

INDIGENOUS LANDSCAPES

A STUDY IN
ETHNOCARTOGRAPHY

MAC CHAPIN

BILL THRELKELD

CENTER FOR THE SUPPORT OF
NATIVE LANDS

INDIGENOUS LANDSCAPES

A STUDY IN
ETHNOCARTOGRAPHY

MAC CHAPIN

BILL THRELKELD

CENTER FOR THE SUPPORT OF
NATIVE LANDS

Support for this publication was provided by the Biodiversity Support Program and the Inter-American Foundation.

Design by Patricia Hord Graphik Design.

Copyright © 2001 Center for the Support of Native Lands. All rights reserved.
No part of this publication may be reproduced in any form or by any means without the permission of the Center for the Support of Native Lands.

This publication was partially supported by the Biodiversity Support Program (BSP) — a consortium of World Wildlife Fund, The Nature Conservancy, and World Resources Institute, funded by the United States Agency for International Development (USAID), Global Bureau, under the terms of Cooperative Agreement Number DHR-A-00-88-00044-00. The opinions expressed herein are those of the authors and do not necessarily reflect the views of USAID.



CONTENTS

List of Illustrations	ii
Foreword <i>Janis Alcorn</i>	iii
Center for the Support of Native Lands	v
Introduction	1
Project Sequence	8
Chapter 1. Ethnocartography in Honduras and Panama: How the Projects Emerged	11
Chapter 2. Project Financing	23
Chapter 3. Putting Together and Coordinating a Project Team	31
Chapter 4. Step One: Ground Preparation	41
Chapter 5. Step Two: The First Workshop	51
Chapter 6. Step Three: The First Fieldwork Period	59
Chapter 7. Step Four: The Second Workshop	67
Chapter 8. Final Steps: The Second Fieldwork Period, Third Workshop, and Final Maps	79
Chapter 9. Testing an Improved Model for Ethnocartography: Mapping the Izozog in Bolivia	91
Chapter 10. Outcomes	109
Chapter 11. Summing Up: A Guide for Ethnocartographic Projects	123
Appendix A: An Analysis of the Project Budgets	137
Appendix B: Community Questionnaire Used in Panama	143
Appendix C: Addressing the Public	146
References	149
Acknowledgements	152

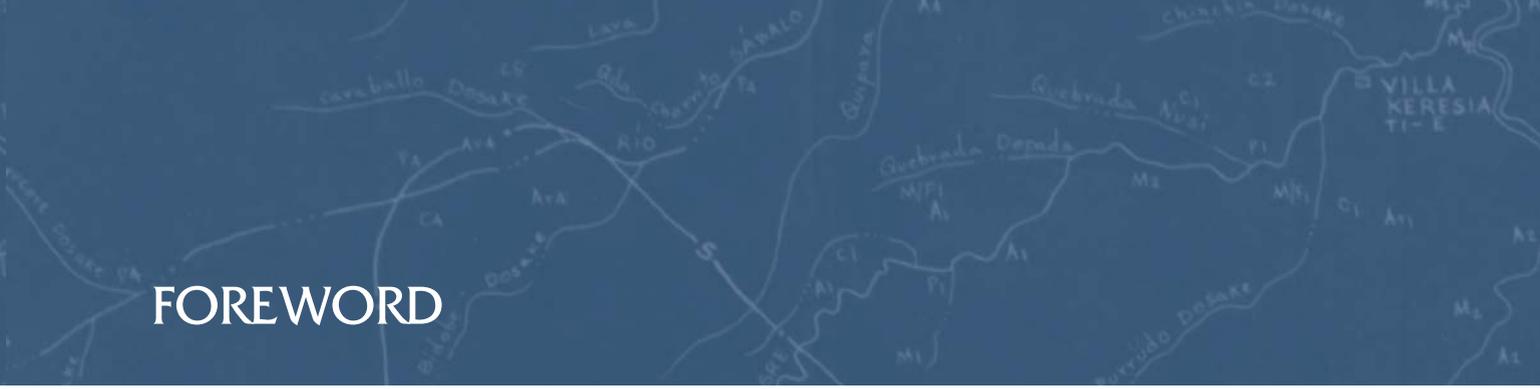
LIST OF ILLUSTRATIONS

FIGURES

1. Pine savannah near Wampusirpi, La Mosquitia, Honduras	11
2. Children at Yapuwas, along the Patuca River, La Mosquitia	11
3. Map of La Mosquitia	12
4. Editorial cartoon, “Atracción Fatal”	13
5. Emberá community of Mortí, Darién Province, Panama	15
6. Map of the Darién	17
7. Members of the technical team in Panama	35
8. Members of the community team from Honduras	36
9. Members of the community team from Panama	37
10. Map of the Surveyor zones in the Darién	45
11. Zone map for Wampusirpi, La Mosquitia	61
12. Sketch map of the Río Plátano Zone, La Mosquitia	62
13. Aerial Photograph Interpreter Hugo Solís studies the Darién	68
14. Team members look over draft maps of the Mosquitia, second workshop	69
15. Team members working together in the Darién, second workshop	70
16. A portion of the Marea Zone Map from the Darién	71
17. Draftsman and field technician in La Mosquitia, third workshop	80
18. Map of the Izozog, Santa Cruz, Bolivia	93
19. An aerial view of the Izozog	95
20. A community meeting in the Izozog	96
21. Team members work together during the second workshop for the Izozog	103
22. Organizaciones Indígenas de La Mosquitia	112
23. Posters from the events in Honduras and Panama	146
24. Kuna dancers during the Forum: Indigenous Culture and Resources, Panama	147
25. Panama’s Minister of Government and Justice addresses the Forum	147

BOUND MAPS (after page 152)

1. Tierras Indígenas de La Mosquitia Hondureña – 1992: Zonas de Subsistencia	
2. Tierras Indígenas del Darién 1993: Zonas de Subsistencia	
3. Mapa Comunitario del Izozog: Zonas de Subsistencia	



FOREWORD

“A map,” we are told by general dictionaries and the glossaries of cartography textbooks, “is a representation of the surface of the earth, or any part of it, drawn on a flat surface, and the positions of countries, kingdoms, states, mountains, rivers, etc.; as, a map of Europe, or a map of Illinois.” And indeed for most of us, maps are little more than this. We use road maps to find our way about and atlases to locate far-away places we read about in the news. In short, they serve the rather limited – and generally benign – purpose of helping us orient ourselves geographically.

Yet maps are much more than this. They have a surprising number of practical uses, not the least of which is as an instrument of power. States, nations, and empires are not natural features of the landscape; they are human constructs that have been imposed over the centuries as a means of converting chunks of the earth’s surface into real estate. “As much as guns and warships,” we are reminded by the geographer J. Harley, “maps have been the weapons of imperialism.” The partitioning of Africa by European mapmakers in the late 19th century is a classic example of this. And the division of South America into Portuguese and Spanish “possessions” at the turn of the 15th century was similarly the result of a distant treaty and a few strokes of the cartographer’s stylus. Neither of these takeovers involved the participation or even the knowledge of the local populations whose fates they so profoundly affected.

Governments and elites continue today to exercise the power of maps to legitimize their claims over land and resources. Maps have been enlisted by multinational companies to gain concessions over commodities such as oil, minerals, and timber. Protected areas are likewise created by sketching lines on maps. The primary victims of maps have been indigenous peoples. Lacking maps of their territories, they have had great difficulty defending their rights in the face of these maps.

This situation has changed during the last few years as indigenous peoples throughout the world have increasingly been using maps to serve their own purposes. Armed with their own maps, they are having greater success in blocking attempts to annex their lands and pillage their resources. Various community mapping, participatory mapping, and, more recently, ethnocartography, the methodologies employed differ somewhat in form and scope, yet they are generally aimed at similar objectives.

Territorial defense is one of the primary goals; yet the mapping also serves to strengthen local organizations, develop tools for planning, and provide a basis for education programs. Cartography in the hands of indigenous peoples is empowering. As Mac Chapin has noted, “This is about their objectives. Mapping is a mechanism indigenous people can adopt to meet their own ends. In the process of doing it themselves, things happen.”

The particular methodology described in *Indigenous Landscapes* has a number of special features. It can be used to map relatively large territories in ethnically complex regions. It provides a straightforward framework that indigenous peoples can use to construct their own maps of their territories, on their own terms. The method is simple in concept and can be tailored to a wide variety of cultural and political settings. It employs a low-tech approach, working almost entirely with paper and pencil. This collaboration between cartographers and indigenous surveyors produces accurate, detailed maps.

This book will be a key reference for anyone undertaking mapping projects to clarify indigenous rights to govern their lands, waters, and other resources. In telling the detailed stories of Native Lands’ mapping experiences, the authors provide a refreshingly candid examination of the difficulties they encountered as they strove to develop a mapping strategy that is feasible and technically sound, and, at the same time, engages the extensive knowledge and skills of indigenous communities. To this, they add a systematic discussion and numerous illustrative examples of how mapping projects are best designed and carried out. The case studies are compelling. The methodology that emerges is useful, adaptable, and powerful.

*Janis Alcorn, Director
Peoples, Forests, and Reefs (PeFoR) Program
Biodiversity Support Program*

CENTER FOR THE SUPPORT OF NATIVE LANDS

The Center for the Support of Native Lands is a nonprofit organization dedicated to the protection of biological and cultural diversity in Latin America, with a focus on Central America and southern Mexico. It does this by assisting indigenous peoples to develop and carry out their agendas for the preservation of the region's natural and cultural heritage. Through a combined program of applied research, training, and the facilitation of conferences, workshops, and technical exchanges, Native Lands works to:

- ❖ strengthen the organizational and technical capacity of indigenous peoples to protect their lands, sustainably manage and conserve their natural resources, and strengthen their cultures;
- ❖ encourage communication and the formation of collaborative relationships among indigenous peoples, governments, and conservation and economic development organizations for the comanagement of the region's natural areas and preservation of indigenous cultures;
- ❖ link indigenous peoples with the technical, legal, and financial resources they need to carry out these programs; and
- ❖ assist in the creation of policies that foster self-determination among indigenous peoples throughout the region.

Native Lands is based in Arlington, Virginia, with a regional office in San José, Costa Rica. At its inception in 1987, Native Lands operated a small grants fund for indigenous projects dealing in conservation and the sustainable management of natural resources, and the strengthening of indigenous culture. In more recent years, Native Lands has focused on two program areas: participatory mapping research in Central America and other parts of the world, with indigenous peoples and conservationists; and the organization of workshops, exchanges, and conferences with indigenous groups, conservationists, and government agencies throughout the Central America region and in southern Mexico.

Native Lands is supported by private foundations and individual contributions. All donations are tax deductible. For further information on Native Lands, inquiries can be made to:

Center for the Support of Native Lands
3240 Wilson Boulevard, Room 220
Arlington, VA 22201-4408

703 841 9771 tel
703 841 9774 fax
mail@nativelands.org
www.nativelands.org

Board of Directors

Peter Jutro, Chair
Senior Scientist,
U.S. Environmental Protection Agency

Mac Chapin, Executive Director

Roy Cayetano
Permanent Secretary, Ministry of Rural
Development and Culture, Belize

Myrna Cunningham
Rector, Universidad de las Regiones
Autónomas de la Costa Caribe Nicaragüense
(URACCAN)

Oswaldo E. Munguía
Executive Director, Mosquitia
Pawisa/Desarrollo de la Mosquitia (MOPAWI)

Elissa A. Parker
Vice President, Research and Policy
Environmental Law Institute

Robert B. Stang
Managing Director, ReNEWal Realty, LLC

Jack Vanderryn
Program Director for Environment,
Moriah Fund

Wilbur T. Wright, Jr.
Foundation Representation, Inter-American
Foundation

Sally W. Yudelman
Senior Fellow, International Center for
Research on Women



INTRODUCTION

In late 1993, Native Lands found itself in the final stages of a participatory mapping project in the Darién region of Panama. The previous three months had been a long and difficult haul. The internal dynamic of the project was strained from the start, and tensions mounted steadily as we headed into the home stretch, moving dangerously toward meltdown. The two Panamanian organizations managing the project had grown farther and farther apart as time wore on, regarding each other with increasing suspicion until they were barely on speaking terms. The cartographic unit was in semi-disarray and the lead cartographer was in open conflict with practically everyone. Secret meetings behind locked doors were being held by the different factions, and the atmosphere in communal rooms was suffused with a bristling, icy silence. It was a wonder that the various members of the project team continued, to the best of their ability in this tense setting, to work toward the shared goal of producing the maps. But this they had done, and the maps were now being printed by the Instituto Geográfico Nacional “Tommy Guardia.” The maps looked good. Everyone involved was in agreement that the work was of superior quality, and on this level the project appeared to be a success. But the fact remained that all of us were badly shell-shocked.

This had been the second of two mapping projects Native Lands had undertaken in rapid-fire fashion, one on top of the other, since 1992. We had minimal direct involvement in the first project, which was carried out as a collaborative effort between two Honduran groups in the indigenous region of the Mosquitia, in the northeast corner of Honduras. That was an exploratory venture, a maiden voyage with a methodology that had been jerry-built by many people and pieced together on the run, as field activities unfolded. The project had an intense and somewhat rushed aspect as it careened forward, but it was roughly coherent and the team had held together admirably well. There was a feeling of satisfaction all around, and the final map was judged to be competently done and useful.

Several months later, we had slid almost directly into Panama for a second go at participatory mapping with the indigenous peoples of the Darién. We played a more direct role in the project this time. Our plan was to follow the same general methodology and enlist the same lead cartographer. We were confident of our ability to pull off this second project despite the fact that we had spent little time reflecting on the Honduran experience and didn't even have an explicit

work plan to guide us. Although we encountered difficulties at the start, we believed that one way or another things would simply fall into place, just as they had in Honduras. But they didn't, and we weren't prepared for the turmoil that hit us.

In the aftermath of the Panama experience we struggled slowly to our feet, surveyed the wreckage surrounding us, and tried to understand what had gone so desperately wrong. Amid our confusion, we had maintained the firm belief that in concept the basic strategy for participatory mapping was sound. The difficulties had made their appearance because some elements in the original design had been faulty and things had gone awry when the imperfections had played out in practice. It was merely a matter of getting a clear fix on what had happened, thinking the process through, and retooling our approach to come up with a more smoothly functioning system.

It was in this frame of mind, then, that we decided to undertake a thorough analysis of the projects in Honduras and Panama. In early 1994, we began sifting through the available information, fitting one project like a transparency over the other to see what they had in common and where they diverged. We soon realized that this was going to be no simple task. No one in either country had an overview of everything that had taken place, and very little had been written down. There was no master script. Both projects had been carried out on the fly, with virtually no pause for rumination; and because of their

complexity, what had occurred was largely a mystery. The two projects had been, in fact, journeys into new territory for everyone involved — the coordinating institutions, the members of the technical teams, and the indigenous communities — and a complete picture of the route we had all taken did not exist.

We started by rummaging through our notes and recollections and assembling the written materials at our disposal. We then widened our net to include interviews of many of those who had participated in or witnessed the two projects in one way or another; and as we reviewed the growing body of information, we gradually came to understand what had happened. On the basis of this work, we began developing, tentatively, a refined methodology for future attempts at mapping.

As we struggled toward clarity, an opportunity to set up another mapping project arose with Guaraní-speaking Indians in the Bolivian Chaco, in the region called the Izozog. Although our analysis was not yet completed, we had by this time a much better sense of how to proceed, and this served to guide us in structuring the Bolivian work. We were able to avoid many of our earlier mistakes. We modified certain elements to make them more functional, strengthened some of the positive components that had been weakly developed in the earlier efforts, and added several new twists. The result was a far better project — not perfect, by any means, but more tightly organized, more in

tune with the needs of the communities, and much more pleasant and tension-free. This experience confirmed for us that the methodology had considerable potential.

When we had initiated work in Honduras, we had a general sense that the maps would be useful in defining indigenous territory, and we had hoped this would lead into more concrete discussions of the threats confronting the region and of possible strategies to thwart the dangers. But beyond this, our thinking was vague. In the rush to get things done in the field, we had ignored the deeper political implications of the mapping. By the time the work in Bolivia was completed, however, some time had passed. The Honduran maps had been out for four years and were being used by the indigenous groups, and it was easier to see some of the more specific, tangible uses to which they were being put. These surpassed what we had imagined. They were being employed in proposals for land legalization, political negotiations, and campaigns against outside exploitation of natural resources. They were useful as planning documents for management of natural areas and the basis for environmental education and programs for recovering indigenous history. The maps combined the best of two worlds. They contained traditional knowledge in a cartographic format, and served as a bridge across which indigenous peoples, government officials, and conservationists could communicate. For the first time, the groups that participated in the projects were learning how to read,

interpret, and use maps — essential skills for dealing with outsiders on land and natural resource issues. And the process of constructing the maps fostered political cohesion and unity. In short, we were surrounded with abundant evidence that the methodology we were developing was a formidable conceptual tool with broad applications.

This study is a critical examination of the projects in Honduras, Panama, and Bolivia. They were structurally (and superficially) similar. Their central theme was cartography. They covered relatively large tracts of land (between 17,000 km² and 20,000 km²). And all three took on two primary tasks: to describe in detail the salient physical features, natural and man-made, of the territories being mapped (rivers, streams, tributaries, hills; villages, roads, trails) and name them; and to determine the zones used by indigenous communities for subsistence activities (agriculture, hunting, fishing, and the gathering of medicines, fruit, firewood, building materials, and wood for sale). They were uncomplicated in their general design and, from the vantage point of hindsight, obvious in their simplicity. The technical sequence was identical in each case. It followed a fixed progression of three workshops interspersed with two periods of fieldwork that stretched out over approximately two and one-half to three months. They were exercises in what is best termed “ethnocartography,” in that the indigenous peoples were the authors of the maps. They drew on their knowledge to define their territories

in their own terms, selecting what they considered significant for inclusion. In this enterprise they were assisted by professional cartographers, who transcribed the information gathered in the communities onto cartographically accurate maps.

In practice, however, things were a good deal more complex. Each project had its own internal dynamic, its own peculiarities and idiosyncracies, all of which grew out of the special context in which activities took place. The composition of the ethnic groups at the heart of the three projects varied widely in leadership patterns, cohesiveness, and organizational capacity; in Honduras and Panama some of the groups were traditional enemies who had never worked together on the scale being proposed. In each country, the different participants had their own expectations with regard to the practical value of maps of their territories, and the uses to which they might be put. The institutions involved — governmental and nongovernmental, indigenous and nonindigenous — had different skill levels and degrees of involvement in the process. The search for finances to support the research did not follow the same course in the three projects, and organization of the project teams followed different routes. All of these factors blended together to give each project its own special character.

All three projects were joint ventures, with many people and organizations involved. The work in Honduras was organized and implemented by two organizations, MOPAWI and MASTA,

in 1992. The Panama project, which took place the following year, was jointly managed by the Congresses of the Emberá, Wounaan, and Kuna peoples of the Darién and the Centro de Estudios y Acción Social Panameño (CEASPA). The Bolivian project, which ran from late 1995 through most of 1996, was managed by the Capitanía de Alto y Bajo Izozog (CABI), with assistance from the Wildlife Conservation Society (WCS).

Native Lands' participation differed in each case. In Honduras, we provided financial support but were only marginally involved in project design, and we had no hand in the field activities. In Panama, we played a much stronger role in organizational and technical aspects of the process. We were involved in initial development of the project, which entailed lengthy discussions with the indigenous congresses and CEASPA; we brought in the bulk of the funds for the project; our Regional Coordinator, who was based in Panama, worked as a member of the technical team during the most intensive phase of the project; and we made semi-regular visits to Panama during the course of the mapping work. In Bolivia, we collaborated closely with CABI and WCS on virtually every aspect of the project, from initial community discussions and project design until final production of the maps.

The structure of this study is somewhat unconventional and therefore deserves a few words of explanation. The first eight chapters present an intertwined, comparative account of

the Honduras and Panama experiences. They contain considerable discussion of matters prior to the actual mapping activities in the field, ground preparation of a political and organizational type. We describe the sequence of the mapping proper, with the workshops and fieldwork periods, to the final production of the maps. While moving through this material, we often stop to flag important features of the process and place them in perspective, and we occasionally mention aspects of mapping projects in the West African Republic of Cameroon and Suriname in South America, which we have undertaken in the intervening years.¹ The Bolivia project is then dealt with in a single chapter (chapter 9), and this is followed by two final chapters in which we summarize the outcomes of our experience with participatory mapping and provide a provisional model for further mapping work with indigenous peoples. This latter section has also been informed by the Cameroon and Suriname projects.

This particular structure — with the two earlier projects handled together first and in great detail, the Bolivia project contained in a separate chapter, then outcomes and a methodological proposal — reproduces the journey we took in piecing together what took place and coming to grips with it. In a very real sense, the

Honduras and Panama projects served as the raw material for our analysis, and the Bolivia project was the test of that analysis; what then follows is merely a summing of the outcomes and process.

Some readers might consider the comparative discussion of the earlier projects to be overly detailed. When our research began, we regarded the piles of information being gathered as little more than a set of reference notes for our own internal use, as material to cull for something like a manual, a sort of how-to paper on participatory mapping. What did not fit would be discarded. But as the gathering progressed, we became increasingly impressed by the wealth of what was being amassed, and it gradually dawned on us that much of this information would be useful, even critical, for those involved in similar projects. This conviction was strengthened when, during the course of workshops we conducted on the mapping methodology, the odd details, the anecdotes, all of the tiny twists in the process proved to be especially instructive and of practical significance. We concluded that to leave this material offstage would keep a large part of the richness and complexity of what had occurred hidden from view.

We consequently refocused ourselves to provide a more thorough account

¹ In Cameroon we worked with the Mount Cameroon Project (MCP), a binational British–Cameroon program to preserve the biodiversity of the Mount Cameroon region, and villagers from the Boa Plain area in 1998 and 1999. In the southwest corner of Suriname, we worked with the Amazon Conservation Team (ACT) and the Tirio of the Kwamalasamutu area. Both projects used the same methodology as the projects forming the core of this book, but added refinements to the system that are discussed more fully in chapter 11.

featuring the ups and downs experienced during the course of the two projects — the successful maneuvers together with the breakdowns and blunders, the carefully thought-out moves along with the improvisations, the warts as well as the beauty spots. This approach would allow us, we felt, to inspect and reflect on the salient features of both projects in much greater depth and assess what had happened: why we became involved in mapping in the first place, how the project teams were formed, how the communities worked with the project team, why and how decisions were made (or not made, or poorly made), how fund-raising was carried out, why confusions and conflicts appeared, how political agendas were combined with the technical cartographic work, and so forth.

This brings us to an issue that we consider central to our discussion of ethnocartography — or at least, the version of ethnocartography discussed in this study. The careful reader will soon realize that a good deal of what we discuss in the following pages has nothing specifically to do with cartography. While it is true that the central theme of the three projects was cartography, and the major tangible result was a set of cartographically accurate maps documenting indigenous perceptions of their landscapes, it needs to be stressed that work of this sort entails a good deal more than the technical exercise of cartography. The cartography component is located, like the seed of a peach, within the larger project framework that must be built up so that the mapping can take

place. Consequently, we spend considerable time discussing the complex and generally more time-consuming “nontechnical” (and some would say, “softer”) outer layer. This is composed of matters such as project financing, administration, the social organization of fieldwork, and the diplomatic groundwork surrounding the technical core. In fact, much of what we say can be applied to a large number of participatory projects, be they “research” (however this may be defined) or something else, organized and managed by indigenous peoples and/or nonindigenous nongovernmental organizations (NGOs).

We have written this study with several audiences in mind. Among these are conservationists working with community-based strategies for resource management; academics — particularly geographers and anthropologists — and public interest lawyers concerned with participatory approaches to community work; and donors supporting a range of projects among indigenous peoples. All of these might conceivably find our account of the three projects of interest. Our primary audience, however, is practitioners who are involved in participatory mapping projects, or who are interested in carrying out similar efforts in indigenous regions of the world. The three examples presented here are from Latin America; but it is our sense that the methodology, with appropriate modifications for local conditions and specific objectives, can be effectively applied in a wide variety of settings. For example, our work in the very different cul-

tural, political, and economic setting of the Republic of Cameroon in West Africa went forward without a hitch, and we were even able to improve on certain aspects of the earlier projects.²

This is not to say that putting together projects in indigenous communities and carrying them through to conclusion is easy. Resources are often few and tenuous; and to make headway

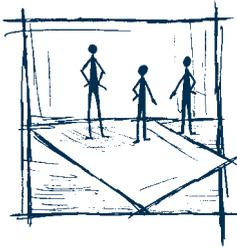
one frequently is forced to improvise, try novel and untested approaches, and fight past mistakes and missteps to make things come out right. With this study we hope to convey a sense of the often difficult and complicated texture of work of this sort, of the need for persistence and constant self-evaluation, and of the ultimate possibility of achieving success.

² These refinements are discussed in the Discussion sections throughout the text and in the concluding chapter.

PROJECT SEQUENCE

Although our narrative of the projects in Honduras and Panama is chronological, the numerous pauses and detours we take along the way may cause some readers to lose their way as we work through the methodology. To minimize this, we have devised a schematic project sequence to serve as a guide as we move forward. It consists of a series of icons that chart the various stages of the process, starting with initial ground preparation and moving through the different workshops and fieldwork periods to final publication and distribution of the maps. This schematic sequence appears at the start of each chapter or sub-heading that initiates discussion of a particular stage. It is designed to assist the reader to locate the topical discussions in the larger flow of the project and simultaneously facilitate later reference back to specific sections and topics.

The sequence, which is presented here in its ideal form — we will see how events in the field often strayed from the ideal — is as follows:



GROUND PREPARATION

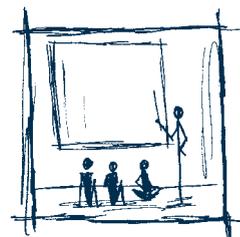
During the months leading up to the start of formal project activities, project leaders and indigenous authorities visit communities to explain the objectives and importance of the mapping work, and discuss the methodology to be used. They also visit government agencies and NGOs to discuss the project and enlist collaboration. Among the most important of these contacts is the government mapping agency. At this time, the technical team and a team of community data gatherers (Surveyors³) are recruited. The technical team gathers together all available cartographic material pertaining to the area to be mapped and evaluates its quality.

3 In the three projects dealt with in this study, community data gatherers were called encuestadores, which translates into English as “surveyors.” Neither term is satisfactory: in Spanish, encuestador is roughly equivalent to “census taker”; in English, it denotes either someone who is administering a questionnaire (a survey) — which was only part of what was going on — or the work of a topographer. Encuestador was used initially because at that time the task was seen largely as one in which the questionnaire was central; and beyond this, a formal census of the population of the region was undertaken.

In later projects, we have used the Spanish term investigador, which translates into English as “researcher.” In our historical discussion of the Honduras, Panama, and Bolivia projects we have maintained the term “Surveyor.” In our concluding section, we shift to the more appropriate “Researcher.”

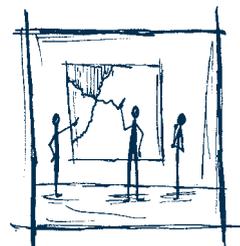
FIRST WORKSHOP: ORIENTATION AND TRAINING

Project staff and indigenous leaders bring together the Surveyors and the technical team and explain to them the objectives and methodology of the mapping project. The project team then works together on data-gathering techniques: developing a questionnaire on land use, practicing the drawing of community sketch maps on blank sheets of paper, and discussing additional information that will be recorded in notebooks.



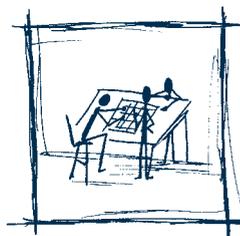
FIRST FIELDWORK: GATHERING DATA AND SKETCH MAPPING

Surveyors visit communities in their areas to gather detailed information. They first meet with village authorities to devise a strategy for eliciting data, then begin working with local specialists to fill out the questionnaires and draw community maps. During this time the technical team readies the site of the second workshop for upcoming work with the Surveyors, organizing the cartographic materials and equipment.



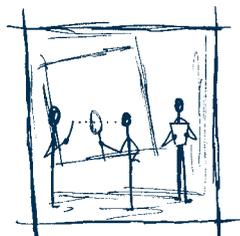
SECOND WORKSHOP: TRANSCRIPTION OF DATA ONTO NEW MAPS

Surveyors arrive from the field with information on significant land features and subsistence patterns in their region. They begin working with the technical team to place their information on cartographically precise maps. This interaction produces draft maps that still contain gaps and outstanding questions.



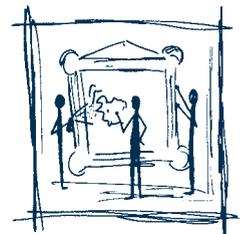
SECOND FIELDWORK: VERIFICATION OF DATA

Surveyors return to the communities with the draft maps to verify the details on them, answer questions, and fill in gaps. Villagers have an opportunity to take a critical look at the maps and discuss issues surrounding their territory.



THIRD WORKSHOP: CORRECTING AND COMPLETING FINAL MAPS

Surveyors reunite with the cartographers to incorporate information that has been verified in the field and put the draft maps in final form. Large-scale maps (1:25,000, 1:50,000, or 1:75,000) may be done, then fit together into a composite map of the entire region (1:250,000 or 1:500,000). The Surveyors, technical team and indigenous leaders make a final evaluation of the quality and usefulness of the map before turning it over to the printer.



1

ETHNOCARTOGRAPHY IN HONDURAS AND PANAMA: HOW THE PROJECTS EMERGED

The idea for ethnocartography in Honduras and Panama grew out of the situation on the ground, where indigenous peoples were under increasing pressures and in danger of losing control over their land and resources. A precursor for the idea of showing land use to bolster land tenure claims was a 1992 map of Central America prepared by Native Lands (in its earlier guise as the Central American Program of Cultural Survival) for the National Geographic Society showing the connection between indigenous peoples and the last remaining wilderness in the region (Chapin 1992). The leap from that map to applied ethnocartography was gradual, and unfolded according to the specific needs of groups in Honduras and Panama.

THE MOSQUITIA

The Mosquitia is a roughly 20,000 km² expanse of relatively intact wilderness situated in the far northeast corner of the country, including the department of Gracias a Dios and portions of the departments of Colón and Olancho (see Figure 3). A mixture of mangrove forest and associated wetlands runs along the Caribbean coast, with pine savannah mixed with lush broadleaf forest farther inland. As many as 50,000 people belonging to the Garifuna, Miskito, Pech, and Tawahka peoples — interspersed with pockets of Ladinos who have lived in the region for decades and, in some cases, centuries — inhabit more than 170 communities. It is the most sparsely settled region of Honduras, covering approximately 20 percent of the nation's land surface but containing barely 1 percent of the nation's population. It is also the most remote. No roads enter the Mosquitia to connect it to the rest of the country; it can only be reached by boat along the coast, by small plane, or by trekking overland on foot or horseback.

MOPAWI (see box on page 13) had operated a diverse program of integrated development in the Mosquitia since 1985, yet early on had realized that land protection was the key to everything else, and in 1987 created a Land Legalization Program. During the previous 25 years, colonization by landless peasants and cattle ranchers, primarily from Olancho Department, has advanced steadily along the southern and southwestern flanks of the Mosquitia. The intruders have been moving across the mountains and down the major river valleys at an ever-increasing pace, securing new areas by clearing land, and each year expanding deeper into the forests of the region. Not only was this a

Figure 1. Pine savannah near Wampusirpi, La Mosquitia.



Mac Chapin



Mac Chapin

Figure 2. Children at Yapuwas, along the Patuca River, La Mosquitia.

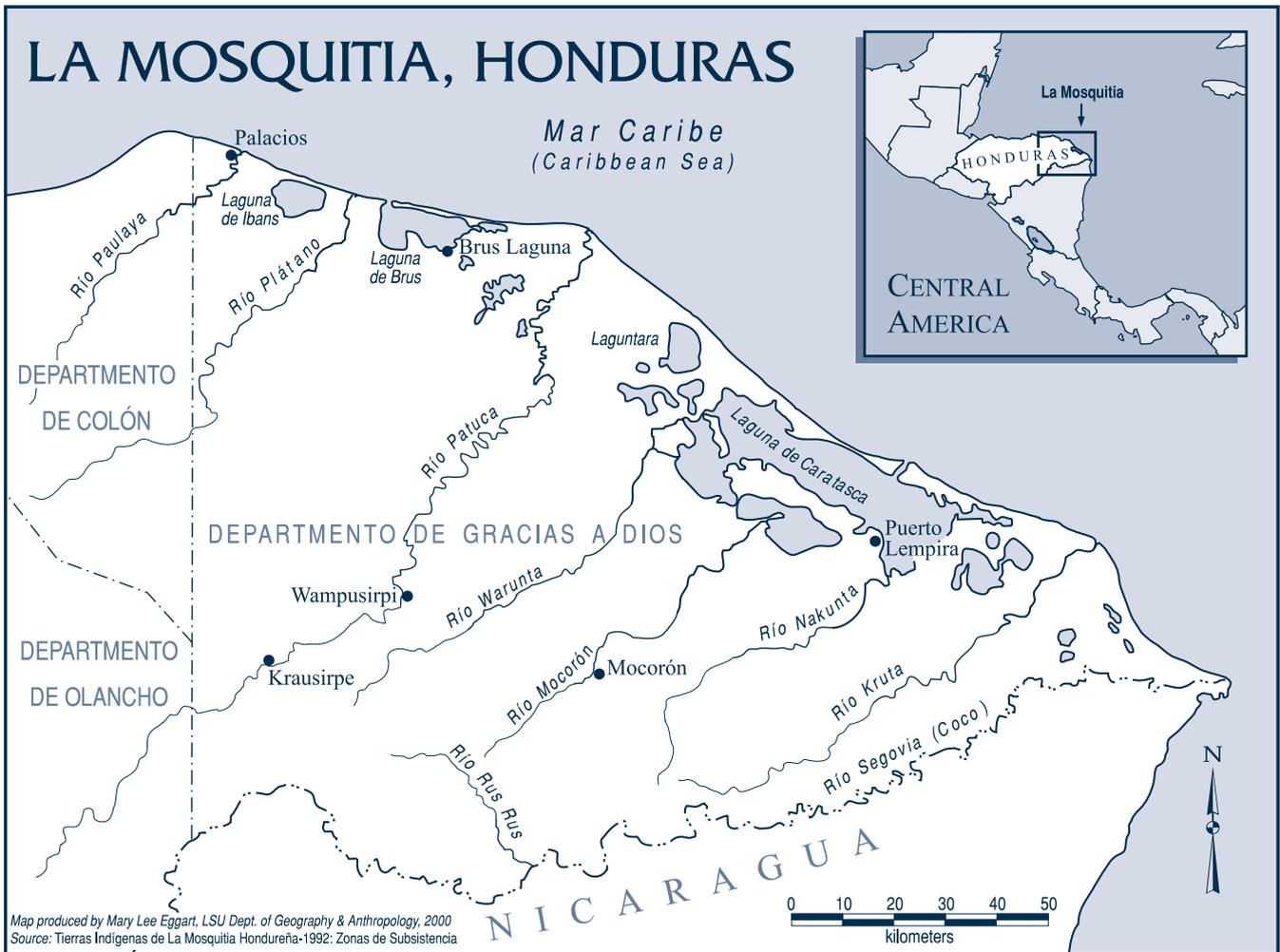


Figure 3.

threat to the Mosquitia's fragile ecology, it was also a menace to the social, political, and economic integrity of the local population.

In September 1991, large-scale logging appeared on the near horizon. The Stone Container Corporation — based in Chicago, Illinois, where it manufactures paper bags and cardboard boxes — gained concessionary rights to clear-cut (for wood chips) a vast stretch of forest running from the Mocerón and Rus Rus Rivers to the Patuca River, covering most of the central third of the Mosquitia. The tract formed a substantial part of the

approximately one million hectares covered in the agreement signed by Honduran President Rafael Callejas. This transaction to pulp approximately one-quarter of the nation's remaining forests was carried out secretly, under circumstances that were certainly shady and most likely illegal. When news leaked to the press, there was instant and vigorous opposition from environmental groups and local timber interests. A campaign of protest built rapidly and came to a head in early 1992.

While alarm over these developments reverberated throughout the

Mosquitia, opposition there was, at best, diffuse and muted. There was no region-wide awareness of the immediacy of the threats, and there was no sense of how the vaguely felt danger might be dispelled or counteracted. Information was partial and scattered. Villagers generally knew what was happening in their own immediate areas, often in considerable detail: they could name the loggers cutting trees nearby; they had regular contact with peasant families recently arrived from the interior provinces; and they could hear the incessant drone of chain saws clearing forest for cattle ranches on the flanks of adjacent hills.

Yet the indigenous residents did not realize how these isolated acts of intrusion were spreading throughout their territory like beads of mercury that would eventually coalesce to form larger, coherent patterns of destruction. Without a region-wide consciousness, they felt no particular responsibility for what was occurring beyond the boundaries of their own communities. When cattle ranchers armed with guns moved in and took land from villagers on the other side of the Mosquitia, the attitude was frequently: “That’s their problem; let them deal with it.” For the moment, each village stood alone, waiting its turn.

MOPAWI and Native Lands decided that something — we weren’t certain what — had to be done to break down the isolation and focus people

on the growing threats so they could mount a regional response.⁴ We first thought of holding a congress of some sort to stimulate broad-based discussion on the land issue. But we were afraid that this would end up like many similar meetings, generating voluminous talk that would rapidly dissipate into the air, like smoke. Something more tangible was needed, something that would simultaneously involve the people of the region, produce useful data, and summarize the land and natural resource situation of the Mosquitia.

As we were turning over some of these ideas, Native Lands was working with the National Geographic Society on the final stages of a map entitled *The Coexistence of Indigenous Peoples and the Natural Environment in Central America*. This map showed the areas of corre-



Figure 4.

MOPAWI (Moskitia Pawisa – Development of the Mosquitia)

MOPAWI is a Honduran non-profit organization that works with the indigenous groups of the Mosquitia in the areas of sustainable agriculture and agroforestry, community forestry development, intercultural bilingual education, marine/coastal resource management, preventive health care, institutional strengthening of local organizations, credit and micro-enterprise research and documentation, environmental education, ecotourism development, political advocacy and lobbying, and emergency and rehabilitation assistance. Founded in 1985, MOPAWI now has a staff of 72 working in 19 different offices. It is considered a nonindigenous “support” organization, although the majority of its staff are indigenous and live in the region.

⁴ Native Lands had been supporting MOPAWI’s Land Legalization Program since 1988.

MASTA (Moskitia Asla Takanka – Unity of the Mosquitia)

MASTA emerged in the late 1970s as the sole indigenous organization in the Mosquitia. For many years it was poorly organized and without direction. It received legal status as a non-profit organization in 1987 and since the early 1990s, in the wake of the mapping project, has focused on issues of land protection and conservation of natural resources. To accommodate increasing complexities in the organizational composition of the Mosquitia, MASTA grew from its status as a federation to become a confederation. Shortly after the mapping project was completed, seven Miskito federations, all of them defined by regions, were formed; and MASTA took on the role of lead organization in the region.

spondence between areas occupied by indigenous peoples and rainforests along Central America's Caribbean coastal plain. Rather than utilizing the common cartographic technique of representing indigenous communities with tiny dots, it attempted to show the territories occupied by indigenous peoples for subsistence. In the context of the Mosquitia — which government officials often described as a vast, uninhabited wilderness — we decided to take this process one step closer to the ground and map in detail the extent of indigenous land use patterns in the region.

Gradually the technical details of a land-use mapping project began to take shape in conversations between Andrew Leake, the Advisor to MOPAWI's Land Legalization Program, and Peter Herlihy, a cultural geographer from Southeastern Louisiana State University who had experience in the region. Leake had been working with MOPAWI since 1987 to define a Mosquitia-wide strategy for the legalization and protection of indigenous lands. He had been helping the Miskito, Garifuna, Pech, and Tawahka peoples organize themselves and make petitions to the Honduran government, which, through the Instituto Nacional Agrario (INA), had been attempting to placate some of the increasingly vocal Indian groups with promises of land. INA drew up a plan to grant legal rights to pieces of land to those communities that carried out a census and drafted a map of the lands

they claimed (Herlihy and Leake 1997, 709–10). In the context of this program, Leake and Herlihy had worked with the Federación Indígena Tawahka de Honduras (FITH) to draft a proposal to set aside the Tawahka region along the Upper Patuca River as a protected area (Herlihy and Leake 1990, 1991, 1992). Native Lands supported this work and was involved in the process, along with some other activities; but there was a sense among all of us that these were bits and pieces that, while important individually, didn't add up to a coherent whole.

At that time Herlihy had been doing some fine-grained land use mapping of the Tawahka area and had just initiated similar work among the indigenous groups inside the Río Plátano Biosphere Reserve.⁵ Consequently, he had spent a good deal of time in both areas along the fringes of the Mosquitia, walking the boundaries of indigenous subsistence ranges and gathering information through questionnaires and village meetings. He was available from June through August of 1992 and was anxious to help organize a more ambitious mapping project that would encompass the entire Mosquitia. The methodology developed for this purpose was an adaptation to a larger scale of Herlihy's work among the Tawahka along the Patuca and the Miskito in the Río Plátano region.

The idea of holding a congress on land rights in the Mosquitia lingered; but as

⁵ Herlihy had also compiled information for the Mosquitia in the National Geographic Society map of Central America.

the mapping project took shape, it came to dominate everyone's thoughts. During this talking stage, MOPAWI and Native Lands both saw two primary purposes for the mapping. First, by anchoring participants from different cultural groups in a technical task that would help them focus on the common issue of land, we hoped to avoid ethnic rivalries, which are abundant in the Mosquitia, and get directly at the issues. Second, we hoped that the project would produce tangible, potentially useful information in the struggle to protect indigenous lands from the predations of outsiders and push forward with the process of legalizing indigenous tenure in the region. No one was clear at the time on what the specific impacts of the mapping would be; nor were we aware of the range of political uses to which maps, in the hands of indigenous peoples, could be put. The main thing we sought was to bring people together and provide the conditions for them to initiate rational, informed discussion of the problems confronting the region. A map would assist them in visualizing the Mosquitia as a region and serve as a basis for developing strategies to involve communities in the protection of their resource base.

MOPAWI joined with the Miskito federation MASTA (see box on page 14) to run the project, although in reality MOPAWI managed virtually the entire process from start to finish. It handled the funds, designed the project,

provided the facilities for the workshops, and supplied the lead Coordinator, Leake. This centralized control facilitated decision making and assured that the project team was a cohesive unit — a situation that was in sharp contrast to the way things developed in Panama, as will be seen in Chapter 3.

THE DARIÉN



Anthony Stocks

The Panama mapping project, carried out the following year, was motivated by similar considerations and was influenced by the project experience just concluding in Honduras. The Darién, with a total surface area of 16,802 km² and a population of approximately 22,000 people, is Panama's most sparsely populated and least-known province.⁶ It contains the largest intact stand of rainforest in the country, and until 30 years ago was inhabited almost exclusively by three indigenous peoples — the Emberá, the

Figure 5. *Emberá community of Mortí on the banks of the Chucunaque River, Darién Province.*

⁶ The Darién may be defined in one of two ways: as a geographical-ecological region of slightly more than 37,000 km² located between the Río Bayano in eastern Panama and the Río Atrato in northwestern Colombia (Torres de Araúz 1975, 12–15; Candanedo 1997, 2–3); or as a political province in the Republic of Panama with an area of 16,802 km². In this study we refer to the Province of Darién in Panama.

Wounaan, and the Kuna — and Darienitas, Afro-Americans descended from slaves. In 1983, the government of Panama granted the Emberá and Wounaan peoples legal rights to a territory, called the Comarca Emberá Drua (Comarca Emberá Territory).⁷ This territory is divided into two “areas” — Cémaco, with 280,000 hectares, and Sambú, with 120,000 hectares — that together comprise 25 percent of Darién Province (see Figure 6).

In recent years the Darién has become a stage for escalating conflict in which the native inhabitants face invasion by large numbers of loggers, cattle ranchers, and landless peasant farmers from the overpopulated interior provinces of western Panama. Since the opening up of the region in the mid-1970s through construction of the Bayano Hydroelectric Dam and the extension of the Pan-American Highway as far as the town of Yaviza, the influx of outsiders has steadily increased (see Wali 1973, 1989, 1995; Heckadon Moreno 1982). Both the forests and the subsistence base of the local people have been dis-

appearing at an alarming rate. In the early 1990s, however, an even bigger menace emerged with the imminent construction of the final stretch of the Highway from Yaviza in Panama to Lomas las Aisladas in Colombia, a distance of just over 100 kilometers. This would link the North and South American continents by road for the first time in history and open the region up to a massive flow of human traffic.⁸

As in the Mosquitia, the Darién was populated by a jumble of communities that had no collective picture of the region. They were fragmented politically. The Kuna groups were petitioning the government for comarca status for their territories. The Comarca Emberá Drua was a legal entity on paper, but had never been surveyed and demarcated; and moreover it seemed — although solid information was lacking — that more Emberá and Wounaan lived outside the two areas of the Comarca than within.⁹ The Kuna had virtually no contact with the Emberá and the Wounaan.¹⁰ There had been armed confrontations between the Kuna and

7 Comarca is a Panamanian legal concept designating a semiautonomous indigenous reserve. The Kuna of the San Blas region were granted their comarca, the Comarca of San Blas (also called Kuna Yala), in 1938. More recently the Kuna in the region of Madungandí, on the Pacific slope of eastern Panama, were granted their comarca, as were the Ngöbe of the Bocas del Toro region in western Panama (See Herlihy 1989, 1995).

8 By the year 2000, the threat had shifted somewhat as a new kind of intrusion gathered momentum. Guerrilla and paramilitary groups stepped up their activities along the border, crossing over from Colombia into the Darién region of Panama. It has reached such a level of chaos that all plans for construction of the Highway have been put on hold. Virtually all Panamanian government activity in the region has been suspended.

9 In the census carried out during the mapping project, it was discovered that out of a total Emberá-Wounaan population of 13,202 in the province of Darién, only about 6,000 live within the two areas of the Comarca Emberá Drua.

10 The Emberá and the Wounaan are closely related groups that speak separate languages yet live interspersed throughout the same area and intermarry. In the Darién, the 10,797 Emberá outnumber the 2,405 Wounaan four to one; the two groups have joined together for a not altogether comfortable alliance in the Congreso General Emberá-Wounaan. The Kuna population of the Darién, located in the regions of Wargandí (in the Upper Chucunaque River Basin) and Takarkun Yala (including Púcuru and Paya, two villages near the Colombian border), totals 1,531. The Kuna and the Emberá have traditionally been enemies, and even today, with a common cause to defend indigenous rights, relations are often less than amiable.

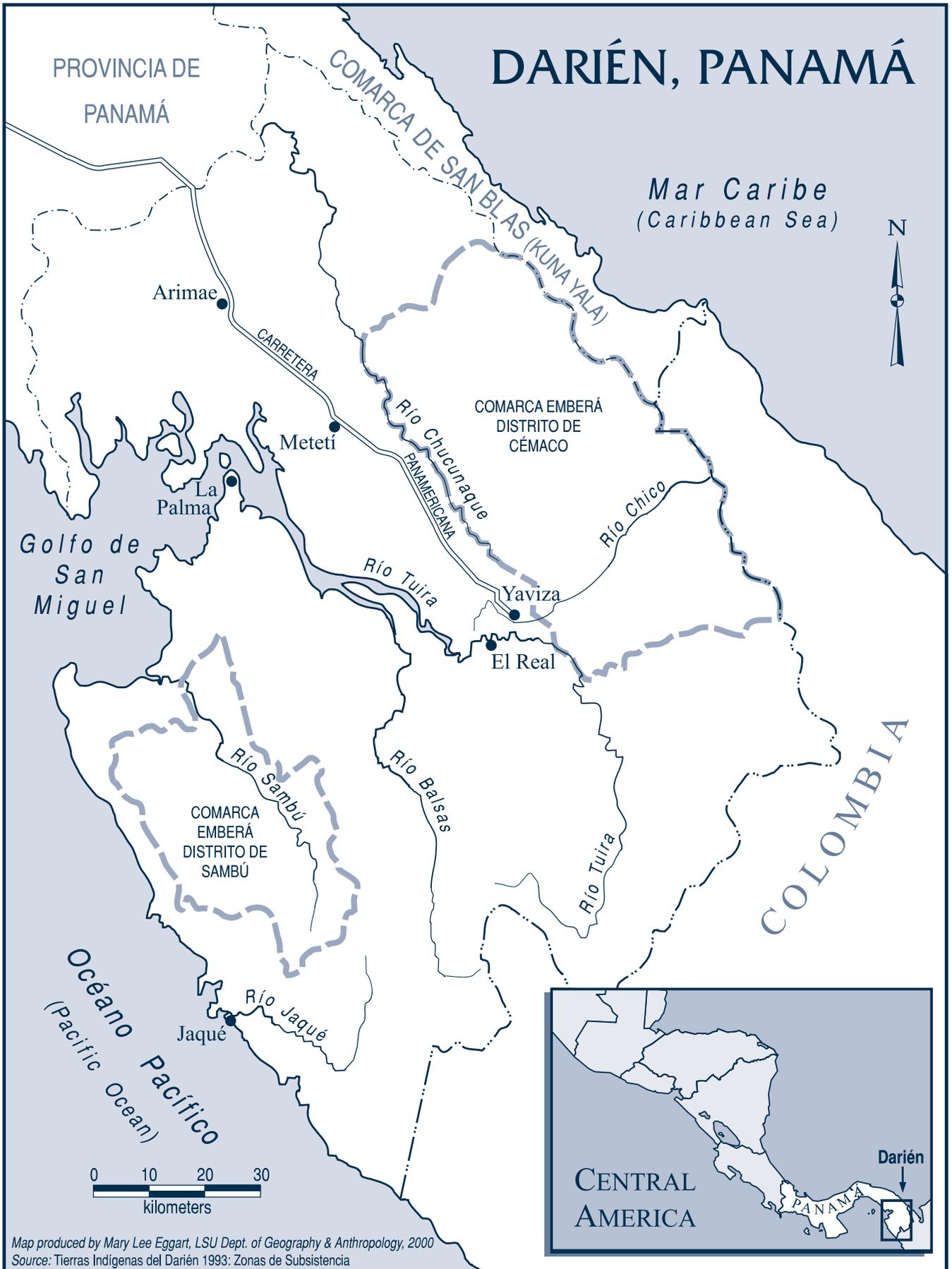


Figure 6.

non-Indian colonists in the Bayano (Madungandi) region along the highway to the north, and tensions were mounting rapidly. Rumors and accusations of illegal timber concessions and surreptitious contracts were flying in all directions; the Bishop of the Catholic Church in the Darién, Rómulo Emiliani, was attacking the indigenous leadership as corrupt, while the Indians accused the Bishop of being controlling and paternalistic. The Asociación Nacional para la Conservación de la Naturaleza (ANCON), a conservationist NGO, was concentrating its energies and resources on protection of the Darién National Park, but in its concern overlooked the Indian communities inside the park. It had been unable (some say unwilling) to incorporate indigenous views and needs in its conservationist framework, provoking strong criticism from Indian leaders.¹¹ There was a vacuum of reliable information, and any level-headed consensus about what might be done to stem immigration into the region and bring a halt to destruction of the forest was lacking. As in Honduras, there was an urgent need to focus regionally on land and natural resources.

In 1992, Native Lands began talking with Emberá-Wounaan leadership about a range of possible activities in the Darién. Since the Honduran mapping project was off to a promising start at that time, something similar was discussed as a possibility here. We

mentioned that Herlihy — who had done fieldwork among the Emberá for his doctoral thesis (1986) and knew the Darién well — had expressed interest in working on a second mapping project. Arrangements were made for an Emberá leader to journey to Tegucigalpa to get a firsthand look during the September 1992 Congress at which the final Mosquitia maps were unveiled. Although discussion of various options remained open throughout this period, mapping emerged as the favorite. It was proving itself to be of value in Honduras, and if Herlihy were available and willing to handle the cartography, Native Lands wanted to take advantage of his skills and experience.

Our initial problem was the absence in Panama of any organization resembling MOPAWI. No local NGO was working in the Darién, and most of the groups that had done some work or could work there were unacceptable to the indigenous inhabitants. There were several indigenous legal assistance organizations, but they were involved in other activities and were in no position to take on a complicated research project like mapping. The Emberá-Wounaan Congress was not permanently staffed with an office, and it lacked the capacity to administer projects.

We explored the situation with Bishop Emiliani, who was energetically involved in social and, increasingly, environmental causes in the

¹¹ In 1992, ANCON joined with Bishop Emiliani to draft a document titled "La Declaración de El Real," which called for a stop to illegal logging, the development of plans for sustainable use of the region's resources, and more-humane treatment of the local inhabitants. The indigenous peoples were not consulted when the document was drafted. When they were asked to sign it after the fact, they unanimously rejected it.

region. The Catholic Church has considerable infrastructure and personnel in the Darién, and clout at the national level. In the eyes of the Indians, however, the Church pushed its considerable weight around too much in the Darién, and there was bad blood between the two groups. In short, the Indians were not interested in this route.

At the same time, we were discussing possible projects in the Darién with Charlotte Elton, the Research Coordinator of the Centro de Educación y Acción Social Panameño (CEASPA), a highly regarded think tank that works with disadvantaged minorities and specializes in popular education and studies of social, economic, and political issues. We felt CEASPA (see box this page) could bring a number of assets to whatever it was we ended up doing in the Darién. It had experience in designing and implementing research projects; it regularly published and disseminated its findings; it had considerable experience and skill with group dynamics; and it was well connected politically in ways that the Indians were not. The liabilities did not seem serious. While it lacked the staff to administer a project of this scope, CEASPA knew where to find the human resources to bridge the gaps. CEASPA had worked with the Kuna before (largely through the Catholic Church), but had only casual

dealings with the Emberá and the Wounaan. Most important, the leadership of the Emberá-Wounaan Congress felt, however tentatively, that it could work with CEASPA. Perhaps the best way to characterize their attitude is by saying that they had no strong objections to CEASPA.

After a series of meetings among the Emberá-Wounaan Congress, CEASPA, Herlihy, and Native Lands, it was agreed to move forward with the project.¹² We began designing the work plan, in somewhat disjointed fashion with all the different actors, and we gradually put together the project team. We fleshed out the project and calculated the budget. Unfortunately, neither CEASPA nor the indigenous congress emerged as the institution in charge, and overall project coordination was not defined clearly at the start. The project was characterized by its lack of institutional definition, with several disparate pieces that never came together to form a coherent management structure. There was no central hub. Put simply, nobody was in charge. As we moved through the project, this institutional fuzziness would evolve into outright confusion and, during the final stage of the project, naked conflict. This was in sharp contrast to the situation in Honduras, which maintained an even keel to a large extent because MOPAWI was firmly in charge throughout the process.

CEASPA

CEASPA has been in the non-profit sector since 1977 and concentrates its work in three programs — Sustainable Development, Gender and Development, and Democracy and Participation. Its primary goals are to:

- Promote and support national proposals that contribute to economic equality, democratic participation, and environmentally sustainable development.
- Collaborate in the efforts of citizens to organize, participate, and negotiate, especially marginalized and excluded groups seeking to improve their quality of life.
- Support the creation of a modern citizenry, endowed with a democratic political culture, a sense of civic responsibility, and the capacity to create changes through its actions.

¹² There was some discussion about bringing the Darienitas into the project; but the Indians, while not overtly hostile, were less than enthusiastic about this. However, even if there had been interest in their inclusion, one major problem would have still existed. The Darienita communities are not as cohesive and well organized as the Indian communities. It was doubtful that they could function as a working part of the mapping team, and project success depended on close participation and unity to meet a tight budget and schedule.



DISCUSSION

On the surface, the primary stated purpose of the Honduras and Panama projects was to map indigenous subsistence patterns. We set out on a technical exercise aimed at gathering precise information about the range and intensity of indigenous land use that showed the degree of correspondence between indigenous occupation and the existence of natural vegetation. Yet maps, by their very nature, are a good deal more than purely technical documents; we were, in fact, interested in much more than accurate cartographic representations of the two regions.

The projects had four broad objectives that were implicitly understood. These focused on the long-term conditions affecting the inhabitants of the two areas. We strove to:

- ❖ enable the indigenous peoples to gain a voice in conservation and management discussions relating to their lands and waters and the natural resources contained therein;
- ❖ work toward an effective collaborative strategy for conserving the biological and cultural diversity of the lowland tropical forest regions;
- ❖ assist indigenous peoples in their struggle to maintain control of the lands they have occupied for centuries; and

- ❖ influence in positive fashion government policies and international opinion on these issues.

From the very beginning, the potential political value of the maps was apparent to the indigenous peoples whose territories were being mapped. Simply put, they would not have been so enthusiastic about the work had they not seen the maps as important tools in their struggle to maintain control over their lands. They understood that the project itself did not demarcate boundaries and confer titles, but they saw that mapping would provide an informational base upon which these activities might later be carried out. Land use maps were documents they could use to petition their governments for legal title to their territories. Indeed, it was this sense of political purpose that would drive them to expend the necessary energy to lift the work over a number of rather formidable hurdles and steer both enterprises along to successful conclusions.

Yet these objectives were never given open play. Both MOPAWI and CEASPA understood well the political climate in their countries, and they knew how to deal with them effectively. From the outset, they downplayed political agendas and concentrated on the technical charac-

ter of the project to allay government fears and clear away obstacles to the mapping. They also sought out government collaboration. By enlisting the Instituto Geográfico Nacional (IGN) in both countries to provide cartographers for the technical team, and then to print the final maps, they went after an official seal of approval that later proved to be invaluable. By doing this, they assured in one step the technical and political credibility of the project.

Since the completion of the mapping, numerous people have asked us if the indigenous peoples were wise to produce maps that show where their most valuable resources are located. Might not information of this sort allow unscrupulous outsiders to sweep in and pillage them all the more easily?

From the start, this possibility was brought to light and discussed. The indigenous peoples decided unanimously that the positive value of the maps far outweighed any potential negative consequences. In the not-so-distant past, when even the most basic human rights of people living in remote regions were not respected, this attitude would have been unthinkable. Today, however, with the rule of law creeping ever so slowly across Latin America, indigenous peoples have begun to work through the political and judicial systems to gain control of their lands and protect their resources. In this context, where legal remedies and policies of negotiation are in effect, maps have become a key part of their strategies. Long-time victims of map-wielding outsiders, they are now learning about cartography so they can do battle on more-even terms.

2

PROJECT FINANCING

Once the idea for land use mapping had crystalized and a general sense of goals had begun to emerge, we started casting about for financial support and assembling the human resources to undertake the work. This chapter will look closely at each of these aspects as they unfolded, first in Honduras and then in Panama.

In Honduras, when discussions began on how to best focus attention on the issue of land, we estimated that our initial idea of holding a congress or meeting would cost no more than \$10,000. This relatively small amount of money was available from a fund for small grants that Native Lands was managing. But as discussions turned in the direction of land use mapping, the project rapidly became more complex and expensive. The first draft of the project budget, as estimated by Leake and Herlihy, totaled \$28,000. By the time we were finished, the costs had mushroomed to over \$63,000 (\$13,000 of which was in-kind contribution from MOPAWI), and in fact this was nowhere near the real cost of the project.¹³ All of this occurred within the space of a couple of months. To compound our difficulties, MOPAWI then proceeded to launch project activities before the budget was completed, which we learned only after the fact.

Native Lands had firmly committed itself to be the financial underwriter for the mapping; but the amount required quickly grew beyond what we could provide from our small grants fund, which put a cap of \$20,000 on individual grants. So an urgent search for additional funds ensued, with no lead time. As the project sailed forward, we approached several foundations and conservation groups with the proposal, but without luck. Part of the problem was in persuading people to finance something that was already under way, always a difficult sale.

But a deeper problem also surfaced. Several foundations and a handful of conservation NGOs let us know, either directly or more delicately (and, in several cases, more awkwardly), that while they thought what we were attempting was fine from the human rights angle — helping Indians to organize themselves —

¹³ The final project budget (including the mapping and the congress that followed) totaled \$63,127.65, of which Native Lands contributed nearly \$50,000 in cash. However this figure does not include Native Lands' time, nor more than a fraction of MOPAWI's considerable input (MOPAWI contributed staff time and workshop and dormitory facilities). Moreover, the cartographers from the IGN and the lead cartographer (Herlihy) received only travel and per diems, but no honorariums. With these in-kind costs added in, we estimate that the real cost of the project was upward of \$80,000 (see Appendix A).

the production of “ethno-maps” should not be confused with “science.” They also had trouble seeing how mapping indigenous subsistence patterns was in some fashion related to the conservation of biodiversity (most of the foundations we were dealing with at the time stressed conservation rather than human rights, and few saw the connection between the two). Providing persuasive answers to this skepticism was rendered even more difficult because the project was experimental and we were unable, in good conscience, to say with any precision what the outcome was going to be. Beyond this, it was clear that a number of funders were interested in accurate maps of the Mosquitia largely for their own purposes, which were centered on narrow schemes of biodiversity conservation. The notion that the maps were to be the property of the indigenous peoples, to be used for their purposes, was less attractive.

In the end, we salvaged the Honduras project by dipping deeply into our small grants fund to dredge out the full \$50,000, breaking our own internal cap by a vigorous \$30,000. We took care to seek approval from the foundation supporting this corner of our finances, but our small grants fund was left nearly dry, and we were forced to reconstitute this part of our program with several creative budgetary adjustments. The importance of the

mapping, and the level of enthusiasm being reported from the field following the unexpected jump-start, helped justify our decision — which was fortunate, for we could hardly have done otherwise at such a late stage.

When discussions about the mapping in Panama were well on their way, we were determined to get a more realistic picture of the expenses involved than had been the case in Honduras. In a sense, we had no choice since this time the costs could not be absorbed internally — Native Lands’ small grants fund was practically empty, and there was no Panamanian equivalent of MOPAWI to provide in-kind infrastructure support. Taking advantage of the greater lead time available to put the project in motion, and using the Honduras project as a budget guide, we prepared a more accurate cost structure.

The official estimate ran close to \$165,000, including over \$30,000 that Native Lands planned to donate in-kind.¹⁴ From the outset, it was evident that the budget in Panama would surpass the expenses incurred in Honduras. First, Panama is a more expensive country in which to operate. Second, all of the staff to administer and coordinate the project had to be hired, and a project office and a building for the workshops had to be rented. Third, this time around

¹⁴ *Native Lands has since learned to avoid this practice altogether, without exception. NGOs must cover their costs to run projects. We spent a large part of our time in this project fund-raising, keeping in touch with various members of the project team by telephone, and traveling to Panama several times. Nicanor González, who during this time was our Regional Coordinator based in Panama, was a core member of the technical team for the workshops and helped coordinate activities during the course of the entire project. Except for a small portion of González’s time, none of this was covered by the project budget (see Appendix A).*

Herlihy would be paid for his work. And finally, we decided to produce not only a single regional 1:500,000 map, as we had done in Honduras, but also a set of detailed 1:50,000 maps of each “zone” (including several communities). This decision proved to be not only more expensive but more demanding, and eventually led to some serious difficulties, as we shall see in the latter phase of the project.

Although not altogether smooth, our fund-raising for Panama was more productive than in Honduras, to a great extent because we were able to hold up the earlier project as proof of the soundness of the methodology. We had maps showing that the process could produce information that was scientifically sophisticated and of practical value to conservationists, as well as to the indigenous peoples. Consequently funders showed much greater willingness to support a similar effort in the Darién, which conservation groups had already singled out as a priority area. We also had the fortune of good timing. In 1993, a window of support for conservation efforts in tropical Latin America briefly opened — rainforests were receiving a flurry of attention in the media at the time — and several pots of money flowing out of the U.S. Agency for International Development (USAID) were available for conservation work. (By 1994 the window was rapidly closing. The cash supplies for conservation from some of the large international conservation organizations became restricted; USAID was being

threatened by hostile forces in Congress and became immersed in other battles; and in general the public’s enthusiasm for tropical rainforests was flagging.)

The project had come together only after a long period of discussion and negotiation, and the proposal was written about the time activities started. This did not give us much lead time to deal with the generally long, formal approval processes of foundations. Instead we sought contributions from a collection of conservation NGOs and other assistance agencies and groups in Panama, the United States, and Europe. In the end, we were able to secure over \$130,000 in cash from nine different organizations: the Biodiversity Support Program, the European Economic Community’s Agricultural Frontier Project, Conservation International, Cultural Survival, the Proyecto Manejo de Bosques Nativos del Este de Panamá of the International Union for the Conservation of Nature (IUCN), The Nature Conservancy (TNC), Wildlife Conservation Society (WCS), World Resources Institute (WRI), and World Wildlife Fund (WWF). The project also received, in addition to Native Lands’ in-kind contribution, a total of \$15,000–20,000 (roughly estimated) of in-kind support from eight different Panamanian organizations, the National Geographic Society, and other interested parties (see Appendix A).

While in the end we managed to raise all of the money we needed to finish the project, this strategy of

piecing together the budget on the run was stressful to the extreme. In retrospect it seems foolhardy to the point of insanity since we were frantically casting about for money as the project was unfolding. We crawled far out on several dangerously fragile limbs, all of which were required to support the weight of the project. At any point in the process, one of our potential funders could have bailed out and sent us into free-fall. The worst never occurred, but nearly did, and much sleep was lost skirting disaster.

In our rush to get the project going we ignored early clues regarding the thicket we were entering. From the beginning, dealing with such a wide array of funders was very time consuming. We started our fund-raising push by sending out proposals and accompanying materials to a large number of organizations. These packets were followed up with phone calls to describe the mapping in more detail and answer questions. As we progressed, we returned to inform the potential funders of our progress with other funders since one's approval became contingent on another's participation. Our days were consumed with cajoling and negotiating over the phone, and then, when we managed to secure a donation, making arrangements to have the money routed to CEASPA. Although some funders gave us verbal assurances of support — or at least strong indications — before

we began the project proper, that did not alleviate the pressure. Only a percentage of the funds was actually in the bank, and the stream of deposits was uncertain. Money dribbled in bit by bit, leaving us constantly afraid that some pieces of the budget would not, for one reason or another, come through when needed and that we would be left with gaps the project would not be able to cross.

This fear materialized toward the end of the project, with near-disastrous consequences. We had finished the mapping, and our focus had shifted to preparing for the Forum to present our findings. Suddenly, the organization that had pledged to support this activity backed off. That left us with three alternatives: push forward and patch together what we could to hold a cut-rate Forum; postpone it until more money could be raised; or cancel it altogether. Because of the momentum carrying the project at the time, everyone decided on the first alternative. CEASPA began fishing for financial support in Panama, locating funds in several places; and Native Lands was able to milk some additional financial support from outside sources.¹⁵

While we were able to hold the project together, internal tensions (explored in greater detail in Chapters 7 and 8) were exacerbated; and our anxiety continued to grow since there was still no money to cover post-

¹⁵ Although Native Lands raised the bulk of project money and had it sent directly to CEASPA, as cash ran short toward the end of the project, CEASPA took the initiative and secured support from two European projects (the Agricultural Frontier Project and the IUCN).

Forum expenses.¹⁶ When funds were finally received, more than a year had passed. The project team had lost the last shreds of cohesion, and the col-

laborative relationship between CEASPA and the Emberá-Wounaan Congress had ended in bitterness.

¹⁶ These included production of the maps and proceedings from the Forum, and some community workshops, for a total of about \$28,000. The Inter-American Foundation (IAF) approved a grant to the Emberá-Wounaan Congress to cover this work, with the funds administered by the Centro de Asistencia Legal Popular (CEALP).



DISCUSSION

As the examples in Honduras and Panama make clear, numerous problems can be avoided if project financing is in hand before activities begin. It is one thing to have enough money committed to carry out project activities; it is quite another have it flowing into the project in timely fashion. The Honduran project was carried out on an austere budget, and it went generally well. Had there been more money, we could have done a more complete set of maps, among other things. Our attempts to locate additional cash were frustrated, however, and we had to make do with the meager amount we had in hand. In retrospect, it is difficult to see how things could have been different. The project was slapped together rapidly just as the mapping began, and the total cost of what we were doing was not determined until we were knee-deep in field activities. We were also undertaking new and untested activities — which made it difficult to explain to potential funders with any precision what the outcome might be. Given these circumstances, raising additional funds was extremely difficult, and in the end futile. Not the best way to go about things.

In Panama we had a clearer idea of how much money was needed, and we also had a product to sell. We were able to put together a more realistic

budget — which was well over two times the size of the project budget in Honduras — and we managed to round up most of the needed funds. At the same time, we were forced to do this piece by piece while the mapping activities were in full swing, from nine different funders and as many in-kind contributors; this process was time consuming, ulcer producing, and risky to the extreme. We spent far too much time searching for funds and not enough attending to organizational matters, a situation that brought us within a whisker of catastrophe. We emerged shaken, with the firm conviction that we would not place ourselves in a similar fix in the future.

All this being said, it is often difficult to set up projects so that the initiation of field activities coincides with the arrival of funding. The ideal situation, of course, would be to have at hand a large cache of money one might tap into at any time for mapping or anything else that surfaces; but this is a luxury that few small organizations have. In neither Honduras nor Panama did we have such a reserve. In Honduras we made do with the small sum we had, but in Panama we had to raise everything by floating proposals before funders, and there was pressure from the organizations involved in the implementation of the project to begin activities immediately.

If a proposal is developed in participatory fashion, there is of necessity a time gap between project design — when the idea is hot and everyone involved wants to crank up and get going — and the appearance of funds.

In Panama, we spent over a year in discussions with indigenous leaders and representatives of CEASPA; the Indians, in turn, discussed the proposed project with their people; then several meetings were set up between the indigenous Congress and CEASPA, during which the forms of collaboration were structured; and finally the flag was dropped and we began setting things up. Expectations

on all sides demanded that we get moving despite the fact that the full budget for the project had not been raised, and it is difficult to put the project team in place and begin preliminary work on the project before all or most of the finances are in place. Several components of the project must somehow converge at the same time, and funding is in essence the bedrock upon which all of the other components rest. If it doesn't come in on time, there is always the chance that early planning will disintegrate and potential team members will drift off into other jobs. For this reason, adequate and timely funding for the project is crucial.

3

PUTTING TOGETHER AND COORDINATING A PROJECT TEAM

Much of the variation in outcomes in Honduras and Panama can be traced to the ways in which the project teams were assembled and managed. Three units of personnel were involved: the administration and coordination team, the technical (cartographic) team, and the indigenous community team. These three teams have specialized tasks that must be carried out in smooth, coordinated fashion. This chapter explores the dynamic of the project teams that evolved in the two countries, emphasizing how early assumptions and decisions smoothed the way or led to unexpected difficulties.

ADMINISTRATION AND COORDINATION

As previously noted, in Honduras a single organization, MOPAWI, designed the project and held the reins from start to finish. MASTA, the Miskito federation, was nominally involved as co-manager, but in reality it had little to do with the administrative end because it lacked both experience and capacity in this area. Native Lands was involved in little more than discussions from a distance, and with project funding.

MOPAWI provided the lead Coordinator in the project,¹⁷ the administrative and logistical personnel, and the infrastructure for the workshops in Puerto Lempira as well as an office in the capital city. Those hired for the work were essentially employees of MOPAWI. MOPAWI's accountant, Zaida Calderón, based in Puerto Lempira, and her assistant, Ana Daniel, handled the finances; the Tegucigalpa office was managed by Suyapa Valle, MOPAWI's liaison officer. MOPAWI charged a modest 15 percent of the total project budget to recoup some of its expenses; but its total in-kind contribution of staff time, buildings in Puerto Lempira and Tegucigalpa, equipment (computers, radios, boats, etc.), and miscellaneous expenses was far greater (see Appendix A). Centralization of the project within a single institution — one that was respected and moved easily among communities in the Mosquitia as well as government agencies and NGOs — made management of the process relatively seamless and efficient.

¹⁷ Officially, Leake and Herlihy were “Co-Coordiators” in the project; in practice, however, Leake was responsible for coordination of the entire project while Herlihy concentrated on the technical aspects.

In Panama, by contrast, no single organization had overall charge of the project. In the initial design phase, which lasted over a year, Native Lands brought CEASPA and the Congreso Emberá-Wounaan together to discuss the project. During this period, we recruited Herlihy into the process to again play the role of lead cartographer. Bit by bit the pieces started coming together as we all labored to develop the work plan and put together a budget. CEASPA and Native Lands worked together in an attempt to define the roles of the different institutions and individuals in the project.

Early on, the idea was that CEASPA would hire a project Coordinator who would oversee the entire project. Several candidates were considered and some of these were interviewed. The most highly qualified of the lot, all non-Indians, exceeded our price range, and after a good deal of back and forth a Kuna who had worked with CEASPA was selected. This prompted Herlihy to suggest that an Emberá be hired as Co-Coordinator to balance the ethnic composition of the staff. On the surface, this suggestion was reasonable since a Kuna Coordinator in charge of everything would have had difficulty winning trust and compliance from a field team made up largely of Emberá. At the same time, however, Herlihy was privately voicing his concern that CEASPA was too “political”; by adding an Emberá Coordinator, he sought to diminish CEASPA’s role. The Emberá were not concerned about CEASPA’s political leanings, but they backed this

proposal because they wanted more control over the project.

When the dust had settled, the project had three indigenous Coordinators: Geraldés Hernández, a Kuna, and Genaro Pacheco and Fecund Sanapí, both Emberá. In contrast to the structure in Honduras, the Panama project had no head, no Director or lead Coordinator. Instead it had Hernández, who was largely responsible to CEASPA and the Kuna communities involved in the project, and Pacheco and Sanapí, who were both paid out of the purse held by CEASPA but directly responsible and ultimately accountable to the Emberá Congress — indeed they were both leaders in the Emberá Congress. There was little communication between Hernández and the two Emberá. The net result was to split project leadership into two camps, diluting it to the point where no one had the final say on anything.

As the project became operational, the different parties fell into roles that failed to match their expectations, resulting in resentment and difficult interpersonal relations. With no clear leadership structure, role boundaries blurred and overlapped, and there was no agreed-upon mechanism for resolving disputes. During the initial stage of the project, CEASPA had assumed its experience with group dynamics would figure predominantly as a methodological base for both the fieldwork and the workshops. Lacking the consensus needed to take the lead in either area, its sphere of action was confined primarily to administration of project finances.

Based in Panama City, CEASPA had assigned its project responsibilities to its Research Coordinator, Charlotte Elton. Elton hired longtime CEASPA collaborator Olimpia Díaz as Administrator, and Jorge Villareal as Assistant Administrator. Díaz's husband, Jaime Dri, a certified public accountant, volunteered to set up the project's bookkeeping system and perform audits. CEASPA empowered Díaz to make all policy and procedural decisions needed to do her work.

Since CEASPA's headquarters were cramped, a project office was rented near the center of town and equipped using project funds. This became the urban center for the entire project — it was where meetings were held, materials stored, and mail, faxes, and phone calls received and sent. While the office lent the appearance of project cohesion to outsiders, it helped fuel some of the internal dissension. The indigenous leaders and Herlihy, both distrustful of CEASPA, took the position that CEASPA's duties should be confined to accounting and record-keeping. In CEASPA's eyes, however, the core activities carried out from this office validated a management role that approached oversight of the entire project.

So it was that the early dispute over CEASPA's role was never really resolved, and it kept resurfacing as a series of skirmishes. Herlihy would appear and tell Díaz to cut checks for technical supplies or put an additional technician on the payroll for the mapping workshops. Sanapí and Pacheco, the Emberá Coordinators, would

assemble other Emberá leaders and approach her in a group with bills for logistical and other expenses. In other words, no one asked CEASPA for approval of project expenses; they felt they had the right to tell CEASPA to hand money over. With no higher authority to arbitrate, disputes became personalized. The Indians felt that Díaz was miserly with "their" money (after all, weren't they supposed to be the project's major beneficiaries?); and the cartographer grew increasingly impatient with an administrator whose actions came across as questioning his professional judgment.

What neither Herlihy nor the indigenous leaders grasped was that the finite nature of the project's budget, not ideology or a desire for power, was driving much of CEASPA's decision making. Funds were arriving from diverse sources and therefore required a meticulous accounting of expenditures by donor. Some donors had strictly allocated their money for specific items. Keeping all of this straight not only required long days of tedious work; it also limited what could be spent and when. The fear of shortfall was also fed by uncertainty brought on as funds arrived in dribs and drabs, and not always when a specific component needed support. Managing the limited funds required CEASPA to establish priorities in paying bills. On one occasion the project came right to the brink of bankruptcy, and CEASPA was forced to establish a line of credit to cover expenses while we waited for money to arrive in the account.

In a very vague sense, the Emberá had wanted to be in charge of the project from the outset but were forced to acknowledge that they lacked the administrative skills to manage the funds and handle logistical arrangements.¹⁸ For the moment, they settled into the limited management of the field teams (with the exception of the Kuna component handled by Hernández), contact with the communities, and overall organization and supervision of the nontechnical aspects of the workshops. They were present in force throughout the entire process and were major actors in the workshops. At the same time, they refused to recognize CEASPA, or anyone else for that matter, as manager of the project.

Neither CEASPA, the Indians, nor Native Lands viewed Herlihy as the director of the project, but his role in this mix became further confused after some of the project funds came in under his name as “Principal Investigator.”¹⁹ When it became clear that CEASPA’s expertise with group dynamics would not be put into practice, Herlihy set about organizing various aspects of the workshops. Yet there was ambiguity about his role: he wanted decision-making authority on issues that he felt were important but did not want to (and could not)

shoulder responsibility for overall project coordination.

The reader may wonder why Native Lands did not step in at this stage to clarify the situation. At that particular moment we were going through our own organizational crisis, and no one was clear about Native Lands’ authority in the project structure. Even we were fuzzy on this point. We had been the Central America Program of Cultural Survival when we began organizing the project; but in June, when the workshops were in full swing, we severed that relationship and became independent.²⁰

Temporarily without status as a nonprofit, we could not handle any of the funds for the project, so we had funders route them directly to CEASPA. Because Native Lands had no “official” role in the flow of either cash or activities, and Chapin and Threlkeld from the Virginia office were only physically present in Panama for short periods of time, our involvement, although substantial in a number of ways, was difficult to pin down. We were too busy with our transition from Cultural Survival, which involved poking about for funds to stay afloat, to pay full attention to the increasingly tangled affairs in Panama until the decibel level of discord rose over the threshold. On the other hand,

18 More than a year after the project had ended, after time had allowed tempers to cool, the Emberá Coordinators offered that CEASPA’s management of project finances was a crucial element in the project’s success.

19 Herlihy had not been given this title when the project began. One funder contacted by Native Lands made consideration of a proposal contingent on designation of a Principal Investigator (PI). A solution was worked out by sending the money directly to CEASPA, while naming Herlihy as *pro forma* PI.

20 Initially we formed under the name Rights & Resources. After six months, we changed our name to Native Lands. On the credits for the map of the Darién, we are listed as Rights & Resources.

Nicanor González, our Regional Coordinator, was present in the project throughout, working as a member of the technical team and also serving as intermediary among the different ethnic groups during the workshops; but he had no authority over the project as a whole.

Despite this paralysis of leadership, a working arrangement — which was more like an unspoken truce — was finally reached and the project straggled forward. During the first stages, things progressed on schedule without any serious hitches. This was due in large part to the level of commitment stirred among the participants to the mapping process. Later on, as the pace of work accelerated, things became more and more chaotic and irregular.

THE TECHNICAL TEAM

In Honduras, the technical team was led by Herlihy, who at the time was Assistant Professor at Southeastern Louisiana University. He had done land use mapping in two areas of the Mosquitia and knew the region well. Assisting with the cartographic work were two employees of the Honduran Instituto Geográfico Nacional, José Ramiro Andino and Héctor Ramírez.

In Panama, Herlihy was again in charge of the technical team. He had done research for his doctoral thesis in the Darién in the early 1980s (see Herlihy 1986), and had crisscrossed much of the region on foot. Although he was not personally acquainted with most of the Emberá leadership, they had heard of him and had confidence

in his technical skills. His intimate knowledge of the terrain and the fact that he had worked among the Emberá were both extremely valuable to the project.

None of the backup technical staff (five people) had more than passing field experience in the Darién. Draftsman José Aizpurúa was recruited from the Panamanian Instituto Geográfico Nacional (IGN). Aerial Photograph Interpreter Erasmo González came from the Contraloría General de la República and stayed through the second workshop. Sebastián Sánchez, also an Aerial Photograph Interpreter, came from the University of Panama; Hugo Solís, a retired Aerial Photograph Interpreter from the IGN, worked a few days at the beginning. Finally, Nicanor González, a Kuna cartographer from the contiguous region of Kuna Yala, was working with Native Lands.

González would eventually play a key role in the project. An architect by training, he had been a member of

Figure 7. Members of the technical team in Panama, from left to right, Sebastián Sánchez (University of Panama), José Aizpurúa (National Geographic Institute), and Erasmo González (Treasury Inspector's Office).



Nicanor González

Traditional Antagonists

In both Honduras and Panama there was considerable potential friction among the different ethnic groups, many of whom had been outright enemies until very recently, and still today they are not precisely what one would call “friends.” In centuries past, the Miskito made a business of capturing the Tawahka and selling them into slavery as far south as Panama; and in the 17th century the Spaniards enlisted the Emberá to run the Kuna out of Darién. Many of these differences and antagonisms continue into the present. Today the Miskito dominate the other groups in the Mosquitia, while the Kuna are an almost overwhelming force in the indigenous politics of Panama, cornering what amounts to a lion’s share of available national and international assistance.

The mapping project was the first time the different groups in both countries had worked in close quarters on a complex enterprise over a period of months. In this setting, there was room for bad feelings to ripen and break forth, yet nothing of this sort got very far. While there were squabbles, the process in both countries was characterized by a strong sense that indigenous peoples were working together toward a common objective, and that this objective was important for their survival as indigenous peoples. This was the glue that held the projects together.

the PEMASKY technical team from 1983 through 1987.²⁰ In that capacity he had learned cartography, drafting all the project’s maps. He had worked with indigenous groups in other countries and was particularly skilled at resolving interethnic frictions. He worked well with all the Surveyors (Kuna, Emberá, and Wounaan) and helped ease the inevitable tensions that would arise in the mix of project participants.

COMMUNITY TEAM

In both countries the community team consisted of a group of Surveyors whose work was supervised by a small team of Coordinators. In Honduras, Leake took the lead in coordinating the field team. He had been working in the Mosquitia since

1989, spoke fluent Spanish, and knew the region and the people well. He was assisted by Adalberto Padilla, a Ladino,²¹ and Aurelio Ramos and Nathán Pravia, both Miskito. All of them were employees of MOPAWI.

In Panama, all of the Coordinators were indigenous. Sanapí and Pacheco were both selected by Emberá tribal authorities; Sanapí was a Regional Chief from the Sambú area and Pacheco was a leader in the Emberá Congress. Hernández was initially screened by CEASPA and later approved by the Kuna network in Panama City.

Indigenous leadership was a key element in both projects, for work at the community level demanded solid diplomatic skills and a clear under-



Figure 8. Members of the community team from Honduras.

MOPAWI

²⁰ The Study Project for the Management of Wildlife Areas of Kuna Yala, or *Proyecto de Estudio para el Manejo de Areas Silvestres de Kuna Yala (PEMASKY)*, which ran from 1983 through 1989, was a Kuna-run initiative to set aside and manage a 60,000-hectare forest park within Kuna territory (Chapin 1998, 240–278).

²¹ Ladino is a term used in Mexico and Central America to denote a person of mixed Indian-European descent. Another term is mestizo, or mixed.

standing of local politics. The Miskitos Pravia and Ramos played this role in Honduras as senior staff members, while the Panama project had indigenous Coordinators. The indigenous coordinating staff in both countries were respected leaders able to communicate with tribal authorities; they had a clear voice in community councils; and they commanded the respect needed to effectively supervise the Surveyors. They were all thoroughly convinced of the importance of the mapping; they were dedicated to the work; and they were physically and mentally strong enough to travel to the remotest corners of the territory being mapped.

In Honduras there were 22 Surveyors, while in Panama there were 21. These were the primary data gatherers at the community level. They all resided in the “zones” for which they were gathering information. Ideally, they were well-regarded people who knew the forest, had a minimal level of literacy, and were committed to the objectives of the mapping project. The selection process in both countries is described in the next chapter.



Figure 9. Members of the community team from Panama.

DISCUSSION

Project coordination is perhaps the most critical element in projects of this sort. In Honduras, the institution in charge — MOPAWI — was efficient and had the capability to manage project activities. The roles of team members were clearly defined and the lines of authority were understood and accepted by all; decisions on important as well as more-trivial matters were made without fuss; there were no confusions regarding the administration of funds; and there was a minimum of confusion and delay on logistical matters. Most important, there was a high level of trust and respect among team members. Conflicts were easily resolved and things moved along with relative ease.

In Panama, by contrast, there was no clear structure to the project team. No specific institution or person was in charge of operations. Put simply, a situation arose in which all of the major actors on the scene emerged, in one way or another, as pretenders to the throne, but no one was crowned. As a result, decision making was murky, contentious, and ineffective; pressures built up on several fronts until antagonisms among project staff almost brought the project to a halt; and although the maps were in the end produced, the entire enterprise was

saturated with ill feeling. Today it seems somewhat baffling that no attempt was made at any time to bring all of the parties together, hammer out a coherent description of duties and responsibilities, and write it down in a joint memorandum. This should have been done right at the start, when the team was being formed. But it wasn't, and any attempt to sort things out once the project was rolling would have been risky and difficult, if not impossible — especially after polarization had set in.

With a strong institutional framework in place, the different components — the administrative team, the technical team, and the community team — can be given a relative amount of autonomy. The technical team will have its own particular constraints and needs and will have to work within the context of the country and the region in which the indigenous people live; and the community team must be designed to deal with local political, social, and cultural realities, something that can only be done by local people (with assistance from other members of the project team). At the same time, all of the teams must be synchronized with each other. This is most effectively achieved with an efficient, coherent leadership structure.

THE PROJECT SEQUENCE

GROUND PREPARATION



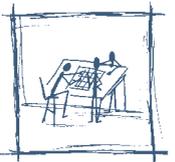
ORIENTATION AND TRAINING



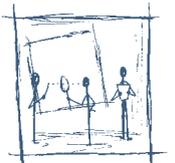
**GATHERING DATA
AND SKETCH MAPPING**



**TRANSCRIPTION OF DATA
ONTO NEW MAPS**



VERIFICATION OF DATA



**CORRECTING AND
COMPLETING THE FINAL MAPS**



4

STEP ONE: GROUND PREPARATION

In both countries, prior to the mapping proper, project staff prepared the ground in three areas, with incomplete success: they visited communities where the mapping was to be done to discuss the process; they made visits and formal presentations to government agencies and NGOs to explain the methodology and find points of collaboration; and they gathered together all of the available cartographic materials on the area to be mapped. The first two tasks were political, while the third was of a technical nature.

INFORMING COMMUNITIES

The purpose of visiting participating communities prior to the start of mapping activities is to explain the objectives and general methodology of the project. This is to assure that villagers' suspicions, if any, are allayed and to prepare them to collaborate with the Surveyors when they arrive.

In Honduras, the project was given some advance publicity in the communities through broadcasts of the Miskito station, Radio SAMI, "The Voice of the Mosquitia." Letters describing the project were also sent to schoolteachers, religious leaders, and political authorities. Some visits to communities were made, but this was less extensive and systematic than it should have been, for a variety of reasons. First, more than 170 communities spread out over an area of roughly 20,000 km² were participating in the project. There are few roads in the region, and access to all but a few of the closer communities would have been extremely time consuming and costly. Second, because of the suddenness with which the project was launched, there was little time to do much of anything.

In Panama, the difficulties of coordinating the different groups in the project team, coupled with the insecurity of funding, kept project leaders from visiting communities until everything was set up and ready to move forward with the first workshop. Another wrinkle revolved around the ethnic composition of the team. The Emberá, the majority indigenous population in the area, dominated the project by their sheer numbers. Their leaders had been involved in the earliest negotiations and, alone among all of the groups, they had a relatively clear idea of the general lines and objectives of the project, although they had little sense of the methodology to be used. The Wounaan were allied with the

Emberá in the Emberá-Wounaan Congress and were consequently semi-informed; but the Kuna, with a small population arrayed in five villages split into north and south settlement areas, were entirely excluded from the process until after the first workshop.²² As a result, many of the Emberá and Wounaan communities had some knowledge that a project was in the offing through their informal network, but they weren't aware of the details until the Surveyors arrived in their communities to do fieldwork. The Kuna Surveyors were selected on the heels of the first workshop, and there was no advance notice of the project at all.

This lack of ground preparation caused problems in both countries, although they were more severe in Panama. Some communities were offended that they had not been informed of the project earlier. Others were not convinced of the value of the project, even with explanations and formal letters of introduction. They needed more explanation from project leaders and more time to discuss the matter internally before they would fully cooperate. In Panama, many of the Surveyors were young, and their message was not taken seriously until the Coordinators arrived and held village meetings to explain what was going on. Yet with the travel difficult in the region, the Coordinators could not visit the communities until after the mapping was

well under way and precious time had been lost.

INFORMING/INVOLVING GOVERNMENT AGENCIES AND NGOS

In both Honduras and Panama, titling of indigenous lands is an issue that is certain to raise blood pressure and on occasion cause blood to flow. With this in mind, steps were taken to minimize the political aspects of the mapping and represent it as a relatively straightforward technical exercise aimed at mapping indigenous subsistence patterns. The project teams in both countries spent a substantial amount of time visiting government ministries to explain the methodology and the objectives of the project. Government officials were given an open invitation to drop by the workshops when they were in session.

In both countries, project staff began communicating with government agencies and NGOs early in the process, months before the mapping began. Initial visits were made to cover general themes; then as the project came together, presentations were given with maps and other illustrative materials. If we were not expansive about political agendas, we were clear about the utility of maps for conflict resolution. Project leaders argued that maps of this sort would provide an objective basis for rational, measured discussion about natural

²² The Emberá have a total population of around 11,000, while the Wounaan number close to 2,500 and the Kuna 1,500. Of the 82 communities in the project, 59 were Emberá, 8 Wounaan, 10 Emberá-Wounaan, and 5 Kuna.

resource management and conservation, or for planning projects that might be considered in the region. As such, the project was presented as an alternative to the ambiguity and violence that was spreading across both the Mosquitia and the Darién.

In Honduras, MOPAWI was instrumental in making contact with the Honduran Corporation for Forestry Development (Corporación Hondureña del Desarrollo Forestal, or COHDEFOR), the National Agrarian Institute (Instituto Nacional Agrario, or INA), and the National Commission for the Environment (Comisión Nacional del Medio Ambiente, or CONAMA, which later became the Ministry of Environment). In Panama, CEASPA was the key to contacts with the National Institute for Renewable Natural Resources (Instituto Nacional de Recursos Naturales Renovables, or INRENARE), the Office of the Treasury for the Republic (Contraloría General de la República), the Ministry of Government and Justice (Ministerio de Gobierno y Justicia), the Universidad de Panamá, the National Association for the Conservation of Nature (Asociación Nacional para la Conservación de la Naturaleza, or ANCON), and the People's Center for Legal Assistance (Centro de Asistencia Legal Popular, or CEALP).

Beyond this, MOPAWI in Honduras and the project team in Panama actively sought — and achieved — a collaborative relationship with their respective IGNs, or National Geographic Institutes, the government agency responsible for mapping. This

collaboration would not have materialized had the project been seen as politically sensitive. There were three primary reasons for seeking this link. First, we wanted access to the considerable resources of the IGN, which included maps and aerial photographs of the regions to be mapped, as well as cartographers. In both countries it is difficult to lay hands on these materials, vital to carrying out the project, without a close association with this institution. Second, we wanted to make the project as transparent as possible. By including IGN cartographers and draftsmen in the workshops, the process would be open for inspection, dispelling any thoughts that the project might be politically problematic. And finally, in the Honduran case, MOPAWI's Land Legalization Program had consistently sought to influence government policies through technical programs and negotiation rather than through confrontation and activism. Collaboration with government agencies was consistent with its standard operating procedure. Everyone agreed to take the same approach in Panama.

LAYING THE TECHNICAL FOUNDATION

Ideally, the technical team should gather together as much information as possible on the region to be mapped before the process begins. This should be done well before the first workshop so that the technical team will have a clear idea of what exists and where the holes are, and allow existing materials to be checked for accuracy. These materials consist

of (1) maps — any cartographic materials that exist on the area; and (2) aerial photographs and satellite images of the region. Some of these materials will be old (and often out-of-date), some newer, but all are potentially useful to the project.

In both Panama and Honduras, most of the 1:50,000 base maps covering the region to be mapped were secured beforehand from the IGN. These were tracked down and assembled relatively well in Honduras. In Panama, the process was spottier, and for the first workshop there were no maps to distribute to anyone or even to show. Aerial photographs were not assembled in any systematic fashion in either country. In Panama, the most recent photos were not assembled early enough. This developed into a serious problem during the latter part of the project, once it became evident that they were crucial for correcting the numerous errors in the government base maps of the Darién.

IGN cartographers in both Panama and Honduras said that preparatory work was not sufficiently systematic. There was no chance to evaluate the accuracy of the materials before the process began. This was due largely to the fact that the lead cartographer was in the United States until just prior to the second workshop (where individual mapping with each of the Surveyors begins) and the IGN cartographers had not been given any instruction on what needed to be done beforehand.

In Honduras, the lack of prior evaluation of the cartographic materials was of limited consequence because, as it turned out, the errors in government base maps were relatively minor and there was minimal need for revisions. In Panama, the inaccuracies in the government maps only became apparent well into the process. It was discovered that there were substantial errors and numerous corrections had to be made prior to working with the land use data. This was because the Darién is characterized by heavy rainfall (approximately 3,000 mm yearly) and nearly year-round cloud cover. This, combined with the unbroken forest canopy covering large stretches of the region, rendered much of the earlier aerial photography useless in plotting the physical features of the land. Beyond this, through the years the IGN had never attempted to check its cartographic work on the ground: the photographs upon which the base maps were made dated from the 1970s, and in a number of cases the courses of rivers had changed or settlements had been relocated. As a result, the IGN maps too frequently failed to represent the reality on the ground.

DELINEATING “ZONES”

The areas being mapped were large. The Mosquitia has a total land area of approximately 20,000 km² while the Darién has 16,802 km². The populations of the two regions, however, differ significantly: as many as 55,000 indigenous people are found in the Mosquitia, while the Darién has a

mere 14,000. In the Mosquitia, 174 communities were included in the study; in Panama there were just 82. In Honduras, the region was divided up into 17 “zones” that were worked by 22 indigenous Surveyors; in Panama, 20 zones were covered by 21 Surveyors.

The number of communities in a zone ranged from 1 (in Balsas in Panama) to as many as 22 (in Tinto-Ibans and Caratasca in Honduras). The zones consisted of communities clustered near each other; they were generally seen as “natural units” that were not only geographically close but also had socioeconomic ties, such as intermarriage, and commercial and political relations. Ethnic affiliation was a strong consideration in assigning zones. In Honduras, there was some overlap of ethnic groups: in the far northwest corner of the Mosquitia two zones contained Miskito, Garifuna, and Ladino peoples. But most of the zones were ethnically uniform, with Pech, Tawahka, and Miskito as the sole residents. In Panama, the Emberá and the Wounaan were occasionally mixed together in zones, as they were in reality; but there was no overlap of Kuna and Emberá/Wounaan communities.

In Honduras, the Tinto-Ibans zone was handled by three Surveyors while Caratasca had two Surveyors. Another zone, Recuperada, had 13 communities but was covered by a single Surveyor. In Panama, the largest load for a single Surveyor was eight, in the Sábalo-Jesús zone. The lead cartographer had wanted to limit the numbers

of zones and Surveyors so the project would be “cartographically manageable.” His initial proposal in Panama, for example, was to keep the number at 15, but after discussion with the Indians the number rose to 20, and there it stayed.

In both Honduras and Panama, the decision to keep the number of zones and Surveyors at a minimum caused severe strain on the community end. Many of the Surveyors were forced to dash from one community to the next, often spending little more than a few hours in each. This made it difficult if not impossible for an overtaxed Surveyor to spend time and gain the

Figure 10. Map showing the first rough cut for Surveyor zones in the Darién.



Nicanor González

rapport needed to elicit fine-grained detail and cultural information from communities outside his own. There was little chance to cross-check and compare data and resolve contradictions and other confusions. And thoughtful discussion in the communities of the broader meaning and implications of the mapping was impossible. There was simply too much ground to cover, too many communities to visit and elicit information from, and too little time. The data gathered under these conditions was spotty and weak.

SELECTING THE SURVEYORS

In both Honduras and Panama, the selection of Surveyors was made by the communities from the region, with input from tribal leaders. MOPAWI in Honduras had some say in the selection, but in Panama CEASPA was not involved. In Honduras, it was stressed at the outset that those chosen should be "...native-born and resident of their respective zone, well-known and respected community members, literate, and preferably with some professional skills" (Herlihy and Leake 1997, 715). In Panama, the criteria were roughly similar, although it was not clear how well community leaders understood them and there was no opportunity for the project team to supervise the selection process. In both countries, all of the Surveyors were male. While this was most certainly at least partially a result of male-dominated political structures, it was also argued in both countries that travel between

communities was too strenuous and dangerous for women.

In Honduras, all of the Surveyors were mature adults and respected leaders in their communities. There were five teachers, two nurses, two agronomists, one pastor, and eleven farmers. All but three had completed their primary education. One consideration that came out later was that the teachers (as well as the nurses and the pastor), while respected in the region and literate, did not know the countryside as well as full-time subsistence farmers, hunters, and fishermen. They had trouble orienting themselves in the field and consequently had difficulties making sense of some of the field information, specifically that dealing with subsistence.

In Panama, several older community leaders were chosen as Surveyors; but most were young and many were not "leaders," even in the informal sense, despite their selection by the communities. In contrast to the Mosquitia, few had a high literacy level (there were no teachers or pastors). All of them were farmers and hunters with considerable experience in the forest. The younger Surveyors had minimal experience and little self-confidence with village politics. This caused difficulties for some of them because they lacked stature in the eyes of the elders and were unable to elicit the information needed for the maps; many villagers quite simply did not take them seriously, especially when they were not from their community. In one case, a Surveyor was so shy that instead of asking for information he

began filling in the map from his imagination. This was caught at the second workshop and he was set straight, but he had essentially lost the entire primary data-gathering period. When he returned to the field for the

second data-gathering period, designed to answer remaining questions, he was accompanied by a Coordinator who had to explain the project in detail to the community so reliable sketches could be drawn.

DISCUSSION

Solid ground preparation before mapping activities begin is essential. The project must be explained clearly and in detail to the communities, and their concerns must be addressed so they will be motivated to undertake a time-consuming, arduous process.

Government agencies in a position to support or oppose the project must be briefed thoroughly on the methodology so that they will collaborate in, or at least not block, project activities.

Technical preparatory work must be thorough; a failure to gather all existing cartographic materials (government base maps, aerial photographs, satellite images, and so on) and evaluate them carefully before work with the Surveyors begins will cause holes in the data and costly delays.

Informing communities: Preparation in the communities was deficient in both Honduras and especially Panama. The large number of communities over a large and logistically challenging territory, the lack of prior planning, and the limited lead time all converged to diminish this phase of the projects in both countries. In Panama, this situation was exacerbated by the project's organizational confusions. Although the poor ground preparation is understandable given the contexts of the two projects, it had a ripple effect that limited what could be accomplished later on given the

tight time frame of the project methodology. Rather than getting down to work immediately, some of the Surveyors were at a loss as to what to do. Communities demanded explanations, and the Coordinators had to visit the communities to explain what was going on. Everyone had to take time out of an already tight schedule to run through the basics, field questions, and enter into back-and-forth discussion of objectives, benefits, and implications. Undoubtedly, falling behind the time curve helped ratchet up the tensions in Panama. Along the way, several communities in both countries were reluctant to participate in the project before they were persuaded that it was in their interest.

Informing/involving government agencies and NGOs: Communication with government authorities, especially, was critical. Because land tenure is a sensitive issue in both Honduras and Panama — each in its own way — it was necessary to emphasize project transparency and present government officials with a thorough account of the methodology and objectives of the mapping. This went well in both Honduras and Panama. Valuable collaboration with the government mapping agencies was secured, and this lent credibility to the finished product. The fact that the two IGNs printed the maps made them invaluable tools for

indigenous peoples in negotiating land tenure issues in both countries.

Laying a technical foundation: In Honduras and Panama complete sets of 1:50,000 base maps covering the region to be mapped were found, together with a spotty collection of aerial photographs; but these were not assembled in timely fashion. The lead cartographer had arrived in the countries at the start of the second workshop (when the cartographic work with the Surveyors began), too late to do a thorough evaluation of the available cartographic materials, and the in-country members of the technical team had not been instructed on what to do beforehand. This caused unnecessary delays and increased the pressure on all of the participants in the workshops. The negative consequences of poor preparation of the technical materials were more severe in Panama.

Had the technical team begun to assemble and analyze available maps, aerial photographs, and satellite images several months before the process got under way, the cartographers would have gained a better sense of the resources at their disposal and their strengths and weaknesses. They would have been in position to determine whether or not extensive revisions were warranted, and adjusted their schedule accordingly; and they would have brushed up on their knowledge of the region.

Delineation of zones, size of mapping area, and selection of Surveyors: The key elements here are the size of the area being mapped, the number of

communities involved, and the number of Surveyors gathering information. What is a manageable territory to take on and how many Surveyors will be necessary to cover it adequately? In Honduras, the area was large and there were too many communities (174) for too few Surveyors (22) to adequately cover the ground given the short time period. In Panama, with a slightly smaller territory, there were fewer communities (82) with roughly the same number of Surveyors (21); but the need to do additional, unanticipated work in a tight time frame helped turn the project into a pressure cooker. The social aspects of the mapping — discussions in the communities, local involvement, training in the rudiments of cartography for the Surveyors — were diminished by the push to gather the basic cartographic data quickly.

Selection of the Surveyors is critical since the quality of the data depends preponderantly on their skills. Mistakes were made in both countries. In Honduras, a number of teachers and pastors were selected because they were respected in the community and were literate; yet they had very little experience with subsistence activities and had trouble describing the areas they were supposed to map. In Panama, the communities simply didn't have a good sense of what the project demanded, so they selected too many Surveyors who were too young and unseasoned. Although the Surveyors knew the forest relatively well, they had no stature with village elders and had trouble eliciting information from them.

THE PROJECT SEQUENCE

GROUND PREPARATION



ORIENTATION AND TRAINING



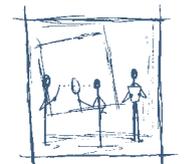
**GATHERING DATA
AND SKETCH MAPPING**



**TRANSCRIPTION OF DATA
ONTO NEW MAPS**



VERIFICATION OF DATA



**CORRECTING AND
COMPLETING THE FINAL MAPS**



5

STEP TWO: THE FIRST WORKSHOP

The first workshop provided the Surveyors with an orientation to the mapping project. Project leaders brought together the Coordinators and the Surveyors for the first time to discuss objectives, methodology, the sequence of tasks, logistics, and other project details. At the core of the workshop, the Surveyors were trained to gather information on physical features and land use in the communities by filling out a questionnaire, drawing community maps, and recording additional relevant data in a notebook. The workshop in Honduras lasted four days; in Panama it was only two and one-half days due to scheduling problems.

In both Honduras and Panama, the first workshop was held in the region that was to be mapped. In Honduras, it took place in Puerto Lempira, a town of approximately 3,500 people, and the capital of the Mosquitia. This site was ideal. It is situated at the hub of the region, and both MOPAWI and MASTA have their headquarters there. MOPAWI has a large building on the edge of town that served as dormitory and lecture hall/cartography room and was perfect for the first workshop as well as the two subsequent workshops. In Panama, the first workshop was held in the village of Arimae, a mixed Wounaan-Emberá community of 373 people located near the northern end of the Darién along the Pan-American Highway.²³ While the village setting lent reality to the proceedings, there was no closed-off facility for holding the workshop sessions in semi-isolation from the community.

The Panama workshop was thoroughly improvised and only lasted two and a half days, much shorter than it should have been. This was due to the disjointed organizational structure at the start of the project, the lack of preparatory work in the communities, and the limited time that Andrew Leake, who had experience with the methodology, had available to assist in structuring the event. For convenience, we piggy-backed the workshop onto the tail end of a meeting of Emberá and Wounaan leaders that had been scheduled for other purposes. When this meeting was over, a few leaders stayed to participate in the workshop.

²³ By contrast, the second and third workshops in Panama were held at a large, well-equipped facility of the Smithsonian Tropical Research Institute in the town of Gamboa, a 45-minute drive by car from Panama City.

Leake had been enlisted to set up the project. He had spent several days in Panama City explaining as much as possible about the methodology to project staff, but because of a prior commitment he could spend no more than one day at the workshop. He had written out some notes on his experience with the Honduran workshop and left them with Nicanor González of Native Lands, and Genaro Pacheco and Geraldés Hernández, the Emberá and Kuna Coordinators, respectively. These notes served as something of a guide. After Leake left, they did what they could, which was not much because they had no prior experience with this sort of project. In the end, the workshop was not a very good orientation for the Surveyors.

In Honduras, all of the Surveyors went through the first workshop. In Panama, only 19 of the 21 Surveyors were present, all of them Emberá and Wounaan; the Surveyors for the Kuna areas (from the zones of Wargandi and Púcuru/Paya) had not yet been selected because of poor communication between project staff and the Kuna leadership. The Kuna Coordinator, Geraldés Hernández, was present; just after the first workshop was completed, he contacted Kuna authorities in the two zones, and they selected the Surveyors.

In Honduras, the workshop was carried out in Spanish and Miskito, the two primary languages of the Mosquitia (virtually all of the other indigenous groups speak Miskito along with their own language). In Panama, it was carried out in Spanish and Emberá (the Wounaan all speak Emberá; no Kuna

were present except Hernández, who speaks Spanish).

AGENDA FOR THE FIRST WORKSHOP

Although there was shortfall in Panama, the first workshop in both countries was scripted to cover several principal tasks. These included:

(1) General orientation: Project leaders explained to the Surveyors, in considerable detail, the purpose of the project and the methodologies to be used. In Honduras, project leaders went over the technical sequence of the project, instructing the Surveyors on the types of data they had to gather in the field and how they should go about this. Leake explained the context of the project and its objectives, and discussed project administration, team composition, logistics, and related matters. From the start, it was stressed that this was a technical exercise, not a forum for political agendas. The success of the project would depend upon the degree to which the entire project team was able to stay out of controversy and stick to the task, which was to gather information from community members. Leake presented a similar introduction to the project in Panama, basing his remarks on the experience in Honduras.

(2) Questionnaire: In both countries, project leaders and the Surveyors developed a questionnaire dealing with land use, and a form for taking a census of the communities in their zones. The questions on land use were

short and direct, asking only the names of places where villagers carry out subsistence activities. Questions such as “What are the names of the places where people hunt?” and “What are the names of places where people gather medicines?” were followed by five lines for the names of sites. Activities covered included hunting, fishing, farming, and the gathering of medicines, firewood, building materials, and fruit. The Surveyors were then given instructions to place the names on the hand-drawn maps that they were to prepare for each community. In this way, much of the land use information was to be found in two places, allowing for cross-checking.

The questionnaire used in Honduras was prepared by MOPAWI staff and then modified — largely simplified, for it was judged to be too long and unwieldy — by the indigenous participants during the first workshop. In Panama, the questionnaire was modeled after the Honduran experience and was almost exactly the same (see Appendix B). Added to this was a census form designed to do a complete population count of the communities.

In both countries, project leaders ran the Surveyors through several practice sessions with the questionnaire and the census forms. The Surveyors broke

into small groups and interviewed people in the community about economic activities, practiced short speeches explaining the purpose and objectives of the project, and generally did a dry run for approaching community members and eliciting information. They then returned to the workshop center, reported on their findings, and critiqued each other. Perhaps the most important function of this exercise was to break down reticence and boost self-confidence with interviewing people and gathering information; it also gave participants practice in writing things down.

(3) Community maps: The Surveyors were given no instruction in Honduras and very little in Panama on techniques for drawing sketch maps. In Honduras, Herlihy felt that the questionnaires and the notebooks were more important — the sketch maps were viewed more as supplementary to these tasks. Consequently the Surveyors “...were asked to draw sketch maps of the data they collected, though no training was given in this regard. It was thought that training might stop the Surveyors from developing the cognitive maps together with local informants” (Herlihy and Leake 1997, 718).²⁴ Some 1:50,000-scale government topographic sheets were displayed in the workshop, and the idea of supply-

²⁴ Whether or not rudimentary instruction in cartographic technique inhibits the creation of cognitive maps can, of course, be debated. Our subsequent experience in Bolivia, Cameroon, and Suriname shows that it enhances rather than impedes their ability to draw maps and allows them to represent local realities much more effectively without inhibiting their creativity. It liberates them, equipping them with the basic tools they need to express themselves cartographically, by showing them how to represent distance, scale, relative proportions, symbolism, and so forth. Beyond this, in our view, learning the basic techniques of cartography — how to put maps together, read them, and use them — is an extremely important skill for indigenous peoples, as it is for everyone. It allows them to work with and negotiate with conservationists and government agencies on common ground, as it were, permitting them to participate more fully in matters of mutual concern.

ing the Surveyors with them when they went into the field was considered but rejected. According to Herlihy and Leake:

As with the idea of training people in drawing maps, these sheets could inhibit the independent drawing of the sketch maps by the surveyors. They would also require the surveyors to be trained in map-reading, and for them in turn to explain them to their respective communities before they could locate the information on them (ibid.).²⁵

Somewhat understandably, "...some surveyors had problems with the collection of information and were unable to draw the sketch maps" (ibid., 729–30).

In Panama, Leake, who set up and guided the first workshop, followed this lead and downplayed the importance of sketch maps. At the same time, logistics failed and there were no 1:50,000 topographical sheets to show to the Surveyors. Most of the Surveyors were given a handful of sheets of blank paper and several ordinary pencils. Some received nothing and had to scrounge for paper. No colored pencils were distributed; Surveyors who eventually used them had to find them on their own back home. González, the Kuna cartographer, felt during the workshop that the Surveyors should be instructed in

basic cartographic techniques, and did so after Leake left; but he was unable to give participants more than a few hours of explanation on the final day of the workshop. Because of this shoddy preparation, only five Surveyors produced complete, well-crafted maps; five or six did not do any maps; and the rest came in with bits and pieces on loose sheets of paper, without much coherence.

(4) Notebooks: Beyond the questionnaires and the sketch maps, the Surveyors were encouraged to keep notebooks with supplemental information that did not fit in the questionnaires or on the maps. The notebooks were to contain commentaries on the names of rivers, mountains, hills, lagoons, etc. (e.g., historical origins, unusual facts, changes in names through time); types of game animals, fish, and vegetation prevalent in different areas; time (distance) between one place and another; the number of streams between one point and another; bifurcations in rivers; comparative size of rivers; degrees of curve in rivers (sharp, easy); unusual land features; and so forth. Some of the information was linguistic, historical, and cultural, while some helped to locate places and names on the maps and calculate distances. In the end, some notebooks were more complete than others; as a rule, the younger Surveyors were more comfortable with note taking since this had been an

²⁵ This statement contradicts the testimony of several Surveyors and Coordinators. Interviewed shortly after the mapping was completed, they said they had been given photocopies of government base maps at the first workshop and instructed to fill them in with land use activities in the communities. A number of these maps are in folders stored at the MOPAWI office.

important activity for them in school in the recent past.

(5) Letters of introduction: Project leaders and tribal authorities drafted an official letter of introduction that would be carried by the Surveyors

into the field. The letter explained the objectives of the project, the general task of the Surveyors, and the need for cooperation from the community. These letters were useful in that they formalized the process, giving it a more serious aspect.



DISCUSSION

The first workshop should be an orientation for the Surveyors. It should contain an open general discussion of what maps are and how they are used, and prepare the Surveyors for gathering data in the communities. It should accomplish three primary things: (1) provide the interpersonal framework in which the mapping project will unfold, fostering a collaborative spirit among the technical team, the community team, the administrative team, and indigenous leaders; (2) provide a forum for ample discussion of the utility of maps, the objectives of the project, relations of Surveyors to their communities and among themselves, and the eventual uses to which the maps will be put; and (3) teach the Surveyors how to collect reliable information through sketch maps, questionnaires, and the use of notebooks. A balance should be struck among the three aspects of the workshop.

In Honduras, the methodology was being pieced together and tried for the first time, but the basics were present. The workshop was relatively thorough — it lasted four days — and it was smoothly and efficiently run. Emphasis was placed squarely on the technical aspects of collecting information for the maps. An overview of the project, with discussion of objectives, was first given; then Leake outlined the strategies of data collection.

The questionnaire was developed collaboratively, then tried out with role playing in Puerto Lempira. There was some discussion of community sketch mapping, but no formal training was given on this aspect of data gathering.

There was no systematic discussion of the project's political implications — indeed, this was consciously avoided. From the start, a policy of depoliticizing the project was imposed to avoid running afoul of the Honduran government, which was — and still is — extremely sensitive to the issue of indigenous land rights. While this was perhaps warranted, it created some confusion, even schizophrenia, with regard to the ultimate objectives of the project, and it muted discussion of the reasons the maps were being done in the first place.

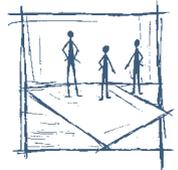
In Panama the first workshop was poorly planned and far too short. Leake, who held the master plan for the project, was not present long enough to provide more than a cursory overview. The lead cartographer was not present, and the workshop was essentially rudderless and lacked informed content. Neither technical nor sociopolitical aspects of the process were explained very well, and when the two and one-half days were over the Surveyors were poorly prepared for the work that lay ahead.

Few had a clear idea of how they were supposed to gather data for the maps when they returned to their communities. Compounding this vagueness on what to do was the lack of understanding and discussion of why it had

to be done. Even the scanty treatment given in Honduras to the political importance of mapping was absent. In retrospect, it is now clear that the disarray of this workshop presaged much of the confusion that was to follow.

THE PROJECT SEQUENCE

GROUND PREPARATION



ORIENTATION AND TRAINING



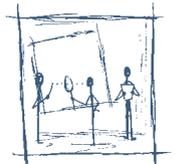
**GATHERING DATA
AND SKETCH MAPPING**



**TRANSCRIPTION OF DATA
ONTO NEW MAPS**



VERIFICATION OF DATA



**CORRECTING AND
COMPLETING THE FINAL MAPS**



6

STEP THREE: FIRST FIELDWORK PERIOD

After the first workshop, the Surveyors journeyed to the communities to gather data for the maps. In Honduras, fieldwork lasted roughly three weeks; in Panama, it was eight days. The Surveyors spent their time discussing physical features and land use patterns with knowledgeable villagers, and recording the information in questionnaires, sketch maps, and notebooks. At the same time, they compiled linguistic, cultural, and historical information and carried out village censuses.

ENTERING THE COMMUNITY

Experiences diverged in Honduras and Panama due in large part to differences in social organization in the regions being mapped. In Honduras, meetings were held in schools and churches, generally in the afternoon. Key contacts in the communities were Moravian pastors and schoolteachers. In Panama traditional village authorities were contacted first, and the project was explained in a community session in the morning or late afternoon (Emberá and Wounaan) or in the evening (Kuna).

In both Honduras and Panama, village meetings were held first to discuss the purpose and benefits to the local population of the mapping, the methodology, and what was expected of the communities. In Panama, where most of the Surveyors were young, it was found that the most effective way to approach the community meeting was through village leaders. Ideally, the Surveyors briefed village leaders and then the leaders took the lead in explaining, as well as they could, the mapping project to the community. This was difficult in a number of cases because the Surveyors simply did not understand the project and could not explain it. Some tried to improvise, but others simply dithered about in confusion until the Coordinators appeared on the scene to set them straight. Even this intervention, however, was inadequate since the Coordinators knew no more about the methodology than what they had been told in the first workshop and were unable to provide authoritative technical guidance. All of this caused major delays in the process and seriously affected the quality of the data being gathered — the consequences of which would become distressingly apparent in the second and third workshops.

In both the Mosquitia and the Darién, the primary reason voiced by villagers for doing the maps was to gain control over and legalize their communal lands. This fit nicely with MOPAWI's Land Legalization Program in the Mosquitia, and it was discussed openly within the confines of the mapping project; but in Panama, no such structured agenda existed within the project and there was little formal discussion by project staff of the use of maps to pursue land rights.

In Panama, because the initial ground preparation had been poor and some villages only learned of the project when the Surveyors arrived, in several cases there was reluctance to participate in the data collection. A small number of villages refused to cooperate, at least in the beginning. They did not understand the purpose of the project and were suspicious of the distant (non-Indian) cartographers and their motives for seeking information on indigenous subsistence. In Panama, two Kuna villages refused to provide information unless paid. This was due largely to the fact that the process in the beginning was controlled entirely by the Emberá; the Kuna were not included until after the work began, and no advance visits had been made to Kuna villages. The villagers only agreed to collaborate after the Kuna Coordinator arrived to explain the objectives of the project.

In the Mosquitia, some of the villages near the Honduran-Nicaraguan border initially feared that the goal of the project was to take their lands from them. Many of the villagers had only recently crept across the border from their native Nicaragua to relocate on Honduran soil.²⁶ Their fear was countered with the argument that the purpose of the project was to provide them with maps that would help them legalize their claims to the land, and this convinced them to cooperate.

In Panama, a political campaign was in full swing and some people thought the mapping was tied to partisan politics. The census was a particularly sensitive point in this regard. Part of the problem stemmed from the youth of many of the Surveyors; they were shy and had trouble explaining the process. Some of the junior Surveyors did not understand their mission clearly and confused villagers with garbled explanations.

In both countries, difficulties of this sort were resolved by the project Coordinators, who visited the villages and explained the project in more detail. If they lacked technical expertise, they understood fully the objectives of the project and the value of the maps for their people. They also had a high-ranking status in the region, and their words carried weight. Through their intervention, most of the confusions were cleared up and

²⁶ *The Miskito live on both sides of the border and for years have moved freely back and forth across it. They tend to see the region they inhabit as a single territory. In recent years, the Consejo de Ancianos (Council of Elders), a Nicaraguan Miskito group, has been pressuring the Nicaraguan government to annex the Honduran Mosquitia so that the Miskito Nation will again be whole.*

cooperation was secured. At the same time, the need to put out brush fires in communities that were widely scattered was difficult and time-consuming; this was most severe in Panama, where ground preparation had been poor to nonexistent and the fieldwork period lasted just eight days. Much of this could have been avoided had there been more complete, prior preparation in the communities.

ELICITING INFORMATION

The data-gathering methodology was designed to elicit information residing in the heads of villagers. This can be done without journeying into the surrounding bush to survey and note down the areas to be included in the map. First, it is based on the assumption that villagers have cognitive maps of their region that are both precise and detailed. And second, the area being mapped was large and the time frame was small. Some of the Surveyors were expected to cover zones made up of 10 or more villages, and it would have been physically impossible to visit even a sample of the sites plotted on the maps.

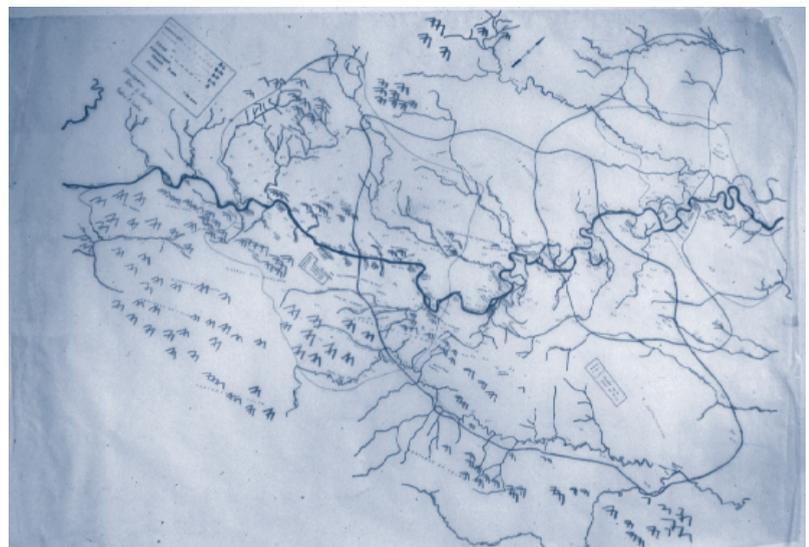
In Honduras, the Surveyors held community meetings to explain the objectives of the project, and there were several early attempts to elicit information from large congregations. In one community more than 150 people came forward in an unruly herd. In

the end, the Surveyors managed to meet with community leaders and choose small groups of four or five villagers with intimate knowledge of the region who would serve as principal advisors to the project.²⁷ In Panama, the Surveyors spoke with village leaders as soon as they arrived, and after an introductory village meeting a small team of advisors was enlisted to sit down with the Surveyors and provide information.

The Surveyors used three tools to gather data: questionnaires, community sketch maps, and notebooks.

(1) Questionnaires: This was a relatively straightforward exercise since it consisted of administering a series of simple questions about names of places where activities were carried out. Subsistence areas were: farming, hunting, fishing, and gathering. Gathering

Figure 11. Zone map for Wampusirpi (Zone G on fold-out map of the Mosquitia) based on information provided by Surveyor Tomás Rivas. Also shows portions of Zones F (Ahuas), H (Tawahka), J (Warunta), K (Mocorón), and Q (Suhi-Río Coco). The polygons are communities and the outer limits of the subsistence areas are shown in lines. Subsistence areas overlap.



MOPAWI

²⁷ Most of these people were men who were hunters, medicine men, or traders who had been journeying through the surrounding landscape on a regular basis over many years. Some women were included in these teams, although in both countries it was the men who traveled widely and had a more complete vision of the territory used by the group.



Figure 12. Sketch map of the Río Plátano Zone (Zone C on the fold-out map of the Mosquitia) by Surveyor Elmer Waldermar.

was further broken down into medicines, building materials, wood for sale and wood for personal use, firewood, and fruit. Livestock, especially cattle, were not included in either country since they were insignificant economically; they were present in Honduras but not in numbers to resemble anything like herds. The information was most effectively gathered in small groups of villagers, with considerable back-and-forth discussion.

Information regarding physical features of the landscape (other than the names of places where subsistence took place) was not included in the questionnaire.

(2) Sketch maps: The Surveyors in Honduras lacked clear guidelines for drawing sketch maps, as they had received no training in the first workshop. Some Surveyors colored-in subsistence areas on photocopied base maps, and many produced sketch

maps on stray sheets of paper. The sketch maps produced in Panama were not much better because Leake, who organized the first workshop there, thought that sketch mapping was a secondary activity to, at best, back up the more systematic filling out of questionnaires.

In both Honduras and Panama, villages are invariably located on the banks of rivers. Most of the Surveyors began by orienting themselves along the rivers, drawing them in like backbones and then filling out the adjoining ribs of countryside with villages, other physiographic features, and subsistence zones. Working with villagers, the Surveyors had no difficulty orienting themselves directionally, although the method was different in the two countries. In Honduras, the Surveyors tended to think in terms of north, south, east, and west; and they indicated this on their maps. In Panama the cardinal points were largely an

abstraction and were seldom referred to; instead, reference was made to the movement of the sun, and directions were moored to the village — behind the village, in front of the village, and so forth — or upriver or downriver. In notations, Surveyors often made reference to left and right. Directions were easily located during the second workshop by reference to base maps.

Most of the Surveyors used pictographic symbols to represent land use. In neither country was the symbolism standardized and dictated by project leaders. Each Surveyor was given the freedom to develop his own symbols, although in the end most of these were similar in form (e.g., a fish for “fishing,” an animal for “hunting”). Despite their differences, symbolic figures were easily deciphered when the Surveyors worked with the cartographers in the second workshop. (At this stage, Herlihy standardized the references on the new maps with letters rather than pictographs.)

(3) Notebooks: Each Surveyor was expected to keep a running narrative containing information that fit in neither the questionnaire nor the sketch

maps. In both countries, the Surveyors were told to jot down facts, observations, and explanations that would assist them as they tried to explain the location of places on the map to the cartographer. They were also instructed to record cultural and linguistic information such as stories attached to particular places, and the meanings of names.

The results were varied. As a general rule, the more literate the Surveyor and the more familiarity he had with the written word, the more complete and coherent was the commentary in the notebook. Some of the older Surveyors — those over 50 years of age — had difficulties because they had not written much of anything since they had left school. Out of practice, their hands cramped. Sometimes the weak grasp they had of literacy had atrophied. A few had deteriorating eyesight and were unable to write. In truth, it must be said that few Surveyors were used to writing, and none had the habit of jotting down long explanations of things. This was a rather abrupt assignment for most of them, and some rose to the challenge while others did not.



DISCUSSION

At the risk of repetition, it must be emphasized that the success of the first fieldwork period depends to an overwhelming degree on the effectiveness of the steps that come just before it: the ground preparation phase, which ideally informs the communities about the methodology and objectives of the project; and the first workshop, which orients the Surveyors and the Coordinators for their fieldwork. If these two steps are executed thoroughly and with care, the project should move forward smoothly. If, on the other hand, they are rudimentary or defective, the project will not get off on the right foot and will have difficulty finding its stride farther down the road. In Honduras, the early phases were adequate yet a bit weak; in Panama, they did not prepare the Surveyors for the work ahead.

Once fieldwork begins, a collection of interrelated factors affects the quality of the data gathering. These are (1) the size of the area being mapped, (2) the number of communities, (3) the number of Surveyors to be deployed in the communities, and (4) the time allotted for the task.

In both Honduras and Panama the projects were hampered by the large area being mapped, the numerous communities in those areas, the small

number of Surveyors to carry out the data gathering, and the short time at their disposal. In Honduras, the decision was made early on to map the entire Mosquitia, a huge area (approximately 20,000 km²) containing 174 indigenous communities. To do this, project leaders were confronted with two choices: either they increase the number of Surveyors to more adequately cover the communities (perhaps one Surveyor per two or three communities), or they work with a small number of Surveyors and have each be responsible for a large number of communities. The first approach was deemed too complicated from a logistical and cartographic perspective, and also because it would send the budget into the stratosphere. Thus the second path was taken and 22 Surveyors were chosen, each covering zones containing as many as a dozen communities. This was all to be squeezed into a narrow time frame of roughly three weeks, which meant that Surveyors with many communities could spend no more than a day or two in each.

In Panama, a similar trade-off was made to sacrifice in-depth field coverage for manageability at the cartographic end. Although the number of communities was slightly less than half the number in Honduras, the other variables were similar: the

region was extensive, the number of Surveyors was small, and the time frame was even shorter, only eight days. The same dynamic was present, only more cramped.

Given the constraints — the need to map a large area with a limited budget in a short period of time while keeping the project manageable — these decisions were perhaps reasonable. Yet it must be said that by severely abbreviating the schedule, those in charge

diminished the project in two fundamental ways. First, it diluted the coverage of communities and produced, in many cases, sketchy and even questionable data. Second, it reduced the time Surveyors and villagers could interact and discuss the broader implications of the mapping. The project would have been a richer process, in every sense, had it been more fully staffed and longer, with more time to interact with villagers. It would have also been less stressful.

THE PROJECT SEQUENCE

GROUND PREPARATION



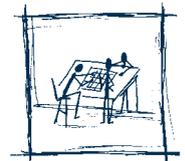
ORIENTATION AND TRAINING



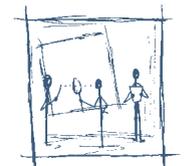
**GATHERING DATA
AND SKETCH MAPPING**



**TRANSCRIPTION OF DATA
ONTO NEW MAPS**



VERIFICATION OF DATA



**CORRECTING AND
COMPLETING THE FINAL MAPS**



7

STEP FOUR: SECOND WORKSHOP

The primary task of the second workshop was to transcribe the cartographic information brought in from the field onto newly constructed maps fashioned from government base maps, aerial photographs, and other materials. This work was split into two broad task areas that were done separately: (1) correcting, filling in, and naming the physical features of the maps (river systems, swamps, lakes, lagoons) and locating indigenous communities; and (2) plotting land use patterns (hunting, fishing, agriculture, etc.). Prior to this, the technical team equipped the mapping room and assembled cartographic materials in preparation for the arrival of the community team. The second workshop in both Honduras and Panama lasted roughly one week.

PREWORKSHOP PREPARATION

Before the Surveyors returned from the field in both Honduras and Panama, the technical staff (cartographers, draftsmen, photo interpreters) focused on assembling their equipment and materials at the site of the second workshop. They set up drafting tables and brought in a variety of maps of the region, pencils and pens, paper, aerial photographs, stereoscopes, light tables, lettering devices, and other tools of the trade. The specific, general, and topographical maps that they assembled were laid out on the tables or hung on the walls. Lastly, using sheets of vellum, the cartographic staff traced the major river systems for each of the zones, setting the stage for the Surveyors to work with the lead cartographer to fill in the details.

As soon as the Surveyors arrived from their communities but before the workshop formally began, the technical staff had them place their materials — hand-drawn maps, questionnaires, notebooks — in individual folders. The lead cartographer then made a careful inventory of these folders and labeled each with the name of the Surveyor and the zone. He went through the folders carefully, without the Surveyors present, and noted down which ones were complete and which had holes. He then added to the folders base maps and air photos of each zone and categorized each bundle according to degree of difficulty: some zones were replete with information and could be dispensed with



Figure 13. Aerial Photograph Interpreter Hugo Solis, of Panama's National Geographic Institute, studies photographs of the Darién using a pocket stereoscope.

easily, while others were a bit thin and would be more problematic. In the workshop that followed, he worked with the most difficult areas first, focusing on two tasks: plotting and labeling physiographic features, and delineating land use zones.

PREPARING DRAFT MAPS

Both projects began with the goal of producing 1:500,000 regional maps of the Mosquitia and Darién, respectively. In Panama, however, the decision was made at the outset to seize an opportunity that had not been fully taken advantage of in Honduras. A complete finished set of 1:50,000 community maps — 20 in all — would also be made. As later chapters will show, these maps were extremely important. At the same time, however, producing them also intensified the pressure in the second workshop — the crucial pivot on which the fate of the whole project turns — because neither the operational methodology

nor the time frame were adjusted to cope with the additional workload.

Physiographic features and indigenous place names: In both Honduras and Panama, the Surveyors and the cartography staff came together in the drafting room. They laid out the questionnaires and the community sketch maps alongside the aerial photos and base maps on the drafting tables. The lead cartographer then took the transparent sheets on which technicians had earlier traced the major physiographic features and began filling in details provided by the Surveyor of each zone. Together they filled in small rivers, creeks, communities, and isolated household clusters, checking and cross-checking the various types of information. For example, there were times when the government base map might have eight streams, while the Surveyor had marked six on his community map. In such cases, the Surveyor might consult his notebook for any relevant information, while the

cartography team would take a close look at aerial photos of the region in search of clues (in some cases, this was judged to be the final authority). In Panama, several specialists in photo interpretation were with the team for a while. At times the Surveyors came in with names on the questionnaire that they could not locate on the map. Whatever the uncertainty, if the matter remained suspicious or unresolved, the cartographer would place a question mark on the map and jot down a notation in the notebook so the Surveyor could check it during the second fieldwork period. He could then clear up with villagers how many streams there were between this and that river, verify the curve of a river, determine whether a swamp connects with a river, and so forth.

While interviewing the Surveyors, the cartographer put in the names, most of which were indigenous, of the rivers and other features. Place names on the questionnaire and on the map were matched with comments in the notebooks such as: "X river is 30 minutes by motor from Y bend in the river," or "to reach X area of hunting, travel to the left inland from point Y for 15 minutes," or "there are six streams on the right side heading upriver between X and Y."

The key to such work is meticulousness and persistence. The lead cartographer would quiz each Surveyor in detail about every aspect of the data: Is the name of this river spelled correctly? Are you certain that there are only four streams here? Is the curve in the river a wide or a tight loop? Is the

hill behind or in front of this river? Is it nearer to this stream or that one? And so forth. After working with a Surveyor to produce a draft map, it could then be handed over to a draftsman to produce a clean copy.

Herlihy's diligence to detail, an admirable quality when time and resources are abundant, proved cumbersome in the end, as he took it upon himself to personally debrief each Surveyor rather than delegate responsibility to other members of the technical team. In Honduras the process was somewhat expedited through Leake's assistance in conducting the initial Surveyor interviews. In Panama, tensions grew as the process ground slowly forward and the time for returning to the field hurried closer. In this context, Herlihy let González, the Kuna cartographer, work with some of the Surveyors that Herlihy found troublesome, including the two who were Kuna and some of the Emberá and Wounaan. The work got squeezed into the time frame, but bad feelings lingered, to a large extent



Figure 14. Front to back, Coordinator Andrew Leake, Surveyor Gilberto Maibeth, and Cartographer José Ramiro Andino look over draft maps of the Mosquitia.



Figure 15. Cartographer Nicanor González (seated) and several members of the community team work with aerial photographs to compile a map.

because the number of serious unresolved questions was higher than expected.

In Honduras the government base maps were judged to be relatively accurate, and few revisions were deemed necessary on the new maps. In Panama, however, this was not the case. The regional Darién map was becoming a thorny task for the cartographer and his team. Aerial photos frequently showed a landscape blanketed with clouds; and where there were no clouds, dense tree canopy covered everything. One way or another, waterways and other key features were often hidden from view. Over the years, government cartographers had made maps relying only on these unrevealing photos, with no opportunity to verify accuracy in the field. They had often resorted to guesswork, and their maps, unsurprisingly, were riddled with errors. Beyond this, in the years since the maps had been made, a number of the rivers had changed

course, new streams had appeared, meanders had formed, and settlements had moved or divided up and split off into new settlements.

As these confusions became more and more apparent, the impulse to correct the maps grew. Yet with the cut-off date for Herlihy to leave and take up his academic commitments at the University of Kansas fixed at the end of August, time was tight. With the project's schedule so rigidly circumscribed, some errors were set straight, while others were left untouched, but no decision was made about doing major reconstructive work. Nonetheless, the unvoiced anxiety of having to do so was working at the back of Herlihy's mind.

Land use patterns: The second task was to fill in the areas of indigenous subsistence. Inevitably, this process overlapped with the work to specify physiographic features and name them. Herlihy and Leake (1997,

721–2) describe how this process unfolded in Honduras during the week-long workshop:

With questionnaires, sketch maps, and base maps spread out on the drafting table, each surveyor worked with the researchers [Herlihy and Leake] locating their recorded data onto the cartographic sheets. The positioning of each toponym or location of sites of particular land use was determined through dialogue between the researchers and surveyors, based on their respective empirical knowledge of a given place. Reference was made to sketch maps, which was cross-referenced with the data gathered by surveyors in adjacent zones. In some cases, several hours work were required for the location of one site, although most were relatively easier to position. As the field data was plotted meticu-

lously, point by point, onto the cartographic sheets, the surveyors became aware of the fact that their geographical knowledge of their respective zones was often far more detailed than [sic] contained on the official government maps....

Each point was assigned an alphanumeric code, with a letter to designate the survey zone and a number to identify each community (e.g., B-7). Adjacent to these, the use of the area was noted, for example 'agriculture' or 'hunting.' A line was drawn around all of the land use points of each community, indicating the overall area used by each settlement for subsistence purposes. Another line was then drawn around the overall area, or 'subsistence zone,' used by the various communities within each given zone.

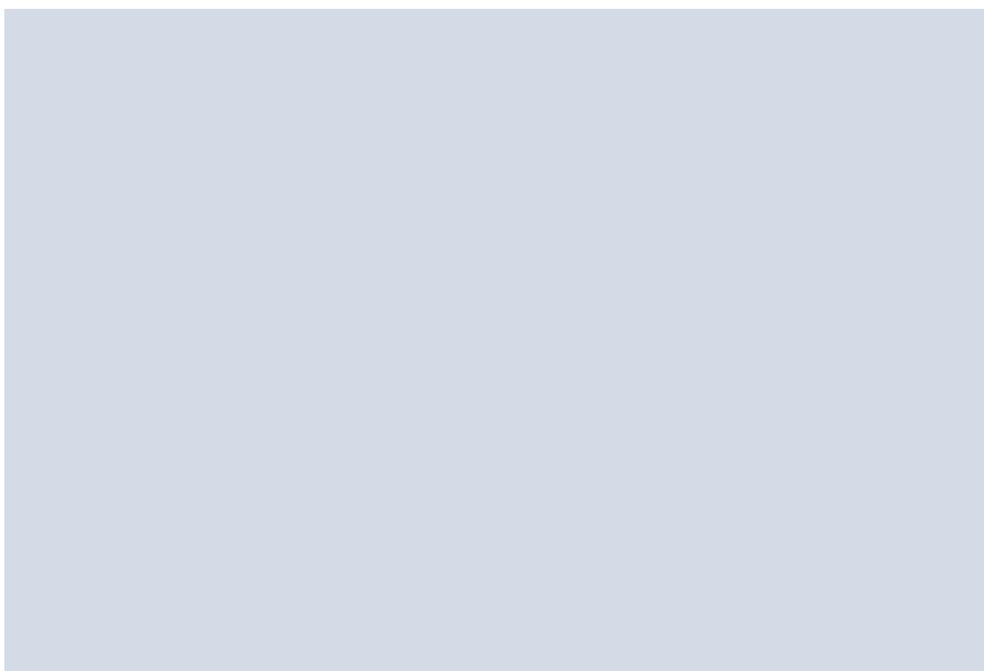


Figure 16: A portion of the Marea Zone Map from Panama showing the communities of Aldea Emberá and Burá along several streams feeding north into the Tuira River (at Isla Mangle), and the subsistence land use codes according to the legend.

In Panama, the same process was followed, plotting subsistence areas as points and labeling them according to the following legend:

- A: Agriculture (Agricultura)
- P: Fishing (Pesca)
- C: Hunting (Cacería)
- M: Gathering of Materials (Recolección de Materiales)
- M/F: Gathering of Medicines & Fruits (Recolección de Medicinas y Frutas)
- Ar: Cutting of Trees for Subsistence (Corte de Arboles para Subsistencia)
- Arc: Cutting of Trees for Commerce (Corte de Arboles para Fines Comerciales)

Each point, in addition to being identified with a land use code, was assigned a number to identify it with a particular community within the zone. For example, if zone X had four communities, they would be labeled 1, 2, 3, and 4. In plotting land use, the cartographers would put “C2” to locate a hunting area for Community 2; “M/F3” was an area where Community 3 gathered medicine and fruit.

In the questionnaires, the Surveyors put down the names of the places that mark the limits of the lands utilized by the communities, the farthest distances they travel to carry out subsistence activities. In soliciting this information, the Surveyors sought four points: north, south, east, and

west. Two questions were framed from slightly different angles, with differently phrased reference points, to make certain the determinations coincided. This was a useful form of cross-checking. For example, the completed questionnaire for the community Aldea Emberá in the zone of Marea, reads as follows:

What are the limits of the lands and forests utilized by the community?

*In front of (the community): Marinasia
Behind: Narazati
To the right: Bocanupa
To the left: Junkara*

What are the limits on the points of the compass of the lands and forests utilized by the community?

*North: Bocanupa
South: Junkara
East: Narazati
West: Marinasia*

This helped define the most distant areas to which villagers traveled to carry out subsistence activities.²⁸

Just as in locating physiographic features, every effort was made to pinpoint resource sites by an exhaustive series of questions: This mountain where you hunt, how long do you walk inland from the river? Which side of the mountain do you hunt on? Is it past this creek? How far? How large is the area where you gather medicines? Does it go all the way to this stream? In this way, the activity

²⁸ All of this has to be within reason, of course. On occasion, Kuna from the zone of Wargandi travel all the way into San Blas to the north to hunt, a distance of roughly 40 kilometers on foot. This is clearly outside the subsistence range of the group's core area and therefore was not plotted on the map.

symbols (representing resource areas) were fixed on the maps.

Using stereoscopes, the Surveyors were able to take “cartographic journeys” with the cartographers. A stereoscope allows aerial photos to be seen in three dimensions — the mountains and hills jump out from the flat surface — and the Surveyors could check the information in their notebooks by traveling along rivers and seeing the actual contours of the land. When the work reached an impasse the cartographers often said, “forget the map for a minute,” pulled out a blank sheet of paper, and began tracing a journey up a river. This often broke loose mental logjams and restored the flow of information. When all else failed, the Coordinators took the Surveyors outside the building for walks to clear their minds.

Sometimes when a Surveyor was uncertain or confused, a Surveyor from an adjacent overlapping zone was called in. The cartographer or interviewer would then run through the questions again to see if the two men, working together, could shake loose intractable information. In this way, thousands of points were plotted and labeled with information relating to subsistence activities and community. Then a line was drawn encompassing the outermost dots, cre-

ating a border around the land use area for each zone.

When all available details were put on the maps, everything was passed over to the draftsman to produce a final draft. In Panama this was José Aizpurúa. At this point, the pressure was off the Surveyors; Aizpurúa only worked with them to verify details. In particular, he wanted to make sure that the indigenous names were correct. Unfortunately, the calm at Aizpurúa’s table was one of the few quiet corners of the map room; in the days and weeks ahead, a storm that was growing stronger would soon engulf the project.

While the technical end of the mapping somehow managed to keep moving forward and would eventually produce the coveted maps, which were loaded with cultural information, damage was being inflicted on everyone. Four interrelated factors had combined to create an atmosphere of unhealthy volatility: (1) the failure to adequately orient the technical and community teams for the task at hand; (2) the tightly controlled, centralized manner in which the technical team was managed; (3) the need to compress a large amount of work into a short time frame; and (4) the lack of a coherent institutional framework to hold things together.

DISCUSSION

The second workshop is the point at which the fruits of the project, in their inchoate form, are glimpsed for the first time. It is when the Surveyors bring their field data in from the communities and the technical team initiates the process of laboriously transcribing, detail by detail, the physical features and land use patterns onto newly constructed “geo-referenced” maps.²⁹ If the Surveyors have been well prepared for the fieldwork, and if they have had sufficient time to consult with specialists in the communities, the data they return with should be excellent. By the same token, if the cartographers have gathered together, prior to the workshop, a thorough record of maps and aerial photographs of the region and analyzed them carefully, they will be in good shape to assimilate the field data.

In neither Honduras nor Panama were these conditions altogether satisfied. In Honduras, the Surveyors received a relatively adequate orientation to the fieldwork, but they had to cover too many communities in too short a time. The second workshop lasted only a

week, which forced Herlihy and Leake to work from dawn far into the early hours of the following morning. The level of stress was high but contained. The pace of work was very fast and left everyone exhausted, but the project went forward without any serious hitches.³⁰ In retrospect it would be evident that the quality of the data had been compromised by the limited time frame, but at least participants had a generally favorable impression of the way things were going.

In Panama, there had been an almost total lack of orientation, resulting in larger gaps in the quality of information gathered. This created tension that the lack of reliable backup aerial photography only intensified. Thus the atmosphere of the second workshop began heating up from the start, like a pressure cooker with no release valve. With no institutional structure like MOPAWI in Honduras to keep things in check, the temperature continued rising until the project would threaten to rupture in the next phase of activity. As confusion and bad feeling mounted in Panama, Native

²⁹ A map that has been geographically referenced, in which points are located on a coordinate system of latitude and longitude.

³⁰ One Surveyor, recollecting the atmosphere of the second workshop in a group meeting, said that Herlihy “...didn’t sleep. He worked from 8 A.M. to 3 A.M., straight through, every day. And Andrew Leake worked right along with him.” Other Surveyors present smiled broadly and shook their heads. All of them agreed that the process was far too rushed — not only at the second workshop but throughout the entire project.

Lands was spending most of its time in the United States trying to raise funds to keep the project afloat. Although it was clear that things were amiss, there was no money to spend on travel. Denunciations and accusations from all sides were pouring in by phone, but we could do little more than talk with the different factions and try to calm everyone down. Nothing we said relieved the pressure for long.

Much of that pressure focused on the lead cartographer, who tightly controlled the transfer of all community information onto the new maps. In his striving for exactitude, he sometimes spent as long as seven or eight hours with a single Surveyor. While Herlihy did delegate some work to González, even that had to be closely reviewed for validation. Meanwhile the rest of the technical staff was shunted aside to a variety of menial chores — drafting clean versions of marked-up zone maps or lining up and interpreting aerial photos — or they were left to stew, sitting around idly with nothing to do. This system was inefficient on two counts.

First, the centralized management of the technical team, combined with the fast pace set from the start, both distorted and accelerated the rhythm of the second workshop, creating misunderstandings that only worsened with time. Given the tight schedule, the only thing that could expand was the workday. The usual 9-to-5 schedule, which had been bent in Honduras, was ignored altogether in Panama as the

technical team and the Surveyors labored from dawn until far after dusk, and occasionally until the following daybreak. Herlihy began working as many as 25 to 30 hours at a stretch, sleeping for an hour or two before doggedly resuming the work. He expected the Surveyors and his technical staff to keep pace, or at least be on call when needed. Everyone in the project was subject to this regimen, and as people failed to get their quota of sleep, tempers flared ever more frequently. Relations deteriorated precipitously among Herlihy, the indigenous participants, and CEASPA. Several members of the technical team quit outright; one simply failed to return after a break.

The second failure was harder to see, and represented a lost opportunity. The Surveyors, too, were left on their own for long stretches while waiting to be summoned by the lead cartographer. Herlihy, with the experience of Honduras under his belt, was in an excellent position to give the technical and community teams an overview of the mapping process. Unfortunately he did not. There was no discussion of the general objectives of participatory mapping projects or the specific objectives for the present project; the context in which the work was taking place was not presented, nor was any effort made to instill team spirit among the participants. The lead cartographer did not train, formally or informally, any of the technical team in how his work was done so that mapping skills would be embedded locally after he

had departed.³¹ The grind was far too intense for him to hold training sessions or educational meetings. This same reasoning also led him to resist CEASPA's efforts to bring in visitors from conservation organizations and government agencies to observe activities in the workshop.

Yet given the lead cartographer's narrow focus, the vacuum was perhaps not altogether bad. The Coordinators and tribal authorities were given a free hand with Surveyor's down-time, and much of it was structured with an eye to the eventual forum at which final maps would be presented. Surveyors were assigned topics and went over their materials: social organization, flora and fauna of the region, hunting practices, agriculture, and so forth. They gave verbal presentations to the group and were critiqued. When they felt more confident, their talks were taped, transcribed, and edited. In Honduras, Leake and Herlihy had helped script and rewrite the speeches, and worked closely with the speakers to polish their presentations. But they had also wanted to make sure that the speeches were not substantively political. In Panama, Herlihy's attention was soon diverted by his mounting workload during the second workshop, and the Indian Coordinators took over the process.

Thus the Surveyors and Coordinators had considerable time together as a group. This not only gave them an opportunity to polish their presentations for a forum, it also gave them a chance to discuss a variety of other issues that were not programmed into the project. These discussions dealt mainly with land and natural resource issues, with a focus on colonist incursions, logging concessions and, in particular, the construction of the Pan-American Highway through the Darién.

Several lessons can be gleaned from what happened. Because of the critical nature of the second workshop, sufficient time must be set aside so that it can run its course smoothly and free of tension. In subsequent projects in Bolivia, Cameroon, and Suriname, we have allowed a full three weeks for this workshop, and regular hours have been kept. We have opened up space for social interaction between Surveyors and cartographers; group meetings to discuss various aspects of the specific project and more general aspects of cartography and the utility of maps have been held on a regular basis. This workshop should be treated as more than an exercise in data transcription. It is an excellent opportunity to develop a social process in which both Surveyors and cartographers interact and learn about unfamiliar areas: in the case of the

31 Those working with him learned what they did about the process largely through osmosis by observing what was going on. González, who was somewhat privileged because of his association with Native Lands, was given greater responsibility and was able to learn a good deal. The payoff from this would become evident when he went on to manage the cartographic component in the Bolivia project.

Surveyors, they can learn about maps; in the case of the cartographers, they can become acquainted with indigenous peoples and their way of life. It is a chance to develop respect while working on a common task.

Another crucial aspect of this workshop should be instruction in basic cartography. In the Bolivia project, and more systematically in Cameroon and Suriname, we have encouraged

the technical team to teach the Surveyors the rudiments of cartography so that they learn how to read, interpret, and use maps. These are extremely valuable skills, for they enable the indigenous participants to work with maps in their negotiations with outsiders; it creates a common language in which discussions can be held. The second workshop provides an excellent atmosphere for instruction of this sort to take place.

THE PROJECT SEQUENCE

GROUND PREPARATION



ORIENTATION AND TRAINING



**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.

9

MAPPING THE IZOZOG IN BOLIVIA: TESTING AN IMPROVED MODEL FOR ETHNOCARTOGRAPHY

In mid-1995, John Robinson, director of the international program of the Wildlife Conservation Society (WCS), approached Native Lands to discuss the possibility of carrying out a community mapping project in the Chaco of Bolivia. WCS had supported the mapping in Panama, and Robinson saw the utility of a similar process with the indigenous population of the area called the Izozog. When he called, WCS was working with Izoceño leaders, through the Capitanía de Alto y Bajo Izozog (CABI),³⁵ on negotiations with the Bolivian government to set up and manage a large protected area overlapping the eastern edge of the region. Native Lands had reviewed and analyzed the Honduran and Panamanian experiences and, while our analysis was by no means complete, we felt we knew enough to take a stab at another project. We were anxious to try out our improved yet still tentative model in the field, and the Izozog looked promising.

PHYSIOGRAPHIC OVERVIEW

The Izozog is a roughly 19,000 km² tract of land flanking the Parapití River on a north–south axis, located approximately 250 kilometers and 8 hours by 4-wheel-drive vehicle to the southeast of Santa Cruz de la Sierra, the capital of the department of Santa Cruz (see Figure 18). It is inhabited by more than 7,500 Izoceño Guaraní living in 22 communities evenly divided into Lower and Upper Izozog. Five communities are located on the eastern bank of the river, which flows east out of the Andes, hooks north, and runs past all of the Izoceño settlements before sinking into a seasonally flooded swampy depression called the Bañados del Izozog. The river holds water from roughly November/December through May/June, depending on the year, and has a sandy bed that is more than a kilometer wide in some places. The region takes its name from the Guaraní word *ĩ-oso-oso*, or “water that disappears.”

Izoceño territory occupies a small corner of the Chaco, an extensive alluvial plain covering approximately one million square kilometers that spans parts of Argentina, Paraguay, and Bolivia. The vegetation of the region is semiarid thorn

³⁵ The Captaincy of Upper and Lower Izozog.

forest interspersed with patches of desert to the east; in the northern reaches of the Izozog the Bañados holds more water year-round, allowing for more-luxuriant forest growth.³⁶ The Parapití is a solitary artery of water running through the center of Izoceño territory, without a network of tributary streams; transportation follows overland trails, on foot, by horse, or in motorized vehicle along paths and *brechas*, which are seismic exploration tracks that were laid down by petroleum companies in recent years and have marked the landscape with a dense, north/south–east/west grid pattern.³⁷ The Izoceños are the only indigenous group in the region that has established permanent communities along the Parapití and developed a system of irrigation for agriculture. Principal crops include maize, manioc, beans, and rice. Animal protein comes from hunting, livestock, and seasonal fishing.

IZOCEÑO SOCIAL ORGANIZATION

The Izozog is governed by CABI, a hierarchy with a Capitán Grande at the apex. Beneath him are a Capitán for the Upper and for the Lower Izozog, respectively, and below that there is a Capitán for each of the 22 communities of the region. Most of the Izozog is ethnically Guaraní; all of it is linguistically Guaraní. The

extreme northern and southern edges are marked by communities with a relatively high density of non-Indian mestizos. While these people are classified as non-Indians, they are recognized as Izoceños and are full members of CABI's political structure. For example, the Capitán of the Izoceño community of San Silvestre is a non-Indian.

The current Capitán Grande is Bonifacio Barrientos Cuéllar (known as Boni Chico), who took over from his father Bonifacio Barrientos Iyambae (Boni Grande) in 1984. CABI is accountable to the General Assembly, which is comprised of all adult Izoceños and is the maximum authority of the Izoceño people. CABI has two areas of influence. First, it has charge over internal affairs within the region: it arbitrates conflicts, provides the unifying structure for the communities, and generally assures the functioning of Izoceño society. Second, it serves as intermediary with the outside world to assure that the rights of the Izoceño people are respected and their needs met. The “outside world” has traditionally meant the national government; but recently it has come to include a number of international organizations, including companies interested in the region's resources and foreign agencies concerned with conservation and development issues.

36 Taber, A., A. Rojas R., G. Navarro, and M. A. Arribas. 1994. “Parque Nacional Area Natural de Manejo Integrado Kaa-Iya del Gran Chaco: Propuesta Técnica y Etnica.” *Informe Inédita*; CABI, Fundación Ivi-Iyambae, WCS.

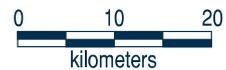
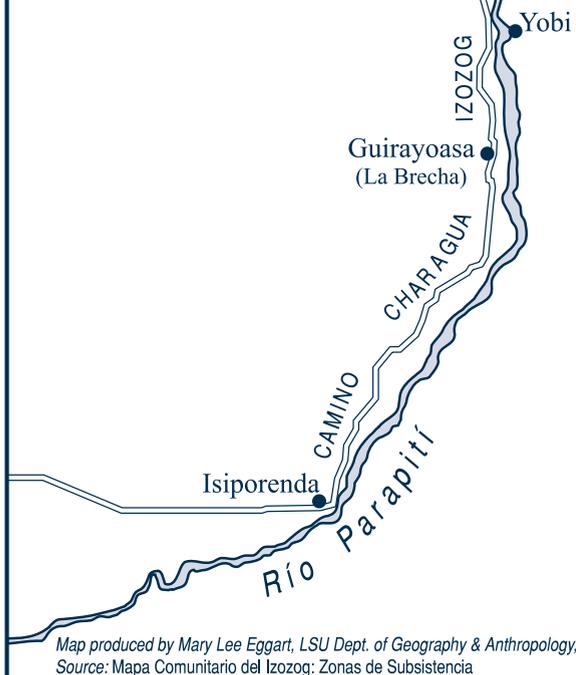
37 *In the absence of rivers, the people of the area orient themselves largely by means of these brechas. Some tracks have all but disappeared through disuse, others serve as trails, and a few are used by vehicles, but virtually all of them have been given names in Guaraní by the local inhabitants.*

EL IZOZOG

SANTA CRUZ, BOLIVIA



PARQUE
NACIONAL
KAA-IYA



Map produced by Mary Lee Eggart, LSU Dept. of Geography & Anthropology, 2000
Source: Mapa Comunitario del Izozog: Zonas de Subsistencia

Figure 18.

Over the years, CABI has been exceptionally successful in its dealings with outsiders. It secured legal title to the bulk of Izoceño territory as early as the 1940s. In the 1980s, it was one of the prime forces in founding the Centro Indígena del Oriente Boliviano (CIDOB), Bolivia's representative to the Coordinadora de Organizaciones Indígenas de la Cuenca Amazónica (COICA), and the Asamblea del Pueblo Guaraní (APG). And it managed in 1994 to have the Izozog designated under the newly enacted Law of Popular Participation as the first Indigenous Municipal District in the country.

KAA-IYA NATIONAL PARK AND THE NEED FOR RESOURCE PLANNING

In April 1995, the CABI established a permanent office in Santa Cruz to be able to maneuver more effectively in the political arena and take charge of its growing responsibilities. When

Robinson of WCS first approached Native Lands, the Bolivian government was on the verge of creating the Kaa-Iya del Gran Chaco National Park and Integrated Management Area, a 3.44 million hectare tract to the east of the Izozog and adjacent to the Paraguayan border.³⁸ Moreover, the government was actively planning to turn administration of the new protected area over to the Izoceños.³⁹ To prepare the way, Andrew Taber, WCS's representative in Bolivia, was working closely with CABI to develop a management plan and help structure an organization for administering the park.

Conservationists saw the protected area as a way to save the last relatively intact remnant of the Gran Chaco and its biodiversity. According to a WCS press release when the protected area was declared, Kaa-Iya Park is "...the largest terrestrial protected area in Tropical America, and is the most significant reserve in dry tropical forest anywhere, one of the world's most critically threatened habitats."⁴⁰ The

38 Kaa-Iya means "Spirit Masters of the Forest" in Guaraní.

39 In September 1995, the Kaa-Iya protected area was legally established by presidential decree, and in November 1995 an agreement was signed giving CABI administrative control over the area. The protected area includes a park of roughly 2 million hectares for strict preservation, and three segments, totaling 1.44 million hectares, for integrated management.

40 A CABI proposal for the protected area, in which WCS's hand can be detected, explains the biological importance of the region: "With twenty-one different habitat types identified it is remarkably diverse...With sixty-six species identified, and an estimated ten more present, it probably contains the highest diversity of non-flying mammals of any protected area in the Americas. Endangered and threatened species found here include: giant armadillo, giant anteater, jaguar, Chacoan night monkeys, the Chaco race of the guanaco, blind armadillos, and the Chacoan peccary. Of these, the latter three species are endemic to the Chaco and are not adequately protected in any other conservation area. Due to its large size this will be one of the few protected areas in the world to guarantee the maintenance of ecological processes." ("Spirits of the Chaco (Kaa-Iya del Gran Chaco) National Park and Integrated Management Area: Protected Area Proposal," CABI; undated six-page document).

Another view of the Chaco's importance comes from historian Bruce Farcau. In *The Chaco War: Bolivia and Paraguay, 1932–1935*, he calls the war "undeniably insane" and claims that it "was fought over one of the most worthless pieces of real estate in existence..."

Izoceños viewed the protected area as a strategy for defending their territory and natural resources from the rapidly increasing incursions of large agricultural enterprises, land speculators, and illegal hunters. These two perspectives share considerable overlap, and both have significant incentives to promote the protected area and take charge of its administration.

Yet a “management plan” is an abstract concept for people who have never consciously managed the wildlife they hunt. It is often difficult to convince them of the necessity for doing what has never been done in the past.

Robinson and Taber saw mapping as a way to guide Izoceños into that unfamiliar territory by engaging both their leadership and communities in a participatory analysis of subsistence patterns, particularly hunting. It would mobilize maximum community involvement, stretched over approximately three months, to produce a concrete result that people could see with their own eyes and hold in their own hands. It would train the Izoceños in the techniques for putting together, interpreting, and using maps, and create an invaluable base of information for any sort of future planning.

ENTER NATIVE LANDS

Native Lands was interested in working in this region for several reasons. First, both Chapin and González had visited the Izozog; they knew the CABI leaders, and there was good feeling on both sides. Second, the issue at stake — indigenous peoples managing a protected area — is one that Native



Lands has been dedicated to in Central America. And finally, we wanted to see how our ideas for improving the mapping strategy developed in Honduras and Panama would function in a different environment.

In November 1995, Chapin traveled to Santa Cruz to talk with Taber and CABI leaders about the mapping. This was an exploratory visit to explain the process, sound out interest among the Izoceños, and check on the feasibility of work in the Chaco. In informal sessions at the CABI office, Chapin summarized the experiences in Honduras and Panama, showing a variety of maps, and this sparked an animated discussion of the objectives, benefits, and implications of mapping.

GROUND PREPARATION AND ORGANIZATION OF THE TEAM

Several days later Chapin journeyed to the Izozog with a small group, including Taber and Marcelino Apurani, an

Figure 19. An aerial view of the Izozog.



Figure 20. A community meeting in the Izozog.

Izoceño leader working with CABI in Santa Cruz. Traveling in a small Suzuki Samurai that belonged to WCS, Chapin and Apurani spent the next 10 days visiting 15 of the 22 Izoceño communities and giving two- to three-hour presentations, including time for questions and comments.⁴¹ These meetings were facilitated by the relative closeness and accessibility of the communities, and the use of shortwave radios that CABI had installed only that month.

Presentations were attended by an average of 35 to 40 people, and covered the practical value of maps, the sequence of the mapping as it had unfolded in Honduras and Panama, and how maps might be used in the Izozog. Chapin gave the initial briefings in Spanish, and Apurani interpreted in Guaraní. Although most of the audience understood Spanish perfectly well, their interest — and confidence — in the message was much higher when they heard it in Guaraní from one of their own people. In the first few communities, Apurani made

a strict, word-for-word interpretation of Chapin's talk; however, he soon caught hold of the implications for the region and began enriching his interpretation to tie the strategy directly to matters in the Izozog.

At the time of this visit, there were virtually no maps of the Izozog in the communities, and none with any useful detail. In the central community of La Brecha (Guirayoasa), the CABI office had two maps tacked to a wall. One was an old government map of the southern section of the department of Santa Cruz, on which the Izozog comprised about 10 centimeters running along the river in the lower left-hand corner. Less than a third of the communities appeared, and most of the names were spelled wrong or misplaced. The other map was a schematic representation of the communities that an Izoceño had penciled by hand on a piece of lined notebook paper.

The notion that the Izoceños themselves, with outside assistance, would put together detailed maps of their territory was attractive from the start. Throughout the region people were unanimously enthusiastic, and we spent considerable time in the communities discussing how the project should be structured. By the time we left the Izozog, all of the Surveyors had been selected for the work.

On returning to Santa Cruz, Chapin worked with CABI leaders to put the

⁴¹ It was the dry season and we were able to cross the sand bed of the Parapití River to visit communities on the other side.

project proposal together. The same general sequence of three workshops interspersed with two field visits was kept, with certain modifications. The number of communities was smaller. Compared to the 174 and 82 in the project areas of Honduras and Panama, respectively, there were only 22 in Bolivia. This allowed each community to select its own Surveyor, which gave us far better coverage of the region. While Native lands took charge of overall project supervision, the administration and on-the-ground management of field activities were handled within CABI. There was no need for a non-Indian intermediary. CABI's role was more clear-cut than that of the indigenous groups in Honduras and Panama, for the Izozog is a single cohesive ethnic and political region.

Funding: Funds to cover the entire project, \$142,000, were secured in January 1996 through the Peoples & Forests component of the Biodiversity Support Program.⁴² Peoples & Forests had a strong interest in participatory mapping of indigenous territories, and we knew some money might be available. However we were pleasantly surprised when informed that full funding was available because a previously approved project had fallen through, freeing up money. This windfall allowed us to focus our attention entirely on program activities.

Logistical Support: In March, Chapin and González spent two weeks with CABI in Santa Cruz visiting government offices, putting together the project team, and making logistical arrangements for the workshops. Together with Bonifacio Barrientos, Evelio Arambiza, Susano Padilla, and others,⁴³ we went to the offices of the Ministry of Sustainable Development, the Military Geographical Institute (IGM), the Prefectura of Santa Cruz,⁴⁴ and the House of Representatives, where we met with one of the representatives. In all of these meetings we explained the mapping in detail and asked for collaboration.

CABI appointed Arambiza as Director of the mapping project. Elva Magali Solis, a non-Izoceño, was hired as Administrator for CABI — to handle the mapping project as well as other activities of the Capitanía. CABI selected three Izoceños as project Coordinators: Walter Ayala, Marcelino Apurani, and Justo Yandura, who was also the project's Guaraní linguist.⁴⁵

We went to the IGM in Santa Cruz and asked for assistance in the form of cartographers and materials (base maps, air photos), but unlike Honduras and Panama, we failed to pry anything loose. The main difficulty stemmed from the fact that IGM headquarters is in La Paz, and the

⁴² This component was later changed to Peoples, Forests, & Reefs (PeFoR).

⁴³ At the time, Arambiza was head of the *Fundación Ivi-Iyambae*, which is the technical wing of CABI; Padilla was the *Capitán* of Lower Izozog.

⁴⁴ The *Prefectura* is the central government office of the department of Santa Cruz.

⁴⁵ Yandura's task was to regularize the spelling of Guaraní words on the map and check on their correctness.

Santa Cruz branch has virtually no autonomy and no resources. An offer was made to send a cartographer our way, but nothing ever came of it. We were told that no competent cartographers were to be found in Santa Cruz, and indeed the “cartographers” who turned up for interviews were in reality something else, such as topographers or soil scientists. After several interviews we settled on Jorge Castellote, a Catalán from Barcelona, Spain, who had been living in Santa Cruz since the beginning of the year. His formal training was in anthropology, but he had traveled widely and picked up a good deal of cartography along the way. He brought to our interview a detailed, carefully rendered map he had been working on of the indigenous areas of Santa Cruz Department. We discussed the mapping, checked his technical skills (which were excellent), vetted him with the CABI leadership, and hired him to work with González.

We managed to secure a few government base maps in their original state from the Agencia de Cooperación Alemana (GTZ), which had been running a comprehensive social development program in the area; the set had to be completed with photocopies. Aerial photographs were practically out of the question. The IGM office in Santa Cruz had nothing, and all that could be found in the Cooperación Alemana office were some worthless marked-up prints of the region from the 1960s and 1970s. If anything more recent existed, we were unable to find it.

The final task was to find a site for the second and third workshops. We were seeking a place that would (1) house up to 50 people comfortably; (2) have adequate facilities for the cartographic work (space, electricity); (3) be isolated from Santa Cruz (to minimize distractions) yet within relatively easy reach (to facilitate access to materials, information, and people); and (4) stay within our limited budget. We were fortunate to find a place that fit the bill perfectly: Cabañas Campeche, an inn/conference center in Samaipata, a colonial town located in the mountains two hours west of Santa Cruz.

Setting the Schedule: The timetable of activities was laid out as follows:

First Workshop	May 6–12
First Fieldwork Period	May 13–26
Second Workshop	May 28–June 16
Second Fieldwork Period	June 17–July 7
Third Workshop	July 9–21

At this point, we left Bolivia, placing all of the project arrangements in CABI’s hands. Castellote hired two assistant cartographers/draftsmen, Samuel Padilla and Alfredo Callaú, and together they gathered together all of the equipment and materials they would need for the mapping. The Coordinators took charge of notifying the Surveyors and the communities that the project would begin with the first workshop on May 6. On April 28, they journeyed to the Izozog to make arrangements for food and lodging, reserve space for the work-

shop, discuss the mapping project with the Capitanes, and make contact with all of the Surveyors.⁴⁶

THE FIRST WORKSHOP

Early in May, Chapin and González returned to Bolivia and coordinated with the Izoceño leadership and Castellote to run the First Workshop in the community of Guirayoasa, in the Izozog. All of the arrangements had been made. The workshop was attended by Boni Chico (the Capitán Grande) and a small group of Izoceño leaders, who introduced the proceedings by underlining the importance of the effort;⁴⁷ Project Director Evelio Arambiza, who oversaw the entire workshop and helped with interpretation; the three Coordinators; the 22 Surveyors, all men with an average age of 32 years; three park guards; and three Indians from the Beni region of northern Bolivia who were to participate in the entire project from start to finish;⁴⁸ and Andrew Noss of WCS, who was working with the Izoceños on surveys of wildlife.

For five days, Castellote, González, and Chapin led the workshop through a series of activities, including devel-

opment of a detailed land use questionnaire,⁴⁹ discussion of how to keep field notebooks, techniques for drawing community maps, and how to conduct a population census of the region. As they got a feel for the material, the Coordinators became more involved in the presentations. The structure of the project, from first to last stage, was explained in detail. Discussions touched on what maps are, how they are assembled and interpreted, and what their uses are. The presentations also zeroed in on basic mapping concepts such as scale, what sorts of information to include and exclude, and how to gather information in the communities. There was time to practice new skills and hone them through critical analysis. All the formal proceedings were in Spanish, with interpretation into Guaraní by the Coordinators and the Arambiza.

In contrast to the workshop in Panama, which lasted a mere two and one-half days and did not deal with technical skills, the five days in the Izozog gave everyone time to chew over the different concepts and digest them. This was facilitated by considerable give and take. Some of the Surveyors said that the first few

46 *The food was prepared by the Izoceño women's organization, La Casa de la Mujer, and served in their building; lodging was secured with the local boarding school and the hospital; and the meeting hall for the workshop sessions was part of the boarding school.*

47 *They all spoke of the mapping as a powerful weapon to defend their lands. Nothing was said about the need to develop a management plan.*

48 *Juan Fabricano and David Bogado are Mojeños; and Severiano Maten is Chimán. They were brought into the project by CIDOB Director Marcial Fabricano to learn the mapping process on the ground for eventual application in their territory. After their work on the Izozog project, they wrote a detailed, coherent proposal for a similar undertaking in the Beni.*

49 *Subsistence categories were agriculture, fishing, hunting, livestock, fruit, medicinal plants, and construction materials. Note that livestock, a major activity in the Izozog, is nonexistent among the indigenous population of the Darién and insignificant in the Mosquitia (to the point where it was not placed on the maps).*

days were confusing, with the barrage of new information coming from all sides. They were unaccustomed to the “schoolroom atmosphere” and had trouble concentrating, so we shifted gears to make training more interactive. The Surveyors drew practice maps and judged them as a group; they broke into teams and applied the questionnaire in the community, then returned to figure out what had worked well and what could be done better.

After five days some Surveyors were still confused, but most had their bearings and a good sense of what kinds of information had to be gathered in the communities and how to go about getting it. This emphasis on providing Surveyors with technical skills for putting together their community maps was a significant advance from the workshops in Honduras and Panama.

FIRST FIELDWORK PERIOD

When the workshop closed, each Surveyor received materials for the first fieldwork period: sheets of paper for the maps, colored pencils, a plastic folder with the questionnaire, notebooks, and plastic tubes to carry the maps. Then they set out for their communities to spend two weeks gathering information. The cartographic team began moving its materials and equipment to the facilities in Samaipata to prepare for the second workshop.

Data gathering proved to be relatively easy because of the preparatory work

done in the communities in November 1995, and in the months before the mapping began, and because of CABI’s unqualified endorsement. It was understood by everyone to be a CABI project. Villagers throughout the region knew that they were going to do their own map and whose property it would be. As one Surveyor put it, “they were excited because finally we were going to have our own map.” In most cases, the Surveyors met with their respective Capitanes immediately after returning home, explained what had happened in the workshop, and laid out the tasks to be completed. The Capitán then called the community together so the Surveyor could tell everyone about the first workshop and explain what the project objectives were and how information had to be pulled together. At this point, people knowledgeable about the region and its resources were assigned to the Surveyor, and together they began working on the map and filling in the questionnaire. A number of teams traveled on horseback to check out some of the more distant areas.

Some women participated directly — providing particularly useful information on medicinal plants — but most informants were older men who knew the bush and had traveled widely throughout the region. All of the advisors were hunters, an activity that regularly took them far into the forest. In one community, the Capitán admitted: “Women don’t know anything about the bush; all they know is the kitchen.” Yet women generally took a strong interest in the project and

made up the majority of those present in several community meetings.

If things went smoother than in Honduras and Panama, it doesn't mean that there were no problems. The fieldwork coincided with the cotton harvest, and many of the men from several communities at the tail end of the Upper Izozog were absent. Fortunately this was not fatal since elders were there who had considerable knowledge of the region and its resources. In one case, though, the Capitán himself was off harvesting cotton. This confused matters until the Surveyor managed to find others in his community ready to help. Some Surveyors were shy and at a loss as to how to begin; a couple of them didn't understand the process well enough after the first workshop and couldn't explain what they wanted to do; one had a chunk of his carefully drawn map eaten by goats. Several communities were apathetic about the project; and one community, from Lower Izozog, had no interest in participat-

ing and didn't even send a Surveyor to the first workshop.⁵⁰

In these cases the Coordinators visited to help out. The Coordinators didn't wait for cries of distress. They journeyed from community to community, explaining the project to Surveyors who didn't have it clear in their heads, commenting on their work, helping them with their maps, and using their political status as CABI representatives to put recalcitrant community leaders in a more collaborative frame of mind (with the Capitán on board there was no difficulty gathering data).

The Surveyors themselves, by their numbers and proximity, were also able to lend one another a helping hand. This sometimes proved to be crucial. Most communities in the Izozog are situated in clusters, with a natural kinship stemming from common origins, and the territory they use for subsistence is essentially common ground.⁵¹ As we had the luxury of posting one Surveyor to each community, there

50 *The community of Aguaraiagua historically has never been a strong member of CABI and has always stressed its independence from the other communities of the Izozog. According to a CABI leader, its people have been heavily influenced by Evangelicals, and "reject the traditional culture of the Izozog." A Surveyor was provided by the nearby community of Yobi, and he worked with several "advisors" from Aguaraiagua, as well as with his own people. This situation was somewhat awkward, but in the end it focused attention on both the community's natural resources and its separatism, causing CABI to confront the problem directly. After the second workshop, Boni Chico and several Capitanes went to Aguaraiagua for several days of meetings in an attempt to bring it back into the fold.*

51 *The Surveyors made these cluster connections explicit during the second workshop so they could work together systematically during the final fieldwork period. The clusters were:*

- *Koopere Loma, Koopere Brecha, Koopere Montenegro, Koopere Guasu, and Kapeatindi*
- *Yande Yari, Kuarirenda, Aguarati, and Paraboca*
- *Koropo, Yobi, Aguaraiagua, and Rancho Viejo*
- *Tamachindi, La Brecha, Ibasiriri, and Yapiroa*
- *Isiporenda and Karapari*
- *Rancho Nuevo, San Silvestre, and Puerto Yuki*

The communities in each cluster are all close to one another and easy to reach; the Kooperes, for example, are strung out in a line with less than a kilometer separating them.

was ample opportunity for them to exchange and discuss information about resource distribution and the location and names of physical features, and to critique each others' maps. They also provided one another with invaluable moral support. The more knowledgeable Surveyors helped out those who were confused or for one reason or another were having difficulties pulling information together.

THE SECOND WORKSHOP

All the Surveyors, the Coordinators, Arambiza, and assorted Izoceño elders journeyed to Santa Cruz on the 25th of May and arrived at Samaipata, the site of the Second Workshop, the following evening. The cartographic team had come several days earlier to set up its drafting tables and assemble its equipment and materials.

Arambiza and Apurani set the tone for the workshop with an inaugural discussion of objectives for the mapping. In descending order of priority, these were (1) the defense of Izoceño territory; (2) education in the schools, and for the Izoceño population in general, about traditional knowledge, history, and linguistics; (3) the gathering of dispersed knowledge about the land and its natural resources; (4) development of a model for community mapping in other indigenous communities of Bolivia; and (5) compilation of information for the natural resource project (supported by WCS).

Over the next few days the Coordinators held group sessions with the Surveyors when they were not

involved with the Cartographers. They discussed their fieldwork in the communities, going over problems and strategies and, most importantly, sharing anecdotes and forming a strong bond through their collective experience. It was generally felt that the leadership of CABI should have visited Samaipata more frequently to participate more fully in these sessions and give moral support to the Surveyors. While participants understood that leaders were often busy with political negotiations and meetings, it was felt that a greater effort could have been made to accompany the process. Beyond this, considerable benefit could have been gained by bringing in speakers to discuss park management and wildlife issues. Although this possibility was raised during the planning stages of the project, it was not realized. Most of the time was passed between the Surveyors and the Coordinators.

At the same time, there was an atmosphere of enthusiasm and openness throughout, and everyone on the project team had the sense of being involved in a fascinating and important enterprise. Unlike Panama, there was no worry over funding, no pressures on time, no conflicts among organizations or ethnic groups or individuals about who was running what, and no confusions about project hierarchy or decision-making.

The cartographic team fit easily within this structure and functioned as a close-knit group. As soon as the Surveyors arrived in Samaipata, Castellote and González gathered

together the packets of information that had been brought in — the hand-drawn maps, the questionnaires, the notebooks, and the census forms. They reviewed these carefully, assigning each Surveyor a code to keep materials organized, and evaluated the quality of raw material available. Then the two held a meeting with the Surveyors and the Coordinators to discuss the workshop structure. Work hours were established from 8 A.M. to 6 P.M., with regular breaks for coffee and snacks and meals.

During the first interview, Castellote and González listened to each Surveyor talk about his fieldwork experience: how information had been gathered, what the dynamic was in the community, how the maps were drawn, what difficulties had been faced, and so forth. They went over each map and questionnaire point by point, having the Surveyor explain the meaning of every cartographic detail, the names and locations of brechas, cattle ranches, hills, trails, etc., examining them from every possible angle. With precise questioning of this sort it was possible to judge the reliability and coherence of the Surveyors' knowledge. The quality of the maps and the questionnaires varied, as did the Surveyors. Yet close inspection sometimes revealed more than met the eye. One Surveyor, for instance, brought in a map and questionnaire that were virtually blank; yet when questioned, he poured forth a wealth of excellent information. In a few cases, both the materials and the Surveyors were equally poor.



Figure 21. Two Surveyors work with Cartographer Nicanor González (center) during the second workshop.

As the questioning moved forward, Castellote and González began to use the common fund of knowledge from neighboring Surveyors by working with as many as four or five simultaneously, in what amounted to group sessions. This strategy, which was absent in Honduras and Panama, brought forth a richer store of information and helped resolve varying accounts. By identifying and relying on those who knew the region well, it also helped fill in data gaps from some areas studied by ineffective Surveyors. Three Surveyors — Eduardo Sánchez from San Silvestre, Gelmo Valdivieso from Aguarati, and Florencio Mendoza (Kori) from Kuarirenda — were particularly adept. They had excellent, detailed information, clearly understood the project and its objectives, and rapidly grasped the cartographic concepts being used. González and Castellote recruited them to help during the sessions with the other Surveyors, assisting them to “cartographically walk through the landscape” and uncover information. Beyond their skills as “paracartographers,” they could explain things to their colleagues in Guaraní — something neither González nor Castellote

could do — and break through the cultural barriers.

González and Castellote drew four new 1:50,000 maps based on the IGM base maps and began filling in the details, constantly comparing the IGM information with data coming in from the Surveyors. In the far north, the first map covered Yande Yari and the Bañados del Izozog, a region without communities. Moving south, the second map had three communities (Kuarirenda, Paraboca, and Aguarati). The third map, covering the most populous area of the Izozog, held 16 communities (San Silvestre, Koropo, Yuki, Yobi, Aguaraigua, Rancho Viejo, Rancho Nuevo, Tamachindi, Guirayoasa, Ibasiriri, Yapiroa, Kapeatindi, Koopere Loma, Koopere Brecha, Koopere Montenegro, and Koopere Guasu). The fourth map, at the southern end, had two communities (Karapari and Isiporenda).

The cartographers used pencils to draw in the brechas, matching them with the IGM coordinates, as well as communities, variations in the river's course, cattle ranches, and hills. When the first drafts were finished, they were passed to the two draftsmen, who made clean copies in ink. During this phase, unlike Panama where the draftsmen labored in isolation unless they wanted to clarify a detail, the Surveyors were present to oversee and verify what was being included in the depiction of the territory for which they were responsible. When these drafts were completed, González and Castellote reviewed them with the Surveyors, double-

checking the details, noting knowledge gaps to be filled in during the second fieldwork period, and adding new information that had escaped previous questioning. In the evenings, groups of Surveyors reviewed the drafts by themselves, taking special note of the spelling of place names (the cartographers had trouble with Guaraní names); then they would discuss their observations with the cartographers the following morning.

The largest gap was in the north, in the region called Yande Yari. This uninhabited zone in the Bañados del Izozog is a swampy area that is seasonally inundated. It is flush with game and contains segments of the river that retain water year-round, making it a prime subsistence area for hunters and fishermen from communities throughout the Izozog. The Surveyor initially assigned to this region was from the community of Yobi. He had been chosen because he was part of an ill-fated attempt to colonize the region the year before, and had, it was thought, more experience there than most. Unfortunately, he was 54 years old, had difficulty understanding the mapping project, and had, as it turned out, only a limited knowledge of the area. Most of his previous time in Yande Yari had apparently been spent at the base camp rather than out combing the bush.

He attempted to draw a map but became terribly confused, and in the end several Surveyors who had experience hunting in the area stepped in to help. Sánchez, Valdivieso, and Mendoza, who live in communities

near Yande Yari, spent considerable time on this part of the map in the second and third workshops, and accompanied the two draftsmen, Padilla and Callaú, on a horseback journey through the region during a field period. A later overflight brought in more information, but despite all of this work, Yande Yari remains the most imprecise piece of the map. What is shown is a relatively good “approximation” of the region.

The technical team and the Coordinators agreed to travel with the Surveyors during their time back in the communities to verify names and places, gauge distances between a variety of locations, and fix coordinates throughout the region using the Global Positioning System (GPS).⁵² Plans were also made for the aforementioned flight over Yande Yari to take some photographs.

The atmosphere surrounding the second workshop was relaxed and friendly, with considerable interaction among Surveyors, Coordinators, and members of the technical staff. The Surveyors moved in and out of the mapping room without restriction, congregated in groups to see how different areas were being mapped, and asked questions about technical matters such as scale, the representation of distances, coordinates, and the use of a field compass. A number of Surveyors spent days in a side room copying maps of the Kaa-Iya National Park and Integrated Management Area

that they had gotten, using equipment from the project. Often in the afternoons, when energy levels dipped, the Surveyors and Cartographers played cards and swapped stories. On weekends they barbecued meat together, strolled through the center of Samaipata, or played soccer. Interpersonal relations were respectful, cordial, and relaxed throughout. This allowed the process to unfold smoothly, and the data gathered were richer as a consequence.

THE SECOND FIELDWORK PERIOD

When the second workshop ended, the Surveyors returned to the field for a period of three and a half weeks. They carried along the draft maps to fill in gaps and correct errors with community members. Beyond this “technical” work, the return of the Surveyors with maps in hand was clear proof that the project was being carried out for the communities and were their property. As a result, more villagers became interested in providing information. For their part, the Surveyors were now armed with a thorough understanding of what the mapping project involved, how the maps were being put together, and what the overall objectives were. Those who had been confused at the outset and had been unable to gather much useful information were now able to carry out their tasks more competently. The Coordinators helped out where Surveyors had experienced

⁵² GPS is a navigation system that uses satellites to transmit signals to receivers, often hand-held devices, on the Earth. The receivers pinpoint a user's location on the Earth with great precision.

difficulties during the first fieldwork period, and a more uniform level of collaboration was achieved.

The technical team encouraged the Surveyors to work systematically in small teams. As previously noted, this essentially institutionalized relationships that had formed haphazardly during the first fieldwork period, when a number of the Surveyors had met on their own to discuss their maps. This was impossible in Honduras and Panama, where the lack of time (the second fieldwork period in the Darién lasted only six days), the large number of communities per Surveyor, and the sometimes formidable distances between communities precluded collaboration in the field. In Bolivia, not only were the data richer and more reliable, but the Surveyors experienced a sense of solidarity from their collective work that was absent in the earlier projects.

The two draftsmen, Padilla and Callaú, spent two weeks visiting the communities to check the exact location of strategic points with a GPS receiver and take compass readings. Working with Sánchez, Valdivieso, and Mendoza, they pinpointed communities, islands in the river, cattle farms, brechas, hills, even abandoned air strips. This made it possible to update the government maps, produced in 1976, and correct a number of errors. For example Yapiroa and Rancho Viejo had recently moved to the other side of the Parapití River.

Meanwhile Castellote and Alejandro Zarzycki, of the Cooperación

Alemana, made an overflight of Yande Yari and the area to the north and took photographs. Unfortunately, the film proved to be of scant value. The Bañados during this season is a largely uniform patch of green, with few land features visible.

THE THIRD WORKSHOP

The third workshop, which took place July 8–18 (including travel time), also met in Samaipata. Again the work went smoothly — so smoothly, in fact, that it was completed in just over a week instead of the 15 days that had been programmed. During the fieldwork period the idea had surfaced of inviting a group of elders from the Izozog to the final workshop, and when the time came, 11 of them showed up. The Cartographers had pretty much finished their work when the elders arrived. Together with the Surveyors and Justo Yandura, who doubled as Coordinator and CABI linguist, the elders spent two days poring over the maps, checking the location of points, and proofreading the linguistic information. During this time, the cartographers usually were absent, allowing the group to take over the maps, make whatever linguistic changes they felt necessary, and comment on the location of physical features. Two factors were at play. First, since all the Izoceños were speaking in Guaraní, the cartographers did not want their presence to break the flow of conversation. Second, the unimpeded creative work conferred a greater sense of ownership of the maps. This in turn grew into a lengthy history lesson that continued

on in group sessions that several times lasted into the small hours of the morning. It brought the young men and the elders together in substantive discussion for the first time that anyone could remember, and was judged to be a tremendous success by all. The sessions with elders were taped and later transcribed for future use in the schools.⁵³

When the Third Workshop drew to a close, the Surveyors returned to their communities. The cartographic team gathered up all the maps and materials and transferred them to the CABI office in Santa Cruz, where they discussed what types of maps should be printed, in what format, and using what symbolism. It was decided that there would be a single 1:250,000 overview of the entire region showing principal physical features and land use patterns; and four 1:75,000 maps of zones within the regional map showing physical features and land use in greater detail. A variety of symbols (such as fish, animals, plants) were selected to depict land use.

In August, Castellote, Padilla, and Callaú spent two weeks in the Izozog checking additional locations. They started in the south and worked their way along the Parapiti River to the north, finally going into the Yande Yari region on horseback with Sánchez, Valdivieso, and Mendoza. On returning to Santa Cruz, they incorporated this additional information into the maps.

CABI had wanted to have the IGM print the maps since the official seal of the Institute would give the maps both technical and political validity. This, however, did not happen. The IGM was difficult to deal with; diplomatic channels with the military were tough-going, the bureaucracy involved was labyrinthine, and on top of all this the IGM demanded \$12,000 for the job — an exorbitant fee. Instead, CABI had the maps printed through a private company for \$3,200. To provide some semblance of official recognition, “Visto Bueno de La Prefectura del Departamento, Santa Cruz” is written in the lower right-hand corner of the regional map (see bound map following page 152).⁵⁴

⁵³ Much of this was later used as raw material for a book about the history of the region: Arakae: Historia de las Comunidades Izoceñas. Santa Cruz: Capitanía de Alto y Bajo Izozog (CABI), 1999.

⁵⁴ “With the Approval of the Governorship of the Department of Santa Cruz.”

10

OUTCOMES

Few consequences of any of the three mapping projects, positive or negative, were readily apparent at the conclusion of work in the field. The maps, of course, were tangible products that could be seen and touched and passed around; and drafts, at least, were available shortly after the mapping was finished. Several months would pass, however, before final maps were printed, and in the Darién, production of the regional map stretched out over a full year.

In Honduras and Panama, especially, the potential uses of the maps were unclear while the mapping projects were under way. All of us, with the exception of the lead cartographer, were new at this business and had only a vague notion of what the payoff for our monumental labors might be. In Honduras there was a sense that the maps would be generally useful in negotiating land rights and for consciousness raising on land and natural resource issues; beyond this, there were no concrete plans for action. In neither Honduras nor Panama did project leaders develop a coherent strategy for using the maps as political, legal, organizational, or educational tools.

This situation arose to some extent because the conscious focus of both projects had been technical rather than political. As earlier chapters have indicated, the political aspects of mapping in Honduras were suppressed as a tactical measure. Project Co-coordinator Andrew Leake was acutely aware that maps might arouse government suspicions, so the enterprise was promoted as a technical innovation in cartography that should not be viewed with alarm. Given the climate in Honduras — then and today — this assessment was justified. Every effort was made to work within the system through persuasion and negotiation rather than confrontation. The Congress that concluded the project brought the government — including soon-to-be-President Carlos Roberto Reina — into the process and in contact with both the issue of indigenous land tenure and the people of the Mosquitia. The implicit goal therefore was political, belying the reticence to hold the kind of open discussions during project implementation that would be needed to develop a long-term strategy for using the maps to defend community interests. Unfortunately MOPAWI's capacity to guide development of such a strategy following the Congress was curtailed when Leake, who headed the Land Legalization Program, left several months later, creating a vacuum.

In Panama the same sensitivities existed, and project leaders tacitly agreed during the preparatory stage to concentrate on the technical rather than the political. In retrospect this restrictive definition of the project seems a bit odd, for none of us would have become involved had the mapping not been a political lever. Yet so much was going on at the time, and personal relationships within the project were so tangled, that no one questioned this stance. Tunnel vision took hold and everyone's energies were locked on staggering through to the end before the walls could collapse. Consequently there was no planning for what to do when daylight was finally reached.

During the next few years, however, one could begin to see that the maps — and especially the process that had produced them — had unleashed considerable forward movement in both the Mosquitia and the Darién. Virtually all of this energy welled up from the bottom, with little direct encouragement from either Native Lands or the support organizations that had assisted with the projects. The indigenous peoples who had participated and now had the maps to work with became focused, for the first time, on the issue of their territorial limits, and they began organizing around this theme.

By the time of the project with the Izoceños and WCS in Bolivia, we

knew about some of these results and had compared our experiences with those of others around the world.⁵⁵ As a consequence, we had in mind a broad range of potential uses of maps and how indigenous peoples were employing them to further agendas that could be and were extremely varied. It was also easier to incorporate this kind of thinking because Bolivia — or at least the Izozog of Bolivia — was not saddled with the extreme sensitivities over indigenous land tenure present in Honduras and Panama. The Izoceños were politically powerful and had relatively good control over their lands. The mapping also fit within a broader strategy of natural resource management of the region. In this context, it laid the groundwork for a number of actions, some of them foreseen and others discovered along the way. From the beginning, discussion of what the maps might be used for was wide open.

This chapter will examine what happened in each of the three countries once the maps were in hand. Not surprisingly, since the mapping took a somewhat different course in each case, the consequences were varied. The contexts differed, as did the institutional structures and capacities of the indigenous groups, and different problems were being addressed in each project. Some consequences of the maps and the mapping process were clearly discernible in the years

⁵⁵ See *Indigenous Peoples, Mapping & Biodiversity Conservation: An Analysis of Current Activities and Opportunities for Applying Geomatics Technologies*, ed. by Peter Poole, Washington, D.C.: Biodiversity Support Program, 1995, for a sample of some of this work.

that followed; others were harder to see but nonetheless important. There were a number of direct and very visible applications in the area of land protection, for example, while others were more subtle, such as the blossoming consciousness of local cultural identity and history. Finally, it became abundantly clear that the mapping was not an end in itself, but a beginning point. In each of the three countries — and later in Cameroon and Suriname — the mapping was a lever to open up a process of mobilizing people's energies and focusing their attention on issues that project leaders sought to address. This is not to say, of course, that everything that followed was brought about by the mapping. Nonetheless, virtually all those involved agreed that the mapping played a pivotal role in the subsequent flow of events.

HONDURAS

The most noticeable effects in the years following the mapping project in Honduras revolve around land protection and titling, the sustainable management of natural resources, and the organizational development of local groups. Education about and public awareness of the first two issues has been widespread, and this has fed a growing appreciation of the unique cultural identity of the people of the Mosquitia. Sometime after the project was finished, several of the older Surveyors remarked that they had

learned a good deal about their history during their work in the field. “We name places after things that have happened there,” one of them explained. “And all those places have stories attached to them.”

After the Congress, the issue of land protection gathered steam. As we had hoped, the people of the Mosquitia began looking at the region as a whole, perceiving how threats were encroaching from several sides. The regional map gave residents a clear view of the entire Mosquitia, and it was widely distributed throughout the region and the rest of Honduras. Local leaders studied it carefully and began formulating strategies for protecting their lands and natural resources. MASTA, for the first time, had a theme on which to focus. Within the next two years, the communities of the region, under MASTA's leadership and following the lines on the map, divided up into seven federations, all of which had a majority Miskito membership. At this point, MASTA evolved into a confederation. These federations and their makeup, as of 1995, included the following:⁵⁶

- ❖ FINZMOS (Federación Indígena y Nativo de la Zona de Mocerón y Segovia) was formed in 1992, containing 15 communities of Miskitos and Ladinos Nativos.
- ❖ ALINASTA (Auka-Laka Indianka Asla Takanka, a.k.a. the Federación Indígena de la Zona de Laka-Auka)

⁵⁶ The *Federación Indígena Tawahka Hondureña (FITH)*, which represents the Tawahka living along the Upper Patuca River, is not included. However it works in a somewhat uneasy alliance with the federations belonging to MASTA without being subsumed under MASTA's leadership. CVT has since changed its name to *Ráyaka*.

was formed in 1993 and contained 33 Miskito communities.

- ❖ KATAINASTA (Karataska Ta Wal Indianka Takanka, a.k.a. the Federación Indígena de la Zona de Karataska) was formed in 1993 and contained 19 communities of Miskitos and Ladinos Nativos.

- ❖ ZORINASTA (Zona Recuperada Indianka Asla Takanka, a.k.a. Federación Indígena de la Zona Recuperada) was formed in 1993 and contained 14 Miskito communities.

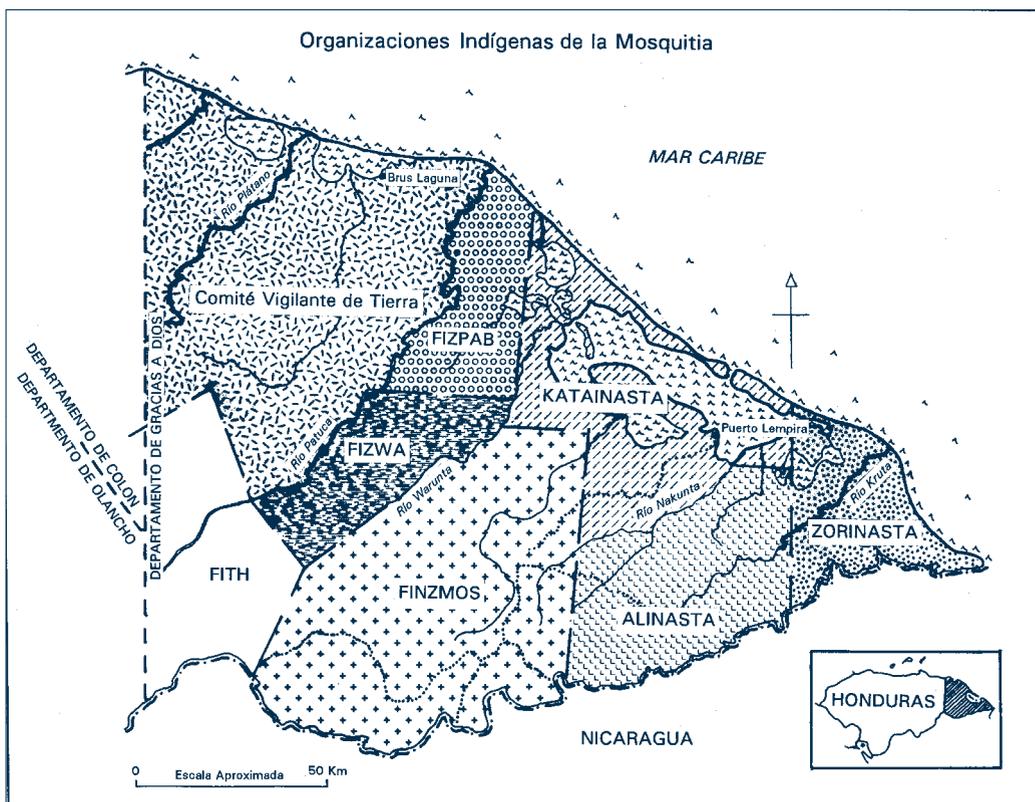
- ❖ FIZPAB (Federación Indígena de la Zona de Patuca Bajo) was formed in 1994 and contained five Miskito communities.

- ❖ FIZWA (Federación Indígena de la Zona de Wampusirpe) was formed in 1995 and included nine communities of Miskitos and Ladinos Nativos.

- ❖ CVT (Comité de Vigilancia de Tierras) was based in the Río Plátano region on the west end of the Mosquitia.

MASTA brought the federations together under its banner, and MOPAWI began providing technical assistance in the form of workshops to discuss specific cases of land invasion and attempts by foreign companies to mine the region's natural resources. By January 1995 this process was well under way, and the people of the

Figure 22.



region were ready when the Honduran government passed an Agrarian Reform Decree that paved the way for as many as 120,000 people to migrate into the valley between the Sico and Paulaya Rivers, which borders the Río Plátano Biosphere Reserve along the western flank of the Mosquitia (see Figure 3 — the Sico River, which is not shown, lies to the west of the Paulaya River). MOPAWI, the CVT, and several other groups immediately launched a campaign to stop this program. After numerous meetings with government officials, peasant organizations (who were in search of land and therefore supported the decree), cattle ranchers, and local people, the colonization plan was scrapped.

From May through July 1995, MASTA, MOPAWI, and the Consejo Asesor Hondureño para el Desarrollo de las Etnias Autóctonas (CAHDEA) worked with the federations to draft a proposal to the government of Honduras entitled “Model Land Legalization in the Mosquitia” (Modelo de Legalización de Tierra de la Mosquitia). The mapping project had helped generate the structure, the focus on land, and the energy needed to produce this proposal.

The 16-page document called for the government to “legalize the property rights of the peoples of the Mosquitia within the framework of traditional subsistence use and its functional habitat, with the object of assuring a process of sustainable development.” It discussed the reality of traditional land use and land categories in the

Mosquitia, the ethnic groups of the region, and legislation dealing with land use, ownership, and “ethnic communities.” Finally it recommended a mixture of collective and individual tenure arrangements, and a joint management scheme involving the local inhabitants (including Ladinos), state agencies, and NGOs. The Modelo was designed as a discussion paper, a first step in opening up negotiations with the government.

A serious handicap in this burgeoning effort was the absence of final versions of the 1:50,000 zone maps (17 in all), which would have specified in much finer detail both physical features and land use patterns. Such maps potentially could be pivotal in negotiating land claims at the local level. Yet it must be said that the manner in which these maps were drawn, with firm lines placed around each zone, has already caused difficulties. When federations emerged based on these delimited areas, several began to say that all the land within their zone, as its map “clearly” showed, was their property. Even though the regional map in fact showed overlap in resource exploitation among virtually all of the zones, some wanted to seal off their borders, which encroached on contiguous zones, and exclude neighboring communities altogether. Thus a number of dormant rivalries surfaced among communities, and it took much discussion before they gradually retreated, at least partially, into the background again. Had this discussion taken place while the project was under way, many of these

antagonisms might never have reawakened.⁵⁷

Since the Model for Land Legalization was first proposed, MASTA, the federations, and MOPAWI have made substantial advances in land protection, natural resource management, and community organization. MASTA, with assistance from MOPAWI, has continued to refine its proposal to have the Mosquitia declared a communal indigenous territory. Collaborative agreements have been signed between MASTA and the National Agrarian Institute or Instituto Nacional Agrario (INA), and the State Forestry Administration/ Honduran Corporation for Forestry Development, or Administración Forestal del Estado/Corporación Hondureña de Desarrollo Forestal (AFE/COHDEFOR). Both government agencies have put forward proposals for resolving the land question in the Mosquitia, and MASTA has responded with counterproposals.⁵⁸ INA has provided community titles to the Tawahka along the Patuca River, and

Tawahka territory has been declared an Indigenous Biosphere Reserve.

In late 1999, INA and MASTA signed a Coordination Agreement on Land Titling. This is a significant step forward. It tries to lay the groundwork to “establish mechanisms of coordination for the legalization of lands of the ethnic communities of the Mosquitia within the framework of the National Convergence between the Government of the Republic and Ethnic Groups (1994).” As such, it represents a commitment by both the government and MASTA “to advance communal titling of the indigenous territory of the Mosquitia” and has provided a forum for discussion on the matter. The discussion continues.

At the same time, AFE/COHDEFOR has been involved in implementing the Proyecto Biósfera Río Plátano, a \$15 million activity with technical and financial assistance from the government of Germany, the German Agency for Technical Cooperation, or Deutsche Gesellschaft für Technische

57 In part, this situation arose because of faulty data on the maps. The amount of overlap among communities in resource exploitation is under-recorded because there simply wasn't enough time to accurately record the ranges of different communities. In critiquing the mapping several years later, villagers noted that the finished products failed on many counts to show how people crisscrossed each others' territories in search of wood, game, fish, and other resources. Put simply, there was a tremendous degree of interdependence among communities and zones that had not been shown. If this interdependency had been made clear and openly discussed, it is probable that none of the federations would have taken such rigid territorial stances.

Before the mapping began in Bolivia, we discussed this issue with CABI leadership, and they decided not to show community boundaries. They explained that people from all 22 communities hunted and fished and gathered a variety of materials in the Bañados (swamps) to the north during the dry season, and even outside this generalized commons, there was so much overlap among villages that any real definition of community subsistence boundaries would be impossible. In retrospect, this would have been a wiser strategy in both Honduras and Panama.

58 For example, AFE/COHDEFOR proposed that the Mosquitia be classified under the category called Fiscal Patrimony of the State, which is included in the Catálogo de Patrimonio Público Forestal Inalienable, or Catalog of Inalienable Public Forestry. While this would have made it possible for communities to get legal agreements of usufruct over territories, it would also open up the region to exploitation by foreign companies.

Zusammenarbeit (GTZ), and WWF. The core of this project consists of a management plan with norms regulating land tenure and management of natural resources in the Río Plátano region, which is located along the western flank of the Mosquitia. MOPAWI has been active in tempering the scientific and regulatory aspect of the project through workshops and community sessions among the Garifuna, Miskito, and Pech peoples living within the reserve.

In sum, the mapping stimulated considerable action in the Mosquitia in two interrelated areas. First, it focused the attention of the residents of the region as well as the government on the issue of land. It spotlighted the porous nature of the borders of the Mosquitia, which were being penetrated with increasing frequency by non-Indian colonists, and the tenuous state of the region's natural resources. Workshops, meetings with communities and local government authorities, lobbying at the local and national levels, consciousness raising and educational forums, exchanges with other Central American groups experiencing similar problems, and negotiation between local indigenous organizations and government agencies such as INA and AFE/COHDEFOR took place. The result has been a series of attempts by all sides to arrive at some sort of resolution to the issue. Thus far only the Tawahka of the Patuca River region have received titles to their land, and even this is partial and inadequate. The other, larger matter of how to settle titling of the Mosquitia as a whole has yet to be resolved, but

at least everyone's attention is now pointed in this direction.

Second, the mapping stimulated organizational development in the communities of the region. A collection of Miskito and mixed federations formed under the leadership of MASTA; the Tawahka federation, FITH, worked in parallel to lobby for their reserve; and MOPAWI supported the efforts in the Río Plátano area as well as other parts of the Mosquitia. Thus far the main issues confronting the region remain unresolved, at least in part because organizational cohesion is incomplete. MASTA led the charge in developing a comprehensive proposal, but its follow-up has been weak, hampered by internal organizational confusions. As of mid-2000, the organization had split into two opposing factions. Meanwhile the government's approach to MASTA and the Mosquitia has been crippled by a lack of coordination among the various agencies involved with land titling, the intrusion of special interests, tepid political will, and plain bureaucratic ineptitude. While this makes for slow and often difficult going, there is a general sense on all sides that negotiations are moving in a positive direction.

PANAMA

In Panama, as the mapping concluded, the tenuous relations among the different groups came unglued. The money we had in hand for the project effectively came to an end. The Emberá moved away from CEASPA and began negotiating with the Inter-American Foundation for financing

what were termed “post-Forum activities.” Roughly a year later funds were received for work in three areas: (1) production of the final maps (in the Cartographic Division of Panama’s IGN); (2) elaboration of a set of Forum Proceedings; and (3) a series of workshops in the Darién to explain the significance of the maps and discuss land issues in general.

In the early 1990s, the indigenous peoples of the Darién found themselves in an increasingly precarious position. Following the overthrow of the military regime in late 1989 and the subsequent arrival of a “democratic” government, capitalist penetration into the indigenous areas of eastern Panama had accelerated. In the vanguard were mining companies, loggers, tourism entrepreneurs, and land speculators banking on construction of the last stretch of the Pan-American Highway through the heart of the Darién. In anticipation of the road, more than \$200 million was being pumped into the region by the European Union, the United Nations’ Global Environmental Facility (GEF), the Inter-American Development Bank (IDB), and the World Bank. While most of this cash was earmarked for environmental projects, it whetted appetites as everyone jockeyed into position to grab a piece of the action. There was intense competition among groups as rumors ran rampant and verifiable facts were few and far between. Accusations of corruption and under-the-table payments fed the

pervasive climate of tension, distrust, and suspicion. To hold onto their lands and natural resources, the indigenous peoples needed a stronger informational base, which the mapping helped provide.

Gradually, and on their own, the Emberá, Wounaan, and Kuna began using the maps in various ways, all aimed at strengthening their organizations and defending their territories. The process of producing the maps had not gone smoothly but it had helped participants envision the region as a whole, and as this took hold, it was followed by a growing realization that the fight for indigenous lands could best be carried out in collective fashion. If the Kuna and the Emberá in the Darién are still not intimate friends, more than ever they see themselves as necessary allies. They are both loosely housed in the Coordinadora Nacional de Pueblos Indígenas de Panama (COONAPIP), a confederation of Panamanian indigenous peoples; and they work together on a variety of projects.⁵⁹

All of the groups involved have used the maps to petition the government for title to their lands. The two Kuna groups, Wargandi to the north and Takargun Yala to the south, presented the government with proposals to legalize their territories, basing their claims on the 1:50,000 maps. In 2000, after lengthy legal and political maneuvering with the assistance of Dobbo Yala, a Kuna NGO, a law creating the

⁵⁹ *The Kuna are divided among themselves. The two groups living in the Darién (Wargandi and Takargun Yala) are members of COONAPIP, while the Kuna of Kuna Yala on the Caribbean coast are not.*

Comarca of Wargandi was enacted by the National Assembly. This occurred even though the Panamanian executive branch had long expressed its lack of interest in creating new comarcas. The Takargun Yala Kuna are still negotiating with the government for disposition of their claims.

For their part, the Emberá living outside the Comarca Emberá Drua have also been using the maps to seek legal title to their lands. Because of the government's entrenched unwillingness to grant new comarcas (at least before the success of the Wargandi Kuna) these Emberá have been pursuing a somewhat lesser category of tenancy termed *Tierra Colectiva*, or *Collective Land*.⁶⁰ They are attempting to claim territories adjacent to existing Comarcas, a move which essentially expands them. However even without legal title to these lands, the maps showing indigenous occupancy of the region have political weight. Several years after the maps were produced, an outsider approached the Agrarian Reform Institute about securing a plot of land in the Darién. He was told that he could submit a petition but was also advised to look at the "Indian map" before taking any action. After seeing that the land he wanted was in the center of an area defined as indigenous territory on the map, he withdrew his request.

In their negotiations with both government and international institutions, it is clear that the indigenous peoples have learned at least the rudiments of cartography. During the process of constructing the maps, they absorbed, largely informally, the basics of reading, interpreting, and using maps. In dealings with some government agencies, for example, they have shown a better understanding of maps and more skill in using them than the officials with whom they are dealing across the table.

Because the maps were printed by Panama's IGN, they are viewed as technically valid and credible legal documents. As previously mentioned, the IGN did an internal evaluation of the quality of the maps when the project was over. After concluding that they were the most accurate and detailed maps of the Darién in existence in Panama, it went on to use them to update the official map of the nation.

The maps have served as an important database that indigenous peoples can use to negotiate better terms among the gigantic projects currently being imposed on the region.⁶¹ The local groups now have a good sense of the region as a whole and know how to interpret and use maps to their advantage. While this does not ensure equal

⁶⁰ *Comarcas have a legislative mandate that ensures semiautonomous local government through internal legislation, while Tierras Colectivas fall under administrative law and do not confer local rule.*

⁶¹ *The largest of these include BioDarién, backed by UNDP, the Project for the Sustainable Rural Development of the Darién - ProDarién, under the charge of the International Fund for Agricultural Development (IFAD), the Program for the Sustainable Development of the Darién of the IDB, and the Mesoamerican Biological Corridor Project being implemented by the World Bank.*

participation, it does give Indians a seat at the table. And it makes it more difficult for outsiders to hoodwink the locals by manipulating maps, since the best maps belong to the Indians.

BOLIVIA⁶²

The Izocoños were relatively well organized prior to the mapping work, and they had a framework in which to place the final product.

While the Izocoños initial interest in mapping was based primarily on a desire to secure control over their traditional homeland, this soon became linked to an increased sense of their own responsibility for the management of the natural resources within it. Before this, their notions of “land management” for the region as a whole had been vague; the mapping helped them systematize their knowledge of the ecosystems they inhabit and exploit, and gave them a much broader view of the region.

People in the Izozog tend to perceive their situation from the perspective of a single family or cooperating group of families. Mapping helped Izocoños place their subsistence activities — hunting, fishing, gathering, herding, farming — in a much larger geographical context. It gave them an eagle’s eye view of their region, enabling them to understand that processes occurring outside their immediate area of interest can have profound, and often detrimental,

implications for their livelihood and well-being. The mapping made it possible to pool knowledge that was scattered since productive activities are rarely organized beyond the level of an extended family or a group of cooperating households. The shared experience of working on the project awakened an interest in systematizing traditional knowledge of the ecosystem that might otherwise have vanished, as it has among groups in so many other areas. Topics that have been particularly important include the harmful consequences of deforestation along riverbanks (which people linked to a major flood in 1998) and the nutritional value of traditional subsistence foods (such as *cupesi* flour) that have been replaced by inferior products such as store-bought noodles and other processed commercial staples.

The mapping work also enabled people to begin to think about organizing on a larger scale, specifically with regard to activities to preserve and manage the entire region’s natural resources. This was a crucial first step in establishing the Kaa-Iya Protected Area. It helped the Izocoños see beyond the matter of controlling their territory and preventing outside encroachment, to managing its resources so that secure livelihoods might be gained from sustainably exploiting communal lands.

This has not distracted the Izocoños from their original interest in gaining

⁶² This section is based largely on comments by Michael Painter, who is currently working with CABI on the Kaa-Iya Protected Area Project.

legal title to their territory, but reinforced it. They are currently seeking control over a 1.9 million hectare territory that borders the Kaa-Iya Protected Area on the west. This territory would be classified as a Tierra Comunitaria de Origen (TCO), or Communal Territory of Origin.⁶³ Once this area has been titled, the Izocéños will be required to develop a management plan that specifies zones for different kinds of land use and lays out an accompanying investment strategy. As the Izocéños ponder the implications of this, they have also begun to see the possible advantages of managing the protected area and their TCO as an “integrated unit,” based on a regional land use strategy. If they manage to achieve this goal, it will bring some 5.3 million hectares (1.9 million hectares in the TCO and 3.4 million hectares in the Kaa-Iya Protected Area) under their control.

Of course, it would be an exaggeration to claim that this regional strategic vision was simply a byproduct of the mapping exercise. Some of the Izocéño leadership had already been moving in this direction, which was why they were interested in the mapping, the creation of the protected area, and the entire experience of the Kaa-Iya Project in the first place.

There were also other formative experiences along the way, such as their dealings with the challenges posed by the Bolivia–Brazil Gas Pipeline, hydrocarbon exploration and exploitation concessions in the protected area, and the negotiations for a TCO. However, the mapping came along at a crucial time in the process. The Izocéños have traditionally viewed the presence or absence of wildlife and other natural resources as being under the control of the Iya (spiritual stewards of the land), and not subject to human actions. The mapping gave them a wider perspective and allowed them to begin to see that human behavior can and does have an impact on resources, although usually at a scale that is beyond the control of single individuals or households. This showed them not only how ecosystems could be degraded, but also how their collective actions can improve the resource base.

This incipient understanding of what management entails is being nurtured in the third phase of the Kaa-Iya Project. One of the more interesting and successful efforts has been with the project’s applied biological research component. Izocéño parabiologists and hunting monitors are collecting data on wildlife location,

⁶³ The TCO provision is part of the Agrarian Reform Law of 1996, which is generally known as the Ley INRA (INRA is the Instituto Nacional de Reforma Agraria, the government entity responsible for granting land titles). A TCO can be granted to an indigenous people with a shared cultural tradition who can also demonstrate continuity of residence in an area. A TCO can be considerably larger than the area currently occupied by a people if they demonstrate that the land was theirs historically and/or if they demonstrate that the larger area is critical for carrying out essential productive activities. The first TCO was granted to Ayoreode organizations in the region between the Kaa-Iya Protected Area and Puerto Suarez on the Brazilian border. CABI expects to receive its TCO sometime in 2001. TCOs are territorial units in accordance with the definition of Convention 169 of the International Labor Organization (ILO); however, Bolivian law permits use of the word territory only in the context of the National Territory.

numbers, and condition. They then report the results to the communities, where the implications are discussed. Because of this hands-on approach, abstract information becomes concrete and new ideas spring from traditional settings. Thus discussions of how certain diseases are shared by livestock and game have helped people understand how management principles they use in their own homesteads may also be usefully applied to wildlife.

Mapping has had a direct impact on land titling, which is based to a large extent on written documents. The maps make these documents more accessible and easier to talk about. Those who have trouble working their way through a title document can express themselves forcefully and articulately when supported by a map that provides a picture of what the document says. This is important because it enables people to understand what their situation is at any given moment, and to develop proposals. The improved capacity to absorb information and to make proposals has also been crucial in bringing more people into the design of a management plan for the protected area. It has also created a broader base for addressing the potential environmental and socioeconomic consequences of hydrocarbon development from construction of the Bolivia–Brazil Gas Pipeline through the northern part of the Kaa-Iya Protected Area and from concessions located in the park and the Izoceño TCO.

The mapping has played an important role in environmental education. First,

it has helped people visualize and talk about diverse resource management issues. The team working in the biological research component, for instance, uses the maps in community meetings to talk about wildlife population ranges, and possible management actions. It must be said, in this respect, that the maps have not been as useful as they could have been since some details are inaccurate and not all the information gathered made its way into the final drafts. Rather than being deterred, however, the team works with the communities to continue adding and correcting information, skills that were learned in the project and are still being used. The environmental education component of the project has also used the maps as a framework for their presentations, where they have proven to be useful tools, particularly in the more formal context of the schools. This led to the production of a new map of the region utilizing the drawings of some of the children.

Finally, the mapping project has stimulated efforts to recover and preserve the history of the region and its people. Place names have layers of stories behind them, many of which were brought to light as the elders proofread drafts for the maps. As word of the stories spread, so did interest among the Izoceños about their origins and legacy. Exploration of the past has fleshed out significant occurrences in the evolution of the Capitanía de Alto y Bajo Izozog, and led people to reflect on how their ancestors dealt with the land and its natural resources in ways now largely

forgotten. One product of this interest has been the completion of a book on the history of the Izozog communities, compiled by a team of Izoceños in

1999.⁶⁴ The initial data for the book were gathered as part of the community mapping project.

⁶⁴ Arakae: Historia de las Comunidades Izoceñas. Santa Cruz: *Capitanía de Alto y Bajo Izozog (CABI)*, 1999.

11

SUMMING UP: A GUIDE TO ETHNOCARTOGRAPHIC PROJECTS

The preceding pages have attempted to lay out the process we followed to devise and fine-tune a particular methodology for participatory mapping. Our first two efforts, in Honduras and Panama, were exploratory and did not follow an explicit work plan. Upon completion, we had the sense that both projects had been relatively successful. The underlying concept was powerful, but the execution of the two projects — especially the second — had been incomplete or marred, exposing a number of weak spots and deficiencies. This prompted us to reconstruct what had happened in detail, inspecting each stage and analyzing the context in which it unfolded. We sorted out the bad from the good, strengthened promising elements that had fallen short, and fine-tuned the methodology as much as we were able. Chapters 1 through 8 relate how we checked and cross-checked our field experience as we mapped out the mapping process for ourselves.

In 1996, an opportunity arose in the Izozog region of Bolivia to apply the lessons we had learned. Chapter 9 shows how the methodology, reformulated through our earlier analysis, proved itself in action. We now had in hand a procedure that was flexible and open and could be altered to fit the local realities of the people who would use it. Just how flexible and wide-ranging it can be is suggested by the task we would take on two years later, in very different circumstances, in the West African Republic of Cameroon, and then again in 1999 among the Tirio Indians in southwestern Suriname. As these various projects have unfolded, we have kept up our close observation and critical evaluation, and as a consequence our understanding of participatory mapping continues to evolve. We have learned from what went unexpectedly awry as well as what went surprisingly well, and we have identified pitfalls to be avoided and opportunities to be seized and amplified. The result is a much clearer sense of what works and what does not, what the critical components of successful projects are, and how to go about constructing a methodology that functions effectively and efficiently. The “discussion” sections of previous chapters and the whole of Chapter 10 track that evolution and the consequences of the mapping process.

In this chapter, we summarize the essential lessons of this ongoing process of reflection, experimentation, and retooling. The steps of the methodology are laid out in its most effective form, as we currently understand it. In describing this sequence, we add, at various points in the narrative, a number of observations that spotlight issues of critical importance in the implementation of com-

munity mapping projects. Since the number of case studies is still limited, we expect this methodology to continue to evolve as it is put into practice in new settings with new participants.

Since we do not consider the process closed, others wishing to use this general structure as a guide for their own participatory mapping projects should feel free to alter the nature of the component parts to fit their own needs. The structure is relatively straightforward, consisting of initial ground preparation before moving into three workshops interspersed with two fieldwork periods, to be followed by production of the final maps. How this plays out in practice will vary in accordance with local realities. Even the structure itself may be modified — truncated or expanded — to fit special circumstances. Each project has its own specific configuration of objectives, social organization, population density, territorial size, and financial and human resources. Accommodation of these factors, always different, into a functional whole will demand on-the-spot adjustments.

Many indigenous peoples have thought about mapping their territories, for one reason or another, and some have even attempted to do so. What they have generally lacked is a coherent methodology for the work, along with adequate technical and financial resources to carry it out. As a result, what they have produced is weak, more “folkloric” than “scientific,” and of limited utility. The process described here provides a structure in which a group can move in orderly fashion through a series of steps that result in maps that combine the best of folkloric and scientific traditions. Because they reflect local knowledge and have the rigor of cartographic science, they are valuable tools that serve a variety of purposes. Most certainly there are other ways to skin this particular cat, but the strategy we have followed works, and is the one we understand most completely.

1.0 SETTING UP THE PROJECT

If done correctly, this is the most time-consuming phase of the entire sequence. Before any of the actual work is launched, all elements of the project team must be assembled, funds must be raised, and the preparatory work must be carried out on several fronts simultaneously. This may take as long as six months to accomplish. The degree to which care is taken here is crucial to the smooth functioning of the project as a whole.

1.1 Selection of a lead institution:

While the project is a collaborative effort among several organizations and communities, there must be a lead institution that gives direction to the work and provides a structure for making decisions both large and small. Projects of this sort involve a relatively complex logistical schedule over a period of approxi-

mately six months, including all of the ground preparation work. In the initial phase, there is a need to set up appointments with government institutions, locate cartographers and put them under contract, make arrangements to visit communities and discuss the project with indigenous leaders, and lay out a schedule for the entire project. Once the mapping proper begins with the sequence of workshops and fieldwork periods, everything must flow without interruption for approximately three months. The lead institution will be responsible for organizing travel to and from the field, making arrangements for workshop sites, obtaining cartographic materials in timely fashion, and contracting for final production of the maps. For all these reasons, selection of a strong, capable lead institution is critical to project success.

1.2 Development of a project work plan:

The work plan should be developed collaboratively, with full participation of representatives from communities whose lands are to be mapped. Often the lead organization will be the primary force behind project design, but the process should still be as collaborative as possible. Because there are so many details involving the communities, on the one hand, and the technical aspects of cartography on the other, all sides must be consulted and brought into the planning process. The work plan includes descriptions of the management structure of the project, the various subteams (administrative, technical, community), work in the communities, and the sequence the project will follow to produce the maps. It also includes a detailed budget.

1.3 Fund-raising:

While it would be ideal to have all of the money in hand before the idea of mapping is proposed in the communities, this is generally difficult if not impossible, for input from indigenous leadership is essential in drafting a proposal to obtain outside funding. In any case, sufficient financing to carry the project through to completion must be guaranteed before the mapping itself begins. If the work plan has been developed and the communities are ready to move, but funding is still lacking, there is often a strong desire to begin anyway. This should be resisted. The project schedule is fast and demanding, and there is no time to devote to fund-raising once the project has gotten under way. A financial shortfall while things are moving will halt activities in midstream and cause all manner of difficulties.

Project budgeting:

Project expenses include salaries of project staff for the duration of the project, travel (to and from workshops, internal travel in the communities, field visits by Coordinators and technicians), rental of facilities for workshops, materials, technical support, and production of the final maps. Researchers⁶⁵ receive a daily honorarium that covers expenses for the period (about three months) when the project keeps them from supporting their families; average honorariums were between \$6 and \$8 per day in all of the three projects. Project Coordinators, who are generally indigenous leaders from the region being mapped, are paid slightly more.

⁶⁵ As noted in footnote 3 on page 8, in the later stages of the evolution of the methodology we settled on the term "Researcher" instead of "Surveyor," which was used in the earlier projects. We have therefore used Researcher in this final chapter.

1.4 Ground preparation in the communities:

During the months leading up to the mapping proper, project leaders and tribal authorities make a systematic sweep through the communities included in the project. These visits provide an opportunity to discuss the objectives and importance of the mapping and explain the methodology to be employed. At this time, each community's leaders should begin the process of selecting a Researcher who will gather cartographic data in their region. Discussion of the project in the communities will assure that everyone is ready to carry out the activities in the work plan and is committed to the objectives of the project. Failure to do this will invariably give rise to delays in the work schedule (while communities have the project explained to them) and even foot dragging (because communities have not been adequately informed and are offended).

1.5 Ground preparation with government agencies:

The project team visits government agencies with some influence over indigenous peoples and their lands, and more specifically with the institution (or institutions) charged with mapping national territory. Because of the potentially incendiary nature of mapping indigenous lands, people in key areas of the government need to be informed about the project. On the most basic level, permission to proceed with the project, without official obstacles, has to be sought; beyond this, technical collaboration from government mapping agencies can be solicited. Government mapping agencies — which, in Latin America, are often run by the military — have in their possession crucial cartographic information that will be critical for the mapping work; and they can also supply cartographers for the project.

1.6 Putting together a technical (cartographic) team:

A team of two to three cartographers and some draftsmen — depending upon the magnitude of the project — are selected for their technical skills, their attention to detail, their interest in working with indigenous people, and their interpersonal skills. Firsthand knowledge of the region being mapped is useful but not necessary.⁶⁶ Local cartographic talent — as opposed to imported technicians — should be sought so that capacity for mapping of this type can be created in the country. As mentioned in 1.5, government technicians, if possible, should be recruited for the

Work with local cartographers: Competent cartographers can be found in most countries, and every effort should be made to use local human resources. There are several reasons for this. First, local technicians understand the political context better than outsiders; they invariably have connections that can provide access to cartographic materials and equipment; and they often have some familiarity with the region being mapped and the indigenous people involved. All of these dimensions are important, if not critical, for the smooth functioning of the project. Beyond this, during the course of the project they will learn how to use the methodology for participatory mapping. With this experience under their belts, they will be in position to carry out further mapping projects either with the same indigenous groups (as occurred in Suriname) or with other groups in other parts of the country (as occurred in Cameroon).

⁶⁶ In Honduras and Panama, the lead cartographer had firsthand knowledge of the region being mapped. In Bolivia, neither of the two cartographers knew the region. In Suriname, the cartographers were familiar with the government base maps of the region but had never been to the field. In Cameroon, the lead cartographer knew the region but the cartographers from the National Cartographic Institute did not.

team; this brings technical expertise (which may otherwise be scarce in the country) and lends credibility to the project and the maps when they are produced.

1.7 Assembling cartographic materials:

The technical team begins its job by gathering all available cartographic materials pertaining to the region being mapped. These include government base maps, aerial photographs, satellite imagery, and any other relevant maps. The team evaluates the quality of these materials and the extent to which they cover the region, and takes steps to fill in any gaps. Simultaneously, they assemble equipment and materials such as drafting tables, lamps, computers, stereoscopes, pencils, pens, and paper for use in the second workshop.

1.8 Organizing a community team: The community team consists of village Researchers and Coordinators who supervise their work. The number of Researchers in relation to the number of villages can vary; we have found that a one-to-one ratio is ideal. The Researchers are natives of the communities being mapped and are selected by community leaders. Yet the project team should have some control over the process since village leaders often do not fully understand the attributes the Researchers should possess to be effective, and favoritism and nepotism sometimes play a role in selection.

The ideal Researcher: Researchers should have the following characteristics: (1) be respected members of the community; (2) be literate, since considerable writing is involved; (3) be familiar with the bush; and (4) be dedicated to the well-being of their community. Age is also a critical factor. Those who are too young — despite knowing the bush and being literate — generally do not command the respect of elders and find it difficult to gather information in the community; and those who are too old often have poor eyesight (few wear glasses) and may have rusty literacy skills that make it difficult to record information properly. In Cameroon this issue was skirted by the decision to select two Researchers for some communities: one literate but with limited bush experience, the other illiterate but with extensive bush experience. This functioned nicely in Cameroon because the people selected worked well as a team. The tendency of some communities to simply select the chief's son, even though he lacks the needed qualities, should be avoided.

The matter of gender: In the five projects we discuss in this monograph, none of the Researchers were women. Village leaders were charged with choosing the Researchers, and in each case they chose only men. Travel among communities was involved in Honduras, Panama, and Bolivia, and to a certain, more limited extent in Cameroon and Suriname, and this was deemed too dangerous for women. It was also argued in the first three countries that women did not know the bush well because they seldom ventured far from the community. In Cameroon women were more thoroughly involved in subsistence activities and strayed with greater frequency from their villages; yet none were chosen as Researchers.

While outsiders should not impose their own choice of Researchers, it is both legitimate and important to bring up and discuss the matter of gender while the selection process is under way. Women in many cultures are in charge of key subsistence activities and will consequently be the most appropriate choice for gathering data about those activities. If the area being mapped is close to the village, women may have better knowledge of it than men.

2.0 THE FIRST WORKSHOP

For the first time the entire team is brought together in one place, face to face, to receive orientation regarding the objectives and methodology of the mapping process. The workshop can be held in the field, in one of the villages, or at a facility in a large population center; four of the five projects cited in this monograph held this phase in the field, in the project area (the exception was Cameroon, where it took place at the provincial capital facilities of the lead organization, the Mount Cameroon Project). Indigenous leaders, Researchers (who have already been selected by their communities), Coordinators, and members of the technical unit are all present. Aside from the project team, the presence of indigenous leaders is important since the presentations and discussions will give them a comprehensive introduction to the mapping work so that they can defend the project if the need arises down the line. Five days to a week should be set aside for the workshop, to allow for ample airing of what is involved and to give the project team a chance to begin building a relationship of trust and respect.

2.1 General explanation of maps and mapping:

Because most indigenous peoples have never had more than minimal exposure to maps, a first step is to discuss what maps are and how they are used. Examples can be used from other regions, then applied to the area where the mapping is being done. Thematic maps showing vegetation, climate, political districts, protected areas, population distribution, and so forth are good examples of the different uses of maps. This will lead into a discussion of possible uses of the maps that are going to be produced.

The project as a training exercise: It is extremely important that the mapping be considered as an opportunity to teach the indigenous participants as much about maps and mapping as possible. It is generally the case that before the project begins they have little or no exposure to maps. The cartographers must take time to explain what maps are and how they have been and might be used so that indigenous people can learn how to read, interpret, construct, and use their own maps. This requires a two-way dialogue that allows knowledge to flow both ways, in an atmosphere that engenders open and easy communication.

These skills will prove invaluable as the indigenous people later negotiate land claims, define their territory, deal with outside threats, and involve themselves in planning activities. The participatory mapping process provides them with knowledge that, at the very least, puts them on the same level as government officials and conservationists with whom they need to deal. Indeed, it often confers an advantage since few government officials outside of employees in the mapping institutes have been trained in cartography. Of course, the reasons for transferring mapping skills are self-evident: what purpose do maps serve if those who possess them don't know how to read them?

2.2 Data-gathering strategies:

Project leaders discuss three strategies for gathering data in the communities. These are (a) drawing sketch maps of the physical features and land use patterns of the region, (b) administering a questionnaire on land use, and (c) writing down supplementary information in notebooks. The questionnaire is developed in the workshop, as is the symbolism for the map. The Researchers practice drawing maps of areas they know well, from memory, and these are hung on the wall and critiqued by the group.

2.3 Assignment of data-gathering responsibilities:

Cartographers work with Researchers to divide up the region into zones that will be the responsibility of each of the Researchers. Note will be made of areas of overlap, with an eye toward collaboration among Researchers and cross-checking the information that is gathered.

Size and complexity of the area being mapped: The methodology used must be designed so that the project is logistically and cartographically manageable. The primary considerations are the number of communities in the project area, their proximity to each other, and the size of the communities (in our work, communities were small, generally with fewer than 1,000 people). Size of the territory in which the communities are found is important but secondary to the number of communities. However, if the territory is too large and communities are distant from each other, travel can be difficult and cause disruptive delays in the project schedule.

Ideally, there should be one Researcher per community. If some communities are near each other and closely related (usually by kinship), some of the Researchers may handle two or even three communities. More than 20 to 25 Researchers in the process becomes unwieldy on the cartographic end. The technical staff can be beefed up with more cartographers, of course, but this increases logistical demands and makes coordination of the project a greater challenge. As a general rule, the maximum number of communities will be about 30. If the number is greater, the project can be carried out in stages.

3.0 THE FIRST FIELDWORK PERIOD

During this phase, the Researchers gather data on physical features and land use of the zones they are covering. The time spent doing this depends to some extent on the size and complexity of the region; we have found that a period of up to a month is advisable, no matter what the area's size is, to encourage discussion in the communities. During this time, the technical team will backstop in the field and make preparations for the second workshop.

3.1 Entering the community:

Researchers meet with village authorities and discuss the mapping project: its purpose and objectives, expected benefits, field methodology, and what is expected of the community. Village meetings should follow to bring everyone into the project and enlist support for the data collection. Although the project team has — ideally — visited the community to discuss the project, the Researchers are fresh out of the first workshop and, hopefully, have a very clear vision of how things are being run. At this point, villagers should be ready to get down to business and begin compiling information for the maps.

In Cameroon, most of the project team — including the cartographers — entered the communities several days after the Researchers had arrived. A joint “inauguration” ceremony was held to formally present the mapping project to community leaders. This was very effective, for it gave an official stamp to the process and ensured that everything was clear from the beginning.

3.2 Gathering information:

Researchers and village authorities devise a village-specific methodology to gather information for the questionnaire, the map, and the notebook. Data-gathering systems differ from indigenous group to indigenous group, so they should be set up on the spot. Researchers get in touch with villagers who know the bush well — hunters, medicine men, elders — and begin to work with them systematically. Most of this information is in the heads of local people; only a limited number of field visits have to be made. During this period, a number of villagers should review the data to see if there is consistency. Researchers should visit each other to compare notes and reinforce each other's work.

3.3 Supervision of data gathering:

During the time that the Researchers are in the field, the Coordinators and cartographers should visit them to evaluate their work and provide assistance where needed. Although this is sometimes difficult where communities are isolated and hard to reach, this sort of guidance is extremely important. If Researchers are off-track, they can be set straight right at the start and little time will be wasted.

3.4 Preparing for the second workshop:

While the Researchers are in the field, the technical team sets up its equipment and assembles cartographic material at the locale to be used for the second workshop.

4.0 THE SECOND WORKSHOP

This is when the Researchers and the cartographers begin to work together to transcribe the field data onto new, cartographically accurate maps. Sufficient time — at least three weeks — should be set aside for this stage. The second (and third) workshop are often held in the city.

4.1 Arrival from the field:

As soon as the Researchers arrive, the technical team has them assemble their questionnaires, hand-drawn maps, and notebooks in individual folders. The cartographers, together with the Researchers, evaluate the quality of the data and their completeness, and then add relevant base maps and aerial photographs to the folders.

4.2 Transcribing field data onto new maps:

The Researchers work individually with the technical team to transcribe their information onto newly created maps. They begin with the river systems, filling in creeks and tributaries, then adding swamps, hills, and other land features, making revisions to government base maps where necessary, and giving the physical features names. Finally they begin to plot land use patterns (hunting, fishing, agriculture, gathering, etc.). This work goes back and forth, comparing the data in the questionnaires, the hand-drawn maps, and the notebooks with base maps and aerial photographs.

Open discussion among cartographers and groups of Researchers with overlapping and shared knowledge of subregions should be promoted. In this way, differences of opinion can be resolved and data verified on the spot to minimize the number of questions to be resolved in the final field visit.

4.3 Noting problem areas:

The cartographers note holes in data that cannot be filled, areas that Researchers will have to check on when they revisit their communities. Draft versions of the new maps are prepared, with question marks and notations clearly indicated for Researchers to correct in the field.

4.4 Receiving visitors:

Project staff should invite government officials, NGO representatives, and other interested parties to experience the workshop in action.

4.5 Activities during downtime:

Activities should be structured to keep Researchers occupied when they are not engaged in transcription with the technical team. Tribal authorities can lead some of these activities; videos dealing with conservation, forests, and indigenous peoples are always a welcome diversion; and the cartographers can give the Researchers informal classes and practice sessions dealing with maps and mapping. These activities should be carried over into the third workshop.

5.0 THE SECOND FIELDWORK PERIOD

In this phase, the Researchers return to their communities for verification of the cartographic transcription, filling in gaps, and clearing up confusions. It need not be as long as the first fieldwork period but should allow enough time for villagers and Researchers to ponder the maps thoroughly, analyze them critically, and come to conclusions on fuzzy or disputed matters. Three weeks is usually sufficient.

5.1 Verification of data & filling in holes:

The Researchers return to their communities with the draft maps, questionnaires, notebooks, and census forms to check on details. They show the draft maps to the entire community, then work more closely with the people who were their sources of information during the first fieldwork period. They double-check the spelling of names and the farthest extent of subsistence ranges.

5.2 Group meetings of Researchers:

During the course of the second fieldwork period, neighboring Researchers gather together to discuss their work, compare notes, and generally support each other.

5.3 Support from the technical team:

Several members of the technical team visit the Researchers in their communities during the fieldwork period to help out and evaluate their progress. They help structure the questioning to root out final details, and, if desired, also fix some coordinates with the GPS.

6.0 THE THIRD WORKSHOP

The final workshop is most often held at the same site as the second workshop. This period is dedicated to correcting the maps and putting in the finishing touches so that they achieve their final form. The magnitude of that task will determine the length of the workshop; in normal circumstances, it should last no more than a week to 10 days.

6.1 Final transcription of community data:

The Researchers reunite with the cartographers to correct the draft maps and fill in holes. Question marks are removed, spellings corrected, landmarks verified or moved.

6.2 Drafting detailed community maps:

The technical team completes the final versions of community maps showing the details of resource use. These might be at a scale of 1:100,000 to 1:25,000.

6.3 Construction of a regional map:

A regional map of the territory covered in the project (at, perhaps, 1:500,000 or 1:250,000) is pieced together, like a jigsaw puzzle, from the community maps. This map shows the broad outlines of land use, but lacks the specific fine-grained detail of the community maps. Time and/or logistical constraints may require construction of the regional map to occur after the third workshop.

6.4 Discussion of map details:

Everyone on the team should discuss map features, including not simply size and scale but also symbolism, the legend, colors, and methods of depicting different kinds of information. Having community elders visit during this final workshop can clarify remaining ambiguities and cement the process of the community taking ownership of the final product.

Drawing lines around territories: We are often reminded that maps are representations of reality, not reality itself. Yet maps represent reality in a very special way, and the placement of lines on paper tends to fix territorial boundaries in the real world. Before they become involved in mapping, indigenous peoples often have a fluid sense of where the boundaries of the territory they occupy are; they operate with an outer perimeter that shifts through time or according to seasonal variations. It is frequently the case that several communities utilize common space for subsistence activities. Just how to render situations of this sort cartographically is a difficult and sometimes delicate matter. Placing sharp definitions where none existed before can cause confusions of various sorts.

In the Mosquitia, lines on the map that appeared to define community boundaries stirred up disputes, with some communities arguing that overlapping subsistence areas be sealed off from neighboring communities. In Bolivia, this issue was discussed at length during the course of the project. It was decided that because of the complex patterns of interaction among the different communities of the region, no lines should be drawn to show community boundaries. Beyond this, the outer limits of the entire territory were not sharply delineated, but rather expressed as a soft transition to a lighter shade of green. Community leaders wanted to leave open the possibility for future territorial expansion.

7.0 PRODUCTION OF THE FINAL MAPS

This takes place after the Researchers have returned to their communities. At this point, the maps are in the hands of the technical team and the institute or printer that will do the actual printing. If possible, this should be done through a government mapping agency, to lend credibility to the maps.

Printing the maps: Some might assume that with the field data in hand and the draft maps done, the purely “technical” matter of making final prints of the maps would be a snap. This is not necessarily the case. It is our experience that this is often a tangled and difficult step in the process. First, local printing facilities should be used, if they exist. When present, they are sometimes scarce and difficult to locate, and not of the best quality. If printing must be done outside the country, a strategy must be developed to supervise the process by having the cartographers and, if possible, representatives of the communities on hand.

In Cameroon, no printing facilities were found and the raw data for the maps were sent to London. The project team lost control of the process, and more than two years later the maps had not yet been produced. Great care must be taken to avoid similar situations.

7.1 Community oversight and quality control:

While the cartographers take charge of this phase of the project, community input remains vital. It is important to not take the printing phase for granted, as if it will occur smoothly, with little intervention. On the contrary, close attention should be paid to ensure that the information given by the communities is reproduced fully and accurately. Indigenous leaders and some of the Researchers should be present to ensure that the maps are being faithfully rendered and that the map is printed without delay.

Because these maps will be used for years in the communities — especially in schools and village gathering halls — they should be printed on strong, durable paper and be of high quality; the most durable maps are those laminated in plastic. Every effort should be made to produce a superior product not only so that people will want to hang it on their walls but because the credibility of the maps as negotiating tools will also depend on their quality.

Map ownership: One of the main attractions of participatory mapping for indigenous peoples is the chance to make their own maps of their territory, on their own terms and according to their own criteria. The indigenous people become the owners of the maps. This point should be clear to all parties involved. In Panama, this was not the case, and the lack of clarity over ownership of the maps caused immeasurable damage before things were set straight. To avoid difficulties of this sort, it is essential to establish ownership rights to the maps before the mapping work begins. This must be explicit, agreed upon by all parties involved, and, if possible, expressed in writing. The final maps should carry the promise to fruition by having the fact of indigenous ownership printed on them; some form of copyright, if feasible, is preferable.

APPENDIX A – AN ANALYSIS OF THE PROJECT BUDGETS

INTRODUCTION

In this section, we compare the project budgets for the mapping in Honduras, Panama, and Bolivia (see pages 140-142). Also, within each project, we compare the original project budgets with the actual costs. The budgets were organized slightly differently in each case and, of course, the amount for each line item varied widely among projects. The budget categories used here reflect the greatest amount of detail available to us across all the projects, given the variance in budget organization and the presentation of financial reports.

The most comparable portion of the three projects is the mapping itself, covered in budget items 1-7. The Honduras and Panama projects contained post-mapping Congresses, while the Bolivia project did not; and only one of the projects, that held in Panama, had activities that extended beyond the Congress. We have left these “add-ons” as they appeared in the original budgets, to give a more complete picture of what occurred in each country. Line item 8 for the Honduras and Panama budgets deals with “Congress expenses;” line item 9 is found in the Panama budget as “Post-Congress activities.”

ANALYSIS

Comparing the Original Project Budgets: The total amount budgeted for mapping in Honduras was about one-third the amount budgeted in Panama (\$42,971 versus \$134,325). As discussed in the text (Chapter 2), there were a number of reasons for this: (1) Panama is a more expensive country than Honduras; (2) the staff to administer and coordinate the project was paid, and a project office and a building for the workshops was rented; a large part of the expense for these items in Honduras was absorbed by MOPAWI, the implementing organization, and did not appear in the budget; (3) the lead cartographer was paid for his work in Panama, whereas he had worked for free in Honduras; and (4) in Panama, more maps were produced. Put simply, in Panama expenses were higher and more things had to be paid for than in Honduras. For this reason, the original Panama budget more accurately reflects the true costs of the project. That this is the case can be seen by comparing the Panama and Bolivia project budgets, where the total amounts for the mapping component are roughly the same. We developed the budget for the Bolivia project, which was carried out three years after the Panama experience, with greater understanding of the real costs.

Comparing the Actual Costs: The “Actual Costs” column brings together the costs reported in financial reports with our own estimates of unreported, in-kind costs for services or products provided to the project. Thus, the actual costs are approximations of the real costs of the projects.

Looking at the totals for each column of actual costs, it is clear that, over time, we gained a clearer understanding of what projects of this type entail and we were consequently better equipped to develop a “real” budget and control costs. In Honduras, the total actual cost for the mapping was 55 percent (\$23,503) over budget; in Panama, it was over by substantially less as a percentage (26 percent) although more in absolute dollars (\$34,712); and in Bolivia, it was right on the mark with the budgeted amount. However, within specific line items across the same time period there were persistent problems. For example, salaries/honorariums and general administration were consistently over budget, while map design/printing was consistently under budget.

Lessons: A number of factors will affect the costs of a project. The cost of labor is generally the most expensive part. This cost is reflected not only in the salaries and honoraria that must be paid but also the costs (paid or in-kind) for outside help from technicians and facilitators (for example, the cost of Native Lands’ time was substantial in both Panama and Bolivia). Our experience shows that the costs for salaries and honoraria

creep up due to the labor-intensive nature of the work – as a project progresses, more and more people want or need to be added to the workforce and compensated in some way. This is especially true when multiple institutions are involved.

The costs of the workshops and fieldwork are generally the second most expensive part of the project. This should be no surprise, as this line item reflects the core of the work to be done. In the end, of course, the costs depend on the size of the area being mapped, the number of communities involved, the distance required to travel from the communities to an urban zone, the time allocated for the work, and so on. The greater the size and complexity of the project, the higher the expenditures.

Administrative costs tend to increase beyond everyone’s expectations. The organizations administering the projects, especially the indigenous ones, tend to have little in the way of administrative infrastructure, so they need to buy it with project funds. Also, unexpected expenses or expenses that no one knows quite how to classify – such as medical expenses for a project participant who becomes ill – tend to be thrown into the administrative category, even when a “contingency” line item exists. This practice will inflate the reporting of administrative costs. Finally, all the administrative costs of a project are, in fact, often difficult to anticipate in planning a budget (for instance, the sudden, unforeseen need to establish a dedicated phone line or e-mail

account). As these expenses appear, they are simply added to the budget.

Project organizers and fund-raisers should make every effort to include all project costs in the budget, including those that will be paid for through in-kind contributions. The budgeting process should include input from key people from each of the teams – technical, community, and administrative – providing overall coordination. In this way, fewer line items will be overlooked, the projections for cash needs

will be improved, and local, noncash contributions will be recognized.

Lastly, other than some initial ground preparation, the project activities should not get under way until all the funds have been raised and the money is in the bank. Raising the funds in advance will help control costs since there will be no expectation that “we can always raise more funds,” and delaying the start of activities until all funds are in the bank will avoid demoralizing and costly cash flow problems.

BUDGET FOR PARTICPATORY MAPPING IN THE MOSQUITIA OF HONDURAS

(U.S. dollars – 1992)

Budget Categories	Original Budget	Actual Costs ¹	Over (Under) Budget (%)
1. Salaries/honoraria <i>(surveyors, coordinators, cartographers, administrative staff)</i>	11,943 ²	22,997 ²	93
2. Workshops and fieldwork <i>(travel/food/lodging for the community, technical, and administrative teams while in the field and at workshop sites; facilities for workshops)</i>	17,788 ³	23,694 ³	33
3. Supplies/equipment	1,309 ⁴	1,712 ⁴	31
4. Map design and printing	3,500	3,281	(6)
5. Contingencies	1,000 ⁵	1,883 ⁵	88
6. General administration	7,431 ⁶	7,907 ⁶	6
7. Grant management and technical assistance from Native Lands		5,000 ⁷	
TOTAL for Mapping	\$42,971	\$66,474	55
8. Congress <i>(rent of conference room and audio-visual equipment, invitations, agendas, publicity/press, preparation/printing of proceedings, travel and per diem for additional indigenous participants)</i>	20,157 ⁸	14,828 ⁸	(26)
TOTAL for Mapping and Congress	\$63,128	\$81,302	29

Notes:

- 1 Actual costs include those reported in financial statements as well as estimates of unreported in-kind costs.
- 2 Both the original budget and estimated expenditure include estimates of in-kind support from MOPAWI. The budget estimate for MOPAWI's in-kind support was \$6,938. Our estimate of MOPAWI's actual in-kind expenditure in this category is closer to \$10,000. We have also added to the estimated expenditure \$7,000 for the lead cartographer's time and \$900 for the IGN cartographers.
- 3 Both the original budget and estimated expenditure include estimates of in-kind support from MOPAWI. The budget estimate for MOPAWI's in-kind support was \$1,590. Our estimate of MOPAWI's actual in-kind expenditure in this category is closer to \$2,500. We have also added a contribution of airfares with an estimated value of \$3,500, donated by the Inter-American Foundation.
- 4 Includes in-kind support from MOPAWI in the amount of \$328.
- 5 Includes in-kind support from MOPAWI in the amount of \$500. Most of the contingency funds were spent on supplies/equipment, additional payments to surveyors, and additional costs of the Congress.
- 6 Both the original budget and estimated expenditure include estimates of in-kind support from MOPAWI. The budget estimate for MOPAWI's in-kind support was \$310. Our estimate of MOPAWI's actual in-kind expenditure in this category is closer to \$500.
- 7 Native Lands' involvement in the organization of this project was minimal. At most, our direct costs (phone calls, two trips, and some salary expense) would be in the neighborhood of \$5,000.
- 8 Includes in-kind support from MOPAWI in the amount of \$3,470. Reader should note that part of the cost of organizing the Congress would include some of the expenses in salaries/honorariums and general administration.

BUDGET FOR PARTICIPATORY MAPPING IN THE DARIÉN OF PANAMA

(U.S. dollars – 1993)

Budget Categories	Original Budget	Actual Costs ¹	Over (Under) Budget (%)
1. Salaries/honoraria (surveyors, coordinators, technicians, administrative staff)	29,760	58,800 ²	98
2. Workshops and fieldwork (surveyors and coordinators in the field and at workshop sites; technical and administrative staff needed specifically for the workshops and fieldwork)	48,230 ³	40,531	(16)
3. Supplies/equipment		6,206	
4. Map design and printing	6,200 ⁴	5,336 ⁴	(14)
5. Contingencies		411	
6. General administration	11,599	19,217	66
7. Grant management and technical assistance from Native Lands	38,536	38,536 ⁵	0
TOTAL for Mapping	134,325	169,037	26
8. Congress (rent of conference room and audio-visual equipment, invitations, agendas, publicity/press, travel, and per diem for additional indigenous participants)	30,000	11,550	(62)
TOTAL for Mapping and Congress	\$164,325	\$180,587	10
9. Post-Congress activities (distribution of the maps to the indigenous communities, and seminars on the value of the maps; production and distribution of a short history of the mapping process and the Congress)	28,700	29,558	3
TOTAL for Mapping, Congress, and POST-CONGRESS ACTIVITIES	193,025	210,145⁶	9

Notes:

1 Actual costs include those reported in financial statements as well as estimates of unreported in-kind costs.

2 Includes support from Certified Public Accountant Jaime Dri, and from CEASPA's Director of Research, Charlotte Elton. Each contributed, in very rough terms, approximately \$3,000 in-kind.

3 Includes the costs of supplies and equipment. These items are reported under a separate line item under Actual Costs.

4 This line item was originally budgeted at \$8,000. When this activity was later reprogrammed as a post-Congress activity, the amount was lowered to \$6,200. To maintain the comparability of budgets across all three projects (Honduras, Panama, and Bolivia), we have included the cost of this activity as if it occurred prior to the Congress.

5 All but \$5,000 of this support was in-kind. The total, which is merely an estimate, represents about half of Native Lands' time and administrative resources over a six-month period, plus specific travel and monitoring costs.

6 To this total should be added the value of in-kind support from a number of Panamanian organizations: the Office of the Comptroller (technical assistance); the National Geographic Institute "Tommy Guardia" (materials, equipment, work space, technical assistance); the National Institute of Renewable Natural Resources (technical assistance); the Ministry of Government and Justice (promotional work, participation); the Smithsonian Tropical Research Center (equipment and facilities); the People's Center for Legal Assistance CEALP (technical assistance); the National Association for the Conservation of Nature ANCON (materials); and the University of Panama (technical assistance). Also, the National Geographic Society donated maps. Conservatively, the value of all of this support might be \$15,000 to \$20,000.

BUDGET FOR PARTICPATORY MAPPING IN THE IZOZOG OF BOLIVIA

(U.S. dollars – 1996)

Budget Categories	Original Budget	Actual Costs ¹	Over (Under) Budget (%)
1. Salaries/honoraria <i>(surveyors, coordinators, technicians, administrative staff)</i>	28,700	36,692	28
2. Workshops and fieldwork <i>(surveyors and coordinators in the field and at workshop sites; technical and administrative staff needed specifically for the workshops and fieldwork)</i>	34,020	21,322	(37)
3. Supplies/equipment	12,100	7,564	(37)
4. Map design and printing	4,500	3,550	(21)
5. Contingencies		2,117 ²	
6. General administration	14,775 ³	22,850 ³	55
7. Grant management and technical assistance from Native Lands	47,905	47,905	0
TOTAL for Mapping	142,000	142,000	0

Notes:

1 Actual costs include those reported in financial statements as well as estimates of unreported in-kind costs.

2 Accounts receivable deemed uncollectable.

3 Includes \$11,975 for WCSs indirect costs.

APPENDIX B – COMMUNITY QUESTIONNAIRE USED IN PANAMA

Surveyor's Name:

Questionnaire Number.:

I. LOCATION

ZONE:

CODE:

COMMUNITY NAME and VILLAGES that belong to it:

II. GENERAL INFORMATION

1. What is the major ethnic group in the community?
1. Emberá 2. Wounaan 3. Kuna
2. What languages are most frequently spoken in the community?
 1. Most spoken:
 2. Spoken to a lesser extent:
 3. Others (specify):

III. SUBSISTENCE AREAS

3. Names of the places where people farm:

(Draw a SKETCH or MAP of the community and put the names of the places where people farm)

4. Names of the places where people go fishing:

(Put on the SKETCH or MAP the names of the places where people fish)

5. Names of the places where people hunt:

(Put on the SKETCH or MAP the names of the places where people hunt)

6. Names of the places where people go to look for materials for construction or handicrafts, or to collect firewood:

(Put on the SKETCH or MAP the names of the places where people go to look for materials for construction or handicrafts, or to collect firewood)

7. Names of the places where people go to find medicinal plants and wild fruits:

(Put on the SKETCH or MAP the names of the places where people go to find medicinal plants and wild fruits)

8. Names of the places where people cut trees for making dugout canoes and boats:

(Put on the SKETCH or MAP the names of the places where people go to cut trees for making dugout canoes and boats)

9. Where do community members go to cut trees for commercial sale?

(Put on the SKETCH or MAP the names of the places where community members go to cut trees for commercial sale)

10. Where do people outside the community (non-indigenous) cut trees for commercial sale?

(Put on the SKETCH or MAP the names of the places where people outside the community (non-indigenous) cut trees for commercial sale)

11. What are the limits of the lands and forests used by the community?

To the front:

To the rear:

To the right:

To the left:

12. According to the points of a compass, what are the limits of the lands and forests used by the community?

NORTH:

SOUTH:

EAST:

WEST:

ADDENDUM:

Questionnaire Number:

LIST OF HOMES AND PERSONS RESIDING IN THE COMMUNITY:

I. LOCATION

ZONE:

CODE:

COMMUNITY NAME and VILLAGES that belong to it:

II. POPULATION AND HOUSING CENSUS

House	Names of those who live in the house:	Age:	Language:
	<input type="checkbox"/> Female <input type="checkbox"/> Male		
	<input type="checkbox"/> Female <input type="checkbox"/> Male		
	<input type="checkbox"/> Female <input type="checkbox"/> Male		
	<input type="checkbox"/> Female <input type="checkbox"/> Male		
	<input type="checkbox"/> Female <input type="checkbox"/> Male		
	<input type="checkbox"/> Female <input type="checkbox"/> Male		
	<input type="checkbox"/> Female <input type="checkbox"/> Male		

APPENDIX C – ADDRESSING THE PUBLIC

POST-MAPPING EVENTS

In both Honduras and Panama, it was strongly felt that there should be a formal event at which the maps could be presented to the public. It was also felt that such an event would provide an opportunity to inform people about the region that had been mapped, which, in both cases, was remote, difficult to reach, and not known well in other parts of the country. We all felt that a Congress (in Honduras) or a Forum (in Panama) should be held in the capital city to attract a wide audience that would include representatives of the government, NGOs, and other indigenous groups; and it should be in a relatively nice, even elegant setting.⁶⁷ Indeed, both events turned out to be resoundingly successful.

In Honduras, the “First Congress on Indigenous Lands of the Mosquitia” was held in the Plaza San Martín Hotel on September 22–23, 1992, and was well attended. Government representatives included the vice president of the Republic, Jacobo Hernández, who gave a key-note speech; Minister of Defense Flavio Laínez (together with a handful of his officers); the director of the National Commission on the Environment (CONAMA), Carlos Medina, who spoke; the sister of the president of the Republic, Emelissa Callejas; and the Liberal Party presidential candidate, Carlos Roberto Reina, who delivered a speech (and who later won the presidency). Also in attendance were representatives of local and international NGOs and universities; delegates from a number of indigenous peoples of Honduras, including the Garifuna, Miskito, Pech, Tawahka, Xicaque, and Lenca, and “Ladinos Nativos” from the Mosquitia; and indigenous representatives from the Miskito in Nicaragua and the Emberá in Panama.⁶⁸

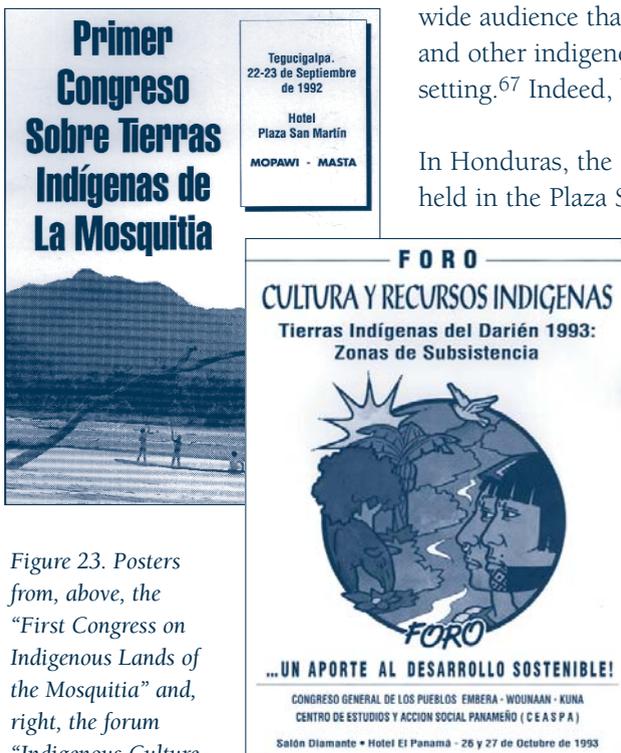


Figure 23. Posters from, above, the “First Congress on Indigenous Lands of the Mosquitia” and, right, the forum “Indigenous Culture and Resources: Indigenous Lands of the Darién 1993: Subsistence Zones...a Contribution to Sustainable Development”

⁶⁷ Although there was insistence in Panama that we hold a “forum” rather than a “congress,” in reality there was little difference in scale or form between the two events.

⁶⁸ It would have been nice to have more representatives of indigenous peoples from around the hemisphere, but we were so strapped for time, and all of our energies were put into organizing and (in Panama, funding) the Congress/Forum, that we simply did not get around to inviting more than a small handful. Also, in Honduras we were not certain that the project would be worth the effort until the end neared. In Panama we made a greater effort and some groups came from South America, but attendance was still weak. Of even greater value would have been visits by indigenous peoples to the workshops, to see how the mapping was carried out. Here, unfortunately, no indigenous people from other countries came.



Figure 24. Kuna dancers from the region of Wargandi, Darién Province, entertain those in attendance at the Forum, “Indigenous Culture and Resources: Indigenous Lands of the Darién 1993.”

More than 400 people were present each day.

Toward the back of the conference room, the mapping process was explained in a display showing how the maps developed during the sequence of workshops. A video pieced together from the workshops was shown during the presentations.

In Panama during the weeks leading up to the Forum, the Surveyors, Coordinators, and indigenous leadership, together with Héctor Huertas, a Kuna lawyer with the Centro de Asistencia Legal Popular (CEALP), temporarily occupied the Hogar Monerry, a Catholic school, to organize the event and practice their presentations.

The Forum, “Indigenous Culture and Resources: Indigenous Lands of the

Darién 1993: Subsistence Zones...a Contribution to Sustainable Development,” was held at the Hotel El Panamá on October 26–27, 1993. The corridor outside the hotel conference room had a detailed map exhibit as well as displays of Kuna, Emberá, and Wounaan artifacts. More than 500 people attended during the two-day conference. In addition to leaders from the major indigenous groups of Panama, there were representatives from the Instituto Nacional de



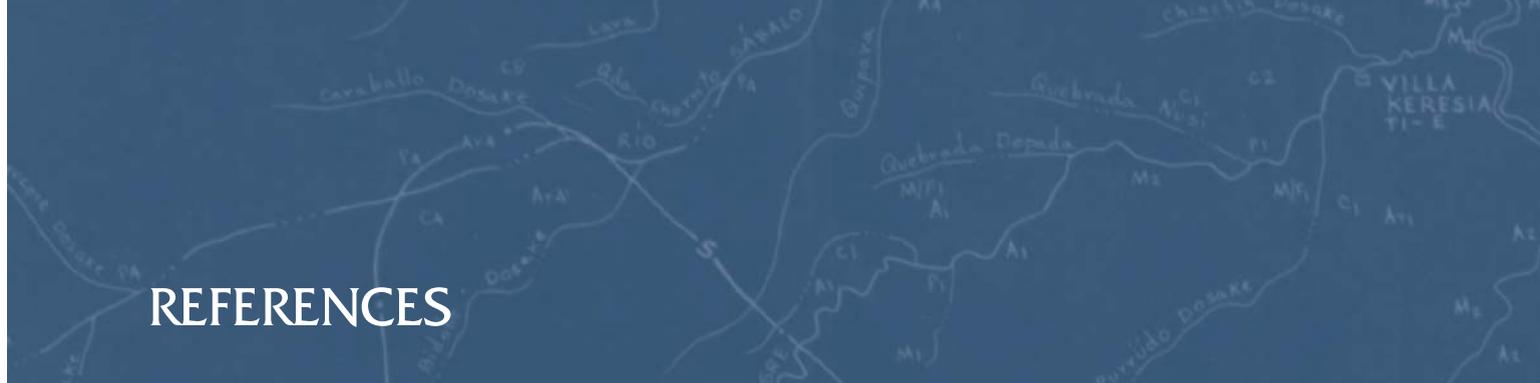
Figure 25. Juan Bautista Chevalier, Panama's Minister of Government and Justice, addresses the Forum, “Indigenous Culture and Resources: Indigenous Lands of the Darién 1993.”

Mac Chapin

Recursos Naturales Renovables (INRENARE), the Instituto Geográfico Nacional “Tommy Guardia,” the Contraloría General, the Ministerio de Desarrollo Agrícola, the Ministerio de Gobierno y Justicia, the Ministerio de Educación, the Fundación Natura, the Asociación Nacional para la Conservación de la Naturaleza (ANCON), and the Smithsonian Tropical Research Institute (STRI); and the governor of the Darién, Dr. Plutarco Arrocha, was also in attendance. Introductory speeches were given by Minister of Education Marcos Alarcón, and Minister of Government and Justice Juan Chevalier. The program itself was run entirely by the Emberá, Wounaan, and Kuna, who gave talks covering cultural, political, demographic, and

environmental aspects of the Darién. The maps were displayed and explained during the presentation.

In both Honduras and Panama, the Congress/Forum was exceptionally well received. Government and NGO observers were unanimously enthusiastic; and the indigenous people who managed the event and contributed the presentations were more than pleased with the way things went. The events highlighted the role of indigenous peoples in seeking solutions to problems that are becoming more severe with each passing year, and demonstrated that they have a good sense of what should be done. The Congress/Forum created a basis for collaboration on a set of issues that need urgent solution.



REFERENCES

Candanedo, Indra

- 1997 *Closing the Darien Gap: Actors and Issues in the PanAmerican Highway Project*. Master of Science thesis in Sustainable Development and Conservation Biology, University of Maryland, College Park.

Capitanía de Alto y Bajo Izozog (CABI)

- 1999 *Arakae: Historia de las Comunidades Izoceñas*. CABI, Santa Cruz.

Chapin, Mac

- 1992 “The Coexistence of Indigenous Peoples and the Natural Environment in Central America,” map supplement to *Research & Exploration: A Scholarly Publication of the National Geographic Society*, Spring.
- 1998 “Defending Kuna Yala: PEMASKY” in *From Principles to Practice: Indigenous Peoples and Biodiversity Conservation in Latin America*. International Work Group for Indigenous Affairs, Copenhagen. Pgs. 240-278.

Farcau, Bruce

- 1996 *The Chaco War: Bolivia and Paraguay, 1932-1935*. Praeger, Westport, Connecticut.

Harley, J.B.

- 1988 “Maps, Knowledge, and Power” in *The Iconography of Landscapes*, ed. by Denis Cosgrove and Stephen Daniels. Cambridge Studies in Historical Geography, Cambridge University Press. Pgs. 277-312.

Heckadon Moreno, Stanley, and Alberto McKay (eds.)

- 1982 *Colonización y Destrucción de Bosques en Panamá*. Asociación Panameña de Antropología, Panamá.

Herlihy, Peter H.

- 1986 *A Cultural Geography of the Emberá and Wounan (Choco) Indians of Darien, Panama, with Emphasis on Recent Village Formation and Economic Diversification*. PhD dissertation, Dept. of Geography and Anthropology, Louisiana State University, Baton Rouge.
- 1989 "Panama's Quiet Revolution: *Comarca* Homelands and Indian Rights," in *Cultural Survival Quarterly* 13(3): 17-24.
- 1995 "La revolución silenciosa de Panamá: las tierras de comarca y los derechos indígenas," in *Mesoamérica, Número Especial: La lucha por la tierra en la última frontera de Centroamérica*, Year 16, Volume 29, June. Pgs. 77-93.

Herlihy, Peter H., and Andrew P. Leake

- 1990 "The Tawahka Sumu: A Delicate Balance in Mosquitia," in *Cultural Survival Quarterly* 14(4): 13-16.
- 1991 "Propuesta: Reserva Forestal Tawahka Sumu." Mosquitia Pawisa (MOPAWI), Federación Indígena Tawahka de Honduras (FITH), and the Instituto Hondureño de Antropología e Historia (IHAH); Tegucigalpa. Pgs. 1-18.
- 1992 "Situación actual del frente de colonización/deforestación en la región propuesta para el Parque Nacional Patuca." Informe comisionado por el Ministerio de Defensa, Tegucigalpa. Pgs. 1-22.
- 1997 "Participatory Research Mapping of Indigenous Lands in the Honduran Mosquitia," in *Demographic Diversity and Change in the Central American Isthmus*, ed. by Anne R. Pebley & Luis Rosero-Bixby. Rand Books, Santa Monica, California. Pgs. 707-736.

Moskitia Asla Takanka (MASTA)

- 1995 "Modelo de Legalización de Tierra de la Mosquitia." MASTA, Puerto Lempira, Honduras.

Poole, Peter

- 1995 *Indigenous Peoples, Mapping & Biodiversity Conservation: An Analysis of Current Activities and Opportunities for Applying Geomatics Technologies*. Peoples and Forests Program Discussion Paper. Biodiversity Support Program, Washington, D.C.

Taber, A., A. Rojas R., G. Navarro, and M.A. Arribas

- 1994 "Parque Nacional Area Natural de Manejo Integrado Kaa-Iya del Gran Chaco: Propuesta Técnica y Etnica," Informe inédita. Capitanía de Alto y Bajo Izozog (CABI), Fundación Ivi-Iyambae y Wildlife Conservation Society.

Torres de Araúz, Reina

- 1975 *Darién: Etnoecología de una región histórica*. Instituto Nacional de Cultura, Panama.

Wali, Alaka

- 1989 *Kilowatts and Crisis: Hydroelectric Power and Social Dislocation in Eastern Panama*. Westview Press, Boulder.
- 1995 "La política de desarrollo y las relaciones entre región y Estado: el caso del oriente de Panamá, 1972-1990," in *Mesoamérica, Número Especial: La lucha por la tierra en la última frontera de Centroamérica*, Year 16, Volume 29, June. Pgs. 124-158.

ACKNOWLEDGMENTS

The writing of this monograph benefited from countless discussions, exchanges, and interviews with participants in the mapping projects in Honduras, Panama, Bolivia, Cameroon, and Suriname, as well as with a number of outside commentators along the way. We gratefully acknowledge their contribution to the factual foundation upon which the study is built and to our analysis of it.

Those who provided us with information on and insights into the various projects through conversations, formal interviews, or written accounts, include: James Acworth, José Aizpurúa, Marcelino Apurani, Evelio Arambiza, Walter Ayala, Paulino Bosen González, Zaida Calderón, Jorge Castellote, Olimpia Díaz, Harrison Ebong, Henry Ekwoe, Charlotte Elton, Vissi Godlove, Neville Gunther, Peter Herlihy, Raboén Kartoinanagoen, Andrew Leake, Paul Lontchi, Gilberto Maibeth, Florencio Mendoza, Clelia Mezúa, Zepherin Mogba, Osvaldo Munguía, Manuel Ortega, Genero Pacheco, Adalberto Padilla, Samuel Padilla, Michael Painter, Kamainja Panshekung, Nathan Pravia, Aurelio Ramos, Tomás Rivas, Clemens Roos, Facundo Sanapí, Eduardo Sánchez, Johnny Sodipo, Ramon Somohardjo, Andrew Taber, Cecilio Tatallor, Pieter Teunissen, Gelmo Valdivieso, Suyapa Valle, Wüta Wajimuu, and Justo Yandura.

We wish to thank those who, at some point in the writing process, reviewed drafts of our manuscript. Their comments were both perceptive and useful, and as a consequence served to shape the final manuscript. Earlier versions were read by James Acworth, Norma Adams, Janis Alcorn, Pat Breslin, William Davidson, Marc Edelman, Charlotte Elton, Anne Fitzgerald, Jake Kosek, Osvaldo Munguia, the late Bernard Nietschmann, John Robinson, Diane Russell, Andrew Taber, Jack Vanderryn, Richard Wilk, Wilbur Wright, and Sally Yudelman. The final draft of the manuscript was critically reviewed by Janis Alcorn, Pat Breslin, Owen Lynch, Richard Wilk, and Barbara Wyckoff-Baird.

Nicanor González was a key member of the cartographic teams in Panama and Bolivia and provided considerable information and clear insights that are greatly appreciated.

Ron Weber used his finely honed editorial skills and intuitive understanding of the subject matter to steer us past structural confusions at key points in our journey and rescue us, on numerous occasions, from diffuse reasoning and linguistic inelegance. Although his guiding hand is unseen, it is present throughout and is greatly appreciated.

We thank Patricia Hord, Amy Spokas, and the rest of the staff at Patricia Hord Graphik Design for transforming the text into a visually appealing and, we believe, more useful work.

This study would not have been completed without the advice, moral support, and insistent — yet always constructive — prodding of Janis Alcorn of Peoples, Forests, and Reefs (PeFoR) of the Biodiversity Support Program. We are grateful to her and to her assistants, James Christopher Miller and Christie McDonough.

Despite all of this considerable assistance, the authors take sole responsibility for the depiction of events, analysis, and opinions contained in the study.