable. Covered shoes required (Comfortable walking shoes are suggested.) – NO slippers, sandals, open-toed shoes or high heels. Depending on weather conditions – rain jacket, poncho or umbrella may be necessary. Insect repellent and sunscreen recommended.

Transportation to the tour site will be provided from the Hilton Hawaiian Village. Bus will depart promptly at 1:30 p.m. from the Tapa Tower pick up/drop off located on Kalia Road.



This is a ticketed event, purchase tickets at the registration desk.

Onsite Registration: \$50

All attendees will be required to sign a liability waiver form prior to attending the tour.

MONDAY, AUGUST 29

12:30 - 4:00 p.m.	REGISTRATION - Palace Lounge
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TUESDAY, AUGUST 30

8:00 a.m. - 5:00 p.m.	REGISTRATION - Palace Lounge
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9:00 a.m. - 12:30 p.m.	Pre-conference Workshop: Engineering Ethics Workshop: Discussion of Case Studies Honolulu Suite #1
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1:30 - 5:00 p.m.	Pre-conference Workshop: Natural Hazards Risk and Management - Honolulu Suite #1
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1:30 - 5:00 p.m.	TECHNICAL TOURS
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Technical Tour 3 Honolulu Railway Tour	
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WEDNESDAY, AUGUST 31

7:00 a.m. - 5:30 p.m.	REGISTRATION - Palace Lounge
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8:00 - 10:00 a.m.	OPENING PLENARY SESSION - Tapa Ballroom- Salon 1 Opening Plenary Session - Chair: Udai P. Singh (ASCE) Welcome Address – U.S. Congresswoman Tulsi Gabbard (Hawaii, USA) Kyoto Declaration - Yumio Ishii (JSCE) Innovative Applications of Fiber Composites and Large-scale 3D Printer on Civil Structures - Sung Woo Lee, Kookmin University, Seoul, Korea Bangladesh Towards a Sustainable Flood Management and Resilience Future - Munaz Ahmed Noor, Islamic University of Technology, Boardbazar, Gazipur, Bangladesh Remarks by Presidents of ACECC Member Societies
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10:00 - 10:45 a.m.	POSTER SESSION #1 & NETWORKING BREAK - Palace Lounge
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10:45 a.m. - 12:45 p.m. TECHNICAL SESSION 1					
TRACK A: Environmental & Water Resources, Honolulu Suite 1	TRACK B: Transportation, Honolulu Suite 2	TRACK C: Infrastructure Management, Honolulu Suite 3	TRACK D: Natural Disaster, Iolani Suite 3&4	TRACK E: Geotechnical, Iolani Suite 6&7	TRACK F: Structural, Tapa Ballroom 1
Session 1A: Environmental Health and Water Quality Moderator: Craig Patterson (ASCE)	Session 1B: Pavement Rehabilitation and Life Cycle Assessment Moderator: Anthony Bartolomeo (ASCE)	Session 1C: BIM and Beyond Moderator: Sang-ho Lee (KSCE)	Session 1D: Tsunami Disaster Mitigation Moderator: Mitsu Okamura (JSCE)	Session 1E: Ground Improvement Moderator: Chiwan Hsieh (CICHE)	Session 1F: Structural Analysis and Design Moderator: Douglas Sereno (ASCE)
<p>Sustainable Provision of Water and Sanitation Services in a Resource Constrained Environment - Neil Macleod, Susan Mercer and Chris Buckley (University of KwaZulu-Natal, Durban, South Africa)</p> <p>Hydrologic and Hydraulic Evaluation of a West Maui Watershed and Its Sediment Retention Basin with Potential Retrofits to Reduce Nearshore Pollution During Storm Events - Roger W. Babcock, Jr. (University of Hawaii at Manoa, Hawaii, U.S.A.), Kim Falinski, Jeffrey Nielsen and Yanling Li</p> <p>Environmental Impacts of Ballast Water Transfer for Maritime Freight Transport - Claudia Gunsch (Duke University, Durham, North Carolina, U.S.A.) and William Gerhard</p> <p>DEWATS as a Modular and Scalable Solution for Domestic Wastewater Treatment - Chris Buckley (University of KwaZulu-Natal, Durban, South Africa) and Björn Pietruschka</p> <p>Novel Low-cost Remediation Technologies for Metal Contaminated Agricultural Soils in China - Barbara A. Zeeb, David S. Carnegie, Steven V. Rose (MALROZ Engineering Inc., Kingston, Ontario, Canada) and He Chen</p> <p>Nickel and Manganese Ferrite Cored Dendrimers for Adsorption of Heavy Metal Ions - Hyun-Kyung Kim, Hye-Ran Kim and Jae-Woo Park (Hanyang University, Seoul, South Korea)</p>	<p>Solutions for Urban Traffic Issues by ITS Technologies - Hiroshi Makino, (Ministry of Land, Infrastructure, Transport and Tourism, Tsukuba City, Ibaraki, Japan), Koichi Sakai, Takahiro Tsukiji, Shunsuke Kamijo, Tomoaki Mizutani and Kazuya Tamada</p> <p>Optimal Policies for Pavement Maintenance, Resurfacing and Reconstruction - Jinwoo Lee (New York University Abu Dhabi, Abu Dhabi, United Arab Emirates) and Samer Madana</p> <p>Development of Pavement Life Cycle Analysis Using Regional Data - Hasan Ozer, Seung Gu, Rebekha Yang and Mojtaba Ziyadi</p> <p>Network Level Example Case Study: Optimization of Roughness for Greenhouse Gas Emissions - John Harvey</p> <p>Multidimensional Evaluation of Mutual-Dependent Deterioration Processes - Kiyoshi Kobayashi, Kiyoyuki Kaito and Daijiro Mizutani</p>	<p>Current Status of Civil Construction Information Modeling (CIM) Initiative and Projects in Japan - Nobuyoshi Yabuki (Osaka University, Osaka, Japan)</p> <p>Implementation of BIM for Bridge Design - A Case Study - Yi-Min Chen (Sinotech Engineering Consultants, Ltd., Taipei, Taiwan), Chih-Wen Chen and Shang-Hsien Hsieh (National Taiwan University, Taipei, Taiwan)</p> <p>Development of a Visualization 3D Management Platform in Construction - Fu-Cih Siao, Chih-Chuan Lin (CECI Engineering Consultants Inc., Taipei, Taiwan), Wan-Li Lee, Hsiang-Wai Lu and Jui-Yu Su</p> <p>Advances of Real-time Simulation, Remote Sensing, and Geo-informatics in Assessing Tsunami Impact - Shunichi Koshimura (Tohoku University, Sendai, Japan)</p> <p>Developing a GIS-based Tool for Evaluating Adaptation Strategies for Highway and Rail Facilities in Taiwan - Yan-Hung Chou (THI Consultants, Inc., Taipei, Taiwan), Amy Yi-chin Hu (THI Consultants, Inc., Taipei, Taiwan), Yi-Fai Chen and Chiung-Wen Chang</p>	<p>Tsunami Source of the 2014 Iquique, Chile, Earthquake and the Tsunami Potential on the North Chilean Coast - Yoshihiro Okumura (Kyoto University, Kyoto, Japan), Tomoyuki Takahashi (Port and Airport Research Institute, Yokosuka, Kanagawa, Japan) and Tomohiro Takagawa</p> <p>Factors Affecting Tsunami-induced Overturning of Building in the 2011 Great Tohoku Earthquake - Michitaka Ishida, Kohji Tokimatsu (Tokyo Institute of Technology, Tokyo, Japan) and Shusaku Inoue (Takenaka Corporation, Osaka, Japan)</p> <p>Effects of Partial Breaching in Coastal Defense Lines on Tsunami Inundation - Takashi Tomita and Yu Chida (Port and Airport Research Institute, Yokosuka, Kanagawa, Japan)</p> <p>Study on Estimation of Run-up Tsunami Force Acting on a Vertical Wall Structure - Yukinobu Oda (Taisei Corporation, Yokohama, Japan), Takahide Honda, Kazunori Ito and Tomoyuki Takabatake</p> <p>Detailed Design of Tsunami Shelter - Takahiro Kukidome (Oriental Consultants Co., Ltd., Tokyo, Japan), Shogo Otake (Oriental Consultants Co., Ltd., Tokyo, Japan), Tsutomu Takane, Takeshi Utsunomiya and Shuji Onami</p> <p>Structure Format Selection for Shelter-type Tsunami Evacuation Facilities - Shogo Otake (Oriental Consultants Co., Ltd., Tokyo, Japan), Takahiro Kukidome (Oriental Consultants Co., Ltd., Tokyo, Japan) and Kazuhiro Hattori</p>	<p>Nanoparticle-coated Surface to Capture Migrating Fine Particles - Xianglei Zheng and Jaewon Jang (Arizona State University, Tempe, Arizona, U.S.A.)</p> <p>The Effectiveness of Shear Strength Prediction Models for Fiber-Reinforced Clay - Assile Abou Diab (American University of Beirut, Beirut, Lebanon), Shadi Najjar (American University of Beirut, Beirut, Lebanon) and Salah Sadek</p> <p>Development of Low CO₂ Emission Soil Improvement Using High-Slag Cement - Takao Kono (Takenaka Corporation, Inzai, Chiba, Japan), Masamichi Aoki and Toshio Yonezawa</p> <p>Development of New Vertical Drain for Ground Improvement - Seok-Won Lee (Konkuk University, Seoul, South Korea), Chang-Kun Ahn and Seong-Moo Her</p> <p>Experimental Study and Numerical Simulation of Electro-Osmotic Consolidation for Soft Soil Improvement - Liming Hu (Tsinghua University, Beijing, China), Hui Wu, Weiling Wu and Qingbo Wen</p> <p>Geotechnical Properties of Bamboo Chips-Soil Mixtures - Hiroaki Shigematsu (National Institute of Technology, Tsubata, Ishikawa, Japan), Yudai Sakiura and Yoshimi Tanida</p>	<p>Experimental Study on Highly-Flowable Strain Hardening Fiber Reinforced Concrete Columns Subjected to Lateral Cyclic and High Axial Loading - Wen-Cheng Liao (National Taiwan University, Taipei, Taiwan) and Li-Wei Tseng</p> <p>Evaluation of Strengthening Effect on RC Beams by CFRP Grid with PCM Shotcrete Method - Rui Guo (Shanghai University, Fukuoka, Japan), Shinichi Hino, Shigetada Hatakeyama, Atsuya Komori (Nippon Steel & Sumikin Materials Co. Ltd., Tokyo, Japan) and Kenchi Taniguchi</p> <p>A Study on Bonding Mechanisms of Epoxy Adhesive and PCM of the Strengthening Method for RC slabs - Atsuya Komori (Nippon steel and Sumikin materials Co., Ltd., Tokyo, Japan), Akira Kobayashi and Tadashi Abe</p> <p>Examinations on the Load-carrying Capacity of RC Beams that have Undergone Combined Deterioration from Fatigue and Frost Damage - Hiroshi Hayashida (Civil Engineering Research Institute for Cold Region, Sapporo, Hokkaido, Japan), Yasuhiko Sato and Tamon Ueda</p> <p>Flexural Capacity of the Precast RC Beams-column Connection Using CFRP Sheet - Rudy Djamaluddin (Hasanuddin University, Makassar Indonesia), Harmonis Rante and Rita Irmawati</p>

WEDNESDAY, AUGUST 31 (continued)

12:45 - 1:45 p.m.

POSTER SESSION #1 (Continued) Palace Lounge & LUNCH - Tapa Ballroom - Salon 2

1:45 - 3:15 p.m.

TECHNICAL SESSION 2

TRACK A: Environmental & Water Resources, Honolulu Suite 1	TRACK B: Transportation, Honolulu Suite 2	TRACK C: Geotechnical, Honolulu Suite 3	TRACK D: Sustainability, Iolani Suite 3&4	TRACK E: Structural, Iolani Suite 6&7
2A: Innovative Technologies in Water Resources Moderator: Steve V. Rose (Canada)	2B: Rail Transit Projects in Honolulu, Japan and Thailand Moderator: David G. Leverenz (ASCE)	2C: Geohazards Moderator: Yanrong Li (China)	2D: Energy Efficient Solutions for Sustainable Facilities Moderator: Luh-Maan Chang (CICHE)	2E: Bridge Design Moderator: Iswandi Imran (HAKI)
<p>Evaluation of Household Water Treatment Devices for Removal of Waterborne Pathogens from Drinking Water - Rajib Sinha (CB&I Federal Services, Cincinnati, Ohio, U.S.A.), Craig Patterson, Skand Saksena, Richa Pugalia, John Lee Heckman, Prakhara Gupta and Alpana Divekar</p> <p>Peracetic Acid as a Green Disinfectant for Combined Sewer Overflows - Craig Patterson (U.S. EPA, Cincinnati, Ohio, U.S.A.), Bob Freeborn, John Maziuk, Daniel J. Murray, Vasudevan Namboodiri, Donald A. Schupp and Bruce Smith</p> <p>Evaluation of an Innovative Approach to Validation of Ultraviolet (UV) Reactors for Disinfection in Drinking Water Systems - Jeffrey Adams (U.S. EPA, Cincinnati, Ohio, U.S.A.)</p> <p>Rainwater Harvesting Techniques - Historical, Regional and Scales of Applications - Emmanuel Nzewi (Prairie View A&M University, Prairie View, Texas, U.S.A.)</p> <p>Research Regarding Method for Generating Current Cross-Sectional Data Using Airborne Laser and Past Periodic Cross-Sectional Survey Data in River - Shigenori Tanaka, Ryuichi Imai, Kenji Nakamura, Satoshi Kubota, Yoshimasa Umehara</p>	<p>Building the First Driverless Metro System in the United States - Ryan Tam and Justin Garrod (Honolulu Authority on Rapid Transit, Honolulu, Hawaii, U.S.A.)</p> <p>Integrating Transit Mobility and Sustainable Community Development into Hawaii's Future - Ryan Tam (Honolulu Authority on Rapid Transit, Honolulu, Hawaii, U.S.A.) and Justin Garrod</p> <p>Current Status of TC12 (Railway Technology Renewal and Expansion in Asian Region) - Jun Izawa (Japan)</p> <p>Current Status of Railway Infrastructures in Thailand - Nakorn Chantasorn (Thailand)</p> <p>Assessing the Stabilizing Mechanisms of Unbound Road Pavements - Dilan Robert (RMIT University, Melbourne, Australia), Rintu Renjith, Sujeeva Setunge, Brian O'Donnell, Dilshan Hewawasamge and Ernst Tan</p> <p>Asian Railway Technical Forum - Toru Miyauchi (Japan)</p>	<p>Study on the Mechanisms of Debris Flows That Damaged Flexible Barriers in the Channel of Fraser Hill, Malaysia - Senro Kuraoka (Nippon Koei Co., Ltd., Tsukuba-shi, Ibaraki, Japan), Lim Tien Sze, Che Hassandi Abdullah, Suhaimi Jamaludin, Mohamad Nazri and Norhidayu Binti Kasim</p> <p>Study on the Utilization of Fault Tree for Preventative Maintenance of Reinforced Soil Walls - Hiroaki Miyatake (Public Works Research Institute, Tsukuba, Japan) and Tomohiro Fujita</p> <p>Appropriate Schemes for Assessment of Debris Flow Spreading Based on an Empirical Approach and Case Studies in Gyeonggi Province, Korea - Sinhang Kang (Korea Advanced Institute of Science and Technology, Daedeok Innopolis, Daejeon, South Korea), Seung-Rae Lee, Joon-Young Park and Deukhwan Lee</p> <p>Shaking Table Tests of Liquefaction in Sand-Clay Layered Ground and the Effects of the Ground Compaction Methods - Takaaki Kobayashi (Port and Airport Research Institute, Yokosuka, Kanagawa, Japan), Shinji Sassa, Keita Watanabe and Hiroyuki Yamazaki</p>	<p>A Practical Assessment Model for Sustainable Transportation - Panos Prevedouras (University of Hawaii at Manoa, Honolulu, Hawaii, U.S.A.) and Lambros K. Mitropoulos</p> <p>A Statistical Model on the Performance of Fly Ash-Based Geopolymer Concrete - Yanping Li, Lin Shen (University of Hawaii at Manoa, Honolulu, Hawaii, U.S.A.), Li Ai and Reza Mirmoghtadaei</p> <p>Micro Generation and Customer Side Smart Grid Infrastructures - Thomas M. Korman (California Polytechnic State University, San Luis Obispo, California, U.S.A.)</p> <p>Compost Waste Heat/Solar Tower Prototype Test Facility for a Sustainable Infrastructure - Kevin R. Anderson (Cal Poly Pomona, California, U.S.A.), Yasser Salem, Souha Jouhar, Saman Bahrani, Kaian Wang, Ali Sharbat, Maryam Shafahi and Reza Baghaei Lakeh</p>	<p>Numerical Simulation of a Multi-span Extradosed Cable-stayed Bridge Employing Cable-Sliding Aseismic Friction Bearing for Seismic Protection - Shengze Tian (Tongji University, Shanghai, China), Wancheng Yuan (Tongji University, Shanghai, China), Haolin Yang and Han Li</p> <p>Experimental Investigation on Seismic Response of Bridges Considering Scour Effect - Yu Shang (Tongji University, Shanghai, China), Yan Xu (Tongji University, Shanghai, China), Aijun Ye (Tongji University, Shanghai, China) and Alice Alipour</p> <p>Simple Bridge-Weigh-In-Motion Using Transverse Stiffeners - Eiki Yamaguchi (Kyushu Institute of Technology, Tobata, Kitakyushu, Japan), Masayoshi Kibe and Kazuki Yamamoto</p>

3:15 - 4:00 p.m.

POSTER SESSION #1 (Continued) & NETWORKING BREAK - Palace Lounge

WEDNESDAY, AUGUST 31 *(continued)*

4:00 - 5:30 p.m. TECHNICAL SESSION 3				
TRACK A: Environmental & Water Resources, Honolulu Suite 1	TRACK B: Structural, Honolulu Suite 2	TRACK C: Infrastructure Management, Honolulu Suite 3	TRACK D: Geotechnical, Iolani Suite 3&4	TRACK E: Natural Disaster, Iolani Suite 6&7
3A: Challenges in Water Management Moderator: Ashok Pandit (ASCE)	3B: Corrosion of Structural Elements Moderator: Eiki Yamaguchi (JSCE)	3C: Towards the Reduction of Infrastructure Lifecycle Cost Moderator: Thomas W. Smith, III (ASCE)	3D: Foundations Moderator: Ernesto S. De Castro (PICE)	3E: Performance-Based Engineering for Natural Hazards Moderator: Kuniyoshi Takeuchi (JSCE)
<p>Estimation of Carbon Budget and Storage in an Artificial Salt Marsh Constructed in Urban Coastal Area - Toru Endo (Osaka City University, Osaka, Japan), Yusuke Nakano and Noriaki Ikada</p> <p>Planning and Engineering of Coastal Flooding Mitigation Works of an Airport Runway in a Storm-tracked Island - Eric C. Cruz and Edgardo P. Kasilag, II (AMH Philippines Inc., Quezon City, the Philippines)</p> <p>Towards a Comprehensive Design of Nature-oriented River Structures - Kohji Michioku (Hosei University, Tokyo, Japan)</p> <p>Can River Restoration Projects Make Community and Professionals Sustainable? - A Case Study of a Small Urban River Restoration in Japan - Yoh Sasaki (Waseda University, Tokyo, Japan)</p> <p>A Study on the Changes of Return Period for the Nonstationary GEV Model - Hyunjun Ahn (Yonsei University, Seoul, South Korea), Jun-Haeng Heo, Sunghun Kim and Kyungwon Joo</p>	<p>Prediction of Cover Crack Propagation on Corroded RC Members - Aris Aryanto (Institut Teknologi Bandung, Bandung, Indonesia) and Yasuji Shinohara</p> <p>A Study on Fatigue Durability of RC Slab with Metal-Grid Instead of Steel Re-bar - Tadashi Abe, Kazuhiko Minakuchi (Nihon University, Narasino-shi, Chiba, Japan), Ming-Chien Hsu and Keisuke Shiota</p> <p>The Influence of Fly Ash on Bond Strength Property between Corroded Reinforcement Steel Bars and Concrete - Masayuki Tsukagoshi (Tokushima University, Tokushima City, Tokushima, Japan), Yasuji Shinohara, Hiroki Sugi and Takao Ueda</p> <p>Effect of Uniform Corrosion on Tensile Load-Carrying Capacities of Steel Specimens - Parham Memarzadeh (Islamic Azad University, Najafabad, Isfahan, Iran)</p> <p>Optimization of FRP Strengthening Technique for Concrete Structures - M. Umair Saleem (King Faisal University, Al-ahsa, Saudi Arabia), Muhammad Nasir Amin and Nauman Khurram</p>	<p>ASCE Grand Challenge and the Role of Innovation in Reducing Lifecycle Infrastructure Costs - Anthony Bartolomeo (Pennoni, Philadelphia, Pennsylvania, U.S.A.)</p> <p>Evaluating Alternative Pavement Materials - Saeed Dhafer Alqadhi (Purdue University, West Lafayette, Indiana, U.S.A.), Tariq Usman Saeed (Purdue University, West Lafayette, Indiana, U.S.A.) and Samuel Labi</p> <p>Targeted Hits for Modal Parameter Estimation and Rating - John DeVitis, David Masceri, Nicolas Romano, John Braley, Emin Aktan and Franklin L. Moon (Rutgers, The State University of New Jersey, Piscataway, New Jersey, U.S.A.)</p> <p>ICT Innovations for Reducing Infrastructure Lifecycle Cost - H. Sohn (Korea Advanced Institute of Science and Technology, Daedeok Innopolis, Daejeon, South Korea), Hyung Jin Lim, Ji-Min Kim, Suyoung Yang, Jun Lee and Yongtak Kim</p> <p>Technical Review of Optimal Monitoring Technology for Ground Subsidence Prevention - Byoungil Choi (Korea Infrastructure Safety Corporation, South Korea), Hongkyoon Kim, Eunkeum Kwon, Yongsoo Kim and Wonjoo Park</p>	<p>Experimental Assessment of p-y Curves for Piles in Saturated Medium Dense Sand at Shallow Depths - Xiaowei Wang (Tongji University, Shanghai, China), Aijun Ye and Jianzhong Li</p> <p>Numerical Load Testing of a Geosynthetic Reinforced Soil - Landon H. Kaya (University of Hawaii at Manoa, Honolulu, Hawaii, U.S.A.), Phillip S.K. Ooi, Teruo Nakai, Michael T. Adams, Jennifer E. Nicks and Hossain Md. Shahin</p> <p>Reinforced Foundation Ground in Embankment Site Subjected to Consolidation - Yusaku Isobe, Geoscience Research Laboratory, Co., Ltd, Teruo Nakai, Yusaku Isobe and Hossain M. Shahin</p> <p>Sustainable Design of Pile Load Test Programs Using Reliability-Based Principles - Shadi Najjar (American University of Beirut, Beirut, Lebanon), George Saad and Youmna Abdallah</p>	<p>Comparison of the USA, China and Japan Seismic Design Procedures - Guangren Yu and Gary Y.K. Chock (Martin & Chock, Inc., Honolulu, Hawaii, U.S.A.)</p> <p>Probabilistic Mapping of Storm-induced Coastal Inundation for Climate Change Adaptation - Kwok Fai Cheung (University of Hawaii, Honolulu, Hawaii, U.S.A.), Yoshiaki Yamazaki, Volker Roeber, Ning Li and Gary Y.K. Chock (Martin & Chock, Inc., Honolulu, Hawaii, U.S.A.)</p> <p>Rapid Prediction of Waves, Surge, and Runup for Coastal Storms - Alexandros Taflanidis, Andrew B. Kennedy, Tracy Kijewski-Correa, Joannes Westerink and Kwok-Fai Cheung (University of Hawaii, Honolulu, Hawaii, U.S.A.)</p> <p>A Study on Risk Management for Building Property by Cyclone Risk Using Probabilistic Wind Model - Hiroyuki Watabe (National Defense Academy of Japan, Yokosuka, Kanagawa, Japan), Harumi Yashiro and Sei'ichiro Fukushima</p> <p>The ASCE 7 Tsunami Loads and Effects Design Standard for the U.S. - Gary Y.K. Chock (Martin & Chock, Inc., Honolulu, Hawaii, U.S.A.)</p>

THURSDAY, SEPTEMBER 1

7:30 a.m. - 5:30 p.m.

REGISTRATION - Palace Lounge

8:00 - 9:00 a.m.

PLENARY SESSION - Tapa Ballroom Salon I

Plenary Session - Chair: Albert T. Yeung (ASCE)

2011 Great East Japan Earthquake Tsunami and Future Nankai Trough Earthquake Tsunami - Experience and Preparation
- Masahiko Isobe, President, Kochi University of Technology, Kochi, Japan

Regionally Based Systematic Approach to Stabilization of Slopes and Current Methods of Evaluation of Slope Stability
- John L. Endicott, AECOM Fellow, Hong Kong

9:00 - 10:30 a.m.

TECHNICAL SESSION 4

TRACK A: Environmental & Water Resources, Honolulu Suite 1	TRACK B: Transportation, Honolulu Suite 2	TRACK C: Infrastructure Management, Honolulu Suite 3	TRACK D: Sustainability, Iolani Suite 3&4	TRACK E: Natural Disaster, Iolani Suite 6&7
4A: Challenges in Water Supply Moderator: Claudia Gunsch (ASCE)	4B: Transportation Planning Moderator: Amy Yi-Chin Hu (CICHE)	4C: Outstanding Hawaii Civil Engineering Projects Moderator: Gary Y.K. Chock (ASCE)	4D: Recycled Materials Moderator: Sohail Bashir (IEP)	4E: Transdisciplinary Approach to Build Resilient Society Moderator: Senro Kuraoka (JSCE)
<p>Investigation on Seismic Behavior of Irrigation Dams by Dynamic Centrifuge Model Tests - Sokkheang Sreng (Nippon Koei Co., Ltd., Tsukuba, Japan), Koji Kobayashi, Seiichi Sato (Nippon Koei Co., Ltd., Tokyo, Japan), Hiroyuki Ieda, Yoshiyuki Mohri, Hidekazu Tagashira, Daisuke Watabe and Masahiro Maeda</p> <p>How Can Nationwide Master Plans of Integrated Water Resource Management Contribute to Resolve Water Issues in Developing Countries? - Ishiwatari Mikio (Japan International Cooperation Agency, Tokyo, Japan), Okazaki Yuji and Minoru Miyasaka</p> <p>Application of Stainless Steel Nanotubes for Organic Compounds Removal - Hanuk Lee, Taehyup Oh and Jae-Woo Park (Hanyang University, Seoul, South Korea)</p>	<p>Improvement of Short Term Prediction of Micro-Simulation Through Parameter Adjustment Using Observation of Traffic State - Kuniaki Sasaki (University of Yamanashi, Yamanashi, Japan)</p> <p>A Monte Carlo Simulation-Based Approach for Modeling Stochastic Transportation Demand Forecast - Sungbong Chung and Kihan Song (The Korea Transport Institute, Sejong-si, South Korea)</p> <p>Bicycle-to-Pedestrian Traffic Accidents in Japan - Hideobu Matsumoto (Kobe University, Kobe, Japan) and Koji Domae - 289</p> <p>Analysis of the Future Traffic Demand Forecast and Proposed Development Plan in Dili Metropolitan Area, Timor-Leste - Yoshiyuki Tajima (Nippon Koei Co., Ltd., Tokyo, Japan) and Hisanari Ushirooka</p> <p>Road-Toll Pricing from a Socially Optimal Perspective under the Redemption Principle of Japanese Toll Road Debt Financing - Akio Kishi (University of Shizuoka, Shizuoka, Japan)</p>	<p>Volcanic Ash Riverbank Stabilization Supporting Affordable Housing Complex - Kealohi Sandefur (Yogi Kwong Engineers, Honolulu, Hawaii, U.S.A.), James Kwong and Colton Takaesu</p> <p>Honoapi'ilani Highway Realignment, Phase 1A - Brian Lock (Wilson Okamoto Corporation, Honolulu, Hawaii, U.S.A.) and Eric Matsumoto (KSF, Inc., Honolulu, Hawaii, U.S.A.)</p> <p>DOT Hana Highway Route 360 Emergency Repairs - Ryan Okahashi (AECOM, Honolulu, Hawaii, U.S.A.)</p> <p>Trenchless Sewer Reconstruction in Developed Urban Areas: Waimalu Sewer Project - Roy Abe (HDR, Inc., Honolulu, Hawaii, U.S.A.) and Tim Taylor</p>	<p>Clay Bricks Prepared with Sugarcane Bagasse and Rice Husk Ash - A Sustainable Solution - Muhammad A. Saleem (University of Engineering and Technology, Lahore, Pakistan), Syed M.S. Kazmi and Safeer Abbas</p> <p>Low Cost Concrete Bricks Using Marble Slurry as a Raw Material - Manpreet Singh (Birla Institute of Technology and Science, Pilani, India), Anshuman Srivastava (Birla Institute of Technology and Science, Pilani, India) and Pratyaksh Agarwal</p> <p>Bending Capacity Analysis of High-strength Reinforced Concrete Beams Using Geopolymer Fly Ash and Environmentally Friendly Slag as Fine Aggregate Substitution - Teuku Budi Aulia (University of Syiah Kuala, Banda Aceh, Indonesia), Mochammad Afifuddin and Lissa Opirina</p> <p>Waste Iron Slag and Alccofine as a Substitute Material for Fine Aggregate and Cement Used in Concrete - Ashish Kapoor, Sanjay Sharma (National Institute of Technical Teachers' Training and Research, Chennai, India) and Devinder Sharma</p>	<p>Transdisciplinary Approach to Build Resilient Society - Vision, Strategy and Envisaged Activities of TC21 - Kuniyoshi Takeuchi (Public Works Research Institute, Tsukuba, Japan), Romeo S. Momo, Kenichi Tsukahara and Senro Kuraoka</p> <p>Policies and Application of Sciences for Building Resilient Society - Case of Restoration of Tacloban After Devastation Brought by Typhoon Haiyan, 2013 - Romeo S. Momo, Department of Public Works and Highways, Manila, the Phillippines</p> <p>Moving Towards Sustainable and Resilient Smart Water Management - Kyung-Jin Min (K-water Institute, Yuseong-gu, Daejeon, South Korea), Hyosok Chae and Kwangsuop Lim</p> <p>A Complex Framework for Developing Societal Resilience - Vilas Mujumdar (Vienna, Virginia, U.S.A.)</p> <p>Report on Kumamoto Earthquake (14-16 April 2016): Whether SFDRR - Priority 3 (Investing in DRR Resilience) and Priority 4 (Build Back Better) had worked? - Kenichi Tsukahara (Kyushu University, Fukuoka, Japan)</p> <p>Inter-governmental Synergies on DRR with Scientific Support - Shang-Hsien Hsien</p>

THURSDAY, SEPTEMBER 1 (continued)

10:30 - 11:15 a.m.

POSTER SESSION #2 & NETWORKING BREAK - Palace Lounge

11:15 a.m. - 12:45 p.m.

TECHNICAL SESSION 5

TRACK A: Environmental & Water Resources, Honolulu Suite 1	TRACK B: Transportation, Honolulu Suite 2	TRACK C: Infrastructure Management, Honolulu Suite 3	TRACK D: Sustainability, Iolani Suite 3&4	TRACK E: Natural Disaster, Iolani Suite 6&7
<p>5A: Waste Management Moderator: Jae-Woo Park (KSCE)</p>	<p>5B: Rail Design and Operation Moderator: Potenciano A. Leoncio, Jr (ASCE)</p>	<p>5C: Construction Best Practices Moderator: Rajinder Ghai (ICEI)</p>	<p>5D: Critical Success Factors in Construction Moderator: Jeff Howard (EA)</p>	<p>5E: Structural Dynamics Moderator: Muslinang Moestopo (HAKI)</p>
<p>Technical Options to Improve Municipal Waste Management Mode Based on Formulating Biowaste Recycling Links - Jun Matsushita (Chuo University, Tokyo, Japan), Saburo Matsui, Tomonao Miyashiro and Naoko Nakagawa</p> <p>Mathematical Constructs for Assessing the Effectiveness of Environmental Remediation Actions - Samuel Labi, Saeed Al Qadhi (Purdue University, West Lafayette, Indiana, U.S.A.), Jackeline Murillo Hoyos and Sikai Chen</p> <p>Disposal and Recycling of Disaster Wastes by Great East Japan Earthquake - Hiroshi Ogawa (Kajima Corporation, Tokyo, Japan)</p> <p>Social Capital Networks and Efficiency of Earthquake Waste Management in Japan - Kiyomi Kawamoto (Hokkaido University of Education, Hakodate city, Hokkaido, Japan) and Karl Kim</p> <p>Hydrogeological Assessment and Remediation Plan at a PCE Contaminated Site - Bijay Panigrahi and Upendra N. Tyagi (Monroe Energy Trainer Refinery, Trainer, Pennsylvania, U.S.A.)</p>	<p>Stated Preference for a New Mass Transit and Actual Mode Choice Analyzed from the Past Surveys: A Case of BRT in Jakarta - Deo Nobel (University of Delaware, Newark, Delaware, U.S.A.), Sadayuki Yagi and Hirohisa Kawaguchi - 81</p> <p>Development of a Ballast Settlement Model Using Laboratory Ballast Box Tests and Field Measurements - Yeong-Tae Choi (Korea Railroad Research Institute, Uiwangsi, Kyeonggi-do, South Korea), Sung Jin Lee, Sung Ho Hwang and Seong Yup Jang</p> <p>Agent-based Model for Assessing Technologies to Reduce Knock-on Urban Train Delay - Seiji Iwakura and Wataru Kobayashi (Shibaura Institute of Technology, Tokyo, Japan)</p>	<p>Project-Specific Occupational Accident Risk Assessment Model - Sou-Sen Leu (National Taiwan University of Science and Technology, Taipei, Taiwan) and Ching-Miao Chang - 137</p> <p>Next Generation Construction Production System Focusing on Automation Technologies of Construction Machines - Satoru Miura, Izuru Kuronuma and Kenniti Hamamoto (Kajima Corporation, Tokyo, Japan)</p> <p>Asian Economic Reform Using Economic Zone Projects - Rikuo Katsumata (Japan Development Institute, Tokyo, Japan)</p> <p>Role and Possibilities of PPP for Regional Development in Asian Countries - Satoshi Kato (Toyo University, Tokyo, Japan) and Ryo Matsumaru</p> <p>The Importance of Asia and the Activity of ACF - Manyop Han, Sejin Jeon and Seongdong Kim</p>	<p>The Effect of Firm Entry on Public Bidding Price in Japanese Construction Works - Koki Arai (Shumei University, Yachiyo-city, Chiba, Japan) and Emi Morimoto (University of Tokushima, Tokushima-City, Tokushima, Japan)</p> <p>A Review of Risk-based Studies on International Construction Projects - Rouzbeh Maddah (Indian Institute of Technology-Delhi, Hauz khas, New Delhi, India), Arvind Kumar Jain and Kumar Neeraj Jha</p> <p>A Study on the Major Factors for Decision Making During Tender of Construction Works - Nobuyuki Suzuki (Toyo University, Kawagoe City, Saitama Prefecture, Japan), Junjiro Akiba and James R. Whorlow</p> <p>Exploring the Critical Incidents in International Construction Projects - Daniel Haussner (Hazama Ando Corporation, Tokyo, Japan), Yu Maemura and Petr Matous</p>	<p>Effect of the Spatial Variability of Soil Surface Seismic Responses on Buildings - Joanna Badr (Lebanese University, Roumieh, Lebanon), Michel Farid Khouri, Elias El Haber and Cecile Cornou</p> <p>Developing Design Automation for Dolphin Structures with Optimization Techniques - Ying Zhe Jin, Hai Long Shao, Young Jun Nam, Jong Soo Lee and Yun Mook Lim (Yonsei University, Seoul, South Korea)</p> <p>Cyclic Performance of Moment Resisting Welded Connections with RBS Built by Iranian Profiles - Parham Memarzadeh (Islamic Azad University, Najafabad, Isfahan, Iran) and Mohammad Davarpanah</p> <p>Numerical Analysis on Dynamic Behavior of Slab-Column Connections Subjected to Blast Loads - Kwang Mo Lim, Young Soo Yoon and Joo Ha Lee (University of Suwon, Hwaseong, Gyeonggi, South Korea)</p> <p>Seismic Analysis and Evaluation of Moment Frame Systems Renovated with Supplemental Damping - Lisa Wang (California State Polytechnic University, Pomona, California, U.S.A.) and Kenjiro Iwamoto</p>

12:45 - 1:45 p.m.

POSTER SESSION #2 (Continued) - Palace Lounge & LUNCH - Tapa Ballroom Salon 2

THURSDAY, SEPTEMBER 1 (continued)

1:45 - 3:15 p.m. TECHNICAL SESSION 6				
TRACK A: Environmental & Water Resources, Honolulu Suite 1	TRACK B: Transportation, Honolulu Suite 2	TRACK C: Structural, Honolulu Suite 3	TRACK D: Geotechnical, Iolani Suite 3&4	TRACK E: Natural Disaster, Iolani Suite 6&7
6A: Stormwater and Wastewater Systems <i>Moderator: Steve Starrett (ASCE)</i>	6B: Traffic Management <i>Moderator: Pham Hoang Kien (VFCEA)</i>	6C: Earthquake Engineering I <i>Moderator: Vilas Mujumdar (ASCE)</i>	6D: Geomaterials <i>Moderator: Jae-Yeol Cho (KSCE)</i>	6E: Disaster Management <i>Moderator: Shang-Hsien Hsieh (CICHE)</i>
<p>Renovation Design of Aging RC Sewer Pipes as Semi-Composite Structures Based on Nonlinear FEM Analysis - Masaaki Nakano (Nippon Koei Co., Ltd., Tsukuba-shi, Ibaraki, Japan), Zihai Shi, Yukari Nakamura, Kenichi Ogawa and Kenichi Tanaka</p> <p>Evaluation of the Factors Contributing to the Occurrence of Ground Cave-ins and Subsidence Induced by a Damaged Sewer Pipeline - Tae-Young Kwak (Seoul National University, Seoul, South Korea), Joonyoung Kim, Min-ho Lee and Choong-Ki Chung (Seoul National University, Seoul, South Korea)</p> <p>Introduction of Sewage Pipeline Renewal Method and Design Approaches - Katsunori Yoshino (Sekisui Chemical Co., Ltd., Ritto-city, Shiga, Japan), Yoshihiko Idekawa and Hitomichi Shibata</p> <p>Development of Steady and Unsteady Pipe Flows Numerical Simulations Using CIP-SMAC Method - Issaku Azechi (National Agriculture and Food Research Organization, Tsukuba, Ibaraki, Japan), Masaomi Kimura, Hirohide Kiri and Tetsuo Nakaya</p>	<p>Interagency Communication and Information Exchange System for Highway Incident Management: Framework and Prototype Development - Chuanxin Fang (Transtech LLC, Bellevue, Washington, U.S.A.), Shouhua Liang, Lihong Huang, Guohua Sun and Shouniu Wang</p> <p>Factors Affecting Driving Avoidance Behavior and Effects of a Smart Phone Based Driving Safety Diagnosis Tool - Ying Jiang (Hiroshima University, Higashi-Hiroshima, Japan) and Junyi Zhang (Hiroshima University, Higashi-Hiroshima, Japan) - 246</p> <p>The Correlation of Safety Indicators of Toll Road in Indonesia - Amelia Makmur (Krida Wacana Christian University, Jakarta Barat, Indonesia), Wimpy Santosa and Ranto Rajagukguk</p> <p>Expansion of ITS in Southeast Asia - Masayuki Yamamoto (Mitsubishi Heavy Industries, Kobe, Hyogo, Japan), Takakazu Tsuji and Hideyuki Itou (Mitsubishi Heavy Industries, Kobe, Hyogo, Japan)</p> <p>Policy Level Example Case Study: Urban Heat Island - Hui Li (Tongji University, Shanghai, China)</p>	<p>Study on Earthquake Time Histories and Response Spectrums for Analysis of High Rise Building Structures in Mongolia - Erdene Ganzorig (Mongolian University of Science and Technology, Ulaanbaatar, Mongolia)</p> <p>Seismic Fragility Analysis of a Typical Two-Pylon Cable-Stayed Bridge in China: Comparison of Fragility Models - Yutao Pang (Polytechnique Montréal, Montréal, Quebec, Canada), Xiaowei Wang (Tongji University, Shanghai, China), Yu Shang (Tongji University, Shanghai, China) and Li Wu</p> <p>Seismic Retrofit for an Existing Apartment by Core Wall - Tsung-Chih Chiou (National Center for Research on Earthquake Engineering, Taipei, Taiwan), Yaw-Shen Tu, Wen-Cheng Shen, Yi-An Li, Pu-Wen Weng, Yao-Sheng Yang, Lap-Loi Chung and Shyh-Jiann Hwang</p> <p>Relationship between the Mid-column Loss and Seismic Story-shear Resistances - Meng-Hao Tsai (National Pingtung University of Science & Technology, Pingtung, Taiwan) and Wen-Bing Zhuang</p>	<p>Effect of Compressive Loads on the Uplift Capacity of Line Pile Groups Considering Soil Non-Linearity - Anumita Mishra, (Indian Institute of Technology Kanpur), Nihar Ranjan Patra</p> <p>Destabilizing Effects of Chemical Weathering and Root Jacking on Sub-Tropical Volcanic Rock Slopes - James Kwong, Honolulu, Hawaii, U.S.A., Kealohi Sandefur (Yogi Kwong Engineers, Honolulu, Hawaii, U.S.A.) and Shentang Wang</p> <p>Effects of Vesicular Parameter on the Failure Criterion of Basalts - Soonbo Yang (Port and Airport Research Institute, Yokosuka, Kanagawa, Japan) and Shinji Sassa (Port and Airport Research Institute, Yokosuka, Kanagawa, Japan)</p> <p>Example of Using Unsuitable Fine-grained Volcanic Soil as Embankment for a Reinforced Earth Wall After Such Soil Was Crushed and Re-solidified - Atsuko Sato (Civil Engineering Research Institute for Cold Region, Sapporo, Hokkaido, Japan), Toshihiro Hayashi (Civil Engineering Research Institute for Cold Region, Sapporo, Hokkaido, Japan), Satoshi Nishimoto (Civil Engineering Research Institute for Cold Region, Sapporo, Hokkaido, Japan) and Teruyuki Suzuki (Kitami Institute of Technology, Sapporo, Hokkaido, Japan)</p>	<p>Improved Analysis Method for the Calculation of Building Damage Cost due to Flood Disaster - Kyonghoon Kim (Korea Institute of Civil Engineering and Building Technology, Ilsan, South Korea), Gilho Kim, Seok Kim, Jae-Woo Park and Jinman Kim</p> <p>An Evaluation of Infection Risk Caused by the Compound Disaster of a Large Earthquake with Flooding in an Urban River Catchment - Naoko Nakagawa (Rikkyo University, Tokyo, Japan), Akira Kawamura and Hideo Amaguchi</p> <p>Updated Risk Indices in the Asia-Pacific Region for Earthquakes and Floods - James E. Daniell and Trevor M. Daniell (University of Adelaide, Adelaide, South Australia, Australia)</p> <p>Effect of Breakwater in the Superposition of Earthquake and Tsunami - Katsuhiro Okada (Port and Airport Research Institute, Yokosuka, Kanagawa, Japan), Kojiro Suzuki and Taro Arikawa (Chuo University, Tokyo, Japan)</p> <p>The Transformed Behavior of Restored Constructure by Large Sandbags in a Large-scale Sediment Disaster - Yoshinori Mori, Tetsuya Kubo, Hiroaki Miyatake and Genki Inoue (Public Works Research Institute, Tsukuba-shi, Ibaraki-ken, Japan)</p>
3:15 - 4:00 p.m. POSTER SESSION #2 (Continued) & NETWORKING BREAK - Palace Lounge				

THURSDAY, SEPTEMBER 1 (continued)

4:00 - 5:30 p.m. TECHNICAL SESSION 7				
TRACK A: Environmental & Water Resources, Honolulu Suite 1	TRACK B: Transportation, Honolulu Suite 2	TRACK C: Infrastructure Management, Honolulu Suite 3	TRACK D: Sustainability, Iolani Suite 3&4	TRACK E: Geotechnical, Iolani Suite 6&7
7A: Watershed, River and Flood Management Moderator: Udai P. Singh (ASCE)	7B: Pavement Preservation Moderator: Jon Young (ASCE)	7C: Special Topics in Civil Engineering Moderator: Ignacio B. Zaragoza, Jr. (PICE)	7D: Education Moderator: Ed Wang (ASCE)	7E: Geotechnical Earthquake Engineering Moderator: Osamu Kusakabe (JSCE)
<p>Transformation of Land Use Pattern in Phnom Penh City at a Watershed Scale - Luong Lim (Waseda University, Tokyo, Japan) and Yoh Sasaki (Waseda University, Tokyo, Japan)</p> <p>Groundwater Nutrient Loads from a Watershed to a Coastal Estuary - Ashok Pandit (Florida Institute of Technology, Melbourne, Florida), Jacob Jansen, Nawazish Ali, Howell H. Heck, Kamal Mamoua and Wissam Al-Taliby</p> <p>Reevaluation of the C-51 Basin Rule - Bijay Panigrahi, C. Alan Hall and Pradeep Behera (University of the District of Columbia, Washington DC, U.S.A.)</p> <p>Study on 4 Major Rivers Restoration Project for Enhancement of Waterfront and River Environmental Values in Korea - Sung Phil Jang (Korea Water Resources Corporation (K-water), Daedeok-Gu, Daejeon, South Korea)</p> <p>An Urban Flooding Simulation Technique by Using 3D City Information Model - Sang-Ho Lee (Yonsei University, Seoul, South Korea), Junwon Park, Sang I. Park and Young-Hoon Jang</p>	<p>Performance of Preventive Maintenance Treatment in Texas - Jorge Prozzi and Pedro Serigos</p> <p>Assessing the Stabilizing Mechanisms of Unbound Road Pavements - Dilan Robert (RMIT University, Melbourne, Australia), Rintu Renjith, Sujeeva Setunge, Brian O'Donnell, Dilshan Hewawasamge and Ernst Tan - 58</p> <p>Overlay Performance Under High Temperature Conditions - Adrian Archilla</p> <p>Performance-based Hot Mix Asphalt and Flexible Pavement Design - The European Perspective - Bernhard Hofko (Research Center of Road Engineering, Wien, Austria) and Ronald Blab</p> <p>Impact of Pre-existing Conditions on the Effectiveness of Preservation Treatments and Determination of Optimum Treatment Timing - Syed Haider</p>	<p>Maritime Network Efficiency Comparison in Indonesia - Hafida Fahmiasari (Delft University of Technology, the Netherlands) and Danang Parikesit - 2</p> <p>Study on Sustainable City Management After 2020 Tokyo Olympic Games - Nobuyuki Suzuki (Toyo University, Kawagoe City, Saitama Prefecture, Japan) and James R. Whorlow - 27</p> <p>Feng Shui Site Planning and Design Using Google Earth - Chao-Tai Hu and Chiwan Hsieh (National Pingtung University of Science & Technology, Pingtung, Taiwan) - 248</p> <p>Empirical Development of 3D Terrain Processing Platform for Autonomous Excavation System - Seok Kim (Korean Civil Engineering and Building Technology, Goyang-Si, Gyeonggi-Do, South Korea), Tae-Yeong Kim, Soonwook Kwon and Jongwon Seo</p> <p>Developing of Emergency Action Plan Manual for Facility - Su-Yeul Park (Uno Solution Co., Paju, Gyeonggi, South Korea), Eun-Ho Oh, Jin-Man Kim and Hyeon-Cheol Park</p>	<p>Scenario Method for Understanding Public Opinions in Planning Process - Kiko Yamada-Kawai (Tokyo Institute of Technology, Tokyo, Japan)</p> <p>Landscape of Capstone Course in Civil Engineering Departments in Taiwan - Mandy Liu (Institute of Engineering Education Taiwan, Taipei, Taiwan) and Liang-Jeng Leu (National Taiwan University, Taipei, Taiwan)</p> <p>Ethics in Civil Engineering Projects - Sohan Swamy (Institution of Civil Engineers, India, New Delhi, India)</p> <p>The Conceptual Model of Information Management in Civil Infrastructure Lifecycles - Koji Makanae (Miyagi University, Miyagi, Japan) - 177</p> <p>Establishment of the Centre for Pavement Excellence Asia Pacific - Brian O'Donnell (CPEAP Limited, Langwarrin, Victoria, Australia)</p>	<p>Design and Construction of New Seismic Retrofit Method for Pile Foundation Using Steel Shell Reinforced Concrete and Ground Improvement: Application for the Pile Foundation of Tokyo Monorail - Satoshi Matsuki (Kajima Corporation, Tokyo, Japan), Masanori Shibata, Katsutoshi Fujisaki, Takahiro Arai, Takashi Obara and Masayuki Ishido</p> <p>Design Method for Pile Foundation in Composite Ground and Evaluation of Its Seismic Performance - Koichi Tomisawa (Civil Engineering Research Institute for Cold Region, Sapporo, Hokkaido, Japan) and Koichi Isobe</p> <p>Earthquake-induced Volume Contraction Characteristics of Rock Debris and Its Assessment Chart for Prediction - Shinji Sassa (Port and Airport Research Institute, Yokosuka, Kanagawa, Japan), Yusuke Gotoh, Hiroyuki Yamazaki, Hidenori Takahashi and Eiji Kohama</p> <p>The Rule of Potential Factors in Triggering Landslides by Earthquake - Yanrong Li (Taiyuan University of Technology, Taiyuan, Shanxi, China), Runqiu Huang and Yonghong Luo</p>
6:00 - 9:00 p.m. AWARDS DINNER - Hilton Hawaiian Villages Great Lawn				

FRIDAY, SEPTEMBER 2

7:30 a.m. - 12:00 p.m. REGISTRATION - Palace Lounge				
8:00 - 9:00 a.m. PLENARY SESSION - Tapa Ballroom Salon 1 PLENARY SESSION - Chair: David G. Leverenz (ASCE) Educating the Future Civil Engineers for a Sustainable World: An Integration of Cornerstone, Keystone, and Capstone Courses on Engineering Design at the National Taiwan University - Liang-Jenq Leu, National Taiwan University, Taipei, Republic of China Transportation Engineering Challenges and Solutions, With a Focus on Highways in Hawaii - Edwin H. Sniffen, Hawaii Department of Transportation, Honolulu, Hawaii, U.S.A.				
9:00 - 9:30 a.m. NETWORKING BREAK - Palace Lounge				
9:30 - 11:00 a.m. TECHNICAL SESSION 8				
TRACK A: Environmental & Water Resources, Honolulu Suite 1	TRACK B: Structural, Honolulu Suite 2	TRACK C: Infrastructure Management, Honolulu Suite 3	TRACK D: Sustainability, Iolani Suite 3&4	TRACK E: Geotechnical, Iolani Suite 6&7
8A: Hydraulics <i>Moderator:</i> Roger W. Babcock, Jr. (ASCE)	8B: Earthquake Engineering II <i>Moderator:</i> Erdene Ganzorig (MACE)	8C: Infrastructure Asset Management <i>Moderator:</i> Md. Abdus Sabur (IEB)	8D: Engineered Materials <i>Moderator:</i> Dhruba Thapa (NEA)	8E: Tunneling <i>Moderator:</i> Kenichi Horikoshi (JSCE)
<p>Substantiative Experimental Study of Discharging Sediments by the Mobile Suction Method at the Yahagi Dam - Tatsuya Sugita, Masakuni Saiki, Wataru Nakane, Atsushi Tokunaga and Itsuki Miyairi (Obayashi Corporation, Tokyo, Japan)</p> <p>Modeling Hydraulic Jump on Corrugated Bed Using Particle Method - Md. Toufiq Anam, Yee-Chung Jin (University of Regina, Regina, Saskatchewan, Canada) and Lei Fu</p> <p>Visualization of Flow Regime Around Water Leak in Pipeline by Using PIV - Masaomi Kimura (University of Tokyo, Tokyo, Japan), Issaku Azechi (National Agriculture and Food Research Organization, Tsukuba, Ibaraki, Japan), Yohei Asada, Toshiaki Iida and Naritaka Kubo</p>	<p>Seismic Risk Analysis of Cable-stayed Bridges in China Using Fragility Method - Wancheng Yuan (Tongji University, Shanghai, China) and Jian Zhong</p> <p>Fundamental Period Prediction of Steel Plate Shear Wall Structure - Benjamin Kean (San Francisco State University, San Francisco, California, U.S.A.) and Cheng Chen</p> <p>Mechanical Behavior of Pile Head Joint Disconnected Pile Head Rebars from Foundation for Earthquake Resistance - Tomohiro Tanikawa (Takenaka Corporation, Otsuka Inzai, Chiba, Japan), Junji Hamada, Tomio Tsuchiya and Tetsu Usami</p> <p>Ultimate Seismic Capacity of Steel Moment Resisting Frame by Scaled Test - Sachi Furukawa, (Tohoku University), Yuma Murata, (Tohoku University), Yoshihiro Kimura</p>	<p>Environmental-Harmony Coastal Structure Functional Assessment - Rumiko Kajihara (Civil Engineering Research Institute for Cold Region, Sapporo, Hokkaido, Japan), Jin Sato, Kenji Sugawara, Masami Ohashi and Nobuo Mikami</p> <p>Bridge Component Deterioration: An Ordinal Logistic Regression - Pan Lu (North Dakota State University, Fargo, North Dakota, U.S.A.) and Denver Tolliver</p> <p>Study on a Methodology to Find an Efficient Road Maintenance Budget Execution Plan Using AHP and GIS - Sungpil Shin (Korea Institute of Civil Engineering and Building Technology, Goyang-Si, Gyeonggi-Do, South Korea) and Inchul Yang - 262</p> <p>Method for Analyzing Influence of Land Cutting on the Surrounding Trees - Yoshiki Yamamoto (Nippon Koei Co., Ltd., Tsukuba-shi, Ibaraki, Japan)</p>	<p>Mechanical Behavior of Adaptive Rubber Bearings - Chong-Shien Tsai (Feng Chia University, Taichung, Taiwan), Hui-Chen Su, Wen-Chun Huang and T.C. Chiang</p> <p>Effect of Accelerated Carbonation on Concrete Made with Fly Ash and Blast Furnace Slag - Shaik Hussain (Birla Institute of Technology and Science, Pilani, India), Dipendu Bhunia (Birla Institute of Technology and Science, Pilani, India) and S.B. Singh</p> <p>Reliability Based Design of Concrete Mixes with Partial Replacement of Cement by Silica Fume - Rajinder Ghai (Irrigation Department, Punjab Government, Chandigarh, India)</p> <p>Simple Frost Damage Evaluation of Concrete Surface by Infrared Thermography - Yutaka Takashina (Kobe City College of Technology, Kobe, Japan)</p> <p>Effect of Air Void Content and Repeated Testing on Stiffness of Cylindrical Asphalt Mix Specimen - Daniel Steiner (Research Center of Road Engineering, Wien, Austria), Bernhard Hofko and Ronald Blab</p>	<p>Improvement of Shimbashi Station on the Ginza Subway Line (the First Subway in the East) - Atsushi Numata and Yasushi Arai (Tokyo Metro Co., Ltd., Tokyo, Japan)</p> <p>Construction of Long-Distance Water Transfer Tunnel, Pahang-Selangor Raw Water Transfer Tunnel, Malaysia - Takashi Kawata, Takayuki Matsumoto (Malaysia Office, Shimizu Corporation, Kuala Lumpur, Malaysia) and Akiro Mito</p> <p>Mitigation of Tunnel Blasting Impact in Urban Residential Area - Keita Iwano (Kajima Corporation, Tokyo, Japan), Yasunari Tezuka, Takayuki Ochikawa, Norie Hanaoka and Katsunori Fukui</p> <p>Seismic Design of Damping Ring Tunnel - Masatoshi Fukuma (Oriental Consultants Co., Ltd., Tokyo, Japan), Takahiro Kukidome, Masato Kurata, Shogo Otake and Kaoru Fukawa</p> <p>The URUP Method - Tunnel Excavation with Extremely Thin Soil Overburden - Shusaku Mino (Obayashi Corporation, Tokyo, Japan), Atsushi Kagawa and Akihiro Nishimori</p>

FRIDAY, SEPTEMBER 2

11:15 - 12:00 noon	CLOSING PLENARY SESSION - Chair: Albert T. Yeung (ASCE) Put Your Dreams to Work - Annabel Chotzen, Hawaii, U.S.A.	
12:00 - 12:30 p.m.	CLOSING CEREMONY - Chair: Albert T. Yeung (ASCE)	
1:30 - 5:00 p.m.	TECHNICAL TOURS	
	Technical Tour 4 Hawaiian Aquaponic Farm Tour	Technical Tour 6 Nu'uuanu Watershed Tour

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THE CORRELATION OF SAFETY INDICATORS OF TOLL ROAD IN INDONESIA

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ABSTRACT:

The Minimum Service Standard for Toll Roads is a requirement that should be completed by all toll roads in Indonesia. However, field monitoring still shows that some indicators in the Minimum Service Standard for are not met. The indicators which are not completed are related to safety, such as the availability and well function of road signs, road markings, guide posts, KM signs, road lightings, and right of way fence. In this study the monitoring data, from surveys conducted in 2012, 2013 and 2014, were explored and statistically examined. The results show that there is a strong positive correlation for the availability and well function of road signs and road markings for both urban and inter-city toll roads, that the accomplishment of road signs tend to be followed by the road markings. It is also found a strong positive correlation for the availability and well function of right of way fence and guide posts for inter-city toll roads, that the accomplishment of the indicators are interacted. The strongest correlation among the indicators is the correlation between road signs and road markings for inter-city toll road. On the other hands the indicators of KM Sign with road marking and road lighting have a negative and weak correlation with the provision of road signs and road markings for both urban and inter-city toll road. The results show that good provision of one or more indicators do not necessarily mean that other indicators are well provided.

Key Words: Minimum Services Standard, Safety Substance, indicators, toll roads

INTRODUCTION

The road infrastructure in Indonesia play a strategic role in supporting all the activities of the economic, social, cultural, and defense and security. Based on the report from Indonesian Monitoring and Evaluation of National Transport Policy team, 95% of freight logistic and 90% of passenger transportation using road as an infrastructure facility (Direktorat Jenderal Otonomi Daerah 2011). This condition has given the implications for the Indonesian Government to provide the best quality of road infrastructure for the community.

Toll road is the one of the alternative which provide services are more better than other roads, including the performance, accessibility and facility. One of the government's policy in realizing the implementation of the quality road infrastructure, especially for Toll Road is stated the Toll Road Minimum Service Standards (Toll Road MSS) as a reference for the fulfillment services for toll roads in Indonesia. Minimum Service Standards, or abbreviated in Indonesia to SPM Jalan Tol, issued through the Minister of Public Works 392/PRT/M/2005 on Minimum Service Standards Toll Road. Indonesian Toll Road Regulatory Agency, which abbreviated in Indonesia to BPJT (Badan Pengatur Jalan Tol) as a part of the Ministry of Public Work and Public Housing, arranges a regular monitoring to assess the fulfillment of indicators performance the Toll Road MSS by the Toll Road Operator (in Indonesian language is Badan Usaha Jalan Tol, BUJT).

Regarding to performance evaluation issue, the results of the field survey of monitoring and evaluation SPM Jalan Tol in 2012, in 2013 and in 2014, show that more of the indicators are still not met, including the Safety Service Substance. The indicators which are not always be met on this Safety Service Substance such as the availability and well function of road signs, road markings, guide posts, KM signs, road lightings, and right of way fence. In accordance with that facts are necessary to review the correlation between these accomplishment indicators of Toll Road Minimum Service Standards. Besides, they could be calculated to know the relevance among these accomplishment indicators of the Minimum Service Standards for Safety Service Substance. So it can be known the dependency between the accomplishment indicators and their correlation.

The purpose of this study was to determine the correlation between the indicators in the Safety Services Substance of the Toll Road Minimum Service Standards. The relevancy and dependency among them are needed and knowing the correlation between the indicators that contribute to the non-fulfillment of Substance Safety Services are also needed too that will be informed how to maintain the performance of toll road in future.

The approach taken is to collect secondary data from the accomplishment of indicators of Safety Services Substance for 27 toll roads in Indonesia, including urban and inter-city toll road. The data came from the routine field survey of Monitoring and Evaluation conducted by BPJT (Indonesian Toll Road Regulatory Agency) in 2012, 2013 and 2014. All indicators fulfilled are no longer discussed in this study, such as the indicator of the handling of accident and the indicator of security and law enforcement. Using statistical method of correlation, it will be shown the correlation between all indicators of the Safety Services Substance for Toll Road Minimum Service Standards in Indonesia from 2012 until 2014.

MINIMUM SERVICES STANDARDS OF TOLL ROADS

The Minimum Service Standards for toll roads in Indonesia refers to the Regulation of the Minister of Public Works No. 392/PRT/M/2005 on Minimum Service Standards Toll Road. Minimum Service Standards has 21 (twenty-one) indicator is incorporated in 6 (six) service substances. The substance of these services are: toll road conditions, the average of traffic speeds, accessibility, mobility, safety, rescue unit or the rescue and relief services. The substance of services that will be addressed in this study is the

Safety Services Substance. Safety Services Substance has the goal of safety and smoothness for toll road users. This substance consists of several indicators of traffic regulation means that the expected accomplishments all met or 100% of the benchmarks specified. The indicators of Service Safety Substance is an indicator of vehicle traffic control, namely: road signs, road markings, guide post/reflectors, KM Sign, road lighting, right of way fence, the handling of accidents, as well as security and law enforcement. The detailed of These Safety Service Substance will be shown on Table 1.

Table 1. The Safety Services Substance of Minimum Service Standard of Indonesian Toll Road

Traffic Facility Indicator	Scope of Assesment	Minimum Requirements of Minimum Service Standard of Indonesian Toll Road
a. Traffic Sign	Complete, availability, and well function (clear instruction and guiding)	100%
b. Road Marking	Well function and availability	100% & reflector $\geq 80\%$
c. Guide post	Well function and availability	100% & reflector $\geq 80\%$
d. KM Sign	Well function and availability	100%
e. Road Lighting	Well function and availability	100%
f. Right of way fence	Well function and availability	100%
g. The Handling of accidents	a. Accident victims	Free evacuation
	b. Vehicles accident	Free for towing
h. Security and Law enforcement	Toll road	Police patroly for 24 hours

ACCOMPLISHMENT INDICATORS OF SAFETY SERVICES STANDARD

The data, taken in 2012, 2013, and 2014, show that some of indicators of Safety Services Standard are not fulfilled as a minimum requirement of the Minimum Services Standard by some of toll road, both for urban and inter-city toll road. On the other hand, the indicators of the handling accidents and indicators of security and law enforcement are always be fulfilled.

Indonesia have 14 inter-city toll roads and 13 urban toll roads, which have been evaluated their performance indicators of Minimum Standard Services. The accomplishment result of Safety Services Substance are shown in Table 2 for inter-city toll road and Table 3 for urban toll road.

Table 2. The Accomplishment of Safety Service Substance Indicators for Inter-city Toll road

No	Inter-city Toll Road	Length (km)	Indicators of Safety Service Substance					
			Road Sign	Road marking	Guide Post	KM Sign	Road Lighting	Right of Way Fence
1	Jakarta-Bogor-Ciawi	59	89.91%	91.39%	76.94%	97.78%	86.30%	51.11%
2	Jakarta-Tangerang	33	88.80%	90.28%	85.93%	100.00%	86.57%	60.19%
3	Jakarta-Cikampek	83	91.67%	80.83%	77.50%	93.06%	87.87%	55.00%
4	Padalarang-Cileunyi	64.4	83.61%	89.17%	95.00%	97.78%	72.13%	63.24%
5	Cikampek-Purwakarta-Padalarang	58.5	88.52%	77.59%	93.98%	98.89%	65.56%	64.07%
6	Palimanan-kanci	26.3	86.67%	94.17%	85.93%	96.67%	96.67%	79.17%
7	Surabaya-Gempol	49	88.52%	80.46%	97.22%	98.89%	92.87%	84.17%
8	Belawan-Medan-Morawa	42.7	96.30%	95.83%	88.24%	94.72%	95.46%	65.93%
9	Jembatan Madura (Surabaya-Madura)	5.4	100.00%	97.22%	95.37%	100.00%	73.89%	91.76%
10	Tangerang-Merak	73	87.13%	81.57%	84.54%	99.17%	91.02%	57.78%
11	Surabaya-Gresik	20.7	95.46%	82.69%	81.20%	100.00%	95.19%	65.09%
12	Kanci-Pejagan	35	92.50%	94.17%	84.35%	94.44%	95.19%	67.50%

Table 3. The Accomplishment of Safety Service Substance Indicators for Urban Toll Road

No	Urban Toll Road	Length (km)	Indicators of Safety Service Substance					
			Road Sign	Road Marking	Guide Post	KM Sign	Road Lughting	Right of Way Fence
1	Cawang-Tomang-Cengkareng	23.55	89.91%	93.89%	95.56%	100.00%	78.89%	84.44%
2	Prof. Soedyatmo	14.3	95.00%	96.39%	95.56%	99.17%	79.44%	95.56%
3	JORR	50.42	88.43%	84.72%	94.07%	98.89%	87.69%	75.37%
4	Pondok Aren-Bintaro-Ulujami	5.55	92.59%	93.61%	80.93%	100.00%	92.50%	85.65%
5	Semarang Section A,B,C	24.75	98.89%	89.63%	99.17%	99.17%	97.13%	94.44%
6	Cawang-Tj.Priuk-Pluit	27.05	95.46%	95.00%	96.94%	100.00%	90.46%	100.00%
7	Serpong-Pondok Aren	7.25	98.89%	98.89%	88.15%	100.00%	88.43%	65.56%
8	Ujung Pandang (Seksi I dan II)	6.05	95.00%	98.06%	99.17%	95.83%	97.41%	66.02%
9	SS Waru-Bandara Juanda	12.8	98.06%	93.61%	100.00%	100.00%	97.22%	86.67%
10	Makasar Seksi IV	11.6	89.63%	94.44%	99.17%	98.89%	98.15%	93.52%
11	Bogor Ring Road (Seksi I)	3.85	91.30%	93.33%	90.74%	100.00%	86.94%	81.02%
12	JORR (W1-Kebon Jeruk-Pejaringan)	9.85	98.33%	99.17%	100.00%	100.00%	100.00%	100.00%
13	Cijago	3.7	96.30%	98.33%	95.46%	100.00%	92.78%	89.81%

Correlation of Safety Services Substance Indicators

Correlations are useful for measuring the strength of variable relationships with certain scales. One method is to use the correlation of Pearson, which using scale interval or ratio. The range of the correlation is from 0 to 1 (both positive and negative directions). The correlation between 0 to 1 has shown that two variables have a linear relationship. As for the correlation 1 shows the very strong correlation between two variables, whereas if the value is 0 means no correlation between these variables. To make it easier to interpret the correlation between variables based on the value of the correlation coefficient is between 0 to 1, it can be categorized as follows: if the correlation coefficient value of between 0-0.3, it is interpreted that the correlation is very weak; if the correlation is worth 0.3 to 0.50, it can be interpreted there is a weak correlation; whereas if it has a value of about 0.5-0.70 correlation coefficient can be said that these variables have moderate correlation. As for the value of the correlation coefficient from 0.70 to 0.9 is mean that the coefficients have a strong correlation, whereas the value correlation coefficient from 0.9 to 1.0 interpreted to have a very strong correlation (Boediono,2001).

Correlation test was carried out for each indicator of Toll Road Minimum Service Standards in the Safety Services Substance for 14 inter-city toll road. The correlation test results are shown in Figure 1

Correlation: Road Signs (IC), Road Marking(IC), Guide Post (IC), KM Sign(IC), Road Lighting(IC), Right of way Fence(IC)				
	Road Sign	Road Marking	Guide Post	KM Sign
Road Marking	0.532 0.050			
Guide Post	0.156 0.594	0.170 0.561		
KM Sign	0.142 0.628	-0.012 0.967	0.461 0.097	
Road Lighting	0.328 0.253	0.324 0.258	-0.270 0.351	-0.168 0.565
Right of Way fence	0.504 0.066	0.433 0.122	0.727 0.003	0.374 0.187
Road Lighting				
Right of Way fence	0.180 0.538			
			Cell Contents: Pearson correlation P-Value	

FIG 1. Correlation Between The Fulfillment Indicators on Inter-city Toll Road

These results show that there is moderate and positive correlation between the indicators of availability and well function of road signs and road markings (correlation value 0.532); right of way fence indicator and road sign signs (with a correlation value 0.504); and right of way fence indicator and guide post indicator (with a correlation value 0.727). Because of the correlation value is greater than 0.5, the correlation between these indicators can be categorized a strong positive correlation. It means that there is a strong relationship between these indicators regarding to meet the requirement of Toll Road Minimum Services Standard.

As for the Urban toll roads, the correlation analysis result as shown in Figure 2

Correlation: Road Sign (U), Road Marking (U), Guide Post (U), KM Sign (U), Right of way Fence (U)				
	Road Sign	Road Marking	Guide Post	KM Sign
Road Marking	0.504			
	0.079			
Guide Post	0.216	0.049		
	0.479	0.874		
KM Sign	0.107	-0.019	-0.322	
	0.728	0.952	0.284	
Road Lighting	0.402	0.137	0.352	-0.249
	0.173	0.656	0.238	0.412
Right of way fence	0.137	0.024	0.347	0.448
	0.656	0.939	0.245	0.125
Road Lighting				
Right of way fence	0.129Cell Contents: Pearson correlation 0.673P-Value			

FIG 2. Correlation Between The Fulfillment Indicators on Urban Toll Road

The correlation value obtained for urban toll roads shows moderate positive correlation between the availability and well functioning of the road signs and road markings, with a correlation value 0.504

Hypothesis Testing for Correlation Values

The hypothesis testing for the correlation value is obtained from the relationship indicators variable Safety Services Substance on the Toll Road Minimum Service Standards, with the following statement as $H_0: r = 0$, which means there is no correlation between two variables and $H_a: r \neq 0$, there are significant correlation between the two variables. Thus, H_0 can be rejected if results of the statistical analysis provided the p-value < 0.05 . Base on the correlation value presented in Figure 1 and Figure 2, the hypothesis testing of correlation show that there are a significant correlation between road signs and road markings (p-value = 0.050) and between right of way fence and guide post (p-value = 0.003), whereas there is no significant correlation between road signs and right of way fence (p-value = 0.066). All of them are for inter-city Toll Road. On the other hand for Urban Toll Road, the analysis show tthat there is no significant correlation between indicators of road signs and road markings, with p-value = 0.079.

CONCLUSION

Understanding the correlation between the indicators in the Safety Service Substance of Toll Road Minimum Service Standard, a statistical method is used for analyzing whether an indicator will be mutually affected to one another to meet that standards. This will be a concern for operators in fulfilling the Toll Road Minimum Services Standard. Field Routine monitoring data in 2012, 2013, and 2014 are used for this study. Based on this correlation analysis, it can be concluded as follow:

- a. There is a moderate positive correlation between the indicators of the availability and well function of road signs and road marking, both for inter-city and urban toll road. It indicates that the accomplishment of road signs may be followed by the

- indicator of road markings.
- b. For inter-city toll road, it also found that there are a strong positive correlation between the indicators of right of way fence and guide post, which indicates that accomplishment of their indicators are interacted.
 - c. Sometimes strong correlation do not always reflect the significance relationship and influence to others, such as between the indicators of road signs and the right of way fence (inter-city toll road) and between the right of way fence and guide post (inter-city toll road).
 - d. For both urban and inter-city toll road, there are very weak negative correlation between the indicators of road markings and KM sign and between the indicators of road lighting and KM sign. It means that the accomplishment of each indicators does not affected each other.
 - e. The correlation and relationship between the indicators of Safety Service Substance is not always same between inter-city and urban toll road.
 - f. These correlation between the Safety Service Substance indicators can be considered by Indonesian Toll Road Operator, when they do a routine maintenance.
 - g. Toll road operator should be concerned with the strong correlation indicators, because some of them have been interacted by their accomplishment.
 - h. These correlation of accomplishment indicators can be used for supporting BPJT (Indonesian Toll Road Regulatory Agency, Ministry of Indonesian Public Works and Housing) to do the routine monitoring for accomplishment of Minimum Service Standard for Indonesian Toll Road.

ACKNOWLEDGMENTS

Appreciated and thank you very much to Badan Pengatur Jalan Tol, BPJT (Indonesian Toll Road Regulatory Agency, Ministry of Indonesian Public Works and Housing) for monitoring and Evaluation of Toll Road Minimum Service Standard data in 2012, 2013, and 2014. Thank you for Monitoring and Evaluation Team who did the routine field survey of Indonesian Toll Road.

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WEDNESDAY, AUGUST 31 POSTER SESSION #1	THURSDAY, SEPTEMBER 1 POSTER SESSION #2
CO2 Emission Estimation Reduction Impacts by Promoting Hybrid Cars Based on Time Sharing of Driving Modes from Probe Vehicles, <i>Napon Srisakda (Graduate School of Science and Technology, Nihon University, Japan), Atsushi Fukuda, Tetsuhiro Ishizaka</i>	Estimation of Quantile Using Regional Scaling Model and Index Flood Method, <i>Younghun Jung (Yonsei University, South Korea), Hyunjun Ahn, Hanbeen Kim, Jun-Haeng Heo</i>
Experimental Study for Neutralization and Revegetation from Acid Soil Based on the MICP <i>Toshiro Hata, (Toyama Prefectural University, Japan), Mizuki Sakai, Masanori Hatakeyama</i>	Estimate of the Initial Rock Stress by Performing a Comprehensive Evaluation using the Results of Several Techniques, <i>Kozo Onishi, Naoki Nishizaka, Yoshihiko Ishikawa, Toshinori Nayuki (Obayashi Corporation, Japan), Tatsuya Tanaka, Kenichi Ando, Taishi Oouchi, Takatoshi Ito</i>
Full Scale Model Tests on the Detection of Hidden Deteriorations of Reinforced Soil Walls, <i>Tomohiro Fujita (Toyama Prefectural University, Japan), Hiroaki Miyatake</i>	Rapid Evaluation and Assessment Program (REAP) as an Innovative Pre-Disaster Preparedness and Post-Disaster Response Tool for Essential Facilities – NAVFAC Case Studies, <i>David B. Swanson (Reid Middleton, Inc., Mukilteo, WA, USA), Lance K. Lum, Erik S. Bishop, Bradley A. Martin, Kenny O'Neil</i>
Dynamic Centrifuge Model Test on Irrigation Dam and Its Numerical Simulations, <i>Seiichi Sato (Nippon Koei Co.,Ltd., Japan), Sokkheang Sreng, Yuta Koyama, Koji Kobayashi, Yasunori Shiraishi</i>	Inspection Method for Internal State of Quay Wall Under Water Using Acoustic Device, <i>Norihito Kishi (C.E. Research Institute, Sapporo / Hokkaido, Japan), Kazuya Yamaguchi, Akira Asada, Kei Fujisawa, Hideaki Yokohama</i>
Application of Statistical Tests for Cleaning Matched Dedicated Short Range Communications Probe Data, <i>Jinhwan Jang (Korea Institute of Civil Engineering and Building Technology, South Korea)</i>	Design Data Generation System using Three-Dimensional Polyline for Progress Control of Working Form, <i>Shigenori Tanaka (Kansai University, Osaka, Japan), Kenji Nakamura, Ryuichi Imai, Satoshi Kubota, Jun Sakurai</i>
Bivariate Frequency Analysis Using Archimedean Copula and Nonstationary Gumbel Distribution with Inference Function for Margin Method, <i>Younghun Jung (Yonsei University, South Korea), Kyungwon Joo, Jinseok Jung, Jun-Haeng Heo</i>	Dynamic Buckling Behaviors of Circular Tube Piles on Centrifuge Tests, <i>Tenshiro Goto, Moeko Matoba (Tohoku University, Sendai, Japan), Yoshihiro Kimura</i>
Recent Earthquake Disaster in Kumamoto, Japan, <i>Yoshihiro Katsuhama (Nippon Koei Co., Ltd., Japan), Yoshiki Yamamoto</i>	Overview on Carbon Dioxide Uptake and Its Impact of Portland Cements Using Carbonation Curing, <i>Jeong Gook Jang (Korea Advanced Institute of Science and Technology, Daejeon, south Korea), H.K. Lee</i>
Concrete Use Mechanical Anchors Engineering Properties, <i>Chiwan Wayne Hsieh (National Pingtung University of Science and Technology, Taiwan), Jen-Han Wu, Yung-Chung Chen</i>	Development of Decision Making Criteria to Improve Road Maintenance Efficiency, <i>Koonnamas Punthutaecha (Department of Rural Roads, Bangkok, Thailand), Koson Janmonta, Wit Ratanachot, Punthutaecha Taruga</i>
Design Data Generation System using Three-Dimensional Polyline for Progress Control of Working Form, <i>Shigenori Tanaka (Osaka University of Economics, Japan), Kenji Nakamura, Ryuichi Imai, Satoshi Kubota, Jun Sakurai</i>	Research Concerning Estimation of Location Related to Traffic Events and Extraction of Public Opinions Related to Road Projects Using Microblogs, <i>Ryuichi Imai, Kenji Nakamura (Osaka University of Economics, Osaka, Japan), Shigenori Tanaka, Yuki Fujimoto</i>
Characteristics of Bus Operations and Fuel Consumption on Long Steep Grades, <i>Grace Po-chun Chen, William Ta-chun Lin, Amy Yi-Chin Hu (THI Consultants, Inc., Taiwan), Yi-cheng Chang, Yu-wen Yang, Jason Cheng-wei Su</i>	Best Practice Design of a Large-span Silo Roof with Shell and Tension Beam Structures - <i>Ahmad Nazari, (Bisbane, Australia)</i>
Modeling Vehicle Road Accident with Excess Zero Data of Johor Federal Road – Route Kluang-A/Hitam-B/Pahat, <i>Joewono Prasetyo (Universiti Tun Hussein Onn, Malaysia), Wan Zahidah Musa, Wahid Razzaly, Kamarudin Ambak, Basil David Daniel</i>	Effect of Methane Sampling Time on Average Flux under Rice Cultivation - <i>Nadar Hussain Khokhar and Jae-Woo Park (Hanyang University, Seoul, Korea)</i>
Public Private Partnership in Thailand Highways - A Case Study on an Extension of Donmuang Tollway Project - <i>Pruethipong Singhatiraj (Ministry of Transports, Bangkok, Thailand), Chatchai Chuangching and Boonkua Janbanjong</i>	Ultimate Seismic Capacity of Steel Moment Resisting Frame by Scaled Test - <i>Sachi Furukawa (Tohoku University, Japan), Yuma Murata, Yoshihiro Kimura</i>
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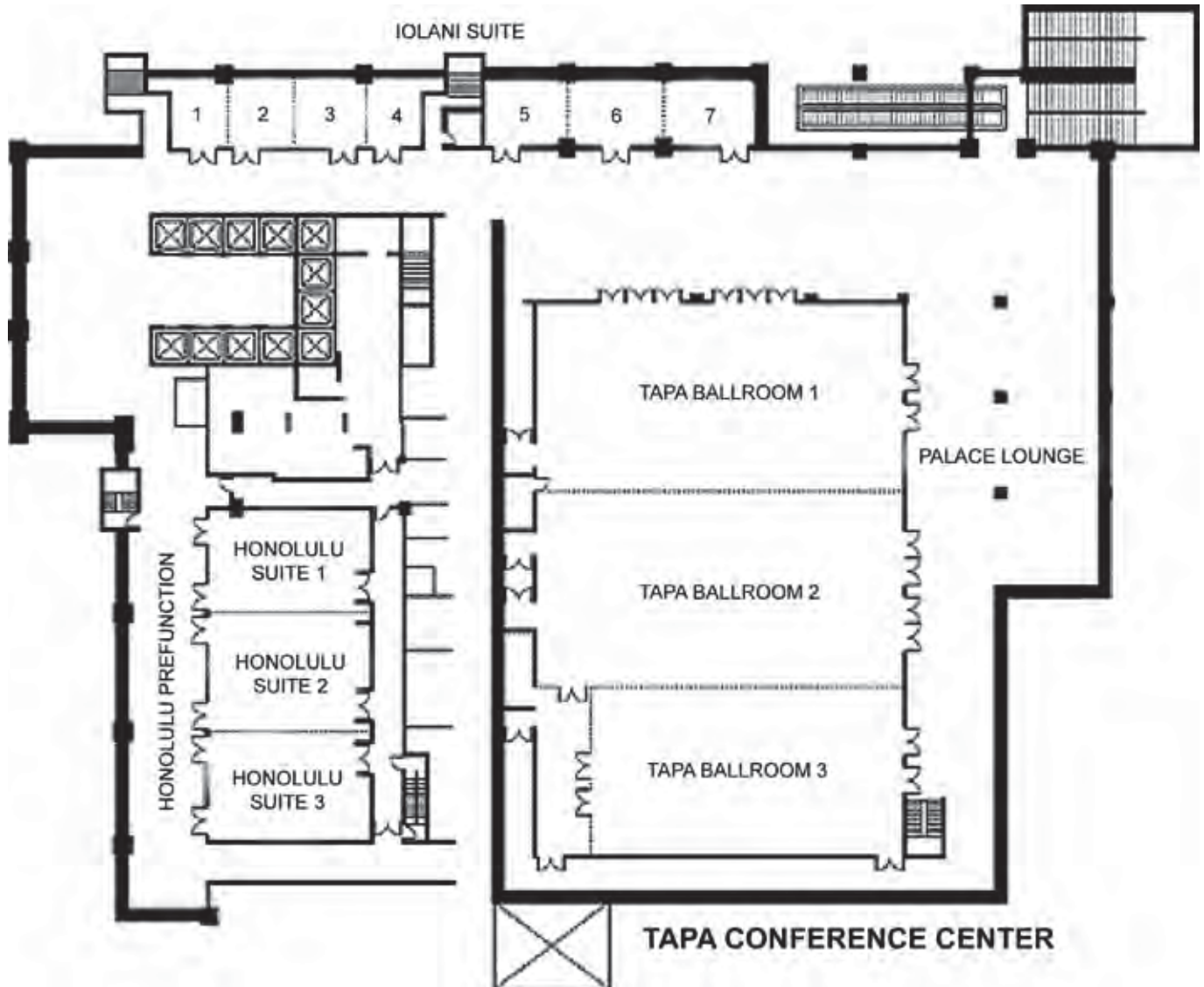
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Continental Breakfast-Thursday	X	X	X	X		X	
Lunch-Thursday	X	X	X	X		X	
Continental Breakfast-Friday	X	X	X	X			X
Conference Proceedings	X	X		X	X	X	X





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- Tuesday** 8:00 a.m. – 5:00 p.m.
- Wednesday** 7:00 a.m. – 5:00 p.m.
- Thursday** 7:00 a.m. – 5:00 p.m.
- Friday** 7:30 a.m. – 12:00 p.m.

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- Exhibit Hall** *Palace Lounge*
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- Lunch** *Tapa Ballroom Salon 2*

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