Michael K. Lindell
Hazards Researchers Workshop

July 15–16, 2017. Location: Gould Court

Institute for Hazard Mitigation and Planning Research at University of Washington is hosting this special workshop to celebrate and reflect upon the rich legacy of scholarship crated by Prof. Michael K. Lindell and his colleagues. With over 40 years of experience in the field of emergency management and disaster studies, Dr. Lindell has been one of the most influential researchers in this field. During this time, he has published more than two hundred articles and books, and mentored numerous students who themselves have gone on to become influential thought leaders and researchers.

This workshop offers an opportunity to look back at major milestones and research outcomes that have significantly influenced our present approach to emergency management and hazards research. This workshop will also offer a platform for researchers to share their research projects and ideas with colleagues. The program is designed to encourage dialogue and conversations among scholars to promote research collaborations. Selected presentations will be considered for publication in an edited book.

DEPARTMENT OF URBAN DESIGN & PLANNING
UNIVERSITY *of* WASHINGTON
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Institute for
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Planning and Research
Resilient and Safe Communities

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PROGRAM

JULY 15 2017, Saturday (Gould Court)

10:00 am	*Continental Breakfast*
10:30-11:15 am	Welcome note, Himanshu Grover & Carla Prater
11:15 am	Keynote Lecture: Prof. Michael K. Lindell
	Reflections on Hazard Research in the United States
Noon-1:30pm	*Lunch*
1:30-3 pm	Research Presentations
3:00 -3:15 pm	*Break*
3:15-5:00 pm	Research Presentations
5:00- 5:15 pm	Wrap up
5:30 pm	Happy Hour at a Local Bar

JULY 16 2017, Sunday

11:00 am   Walk & Ride tour of Seattle with Phil Hurvitz

Meet at Gould Court, tour ends around 4 pm at Pike Place

Market. *Lunch Break at International District*

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PRESENTATIONS

Uncertainty in Hurricane Evacuation Decision Making: A Progress Report of the NSF Hazards SEES Project
Yue (Gurt) Ge, North Dakota State University

Well Known or Well Liked? The Effects of Corporate Reputation on Firm Value at the Onset of a Corporate Crisis
Jiuchang Wei, University of Science and Technology of China

Featuring Natural Disaster Research through Mapping and Storytelling
Miriam Olivares, GIS Services, Yale University Library

Assessment of Short-term Public Shelter Needs after a Major Earthquake: A Case Study of Sheltering Decision in Taiwan
Jing-Chein Lu and Yu-Hsiang, Liu, Central Police University, Taiwan

Modeling Resilience Dynamics in Complex Adaptive Systems
Kim Galendo

Immediate Behavioral Response to Earthquake in Sichuan China
Shih-Kai Huang, Jacksonville State University; Chin-Hsien Yu, Southwestern University of Finance and Economics, China and Chunlin Hwa

Preparing for the New Normal: Students and Earthquake Hazard Adjustments in Oklahoma
Hao-Che (Trisan) Wu Alex B. Greer, Haley C. Murphy, Hsien-Ho Chang, Oklahoma State University

Risk Perception and Risk Communication after the Construction of Flood Diversion Channel
Jie-Ying Wu, University of Taipei

Resilience in the Himalayas: An Examination of Flash Flood Survivors Preferences
Dr. Sudha Arlikatti Associate Professor, Rabdan Academy, Abu Dhabi, UAE

International Partnerships for Hazards Research
Himanshu Grover, University of Washington

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ABSTRACTS

Uncertainty in Hurricane Evacuation Decision Making: A Progress Report of the NSF Hazards SEES Project
Yue (Gurt) Ge, North Dakota State University

I planned to talk about some preliminary findings from the NSF Hazards SEES project on uncertainty in hurricane evacuation decision making that I am involved in. First, we conducted an operational meteorologist web survey last summer prior to the hurricane season. The nation-wide survey asked meteorologists to rate 'frequency of use' and 'perceived usefulness' of four hurricane track forecast display methods (i.e., cone of uncertainty, spaghetti plot, probability plot, and categorical plot), reflect on their connection to the public in disseminating hurricane risk messages, and evaluate the rise of numerical modeling products for weather-related forecasting. Second, a 5,000 household mail survey is currently being undertaken in the form of a post-Hurricane Matthew behavioral study. Hopefully, by the time of the workshop, the data collection will be complete and thus I can share some results. In addition to the 'traditional' evacuation research questions similar to previous evacuation survey studies, several blocks of questions seem novel to the literature, including intra-family decision making (IFDM), social network analysis, and uncertainty in a dynamic emergent decision making process. I would love to report the findings for the first block - IFDM given data availability. Third, an emergency management public officials phone interview is being designed to supplement the data collection from meteorologists (the information generators) and residents (the end-users). Last, a brief introduction about an upcoming web experiment with willing participants from the household mail survey based on transportation simulation and hypothetical hurricane tracking scenarios. In sum, I will put up a PowerPoint presentation based on the multi-type data collection and interdisciplinary collaboration.

Well Known or Well Liked? The Effects of Corporate Reputation on Firm Value at the Onset of a Corporate Crisis
Jiuchang Wei, University of Science and Technology of China

Research summary: We study how two dimensions of reputation (i.e., generalized favorability and being known) and attribution of crisis responsibility affect firm value at the onset of a crisis. Analyzing 126 corporate crises befalling publicly listed firms in China from 2008 to 2014, we find that generalized favorability serves as a buffer, while being known can be a burden, in influencing firm value. We also find that the buffering effect of generalized favorability is stronger when the attribution of crisis responsibility is low (vs. high). In addition, there is a negative interaction effect between the two dimensions of reputation such that the buffering effect of generalized favorability weakens when firms are better known. We discuss our contributions to research on corporate reputation and crisis management.

Managerial summary: Corporate reputation is an intangible asset, especially at the onset of a corporate crisis. This research sheds light on the "double-edged sword" of corporate reputation by examining the effects of two reputation dimensions (i.e., being liked and being known) on firm value. Our results suggest that well-liked firms can leverage their generalized favorability among stakeholders to assuage firm value loss, whereas well-known firms may have to better communicate with stakeholders to overcome the burden of stakeholders' attention that escalates firm value loss. To better cope with the onset of a crisis, firms should therefore enhance their generalized favorability and simultaneously avert stakeholders' excessive attention. In addition, well-liked firms can further buffer against the loss in firm value by reducing the perceived intentionality of a crisis.

Featuring Natural Disaster Research through Mapping and Storytelling
Miriam Olivares, GIS Services, Yale University Library

Emergency managers and risk communicators continue to grapple with finding the most effective channels and formats to inform and educate the public of impending threats and the associated protective actions to take. Risk communicators are required to break down complex technical terms and express uncertainty and threat probabilities in simple easy to understand formats that can capture the attention of at-risk populations.

Applications such as GIS mapping technologies and simulation software have helped to advance the understanding of emergency management stakeholders in preparedness planning and response. This workshop aims to demonstrate a novel approach, through mapping and storytelling, to communicate urgent messages to researchers from across disciplines, the public, and policymakers.

Workshop attendees will be offered a means to share their research objectives, outcomes and recommendations through almost an entertaining platform. This session will include the basic steps to create a web-map, plan a story with its narrative and make it accessible to the public while ensuring there are no copyright violations. Examples of Esri Story Maps and ArcGIS Online will be explored to identify the best templates to feature specific aspects of attendees' research objectives.

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ABSTRACTS

Assessment of Short-term Public Shelter Needs after a Major Earthquake:
A Case Study of Sheltering Decision in Taiwan

Jing-Chein Lu and Yu-Hsiang, Liu, Central Police University, Taiwan

Understanding the demand of public sheltering and adopting its preparedness before emergency are critical for population protection. Research has identified several demographic and socioeconomic factors that may influence shelter seeking behavior. Disaster losses models, e.g. HAZUS, use the factors of race/ethnicity, income, homeownership, and age to estimate the demand of short-term public sheltering for a specific geographic area after a specific earthquake scenario. However, the research that focuses on public sheltering demand and related socioeconomic factors identification is relatively limited in countries other than the U.S. For example, Japan use a constant of 0.65 times the dislocated population to estimate the number of resident seeking short-term shelter.

This study use survey data that stimulate different levels of earthquake damages to ask the sheltering decision of surveyees. Demographic and socioeconomic characteristics of the surveyee are also collected. The 431 responses are divided into two datasets for model building and verification. The results argue that the dislocation concepts adopted in many earthquake impact estimation models are doubtful. Dislocation rate is not only related to home damage level of the household but also associated with the gross damage level of the surrounding area. This study also finds that income and housing type have significant influence on sheltering decision after earthquake events, however, race/ethnicity, family life stage, home ownership, disability family member, resident time, and housing structural type have no significant influence. Households with lower income and housing in single family homes tend to seek public shelter after an earthquake.

This study show that the pattern of short-term shelter needs in Taiwan is distinct from the experiences of the U.S. and Japan. This study suggests that local governments need to integrate the population characteristics and disaster scenario to better plan post-earthquake sheltering strategies. For an earthquake with moderated damage in Taiwan, about 30% to 40% dislocated households of a jurisdiction may have short-term public shelter needs, depending on the demographic characteristics of the jurisdiction.

Modeling Resilience Dynamics in Complex Adaptive Systems

Kim Galendo

This paper introduces an ontological model for resiliency which conceptualizes the dynamic interactions in complex adaptive systems. This Resilience Model had been derived through a combination of factors: interdisciplinary literature reviews, interdisciplinary research with a focusing on longitudinal process in complex adaptive systems, action-research, and case-studies. The original version of this model was conceived in 2016, through interdisciplinary work being done in Mexico. It was originally written as a static representation of the various forces engaged within system dynamics, and meant to be used as a tool for system analysis. However, the concept was always to expand this initial view and begin to define the nature of the dynamic relationships engaged in systemic adjustments. The model introduced herein, is the first attempt at defining those relationships, to thereby provide the basis for developing an algorithm which can define the expected interactions among the various sustaining and constraining forces affecting complex adaptive systems. These researchers came from three different countries (Mexico, USA, Finland), and four different disciplines (Urban Studies, Closed System Engineering, Physics, Knowledge Management).

ABSTRACTS

Immediate Behavioral Response to Earthquake in Sichuan China

Shih-Kai Huang, Jacksonville State University; Chin-Hsien Yu, Southwestern University of Finance and Economics, China & Chunlin Hwa

Since a catastrophic earthquake with magnitude 8.0 (ML) struck Sichuan in 2008, China has made many efforts on earthquake preparedness and response. To better understand whether Chinese residents, in particular those who live in earthquake zone, are well-educated about the accurate behavioral responses to the next earthquake, a face-to-face interview survey was conducted in MianYang, Sichuan in January 2017. A total of 705 randomly selected households were examined for their responses to a hypothetical earthquake with a strong shaking. Specifically, respondents have been asked about their previous earthquake experience, earthquake preparedness, expected earthquake impacts, expected immediately behavioral responses in three conditions (inside a building, outside a building and driving), expected responses 30 minutes after the shaking, and their demographic characteristics. The results exposed that most respondents (94.0%) have previous earthquake experience with preparing a flashlight (77.1%), storing water (29.5%) or storing food (19.0%) at home, while a few of them (6.7%) have a household emergency plan. In addition, the results also indicated that respondents are highly concerned about service disruptions (4.63), job disruptions (4.37), damages to the properties (4.22) and damages to the community (4.12), but they are least concerned about landslide or fire (2.37). Furthermore, if respondents were inside a building during the shaking, it would be unlikely for them to ignore the shaking (1.66) or to be frozen at where they are (1.85), whereas they were more likely to leave the building immediately (4.75) or to stop by the exit to see what would happen (4.24). Nonetheless, it is noteworthy that there is only a moderate low rating of the likelihood on recommended earthquake safety actions—drop-cover-hold on (2.47)—which is even lower than the other controversial earthquake safety actions—triangle of life (2.50). On the other hand, if respondents were outside a building or driving during the shaking, they would respond adequately—to pull over the car (4.26) and to evacuate to an open space (4.69). Finally, respondents indicated that they would be more likely to contact household members (4.60), to look for a shelter (4.23), to try to find out what happened (3.94) and to help others (3.86) after the shaking stopped.

Preparing for the New Normal: Students and Earthquake Hazard Adjustments in Oklahoma

Hao-Che (Trisan) Wu Alex B. Greer, Haley C. Murphy, Hsien-Ho Chang,
Oklahoma State University

Residents of Oklahoma have generally adjusted to the risks of common hazards, including wild fire, flooding, high wind, and tornados; however, since 2010, Oklahoma has seen a major increase in earthquakes, with an average of one or two M3.0 earthquakes occurring per day in 2015. We know little about resident's risk perceptions regarding this new hazard. This study examines how individual risk perceptions, hazard experience, hazard salience, and other factors influence individual hazard adjustments and mitigation efforts. We rely heavily on the Community Disaster Impacts Model and the Protective Action Decision-Making Model, as well as previous research conducted by Lindell and Whitney in 2000 on hazard adjustments for earthquakes in Southern California to develop research questions and hypotheses. We find that risk perceptions are related to an individual's intention to adopt hazard adjustments, but not the actual adoption of adjustments. Hazard salience is related to actual adoption of hazard adjustments, as are several demographic variables. We also find that individuals are more likely to make hazard adjustments for earthquakes if they believe those adjustments will also protect them from other hazards, such as high wind events. This leads us to make some practical suggestions for emergency managers regarding educating citizens about the actual risks associated with earthquakes and the value of individual mitigation efforts.

Risk Perception and Risk Communication after the Construction of Flood Diversion Channel

Jie-Ying Wu, University of Taipei

This study conducted questionnaire survey in the Xizhi District, New Taipei City which was considered as the most flood vulnerable urban area in Taiwan. Compared to 93.7% before the construction of the Yuznshanzih flood diversion channel, this study figures out that only 8% of the respondents believe themselves live in high flood risk area after the channel construction. Moreover, only 10% of the respondents consider Xizhi now as the flood vulnerable area compared to the rest of the Taiwan. Respondents having college education level or above show significant optimistic attitude on future flooding. However, having higher level of past flooding experience respondents show significant pessimistic attitude on future flooding. This study also figures out that 78% of the respondents have ever received risk communication messages through mass media and 59% through neighborhood leaders. However, only 33% of the respondents trusted the content of the risk communication messages from the mass media, but 82% from the neighborhood leaders.

Resilience in the Himalayas: An Examination of Flash Flood Survivors Preferences

Dr. Sudha Arlikatti Associate Professor, Integrated Emergency Management/ Business Continuity Management Programs Faculty of Resilience, Rabdan Academy, Abu Dhabi, United Arab Emirates

On June 16-17, 2013 heavy rainfall in the Himalayan State of Uttarakhand in North India triggered a devastating flash flood and subsequent landslides. Termed as the Himalayan Tsunami, it caused over 5,748 deaths, impacted 4,200 villages, completely damaged 2,513 homes and loss of 11,091 livestock. More than nine million people were affected in five of the worst impacted districts of the state. Following the disaster, an Uttarakhand Tourism Development Master Plan was prepared and systematic rebuilding efforts are underway. However, there appears to be scant attention paid to the varying needs of disaster survivors.

Post-disaster relocation and rebuilding efforts are oftentimes spearheaded by government agencies rather hastily, to meet the urgent demands of displaced disaster survivors. Consequently, the process of building back better ignores survivors' livelihood needs and other preferences, subjecting them to even more hardships. It is well recognized that lack of planning and community inputs leads to top-down ad hoc policies for disaster recovery that are likely to fail in building resilience. Hence there is growing recognition among scholars to gauge first hand, disaster survivors' needs and tailor policies to meet those needs.

This study aims to do that by analyzing the preferences of 316 flash flood survivors from 17 villages in the Uttarakhand district in the Himalayas of North India. Face-to-face interviews were conducted and data specifically related to respondents preferences take protective actions against future threats including, to relocate permanently, build back better, and seek family and community based emergency planning education were analyzed.

Findings suggest that government policies to rebuild and boost the economic driver ---religious tourism in this region while prudent should not ignore the needs of natives of this mountainous region. It is important to understand the varying perceptions of risk and tailor resilience building strategies by village locations, livelihood needs, topography, distance from the river, and socio- cultural ties. Additionally, efforts need to be survivor-centric by encouraging the revival of indigenous knowledge and sustainable construction practices suited to this region which is all but lost. It is vital that risk area residents are helped to build community resiliency in this way.

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PRESENTATION ABSTRACTS
Send abstracts to Dr. Himanshu Grover (groveh@uw.edu). Limit the length of the abstract to about 350 words. Presentation time will be limited to 15 mins followed by 15 mins of discussions for each presentation. All abstracts related to the field of emergency management, and disasters research will be considered.

REGISTRATION & PRESENTATIONS
Please send an email to groverh@uw.edu by April 30, 2017. Include a topic and a brief abstract (no more than 350 words) for the presentation.

EVENT DETAILS

July 15 2017		July 16 2017	
10:30 am	Welcome Address	10:30 am	Roundtable Discussion: Community Resilience- The Way Forward
11:00 am	Keynote Lecture: Hazards Research in the United States	Noon-1:30pm	Lunch
Noon-1:30pm	Lunch	1:30-4:30pm	Research Presentations
1:30-4:30pm	Research Presentations	4:30-5:30pm	Wrap-up Session
6:00pm	Happy Hour at a Local Bar		