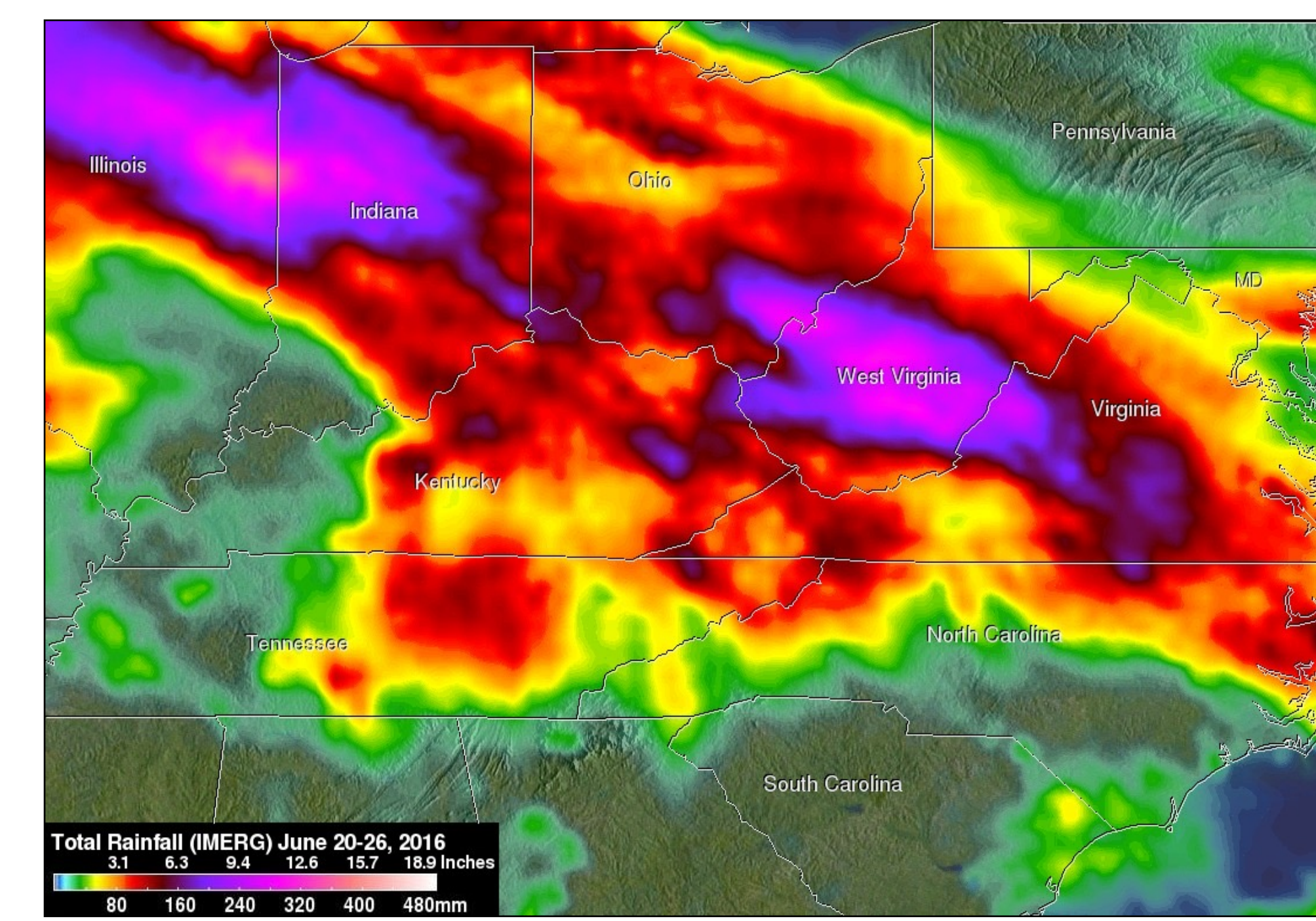# THE PEOPLE AND PROCESS OF INFRASTRUCTURE DESIGN AND CONSTRUCTION POST DISASTER RESPONSE: A CASE STUDY OF THE 2016 FLOOD EVENTS IN WEST VIRGINIA

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[1]

Total Rainfall (IMERG) June 20-26, 2016
[2]

Introduction

- Storm events are becoming more frequent and more severe[3].
- People tend to develop in areas prone to hazards more than locations with lower risks[4].
- Governments cannot afford to design and build infrastructure to withstand severe storms.
- Resilience is not only an ability to withstand damage, but also quickly recover.
- Disasters provide communities with the opportunity to build back better.

Purpose

- Identify weaknesses and strengths of West Virginia's long-term disaster recovery process.
- Identify key stakeholders.
- Review policies affecting stakeholders' decision-making process.
- Evaluate stakeholders' risk perceptions.

Research Questions

1. How do the relationships between stakeholders influence the recovery process?
2. How do government regulations influence the recovery process?
3. How do stakeholders' perceptions of risk influence the recovery process?

Methods

Data Collection

- Semi-structured interviews were the primary method of gathering information. Site visits were also performed.

Data Analysis

- Thematic content analysis is being used and is a method of data analysis used to extract meaning from text by breaking it down into small describable units[5].

Case Studies

Bridge Home Program

Description

- Program replaces private water crossings outside the state DOT's jurisdiction.
- Replacement bridges are:
  - Easily modified
  - Simple to build
  - Low Cost
  - Resistant to flooding
  - Quicker to permit

Stakeholders

Clearing — Foundations — Finished Bridge
[6]

Hope Village

- Hope Village is a nationally recognized project that represents the peak of disaster recovery and flood mitigation.
- Public, private, and non-profit groups worked together to design, permit, and build an entirely new neighborhood of over three dozen homes out of the floodplain and at little to no cost to flood victims.
- Homes were completed as soon as five months after the flood.
- Private funding allowed for a much faster response time and eliminated months off traditional publicly funded recovery efforts.

Aerial View
[7]

Volunteers Building Hope Village
[8]

Selected Preliminary Findings and Implications

Projects need a champion.

"You need a community leader...Some communities cannot get together…" –CEO of Mennonite Disaster Service

Community organizations need to establish a leader who can serve as a point of contact and advocate for their cause to various organizations.
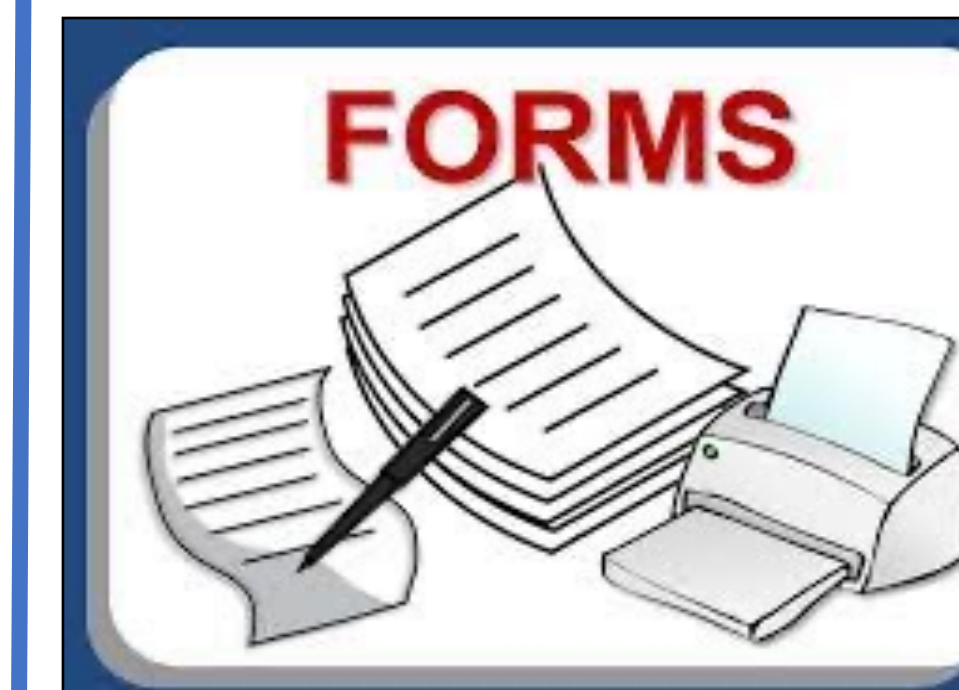
The disaster recovery community needs education and training on designing private water crossings.

"That's one thing I wish was going better – just the passing on of information." – Bridge Designer and Professional Engineer

Federal agencies need to establish private water crossing design and construction guidelines.

Disaster victims struggle to fill out government forms.

FORMS

"We have to get it to where this (federal disaster recovery) is all one program." – Permitting Manager for WV VOAD

Government agencies should standardize forms for use across organizations (e.g. FEMA and HUD) to report disaster-related damages and apply for recovery funds.

Volunteers are an underutilized and undervalued asset in disaster recovery.

"Voluntary agencies do have the capacity to be a part of the solution." – CEO of Mennonite Disaster Service

Government regulations should be modified to allow for easier partnership with volunteer organizations.

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