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## Mapping projects: identifying obstacles, finding solutions

by MAC CHAPIN

### Introduction

Mapping projects with communities, especially if they are to be genuinely 'participatory' (a word with many meanings), are far more complex, and difficult, than many of us would like them to be. Because they are complex, and because they characteristically involve a collection of people and institutions, there are areas where things can go wrong. I want to note several of these danger zones, and then briefly discuss ways you might try to avoid them.

### The nature of maps

First, there is confusion over the matter of what maps are. The confusion comes from the fact that they are both 'technical' and 'political' in nature. Professional cartographers tend to see them as technical, for they are concerned with the production of maps. Drafting maps is a technical exercise that demands specialised skills, technical skills. I will return to this point later.

The **political nature** of maps surfaces when they are put to use. This is especially the case when maps are used to claim or defend land, and to consolidate political power. In the late 19th century, the Europeans took the map of Africa and divided it into their 'possessions'. This was done with a map, and this division of the spoils took place in Europe, not

Mac Chapin presents his article to the participants at the Mapping for Change conference.



Photo: Giacomo Rambaldi

Africa. The same thing has been done all over the globe for centuries and has resulted in the definition of empires and nation states. Maps are today being used by governments and multinational corporations to define concessions for timber, mining, petroleum companies – and conservationists are using them for roping off land for wildlife reserves and protected areas.

In the past, maps were wielded solely by governments and elites for these purposes, and cartography was dubbed 'the science of princes.' Today, however, indigenous and traditional peoples have begun to utilise maps to protect and legalise their own homelands. This has been a true revolution in the way maps are being used.

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Maps also have other uses. They can be used as a basis for **discussion**, for **negotiation**, and for **conflict management** and **resolution**. They provide a visual picture of landscapes that everyone can understand – unlettered elders and even government officials – and allow everyone to participate in reasoned discussions of often-contentious issues, such as land rights and ownership of resources. In our work, we have found that both governments and indigenous and traditional peoples are in favour of this approach. It leads to quiet, reasonable talk rather than to confrontation, which usually raises suspicion and causes unnecessary difficulties. Negotiation is far more effective than confrontation. With this in mind, present mapping projects as technical exercises – the construction of maps with the use of field data – that will aid the process of discussing land use, land rights, and other issues.

Second, **view participatory mapping projects as social-organisational enterprises, not as exercises in technology transfer**. View them as community-based projects that just happen to have a technical component; don't conceive them as technical projects that are set in communities. The more villagers and their leaders have control over management of projects, and the more they are able to direct activities, the more participatory the projects will be. Technicians – GIS specialists and cartographers – should not be running mapping projects. Villagers and their leaders should be at the helm, for the purpose of projects of this sort is to produce maps that they can call their own. You want to establish in them a sense of ownership; without this, they will usually do nothing with the maps. Another way to conceptualise this is by seeing mapping projects as run by local people **with technical assistance from cartographers**. They are not projects run by cartographers and GIS specialists with local informants.

Let me give an example of this. My organisation, Native Lands, has developed a methodology over the past dozen or so years that has been used in various corners of Latin America, Africa, and Southeast Asia. The earliest projects were

a bit rocky, but we learnt from them, and subsequent efforts have gone smoothly. We have used the same general methodology everywhere. The technical core consists of a sequence of three workshops interspersed by two field periods stretching out over three to four months. Teams of village ‘Researchers’ work closely with cartographers to bring community sketch maps containing local knowledge of the landscape together with aerial photographs, satellite images, and base maps. This process is very intense, with considerable amounts of time spent gathering data in the field; checking and cross-checking existing cartographic information with village sketch maps; and constructing new maps that are full of cultural information on significant physical features and land use and at the same time geo-referenced. Lots of back and forth, back and forth. The result is a set of maps **produced by the villagers and their leaders with assistance from cartographers** that are both highly detailed and accurate.

### Project planning

Whatever methodology is to be used, projects need to be carefully planned. First, the core project team must be pieced together. In Native Lands’ scheme, there is a community unit, a technical (cartographic) unit, and an administrative unit. They all have their work to do and they all have to coordinate with each other. It is extremely important that the administrative unit is strong. It will handle relatively complex logistics: travel, hiring, payments and reimbursements, scheduling of activities, rental of facilities, procurement of materials and equipment, and so forth. Decisions have to be made in timely fashion, people have to be managed, and in the swirl of activity once a project is underway things often become confused – especially if there is no effective administrative unit in place. I cannot stress this point enough.

Both the community unit and the technical unit must be strong, but the administrative unit is the real key to success. It can be assembled in several different ways. Whatever works best. For example, the mapping project we assisted with the Kuna in Panama was run by a small team, put together by the Kuna General Congress. It was made up of all Kuna, with the exception of one of the cartographers, who was an employee of the National Geographic Institute. In West Papua, the project was run by a Papuan NGO that had deep roots in the communities being mapped; assistance was given to them by the British agency DFID (Department for International Development). In Cameroon, the project was administered by a bi-national (Cameroonian-British) organisation called the Mount Cameroon Project. In the Darién region of Panama, the project was administered by a non-indigenous NGO.

### The political dimension

We all know that maps are not just neutral pieces of paper with lines drawn on them. Otherwise, why would we spend our time making them? Maps are powerful documents that are used for a variety of political purposes. This being the case, one must anticipate possible sensitivities on at least two fronts: among the communities being mapped and with government authorities. People in the communities will be suspicious of the project, since they have never done anything similar before and they are traditionally suspicious of outsiders. They don't know who will control the maps when they are finished. People in government will often, if not always, see community mapping as a potential threat, as part of a campaign for land rights and empowerment.

This is all very natural, to be expected. So what can be done to dispel these suspicions?

### Ground preparation

It is necessary to do careful ground preparation before the mapping itself begins. This can be time-consuming, and to be effective it **should** be time-consuming. Some people want to begin mapping right away, but this approach should be avoided. It is often a tendency of technical people, who just want to get things moving. But the preparatory work must be done, and although it will take some time, it will save time in the end. It will reduce tensions substantially and allow the process to run more smoothly. It should be carried out on at least three fronts.

### Visit the communities to be mapped

Most likely, nobody in the communities has ever done anything of this sort before. Nobody knows what is going to happen, what the methodology is, why the project is being undertaken. They have had little exposure to maps and don't know what practical purpose they serve. Yet now they are being expected to select a representative from among their ranks as the village 'Researcher.' This person will gather information from knowledgeable people in the communities and place it on a sketch map. This information – the community's information – may then be taken to a workshop outside the community and poured into new maps with the help of cartographers. Villagers need to know what all of this is. They need to have questions answered and discussed. Otherwise, they will be hesitant to participate, and it is only through ample participation that the project will function.

Project leaders need to visit the communities and explain all of this to villagers, community by community, and allow time for discussion. They need to enlist community leaders in this effort. In a couple of earlier projects, when we were still

### Mapping in progress in Papua New Guinea



Photo: Native Lands

forming the methodology, ground preparation in the communities was weak, and we suffered the consequences. Some communities refused to cooperate when the time came, and one community said it would participate only if it was paid money. Considerable catch-up had to be done, and this was extremely time consuming.

Note that even with this kind of ground preparation, villagers will generally remain on their guard, especially in regions where they have been manhandled by outsiders (usually government or industry, or both). This was the case when we worked in West Papua, for example, where there is open conflict between the Indonesian government and local communities. With the initial ground preparation we were able to move forward with the project, but villagers were not completely trusting and forthcoming with information until late in the sequence of activities. Trust had to be built over time.

### Contact government agencies

It is extremely important that the government is informed as to what is going on. This is doubly true in countries with conflict and difficult relations between indigenous peoples

A group photo of the mapping project team in Papua New Guinea



Photo: Native Lands

and the government. Because of potential political sensitivities, there must be transparency and openness on the part of project leaders. If the government isn't in on the project, it could either:

- oppose and block the project; or
- refuse to accept the maps as legitimate when they are finally produced.

We have solved this problem by having the project leaders, along with the cartographers and community leaders, give different ministries and agencies demonstrations of the methodology; a little 'dog-and-pony' show of how the process works, technically. This is an opportunity to talk about the utility of maps as tools for negotiation and conflict resolution, for planning for better management. All of these are preferable alternatives to violence, which often accompanies disputes over land and resources and is accentuated if there is no map, no common ground, for discussion. Then invite government representatives to visit the workshops when they

are underway to observe the process in full swing. This is a key point: make sure the government observes and even participates without taking control of the project. Doing this will serve to diminish tensions and set up the project for follow-on negotiations and discussions.

#### Enlist the collaboration of the government mapping agency or agencies

Give them a demonstration of the methodology and invite them to lend some of their cartographers to work on the project. In some cases this will be easier than others. But we have found that when government cartographers see what the project will be doing and have a demonstration of the methodology, they jump at an opportunity to join the project team. Few of them ever work with field data. They spend most of their time copying old maps for different purposes, not very challenging. The creation of new maps with field data and crosschecking with satellite images and aerial photo-

graphs is an attractive proposition – especially if they are being paid a little extra for participating. And remember, they will see the project as something technical rather than political.

This is important for several reasons.

First, in many countries the bulk of the mapping resources – base maps, air photos, and satellite images – are only accessible through government agencies. And they usually have some of the best cartographers – although this is changing with modern technology and the rise of consulting firms that deal with mapping.

Second, participation on the part of the official government mapping agency lends credibility to the maps. It gives the maps an ‘official’ stamp – and indeed, all of the groups we have worked with seek to have the official seal of the government mapping agency on the finished maps. This of course is important when the maps are put to use for legal and political purposes. Without this collaborative relationship, government frequently rejects the maps out of hand.

### Production of the final maps

Another danger area resides in the space after the formal fieldwork and workshops have come to a close and the project team is looking at the task of producing the final maps. In earlier projects we operated with the assumption that at this point virtually all of the work was pretty much finished and it would be an easy matter to take the last drafts and have them converted into polished maps. This proved not to be the case, and we suffered the consequences. Several points can be made in this regard.

First, make sure there is **sufficient money in the budget** to have the project director, several technicians, and community leaders stay on for as long as six months to shepherd the map through the final stages of design and production. Hopefully, there has been some discussion of what the map will look like – how the legend will be configured, what colours will be used, what kind of paper, whether or not photos will be on the map, size, number of maps at different scales, and so forth – during the course of the workshops. At this point, everything has to be decided upon, a designer has to be found, and plans need to be put in place for printing. This is a rela-

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tively complex task because it involves constructing a map that contains a wealth of information.

Second, **village leaders need to be fully in touch** with all of these details, for they need to make decisions on them. One crucial area is the need to do thorough proofreading of the names and locations of features. People in the printing facility are unfamiliar with most of the names on the maps, for most if not all of them are in a language (or languages) they don’t understand. If they are the only people who view the maps before they go into final production, the likelihood that errors will creep in is huge. So as the maps are being put together for printing, community leaders fluent in the language should be periodically brought in to review the process and make corrections.

Third, the **participation throughout of community researchers and leaders**, along with their final approval of the details of the maps, assures their ownership of the final products.

### Conclusion

These are some of the major areas that in our estimation can cause problems in participatory mapping projects. We have seen difficulties arise, in our own projects and in the projects of others, when there is weak ground preparation and planning of activities is haphazard and faulty. There are, of course, other problem areas where breakdowns can be found, but these are the keys to success. The greater the participation of villagers in the project, the greater will be its chance of unfolding smoothly. Beyond this, careful planning and thorough ground preparation will ease tensions with communities and the government and allow the project to make it through to the end without major difficulties.

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