FORWARD

By Mark Nichter

Participatory GIS (PGIS) mapping provides a tool that anthropologists can use to engage communities in new ways, facilitate dialogue, and foster interactive problem solving. The incorporation of PGIS into applied anthropological research demands a consideration of the distributions of people and resources, access and lack, and interrelated problems, as well as those factors that influence—if not pre-dispose—interactions within particular physical and structural environments, and nested contexts. It also demands a consideration of ecological relationships and different trajectories leading to what appears to be common end points at particular moments. PGIS offers exciting research possibilities that can build on forms of knowledge that anthropologists are adept at gathering, and triangulating ethnographic details with demographic, economic, epidemiological, geographic, and other forms of commonly mapped aggregate data. Anthropologists are in a good position to facilitate local participation in the mapping process, critically examine forms of engagement, and study community responses to new ways of seeing the world enabled by access to new forms of technology. Seeing how populations rethink their world given a different set of lenses provides anthropologists an opportunity to study the dynamic nature of problem solving in local worlds in an information age in which new forms of networking, visibility and legibility are becoming possible.

Mapping and participatory research have been employed by anthropologists for quite some time. Used in action and participatory research, mapping exercises have been informed by research and writing on participatory rural appraisal (cf. Chambers 1994), GIS 2.0 and participatory GIS in the social sciences (cf. Pickles 1994, Obermeyer 1998, Couclelis 2004, CSISS 2007), social epidemiology and geocoding (cf.

Krieger et al 2003). But the use of mapping as a participatory *process*, one that encompasses participant input, comment, and revision at various points of the research—from research and sample design to data collection to analytical frame to the manner and method of presentation—is a pioneering effort in need of development and critical reflection.

This form of engaged research has many strengths. Let me highlight just four. First, participatory mapping contributes to translational research. Well-produced and simple-to-comprehend maps and images can provide clearer pictures of a current state of affairs to a larger number of people than do statistical tables embedded in technical reports understandable to only a few. Maps enable researchers to engage community members in dialogues about the patterns/representations rendered visible. Questions that arise about the way data has been collected and mapped, and calls for new forms of data also foster a presentation/response cycle that is dynamic and establishes credibility.

Second, mapping inspires different forms of comparison. Visualizing patterns in terms of topics of interest and variables deemed relevant by local populations provides researchers with relationships to examine they might not otherwise considered, and allow community members to "test out" and explore ideas about their local environment that would otherwise be difficult to investigate. Two broad forms of comparison are enabled by PGIS: comparison at different points of time and comparisons between different reference groups and places. In the latter case, community members can compare similar (or dissimilar) situations that other communities have faced, as well as how well coping—problem solving strategies have worked or failed to be productive.

Third, GIS data is stored in layers, thereby encouraging and facilitating an analysis of the syndemic/interactive nature of many of the problems faced

by communities (Singer 2003). Many of the social and cultural issues that we deal with as anthropologists, including poverty, disease, health, and ideas and perceptions about these issues, tend to cluster and aggregate in unique ways that are more readily apparent when mapped. Analysis of how variables cluster, overlap and intersect can facilitate a better understanding of the relationship between these components, especially those that deviate from our expectations (either relationships we did not anticipate, or lack of relationships that we did expect). Faced with inter-related problems, a map-driven analytical process deepens our understanding of these relationships, which in turn promotes development of solutions that are similarly inter-related.

Finally, the symbolic power or value of mapping is worth noting. GIS mapping looks modern and scientific and for that reason it provides a respectable meeting ground for a variety of actors—from community representatives and policymakers to doctors and epidemiologists and so on. Mapping provides a shared activity that can bring together different stakeholders stimulating conversations about problems and resources, differences between locales, special challenges, and existing networks of actors that constitute forms of social capital. Broad stakeholder participation, in turn, may lead to a more inclusive attitude among those parties involved enhancing cooperation and lines of communication.

Mapping involves the production of representations and for that reason must not be undertaken uncritically, for power relations are involved in this process of knowledge creation. Other disciplines have noted the problems inherent in GIS mapping (cf. Barndt 1998, Elwood 2006). Among concerns noted, a few are especially relevant to anthropology and participatory mapping. A crucial question in any mapping project is what (and who!) gets included in the map. In other words, what data

gets mapped? It often seems that the first elements to be included in mapping projects are the easiest types of data to gather (or the only available data!), but these data sets may not yield the best variables to consider them addressing a problem under consideration, and the data gathered for one purpose may not be accurate enough for a different purpose. We need to identify and critically assess not only what has been mapped, but what has not been mapped, and to ask why knowledge gaps exist. Why have different data sets been collected? What prompted decisions to lump and split types of information? How have boundaries been drawn and communities been defined? Constructing maps and framing discussions in relation to maps involves choices and are rarely neutral. As anthropologists we realize that most data collection is agenda-driven and dependent on how a particular problem is framed. The challenge of PGIS is to recognize the constructed nature of the mapping process while at the same time using the productive power of the mapping exercise to stimulate problem-solving and critical reflection.

Our charge is to use the strengths of PGIS while remaining ever vigilant to the misuse and uncritical use of mapping. Engaged anthropologists (Nichter 2006) are uniquely positioned to take up this charge while assisting local communities to think about problems and how to solve them in new ways. The articles in this volume are a sampling of the potential power that GIS and participatory mapping has for use in anthropology, and how anthropology's role in the mapping process may contribute to participatory problem solving that incorporates insights from researchers, community members, and other local stakeholders.

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