Participatory GIS (PGIS) for Community Resilience

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ICT4D Conference
Nairobi, Kenya 2016
CRS Planning for Resilience and Effective Preparedness (PREP) Program in Leyte, Philippines

GOAL:

Target barangays to be better prepared for and be able to respond effectively to future shocks and disasters.

DISASTER RISK REDUCTION AND MANAGEMENT
Planning for Resilience and Effective Preparedness (PREP)
Project Area

PALO
15,481 affected families

TANAUAN
12,370 affected families

according to NDRRMC final report on effects of Typhoon Yolanda
PROVINCE OF LYE
DRR PREP MAP

BARANGAY | MUNICIPALITY | NO. OF ZONE | NO. OF HT
-----------|--------------|-------------|-----------
Abacauay  | Palo         | 7           | 267       
Abaco     | Palo         | 4           | 527       
Abra     | Palo         | 8           | 980       
Baua      | Palo         | 8           | 350       
Cabarrusan | Palo        | 3           | 117       
Cannel    | Palo         | 7           | 724       
Campsing   | Palo         | 7           | 287       
Caygong   | Palo         | 3           | 700       
Ceballos  | Palo         | 4           | 690       
Libertad  | Palo         | 8           | 819       
Lumutal   | Palo         | 3           | 94        
Nagait     | Palo         | 7           | 767       
Payag     | Palo         | 7           | 936       
Sagay      | Palo         | 7           | 597       
San Antonio | Palo        | 4           | 235       
San Augustin | Palo     | 7           | 289       
San Fernando | Palo      | 7           | 405       
San Isidro | Palo         | 7           | 398       
San Joaquin | Palo        | 7           | 717       
San Jose   | Palo         | 7           | 241       
San Miguel | Palo         | 6           | 440       
Santa Cruz | Palo         | 7           | 450       
Tampoco   | Palo         | 7           | 348       
Atipolo   | Tanaan       | 7           | 207       
Baling    | Tanaan       | 4           | 725       
Bantay    | Tanaan       | 7           | 245       
Cabanayan | Tanaan       | 7           | 790       
Cabagsag  | Tanaan       | 7           | 268       
Carriuc   | Tanaan       | 4           | 134       
Casain    | Tanaan       | 8           | 849       
Cauyan    | Tanaan       | 4           | 364       
Magong    | Tanaan       | 3           | 146       
Mabtbot   | Tanaan       | 7           | 311       
Sagay     | Tanaan       | 3           | 93        
San Miguel | Tanaan       | 7           | 204       
San Roque | Tanaan       | 6           | 1238      
San Pedro | Tanaan       | 7           | 203       
Santa Elena | Tanaan     | 7           | 302       
Santa Nino | Tanaan       | 8           | 884       
Sobosa    | Tanaan       | 7           | 140       

SOURCES
Pangasinan Province | Department of Environment and Natural Resources (DENR) Region 1
Pangasinan Province | Catholic Relief Services | Philippines GIS Data
Clearinghouse

Map by James Kim-Guyer and Ian Gerico-Zonaga
DDR GIS Specialist

ICIT4D
CONFERENCA
DILEMMA
Initial Assessment of Target Barangays

R = H x V / C

Risks

Capacities

Vulnerabilities

Hazards
CHALLENGES
DATA

AVAILABILITY
Availability

DATA
AVAILABLE NOW
Outdated

From: John Tewell through the University of Texas Map archives
Scale
DATA

OUTDATED

AVAILABLE

FRONTLINE

SCALE
Frontlines

From: CNS photo/Charlie Saceda
OPPORTUNITY
SOLUTION
Participatory GIS

Community-based approach where residents map out their own neighborhood, plot key infrastructures, evacuation centers, hazards, risks, etc. that can be used by the government for effective planning and budgeting.
IMPLEMENTATION
Advantages of using **ArcGIS Collector**

- Collect and update information in the field using readily available maps or through GPS (tracks your location)
- Input supporting data with map-driven data entry forms
- Maps and data can be used offline regardless of network availability (sync collected information once reconnected)
- Capture and attach photos and videos
- Works seamlessly with ArcGIS Online
- Create and configure maps based on your preference
METHODOLOGY
Community Orientation
Data Collection
Data Processing and Map Layout
Community Validation
OUTPUT
UTILIZATION
Contingency and Evacuation Plan
PGIS Engages the Community

**Municipality**
- Develop Municipal Disaster Risk Reduction Plan and budget

**Barangays**
- Lead Barangay-level Community Risk Assessment and mapping
- Develop Barangay Disaster Risk Reduction Plan and Budget
- Present Plan and budget to Municipality
- Identify and implement infrastructure improvement projects

**Zones**
- Participate in zone- and barangay-level Community Risk Assessment and mapping

**Households**
- Participate in Zone-level Community Risk Assessment and mapping
- Household Preparedness and Contingency Planning
PGIS Empowers the Community

“Our risk, hazard and vulnerability maps of the barangay were all beautiful with hand-drawn detail. But they were all destroyed during Typhoon Yolanda.

The pGIS project will help us to have readily available maps wherein we can update them anytime. It will also help us for future infrastructure/risk assessment planning.”

Gregorio Lantajo
Chairman of Barangay San Joaquin
Palo, Leyte