

## DIGITAL VOLUNTEERISM



Putting the World's Vulnerable People on the Map

# Missing Maps: Crowd sourcing to support humanitarian responses for a better future

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Screen capture from <http://www.missingmaps.org/>

As geography teachers who teach about spatial inequalities in human development and welfare around the world, we wonder if there was more we could do, or inspire our students to do, to help address these issues?

*Missing Maps* might be just the right project for us and our students to apply our geographical mapping skills to help improve the well-being of vulnerable populations around the world. Before disasters including flood, cyclone or pandemic strike, our student-volunteers along with volunteers around the world can swing into action mapping buildings, waterways and roads to generate accurate base maps. This is a powerful way to build the knowledge and empathy into curricula and co-curricular activities.

### What is Missing Maps?

*Missing Maps* (<http://www.missingmaps.org/>) is a humanitarian project that aims to create detailed maps of unmapped regions of the world to support international and local NGOs, and individuals, in their responses to crises affecting vulnerable populations. Founded in 2014 by the American and British Red Cross, the Humanitarian Open Street Map Team, and Doctors Without Borders / Médecins Sans Frontières (MSF), Missing Maps now consists of 18 member organisations and has over 110,000 mappers around the world supporting its efforts.

Many humanitarian organisations like Médecins Sans Frontières (MSF) are hindered when they work in areas that are 'missing' from digital maps. These organisations identify and prioritise unmapped regions according to current and projected humanitarian needs. *Missing Maps* then employs a three-stage process (Figure

1) that starts with remote volunteers identifying structures, usually buildings and roads, and marking them on satellite imagery. The second stage involves local community volunteers verifying these markings and adding details that cannot be derived from remote imagery. The third stage sees GIS professionals creating detailed maps using the crowd-sourced data (Schwerdtle & Herfort, 2018). The products can then be used by any humanitarian organisation to "plan risk reduction and disaster response activities that save lives" (MissingMaps, n.d.).

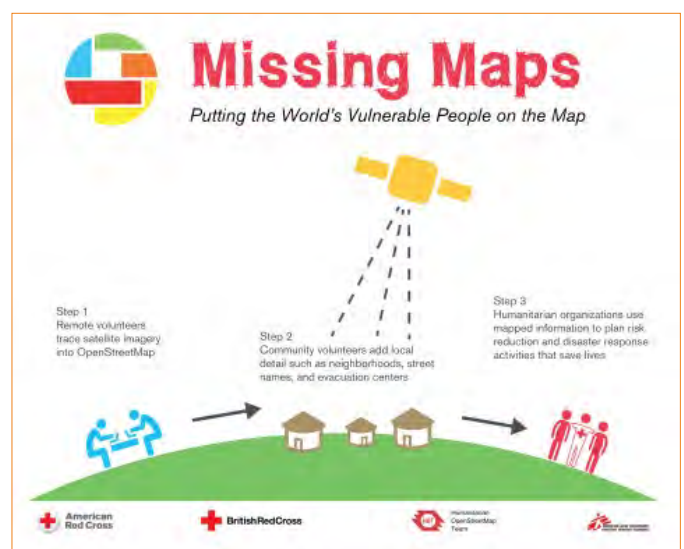


Figure 1. Missing Maps' three-stage process of producing maps (MissingMaps, n.d.)

## Digital volunteerism

*Missing Maps* enables anyone – young and older, with or without digital mapping skills – to become a digital volunteer contributing to citizen science and humanitarian efforts. The platform enables volunteers to work remotely and simultaneously on an overall area, using OpenStreetMap (OSM), a free and editable digital map of the world. To begin mapping, simply sign up for an OSM account. New OSM users go through a tutorial to learn the tools on the platform. Then they choose their first project. They can search for projects according to their mapping expertise (e.g. 'Beginner Mapper'), priority level of projects (e.g. 'Urgent'), or even by location. Once volunteers have selected a project, they can begin mapping! (Figure 2)

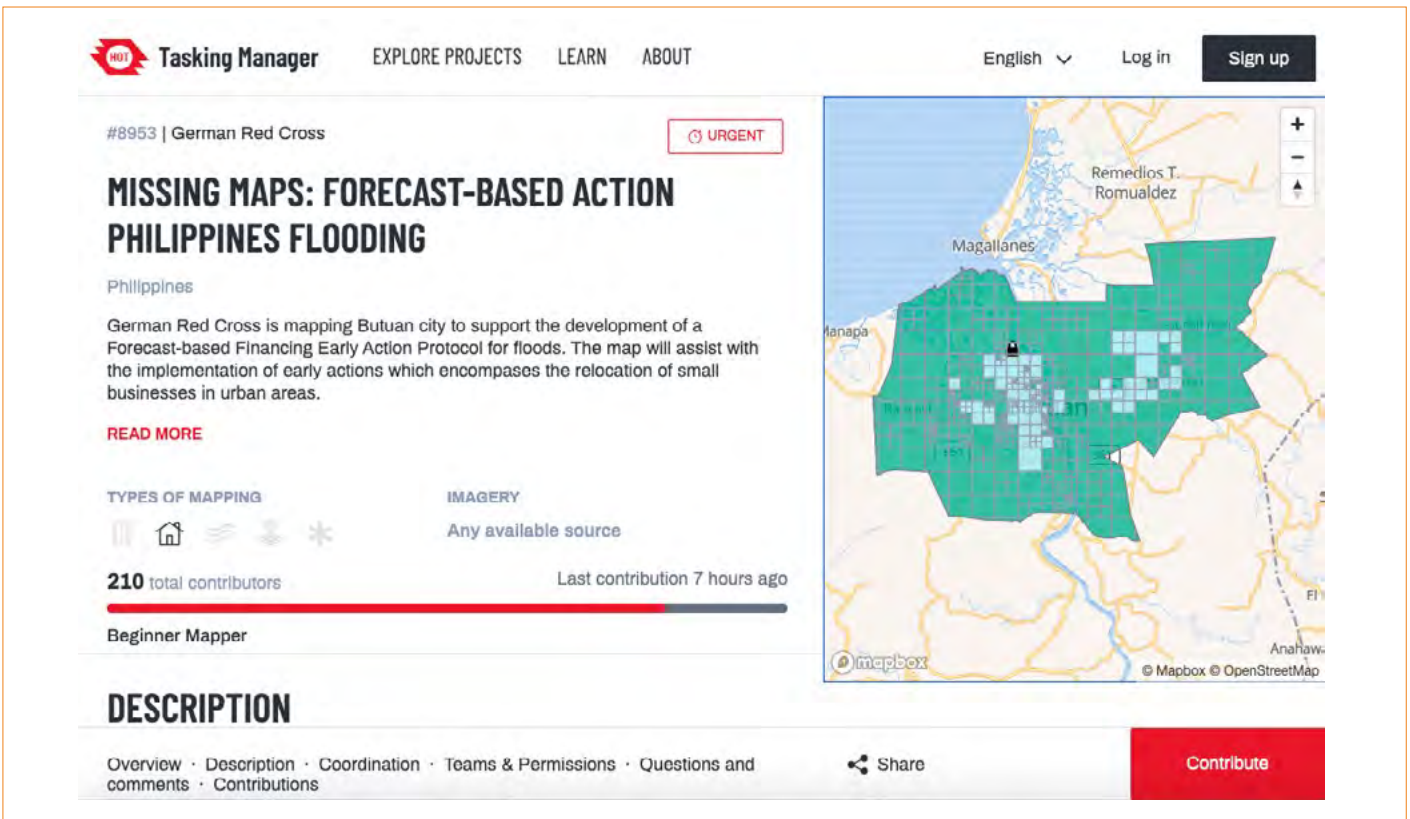


Figure 2. Screenshot of a mapping project for Butuan City, Philippines, to assist with the implementation of early responses to floods. The project is suitable for beginner mappers and marked as 'urgent'.

The three-stage process employed by Missing Maps ensures data is validated by experienced remote mappers and local volunteers on the ground. The quality of data is also improved over time as knowledge transfer takes place between novice and experienced contributors when they connect through mapping events/parties called mapathons. Universities, schools, mapping clubs and individuals around the world regularly organise mapathons, which help to achieve rapid results and is a great way to build community. The Missing Maps website provides helpful information on planning and hosting such events. School groups do mapathons.

### Linking to curriculum

Teachers and student groups including the Student Representative Councils (SRC) can organise mapathons

as team building opportunities and so that students can experience the impact of collective action and can make links to geography curriculum at a range of levels. There are several neat curriculum links, for example in the Geographical Concepts and Skills strand at year 9 and 10, students are asked to "collect and record relevant geographical data and information, using ethical protocols, from reliable and useful primary and secondary sources" (VCGGC130). In VCE Geography this activity links to Unit 1: Hazards and Disasters and builds knowledge of the use of spatial technologies (VCAA, n.d.).

### Benefits and cautions

*Missing Maps* offers many learning opportunities for our geography students. Becoming a remote mapper provides them the opportunity to use and apply their GIS skills. The location-specific projects can help



increase their knowledge about places, enriching their geography knowledge. Deepening their understanding of the issues plaguing these vulnerable places and regions raise ethical questions, which can help students develop informed values and attitudes, and become more aware of their own roles and responsibilities locally and globally. In sum, using *Missing Maps* is an excellent example of the practical applications of the knowledge and skills of our discipline, and of how geographical understanding can help us create a better world.

As educators however, we need to remember that *Missing Maps* is designed as a practical tool and not for the purpose of education. To fully harness the benefits of the tool for education, we should take care to plan our lessons so the tool is not used as an end, but more as a means, to deliver our curriculum objectives. In a review of a Mapathon conducted by Monash University, the organisers found that student feedback was “overwhelmingly positive”, with many appreciating the opportunity to act on international health inequity rather than just passively reading about it (Schwerdtle & Herfort, 2018, p.2). However, a small number of students failed to link the event with the learning objectives. This

reveals the importance of ensuring that the lesson/Mapathon design makes explicit links to the learning intention. Frustrations with technology and the volume of information can also make it demotivating for students, who are mostly novice mappers. Care must be taken to provide sufficient time and space for students to learn how to the tool.

If you or your colleagues have used *Missing Maps* in your geography lessons, or have organised a mapathon, we are keen to hear your insights and we can be contacted at [shulee@student.unimelb.edu.au](mailto:shulee@student.unimelb.edu.au)

## References

- MissingMaps. (n.d.). Retrieved September 21, 2020, from <https://www.missingmaps.org/>
- Schwerdtle, P., & Herfort, B. (2018). Teaching global health using crowd-sourcing with Missing Maps. *Nurse Education Today*, 60.
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