

## Raising Flood Risk Awareness through Interactive Media

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ALEXANDRIA, VIRGINIA. The U.S. Army Corps of Engineers (USACE) [Flood Risk Management Program](#) (FRMP) works across the agency to focus on the policies, programs and expertise of the USACE toward reducing overall flood risk. According to a [survey](#) by Princeton Survey Research Associates International in 2013, approximately forty percent of homeowners in America do not know their home's flood risk category. How can the USACE conduct outreach to this population? To address this question, there is growing interest in utilizing interactive media to communicate flood risk through "[gamification](#)." Gamification is the application of game playing elements to other activities, thereby encouraging new ways of interacting with a product or service. This can include virtual reality, augmented reality, and other digital media implemented as an outreach tool for raising public awareness of flood risk, especially for younger audiences. Augmented reality is a technology that superimposes a computer-generated image on a user's view of the real world providing a composite view.



Conceptual photograph of 1862 flooding in Old Sacramento using augmented reality

Two [Silver Jackets' Interagency Flood Risk Management Program](#) projects that are partially funded by the USACE are making use of gamification to communicate such risk and are currently in development. The California QR Code Project is utilizing "quick response" codes linked to an [ESRI Story Map](#) to educate the public on flood risk within California such as in their "[Understanding Floods in California](#)" story map. The Nevada Multimedia Continuation takes it a step further with the goal to develop video gaming features that promote critical thinking in water management to educate Nevada residents, especially youth, to be more aware of their flood risk. Hunter Merritt, the USACE technical lead for both projects explains, "Look around. We see young people gaming or consuming digital media every day.

We should be reaching them where they spend their time. If the commercial industry is using this media to promote products, we should be using it to promote awareness, too."

An example of gamification already in action comes from the USACE Omaha District. The [Missouri River Basin Balancer Game](#) asks users to regulate flow from two dams while predicting weather patterns and balancing needs. A user can gain insight into flood risk management by taking charge of river operations and experiencing the unique challenges presented when managing reservoir operations in a variety of weather conditions. Additional examples are [FEMA's FloodSmart](#) website.

Other examples include one involving both augmented reality and virtual reality such as the [Augmented Reality & Virtual Reality Sandbox](#), which creates a specific landscape and flooding scenario with a dam breach. Digital applications can consider simulating flood risk by also including tools such as [Google Cardboard](#) or [Oculus Rift](#), which utilize virtual reality incorporated into systems used for emergency response exercises and decision support systems. These applications also increase awareness of natural disasters such as the 2015 video "[The Nepal Earthquake Aftermath in 360° Virtual Reality](#)," which uses [virtual reality technology](#) to immerse users in the aftermath of the 2015 Nepal Earthquake and the "[Chennai Floods Aftermath](#)," which is the first virtual reality documentary from India.

Ultimately the use of digital innovation through interactive tools can engage the next generation in becoming knowledgeable of flood risk hopefully leading to actions to reduce risk. So consider, how can interactive media to engage the public be utilized in your next project?

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