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# ICT4D BRIEFINGS

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## ICT solutions in proactive disaster mapping

Prompted by Dunn *et al.*'s (1997) article in *Area* that examined the appropriateness of GIS for 'development' (scare quotes in the original) I delivered a presentation on GIS4D for the 2015 ICTD conference in Singapore together with Ollie Parsons from the GSMA. A 20-year-old article on GIS (Geographic Information Systems) might seem an odd choice of topic, except perhaps to re-visit times past. In this case, however, many of the issues brought up by the original GIS4D article are still unresolved. Old questions are constantly being re-worked in new guises.

For example, what is GIS? Does it include people or is it fundamentally just software? If it includes people, where do they fit in, and how is their participation enrolled? Once participating, do 'experts', or indeed expert systems tend to take over? And last (but not least), can computers incorporate cultural systems and beliefs?

The latest round of debate revolves around GIS for disaster management. In Haiti, Nepal, and Liberia, earthquakes and disease have recently occurred. Logistically, one of the biggest problems is how to target areas for immediate assistance. For example, where is an Ebola victim located?

Existing base-maps in many areas are simply lacking information. The advantage we have today over past iterations of participatory GIS in response to local needs is the existence of open source and free mapping tools such as OpenStreetMap (OSM). After disasters, OSM tends to fill in very quickly.



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The problem we raised at the Singapore ICTD conference is that maps produced quickly in response to a disaster may fill an immediate need, but the maps themselves will be around for a long time. Quickly produced disaster maps are not always very accurate or complete, and can consequently be misleading.

Now, ‘proactive’ disaster mappers are trying to fill in the maps before disasters occur, often using drones or Google Earth imagery to do so. The problem here is that very little thought has been given to ‘classic’ issues of cartography such as scale, extent, and density of coverage; appropriateness of field protocols, positionality, and frequency of update. These are all important considerations for GIS disaster mapping (Tomaszewski, 2015).

The purpose of this short briefing then is to put the question to you, the reader, as the presenters put it to their Singapore audience: are there more sensitive ways of doing disaster mapping that avoid ‘blackboxing’ communities (i.e. associating specific locales with disaster), and that look more towards long term mapping needs?

This is also a question of impact and collaboration which, in turn, revolves around multi-disciplinarity and new ways of being inclusive. The involvement of local knowledge keepers, experts, and residents should combine with that held by outside experts, anthropologists, and mappers more in tune with cultural protocols and long term commitments that academic ethnographers have long held dear.

Mapping needs to be more ethnographic, but not only that. Maps will become more robust, and hold more meaning for both the etic (outsider) and local sensibilities, if they combine geographic and emic (insider) views alongside each other. This will lead to more positive long-term impacts, and can hopefully avoid algorithmic (search engine) tagging of places with negative connotations.

More work needs to be done in this area, even as new disasters arise, with appropriate and necessary (but measured) responses that consult the maps and sensibilities for better ‘ground truthing’ what they depict.

References:

Dunn, Christine E., Atkins, Peter J., and Townsend, Janet G. 1997. GIS for Development: A Contradiction in Terms? *Area*. 29.2. 151-159.

Tomaszewski, Brian. 2015. *GIS for Disaster Management*. CRC Press.

