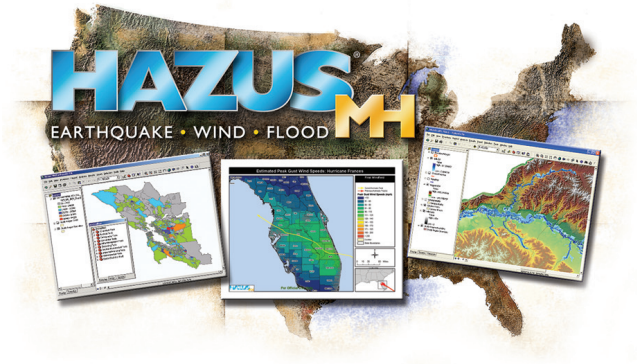
Tribal Governments

Using HAZUS-MH for American Indian Reservation's Pre-Disaster Mitigation Planning



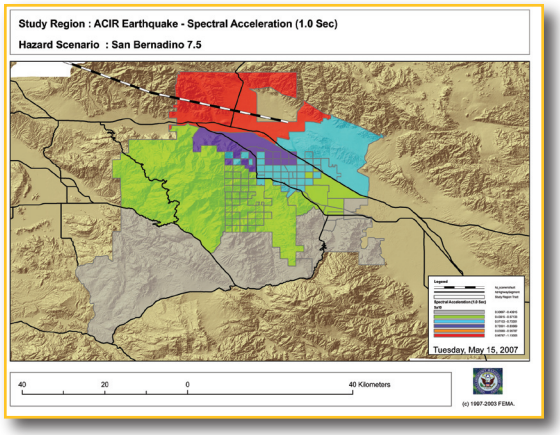
Background

Since 2000, Indian tribes (along with State and local governments) have been writing pre-disaster mitigation (PDM) plans in order to achieve compliance with the Disaster Mitigation Act of 2000 (DMA2000). A Federal Emergency Management Agency (FEMA) approved PDM plan makes a government entity eligible for FEMA non-emergency public assistance funding that can cover infrastructure improvements, including: roads and bridges; water-control facilities; buildings and equipment; utilities; and parks and recreation. Without an approved plan, FEMA will only fund emergency debris removal programs and emergency protective measures.

> According to the Bureau of Indian Affairs (BIA), there are 561 federally recognized tribal governments in the United States and 55.7 million acres of land held in trust by the U.S. for American Indians, Indian tribes, and Alaska Natives. There are approximately 300 Indian reservations. Some tribes have written PDM plans, and some reservations have been included in multi-jurisdictional or county plans.

Indian reservations are considered "unincorporated areas" and publicly accessible data regarding the infrastructure or buildings on such lands rarely exists. Many of these "sovereign nations" feature tourist attractions, such as casinos. Most reservations contain homes and at least several businesses. A thorough risk assessment must account for these structures and the reservation's infrastructure.

Projects



The risk-assessment portion of the PDM plan includes identifying potential hazards, researching the background of such hazards as well as their historic frequency, impact and severity. Next, it is necessary to ask and answer the question: What will happen to the identified study area when each hazard occurs? Fortunately, FEMA's multi-hazard loss-estimation tool, HAZUS-MH, has powerful risk-assessment capabilities that can analyze potential losses from earthquakes, floods and hurricane winds. HAZUS-MH Level 2 risk assessments have proved useful during the creation of the PDM plans of numerous Indian reservations.

Some tribes may maintain geographic information system (GIS) data or Global Positioning System (GPS) data that can be input into HAZUS-MH, including building inventories or essential facilities data. Other, more detailed information that will help in the analysis includes a review of hazardous material (HAZMAT) facilities and high-potential-loss facilities. The research may also include: soil analysis; ground motion; liquefaction susceptibility; landslide susceptibility; landslide hazards; and dam-inundation maps. If GIS or GPS data is not available, collecting this data is imperative for an accurate risk analysis.

It has also proved useful to interview the Tribal Council, the primary governing body of the Tribe, and Tribal members for disaster history as well as potential mitigation strategies. Researching historical disasters by way of past studies, the internet and interviews provides essential ground truthing to a risk analysis. A thorough risk assessment includes data regarding sacred lands such as burial grounds or areas containing petroglyphs, pictographs, or other cultural assets. GPS data can inventory these areas. Mitigation strategies that can protect these areas are a priority for most Tribes. However, these areas are never made public with printed maps or reports. It works to name them in the PDM plan with associated mitigation strategies but omit their exact location from all maps.

Possibilities

Determining cost-effective mitigation strategies for an Indian reservation always leads to an examination of the relationship between the tribe and the surrounding governments. Reservations exist within the boundaries of a City or County government and within the boundaries of a State government. Some tribes, therefore, maintain a firehouse or firefighting equipment, while others rely on first responder resources within their region. Most Tribal casinos are open twenty-four hours a day and are ready to survive a power outage or other disaster with powerful generators and stores of food and supplies. Residents of disaster affected communities may flock to a Tribal casino for food and shelter. During the PDM planning process it is useful to discuss these scenarios with all key stakeholders to determine appropriate mitigation strategies.

A responsible PDM plan for an Indian reservation gathers essential data for and about the reservation and examines the relationships and capabilities that exist between the tribal government and its local-government counterpart. These governments have similar missions: to protect their people and assets. These shared goals are best achieved by working together to mitigate risks. Those cooperative efforts are currently being advanced on numerous reservations by leveraging the dynamic strengths of HAZUS-MH technology.

Contacts

Jamie Caplan
Jamie Caplan Consulting LLC
P: 413.586.0867
E: jamie@jamiecaplan.com

Gale Foss
Gale Foss Design
P: 831.214.1311
E: gfoss@redshift.com