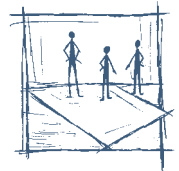
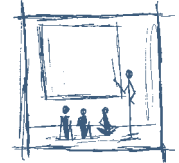


THE PROJECT SEQUENCE

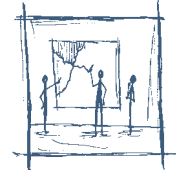
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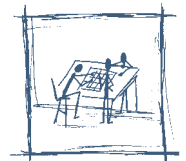
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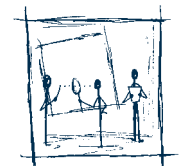
**GATHERING DATA
AND SKETCH MAPPING**



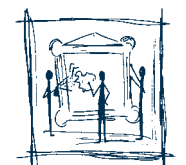
**TRANSCRIPTION OF DATA
ONTO NEW MAPS**



VERIFICATION OF DATA



**CORRECTING AND
COMPLETING THE FINAL MAPS**



8

FINAL STEPS: SECOND FIELDWORK PERIOD, THIRD WORKSHOP AND FINAL MAPS

At the conclusion of the second workshop, the technical team had drafted provisional 1:50,000 maps of each zone, noting gaps in the information and questions regarding river/stream location, place names, distances, boundaries of subsistence activities, and so forth. Questions were jotted down on the provisional maps themselves, and also in the Surveyors' notebooks so they could set things straight in the communities. The second fieldwork period was shorter and less thorough than the first fieldwork period. In Honduras, it lasted 13 days; in Panama, it was 6 days, barely enough time to journey to the region and return.

SECOND FIELDWORK PERIOD

In both Honduras and Panama, there was too little time for this phase of the project due to the scheduling constraints on the lead cartographer, who only had a small window between academic commitments to complete the mapping. The purpose of the second fieldwork period was to fill in gaps in the draft maps and resolve ambiguities. In Honduras, 13 days was not enough for the Surveyors to carry out even cursory research, and as a data-gathering exercise it was deficient. Those Surveyors covering a large number of communities were unable to make complete tours of their zones.

In Panama the situation was worse. Surveyors journeying into the field were given only six days to carry out their work, barely enough time to journey in and out of the Darién. Some of the Surveyors were covering as many as six and even eight communities, making it impossible to visit them all. Beyond this, many Surveyors felt that the earlier field period had been the important data-gathering experience; this second period was merely for touch-ups and consequently less crucial. To a large extent this attitude existed because of the lack of an overview and because the Cartographer had not explained to the Surveyors, as a group, the importance of this stage of the process. The tension mounting in the project was also taking its toll. Morale had dropped to a dangerously low level.

Figure 17. At the third workshop in Honduras, Draftsman José Ramiro Andino of the National Geographic Institute makes final corrections to a community map with the help of Field Technician Nathan Pravia Lacayo of MOPAWI.



THE THIRD WORKSHOP

In the third workshop, the Surveyors returned and worked with the cartographic staff to fine-tune drafts from the second workshop by filling in the gaps and cleaning up details so that the final maps could be drafted. In the end, two categories of map were produced:

- ❖ Seventeen zone maps in Honduras and 20 zone maps in Panama at a scale of roughly 1:50,000. These showed physiographic features, settlement patterns, and detailed subsistence locations. In Honduras they were left in draft form; in Panama final versions of the maps were printed at 1:50,000.
- ❖ For both countries, a regional 1:500,000 map showing physiographic features, settlement patterns, and the boundaries of subsistence areas. These maps were composites of the zone maps, fit together like pieces of a jigsaw

puzzle. Final versions combined this information with natural vegetation patterns.

In Honduras, the third workshop was roughly two weeks long. It was fast-paced and intense because of the lead cartographer's tight schedule. A number of Surveyors felt that the pace of work should have been slowed down. Better information could have been transferred to the maps, but in the rush a number of corners were cut, and data being transcribed was less reliable than it could have been. The degree of accuracy was further compromised because the second fieldwork period had been too short for the Surveyors to nail down the accuracy of their information. Beyond this, only the regional 1:500,000 map was printed; the zone maps were never worked into standardized 1:50,000 blue-line prints.³²

Unanticipated complications in the third workshop in Panama slowed the process to a crawl and caused project staff to alter their strategy. As detailed in the previous chapter, the technical team had not assembled complete aerial photo coverage of the Darién before the second workshop got going, and the photos it did have were from the 1970s and seriously out of date. By the time the third workshop got underway, it was no longer possible to sidestep the fact that there were too many glaring errors in the government base maps. José Aizpurúa made a special run to the IGN to see what he could

³² The disposition of these drafts and their importance are discussed in greater detail in the box "Whose Land, Whose Maps?" on page 83.

turn up while everything else was put on hold. He returned several days later with a more recent set of photos from the 1990s. When these were analyzed, it became clear that the cartographers could not simply laminate the land use patterns onto the existing government base maps without first correcting the maps.

At this point, Herlihy decided to revise the base maps completely — or as completely as possible given the limited time remaining. This decision signaled a major increase in the workload, which meant putting on the back burner the incorporation of the information the Surveyors had just brought in, while the cartographers pored over the aerial photographs to make corrections to the base maps. Herlihy again delegated very little of the primary work on the maps, and the projected two-week workshop expanded into three.

Before turning to the question of how the workshop was managed, one must ask whether it was necessary to meticulously correct the government base maps, given the stress the extra load would create in an already tense workplace. After all, the primary objective of the mapping was to identify and delimit the areas of land use, not to correct the government maps. The decision to correct the errors was deemed necessary for two reasons. First, the Surveyors and the people in the communities were creating their own maps of the region. For the first time, they were defining their territory with indigenous place names for rivers, streams, swamps, hills. They

were bringing in abundant data about the precise location of these features. If the government maps had been correct, the Surveyors' data would have simply confirmed features and locations while providing their proper names. Since the data conflicted with the base maps, the maps had to be corrected to create an indigenous map that was accurate and useful.

Second, some “experts” doubted the “scientific” quality of the mapping project. Our collective determination to dispel that impression acted as an incentive to do a precise, cartographically correct job not only with the land use data but also with the underlying physical features. The accuracy achieved by correcting the government maps would eventually be greatly appreciated within the Panamanian National Geographical Institute. This lent credibility to the project as a whole, and to the finished maps. After an internal evaluation some months later, the IGN would in fact judge the maps to be of such high quality that they were used during an exercise to update the official map of Panama.

These arguments are reasonable, but the new course of action undeniably had serious side effects within the mapping project. An already feverish rhythm of work escalated to such a pitch that relations among the project staff began to vaporize. The frantic pace set by Herlihy during the second workshop was redoubled. Everyone was on edge, tempers flashed, several members of the technical team quit, and fights broke out among the different groups. As the third workshop

reached its midpoint, the indigenous leadership and Native Lands met privately in Panama City to see how we might calm things down. In a five-hour session, the Indians vented their anger over the lead cartographer's behavior while recounting a lengthy catalog of heated confrontations with him.

As their emotions subsided, a consensus was reached to nurse the project through the final stretch by giving Herlihy a wide berth so as to avoid direct conflict. CEASPA, which had not been present at the meeting, was informed of this decision, and everyone acted accordingly. From that point on, the shared goal of completing the maps was the only glue that held these tight-lipped, fuming people together.

THE FINAL MAPS

In Honduras, a single map was produced, a 1:500,000 map of the Mosquitia showing the limits of indigenous subsistence zones, together with patterns of vegetation (see bound map following page 152). It was printed by the Honduran National Geographical Institute

according to directions from Herlihy, and appeared in final form several months after the third workshop. None of the 17 zone maps were made into blueline prints since neither the indigenous groups of the Mosquitia nor MOPAWI understood their importance, or how they might be used. In any case, Herlihy took all the draft zone maps with him when he returned to the United States (see discussion in box on opposite page).

In Panama, a decision was made at the outset to produce a 1:500,000 map of the entire Darién region in the same style as the Mosquitia map (see bound map following page 152), together with 1:50,000 blueline maps of each of the 20 zones. The blueline maps, which contained detail about land use as well as the names of rivers and streams and other important land features, were printed in the IGN office during the last workshop. The regional map, also done at the IGN, was delayed for more than a year due to a variety of confusions (see discussion on project outcomes in Chapter 10) but emerged in February 1995 under the direction of José Aizpurúa, the IGN cartographer who had worked on the project.

Whose Land, Whose Maps? Ownership of and Credit for the Maps

In both Honduras and Panama there were disagreements between the lead cartographer and the rest of the project team over credits for and ownership of the completed maps. These disagreements demonstrate rather sharply how each team member brings his own perceptions and priorities to the work at hand. It also shows why it is important to organize a team whose members agree, from the start, on a set of shared values.

The first sign of discord appeared as the maps for Honduras were being readied for printing. In preparing the final draft, Herlihy placed his name, together with that of co-coordinator Leake, at the head of the “credits” section. MOPAWI and MASTA, in reviewing the final draft, took exception to the prominence of the co-coordinators’ names and decided to elevate their institutional names to the top, dropping the names of Herlihy and Leake to the second tier. While this may seem like a trivial issue, it was not; it foreshadowed a far more serious dispute over ownership.

In Honduras, neither MOPAWI nor MASTA understood the full significance of the individual zone maps (roughly 1:50,000), so they were never taken beyond the ink-on-vellum stage and converted into blueline prints. Instead, everyone focused exclusively on the regional map (1:500,000) — showing areas of subsistence and vegetation — for its usefulness for general educational and training purposes.

In fact, the team’s awareness of the significance of the 1:50,000 maps, showing the

detail of subsistence areas, was so low that no one paid any attention when Herlihy left Honduras, taking with him the inked vellum drafts. It was not until 1994 that MOPAWI and MASTA realized that they should have kept the maps (no copies had been left behind) and had blueline prints made for distribution in the communities — for by this time the staff of both organizations had become aware that this was where the truly important information resided. MOPAWI wrote to Herlihy several times, receiving no response. Finally, after a final, joint letter from MOPAWI and MASTA in September 1994, the maps were returned in October. They have yet to be turned into blueline prints and reside in MOPAWI’s office today, still in draft form.

In Panama, the issue of credits came up again. Herlihy sought to give prominence to his name on the final map’s credit list, this time as the “Principal Investigator” (a label that one funder had given him as a condition of granting its support). Again, the rest of the project team objected and the issue of credits was discussed widely among all of the project participants. The final configuration of the credits section gave the Emberá, Wounaan, and Kuna Congresses and CEASPA top billing; the Surveyors were placed second; and Herlihy and three institutions that supported the project (Cultural Survival, Rights & Resources, and the Inter-American Foundation) were placed third.³³

With regard to the zone maps in Panama, the stakes were higher than in Honduras since we had made the decision to produce finished blueline prints of all the zone maps

³³ *Cultural Survival and Rights & Resources (briefly) had been earlier institutional perches for Native Lands. The Inter-American Foundation did not, in fact, fund any of the mapping; it instead covered the publication of the final regional map of the Darién.*

to complement the regional map. As we neared the end of the project, ownership of these materials became a central issue. Herlihy had begun preparing the originals for shipment to his home in the U.S., with the intention of leaving copies for the Indians.

Herlihy's stance on the zone maps was clearly at odds with the understanding of other members of the project team. Native Lands, CEASPA, and the other non-Indians involved in the project had, from the start, seen themselves as collaborators working to produce maps for the indigenous peoples of the Darién. The Indians planned to present copies of the final maps to the IGN, and they could only do this if they owned them in the first place. Everyone – especially the Indians – was taken aback by Herlihy's plans to leave with the original maps, and opposition was instantaneous.

A meeting was hastily held and Herlihy was informed in blunt terms that the maps were the property of the Emberá, Wounaan, and Kuna Congresses; all of the originals had to be left with them in Panama. He was told he would be allowed to take copies with him, but he was in no sense the “owner” of the maps. Herlihy agreed under duress. But later that day he slipped the originals out of the project office and left the following morning on the plane, maps in hand, for the United States. Letters, faxes, and phone calls followed, both from the Indians and Native Lands, but more than a year passed before the maps were finally returned to Panama.

The Emberá leadership took control of shepherding the final printing of the maps through the IGN. Their ownership is declared in the written statement — “Total or partial reproduction is prohibited without the previous authorization of the Emberá-Wounaan Congress” — in the lower left-hand corner of the regional map. In the lower right-hand corner, the unique collaboration that marked the project is noted with the statement: “Separation of color and printing realized by the Instituto Geográfico Nacional ‘Tommy Guardia’ based on data compiled by the Emberá-Wounaan Congress.” All that is missing is mention of the Emberá's traditional rivals, the Kuna.

How was this mess over credit and ownership allowed to develop?

First, looked at in retrospect, it became clear that Herlihy held to a form of “academic” thinking in which he saw himself as the project leader (in his case, the Principal Investigator), who manages the project from start to finish.³⁴ According to this paradigm — which several colleagues insist is archaic and outmoded, at least in the social sciences, but which still seems to hang on tenaciously in the minds of some — the research being undertaken belongs, in a very real sense, to the Principal Investigator, and everything he produces is his intellectual property. In Panama, the rest of the team had no indication that Herlihy adhered to this belief; we were operating in what might be termed an “applied” mode, in which the environment is collaborative and participatory. While there

³⁴ Herlihy in fact did try to take on the mantle of Principle Investigator. He also often referred to the indigenous Surveyors as informants and spoke of the research design as something beyond their minimal understanding. Writing of the project in Honduras, Herlihy and Leake (1997) noted “...the methodology relied on a group of native informants with limited training in relation to the scope of the research undertaken.” With training, which the mapping project can provide through hands-on experience, the Surveyors can learn, as other projects would show.

is often a project director in applied initiatives to assure that decisions are made, credit for the work goes to the team rather than to a single individual; and research results are the property of the local populations or organizations, to be used by them for their purposes.

This divergence of assumptions should have been openly discussed and resolved as the project was being put together. We should have all brought it up for public view and gone over it as a group, right at the start; in this way it could have been resolved and put to rest. A written resolution on the matter should have been drafted and signed by everyone. None of this was done: all of us, with the exception of Herlihy, simply assumed that the project and its final products belonged to the indigenous peoples.

Second, as we have repeatedly insisted in this monograph, projects of this nature need a strong institutional structure in which to operate. They need a project manager or director who can arbitrate disputes and be the final authority in ambiguous situations and on all matters of importance. In Honduras, MOPAWI provided a solid institutional base, and the project held together. The confusions there over credits and ownership of the maps were a result of inexperience and a lack of understanding of the value and use of maps. The Panama project, by contrast, had neither a strong institutional framework nor a person in charge. It had no decision-making structure, with the result that many truly simple matters were never adequately discussed and put to rest, and they began accumulating in vague, ill-defined piles. By the time the project drew to a close, few decisions were being respected, even those arrived at by majority vote.



DISCUSSION

The second fieldwork period and the third workshop were rushed in Honduras and frenzied in Panama. While things held together in Honduras, in Panama they did not. We have already discussed what occurred in the two countries in some detail; it remains to be said that much of what happened in Panama, particularly, was due to confusions and deficiencies in the earlier stages of the project that, when left unchecked, heated up and boiled over as the project neared conclusion. The initial lack of institutional coherence, the failure to provide orientation to project participants, the tight time schedule, the failure at the start to gather together and analyze existing cartographic materials, the belated realization that major revisions in existing maps would have to be undertaken — all of these things fed into each other and came to a troubled head as we headed down the home stretch. Perhaps some of this might have been controlled, as it was in Honduras, had there been a strong institution in charge, one that was respected by the participants. Without this, all that kept the project on track was the common desire to finish the maps.

Ideally, the second fieldwork period should leave sufficient room for two interrelated activities: the search for additional information for the maps,

and discussions of the maps by villagers. Depending on the size of the area covered by each Surveyor, enough time should be allotted so that all of the participating communities have ample opportunity to review the draft maps carefully, debate the details, make corrections and amplifications, and hold meetings to discuss what the maps mean and how they might be used. The opportunity for the communities to “proofread” the maps and verify their content is a crucial step because it is at this point that many villagers finally realize with certainty that their information is being recorded on maps that are being pieced together by the community. They begin to see the fruits of all of the questioning and the months of work, and they take pride in their accomplishment. If given a chance to develop, the final fieldwork period is a time when villagers take possession of “their maps.”

The third workshop should likewise be an opportunity for careful back-and-forth discussion among cartographers, Surveyors, and Coordinators of the last details of the maps. In subsequent mapping projects, the indigenous participants have brought in tribal elders to make a final evaluation of the data being integrated into the maps. They verify the location of physical features and land use areas,

check the proper spelling of place names, review boundaries, and discourse at length on the rich history that comes to light while reviewing the places and names on the maps. This should be much more than an exercise in cartography. It should be a social occasion, a collaborative venture in which the cartographers and the indigenous participants work together to not only put the finishing touches on the maps, but to give the maps meaning; it should be seen as an opportunity to ruminate on the practical uses of the maps and their importance for the indigenous communities.

THE FINAL MAPS

In Honduras and Panama, few project participants other than members of the technical team paid much attention to the final production of the maps. It was generally felt that the work of the project was more or less finished; all that remained was the printing of the maps, which seemed a routine matter, almost automatic. The lead cartographer took charge of the design and proofreading of the maps, which were then printed at the IGNs of each country. Involvement of the indigenous team members no longer seemed necessary at this stage (although the outcome in Panama was slightly different — see discussion on project outcomes in Chapter 10).

In Bolivia we altered this process. We had more time, for one thing, and the Izoceños played a much more integral role. They had their own linguist, who consulted at length with elders on the correct spelling and orthography of

Guarani place names. We all discussed symbolism for the different subsistence activities, deciding upon pictographs rather than alphanumeric designations, because it was seen as aesthetically more attractive. The pictographs were seen as something villagers could better relate to, with no decrease in the “scientific” value of the maps. Other design features were discussed and decided upon. For example, no boundary lines were placed around communities or zones (boundary lines had caused trouble in Honduras) and the outer limits of the Izoceño territory were depicted only vaguely, with no solid border (the Izoceños said they wanted nothing definite, for they might want to expand it in the future). In the end, the maps were more thoroughly “indigenous maps” than had been the case in Honduras and Panama, simply because the indigenous participants were involved in all aspects of the maps’ design and production.

As we had not worked with the Military Geographical Institute (IGM) in Bolivia, the maps were not printed by the IGM and did not carry its official seal. CABI asked the Prefectura (Governor’s office) of the department of Santa Cruz if they wanted to sponsor the map. This was agreed upon and the maps contain a note to this effect.

In Cameroon, the Mount Cameroon Project lost control of the maps at the end of the project. The organization that had provided partial funding for the project, a consulting firm, offered to do the printing. The draft maps were shipped off to England, which, it

was argued, had better equipment for the job. They were deposited with a person who had no knowledge of the region or the methodology. Several entirely unsatisfactory printings were done up, communications broke down, and both the Mount Cameroon Project and the villagers who had made the maps lost touch. As of this writing, no final maps have emerged. Villagers have had to make do with the drafts that remained in their hands. While they have made good use of the drafts, final printed maps would have been even more effective.

In Suriname, the final production of the maps was delayed for over a year, yet it moved forward with strong consultation with the Tirio; in fact, the degree of consultation and discussion was responsible for much of the delay, and can thus be viewed as positive. Symbolism for subsistence areas and physical features was decided upon by the community; the correct spelling of place names was regularized and checked by all concerned; map design was discussed and agreed upon; and the cartographers from the Central Bureau of Aerial Mapping, the Tirio Researchers and leaders, Neville Gunther of the Amazon Conservation Team, and the staff of Native Lands reviewed the map at every stage of the process. The final draft of the map was digitized by Geographical Information Systems Software — Application & Training (GISsat) in Suriname and printed in the United States by the Williams & Heintz Map

Corporation, a Capital Heights, Maryland, firm. The participation of the Centraal Bureau Luchtkartering (CBL — Central Bureau of Aerial Mapping) is acknowledged in the credits to the map.

Several conclusions can be drawn from these experiences. First, never assume that when the third workshop is completed the draft maps can be turned over to a printer and forgotten. This is a very crucial stage in the process and must be handled with energy and care. The entire project team must participate in the design of the final map, and the indigenous people should have the final word on symbolism and general presentation. The details should be reviewed carefully, and the final printing should be done in the country where the project was carried out, if that is possible. If the technical capacity for printing a superior map does not exist in-country, extreme care should be taken to assure that the final version has been meticulously reviewed and agreed upon by all project participants.

The final maps should be not only scientifically accurate and thorough but also attractive in the artistic sense. If this is done, they will find a place in the schools in the indigenous territory and also on the walls of government and NGO offices. Money should be spent on fine-quality paper, and maps for the communities should be laminated with plastic to assure that they do not deteriorate.