

Puerto Rico Emergency Management Academic Program Development Workshop After-Action Report - October 2019

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Background

Hurricane Maria and Limited Emergency Management Capacity in Puerto Rico

On Wednesday, September 20, 2017, Hurricane Maria made landfall in Puerto Rico. The category 4 Hurricane, with significant rainfall and 155+ mph winds, caused serious flooding and mudslides along with substantial structural damage (including the loss of power for up to a year in some areas), loss of life and extensive economic loss. The impacts required a massive response and the recovery will continue for years to come.

In the aftermath, Puerto Rico officials are working to strengthen their capacity to address disaster needs. Puerto Rico has an extensive higher education system, yet their colleges and universities offer only a few courses in emergency management. For this reason, Wendy Walsh, the FEMA National Training and Education Division (NTED) Higher Education Program Manager, and the FEMA Community Planning and Capacity Building (CPCB) recovery team collaborated to deliver an Emergency Management Academic Capabilities Workshop, October 15-16, 2019, in San Juan, Puerto Rico. The Workshop was organized and conducted with the help of Dr. David McEntire (Dean of the College of Health and Public Service at Utah Valley University) and Dr. Caroline Hackerott (Assistant Professor in the Department of Emergency Management at North Dakota State University).

Workshop Planning and Survey

Prior to the Workshop, Wendy Walsh communicated with FEMA officials in Puerto Rico—Katherine Gonzalez and Luis Rivera Herrera—to determine the need and logistics for the event. She also communicated with Dr. McEntire and Dr. Hackerott to gauge their interest, develop an agenda, select dates, and reserve a location. During the planning stage, a survey (see Attachment A) was drafted and distributed to a potential list of attendees identified with the assistance of Katherine Gonzalez and Luis Rivera Herrera (see Attachment B).

Workshop Summary

Day 1

Wendy Walsh kicked off the Workshop with a welcome, sharing the Center for Ethical Leadership's Gracious Space message and provided context for the meeting (*i.e.* exploring the need and possible pathways for additional emergency management higher education courses and programs in Puerto Rico). Each of the attendees introduced themselves along with their academic

institution, provided information on program/course offerings, and their desire to advance emergency management education.

Dr. McEntire discussed the results of the pre-Workshop survey. Responses revealed that **20%** of the 15 respondents reported that their institution has a degree in Emergency Management and **16%** have courses in the discipline. Additionally, **16%** of the respondents said their university is seeking to develop additional degrees or courses in Emergency Management. When asked what assistance would be most helpful for their program and course development, the respondents offered the following: experiential learning, library resources, regulations, funding, organization of programs, training, and equipment. When asked what topics should be covered in the Workshop, the respondents provided the following answers:

▪ How to Propose a Program	80.0%
▪ What Emergency Management is	73.3%
▪ What are learning objectives/core competencies	73.3%
▪ Research	73.3%
▪ Importance of Emergency Management	66.7%
▪ What courses to include in the program	66.7%
▪ Internships	66.7%
▪ Scholarship of Teaching and Learning	60.0%
▪ Partnering with other institutions	53.3%
▪ How to work with the administration	40.0%

Several participants spoke about the existing efforts in Puerto Rico.

- Joan Asencio discussed the Resilience In Sustainable rEconstruction (RISE) program and the need to facilitate the education of the next generation of Emergency Management scholars.
- Jennifer Santos-Hernandez, an Assistant Professor, discussed existing research efforts in Puerto Rico – particularly as they relate to Hurricane Maria.
- Gilberto Guevara then spoke and covered the activities of the Puerto Rico Science Trust, providing details about his foundation and the type of projects that they fund.

In addition to local expertise, two senior FEMA leaders—NPD Assistant Administrator Alex Amparo and Federal Disaster Recovery Coordinator Joan Rave—shared their experiences in the recovery effort and answered questions.

Dr. McEntire presented foundational information on the Emergency Management discipline and profession, including the definition, mission, vision, and principles of Emergency Management. He also defined several important concepts (e.g., phases, hazards, vulnerability, disaster, and scale of events) and discussed the role of the emergency manager and others in the public, private and non-profit sectors typically involved in disasters. Dr. McEntire also provided an overview on the history of Emergency Management along with recurring challenges facing that profession.

Next Generation Core Competencies

Dr. Hackerott presented an overview of the Next Generation Core Competencies (NGCC) followed by a facilitated discussion on how these competencies may be incorporated into existing programs and courses across multiple disciplines. She emphasized the importance of ensuring students receive specialized knowledge from the Emergency Management body of knowledge (and not the host discipline) as participants developed new modules, courses, certificates, and degrees. Participants reviewed an NGCC overview worksheet in preparation for the Workshop activities scheduled for the following day.

Dr. McEntire led a conversation on establishing an academic program. He identified possible approaches to academic programs (e.g., separate departments or integration into other departments such as Sociology, Geography, Political Science, Public Administration or Health Care). The various modes of delivery (traditional, online, hybrid) were also discussed along with their relevant advantages and disadvantages. The dialogue continued with thoughts on how to harness general education requirements along with examples of core courses and other electives. He highlighted the need to balance theory with practical application; for instance, courses should cover the origins of the field, key concepts, goals of emergency management, phases of emergency management, the various sectors involved in this profession, and unfolding concerns. Students should also be aware of the legal basis of the field, how to assess risk, write emergency operations plans, develop resource lists, and participate in disaster exercises. Dr. McEntire wrapped up the session with advice on the importance of advisory boards, how to acquire resources for the library, and how to work effectively with administration at academic institutions.

Curricular and Instructional Trends

Dr. Hackerott led a discussion of the overall trend of moving toward a competency-based curricula; reflecting the shift in many state legislatures and accrediting bodies to require evidence for return on investment from a more vocational perspective. Creating competency-based learning outcomes offers educators an opportunity to streamline assessment processes while developing evidence for resource allocation requests. In general, there is a desire for graduates to enter the workforce quickly with an educational foundation and applicable skills. Mastery level competencies allow graduates to bridge theory and practice through critical thinking and decision-making grounded in Emergency Management theoretical frameworks. To attain competency mastery, practical learning activities must be integrated into every class. Aspects of active learning which build competency include empowering students to design some learning activities and pathways. Employers indicate that graduates from programs which include emerging technologies and opportunities to participate in required employment training prior to graduation are highly desirable—these learning experiences are often tied to current events and involve case studies and supplemental course work. Additionally, instructional designs involving flipped classrooms increase student accountability. Finally, experiential learning activities including internships or apprenticeships are also valuable to students.

Program Outreach & Marketing

Dr. McEntire identified approaches to market and recruit students for new programs, including websites, social media, brochures, student handbook, newsletters, social activities, scholarships, advising and overall program effectiveness.

Day 1 ended with a recap and task; each participant was asked to complete an exercise regarding their own institution's and program's mission, vision, curriculum and program learning outcomes and return with the results on Day 2.

Day 2

Day 2 began with a preview and a discussion on improving instruction, including perspectives on traditional lectures and discussion, using guest speakers, videos, field trips, group projects, exercises and activities, student presentations, and assignments and tests.

Accreditation

Dr. McEntire discussed accreditation for institutions and specific disciplines—using the example *The Council on Accreditation for Emergency Management Accreditation*. He emphasized that program directors should be familiar with the standards and timelines and give special attention to completing the application and planning site visits that are organized and informative.

FEMA Resources

Wendy Walsh presented on the National Preparedness System, FEMA's Strategic Plan, and the Higher Education Program. She also discussed the various activities, projects and resources available to both faculty and students through the Higher Education program, and how the higher education community can support the development of academic programs in Puerto Rico.

Competency-Focused Academic Engineering Cycle

Dr. Hackerott guided participants through a complete competency-based academic engineering cycle for a course or module, certificate, or program they envisioned. Using their own institutional and program mission, vision, and goals, participants determined their desired student outcomes, identifying competencies and mastery-levels their students would be expected to achieve. Working within the framework created by their institutional and program mission, visions, and goals; participants were then able to map learning outcomes aligned with their selected competency. With mapping completed, participants developed course-level (or module-level) learning outcomes and linked these to learning activities and assessment strategies, with assessment standards identified. The resulting program-level assessment strategy and competency-focused academic engineering cycle provided participants a foundation for a sound approach to develop a new module, course, certificate, or program.

Questions and Answers

Facilitated discussions prompted participants to explore viable educational pathways in Puerto Rico and identify next steps for implementation of new programs. Participants were invited to ask questions and share perspectives about how to move forward, along with invitations to meet with McEntire, Hackerott, and Walsh for more in-depth conversations post-Workshop.

Conclusion

Overall, the Workshop appears to have been a great success. Participants gained foundational knowledge about the discipline and profession of Emergency Management and were able to learn about core competencies, the academic engineering cycle, and resources available to assist them with their academic programs. As a result of the Workshop, participants are in a better position to improve emergency management capacity in Puerto Rico, by implementing new approaches to improve, develop, and expand emergency management higher education.

Individual Visits with the following institutions & organizations occurred on October 16-18

- **Universidad Central de Caribe**— Interested in designing a certificate in disaster medicine—to be integrated into all of their programs- for physicians, chiropractors, nursing and medical imaging.
- **Puerto Rico Science, Technology and Research Trust**—Have provided \$160,000 in funding for researchers from tax revenue from the sale of rum in the United States. They help people write grants, fund research, secure patents, and start business and are focused first responders and health workers. They have established a Hurricane Hub.
- **University of Puerto Rico-Mayaguez**—Have an existing Disaster Medicine program—housed in Department of Nursing and are looking to build on and extend existing efforts
- **University of Puerto Rico-Rio Piedras**—Currently building a Graduate certificate for disaster planning within the current in their Department of Planning

Attachment A: Puerto Rico Higher Education Survey

1. Please list your name, position, college/department, institution, address, email address and phone number.
2. Are you planning to come to the Puerto Rico Focus Group meeting?
 - a. Yes
 - b. No
3. Do you currently have a degree program in or related to emergency management?
 - a. If yes, please note type of degree (e.g., Associate of Arts, Bachelor of Science, Masters, PhD) and name of degree (e.g., Emergency Management, Homeland Security, Public Administration, etc.).
 - b. If no, proceed to next question.
4. If you do not have a degree program, do you currently have courses in or related to emergency management?
 - a. If yes, please note the type of courses in or related to emergency management (e.g., Introduction to Emergency Management, Geographic Information Systems, Sociology of Disasters, Disaster Resilience).
 - b. If no, proceed to next question.
5. Are you seeking a degree in emergency management or courses in or related to emergency management?
 - a. If yes, please describe.
 - b. If no, end survey.
6. If you are seeking a degree in emergency management or related to emergency management, would you like recommendations or assistance?
 - a. If yes, what assistance would be helpful for your program and course development?
7. Would you like to be visited at your office to discuss your goals for a program in emergency management?
8. Would you like to attend a Workshop which will provide information about program and course development?
9. What topics would you like to see covered at the Workshop?
 - a. The importance of emergency management
 - b. What emergency management is
 - c. How to propose a program
 - d. What the learning objectives/core competencies are
 - e. What courses to include in the program (GE, major, electives)
 - f. How to work with the administration
 - g. Partnering with other institutions and practitioners
 - h. Internships
 - i. Scholarship of teaching and learning
 - j. Research
10. What other questions do you need answered or recommendations do you have in order to build emergency management higher education programs?
11. Can we contact you with further questions? Yes or no.

Attachment B: List of Attendees

Last Name	First Name	Affiliation
Asencio	Joan	RISE
Beauchamp	Sonny	FEMA- Puerto Rico Recovery
Collazo Cortes	Barbara	Universidad de Puerto Rico
Concepcion	Carmen	Universidad de Puerto Rico
Crespo	Waleska	Universidad Central del Caribe
Del Valle	Alfredo	Private Sector EM
Encarnacion Burgos	Angeliz	Universidad de Puerto Rico- Rio Piedras
Figueroa	Ada	Universidad Central de Bayamón
Gomez-Cortes	Abner	Former PREMA Director
Gonzalez	Widalys	Atenas College
Gonzalez	Katherine M.	FEMA Hazard Mitigation
Guevara	Gilberto	Puerto Rico Science, Technology & Research Trust
Hackerott	Caroline	North Dakota State University
Henandez	Dra. Maria L.	Atenas College
Jimenez	Epifanio	Former PREMA Director
Matos-Pagan	Abigail	Universidad de Puerto Rico
McEntire	David	Utah Valley University
Mendez	Ashley	Universidad de Puerto Rico
Miranda	Wanda G.	Universidad de Puerto Rico
Moscoso	Jose	Universidad Central del Caribe
Ortiz	Maria	Universidad Ana G. Méndez
Ortiz	Luis	Universidad de Puerto Rico
Patel	Bibi	FEMA- Region 2
Perez-Jimenez	David	Universidad de Puerto Rico
Quintana	Jailyn Soto	Universidad de Puerto Rico
Reyes	Luisa V. del Toro	Prescient Technologies
Rivera	Nydia	EDP University of Puerto Rico
Rivera	Mildred	Universidad Central del Caribe
Rivera Herrera	Luis	FEMA- Puerto Rico CPCB
Robles	Pedro	Universidad Central de Bayamón
Rodriguez	Bianca J.	Prescient Technologies
Rodriguez	Wanda I.	Universidad Ana G. Méndez
Rodriguez	Monica	FEMA NDRS-Interagency Recovery Coordination
Rosa	Mayra Nieves	FEMA NDRS-Interagency Recovery Coordination
Sanabria	Jhon	Universidad Ana G. Méndez
Sanchez	Mayra	Huertas College
Santos	Jennifer	University of Puerto Rico
Soto	Emilia	Universidad Central del Caribe
Torres	Joanne	EDP University
Torres	Ivelisse	FEMA NDRS-Interagency Recovery Coordination
Velez	Sonetchka	FEMA- NDRS- Interagency Recovery Coordination
Walsh	Wendy	FEMA- Higher Education Program

Attachment C: Workshop Agenda

HIGHER EDUCATION PROGRAM

NATIONAL EMERGENCY TRAINING CENTER • EMMITSBURG, MD
NATIONAL TRAINING AND EDUCATION DIVISION / NATIONAL TRAINING AND EDUCATION SYSTEM



FEMA

Puerto Rico Emergency Management Academic Capability Workshop Agenda October 15-16, 2019

DAY 1 - Morning

8:45 am *Welcome and Introductions – Wendy Walsh*

Preliminary comments and expression of gratitude for organizers in Puerto Rico, introductions of speakers & attendees, and relevance of discussion (disasters, terrorist attacks and resilience)

9:30 am *Survey Findings, Goals, and Overview of the Workshop – Dave McEntire*

Review the Survey; integrate emergency management/homeland security further into your institutions; understand these disciplines and professions more fully; comprehend how to establish and run a successful program; increase awareness of available resources; explore possible options for creation and partnerships; measuring our success

10:00 am *Current Efforts– Wendy Walsh*

- Jennifer Santos- Hernandez- Disaster research in Puerto Rico
- Joan Asencio- RISE Puerto Rico
- Greg Guannel- USVI efforts (invited)
- Gilberto Guevara- Puerto Rico Science Trust efforts- NASA collaboration & Prototype methodology

10:30 am *Break*

10:45 am *Understanding the Emergency Management Profession and Discipline – Dave McEntire*

Four phases and prevention and protection; definition of emergency management; definition of homeland security; Principles of Emergency Management (definition, mission, vision, principles); definition of hazard, vulnerability, disaster, scale of events; the role of the emergency manager; emergency management at the state and national level; emergency management is a distributed function; emergency management in the private sector; emergency management in the non-profit sector

11:30 am *Lunch Break – No Host*

DAY 1 - Afternoon

1:20 pm *Next Generation Competencies – Caroline Hackerott*

Operate within the EM framework, principles and body of knowledge; possess critical thinking, abide by professional ethics; continual learning, scientific literacy; geographic literacy; sociocultural literacy; technological literacy; systems literacy; disaster risk management; community engagement; governance and civics; leadership

2:20 pm *Setting up an Academic Program – Dave McEntire*

Understanding the challenges; identifying your mode; curriculum development; harnessing general education; establishing the core courses; balancing theory and practical application

2:50 pm Break

3:05 pm *Setting up an Academic Program (cont.)* – Dave McEntire

Advisory boards, library resources, working with the administration, marketing and recruiting

4:40 pm *Recap of the Day* – Wendy Walsh, Dave McEntire & Caroline Hackerott

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FEMA

Puerto Rico Emergency Management Academic Capability Workshop Agenda October 15-16, 2019

DAY 2 – Morning

8:45 am *Preview of the Day* – Wendy Walsh, Dave McEntire & Caroline Hackerott

9:00 am *Setting up an Academic Program (cont.)* – Dave McEntire

Ideas for instruction, guest lecturers, field trips, internships, accreditation and student success

9:45 am *Resources from the FEMA Higher Education Program* – Wendy Walsh

Higher Education Program & FEMA Resources

10:30 am Break

10:45 am *Competency-Focused Academic Engineering Cycle* – Caroline

Hackerott *Theory to practice- mapping a course curriculum*

11:30 am *Lunch Break* – No Host

DAY 2 – Afternoon

1:20 pm *Exploring Viable Pathways to EM Education in Puerto Rico* – Caroline Hackerott, Dave McEntire, Wendy Walsh

2:20 pm Break

2:40 pm *Collaboration, Accountability & Courses of Action* – Caroline Hackerott, Dave McEntire, Wendy Walsh

3:25 pm *Comments, Concerns, Questions, and Answers* – Caroline Hackerott, Dave McEntire, Wendy Walsh

3:55 pm *Final Thoughts/Next Steps for Implementation* – Wendy Walsh

Attachment D: Alt Text

Workshop Agenda Image

Higher Education Program. National Emergency Training Center, Emmitsburg, MD. National Training and Education Division/National Training and Education System. U.S. Department of Homeland Security Seal, Federal Emergency Management Agency (FEMA). Puerto Rico Emergency Management Academic Capability Workshop Agenda. October 15-16, 2019.