

*Research and Rural Development Work Sessions
Dzanga Sangha Dense Forest Reserve
Central African Republic*

July 31-August 2, 1997

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Synthesis report (English)

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This report presents results from a series of work sessions held in Bayanga, southwestern Central African Republic C.A.R. during the last days of July, 1997. Our analysis of preliminary data, and the dynamics of information exchange initiated during these meetings testify to the feasibility of the original idea. But none of our ideas could have been implemented without the support of the World-Wide Fund for Nature-U.S. and the government of the C.A.R., longtime partners in the management of the Dzanga Sangha and Dzanga Ndoki protected areas. They were indispensable from start to finish and we praise their willingness to better define “participation” by actors at various levels of the intertwined research, conservation and development process.

We would also like to thank the personnel of Doli Lodge, who so quickly transformed their tourism operation into a conference center for our visitors. They encountered many obstacles, but remained flexible, despite our much higher levels of attendance than originally anticipated! Our collaboration with them constitutes an interesting example concerning the compatibility of tourism infrastructures and staffs with the needs of an international scientific research community in integrated conservation projects.

Remarkable, really: the Dzanga Reserve management was willing to submit their efforts in three separate but interconnected domains (research, tourism and conservation) to a sort of experimental collective scrutiny. This was not a consultant’s evaluation; not one expert’s assessment, reflected in a report that might either be read or languish in project archives or government offices. On the contrary, it was an analysis carried out by representatives from layered local communities, field researchers from several different projects and countries, and local, regional and national level C.A.R. government officials. All were invited to speak frankly and to learn, through investigating the ten-year old experiment of integrated conservation management at Dzanga Sangha.

We see here the results, rooted in a specific region (but one that can be understood as a “pilot” case for other transnational conservation zones, confronted with comparable problems). The recommendations, toward the end of our text, are the distilled product of multiple questions and themes raised during the sessions. Proposed by all of us through several hours of work in focus groups, we hope they constitute a point of departure toward improved integration—whether of social and natural science research, conservation and development, or long term regional residents and more recent arrivalsÉ

In fact, our overarching session goals were dual:

- Contextualize and analyze the roles of scientific research *as a process of rural development* in protected areas of the trinational Sangha region (C.A.R., Cameroon and Congo), and
- Establish the core of a broadly regionally based network for African researchers, be they based in a university, a local community or a project, for further collaboration on connected aspects of tropical forest management. This network, we hope, will develop in tandem with—indeed within the international Sangha River Network for researchers, based at Yale University and the ERMES-ORSTOM lab at University of Orléans, in France.

Indeed, the 50 participants who attended the work sessions did hail from a wide variety of different academic, political and professional categories, in roughly equal proportions (for a photo of participants, see inset).

One last word about this work: it is a synthesis of the original proceedings (in French) and does not contain the detail that such complex questions necessarily entail. What emerges from that original, longer document is a fascinating diversity of perspectives on what we call “scientific research.” In the presentations by Bayanga community members, for instance, we find their frustration at the lack of access to scientific results from studies conducted locally. This frustration, however, is mixed with a kind of optimism about what scientific research can contribute to solving complicated local development dilemmas. In the interventions from local researchers we are confronted immediately by their intimate understandings of the forest, and by their talent for dissemination of knowledge in local languages and idioms that make such knowledge more accessible and valuable to other regional residents.

Such combinations of natural science and communicative competence ought not to be under-valued by a country--indeed an international community--concerned with educating future generations of specialists and managers for this natural patrimony (be it local, national and/or global). Nor should such skills be neglected in a socially complex community like Bayanga where much of the population claims so strongly their desire—their right—to earn and learn from those who come to work in these unique ecosystems.

But these locally based researchers, from disparate educational and ethnic backgrounds, also showed pride in their ability to assimilate formal scientific methods and to carry out scientific work in increasingly independent and original ways. In this sense, they constitute the fragile bridge between international and local communities of knowledge about these ecological and social systems. And, in this sense, we like to think we facilitated for them a formative professional encounter with representatives from broader regional and international research structures, who shared their data and methods.

The resulting discussions indicate modes of analysis born through fieldwork in these equatorial African forests. Techniques for visual identification of individual animals of certain species, for instance, had Paul Elkan of University of Minnesota in animated

conversation with BaAka (Pygmy) trackers. Techniques for teamwork in social science were presented by the health team working in Bayanga, and were interrogated with interest by medical anthropologist Joseph Baluiguni from the University of Bangui. Such hybrid methods—part formal science, part field experience, seemed deliberately, yet discreetly, to traverse political and disciplinary boundaries in their efforts to describe and analyze complex forest phenomena.

Indeed, it seemed clear that further communication and collaboration are imperative. At the end of the work sessions, the representatives of broader national and regional research programs left with a new view of and from “the field.” Researchers scattered throughout the Dzanga-Sangha, Ndoki and Lobéké forests, on the other hand, left with a better understanding of how the minutia of their daily routines contributes to larger agendas and to policy issues.

And those who already were, and will remain in the village of Bayanga? The Bayangans who participated directly in the work sessions were indulgent of our new and somewhat incendiary ideas. They were generous with their time and energy despite our limited budget. Many other Bayangans participated in this pilot phase of research-related networking, if only by welcoming us as researchers once again into their lives and neighborhoods, with their habitual generosity and understanding. We are grateful to you, Bayangans, and we dedicate this work to you. We hope this document, in its French and Sango incarnations, will circulate. We hope it provokes further impassioned debate and innovative discussion beneath the mpandjos and the church roofs of your village. For it is within such spaces (let’s be honest) that we perceive the emergence of real popular will for the success or failure of strategies for environmental conservation and economic development. What we have to offer you is a case study; perhaps it is also a step toward action for better exchange of knowledge across countries, cultures, and social groups who will have, together, to manage these forests in the future.

RH and MR,

May 1998

These work sessions brought together members of biological and social science research teams working in the forested regions of southwestern Central African Republic (and adjacent protected areas in Cameroon and Congo) to analyze the economic and educational roles of research in protected areas. The teams planned future progress toward integration of natural and social science research in community-based conservation and development goals, contributing to creation of a core network of central African and international researchers. That network has expanded during a broader meeting of representatives from several central African countries at Yale University in September, 1998. *Using the Dzanga Sangha Reserve as a*

case study in the context of the wider Sangha region, indigenous experts, community research agents, university-trained scholars, non-governmental and ministry representatives worked toward the following objectives during the Research and Rural Development sessions(July 31-August 2, 1998):

- Analyze perceptions of research projects by various residents of the protected area, and make recommendations for improved communication between researchers and the communities within which they work
- Describe actual and potential forms of educational exchange occurring within research teams, and between research teams and local communities
- Describe research as economic development, tracing trends in wages, health benefits, skill acquisition and comparing such trends to other forms of employment available in forest conservation zones
- Compare field methods, community interaction and policy implications of biological and social science projects respectively; make recommendations for their integration within broader conservation and development efforts
- Delineate current structures and patterns for sharing data and methods across projects and between national and international researchers within the region; review the efficacy of such structures and patterns, and recommend reinforcement or modification of current practice where necessary
- Create a substantively and logistically specific proposal for a broader conference of equatorial Africa region researchers, to be held in 1998

BACKGROUND AND BROADER RELEVANCE:

The Central African Republic (C.A.R.), like many other species-rich habitat countries, currently has an ambitious conservation-management program but little infrastructure to support the spectrum of social and biological biodiversity science necessary for appropriate management. It is essential that those Central Africans who will carry out conservation and economic development programs and direct biodiversity policies have the tools necessary for assessing and analyzing biological diversity and human-wildlife interactions (e.g. Saterson, 1990; Cracraft, 1995).

To date, most biodiversity assessment and research on wildlife in the C.A.R. has been carried out by expatriate rather than national scientists. This does not further C.A.R.'s goal of carrying out their conservation and wildlife management programs independently. Further, the abilities of expatriate scientists to provide the expertise

for current research, development and conservation projects are limited by competing commitments to their home academic institutions. Research and educational institutions within equatorial Africa have been challenged by tumultuous political and economic transitions in recent years, and in the C.A.R. the school system closed altogether for two years since 1988. As a result of such complex circumstances in many African contexts, contributions of expatriate researchers to fledgling local research communities may foster dependency, rather than independence (Diawara, 1997).

On the other hand, even during times of political and civil crisis when expatriate development or foreign service professionals have been elected to leave or been evacuated from C.A.R., ongoing research projects have maintained operations in rural areas. Particularly in border regions such as the upper Sangha River, easy access among research sites in different countries creates the possibility for continued data collection and development of African research capacities over time. Such contributions merit monitoring and reinforcement, given upheaval in urban areas across the equatorial African forests at present.

Further, the research process may provide development of human resources and economic systems without entailing uncontrolled growth of population centers, and attendant ecological and political dilemmas associated with urbanization and migration. Enhancement of scientific capacity and knowledge of host country researchers can thus promote use of natural resources to benefit a range of national and regional communities while providing a sustainable foundation for growth in the private sector (Rudran, 1990).

The sessions detailed below thus began to assess progress made by research teams working independently, and constituted the first steps in a process of strengthening and integrating research practices as tools for regional and national development in the C.A.R. and neighboring countries. Structured around central questions, presentations were limited to 30 minutes so that informal discussion and questions/answers may follow. Translation between French and Sango was provided by the bilingual staff of the Dzanga Sangha Reserve's Conservation and Tourism programs, notably Reserve Guard Abel Mbalanga and Reserve Guide Gilbert Assomo.

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BASIC WORK PROGRAM

Thursday July 31- Reserve Dzanga Sangha (RDS) Case Studies

ú Welcome Coffee bar and Introductions 8:00-9:00

Opening Comments

TOUAZOU MBONA, Préfet of the Sangha Mbaéré

SESSION I. Case Study, Dzanga-Sangha Reserve (RDS), CAR

I.1 Community Perspectives 9:00-11:00

What sorts of misconceptions exist among community members about the practice of research? What sorts of negative research practices foster such misconceptions? What are recognized research benefits to local communities? Who receives such benefits? How can educators, officials and extension workers better support and be supported by research practitioners?

Presenters:

1. NDINGA, President of the Special Delegation of Yobé Sangha
2. YANGUILIMO, Secretary for Committee of Development in Bayanga
3. YANKOSSE, Chief of the Gendarmerie
4. MBAYA, School Director of Bayanga
5. SAMBO, Community Schooling (BaAka)

- Lunch 11:00-12:00

I.2 Educational Exchange 12:00-2:00

In research practice, who learns what from whom? What are the useful things one learns from research employment? Is it possible/desirable to exchange basic or

computer literacy for local knowledge forms? What kinds of equipment and daily practices are necessary for effective exchange? Is such exchange sustainable given research project succession? How do indigenous and international specialists who have acquired skills over time transmit those skills to their colleagues or successors?

Presenters:

Social science research team approach: ethnohistorical & anthropological research

6. HARDIN, Expatriate researcher, Bayanga,
7. ADAMSON, Indigenous expert
8. ZANA, National University researcher
9. DIMALI, Indigenous expert

Natural Science Research Team Approach: gorilla ecology at Bai Hokou

10. REMIS ,Expatriate researcher, BaiHokou, Dzanga Park Sector, RDS
11. NDOLONGBE, Local research assistant
12. WONGA (& MOKEDI), Indigenous experts
13. MBSSANGAO, National University trained researcher

- Coffee break, 2:00-2:30

I.3 Economic Exchange 2:30-4:30

What are research precedents within the region for wage levels, job security, occupational hazards, health benefits and skill acquisition? How to quantify and monitor such contributions over time? How do they compare with wage labor in other industries for which local participants have worked? What might be acceptable standards, and ways of enforcing them?

Presenters:

14. NGAOUA, Conservation Project, National Director, RDS
15. MPAGO, Timber industry, Personnel Director, Sylvicole
16. BOBEYATE, TOURISM, Manager, Doli Lodge Tourism Society

ROUND TABLE discussion among researchers and community members

- Pirogue (Canoe) tour on the Sangha River 4:30-6:00 p.m.
- Dinner at The Restaurant “Elle Arrive” 7:00 p.m.

Friday August 1—

SESSION II. Current Regional Research

What classic research approaches are still relevant for completion of the knowledge base about equatorial African forest systems? What innovative approaches appear to be effective? What are the advantages of multi-site versus diachronic single site data collection? What major information needs are not presently being met?

II.1 Natural Science Projects 8:00-9:30

Presenters:

17. ELKAN, antelopes and forest clearings, Mambongo, nord Congo
18. BOCIAN, Lowland gorilla study at Mondika, Ndoki Sector, RDS
19. DAKOSAN, research teams in the Mondika Project

II.2 Social Science projects 9:30-11:00

Presenters

20. KRETSINGER, Expatriate researcher, and M. NGONGO
Health monitoring, RDS
21. MOGBA (MARF team), Community-based migration monitoring,
(Methods in participatory rapid-rural appraisal), RDS

- **Coffee break 11:11:30**

II.3 Integrated Research and Management Projects 11:30-1:30

Presenters:

22. KPANOU, Gorilla habituation efforts, Mongambe, RDS
23. OTTO, MBEA, GODOBO, Wildlife monitoring, RDS
24. MARO, Commercialization of bushmeat, Ngotto, ECOFAC
25. DJANGALA, Commercial hunting, ECOFAC
26. DANGHALO, Socio-historical studies, ECOFAC

- **Lunch 1:30-2:30**
- **Dzanga Saline Visit 2:30-5:00**
- **Dinner at The Restaurant “Au petit coin du plaisir” 7:00 p.m.**

Saturday August 2

SESSION III. Future Scenarios:

Are there realistic, low cost systems for the organization and storage of data BOTH in country and in researchers' institutions of origin? What of confidentiality and/or proprietorship of data collected? What sorts of equipment and training are needed to produce skilled teams for interdisciplinary research? How can the analysis of complex systems be coordinated in C.A.R., Cameroon and Congo forest sites? A list of urgent

interdisciplinary research topics and specific objectives for their study will be produced by session participants.

III.1 National, Regional and Local Research 8-10:30

Presenters:

27. ZOWEYA, Coordinator of Natural Resource Management, PARN, Bangui
28. YAMINDOU, for DOUNGOUBE, Regional Environmental Information Project, Bangui, MEEFCPT

- **coffee break 10:30-11:00**

III.2 Modes of Scientific Research in the TriNational region

29. BLOM, RDS “Research Coordinating Committee”, RDS
30. BLAKE, Nouabalé Ndoki, Congo Research Coordinator
31. RUPP, Lobéké, Cameroon Anthropological Research at Lobeke

- **Lunch 1:00-3:00**

SESSION IV. Conclusions and Recommendations:

IV.1 Case Study Analysis of Bayanga

Remis and Hardin: Discussion of results

Analysis of contributions from scientific research to rural development; qualitative and quantitative information on the Bayanga case study

References: all authors cited below in ALLCAPS appear in the complete French version of the proceedings, available on order from Yale University Council on International and Area Studies-Sangha River Network;

Usage: we use the terms “Pygmy” and “Villager” despite their drawbacks (much discussed in the anthropological literature) for the sake of clarity in this context where multiple countries, economic sectors, and communities are described. We apologize for any offense or dissatisfaction this may cause.

These work sessions, first and foremost, allowed the participants to present themselves and their work—shall we say effect a bit of publicity? To be honest, all of us presenters seemed most content with the effects of our presence on Bayanga and its residents! So be it. Bayanga is dominated by tensions between large scale economic actors (Mpago)—tensions of a type that may have existed for as long as the area has been involved with regional and international-scale trade (ZANA). We are thus not about to

(nor able to) pronounce any sort of broad judgment about set of economic activities or another. On the contrary, we thank those representatives of rival agencies who came together to discuss their different models and strategies for Bayanga's development, and hope that our synthesis of the ensuing discussions will contribute to better ongoing dialogue.

About the numbers

We were interested in the relative impact, social and (more specifically) economic, of independent research (that is, research projects sponsored neither by the government nor the Reserve management) on development processes within Dzangha-Sangha-Ndoki. Through these meetings, we collected several different accounts in response to our interest, from several distinct points of view. We also conducted a collective, preliminary analysis of the economic benefits to employees working within (on the one hand) independent research projects at Dzanga Sangha in 1996, versus (on the other hand) those received by those working within the logging, tourism, or conservation project sectors of the same community. Our information about salaries, per-diem, taxes, and social coverage provided to employees was provided by the following individuals:

- 1) Information provided verbally and published in the complete proceedings by M. NGATOUA (Director, Projet Reserve Dzanga Sangha) and M. MPAGO (Director of Personnel, Sylvicole de Bayanga Logging Company) during the work sessions
- 2) information solicited by REMIS and HARDIN from independent researchers active in the Reserve area in 1996, concerning the number of months during which their project had functioned that year, and the expenses incurred for support and salary of employees (Doran, Hardin, Harris, Remis, pers. comm)
- 3) information from Reserve management, specifically from the pay sheets used by Reserve-employed researchers who work in the integrated research and management efforts of that Project (Blom, Klaus, Turkalo, pers. comm)

Research is not an easy phenomenon to isolate from other jobs available to Bayangans. For our purposes in this analysis, we have simply considered the data concerning projects that were active for 2 months or longer during 1996. The resulting estimates include data for three separate permanent research camps and for one team that was based in a Bayanga neighborhood. We also include, even if they are also included in the total Dzanga Reserve project employee figure of 100, at least 14 employees engaged in research subsidized by the project. An example of such research is the project on gorilla habituation for tourism at the new Mongambé site, active for 12 months in 1996. We must also note in passing that the estimates of researchers' economic contributions would have been much higher had we included salary and benefits from shorter-term research projects such as that carried out by a collection team from the

American Museum of Natural History (AMNH, New York). That group's salary contribution was estimated at over \$3,000.00 in one month by employees of the tourism complex which served as their base camp (BOGBEYATE).

Such figures raise the interpenetration of the "tourism" and "research" sectors of Bayanga's economy. A more thorough analysis would include other comparisons with the economic benefits earned by employees of the tourism sector. But the "privatization" of tourism in Dzanga Sangha (like the autonomy of research projects) is only partial. Additionally, in as much as our study was carried out during a year of major mutinies in the CAR, the tourism sector was extremely fragile, and functioned in ways that were far from typical or ideal.

We thus present figures for Doli Lodge's operations to illustrate both the problems and the potential of this enterprise within Bayanga's development landscape. The "maximum" figure is based on actual expenses during the one-month sojourn of the AMNH team (THIBEAUD—appendix 3 in full proceedings). By multiplying that figure by 12 months we obtained an idea of the figures that might have resulted from a year where adequate clients (tourists and/or researchers) permitted the Lodge to function with their complete personnel on permanent payroll. The "minimum" figure is also based on the AMNH figures, but is calculated differently. We found an average salary contribution of 4,000 cfa per visitor per day. We then multiplied that figure by the approximate number of actual visitors in the (admittedly slow) year of 1996 (THIBEAUD—*ibid*—estimates that there were 13 visitors per month x 12 months; each stayed an average of 7.45 days in Bayanga). The real economic contribution of Doli Lodge's tourism operation to Bayanga is almost certainly somewhere in between these two figures—probably close to that of independent research, for which we have more accurate information. The difficulties of 1996, and the lack of reliable, firm figures don't permit a clear estimate, however.

More qualitative considerations

But the political problems of the country in 1996 didn't seem to bother researchers so much as tourists; researchers continued to arrive, and to stay in their camps during political circumstances that provoked the cancellation and abrupt end of tourist travel to the area. This leads to a series of questions: how are researchers distinct from tourists, and from other employers in the region? According to their own vision of themselves? And according to those Bayangans who have worked and lived with a variety of expatriates? What sorts of contributions beyond salaries do they offer to Bayanga's development needs, and what are the unintended consequences of such contributions? How to compare such qualitative factors across multiple sectors of Bayanga's complex economy?

The presentations at the work sessions were full of responses to such questions, and also to even more fundamental ones. For instance: what IS sustainable development, if

it is NOT simple demographic and per-capita income increase (ZOWEYA)? We have only one starting point to offer on this topic. It is the idea (and the realities suggested by this Bayangan case study) of the development and negotiated management of human resources. Some suggest that a protected area such as Dzanga Sangha should avoid attracting any industrial scale activity, with its attendant merchants and migrant labor (BLOM). Certainly, nothing in the conservation sector can compete with the economic benefits (in this case 400 jobs) offered by an enterprise like the logging company, Sylvicole. But, from a conservationist perspective, better demographic scenarios entail lower original population in a zone, where a conservation project can then employ most of those living there (BLAKE). Whatever the size of the “base population,” (MARP team/MOGBA), the concern of employers preoccupied with sustainable development should be to provide their workers knowledge and skills that make them competent—even competitive—within a variety of evolving labor markets. In other words, foster mobility, among more ‘traditional’ and more ‘modern’ economic activities, both in their region of origin and elsewhere (for those from elsewhere will, inevitably, arrive in the home region). More specifically, in the case of Bayanga, the research projects are not all alike in their dealings with human resources. The Reserve Project has contributed significantly (largely through the Mongambé and MARP projects and their shorter-term predecessors under Project auspices) to research capacity-building for local villagers. Through actions in favor of education¹ and travel², particularly among non-Pygmy local researchers, Project-sponsored research has enabled some development of skills sets and professional mentalities among those it employs. Of those employed at the Mongambé site, for instance, two have been detached for short term research and monitoring work in other protected areas in CAR, providing them a sense of the national and regional contexts within which conservation-related research occurs (KPANOU; OTTO). In terms of the skills to raise funds, write and publish results, or interface effectively with the international scientific community, however, much remains to be achieved.

Most of the independent research projects, on the other hand, have employed primarily Pygmy personnel, with one or two local Villager residents as research camp coordinator or research assistant. On occasion, these mixed teams have served to train students from the University of Bangui, or professional trainees from the Ministry. To date independent research projects have facilitated varying degrees of research capacity among Pygmy partners. The natural history, botanical and zoological knowledge that these locals possess has been integrated into more applied studies for wildlife management, most thoroughly by research teams studying Gorillas in various sectors of the protected area. Indeed, certain Pygmy research employees, having worked for years with a succession of expatriate researchers, have considerably

1 For instance, the Russell E. Train “Education for Nature” Initiative to provide further training to African Park personnel, administered through WWF-US.

2 For instance, the MARP (or Participatory Rural Appraisal Methods) Team from the Dzanga Reserve who traveled extensively in CAR, GABON and CAMEROON

developed their capacity to control the circumstances under which they impart their knowledge of the forest to foreigners. Some are able to strongly negotiate their salaries, benefits, and status as lead trackers, trainers (WONGA), and local experts (DAKOSON), and even as Project-employed Reserve Guides, a profession formerly reserved for villagers (DIMALI). But such cases are still the exception. As a rule such forest knowledge is still undervalued and requires further attention as it shifts with the acquisition of literacy, agricultural activity, and other broad social changes being wrought within Pygmy communities as “development” activities (planned and unplanned) unfold around them. Flexible educational and professional opportunities are thus essential and may both emerge from and entail scientific research (SAMBO).

But we must note, in passing, that all the skilled “star” trackers and trainers of the research market have, throughout their careers in the Bayanga region, skillfully mined knowledge from conservation and logging work alternately—for instance, manipulation of certain machinery, some literacy, and so on. Many have worked for a time in diamond camps or the sawmill before moving into work for the tourism or research sector. Many return to logging or mining work when the international researcher/employer returns to his or her country of origin, as well. As far as a trajectory, for such locals, of increasing status and salary, we do see a certain synergy between their work for independent researchers and their ascension within the ranks of the Dzanga Reserve administration.³ In sum, the set of varied professional skills acquired by individuals through work in several sectors of Bayanga’s economy do allow certain actors to improve their work conditions over the years.

Let us note, as well, that the Sylvicole Logging company has accorded to its Pygmy employees promotions to the ranks ordinarily reserved for Villagers (for instance, driver, chainsaw operator). But those Pygmies particularly skilled and susceptible to such promotion tend to disappear rather than accept such professional ascension through the ranks (Mpago, pers. comm). So there does not seem to be any sort of permanent improvement of employee status as has been the (rather rare) case within the Projet Reserve Dzanga Sangha. Such facts perhaps only indicate the preference of certain Bayangans for a fluid set of professional tasks such as that afforded by conservation-related work. The comings and goings of researchers and tourists, and the proliferation of short and medium term research projects offers a certain flexibility. In the tourism sector where—especially in the past year or two—a dearth of tourists can mean unpredicted days off intense work without salary reductions, employees can easily find time for hunting, agriculture and other activities.

Nevertheless, we would remind our readers that advancement on a professional level can entail many risks as well as advantages, depending upon the family and social

³ Particularly within the Rural Development and Tourism sectors of the Reserve project, where Pygmy employees have seen promotions in recent years; the Conservation arm of the project—perhaps due to a more militaristic management heritage—seems less apt to advance Pygmy employees.

situation of the individual in question. The social pressures for redistribution of wealth and power is a fundamental characteristic of these central African forest societies. Consequences of increased earning power by an individual can be jealousy and suspicion within his or her larger community, and attendant costs of illness, stress, accusations of sorcery and cannot and should not be ignored by employers. This problem, well reflected in the constant conflicts resolved through both official and magico-political structures in Bayanga, merit further attention.

We raise such questions here simply to demonstrate that we are not seeking, a priori, to claim research as an ideal employment situation. We seek rather to understand how different members of Bayanga’s population maximize the employment opportunities available to them. Many are predisposed, by their history and their environment, to multiple, flexible subsistence strategies(BOGBEYATE). These lived strategies have long existed, within or alongside subtle social relations for accumulation of goods from foreigners as actual or potential employers (ZANA). As in the exploitation of their natural environment, many Bayangans seem to be sensitive to the seasonal nature of various activities. Many seek a balance between time spend in the forest (or in fishing camps on the river)and time spent in the village; they work within climate and kinship related constraints. All these factors can be examined and better understood through further research—particularly research carried out with or by locals themselves. As such a knowledge base builds, we will all find more certain answers to the more specific technical questions raised during the work sessions about, for instance, the effect of wage labor for industry on rates of poaching (MPAGO), the resistance from locals confronted with introduced management modes(BOGBEYATE), or even the basic meanings of what “rational management” means in different conservation contexts (EFOCAC team).

**Comparative Economic Benefits Paid to
Employees:
Three Sectors of the Bayanga Economy in 1996**
(Estimates are in US dollars; \$1USD= 560CFA)

Sector	Number of employees	Employee-related expenses (Salaries, taxes, per-diem and medical costs)	1996: Benefits Per-employee

Sylvicole Logging Company	404	\$371,998	\$ 921
Dzanga Reserve Project	100	\$128,988	\$ 1,290
Tourist Enterprise Doli Lodge (maximum)	24	\$ 36,107	\$ 1,504
Tourist Enterprise Doli Lodge (minimum)	Varies according to numbers of visitors	\$ 8,514	\$ 355
Independent Research	23	\$ 29,762	\$ 1,294

IV.2. Recommendations

Team Number One: planning for further meetings

(Translator/Facilitator, M. NGAIMA, Honoré)

Theme 1: What do we need to know from other countries (Gabon, other regions of Cameroon or Congo) about their experiences in environmental management? How, concretely, can we facilitate such pan-African exchange of information across countries?

Long term:

Links should be developed between Universities and Professional Agencies through:

- Short-term consultant contracts between projects and university specialists
- Development of public and private funding sources for scholarships and pan-African conferences and meetings
- Collective training in the identification and preparation of proposals for such funding sources

Note: Countries such as Mali or Benin could, eventually, serve as resources for knowledge in such domains if we could forge connections with their institutions. And what of anglophone African countries?

Short term:

In the interest of feasibility and coherence of studies, we should initially limit exchange of data and results to the three contiguous protected areas/projects already in existence in Cameroon (Lobeke), Congo (Parc National Nouabalé Ndoki) and C.A.R. (Dzanga-Sangha)

- Finance further research activities within each project
- Create, re-enforce and collaborate with independent Research Organization Committees in the three projects/countries
- Hold rotating meetings across projects/countries every 6 months (for two days)
- Coordinate the choice of software (or perhaps choose one software program for compatible data management to allow comparative analysis.
- Plan focused training sessions for transfer of knowledge and techniques from international to national personnel
- Establish a bulletin or newsletter for liaison purposes (such as “Canopee,” the newsletter that connects the ECOFAC projects operating in different countries
- Reinforce the radio communications among different sites and projects (for instance, one hour set aside on a regular basis for researchers wanting to discuss their respective or common projects)

Theme 2: What are the aspects of a common knowledge base that remain to be completed in social and natural science domains? On what research topics should we concentrate in future conferences?

Whether in natural or social sciences, we find in each project a delicate balance between the need for more participatory, “snapshot” style studies for monitoring and management purposes, and longer term data collection, often supervised by a single principal investigator.

Natural Sciences:

- Forest elephants are a common point of unity and management experience in the three countries. Closer coordination will be essential to better understand their migration among the countries, and to know their zones of seasonal population concentration
- Gorillas are a key conservation species, and must remain a priority in coordinated research and tourism-development efforts. It would be of use to know more about attempts at habituation of lowland gorillas in other sites.
- The use of GIS (Geographical Information Systems) technology will be indispensable for further studies of disturbance (both small and large-scale) in these contiguous forest areas. More training in GIS and more information about how other projects are using such technology would be ideal.
- Aerial monitoring has been of use in the Congo project, and could be better used throughout the trinational region.

Social Sciences:

Certain topics require new forms of transnational coordination. For others, more “pure” independent research can continue for thorough, “site-specific” or “mono-site” study (such as that presented by Mme. RUPP). For social science, the following topics were suggested:

- Market studies for the sale of bushmeat and illegally harvested forest products
- Transnational migrations of human populations
- Changes in property regimes in different cultural and ecological contexts
- Sustainable development efforts, better documented and defined vis à vis “uncontrolled growth” and its impacts on those who live principally by hunting and gathering. Study would include phenomena such as conflict resolution, tourism impacts, and changing local knowledge systems

- In-depth study of evolving national and international political strategies for management, and of the role of international and indigenous NGO's to evaluate their impacts on actual resource use practices

Note: with such delicate topics, it is important to conform to laws and research guidelines of each country!

Team 2: Trinational Coordination: management of information collected to date; research priorities for the Sangha region's future

(Translator/Facilitator, M. ASSOMO, Gilbert)

These recommendations dovetail with those of the first team; we offer a work calendar for discussion, for an emerging network of researchers and professionals in the field and beyond. We don't seek to impose any constraints, or artificial formulas. Rather we hope to strengthen emerging natural tendencies towards integration and interdependence, facilitating further participation by national researchers and local experts in the process of coordination scientific research in the region. For this, it seems to us essential that there be some structure like a "Research Committee" in each project/country. Such committees would

- Be composed primarily of researchers (of various types)
- Include a representative of each conservation project (or other organization active in implementation and elaboration of management plans)
- Identify at least one liaison with local communities who, if not a committee member per se, would at least serve as an intermediary for information dissemination and so forth
- Identify a liaison with private companies (tourism agencies, logging operations) who, if not a committee member per se, would at least serve as an intermediary for information dissemination and so forth
- Establish mechanisms to encourage researchers to translate and submit their reports/published results to those from the project/country who would be interested in seeing them (suggestion: a research deposit to be paid, and refunded with returned reports or spent on obtaining such results at cost for the project/country?)
- Compile, at the outset, as exhaustive a list as possible of scientific or technical research already accomplished to date in the protected area, and maintain this data base regularly
- Furnish corresponding committees in neighboring projects/countries with copies of this list/data base.

Calendar:

- August, 1997: Trinational Research and Rural Development Sessions (RRDWS), Bayanga, C.A.R.
- September, 1997: International Research Conference on the Sangha Region, Yale University, U.S.A.
- October, 1997: Trinational meetings in Bayanga, C.A.R. for coordination of bibliographies/data bases, and further management planning (LUSO/WWF/RCA)
- December, 1997: Dissemination of full (French) proceedings from Research and Rural Development work sessions (RRDWS) by Yale Council on International and Area Studies
- May, 1998: Preparation and Dissemination of summary proceedings from RRDWS in Sango and English
- June, 1998: Dissemination of French and English edited volume from Yale University Sangha River Region conference by Yale School of Forestry and Environmental Studies Bulletin Series
- September, 1998: Sangha River Network Steering Committee meeting (Yale Environment and Development work group members from Benin, Mali, Senegal and Britain to attend) at University of Orléans, France at the ORSTOM/ERMES offices
- December, 1998: Completion of trinational project and academic research bibliography (natural and social science) of works on the Sangha region (uploaded to SRN website: www.yale.edu/sangha)
- September, 1999: Sangha River Network International Conference on Transnational Resource Management in Yaoundé, Cameroon
- 2000?

Team 3: Dissemination of research results on local, regional and national levels within Central Africa

(Translator/Facilitator: M. MBALANGA, Abel)

The contribution of research to development, education and management processes: at various levels within each country, what are our propositions for better circulation and use of research results?

Local level—Bayanga, Dzanga Sangha as a case study:

- Information dissemination through village representatives within the Dzanga Sangha Reserve area. These representatives must be previously trained and

should be (if possible) accompanied and assisted by trained personnel from the Environmental Education branch of the Reserve project

- Designation of a member of the Comité du Développement de Bayanga (or CDB, a relatively new local NGO) to serve as a liaison with the Committee for Organization of Research (or COR, an autonomous body of researchers affiliated with the project)
- Designation of a member of COR who would serve as liaison with Doli Lodge and Sylvicole logging company, as well as any other private enterprises functioning in the area
- Dissemination of results (a synthesis report in Sango) from these sessions by church and community leaders
- Discussion of results (Sango and French) by school students and the initiation of an educational intervention by researchers at the Bayanga school

Regional level—the case of the Sangha Mbaére prefecture:

- Dissemination of results from these sessions and other research projects to regional education officials, as well as to representatives of the environmental ministries
- Dissemination of results through Radio Rural in Berberati
- Planning of further regional level conferences (within C.A.R.?)

National level—the C.A.R. case:

- Request that regional project directors facilitate the flow of research results to national ministries
- Request that researchers provide copies of these reports to the regional project directors
- Create a liaison with Radio Bangui, and with national newspapers for press releases about particular research efforts (several national and regional level journalists attended the work sessions, and live broadcasts over national radio were transmitted)