

**KNIGHT, UMD**

**DHS Coastal Resilience Center**

**Education Project**

**Annual Project Performance Report**

Covers reporting period January 1, 2016 – June 30, 2016

- 1. Project Title:** Development and Testing of a Project Management Curriculum for Emergency Managers
  
- 2. Principal Investigator:** Sandra K. Knight, PhD, PE, D.WRE, D.NE, Senior Research Engineer, Department of Civil and Environmental Engineering, University of Maryland, College Park. Lead investigator for research and key advisor for emergency management training and curricula content.  
  
**Co-Principal Investigator:** John Hart Cable, Director, Project Management Program, A. James Clark School of Engineering, University of Maryland. Lead advisor for Project Management curricula and certification.
  
- 3. Other Education Participants/Partners:**
  - Gerald E. Galloway, PhD, PE, NAE, Glenn L. Martin Institute Professor of Engineering, Department of Civil and Environmental Engineering, University of Maryland
  - Lewis E. Link, PhD, Senior Research Engineer, Department of Civil and Environmental Engineering, University of Maryland
  - Gregory Baecher, PhD, PE, Glenn L. Martin Institute Professor of Engineering, Department of Civil and Environmental Engineering, University of Maryland

**4. Short Project Description:**

The goal of this educational work plan is to develop and test an educational and training curriculum that prepares professionals to manage and deliver disaster-related project(s), by merging the unique challenges of emergency management with the capabilities and technologies introduced by applying project management processes. By incorporating modern project management organizational processes, technologies, and skills, emergency managers will be able to manage and execute disaster-related projects and meet resilience goals more effectively and efficiently. By building disaster resilient concepts and emergency protocols and goals into project management processes, project managers will be equipped to contribute to a more sustainable and disaster-resilience future.

## **5. Abstract:**

Emergency managers are often assigned to lead many of the emergency activities and oversee the execution of large programs in the wake of disaster that are funded through federal and state programs. Also agencies and organizations (federal, state and local governments, utilities, non-profits, private industry, etc.) with a strong reliance on contract support and expertise, may be responsible for the response and recovery for sector-specific projects or program execution (marine transportation, healthcare, supply chain, utilities, etc.). Therefore, it is imperative, in this often urgent environment, that project and emergency managers have the right training and educational skills to effectively deliver projects on-time and on-budget while being considerate of the needs of the community and planning for a resilient future.

There does not currently exist an explicit program that merges emergency management and project management curriculum for the purposes of advanced learning or certification for practitioners. This research will aim to support existing certifications, and both degree and non-degree programs. Practitioners in emergency management and project managers who carry out emergency management activities will have the opportunity to hone their knowledge and skills through a set of courses that will be offered through the existing UMD Project Management Program. Additionally, through collaboration and coordination with existing accreditation programs, specific emergency training institutes (like the Emergency Management Institute), other academic institutes of higher learning and DHS supported programs, targeted training materials and short-courses will be developed and opportunities identified for providing the broadest access possible for practitioners.

The proposed research comprises three distinct phases: 1) understanding the requirements and needs of practitioners and developing a disaster-focused project management curriculum to be offered within the UMD Project Management program, 2) developing training and short course curriculum that align with existing certification programs, and 3) executing initial course offerings and/or training programs for delivering the developed approaches and technologies to practitioners.

## **6. End users:**

The following partners, collaborators and potential end-users have or will be contacted to participate in a needs interview, provide guidance and direction on existing certification requirements, collaborate on and/or review course curriculum development and either enroll or offer courses and training developed from this education research.

Initial contact and discussions have been carried out with a number of the people/Institutes identified below. Interviews were conducted the last week of July, 2016 and first week of August, 2016 with 20 experts. Names of some are below, but others identified in the consulting fields and with other related organizations were

also included. Further, at each phase of the project, organizations and individuals will be asked to provide feedback and confirmation on products.

- Project Management Institute (PMI), John Hart Cable, Director PMP, UMD is coordinating this effort through the existing collaboration UMD has with PMI.
  - Role: PMI provides three certifications in project management. Working with both PMI and IAEM, this project will attempt to establish training and curricula that satisfies certifications and could potentially be accredited by both. Additionally, because of the close relationship UMD has with PMI, opportunities will be sought to collaborate and leverage resources to make the effort a success.
- International Association of Emergency Management (IAEM), IAEM Certification Coordinator, Daryl Spiewak.
  - Role of IAEM: IAEM provides two certifications in emergency management. Working with both PMI and IAEM this project will attempt to establish a connection between these two programs and identify curriculum that could be accredited by both.
- FEMA Federal Coordinating Officers, Director, TBD
  - Role: Identify requirements for federal and state coordinating officers in executing disaster programs and create training and curriculum that would support those needs. Use office as an opportunity to transition PM training into the FCO training and identify professionals interested in program.
  - Currently 3 current or former FCO's have been identified to participate in a needs survey.
- DHS Center for Domestic Preparedness, Anniston, AL, TBD
  - Role: establish training and curriculum needs, leveraging opportunities and resources and establishing opportunity to transition training products to their organization.
- DHS Emergency Management Institute (EMI), Emmitsburg, MD. Supervisor, Chief Mitigation Branch
  - Role: establishing training and curriculum needs, leveraging opportunities and resources and establishing opportunity to transition training products to their organization.
- DHS FEMA Recovery Directorate, Branch Chief, National Coordinator Community Planning and Capacity Building
  - Role: serve as key sponsor to help identify best recovery program training opportunities and develop content. Opportunities to support the National Disaster Recovery Framework and leverage resources will be sought with this organization.
- FEMA Emergency Management Higher Education Program, Program Manager
  - Role: learn how UMD can interface with this program and establish an opportunity to contribute to the Higher Education Program
- FEMA Director, National Training and Education System
  - Role: Along with EMI the development of the education program and course offerings will be closely coordinated with the EMHEP and

NTES at FEMA. Opportunities to obtain financial or in kind support will be sought through their programs to leverage grant resources funded under this plan.

- National Emergency Managers Association, Paul Hogue
  - Role: NEMA could provide an opportunity to advertise the course offerings to its members which cover all the state emergency management agencies and FEMA and provide critical input to program development
- District of Columbia Homeland Security Emergency Management Agency, State Hazard Mitigation Officer, Donte Lucas
  - Role: HSEMA will be used to identify practitioners to help develop and test the course curriculum.
- Maryland Emergency Management Agency, TBD
  - Role: NEMA and connections to State emergency management agencies will be used to identify practitioners to help develop and test the course curriculum
- Jackson State University, DHS Coastal Resilience Center of Excellence, Tom Richardson
  - Role: As education partner lead for the CRC, UMD will coordinate and seek advice for improving and enhancing the work plan
- National Center for Security and Preparedness, Director
  - Role: Can provide lessons learned and identify potential partners from their experiences as a COE
- State University of New York, David Rousseau, Dean College of Emergency Preparedness, Homeland Security and Cyber Security
  - Role: Can provide lessons learned in establishing their new college in emergency management
- National Consortium for the Study of Terrorism and Responses to Terrorism (START), UMD, Holly Roberts and Michael Egnoto
  - Role: potential on campus partner to mutually support, promote and leverage programs as well as provide critical input into needs and curriculum development
- University of Maryland University College, Emergency Management curriculum faculty adjunct, Cliff Oliver
  - Role: Advisor on curriculum and point of contact with UMUC and potential guest lecturer at UMD
- University of the District of Columbia, Chair Civil Engineering, Pradeep Behera
  - Role: Partnerships and collaboration with other academic institutes including but not limited to these will be used to 1) improve curriculum development, 2) collaborate on projects, symposia and training, 3) identify students that could participate with the PIs and interface with practitioners to validate content and usefulness of curriculum.

- National Disaster Preparedness Training Center (NDPTC) at University of Hawaii, , Deputy Administrator for Preparedness, FEMA and Director NDPTC
  - Role: Consider as potential training deliverer and partner to develop a course or courses to be offered through their program.

## **7. Explanation of Changes:**

The Year 2 Workplan updates provided to the CRC on April 22, 2016 reflected and explained all modifications in Year 1 and beyond from the original work plan submitted August 2015 prior to DHS S&T approval and funding in January 2016. Since award, there were some minor shifts in funding. One modification resulted from an unnecessary requirement to support an intern in the SUMREX program. In discussions with the CRC Education Director at the March 2016 PI meeting, this project does not lend itself to supporting an intern. Therefore, budgets were modified to reflect that change. RETALK can be considered in Year 2 or Year 3 to replace the SUMREX activity. Further, by the time funding arrived in January 2016, it was too late to identify and hire a graduate student. These funds were shifted to contract support. Delays in contracting and some shifts in travel funding required a carryover of funds which was requested by the PI to CRC on June 2, 2016.

There were only shifts to two milestones and one related transition milestone (all documented in the Year 2 work plan updates under review). These shifts were in part due to receipt of final approval and funding by UMD, but also due to 1) administrative delays at UMD of putting a sole-source contract in place to conduct a needs assessment and 2) adding attendance of an EMI higher education summer symposium in June. Both of these efforts will contribute to a better product. This should not impact overall effort. Other activities can be completed as scheduled.

## **8. Unanticipated Problems:**

There were no real problems of concern. The biggest challenge was just getting things in place in January to get started and dealing with the unexpected challenge by the PI of putting sub-contracts in place at UMD. This has been resolved and processes should be better understood moving forward.

## **9. Project Outcomes:**

Natural Disasters between 2003 and 2012 resulted in estimated global average annual economic losses of \$156.7 billion and average annual deaths of 106,654<sup>1</sup>. Following the tremendous losses that come with these disasters, come billions of dollars for

<sup>1</sup> Guha-Sapir D, Hoyois Ph., Below R. *Annual Disaster Statistical Review 2013: The Numbers and Trends*. Brussels: Center for Research on the Epidemiology of Disaster (CRED): 2014

emergency management activities that must be managed by federal, state and local agencies and/or organizations. For instance, the federal disaster appropriations following Hurricane Sandy were approximately \$58 billion<sup>2</sup> and were dispersed via many programs and agencies with specific regulatory or policy requirements for execution. Disaster relief funds such as these are spent to get communities back on their feet by replacing or rebuilding critical infrastructure, key facilities, businesses and homes. Further, the organized response to a disaster shares all the characteristics and has all the organizational needs of a built project. It is also well understood that building resilience into our built, social and environmental systems prior to an event has recurring benefits to disaster losses. Therefore, resources are often allocated for mitigation following a disaster as well as on “sunny days.”

Project outcomes:

- Help professionals, whether emergency managers or project managers, more effectively and efficiently deliver projects and programs to provide for a disaster resilient future.
  - Broaden and/or improve the skills and capabilities of emergency management workforce professionals
  - Educate program and project delivery professionals on the complexities and unique requirements that arise in the face of disaster
- Identify and link the best practices and lexicons of emergency management and project management
- Develop test courses/training/curriculum that can be easily adapted and used by other institutes of learning

## 10. Education Activity and Milestone Progress:

### Education Activities and Milestones: Progress to Date

Reporting Period 1/1/2016 – 6/30/2016			
<b>Education Activity</b>	<b>Proposed Completion Date</b>	<b>% Complete</b>	<b>Explanation of why activity / milestone was not reached, and when completion is expected</b>
Next key milestone is in future period.			
<b>Education Milestone</b>			
Needs assessment: to include review of literature and existing academic and accreditation programs, interviews with	07/31/16*	85%	A shift was requested from a completion date of 05/30/16 to 07/31/16 in the YR2 work plan update due to expected time needed

<sup>2</sup> <https://www.congress.gov/113/plaws/publ2/PLAW-113publ2.pdf>

<p>subject matter experts, case history review. (Needs assessment report)</p>			<p>to put a contract in place and to attend EMI higher education symposium. Due to delays at UMD the actual contract did not get into place for the needs assessment until June 6, 2016. Expected completion is now August 30, 2016</p>
<p>Top Priority Course Curriculum Offerings Descriptions: completion of 3 introductory course prospectus and targeted scheduling for initial delivery in year 2 and/or year 3 (depending upon university capacity): Course Prospectus and University Approval</p>	<p>08/30/16*</p>	<p>20%</p>	<p>A shift was requested from a completion date of 06/30/16 to 08/30/16 in the YR2 work plan update to be able to incorporate ideas that might come from needs assessment. Some concepts for courses have been collected and prospectus begun. However, the expected completion is now September 30, 2016.</p>
<p>*reporting these milestones as they were originally scheduled in Year 1 but were requested to be shifted to Year 2 and April, 2016 and have not received feedback.</p>			

## 11. Transition Activity and Milestone Progress:

### Transition Activities and Milestones: Progress to Date

Reporting Period 1/1/2016 – 6/30/2016			
<b>Transition Activity</b>	<b>Proposed Completion Date</b>	<b>% Complete</b>	<b>Explanation of why activity / milestone was not reached, and when completion is expected</b>
<b>Transition Milestone</b>			
Collaboration and Communication with Emergency Management training professionals in development of curricula requirements. Key contacts will be made and contracting support, if needed, will be identified. The effort will be continuous throughout program.	04/30/2016	100	As noted in milestones, contracting support was delayed. However, numerous contacts have been identified and many called or consulted in development of this work plan. A list of 20 individuals were identified for interviews for the needs report and many more for future collaborative efforts. The higher education symposium offered a wide opportunity for the PI to make contacts and discuss her efforts with other professionals. This type of collaboration will continue throughout the project.
Collaboration and Communication with certification program officials for accreditation of project management training. Key contacts at potential certifying organizations will be made early, but effort will be continuous throughout program.	04/30/2016	100	Key contacts were identified and initial discussions were held with IAEM and PMI certification officials regarding requirements for certification. This will be continuous and as curriculum is developed, these organizations will be included in review.
Distribute Needs Assessment report	07/31/16*	20	A shift was requested 06/30/16 to 07/31/16 in the YR2 work plan update to put a contract in place. This cannot be completed until contractor provides report (see milestone above). However, a list of organizations and individuals are identified to provide feedback. Expected completion 9/30/2016
Site visits and other correspondence to FEMA Headquarters, EMI, CDP and/or	06/30/16	100	Contacts have been made and interviews scheduled with FEMA, EMI staff and others. Additionally, PI attended a 4-day symposium on



others in development of needs. (This will continue throughout project)			higher education at EMI. This continues throughout project.
*reporting these milestones as they were originally scheduled in Year 1 but were requested to be shifted to Year 2 and April, 2016 and have not received feedback.			

**12. Interactions with research projects:** None to date

**13. Publications:** None to date

**14. CRC Performance Metrics:**

<b>CRC Performance Metrics</b>			
<b>Metric</b>	<b>Research</b>	<b>Education</b>	<b>Center</b>
Courses/certificates developed, taught, and/or modified		See Table	
Enrollments in Center-supported courses/certificates			
HS-related internships (number)			
Undergraduates provided tuition/fee support (number)			
Undergraduate students provided stipends (number)			
Graduate students provided tuition/fee support (number)			
Graduate students provided stipends (number)			
Undergraduates who received HS-related degrees			
Graduate students who received HS-related degrees			
Certificates awarded (number)			
Graduates who obtained HS-related employment			
SUMREX program students hosted (number)			
Lectures/presentations/seminars at Center partners			
DHS MSI Summer Research Teams hosted (number)			
Journal articles submitted (number)			
Journal articles published (number)			
Conference presentations made (number)			
Other presentations, interviews, etc. (number)		25	
Patent applications filed (number)			
Patents awarded (number)			
Trademarks/copyrights filed (number)			
Requests for assistance/advice from DHS agencies		2	
Requests for assistance/advice from other Federal		3	
Total milestones for reporting period (number)**		3	
Accomplished fully (number)		3	
Accomplished partially (number)			
Not accomplished (number)			
Product/s delivered to end-user/s (description and	See Table		
External funding received	See Table		
Leveraged support	See Table		
Articles on Center-related work published on website			
Coverage in media, blogs (number)			
Social media followers (number)			
Posts to social media accounts (number)			
Events hosted (number)			
Website hits (number)			

\*Interviews for needs assessment included federal and state governments, primarily DHS, FEMA and DC HSEMA

\*\*This number reflects total (education and transition milestones) due by 06/31/2016 based on updated YR2 Workplan submitted in April.

**Table for Documenting CRC Education Project Courses and Enrollments (N/A)**

Courses Developed and Taught by Name of University under Project Title						
Course		Developed (D), Revised (R), and/or Taught				
Number	Title	1	2	3	4	5
N/AN/A						
Offering: Elective (E), Concentration (C), Minor (M)						
Enrollment						

**Table for Documenting External Funding and Leveraged Support**

External Funding			
Title	PI	Total Amount	Source
N/A			
Leveraged Support			
Description			Estimated Annual
N/A			