Announcing the Final Examination of Mohammad Jeelani for the degree of Master of Science

Time & Location: March 28, 2011 at 1:00 PM in ENG2 312
Title: The Development of a Human Centered Methodology for the Assessment of Hand-held Communication Devices Used to Support Communication Flow in High Consequence Emergency Management

Communication has been identified as a critical component in the outcome of emergency response. Postmortems of “what went wrong” in disaster responses often point toward breakdown in communication between first responders, those directing rescue efforts, and the general population as one of the primary impediments to rendering timely aid and communicating adequate safety and weather information. Due to the high resilience, relatively low costs, and advanced features of modern hand-held communication devices, these devices are in a position to drastically improve communication flow during emergency management situations. Due to the lack of official implementation of these devices and the lack of the establishment of standard guidelines for device selection, the use of hand-held communication devices in emergency management is yet to be optimized. Island nations such as the Bahamas, which face unique challenges in regard to emergency management due to the geographical, infrastructural, political, and cultural hurdles which are found in the region, can especially benefit from the optimized implementation of hand-held communication devices in emergency management. This study examined current emergency response procedures in The Bahamas, created a baseline for the current use of hand-held communication devices by Bahamian emergency management officials and civilians, identified the communication needs of Bahamian emergency management officials and civilians, and proposed a model for the selection of hand-held communication devices based upon human factors principals and focusing on user priorities.

This study began with a focus group interview which included 14 Bahamian emergency management officials in order to gain an understanding of current Bahamian emergency response procedures and the communication challenges faced by emergency management officials during high consequence emergencies. A paper based survey was conducted, in which 31 Bahamian emergency management officials answered demographic, skill level, and functionality questions related to the use of hand-held communication devices to support emergency related activities including those directed toward preparation, mitigation, and response. These emergency management officials provided invaluable input based upon their practical experience in high consequence emergency situations. 155 Bahamian civilians participated in a similar survey which was a reduced version of the survey used for emergency management officials. Both surveys included questions in regard to the background information of the participants, previous hand-held communication experience, device performance, and what other communication devices were being utilized. The surveys were analyzed using statistical methods of categorical data analysis and correlations were identified. Several communication needs which were categorized as infrastructure, logistical, and equipment needs as well as a hierarchy of device selection factors in regard to the use of hand-held communication devices during emergency management situations were identified. The analytic hierarchy process (AHP) was used in order to determine the priorities of each of the identified device selection factors and a model for the selection of hand-held communication devices used to support communication flow in high consequence emergency management was proposed.

Major: Industrial Engineering

Educational Career:
Bachelor's of Environmental Design, BS, 2009, Auburn University

Committee in Charge:
Dr. Pamela McCauley-Bush, Chair, IEMS
Dr. Lesia Crumpton-Young, IEMS
Dr. William Thompson, IEMS
Approved for distribution by Dr. Pamela McCauley-Bush, Committee Chair, on March 14, 2011.

The public is welcome to attend.