

PART 3

ENGAGING COMMUNITIES

ONE OF THE BEST WAYS TO ENCOURAGE A COLLABORATIVE environment is to provide reliable and timely data and technology through frequent engagement that helps everyone learn about and contribute to overall goals and objectives.

Geospatial collaboratives engage partners and their communities of practice through open GIS data, inclusive programs, and policy initiatives. Portals and hubs serve as virtual destinations that bring people together, providing practical tools and support that facilitate teamwork, allowing users to interact and engage in focused collaboration. Shared maps and apps, such as dashboards and stories, inform those working to address today's issues and challenges. Geospatial collaboration tools, such as surveys, map-based discussions, and open data portals, help users ranging from strategic thinkers and specialized experts to local residents collectively add and review content, organize activities, and share their stories.

For example, the nonprofit Western Association of Fish and Wildlife Agencies (WAFWA) coordinates with agencies from 19 US states and 5 Canadian provinces over 3.7 million square miles of some of North America's most wild and scenic country to ensure strategic, science-based conservation and practical resource management. WAFWA uses a collaborative GIS hub for open data sharing and stakeholder engagement, making project information more accessible to the public.

Geography and geospatial thinking are the best starting points for building a community engagement strategy, especially when working with agencies, stakeholders, and the public.

Community engagement, backed by a solid geospatial infrastructure, allows organizations to address significant local, regional, and global challenges that might otherwise seem too overwhelming or complex by presenting the information within a more understandable geographic context.

Today, organizations engage their communities to rally people around the issues and initiatives they care about most, such as

- responding to the impacts of climate change,
- creating sustainable business practices,
- protecting oceans, wetlands, and forests,
- finding equitable solutions for disadvantaged people,
- addressing disaster response and recovery,
- combating COVID-19 and other epidemics,
- rebuilding infrastructure,
- conserving water, forests, and biodiversity, and
- managing volunteer opportunities.

As a pillar for integrated geospatial infrastructure, community engagement supports collaboration, improves transparency, and builds trust.

Real-life stories

The real-life stories in this section explore how a variety of organizations engage their communities of interest to strengthen decision-making, improve services, and achieve better outcomes.

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IN THE PHILIPPINES, A SHARED “DISASTER IMAGINATION” SUPPORTS RESILIENCE

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SITUATED AS ONE OF THE WORLD’S MOST DISASTER-PRONE countries, the Philippines routinely endures earthquakes, tsunamis, volcanic eruptions, landslides, and flooding. This archipelago of 7,640 islands in the Pacific Ocean resides along major tectonic plates and is at the center of a typhoon belt. Although its residents live in a region highly vulnerable to natural disasters, their government has set out to reduce the risk by mapping natural hazards and disasters. The mapping initiative will also support programs to thwart the impact of climate change.

“The Philippines is a good place to study natural disasters, but if you look at the human impacts, it’s not so good,” said Renato U. Solidum Jr., secretary of the government’s Department of Science and Technology (DOST). Solidum also directs the Philippine Institute of Volcanology and Seismology (PHIVOLCS), created in 1951 in response to the catastrophic Mount Hibok-Hibok volcanic eruption. The event killed 500 people and spread devastation across more than seven square miles (19 square kilometers) of Camiguin Island. After the event, the government realized it needed to develop greater Filipino expertise.

Solidum and his colleagues at the institute lead a multiagency program, GeoRisk Philippines (GeoRiskPH), dedicated to mapping hazards and their impacts. They collect, analyze, and share risk-related data via interactive maps and apps using GIS technology.

“I told my team that we need to promote ‘disaster imagination’

about what the hazard can do,” Solidum said. “Depending on our role in society, we have different perspectives on disasters. If we don’t have the same imagination across the government and private sectors, we might be doing things that are not aligned, and instead of a collective effort, our efforts would go in different directions.”

As the authoritative source for information about hazards in the country, the GeoRiskPH program provides a data clearinghouse with input from 21 national government agencies, 3 nonprofit organizations, and more than 50 local governments. The program provides apps and other tools to help safeguard the country’s 108 million people from an array of risks.

For instance, among the first apps created by the institute was the PHIVOLCS FaultFinder, which shows where active faults are located; the government doesn’t allow construction of houses or buildings on top of faults so the maps and information identify which land is unsafe for development. Interest in the app spurred a more ambitious project, HazardHunterPH, an application that enabled the Filipino people to see their exposure to any natural hazard, not just active fault lines, on a smart map.

“The real problem convincing people to undergo disaster preparedness activities is that they cannot imagine what can happen to them and their families,” Solidum said. “We need to provide people with information not only of the hazards but, most importantly, what the hazard can do to them.

“There are more data now available across different organizations,” he said, “and there is now a different state of willingness to share data. It was the right time to have a more integrative platform.”

Decision-makers in the Philippines frequently turn to GeoRiskPH platforms for analysis to understand areas most vulnerable to ground tremors, tsunamis, severe wind, landslides, flooding, and volcanic eruptions. Using hazard and census information, GeoRiskPH

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With the geodata system GeoMapperPH, smart mapping and spatial analytics solutions help users create apps and tools to support disaster risk mitigation, multiagency collaboration, and community engagement.

platforms allow for the analysis of risks to people based on location, age, and sex. Local governments can use this information to determine whether critical infrastructure is located in high-risk areas, create emergency management plans, draw safe evacuation routes, and decide where to site evacuation centers.

GeoRiskPH gives government leaders at all levels a view of the people exposed in a specific area. With data-driven maps, planners can determine which facilities—such as schools or hospitals—might be affected by a flood or tsunami. That awareness drives targeted risk mitigation and better disaster response preparation.

One component of the program’s technology solution is GeoMapperPH, the data collection mechanism that has supported information sharing among and across organizations, including several international partners. “They are able to see their data and input and understand that the tool will be more sustainable if they contribute,” Solidum said.

The tool will also be used to develop the National Exposure Database, which will provide significant information for more

detailed and accurate risk and impact assessments, and other initiatives.

The effort to collect hazard data is ongoing, with additional categories such as land use, economics, and demographics added. The institute is also working with other partners to add a social vulnerability index assessing the risks of disadvantaged communities and their climate-risk exposure.

“This platform is not simply an information and communications technology or geospatial platform, but, more importantly, it’s a governance platform,” Solidum said.

Visualization from GeoRiskPH maps helps streamline environmental compliance certification, giving developers quick access to the details and reports they need. The location intelligence guides insurance and investment decisions at large institutions.

Solidum hopes that the system will become more automated. Notably, researchers and government leaders in the Philippines plan to use this collection of data to prepare for impending climate events, especially sea level rise.

For this country, where disaster is already too familiar, climate change will exacerbate volatility. Solidum understands this reality clearly and is leading the move toward greater resilience.

“When most people talk about climate, it’s mainly about weather, and they don’t talk about the interaction of the ocean and the land, and what happens on the land,” he said. “But that is where the impacts occur, and that’s what we must prepare for.”

A version of this story titled “In the Philippines, a Shared ‘Disaster imagination’ Supports Resilience” by James Miller originally appeared in the *Esri Blog* on November 11, 2021.