DRR IN ACTION CASE STUDY

Digitalization to Ensure Sustainable Use of Data

Theme of Case Study
Vulnerability Capacity Assessment Digitalization (VCAD)

Country
Philippines

Case Study Location
21 Chapters; 155 Communities

Background

In 2017, the Philippine Red Cross (PRC), in partnership with the Norwegian Red Cross (NorCross) and DNV-GL, initiated a project aiming to digitalize components of the Vulnerability and Capacity Assessments (VCA) approach. The 2-year project covered 155 communities (Barangays) in 21 chapters across the Philippines. The project laid the foundation for what the PRC currently refers to as the VCAD (VCA Digitalization) and significantly contributed to the PRC's ongoing journey towards digital transformation.
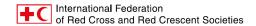
In essence, the objective was to create a digital platform to store and protect the data collected while conducting VCA in a centralized place, as well as making this data instantly updateable and easily accessible for decision-making.

What did action seek to change?

The digitalization sought to increase the operability of the information gathered in the traditional pen & paper VCA. The non-digitalized VCA was no longer relevant for the PRC as it lacked key traits:

1. Accessibility & Security of the information (non-digitalized VCA reports are susceptible to damage, and the information in the reports can be sensitive – and potentially fall in the wrong hands).

2. Accuracy of the data (it is not geo-referenced or scalable – hand drawn thus inaccurate)

Photo: Tracing vulnerabilities and capacities on a plastic sheet placed over a large printed map

International Federation
of Red Cross and Red Crescent Societies

3. Inter-operability of the data (the format cannot readily be shared across different platforms and used for other purposes)

4. Efficiency of the process (the paper & pen method is very resource heavy and time consuming, discouraging any attempts for updating information after initially gathered).

What key actions & steps were taken to achieve change?

Three principal actions were taken to achieve the desired change, they are:

5. The design and improvement of a VCA Geoportal Software. This is the digitalized platform where data is stored & protected and can easily be accessed by those individuals authorized to do so. The data can also be visualized in maps and dashboards.

Step 1	Mapathons
Step 2	Chapter Validation Workshops
Step 3	Update Launch
Step 4	Post-Disater Tool of VCA Geoportal
Step 5	PRC Geoportal Repository
Step 6	VCA Geoportal Service Use
Step 7	Development Workshop

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Step 1	Develop and review of training modules
Step 2	VCA Geoportal Tool ToF (training of facilitators)
Step 3	VCA Geoportal Tool Training Workshop and Echoing Sessions
Step 4	Post-Disaster Assessment Tool Workshop
Step 5	IEC Materials
Step 6	Refresher Courses
Step 7	Production of VCAD training manuals

7. The implementation of the VCA Digitalization which essentially involves working with selected communities to digitalize the outcomes of the VCA and understand the assessment & reporting tools.

Step 1	Sensitization, launching and planning workshop
Step 2	VCA digitalization of selected communities in targeted chapters
Step 3	Field validation
Step 4	Implementation of post disaster assessment and reporting tool

Photo: Identifying vulnerabilities and capacities on large prints of the digital maps

Quotes:

"Goal is now to integrate the VCAD in CBDRM so that it is automatically carried out in the communities when initiating the VCA approach

What were the Achievements and Impacts?

Overall, the digitalization of the VCA has largely contributed to improving the accuracy, operability, security, and protection of the data (information) collected while conducting a VCA within communities. For more additional clarity on the achievements and impacts this section has been disaggregated into two categories: Philippine Red Cross, and Communities.

Philippine Red Cross (PRC)

The increase in the collected data's operability essentially means that this accurate, georeferenced data can readily be shared across different data management and analysis platforms. This in turn, provides the PRC's DMS and Operation Center with access to the information collected during VCA's which they can use during emergency response and recovery programming. Furthermore, the data is stored on a digital platform which not only ensures its secure and sustainable use, but also makes it easily updated using an array of digital tools.

Communities

The two most prominent impacts of digitalizing the VCA for communities are that: 1- the information is digitalized and georeferenced allowing communities to easily update and use it for evidence-based decision-making, and 2- the communities receive map books. We will briefly explore the second impact in more detail.

Map books are essentially data repositories in mapped format for the communities participating in the digitalized VCA. These map books are often accompanied with hard copies and printed maps, as these make them tangible and easily shared with other stakeholders such as local government authorities.

Preceding the digitalization, hazard and resource/capacity maps were hand drawn by community members using color markers on poster paper. These hand drawn maps were used by a handful of community members for a specific purpose during the VCA, but their use and lifespan did not extend far beyond this. Now that community maps are digitalized, they are perceived by all who view them as very accurate and containing important up-to-date information pertaining to the community. Furthermore, as community members are involved and actively participate in the mapping process (mapathons, mobile data collection, validation, etc.) this builds a sense of ownership in the maps themselves. Printed maps are often proudly hanging in Barangay Halls (community centers) and accessible to community members interested about information regarding areas at risk and specific hazards within their Barangay (community).

Quotes:

"The best preparation for tomorrow is doing your best today"- H Jackson Brown Jr.

What digital tools are being used in EVCA?

The digital tools used by the PRC in the VCAD are:
- Kobo Toolbox for mobile data collection and digital surveys
- Handheld GPS devices for plotting coordinates
- OpenStreetMap for creating base maps and Mapathons methodology

- ArcGIS (ESRI) for map making (GIS layering) and providing real-time dashboards for a common operating picture
- Geoportal to create a single platform equipped with spatial analysis software

Quotes:

"There's no harm in hoping for the best as long as you're prepared for the worst."-Stephen King

The digital tools also being used for other initiatives.

Broadly speaking, the digital tools used in the PRC's VCAD are multipurposed tools that can be used for initiatives outside of the conducting the VCA. More specifically, the Kobo Toolbox is a very valuable digital mobile collection tool that can be used for gathering information during needs assessment in emergency responses. Digital mapping using ArcGIS and its integrated functions and apps (such as layering) can be used in various scenarios including planning, response, and recovery. Below are two examples of how the PRC are using the digital tools outside of conducting the traditional VCA within the communities.

Photo: Using mobile data collection tools to while carrying out the EVCA

Taking the VCA digitalization to the next level: VCA Geoportal
The PRC realized there was a lack of a unified system (digital platform) to collect, store and analyze the vast data from the VCAs, so that it can be used to inform disaster planning and emergency response. The PRC, with support of the Norwegian Red Cross (NorCross) and DNV GL launched the VCA digitalization project which aimed to develop such a platform.

Initially, it began with the creation of CEP[1] MAP, a platform incorporating three types of maps: 1- Capacities Maps (showing the VCA data), 2- Emergency Maps (displaying information about hazards), and 3- Post-Emergency Maps (ability to run analysis to inform decision-making). The goal was to visually understand the inter-action between the data sets (maps) in real-time, to support emergency planning and preparedness, response, and recovery. The CEP MAP platform used GIS to store analyze, process, and assess spatio-temporal information to produce interactive, integrated real-time digital maps.

Photo: Training on mobile data collection and use of handheld GPS devices

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1. Capacity, Emergency, and Post-Emergency MAPs

With time, the initiative transitioned away from its original CEP MAP format and eventually led to the development of the current VCA Geoportal. The Geoportal is a web-based application which serves as a geospatial platform for collating and analyzing VCA information and reports. It builds on components of the CEP MAP and adds-on other key solutions to create an interactive/integrated emergency management system. The platform is sub-divided into three sections: 1- VCA Center (for storing data), 2- Monitoring Center (viewing hazard), and 3- Reporting Center (dashboards, reports and social media).

The VCA Geoportal platform is accessible account by authorized staff from PRC HQ and select individuals from pre-identified chapters throughout the country. The PRC is currently identifying opportunities to continuously enhance the VCA Geoportal platform. Recommendations have been to make the Geoportal more user-friendly, as well as providing account-specific access to the platform – for example providing viewing (only) access to the geoportal to community members so they can use this information available on the portal for planning in decision-making; this will further ensure the sustainable use of the data.

Photo: Carrying out the transect walk in a community during the EVCA process

Empowering Communities

The digitalization (and modernization) of mapping techniques has increased communities' credibility as they are basing, and presenting, their analysis to external stakeholders on accurate data and maps, which in turn boosts their confidence and general interest in the PRC's programs. The digitalized maps also allow communities to map out scenarios that they couldn't see before; and use them for making contingency plans and action plans. Communities appreciate this change because they consider themselves as being part of the solution. The digital mapping has also inadvertently contributed to increasing collaboration efforts between the communities and the Government, as these types of maps and data are generally required by the government from the community's and local leaders. Thus, since the PRC has the expertise to provide these types of digital products, the communities and local leaders have been more inclined to engage in conducting or updating VCA data, as well as engaging in other community-based disaster risk management activities.

What are Key Lessons Learned?

Visualization

Prior to printing maps from the Map Books (the product delivered to communities), it is important to determine what information needs to be represented / visualized on the map, as well as the appropriate physical size of the map. Maps should be clear and not overly crowded with details, this will affect its legibility and purpose; i.e. to convey important information to owners of the map (communities).

Showcasing final product

The traditional paper & pen version of the VCA requires a lot of effort from the different stakeholders and takes on average 2 to 3 months to conduct, and the hand drawn maps and report aren't very accurate, scalable and are at risk of damage. The PRC has witnessed an increase in interest and community engage-

ment with the VCAD, especially once communities understand that the timelines are shortened and that there's a tangible product as result of the process (the map book). Furthermore, there are elements that are difficult to capture on the paper & pen version that are rendered visible on the digitalized maps (ex: land use, gardens in courtyards, etc.) that are highly useful for the communities.

What were the Good Practices arising from this action?

Digital Mapping

PRC's staff and volunteers are trained on paper mapping (traditional way of doing VCA), as well as tools used for digital mapping. This is important as they can support ease the transition for the communities from paper to digital because they have a thorough understanding of the processes. When spot mapping on paper the hand drawn aiel view map is fairly similar to a black and white base map produced on OpenStreetMap. The facilitators can help the communities make the links between the two. Furthermore, the PRC uses layers of plastic sheets on top of the maps when carrying out the VCA, identifying vulnerabilities, capacities and exposure on separate sheets. This reproduces the layering affect carried out on GIS maps and again eases the transition for communities to familiarize themselves with the digitalized maps.

Role of National Society

As with the traditional VCA, the role of the National Society in the VCAD is to facilitate, i.e., not taking the lead and becoming the driver of the process. It is highly recommended to use facilitators that speak the local languages and let the community talk. This will not only allow the communities to assume a central role but will also highlight any concerns and/or misunderstandings with technology and the process. Ownership of the process is that of the communities as they take the lead and the National Society assumes its role as facilitator (providing technical support to communities to conduct the VCAD) and as a connector (support building relations between communities and relevant stakeholders when needed).

References for this Case Study

1. Reference document - Saving Lives in Unpredictable Times
   https://www.dnv.com/feature/CEP_MAP.html
2. Reference document - Smart Maps Helps Philippines Red Cross Respond to Hundreds of Disasters
   https://www.esri.com/about/newsroom/blog/philippine-red-cross-disaster-response/

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